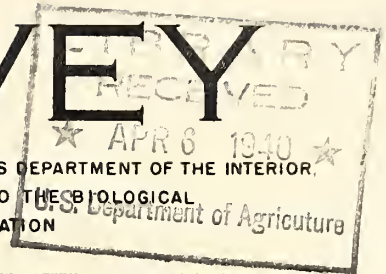


# THE SURVEY



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No. 1

## GENERAL NOTES

*M. Huddle  
Catalogue No.  
Apr. 1940*

Will Speak in Boston.--On January 27, Dr. Gabrielson will speak in Boston at a joint annual meeting of the Massachusetts Audubon Societies and the Northeastern Birdbanding Association. He will give an illustrated talk on the general work of the Biological Survey.

Midwest Conference Held.--The fifth annual meeting of the Midwest Wildlife Conference was held in the Hotel St. Paul, in St. Paul, on December 1 and 2, 1939. The program, sponsored by the Minnesota Department of Conservation, Division of Fish and Game, included Bureau of Biological Survey personnel. Ray C. Steele, superintendent of the Upper Mississippi River Wildlife and Fish Refuge, presided at the meeting of the Game Section. Albert van S. Pulling, biologist stationed at the Upper Mississippi Refuge, spoke on "The Effect of the Nine-Foot Channel Upon Waterfowl and Furbearers." At a special meeting following the banquet held on Friday, December 1, a round table discussion was held on Federal Aid activities.

Heads Wildlife Committee.--Dr. J. E. Shillinger, of the Section of Disease Control, was recently named Chairman of the Committee on Arrangements for the Technical Program of the 5th North American Wildlife Conference, which will be held in the Mayflower Hotel, Washington, D. C., on March 18, 19, and 20. Other members of the Committee are Dr. Carl P. Russell, of the National Park Service; Dr. Edward H. Graham, of the Soil Conservation Service; and Dr. Paul R. Needham, of Stanford University.

Check "Check" with Dictionary.--Authors of formal manuscripts and SURVEY notes may be interested in an exchange of letters between Biologist E. R. Kalmbach, of the Food Habits Laboratory, in Denver, and W. L. McAtee, technical advisor to the chief.

Wrote Mr. Kalmbach:

"I have noted within recent months the increasing frequency with which a certain word is being misused, not only by the public generally, but by members of the Bureau in official correspondence and even in print. I refer to the verb 'to check.' It is very likely that you are already fully aware of the misuse of this word and probably have something in manuscript to appear in some future contribution on the correct use of English in Bureau manuscripts.

"I have encountered the following usages of the word, no one of

which do I feel conforms to the correct meanings as set forth by Webster. (Webster's Collegiate Dictionary, Fifth edition, includes the following definitions of the word: As a transitive verb--'To keep a check upon; to control, test, verify, investigate, etc., by means of checks'; as an intransitive verb--'To correspond, line for line, usually with an original.' Ed.)

"To check the river for ducks. (To observe and take notes on duck concentrations.) To check data in the files. (To search files with a view of obtaining information of interest.) To check hunters. (To interview hunters and inspect, measure, or weigh their kill for the purpose of obtaining information of value in management.) To check a file for a letter. (To inspect or search a file for a letter.) To check nests. (Take and record observations at nests under study.)

"You will note from these usages that the verb 'to check' has been used with the following meanings: to consult, to make observations, to search for, to gather and abstract data, to estimate and count numbers with no implied thought of comparing or 'checking' against other data. Personally, I feel that the increasing use of the verb 'to check' is occasioned largely by carelessness and a tendency of not thinking too hard to select the proper word."

Replied Mr. McAtee:

"In reply to your letter of December 14, I am glad to have your reflections on the misuse of the word 'check.' I suppose you were stimulated in this respect by the last issue of THE SURVEY as I was. This is one of the topics that I mentioned in my first leaflet on writing for the Biological Survey in the paragraph at the bottom of page 6. I see that the meanings you have found for this general purpose word are practically all additional to those that I noted.

"It seems to me that over-working of the other terms mentioned is not so marked now as it was a few years ago."

Elected to Council.--At the regular monthly meeting of the Board of Representatives of Local No. 2, National Federation of Federal Employees, held at local headquarters on December 8, 1939, Dr. H. H. T. Jackson, a representative from the Bureau, was elected almost unanimously a member of the Executive Council.

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (December) of the Survey:

No. 102. Amendment No. 1. Field purchase orders--Vendor's invoice prescribed for use of the field service. (December 13.)

- No. 111. Amendment No. 3. Telegraph service--increased rates; Department Orders on use of telegraph. (December 26.)
- No. 118. Amendment No. 3. U. S. Government Tax Exemption Certificates--exceptions to general procedure--purchases of gasoline in States of Alabama, Georgia, Kansas, Kentucky, South Carolina, and Wisconsin. (November 30.)
- No. 296. Automobile tags and shields. (November 28.)
- No. 297. Over-printing of Standard Voucher Forms Nos. 1034 and 1034a. (December 9.)
- No. 298. Interpretation and application of the Hatch Law. (December 11.)
- No. 299. Supersedes No. 255. Submission of annual inventory. (December 16.)
- No. 300. Duplicating work--field processing of documents and maps. (December 21.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 22. Amendment No. 1. Reports of purchases of cement no longer required. (December 13.)
- No. 89. Supplement No. 2c. Contracts for service-station deliveries of gasoline and lubricating oil for the period July 1, 1939, to June 30, 1940, inclusive. (December 28.)
- No. 115. Changes in Procurement Division contracts. (November 28.)
- No. 116. Changes in Procurement Division contracts. (December 15.)
- No. 117. Contracts for the procurement of floor coverings for the period October 1, 1939, to September 30, 1940 (Class 27, Supplement No. 1). (December 6.)
- No. 118. Contract for the procurement of chair cushions (Class 34). (December 6.)
- No. 119. Supersedes No. 70 dated January 16, 1939. Mandatory contracts for the procurement of stationery, paper and paper articles and drafting-room supplies. (Class 53). (December 13.)
- No. 120. Contracts for the procurement of paints and paint ingredients (Class 52). (December 28.)
- No. 121. Supersedes No. 66 dated December 30, 1938. Mandatory contracts for the procurement of books (Class 35). (January 6.)
- No. 122. Contracts for the procurement of first aid kits and refills therefor (Class 57). (January 6.)

The following memoranda to field officers have been issued in the "Boat Maintenance Memoranda" series:

- No. 12. Revised. Instructions for executing semi-annual report on Government-owned motorboats. (December 13.)



## PUBLIC RELATIONS

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Report of the Chief of the Bureau of Biological Survey, 1939. By Dr. Ira N. Gabrielson. Annual Report, 75 pp. December 20, 1939. Received December 14, 1939.
- Protecting field crops from waterfowl damage by means of reflectors and revolving beacons. By F. M. Uhler, Biologist, Section of Food Habits, Division of Wildlife Research, and Stephen Creech, Game Management Agent, Division of Game Management. Wildlife Leaflet BS-149, 5 pp., illus. November 1939. Received January 10.
- Hart Mountain Antelope Refuge. By Stanley G. Jewett, Biologist, Division of Wildlife Refuges. Miscellaneous Publication No. 355, 25 pp., illus. June 1939. Received January 11.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Birds help us trace flights with leg band. In "Current Conservation" (clip sheet), Vol. II, No. 6, September 1939.
- Dual deaths duel's end. In "Current Conservation" (clip sheet), Vol. II, No. 6, September 1939.
- Ducks fly gold from Frisco Fair. In "Current Conservation" (clip sheet), Vol. II, No. 6, September 1939.
- Doctors rush aid to wildlife patients with portable labs. In "Current Conservation" (clip sheet), Vol. II, No. 7, October 1939.
- Survey officials preview the new duck stamps. In "Current Conservation" (clip sheet), Vol. II, No. 7, October 1939.
- New rules set for wildfowl hunts in 1939. In "Current Conservation" (clip sheet), Vol. II, No. 7, October 1939.
- Skunks prove aid to Iowa farmers U. S. Survey shows. In "Current Conservation" (clip sheet), Vol. II, No. 7, October 1939.
- Snakes to spare lose duck-egg fare in trap. In "Current Conservation" (clip sheet), Vol. II, No. 7, October 1939.
- Birds secure better haven. In "Current Conservation" (clip sheet), Vol. II, No. 8, November 1939.
- Dry land one week lake the next is sight in desert. In "Current Conservation" (clip sheet), Vol. II, No. 8, November 1939.
- Birds migrate south as guns greet flights. In "Current Conservation" (clip sheet), Vol. II, No. 8, November 1939.
- Leg band no long time meal ticket, birds should know. In "Current Conservation" (clip sheet), Vol. II, No. 9, December 1939.
- U. S. host for travelers on major flyways. In "Current Conservation" (clip sheet), Vol. II, No. 9, December 1939.
- Solve mystery death puzzle in bird conservation research. In "Current Conservation" (clip sheet), Vol. II, No. 9, December 1939.



- Western "varmits" worry East as coyotes roam new regions. In "Current Conservation" (clip sheet), Vol. II, No. 9, December 1939.
- Measure bird span of life. In "Current Conservation" (clip sheet), Vol. II, No. 10, January 1940.
- Laws enforced hunters learn. In "Current Conservation" (clip sheet), Vol. II, No. 10, January 1940.
- Hare-raising tale of new-style homes on Pacific Coast. In "Current Conservation" (clip sheet) Vol. II, No. 10, January 1940.
- States make game study. In "Current Conservation" (clip sheet), Vol. II, No. 10, January 1940.
- Ducks eat smallest plant. In "Current Conservation" (clip sheet) Vol. II, No. 10, January 1940.
- Fined for shipping 4 illegal beaver skins. Press Statement P. N. 85303. Released December 14.
- Texas longhorns on Federal areas recall frontier days. Press Statement P.N. 85397. Released December 18.
- Biological Survey reports highlights of year's conservation activities. (Fiscal year ended June 30, 1939.) Department of Agriculture Press Statement 1114-40. Released December 20.
- Rabbits good food, fine fur, Survey says. Press Statement P.N. 86430. Released December 27.
- Pacific Coast duck bootleggers caught in Biological Survey dragnet. Press Statement P. N. 86791. Released January 2, 1940.
- Three duck hunters pay stiff fines in Lone Star State courts. Press Statement P. N. 86957. Released January 3.
- Six bootleggers caught as West Coast drive continues. Press Statement P. N. 87845. Released January 11.
- Eat cactus spines; seem to like them. Press Statement P. N. 87822. Released January 15.

Outside Publications.---Articles by members of the Survey appearing in outside publications have been reported as follows:

- Bassett, C. F. Humane method of killing foxes. Amer. Fur Breeder 12 (5): 28, 29, illus. Nov. 1939. Also in Black Fox Mag. 23 (7): 11, 24, illus. Nov. 1939; Nat. Fur News p. 6, illus. Nov. 1939; Canadian Silver Fox and Fur 5 (11): 8, illus. Nov. 1939.
- Dykstra, W. W. Field mice often destructive to stored cranberries. Cranberries. Nov. 1939.
- Gabrielson, I. N. Land use considers wildlife. U. S. Dept. Agr. Ext. Serv. Rev. 10: 163. Nov. 1939.
- Imler, R. H., and McMurry, F. B. Sex ratio of crows wintering in Oklahoma. Wilson Bull. 51: 244. Dec. 1939.
- Kellogg, C. E. Fox whelping dates and pelt values. Nat. Fur News pp. 9, 20, illus. Dec. 1939. Also in Canadian Silver Fox and Fur 5 (3): 12-13, illus. Nov. 1939; Black Fox Mag. 23 (8): 11, 27, illus. Dec. 1939.

- McAtee, W. L. Unorthodox thoughts on migration. Auk 57: 135-136. Jan. 1940.
- Reynold Bray (obituary). Auk 57: 139-140. Jan. 1940.
- Neff, J. A. Procedure and methods in controlling birds injurious to crops in California: Part 3, Formulas. California State Dept. Agr. 55 pp. Nov. 28, 1939. (Mimeographed).
- Peters, H. S. Young great white heron and Wurdemann's heron in the same nest. Auk 57: 105. Jan. 1940.
- Black ducks nesting in tree holes. Auk 57: 106-107. Jan. 1940.
- The winnowing note of Wilson's snipe. Auk 57: 111. Jan. 1940.
- Scott, T. G. Progress report of the Iowa Cooperative Wildlife Research Unit October 1935-October 1939. Amer. Wildlife 28: 271-281, illus. Nov./Dec. 1939.
- (with G. O. Hendrickson, junior author). Iowa's wildlife is increasing. Farm Sci. Reporter. 1(1): 1-3, illus. Jan. 1940.
- Sheldon, H. P. Guns and game. Country Life 76(4): 52. Aug. 1939.
- Guns and game. Country Life 76 (5): 58. Sept. 1939.
- Templeton, G. S. Length of gestation period in domestic rabbits. Small Stock Mag. 23 (11): 3. Nov. 1939. Also in Western Rabbit World, p.7. November 1939.
- Young, S. P. Black boots of the prairie. Amer. Forests 46 (1): 16-18, illus. Jan. 1940.

## WILDLIFE RESEARCH

Will Visit Southern Areas.--Leo K. Couch, assistant chief of the Division, will leave Washington on February 18 for a month's trip through the South, where he will meet Bureau and other officials and will inspect various areas. Mr. Couch will arrive in Charleston on February 19 and will meet with Harold L. Blakey, engaged in native game-bird research in the southeastern States. After 3 days in Charleston inspecting field studies there, Mr. Couch will go to Atlanta for a conference with Regional Director James Silver on February 22. Later in the day he will continue to Auburn, Ala., where the Alabama Cooperative Wildlife Research Unit is stationed. On the 23rd, a conference will be held with Dr. Allen M. Pearson, unit leader, and the administrative committee. Following inspections of field work, Mr. Couch will go to Gulfport, Miss., on February 26 to meet with Regional Director Roy Moore and staff officials of the Southern Forest Experiment Station. Three days will be spent in the field with Thomas D. Burleigh, in charge of forest fauna research work in that area. On March 1, 2, and 3, Mr. Couch will inspect the Delta Migratory Waterfowl Refuge with John J. Lynch. On March 4, he will go to College Station, Tex., where he will confer with Dr. Walter P. Taylor, leader of the Texas Wildlife Cooperative Research Unit; with Dr. W. B. Davis; William Tucker, Secretary of the Texas Game, Fish and Oyster Commission; and other college cooperators. After 5 days in the field with Dr. Taylor, he returns to Washington on March 10.

Good Season for Antelope Hunters in Oregon.--During the recent open season on antelopes in Oregon 275 hunters, who had been issued special licenses, killed 236 antelopes. According to Arthur S. Einarsen, leader of the Oregon Cooperative Wildlife Research Unit, who compiled the data, this again places hunters' success above 80 percent--a figure too high for general hunting returns but suitable under a controlled-cropping program. Since the majority of the kill was in the area of heaviest concentration, the results were satisfactory, Mr. Einarsen said. Heavy rains in the adobe deserts of Harney and Malheur Counties precluded any extensive hunting in that range. Next year new areas will probably be opened to hunting.

Weigh Deer.--Last November employees of the Utah Cooperative Wildlife Research Unit made a study of the antlerless mule deer taken by hunters and reported at one of the 5 so-called "checking" stations operated by the unit. Dr. D. Irvin Rasmussen, unit leader, reports that accurate weights were taken of 80 percent of the 1,176 bucks and 751 antlerless mule deer recorded at the stations. Antler measurements were taken on nearly 100 percent of the bucks. Average weights (hog dressed) from the Logan Providence and Green Canyon stations are as follows: Bucks, 141.80 pounds; does, 102.75; male fawns, 55.05; and female fawns 49.08 pounds.

Nine deer that had been eartagged in 1939, and two that had been eartagged near Logan in the spring of 1937 were killed. Ten of these deer were killed in the Logan River drainage area. The eleventh was taken 11 miles north of the Idaho line and was approximately 35 miles from the tagging station.

#### Wildlife Surveys

Addresses Sorority.--On December 12, 1939, Stanley P. Young spoke to the Washington Alumni Chapter of the National Collegiate Sorority of Kappa Alpha Theta. He discussed conservation projects of the Biological Survey and the mechanics of photographing wild animal life.

Unusual Specimen Donated.--An unusually rich reddish-colored specimen of flag-tailed deer (Odocoileus couesi) was collected by Helen Gambrell in the Tumacacori Mountains, 12 miles southeast of Ruby, Ariz., in October 1939 and was presented to the Biological Survey collection by A. A. Nichol, of Tucson. Because of its rather unusual color this specimen is of considerable interest, Dr. H. H. T. Jackson said. At first it was suggested that the deer might be a Mexican species previously unknown to occur in the United States, but examination showed the animal to be in the range of individual variation of O. couesi.



Collects Quail Stomachs.--During the recent quail-hunting season in Oklahoma more than 300 quail stomachs, which will be utilized by the Section of Food Habits in its studies of this species, were collected by Frank B. McMurry, stationed at the Wichita Mountains Wildlife Refuge laboratory. He obtained many of the stomachs from sportsmen.

Antelope Herd Stays Together.--Charles H. Rouse, of the Wichita Refuge laboratory, recently reported that the 13 animals in the antelope herd were staying together and all animals appeared in good condition. No losses occurred during the past 4 months, he said. A large buck in the herd had already shed one horn by November 5 but was retaining the other. With the removal of the fence on the north buffalo pasture, it will probably be more difficult to find the antelopes, as they will be free to roam the entire north part of the refuge. According to latest reports, the herd has not left its customary range in the northwest part of the pasture.

Visits Field Laboratories.--Dr. Jean M. Linsdale, of the Museum of Vertebrate Zoology, University of California, Berkeley, visited the Wichita Refuge laboratory on November 21 to confer with Mr. Rouse and Mr. McMurry. During the month Dr. Linsdale also visited Dr. William H. Long, research agent at Cornell University, and inspected the animal physiology research work conducted by Dr. Long.

May Improve Island for Geese.--Dr. Victor B. Scheffer recently submitted to the director of the University of Washington Arboretum a plan of procedure for creating conditions attractive to geese. The area concerned is a 7-acre island on Lake Washington.

Visit Mammal Laboratories.--The following persons recently visited the mammal laboratories:

Ernest Thompson Seton from Seton Village, Santa Fe, N.Mex., visited the mammal laboratory on December 4.

Earl Poole, director of the Reading Public Museum and Library, Reading, Pa., conferred with Dr. H. H. T. Jackson and A. H. Howell on December 29 regarding mammal identifications.

Dr. George M. Sutton, of Cornell University, worked with T. D. Burleigh in the bird laboratory from December 28 to January 1 identifying Mexican birds.

A. A. Grorud, legal advisor of the Senate Committee on Indian Affairs, conferred with S. P. Young on January 4.

Miss Olive L. Bown, of the Carnegie Museum, Pittsburgh, conferred with A. H. Howell and studied Florida flying squirrels on January 8.

A. M. Creighton, of Harvard University, visited the mammal laboratory on January 6, and was shown the collection. He conferred with Major E. A. Goldman.

Ivan R. Tomkins, of the U. S. Dredge "Wolatka," Savannah, conferred with A. H. Howell and T. D. Burleigh on January 9.

#### Food Habits Research

Fifteenth Annual Christmas Bird Census Made.--On December 22, Dr. Gabrielson, Dr. Clarence Cottam, A. L. Nelson, and A. C. Martin made the annual bird census at Port Tobacco. This was the 15th consecutive Christmas bird census made in this area to record the trend of bird populations. Fifty-two species of birds were recorded. In the 1938 census 58 species were recorded. Fewer species and a smaller number of waterfowl were noted in 1939 than in previous years. This undoubtedly was due in part to the exceedingly strong winds that prevailed, Mr. Nelson said. Wind velocity ranged from 14 to 36 miles an hour.

Visits Cooper-Santee Area.--Dr. Cottam spent several days during December in Charleston and vicinity conferring with officials of Federal agencies interested in the Cooper-Santee project, and also with officials of the South Carolina Public Service Authority, for the purpose of recommending procedures that would assist them to gain the maximum wildlife value from this important area. Dr. Cottam also inspected developmental work both at the Cape Romain and the Savannah River refuges.

Peccary Eats Cactus Spines.--Peccaries on the Aransas Wildlife Refuge, Tex., were recently observed eating not only the pulpy flesh of prickly pears but also the spines on the plant. Dr. Cottam, who observed the feeding habits of these animals, examined the stomach of a peccary that had been feeding on the area. He found that the stomach contents consisted in large part of prickly pear (Opuntia sp.) and other cacti. He also found many spines in the lining of the stomach wall. Refuge Manager James O. Stevenson stated that the peccary seems to relish Opuntia fruits and leaves above any other type of vegetation during the summer months. Apparently the animal does not mind the spines of the pear leaves and often uses its mouth to push the leaves loose from their base.

Horned Larks Damage Lettuce Crops.--A band of approximately 500 horned larks was reported destroying seedling lettuce fields near Sacramento during November. On November 28, in response to an urgent request, Johnson A. Neff, biologist of the Food Habits Section, investigated the complaints. The loss was estimated at approximately 75 percent. Methods for control were outlined.

Mild Weather Keeps Birds Away.--Reports of relief from deprecations by band-tailed pigeons in certain sections of the Sierra foothills have been noted by Mr. Neff. Judging from the verbal reports Mr. Neff has received from various sources, migration from the north was delayed by the mild, dry autumn, and the birds remained at very high elevations in the Sierra range.

Armadillo Studies Progressing.--A report recently received from Denver indicates the progress that has been made on a long-standing project on the food habits of the armadillo. The nature and volume of the stomach contents of armadillos are such that a great deal more time than is usually needed in making stomach analyses is required to complete these examinations. For this reason the project has been moving along slowly. A total of 163 stomachs has been examined, and 108 remain to be studied. In this work, however, it is planned to examine critically only some of the remaining stomachs. The others will be examined superficially with attention being paid to controversial items. December, January, and February are still rather poorly represented, and a limited quantity of additional stomach material for these months is acceptable.

Photograph Waterfowl From Planes.--Biologist Larry Saylor and Cartographic Engineer Mel Kennedy, of the Division of Aerial Photography of the Soil Conservation Service, spent several days early in December flying over various areas of the central Atlantic Coast photographing concentrations of waterfowl. A large number of rafted waterfowl were sighted on the nearby Bush River area of the Aberdeen proving grounds. Permission was obtained to fly over the proving grounds, and large numbers of coots, ducks, and small flocks of Canada and snow geese were seen. On a 7-hour flight up the Delaware River to Trenton, then northeast to New York City, and down the coast to Cape May, N.J., few waterfowl of any kind were seen. In all probability this was due to the high winds of the previous day (at times wind velocity exceeded 60 miles an hour), forcing the birds to move further inland to less exposed resting and feeding grounds. Following the flight, Mr. Saylor returned to the Bombay Hook Refuge, Del., for several days. He studied one flock of 3,700 snow geese at very close range. The birds were feeding on Spartina patens and Distichlis spicata grasses in addition to the usual Spartina alterniflora. Eighteen blue geese were observed among this one flock of snow geese. After mapping the vegetation on a large area of marshland, it was burned to test the attractiveness of burned areas to snow geese.



Drought Conditions Affect Waterfowl Surveys.--Because of unusually dry conditions in southwestern Louisiana many commercial hunting clubs have ceased operations, according to a recent report from John J. Lynch, biologist at the Delta Migratory Waterfowl Refuge. Since the clubs have been depended upon to furnish bag data and stomach material, duck studies have been handicapped. The drought, however, afforded an opportunity to study waterfowl under unusual conditions. Abnormal movements and concentrations were carefully recorded and observations made on the refuge, where high tides provided ideal waterfowl conditions despite the drought.

Marsh Management Studies on the Gulf Coast.--Studies on the ecology of the marshes of the Sabine Migratory Waterfowl Refuge, La., indicate, says Mr. Lynch, that high tides in canals can, through seepage, completely offset drought conditions in the marshes and that provision for ingress of sea water into the marshes of the refuge at certain periods is essential. Further data were obtained on the relation of burning to plant successions.

Visits Cooperators in Southwestern States.--Charles C. Sperry, biologist, visited New Mexico, Oklahoma, and Texas, from November 5 to 23, to further a program to increase the number of bobcat stomachs collected in these States. Studies being made on certain game areas, particularly the Wichita Mountains Wildlife Refuge, Okla., and the King Ranch in Texas, also attracted his attention. Enroute, he spent several days in the vicinity of Portales and Roswell, N. Mex., studying the activities of sandhill cranes. He also conferred with New Mexico Game Department officials regarding the control of mergansers on heavily stocked fish areas.

Value of Grazing Experiments Observed.--Grazing practices on the Malheur Migratory Waterfowl Refuge, Oreg., promise to yield some interesting and valuable data during the coming year, according to Biologist Clarence A. Sooter. Very dry weather during the year caused a shortage of range forage elsewhere, and there has been a heavy demand for the forage on the refuge. As a result, all available areas have been leased by stockmen. Mr. Sooter stated that grazing and mowing in the Blitzen River valley portion of the sanctuary have already shown some results in the way of goose foraging places. On several occasions small bunches of Canada geese have been noted feeding on meadows exposed by grazing and mowing last season. Grazing may also help somewhat to open the dense stands of Scirpus acutus in parts of the refuge. Some of these stands are too dense to be very attractive to nesting ducks and geese, Mr. Sooter said, for should these birds nest in these areas (and a considerable number of geese do nest there) it would be difficult for the parent birds to take the young out to the open without losing the majority of them.

Crustaceans Provide Winter Diet for Waterfowl.--Mr. Sooter has noted on several occasions shovelers, mallards, and green-winged teals feeding in the deeper water of Boca Lake in the Blitzen Valley, Oreg., where no submerged vegetation exists. The birds were also seen in a part of the lake where it would be impossible for them to reach bottom in their customary manner of feeding. Examination of the water revealed numerous small crustaceans (Amphipoda) upon which they were apparently feeding.

#### Distribution and Migration of Birds

Activities of Flyway Biologists.--Harold S. Peters, the Atlantic Flyway biologist, in December visited Tallahassee, Fla., Panama City, and the St. Marks Refuge, in connection with his waterfowl investigations. C. E. Gillham, the Mississippi Flyway biologist, submitted his report on Canadian investigations conducted last summer. He reported "bluebird" weather in Illinois in December, with a poor shooting season. On December 11, he addressed Principia College and now is making plans to band woodcocks in Louisiana next spring.

Dr. George B. Saunders, the Central Flyway biologist, has also submitted his report on last summer's Canadian investigations and is arranging to begin his work in Tamaulipas, Mexico. Luther J. Goldman, the Pacific Flyway biologist, delayed his departure for the southwest coast of Mexico because of evidence of poor duck abundance, and is conducting observations over some of the best of the southern tableland. He states that the situation is unusual. It has been dry over the tableland, but the duck population in Jalisco is about average. Geese and cranes appear to be in comparatively good status, but for the first time since 1935 he cannot see evidence of progressive improvement in the duck population. He adds that the same was true of California up to November 1, but he will defer judgment until the end of the season.

Visits Chautauqua Refuge.--Robert C. McClanshan visited the Chautauqua Migratory Waterfowl Refuge, Ill., from December 10 to 20. While there he assisted in the banding of about 400 ducks. In Chicago he visited William A. Bond, who has a collection of hunting records from 1883 to 1934. Extracts for Biological Survey files were taken from these records. Mr. McClanshan visited the banding station of Carleton A. Beckhart, near Chicago, and also observed operations at the banding station of Christian J. Goetz at the Duck Island Club in Fulton County. Before leaving Chicago he also visited Jim White, a cooperater of the Bureau and Van G. Kirk.

Sixth Inventory Underway.--During January the sixth annual migratory waterfowl inventory was taken throughout the country. As in previous years planes and blimps were available through the cooperation of the War Department, the Navy Department, and a commercial

tire company. A summary of the inventory will appear in a future issue of THE SURVEY. Although vacationing in Florida, Frederick C. Lincoln joined in the inventory, flying over Lake Okeechobee and the Everglades in a blimp.

In Washington on January 17, W. E. Crouch, Arnold L. Nelson, and Mr. McClanahan flew down the Potomac to Port Tobacco, Md. Nine species of ducks as well as coots, swans, and Canada geese were noted.

Interesting Return from Banded Sparrow.--A White-crowned sparrow, No. 138-3061, banded May 14, 1938, at Penn Yan, N.Y., was recovered November 24, 1939, at Buckholts, Tex.

#### Fur Resources

Confer with Cooperators.--Frank G. Ashbrook and Chas. E. Kellogg recently conferred with Thomas M. Huff, an examiner of the Federal Trade Commission, regarding cooperative assistance in making certain investigations.

Mr. Ashbrook and Mr. Kellogg also attended a conference in the office of Wm. E. Higman, assistant chief counsel, Bureau of Customs, where discussions were held on the establishment of a commercial designation for platina, or platinum, foxes. The Bureau of Customs considered whether this type of fox is subject to the 35 percent tariff duty that is collected on imported silver fox skins. A group of American silver fox breeders presented their objections to permitting this type of fox to be imported without duty. Representatives from Norway were also present at the meeting.

Mounts Fibers.-- Dr. Thora M. Plitt, microanalyst conducting fur-animal fiber investigations, recently reported that a modification of the method of obtaining impressions of thick fibers was developed, because such fibers were crushed under the original procedure. The different types of fibers coming out of a single follicle of silver fox and mink skins were dissected, mounted, and photographed for study.

Delegates Visit Rabbit Station.--Twenty-one out-of-state delegates to the Annual National Meeting and Show of the American Rabbit and Cavy Breeders Association, which was held at Pasadena, Calif., visited the U. S. Rabbit Experiment Station at Fontana, Calif., on November 30. Very keen interest was shown in the research work at the station. That night George S. Templeton, director of the station, addressed the convention.

Kudzu Roots Planted.--Dr. Herbert L. Dozier, director, U. S. Fur Animal Field Station, Cambridge, Md., planted 25 crowns and



roots of kudzu-vine on the eastern shore of Maryland during November. The plantings were made to determine the value of this high protein feed in the feeding of nutria and muskrats kept in the experimental pens at the station. The advantage of this type of plant is that it will furnish green foliage from spring until frost. Cuttings were supplied by W. H. Mann, of the Soil Conservation Service Nursery, Chatham, Va.

Litter of Nutria Born.--A nutria recently gave birth to a litter of five young, Dr. Dozier reports. This is the second litter of nutria produced at the field station. Dr. Dozier was said to be elated over the rapidly developing colony under his care.

Attends Project Leaders' Conference.--Dr. Dozier attended the conference of project leaders of Region 7 held at the Mattamuskeet Lodge, New Holland, N. C. He also visited the Back Bay Refuge, Va., on November 1.

Visits Fur Animal Station.--Dr. S. E. Smith, in charge of the fur-animal nutritional studies being conducted in cooperation with Cornell University, and Richard Bernard, of Cornell University, visited the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., on November 20 to collect blood samples and leg bones from normal minks and foxes. They will attempt to establish normal values to which comparison can be made with animals undergoing experimental study. Bone ash was determined on a few minks, and serum calcium on 15 minks and 8 foxes. A few mink thyroid glands were removed and fixed for histological study.

Class Visits Fur-Animal Station.--On November 13 a class of 30 girls from Skidmore College, of Saratoga Springs, visited the Fur Animal Station to obtain firsthand information on the experimental work being done there.

Addresses Civic Club.--On November 14 Charles F. Bassett, director of the Fur Animal Station, gave an informal talk on "The Romance of Furs" before the Women's Civic Group at Whitehall, N. Y.

Spends Week at Swarthmore.--Biologist James R. Leekley, of the Fur Animal Station, spent November 27 to December 2 with Dr. Robert K. Enders, at Swarthmore College, to learn the technique of preparing slides and the proper methods of interpreting data found on the slides made from fox vixens during the breeding season. Mr. Leekley also reviewed the data collected by Dr. Enders from the martens at the fur farm during the breeding season last summer.

#### Disease Control

Deer Parasites Cause Loss.--Dr. J. E. Shillinger made a special study between December 6 and 23 of several parasitic conditions affecting deer in the southeastern States. Screw-worms, the

larvae of the fly Cochliomyia americana, a common pest of domestic stock in warm countries, has also become destructive to deer. Since this parasite deposits its eggs in open wounds in live animals, and the larvae hatch within a few hours, considerable damage is done to the host within a short time by the toxic and mechanical action of these worms, or larvae. It is evident, said Dr. Shillinger, that the wounds made by ticks form the usual portal of entry for the screw worm in wild animals, and hence the control of screw worms in deer appears to resolve itself largely into one of tick eradication on the deer range.

Studies Ticks in Florida.--Another problem studied by Dr. Shillinger was that of the cattle-fever tick in southern Florida, where deer are infested with the tropical variety of this fever-carrying parasite. By disinfecting cattle and eliminating deer where necessary, this pest has been eliminated from all of Florida except two counties. The Seminole Indian Reservation in Hendry County presented a problem in the completion of this program since the Indians depend largely on venison for their supply of meat.

#### FEDERAL AID IN WILDLIFE RESTORATION

Inaugurates Statewide Survey.--The Arizona Fish and Game Department received approval on January 3 to use Federal Aid funds for a statewide wildlife-resource survey. As outlined in the program, the State will be divided into ecological districts and an assistant wildlife technician will be assigned to each. A. A. Nichol has been selected as leader of the project to direct and correlate the work of the district assistants. An inventory of the principal game and fur-animal species will be made to determine their present distribution and relative abundance. At the same time studies will be made to determine what measures are necessary to improve and extend the present range of important game and fur-animal species of the State. As the work on this project progresses, recommendations will be made to the State Game Commission as to management practices and procedures on which to base future Federal Aid development and land acquisition projects.

The University of Arizona, Arizona Agricultural Extension Service, Arizona State Planning Board, Arizona Game Protective Association, Arizona Wildlife Federation, Arizona State Cattle Growers' Association, Arizona Wool Growers' Association, U. S. Soil Conservation Service, U. S. Forest Service, U. S. Grazing Service, U. S. Indian Service, and National Youth Administration have all expressed their willingness to cooperate with the Fish and Game Department.

Increase Deer Range in Colorado.--Some 640 acres lying along the upper reaches of Cathedral Creek will be added to the Cathedral Creek Deer Winter Range in Colorado as part of a Federal Aid project designed to benefit the animals in Rio Blanco County, one of the best deer producing areas in the State. The purchase was approved by the Biological Survey on December 26, 1939. Although abundant summer range is available, the severe winters cause deer to concentrate in the stream valleys where emergency winter feeding is often necessary. The purchase of the first 640 acres at the confluence of Cathedral and Willow Creeks was approved on July 18, 1939. To complete its deer program, Colorado plans additional acquisitions from time to time as the lands become available for purchase at reasonable prices.

Connecticut Develops Sanctuary.--The Scovill Wildlife Sanctuary, which was acquired as a gift by the Connecticut State Board of Fisheries and Game some time ago, has not been developed to protect and increase wildlife on the area, because the Department did not have sufficient funds for this work. On December 14, 1939, the Survey approved a Federal Aid project to accomplish the developments needed. The tract will be fenced, posted, and planted with cover and food-bearing trees and shrubs, and will benefit ring-necked pheasants, ruffed grouse, rabbits, and song birds. The refuge is within the Watertown regulated shooting area and is well located to serve, after development, as an excellent seed stock refuge.

Illinois Purchases Refuge.--The Illinois State Department of Conservation received approval on December 29 to use Federal Aid funds for the purchase of 1,129 acres of land in Lee County as a waterfowl and upland-game refuge. The area under consideration contains numerous potholes and marshy spots, making it a desirable area for waterfowl, prairie chickens, fur-animals, and other forms of wildlife. Future plans call for development of the area as a waterfowl refuge and gamemanagement research station. The boundaries will be fenced, an administration building constructed, and a series of small impoundments made. The research program will include experiments in game management. The project is the first segment of a land-acquisition program planned for the locality.

Kentucky Develops Flatwoods.--The Kentucky Fish and Game Department proposed the use of Federal Aid funds to defray the cost of drilling one deep and four shallow wells on the Flatwoods Wildlife Restoration Unit in Pike County. The project was approved on December 28. A Civilian Conservation Corps camp has been assigned to this area to develop habitat for deer, wild turkeys, ruffed grouse, and fur animals.



Investigate Ring-necks.--The Massachusetts Department of Conservation will use Federal Aid in Wildlife Restoration funds to investigate pheasant management in that State. Information gained by the investigation, which was approved December 7, will be used to determine the possibilities of the pheasant as a game bird and of a system of management adaptable to the conditions prevalent in Massachusetts. Willet N. Wandell, a graduate of the University of Wisconsin, who has had experience in wildlife management in Massachusetts, Michigan, and Tennessee has been named as project leader. He will be stationed at Massachusetts State College and will cooperate with the Department of Wildlife Management of that institution.

According to reports, the ring-necked pheasant has been stocked in Massachusetts for the past 25 years. Despite this activity, however, the kill has apparently shown a steady and consistent drop. Under present plans, an experimental area will be set aside so that controlled hunting can be practiced and the value of food and cover plants demonstrated. Ultimately the investigations will include the bobwhite quail, cottontail rabbit, and other farm game species.

Improve Forest.--On December 7 the Biological Survey approved a Federal Aid project to improve winter conditions for deer in the Myles Standish State Forest, which is said to be in the best deer range in the eastern half of Massachusetts. The State Department of Conservation proposes to improve the area by release cuttings designed to favor desirable food species and by supplemental plantings of preferred deer foods. Information dealing with deer concentrations, food habits, and designation of potential locations in the forest for future improvement will be compiled and used as the basis for future management activities. The forest embraces 11,000 acres, half of which are maintained as a wildlife sanctuary. While there is ample food on the area during the summer, the supply becomes seriously depleted during the winter months, partly because the deer concentrate in the area during the open hunting season.

Revise Missouri Program.--The Missouri Conservation Commission has revised its original Federal Aid in Wildlife Restoration program, and under a new project, approved December 12, certain areas will be set aside as proving grounds where tests will be conducted to determine procedures and practices that can be recommended for general use. The new project retains the essential features of the original proposal but involves less expenditure of funds and will release money for development and acquisition projects, the need of which was brought to light by the original program.

The objectives of the original proposal, to map the past and present status of the principal wildlife species and to determine the potentialities of expanding existing ranges, have been largely accomplished. The University of Missouri, the U. S. Forest Service, the U. S. Soil Conservation Service, the Civilian Conservation Corps, the State Park Board, the Agricultural Adjustment Administration, and the Missouri School of Mines have been named as co-operators on the project.

Lease Lands to Protect Crops.--During certain seasons deer inflict considerable damage to truck gardens, orchards, blueberry fields, and cranberry bogs in Atlantic County, N. J. Since the animals follow rather definite routes to and from the fields, the New Jersey Game and Fish Commission, by leasing and planting appropriate food on small areas of nonagricultural land adjacent to these travel lanes, hopes to deflect the deer from the agricultural lands. Twenty tracts throughout the county have been leased for 5 years under a Federal Aid project approved December 19. The areas will be closed to hunting for that period. As part of an approved development project, a tractor-drawn brush cutter will be utilized to remove existing cover, a necessary preliminary to the preparation of the soil for the planting of crops. Beside furnishing deer food and deflecting the animals from agricultural crops, the plots will benefit quails, rabbits, and grouse.

Acquire Areas for Prairie Chickens.--Sportsmen and biologists are agreed that destruction of natural habitat is largely responsible for the disappearance of the lesser prairie chicken from most of its former range and that if the disturbance continues at its present rate the species will probably disappear. In an effort to counteract this situation the New Mexico Department of Game and Fish proposed the acquisition of two areas in Roosevelt County as upland game bird refuges. The project was approved on January 4.

The first tract comprising 1,280 acres of grass and brush land has been subjected to heavy grazing that has created unfavorable conditions for lesser prairie chickens, scaled quails, and bobwhite quails that frequent the region. A drilled well on the property will furnish a nucleus about which the department plans to develop the area. The second proposed acquisition includes 1,275 acres of abandoned farm land adjacent to 640 acres of State-owned land to be included in the refuge. The old farm is at present subject to severe wind erosion. An effort will be made to control this by fencing the area against grazing and planting it to grass and brush to provide food and cover for wildlife.

Investigates Fur Trade.--Federal Aid in Wildlife Restoration funds will be used by the Division of Game and Inland Fisheries of the North Carolina Department of Conservation and Development to conduct an investigation to ascertain the status of fur animals and to determine means by which the returns from this important source of revenue can be increased. The project was approved December 26. Information will be gathered on the methods employed by trappers in taking, handling, and marketing pelts; location of markets; effects of present open seasons on the fur supply; and on the distribution of fur animals within the State.

Areas from which fur animals have been extirpated will be restocked, and the best methods of handling and marketing pelts

will be demonstrated so the fur crop will bring greater returns to trappers. An eastern county will be selected for preliminary investigations, and later the survey will be extended to other parts of the State. Local trappers, fur buyers, and sportsmen's clubs will cooperate with the Division in making the investigation, which will be conducted for 5-1/2 years.

Continue Quail Restoration.--Serious declines in the population of the bobwhite quail, a most important game species in Oklahoma, have been caused by the recent drought that depleted food and cover. The second Federal Aid project in Oklahoma was approved on January 2. By its first project the Oklahoma Game and Fish Commission leased seed-stock areas throughout the State, posted them against hunting and trespass, and reestablished quails on them. Feeling that satisfactory results were obtained under the first project, but that the need for further restoration remains, the Commission has submitted the new project to continue the work.

Study Wildlife-Forest Relations.--The Pennsylvania Game Commission received approval on December 14 to use part of its Federal Aid funds for an investigation of wildlife-forest relations so that methods of correlating game management with timber production on the 600,000 acres of State game lands may be formulated. One of the major problems in managing wildlife on second-growth forests is the economical creation and maintenance of a diversity of food and cover conditions. An interspersed of openings in forest stands is believed to increase the game-carrying capacity, so a series of cutting operations covering a 5-year period will be conducted. The effects of forest fires on game food supplies will be investigated, and the feasibility of using controlled burning in second-growth hardwood forests to improve wildlife habitats will be considered. Pruning and grafting wild apple trees to increase food supplies will form a part of the study.

Texas Restores Deer and Turkeys.--Federal Aid funds will be used by the Texas Game, Fish and Oyster Commission to redistribute and restore white-tailed deer and wild turkeys. The project was approved by the Biological Survey on December 4. Deer are so abundant in some localities that they are rapidly depleting their food supply, while much suitable range is uninhabited. The distribution of turkeys is spotty. The birds are numerous in isolated areas and absent from much good potential range. The pure Eastern strain still exists in a few locations in sufficient numbers to respond to management and protection. Areas in seven counties have been selected for the restoration work. Deer and turkeys will be trapped where they are abundant and stocked on unpopulated ranges. Eastern turkey populations will be increased through habitat improvement and protection, the Texas Commission said, and methods of combating deer damage to crops will be studied. Methods of managing deer and turkeys for maximum production will be demonstrated on the restoration units.



Buy Winter Deer Range.--Utah submitted a Federal Aid in Wildlife Restoration project to purchase 1,924 acres of winter deer range in Millard County. This project, approved by the Biological Survey on December 11, represents the first segment of a long-range land-acquisition program planned for the locality. As availability of funds permits and as other lands of like character become available for purchase at acceptable prices, the Utah Department of Fish and Game plans to submit additional projects.

The tract adjoins the Fishlake National Forest and will provide winter range for some of the deer that are forced off the high ranges of the National Forest by deep snows and lack of winter food. In certain parts of the West the winter food problem for big game is acute. The animals have plenty of food at other times of the year, but in winter they are forced to the valleys, many of which are in agriculture or are grazed by livestock. To provide winter food for big game, purchase of low-lying range lands in problem areas is necessary.

#### LAND ACQUISITION

War Department Gets Survey Land.--The President on December 19, 1939, signed an Executive order entitled "Reserving Certain Public Lands for the Use of the War Department for Military Purposes--Alaska," Order No. 8305. This action revokes Executive Order No. 4629 of April 13, 1927, which reserved and set aside these public lands near Fairbanks for the use of the Biological Survey as a reindeer experiment station. The Survey's experimental work was not affected, however, since the station has been closed since 1936.

#### Surveys and Maps

Returns from Rice Lake.--Bert J. G. Touscy, cadastral engineer, recently completed a field assignment on the Rice Lake Refuge, Minn.

Conclude Work on Easements.--Oswald E. Recroft, cadastral engineer, and Merland H. Benedict, engineering aide, recently completed field assignments on the North Dakota easement projects and are now engaged on boundary surveys on the White River Refuge in Arkansas.

Personnel.--Wesley R. Pearson has been transferred from the field service as under engineering aide to the Washington office as assistant engineering aide. Mr. Pearson's reassignment fills the vacancy created by the resignation of Bernard G. Allen.

#### WILDLIFE REFUGES

Attend Flood Control Hearing.--A. C. Elmer and Dr. Warren S. Bourn on December 18 attended a hearing of the U. S. Board of Army Engineers for Rivers and Harbors at Paterson, N. J., on the flood-

control program proposed for the Passaic River. Approximately 300 people, representing many diversified interests, were in attendance. The proposal to construct a permanent storage reservoir and recreation lake near the junction of the Whippany and Rockaway Rivers, tributaries of the Passaic, was vigorously opposed by representatives of the wildlife conservation agencies present. They declared that it would result in the destruction of more than 10,000 acres of what is probably the best inland fresh-water habitat for wildlife left in the Atlantic Coastal plain.

Three plans were proposed by the Board of Army Engineers, none of which would damage this important wildlife habitat, but little consideration was given to them by the representatives of the local communities because of the provision that the communities to be benefited contribute \$17,000,000 of the estimated \$30,000,000 total cost of the project.

From Paterson, Mr. Elmer and Dr. Bourn went to the Blackwater Refuge, Md., for a conference with Refuge Manager Black and Dr. Dosier on the development work under way on this area.

Inspect Drainage Projects.--Dr. Bourn returned December 10 from a week's inspection of drainage projects proposed in the Southeast. He was accompanied by Biologist S. L. Crosthwait, whom he instructed in the procedure of inspecting drainage projects to determine their effect upon wildlife. Fifteen proposed malaria-control drainage projects were examined in North and South Carolina, and one day was spent inspecting the sites of the impoundments now being constructed on the Santee-Cooper power project in South Carolina.

First Special-Use Permit Issued by Regional Office.--On December 15, 1939, the first of the new series of special-use permits was issued by a regional office in accordance with the policy approved by Dr. Gabrielson on November 20. The permit was granted for the removal of two cords of down timber from the Upper Souris Refuge, N. Dak., and was issued by the Omaha regional office. Heretofore all economic permits for the disposal of surplus refuge resources and products have been issued by the Washington office, but under the new policy this function has been delegated to the regional directors.

Boulder Canyon Mammals Counted.--In a recent inventory, Refuge Manager Robert E. Towle counted 128 wild burros and 120 mountain sheep on the Boulder Canyon Wildlife Refuge, Ariz. and Nev. These figures represent only actual counts and are believed to be conservative.

Mustard-Control Experiment Successful.--In cooperation with the University of California, an experiment in the control of wild mustard by spraying with chemicals was undertaken this fall on the

Tule Lake Refuge, Calif. Parallel strips of the grain field on which the experiment was attempted were sprayed with a well-known selective weed killer, leaving unsprayed strips between. One gallon of the weed killer dissolved in 100 gallons of water was applied at the rate of 80 gallons to the acre. Refuge Manager C. G. Fairchild reported that a 99 percent control of the mustard and an increase of 2,000 pounds an acre of grain resulted on the treated area.

Flightless Birds Rescued from Drying Lake.--After receiving reports that Grass Lake, Calif., was rapidly drying and that many moulting birds were stranded on it, CCC and refuge personnel from the Tule Lake Refuge removed all the birds they could capture and released them on the Klamath River. Accompanying the group were Dr. Arthur A. Allen, ornithologist from Cornell University; his son; Charles Brand, of Ithaca, N. Y.; and a California game warden. To catch the birds, the group formed a line across the north end of the lake, with the men placed at 10-foot intervals. The line of men moved forward, and every bird that was seen was picked up. One hundred fifty-eight grebes and coots and 61 ducks were removed.

Swans Visit Bombay Hook.--Although whistling swans have previously passed over the Bombay Hook Migratory Waterfowl Refuge, Del., they stopped this fall for the first time since the establishment of the refuge, according to Refuge Manager John F. Herholdt. Seven were seen on October 29, and 11 on November 5.

Refuge Manager Effects Rescue.--Three persons were recently rescued by Mr. Herholdt from a disabled boat that had become lost in the tidal streams near the Bombay Hook Refuge. Because the tide was very high that day, the large Bureau speedboat "Sora" was in use, and assistance was given the group.

Unusual Birds Seen.--Two white-bellied boobies and one red-dish egret were seen during October by Earle R. Greene, refuge manager of the Great White Heron Refuge, Fla. The white-bellied booby is rarely seen anywhere along the United States coast.

Populations of Animals Studied.--Raccoons, opossums, and bobcats are the three most abundant mammals on the St. Marks Refuge, Fla., Refuge Manager Donald V. Gray reports. The skunk population is gradually increasing, but the numbers of mink and otter remain about the same as in previous years. It is believed that the refuge has not been closed long enough for any marked increase in deer and bear populations to be apparent.



Reports Unusual Bird Concentrations.--After a recent visit to the Savannah River and Blackbeard Island Refuges, Ga., Regional Director James Silver stated that the two refuges are supporting enormous concentrations of birds. He was of the opinion that there are more birds per acre on the Savannah River Refuge than at any other point on the Atlantic Coast. Since the artesian water on the Blackbeard Island Refuge has been put to use, he added, waterfowl and other birds are concentrated on every pothole on the refuge.

New Pool on Savannah River Nears Completion.--Dike construction on the Savannah River Wildlife Refuge, Ga. and S. C., has progressed satisfactorily the past few months, according to Refuge Manager Hayden A. Carter, and the two draglines are now entering the "homestretch." A mile of dike remains to be constructed before Pond No. 5 is completed, adding 1,200 more acres for flooding. Construction of dikes on this refuge has been complicated by the excessive settling, amounting to almost 2 feet in the year following completion.

Ducks Abundant on Deer Flat.--About 200,000 pintails and 800,000 mallards stopped on the Deer Flat Refuge, Idaho, during the fall migration, Refuge Manager Ralph C. Winslow recently reported. The greatest concentration of pintails occurred September 15, but the number of mallards was still increasing on October 31, the date of the report.

Deer Flat a Sanctuary for Canada Geese.--Mr. Winslow advised that there were 12,000 Canada geese on the Deer Flat Refuge on October 31, an increase of about 50 percent over previous years. He attributed this increase to the fact that the lake is the lowest it has been in several years and its recession has uncovered an excellent growth of vegetation upon which the geese are feeding. He declared that so far as he has been able to determine from the State game warden and local hunters, only one goose was killed in the Boise Valley during the first 10 days of the hunting season. This would seem to indicate that the refuge is giving absolute protection to the Canada geese of the valley.

Geese Nest on Snake River, Feed on Deer Flat.--An interesting interrelationship between two wildlife refuges has been demonstrated in Idaho, where Canada geese nest on the islands in the 336-acre Snake River Refuge and move to the 10,000-acre Deer Flat Refuge about August 15, after the young birds are able to fly. A very noticeable shifting of populations between the two areas was observed this year by Mr. Winslow, who found that food supplies on the two areas varied sufficiently to provide for the needs of the birds. While submerged vegetation was abundant in the Snake River, a luxuriant growth of marginal vegetation was made available on Deer Flat after the waters of the reservoir had receded.

Reports Fish Take.--Refuge Manager Homer L. Bradley reports that during the 4-month period in which fishing was permitted on the Chautauqua Migratory Waterfowl Refuge, Ill., 9,034 fishermen took a total of 116,471 fish. This is a considerable increase over last year, when 67,239 fish were caught. The following species and numbers were taken: Bluegills and sunfish, 91,802; crappies, 10,280; and large-mouthed black bass, 14,389.

Development of Kentucky Woodlands Begun.--Development of the Kentucky Woodlands Wildlife Refuge was started on August 7 by W. P. A. labor. Work to date has been principally on the construction of a dam (30 percent complete) and of the refuge manager's residence (nearly finished). The water-control structure has been completed and a telephone line has been strung from headquarters to a commercial outside telephone system.

Plan Fire Protection for Refuge.--Refuge Manager Gerald Baker reports that a meeting was held recently with the State Forester of the Kentucky Department of Conservation and the State Fire Warden to plan a fire-protection program for the Kentucky Woodlands Wildlife Refuge and surrounding areas. The administration of the fire-protection plan will be by the State Forest Service, with refuge personnel cooperating whenever possible. Approximately 40,000 acres of privately owned land surrounding the sanctuary are included in the plan.

Many Waterfowl on Delta Refuge.--John H. Sutherlin, of the New Orleans regional office, reports that on October 27 when he visited the Delta Migratory Waterfowl Refuge, La., about 120,000 geese and 20,000 ducks were on the refuge. The geese were approximately 75 percent blues, 10 percent snows, 10 percent white-fronted, and 5 percent Canadas. The ducks were principally pintails and shovelers.

Boat Construction Principal Work at Delta.--The complete dependence of personnel on the 50,000-acre Delta Refuge on boats for transportation to all parts of the area is reflected in the summary of work accomplished during the past quarter by the W. P. A. crew. The tug "Balize" was dry-docked, caulked, and painted and received a complete motor overhaul. Six duck boats were completed, and a 20-foot launch was completed except for fittings and some work on the cabin. A 17-foot fast-utility boat was completed and put into service, and the hull and a portion of the cabin were completed on another 17-foot fast-utility boat. Three work skiffs were overhauled and painted. The "Golden Arrow," a 32-foot lugger, was dry-docked, scraped, and painted, and the "Dos Gris" was painted. The "Gros Bec" was cradled and shipped by truck to the Lacassine Refuge. The "Sprig" was overhauled and a new motor installed, and the "Sora" was shipped via steamer to Philadelphia for use on the Susquehanna Refuge, Md.

Geese Numerous on Sabine.--So many blue and snow geese are on the Sabine Migratory Waterfowl Refuge, La., that it is impossible to estimate their numbers, according to Refuge Manager Harry E. Adams. As an indication of the number present, however, he said that on several areas on the refuge flocks of geese, packed closely together, extend a mile in length and 300 yards in width.

Black Ducks Visit Lake Bowdoin.--Three black ducks were treated for botulism this summer at the hospital on the Lake Bowdoin Migratory Waterfowl Refuge, Mont., Refuge Manager Benjamin M. Hazeltine advised. These were the first black ducks observed on the refuge since its establishment, and their occurrence in the vicinity is rare. Two of the birds recovered and were banded and released, but the third died.

Reports Waterfowl Kill.--Hunting conditions on and around the Lake Bowdoin Refuge were greatly improved this year, Mr. Hazeltine said. In spite of warm, clear weather during most of the open season, 60 hunters took 118 ducks and 5 Canada geese from the public shooting grounds on the refuge.

Antelope Herd Increases.--The small herd of antelope on the Lake Bowdoin Refuge numbered only 7 in 1935. It increased to 27 this year, when 10 fawns were born. One of the herd was recently killed by a train, leaving only 26.

Pishkun Reservoir Stocked with Fish.--Refuge Manager George L. Girard reported that the Montana Game and Fish Commission in September planted 196,000 rainbow trout and 128,000 graylings in the reservoir on the Pishkun Refuge, Mont.

Mule Deer Increase.--Mule deer are increasing on the Fort Niobrara Game Preserve in Nebraska, according to Refuge Manager Geno A. Amundson. Refuge personnel recently saw a concentration of 20 deer, by far the largest number ever seen on the area.

Fish Donated to State Game Commission.--The fish stocked in the ponds constructed on creeks on the Fort Niobrara Preserve recently became so numerous that their source of food was almost depleted, Mr. Amundson reported. Accordingly, permission was granted the Nebraska Game, Forestation, and Parks Commission to remove the small-sized fish, and during October and early in November 100,000 fish of 3 species (black bass, crappies, and bluegills) were removed by the Commission. This enabled the Commission to fill requests for planting stock without drawing on the fish raised in its hatcheries.



New Birds Recorded.--Several least terns and one American egret were seen this fall on the Valentine Refuge, Nebr., for the first time since its establishment, according to Refuge Manager Ward M. Sharp. The American egret was usually seen with a flock of great blue herons, which seemed to resent its presence.

Visit New Jersey Refuges.--Mr. Elmer and Wm.V. Taylor, in charge of the Section of Structures, spent December 5 and 6 inspecting the work underway at the Bombay Hook and Brigantine Refuges, N. J. Mr. Elmer said that about 30,000 ducks and 1,200 snow geese were on the Bombay Hook area at the time of the inspection. The dike construction work on this refuge was being held up temporarily pending the completion of the barge and dredge needed to finish this work, and most of the men of the C.C.C. camp were engaged in clearing sites for the major pools. The work of the camp at Brigantine consisted primarily of digging ponds by hand in the salt marshes to improve the value of the refuge for waterfowl.

Inspects Proposed Refuge on Brigantine Island.--At the request of the Board of Trustees of the Atlantic County Bird Sanctuary, Refuge Manager Walter Schaefer, of the Brigantine Refuge, on December 9 inspected and made recommendations for the development of a small area on Brigantine Island, which the City of Brigantine, cooperating with the Atlantic County Bird Sanctuary, desires to make a refuge and feeding station for birds. Mr. Schaefer was accompanied on the inspection by I. W. Street, secretary of the Board of Trustees of the Atlantic County Bird Sanctuary, two of the City of Brigantine commissioners, and a W.P.A. engineer.

Inspects East Coast Sanctuaries.--Mr. Taylor recently returned from an inspection of the engineering construction work on the Back Bay and Pea Island Refuges. The use of sedge panels in the sand fencing on the Back Bay Refuge has greatly speeded up the work, he declared.

Sullys Hill Animals Sold.--In furtherance of the Bureau policy of keeping the herds of big-game animals at a level where they will not overgraze their range, 2 buffalo cows from the Sullys Hill Game Preserve, N. Dak., were recently donated to an Indian agency for meat, and 1 buffalo cow and 7 elk were sold. All the animals were completely dressed before shipping.

Cape Romain Attracts Many Oystercatchers.--An unusual concentration of oystercatchers was noted on the Cape Romain Migratory Bird Refuge, S. C., late in October, when Refuge Manager Andrew H. DuPre observed over 1,500 of these birds in several flocks. Three marbled godwits were seen during the fall migration.

Whooping Cranes Produce Two Young.--Two adult whooping cranes with 2 young were seen on the Aransas Migratory Waterfowl Refuge, Tex., on November 16 by Refuge Manager James O. Stevenson. This is the first time that more than one young bird has been seen with a pair of cranes on the area. The birds ordinarily lay only 2 eggs, so this may be considered a 100 percent hatch.

Treated Birds Recover from Botulism.--Nearly 79 percent of the 7,174 birds treated for botulism at the hospital on the Bear River Migratory Bird Refuge, Utah, last summer recovered and were released, according to Superintendent Vanez T. Wilson. Green-winged teals and pintails were the chief species afflicted, although sick birds of 20 species were treated. Of the 2,859 birds from the Tule Lake and Upper Klamath Refuges treated at the Tule Lake Refuge hospital, Refuge Manager Clinton G. Fairchild reported that all but 693 recovered.

Summarizes Waterfowl Kill.--Hunting conditions were not as good on the open portion of the Bear River Refuge this year as they were last, according to Mr. Wilson. The weather during the 45-day open season was mild and warm. More hunters (4,247) registered at the so-called "checking" station than in any previous year, but only 11,581 ducks and geese, an average of 2.727 birds a man, were taken.

Keeps Weekly Count on Birds.--The gradual increase of waterfowl using the Back Bay Migratory Waterfowl Refuge, Va., over a period of 4 weeks is shown by the following estimates of numbers made by Refuge Manager Harry A. Bailey. For the week ending November 11, there were 7,500 Canada geese, 150 whistling swans, 8,000 ducks, and 4,000 coots, a total of 19,650 waterfowl, on the area; for the week ending November 18, there were 10,000 Canada geese, 600 whistling swans, 15,000 ducks, and 4,000 coots; a total of 29,600 waterfowl; for the week ending November 25, 16,000 Canada geese, 3,000 snow geese, 4,000 swans, 55,000 ducks, and 5,000 coots, a total of 83,000; and for the week ending December 2, 12,000 Canada geese, 5,000 snow geese, 5,000 swans, 60,200 ducks (principally ring-necks, baldpates, and pintails), and 5,000 coots, a total of 87,200.

#### CONSTRUCTION AND C.C.C. OPERATIONS

Inspects Region 7.--Mr. Terhune spent November 6 to December 16 in region 7, where, with regional C.C.C. inspector W. J. Gregson, he visited the camps at the Savannah River Refuge, S. C., Okefenokee, Ga., and St. Marks, Fla.

Midwest Inspection.--O. W. Teckemeyer left Washington on January 3 to inspect C.C.C. equipment at several camps in Regions 4, 6, and 9. He returned to Washington on January 15.

Hold Inspectors' Conference.--The annual conference of C.C.C. inspectors was held in Washington on January 18, 19, and 20. Present at the conference were E. H. Hackenberg, of Portland, Oreg.; H. W. Lundeen, of Albuquerque; J. J. Hedrick, Jr., of New Orleans; W. E. Vroman, of Milwaukee; and W. J. Gregson, of Atlanta. Guests at the meetings this year included Ray S. Richardson, chief liaison officer, C.C.C.; Stanton G. Smith, liaison officer of the Third Corps Area; S. M. Lauderdale, safety engineer of the Corps; G. B. Arthur, supervisor of C.C.C. project training for the Department; Nat Baker, the Department's C.C.C. safety engineer; and H. E. Weatherwax, C.C.C. coordinator for the Department.

Bombay Hook Camp Holds Safety Record.--On December 31 the Bombay Hook camp completed 15 months without a lost-time accident. This camp now leads all C.C.C. camps in the Second Corps Area in accident prevention.

Landing Field Constructed.--It was considered advisable to build an emergency landing field at the Charles Sheldon Refuge, Nev., for use when the camp is snowbound for any length of time and it is necessary to bring in medical aid or emergency supplies by plane. Construction was begun in November and consisted of clearing brush and dragging the entire field with railroad rails pulled by horses. Since the ground is very hard and has a good surface, no grading was necessary for runways. The work was hurried to complete the landing field before severe weather prevailed in the area.

Camp Work Progresses.--Actual field work by the recently-established Bosque del Apache camp was started on October 30 and good progress has been made since that date, according to recent reports. The present company strength is 188 men. The camp superintendent, Oliver C. Payne, reported that the enrollees have been at work starting truck trails, clearing right-of-way for drains, crossing structures, manufacturing adobe brick for the proposed service building, and graveling the technical service section of the camp. The improvements required to make the area of maximum serviceability for wildlife can readily be accomplished through the facilities of the C.C.C., the report stated.

The Bosque del Apache, or "Apache Marsh," is a part of a vast land grant made by the Crown of Spain to one of his henchmen, Pedro Armendaris, early in the Seventeenth Century. The refuge, comprising about 60,267 acres in southern Socorro County, N. Mex., was acquired by the Federal Government in 1936 and was made a national wildlife refuge on November 28, 1939.



C.C.C. Boys Win Prize.--The garage crew at Bear River Camp BS-1, Utah, was having difficulty in handling small and irregular parts that had to be welded. The enrollees and foreman wanted to devise a tray that would hold the parts conveniently, and the educational adviser and camp artist were asked to help design it. A plan was drawn up, and the crew made the tray from old automobile parts. It proved so efficient that the plan for it was sent to a popular magazine. The editors liked the plan so well they awarded a prize to the camp personnel.

Utah Project Completed.--Installation of a system of dykes and water-control structures to regulate the water on Ogden Bay to prevent botulism was recently completed by a side camp from the Bear River refuge. This year only 36 dead birds were gathered in the bay, while thousands died in previous years. It is hoped that with the present system of regulating the water there will be a very small loss of birds in the future.

Enrollee Joins Coast Guard.--Enrollee Eaton, more intimately known as "Anthony Eden," learned bookkeeping and shorthand while at the Back Bay Camp, Va., under Superintendent English. Eaton was appointed Third Class Petty Officer, Yeoman Class, in the U. S. Coast Guard, on December 1. He was given a farewell dinner by members of the Biological Survey personnel at the camp.

#### GAME MANAGEMENT

To Attend Meeting of Alaska Game Commission.--Mr. Crouch and George A. Hossick, of the Division of Game Management, will represent the Bureau at the annual meeting of the Alaska Game Commission, which will be held at Anchorage, beginning on February 16. The meeting is being held at the same time as the annual Fur Rendezvous, which attracts a large number of Alaskan trappers and fur dealers who will also have an opportunity to appear before the Commission to make recommendations regarding game and fur. Eight of the Commission's 11 wildlife agents will also attend the meeting. Mr. Crouch will leave Washington on January 27, going to Seattle by way of New Orleans, San Antonio, Berkeley, and Portland. He will confer with game management agents and regional directors enroute. Mr. Hossick will leave about February 4 or 5 and will join Mr. Crouch at Portland, both sailing from Seattle for Alaska on February 10.

#### Game Management Agents

Fined for Hunting After Hours.--Eight persons apprehended by agents of the Survey and State game wardens in Arkansas during December for hunting ducks after 4 p.m. and with illegal licenses appeared in State courts. The violators received fines ranging from \$25 to \$50 and aggregating \$300.

Unplugged Guns Costly to Hunters.--In Federal court at Los Angeles on December 11, 17 persons charged with hunting migratory game birds with unplugged guns entered pleas of guilty and were fined \$25 each. Four other defendants, two charged with hunting without migratory bird hunting stamps and two with hunting from a motor boat, also paid fines of \$25 each.

Many Birds, Few Killed.--During November, Game Agent George M. Riddick covered practically all the migratory waterfowl hunting areas in Idaho. He found plenty of birds in all sections of the State. Weather for the most part was clear and warm, he said. The ducks and geese remained all day on a refuge, reservoir, or some large body of water, and, as a result, conditions were unfavorable for hunting. The "scarcity" of birds discouraged hunters, few of whom went out for ducks and geese during the last 3 weeks of the open season. No big kills were made, and Mr. Riddick stated that, "at the close of the season, there was an abundance of waterfowl with a bright prospect for a big crop of these birds next season." He added that in his opinion there are more ducks in all parts of Idaho now than at any time last year.

Goldeneyes Plentiful on Snake River.--During the latter part of October Mr. Riddick observed three white-winged scoters that had been taken by hunters in Kootenai and Bonner Counties, Idaho. The Bureau's only previous record of this species in Idaho was reported from Coeur d' Alene in 1913. Mr. Riddick also stated that approximately 25,000 American goldeneyes are wintering on the Snake River between Rupert and Swan Falls, Idaho.

Gets Jail Term.--An agent of the Survey and a State conservation officer recently apprehended a resident of Idaho who killed a deer in closed season. The accused entered a plea of guilty in State court and was sentenced to 30 days in jail.

Hunted Muskrats Illegally.--A resident of Liverpool, Ill., who on January 3 was found illegally attempting to take muskrats, was arraigned in State court and fined \$75 and \$11.80 costs.

Disregards Permit; Pays \$300.--A game farm proprietor dealing in migratory game birds in Illinois persisted in buying and selling migratory waterfowl even though his Federal propagating permit had been revoked for failure to make the required reports regarding his transactions. Evidence was obtained by a game management agent regarding four illegal transactions, and the defendant appeared in Federal court in November and entered a plea of guilty. On January 15, he again appeared in Federal court and was fined \$200. The court also imposed a jail sentence of 6 months, which was suspended, and placed the accused on probation for 1 year.

Prosecutes Himself.--A county prosecuting attorney in Indiana recently filed a complaint against himself charging that he violated the game laws by killing a goose with a rifle. He pleaded guilty in State court and was fined \$10 and costs of \$8.50.

Uses Decoys; Fined; Kills Decoys.--A game management agent in company with two State conservation officers apprehended a hunter in Iowa killing ducks before 7 a.m. and by the aid of live decoys. The hunter appeared in State court on December 30, entered a plea of guilty, and was fined \$300, of which \$150 was suspended. After the hunter's arrest, he killed his 30 live duck decoys. To avoid arrest for having an excess bag limit of ducks, he did not remove the birds from the shooting area to his home until he had advised the officers.

Fined 1 Day's Work.---Twelve persons were arrested in Iowa for killing wood ducks during the past open season. The arrests were made by a deputy game management agent and a State conservation officer. The violators entered pleas of guilty in State courts in November, and each was fined \$50 and costs of \$5.50. An unusual feature of the penalty was the fact that \$25 of each fine was suspended upon the condition that the defendant would give 1 full day's work on a fish and game project in his respective county, the work to be done under the direction of the local State conservation officer.

Hotel Bookkeeper Sentenced.---A hotel in Davenport, Iowa, possessed 23 wild ducks in closed season when the premises were recently inspected by a game management agent, the Assistant Superintendent of Enforcement of the Iowa Conservation Commission, and a State conservation officer. The head bookkeeper of the hotel accepted responsibility for the possession of these birds, entered a plea of guilty to the charge in State court, and was fined \$100 and costs of \$2.50. The birds were donated to a charitable institution.

43 Found Guilty.---Charged with violations of the Migratory Bird Treaty Act and the Migratory Bird Hunting Stamp Act, 45 persons appeared in Federal court in Louisiana recently. Forty-three violators either entered pleas of guilty or were adjudged guilty. Fines ranged from \$25 to \$75. The court also placed some of the violators on probation for periods of 1 to 5 years.

14 Found Guilty.---Fourteen game-law cases were successfully closed in Federal court at New Orleans on January 12 as follows: Killing rails in closed season (2), 15 days each in jail and 3 years probation; hunting ducks over live decoys and with no stamps (2), \$50 each and 3 months each in jail, suspended on 5 years probation; hunting ducks over live decoys and with no stamps (2), \$25 each and 30 days each in jail, suspended on 5 years probation; no stamp (2), \$10 each; hunting and killing ducks by aid of live decoys and bait (3), \$25 each, and 3 months each in jail, suspended on 5 years probation; no plug (1), \$25; and hunting ducks after



4 p. m. and with no stamp (2), \$25 each, and 30 days each in jail, suspended on 5 years probation.

Exceeded Bag Limit.--Five hunters charged with exceeding the bag limit for geese on November 19 entered pleas of guilty in Federal court at Opelousas, La., on January 2 and were fined \$25 each. Half of the fine was suspended in four of these cases, and \$20 in the other.

Shipped Beaver Illegally.--Three residents of Mississippi, charged with illegally killing a cub beaver and shipping it to Tennessee on December 11, 1939, entered pleas of guilty in State court in Mississippi and were fined \$10 each and costs.

Post-Season Hunters Pay Fines.--Two hunters found hunting ducks on January 8 near Charleston, Mo., were fined \$25 and costs of \$11 each when taken to State court. Two others who had ducks in possession on January 7 were fined \$50 and costs of \$11 each. State and Federal officers cooperated on these cases.

Shipped Without Tags.--Evidence obtained by an agent at Chicago recently resulted in the successful prosecution of three persons in State court in Montana for shipping beavers to Illinois without the required tags or permit. Each violator was fined \$25.

Duck "Sellers" on Probation.--Three California residents with 92 ducks in possession for sale were apprehended at Reno on December 19 by an agent, a deputy sheriff, and a Nevada State police inspector. The violators entered pleas of guilty in Federal court at Reno on December 29. Two defendants were placed on probation for 1 year, and the other for 2 years. They remained in jail from December 19 to December 29.

Another defendant arraigned on the same day and charged with (1) hunting on a Federal refuge, (2) hunting in closed season, and (3) selling waterfowl was sentenced to serve 1 month in jail on each of the three counts, sentence to run concurrently. The defendant had been in jail since November 2.

Twilight Hunting Expensive.--Two residents of Nevada were arrested by an agent of the Survey and a State game warden for shooting ducks after sunset. Each defendant was fined \$50 in State court early in December.

Handling Illegal Beaver Brings Fines.--As a result of information obtained by an agent in New York City that two shipments of beaver pelts were illegally made from Pennsylvania in 1938, another

agent and a district game protector of Pennsylvania recently arranged for the prosecution in Pennsylvania of the person who sold the furs and the shop that illegally possessed them. The furs were seized and fines of \$50 and \$100 each imposed by the State court.

Shipped Beaver Skin.--A resident of New York who unlawfully shipped one beaver to St. Louis was prosecuted in New York State court and fined \$50. The evidence was obtained by a U. S. agent in Missouri and sent to the agent in New York.

Fur Buyer Caught After 2 Years.--As a result of information obtained in Montana by a game management agent, a traveling fur buyer operating in several States was taken into custody in North Dakota on March 20, 1939, for covering the shipment of muskrats from North Dakota contrary to the Federal Lacey Act. The shipments were made during 1937. The fur buyer furnished bond and was released on March 31. He entered a plea of guilty in Federal court in North Dakota on November 8, 1939, and was fined \$25. The arrest was made through the assistance of other agents and the cooperation of a North Dakota district game warden.

Holiday Hunter Jailed.--A resident of Delaware County, Pa., was arrested for shooting ducks at night on December 26. He was apprehended by a deputy game warden and a State deputy game protector. Tried in State court, the hunter was fined \$25 and costs of \$6. Unable to pay the charges, he was committed to the County jail for 31 days.

Had 2 Swans.--A resident of Long Lake, S. Dak., was apprehended by an agent of the Survey and a State game warden on October 29, 1939, in possession of two swans. The accused entered a plea of guilty in State court, where a fine of \$50 and costs of \$3.70 were assessed.

Antelope Costs Hunter \$161.--A hunter in Texas who had killed an antelope illegally in New Mexico during the latter part of November was arrested by a U. S. deputy game warden cooperating with a State game warden. The hunter appeared in State court in Seminole, Tex., for illegal transportation and possession of the antelope. The judge assessed a fine of \$150 and costs of \$11. Two other hunters apprehended by the same game-law enforcement officers for transporting into Texas deer killed illegally in New Mexico were each fined \$25 and \$11 costs in State court.

Yuletide No Fun for Agents.--Christmas Eve festivities had no attraction for a refuge patrolman and a deputy game management agent stationed on the Upper Mississippi River Wildlife and

Fish Refuge. At 10:30 p. m., on December 24, these officers apprehended two men in Houston County, Minn., who had 35 muskrat traps on the edge of the refuge. It was closed season for muskrats in Minnesota. The trapline of these violators was inspected on Christmas morning, and six traps were found upon the refuge. When the trappers were taken into State court at Caledonia, Minn., on December 26, they pleaded guilty, and each was fined \$50 and costs of \$13.06. The judge stated that unless these fines were paid the violators were each to serve 75 days in jail.

Too Many Ducks Bring Fine.--Six residents of Chehalis, Wash., were apprehended by a game management agent for killing more than 10 ducks in 1 day. Each paid fines of \$30 and costs of \$2 in State court recently.

Snared Ducks from Preserve.--For snaring wild ducks with a cord in a State game reserve a resident of Seattle was arrested recently by an agent of the Survey and a Washington State game protector. The violator appeared in State court and was fined \$100 and costs of \$2.

Refuge Poachers Found Guilty.--Four persons recently entered pleas of guilty in Federal court in Wisconsin to charges of trapping and trespassing upon the Upper Mississippi River Wildlife and Fish Refuge. One of these individuals was fined \$50, two were each given suspended sentences of 1 year in the Federal penitentiary and placed on probation for 4 years, and the other was given a suspended sentence of 18 months in Federal penitentiary and placed on probation for 2 years.

#### Alaska Game Law Administration

Commission Buys Plane.--The Alaska Game Commission recently completed the purchase of the first government-owned airplane to be used in game-law enforcement work in Alaska. The airplane, a two-place, 90 h.p. cabin Monocoupe equipped with 2-way radio, was purchased from a corporation in Missouri and was flown from the factory to Seattle by John N. Ball, of the Division of Wildlife Refuges. At Seattle, the plane will be shipped to Alaska on the "Brown Bear," a Biological Survey patrol boat. The use of airplanes in Alaska for law-enforcement purposes is not new to the Commission. Agent Sam O. White, with headquarters at Fairbanks, has covered his district with the aid of personally-owned and chartered planes since 1930. Agent Grenold Collins took to the air about 2 years ago in a personally-owned Piper Cub and last year flew more than 20,000 miles covering his own and other enforcement districts, including a patrol of the bleak Arctic Coast. Wildlife agents and other officials of the Alaska Game Commission are greatly enthused over this modern means of transportation in Alaska, which materially facilitates law-enforcement work and has resulted in better observance



of game laws. The Commission boasts of 4 qualified pilots, all of whom hope to be covering their districts in aircraft as soon as funds become available for purchase of the equipment. During his flight to Seattle, Mr. Ball stopped at Bear River and other western refuges.

Annual Meeting to be Held Soon.--The annual session of the Alaska Game Commission will be held at Anchorage beginning February 16, at which time the wildlife agents will also be called to that city for joint conference. A midwinter carnival, known as the Fur Rendezvous, held from February 17 to 21 will make Anchorage a gathering point at that time for many residents of outlying districts. It is expected that the Rendezvous will result in numerous valuable contacts for the Commissioners. Anchorage officials and the general public have expressed sympathetic interest in the forthcoming session. (See story page 29.)

Goes on Patrol Trip.--On October 2 Executive Officer Frank Dufresne left Juneau for Petersburg where a conference was held with Chairman Earl N. Ohmer, Wildlife Agent Hosea Sarber, Deputy Wildlife Agent Gareld B. Banta, and with the personnel of the patrol vessels "Bear," "Grizzly Bear," and "Black Bear," regarding patrol work in the waters of southeastern Alaska. On October 25 Mr. Dufresne joined the "Black Bear" at Petersburg for a short patrol trip. The Fur Experimental Station was visited and plans made for wintering the several varieties of pheasants recently received by the Commission through the Wisconsin Conservation Department. At the station Mr. Dufresne conferred with Dr. Jules B. Loftus, in charge.

Attends Trial.--Homer W. Jewell, assistant executive officer, traveled to Ketchikan on October 30 to represent the Commission in a trial involving the taking of beaver pelts. He returned to Juneau on November 14, following conferences at Ketchikan, Wrangell, and Petersburg.

Bird Flights Noted.--The duck and geese flight from Alaska last quarter was better than the previous fall, according to reports. While it is difficult to place a definite figure on the increase, Mr. Dufresne stated that generally a 10 percent better flight was noted. Outstanding was the movement of lesser snow geese down the Stikine River. The flight of swans and cranes was very good. Pintails, widgeons, green-winged teals and mallards were noticeably greater in numbers. Substantial gains were made by local white-checked geese in southeastern Alaska, and a heavy migration of white-fronted geese was noted in the Cooper River Flats. No reliable information was available on the southward movement of black brant, and cackling or emperor geese.

Plans Aleutian Island Development.--Associate Refuge Manager H. Douglas Gray was in Seattle and in Washington, D. C., during the entire quarter discussing the development of the Aleutian Islands Refuge under revised regulations. He left Washington for Alaska during the first week in January. He expects to leave Seattle on the M/S "Brown Bear" about February 1.

Kodiak Island.--Agents George B. Nelson and Frank Revell continued their bear-cattle investigation from October 6 to November 4, then wrote a final report that has been sent to Washington. Extensive naval developments in Kodiak Island have more than doubled the population of Kodiak within the last year. The fact that the population has increased has aroused strong local interest in having a wildlife agent permanently stationed on the island.

Biologist Returns After Season's Work.--During the early part of the quarter, Biologist L. J. Palmer, of the Section of Wildlife Surveys, made a range survey in the Matanuska Valley with W. E. Rockie, of the Soil Survey Commission. Late in October Mr. Palmer visited Fairbanks for a few days, then arrived in Juneau during the last week in November. He is now engaged in writing reports.

Returns from Mt. Hayes.--Early in November, Control Agent Frank Glaser returned to Fairbanks for a brief visit from the remote Mt. Hayes area, where he had spent the preceding 10 weeks trapping wolves and making plans for more extensive work later in the winter. During his stay in Mt. Hayes Agent Glaser observed an unusual number of grizzly bears. Wolves were just beginning to come into the section along with mountain sheep, moose, and caribou when Mr. Glaser was compelled to return to Fairbanks for winter supplies and equipment. He took four wolves and indicated that better results were to be expected during the period of deep snow--from December to April.

Bull Moose Lock Horns.--Add another chore to the duties of Alaska's wildlife agents. Jack Benson, while patrolling his district by air, sighted two bull moose fighting desperately on Farewell Lake in Rainy Pass. Closer inspection revealed that the animals had locked horns. Obtaining ropes and a saw in McGrath, 130 miles away, Benson and three willing helpers returned to the scene and liberated the moose by lassoing them and sawing off part of the antlers. The smaller moose died soon afterward from a deep neck wound inflicted by his antagonist. The larger bull, after routing his human benefactors, strode away into the forest. Colored motion pictures were taken of this highly unusual occurrence.

## PREDATOR AND RODENT CONTROL

Assistant Division Chief Returns.--W. E. Riter, assistant chief of the Division, returned to Washington on December 9 after an extended field trip. Mr. Riter conferred with personnel and cooperators of the Division in North Dakota, South Dakota, Montana, Washington, Oregon, Idaho, Utah, Colorado, and Indiana, and with regional directors of Regions 1, 2, and 9. During the trip he visited one of the fur houses on the west coast where he obtained valuable information concerning the proper preparation of predatory-animal pelts for the raw-fur market.

Rodents Inhibit Sand Dune Stabilization.--M. W. Kelly, assistant in the Colorado District, reports that in the construction of the Caddoa Dam it became necessary to reroute the railroad tracks that parallel the Arkansas River in eastern Colorado. The new tracks go through a series of sand hills, and to make the project feasible it is necessary to stabilize drifting sand dunes over an area some 10 miles long and 1 mile wide. The stabilizing technique consists of working large quantities of straw into the sand until a mulch is formed and then seeding the area in rye or sorghum to establish a sod.

On one sand dune, covering 100 acres, rye was planted on August 25, 1939, and a good stand was obtained, but on October 1 jack rabbits had completely taken the entire stand. Observations made in December plainly showed rabbit trails in the mulch. There was evidence that rabbits were still frequenting the area in search of tender green shoots. On another dune, an effort was made to obtain a stand of sorghum but this failed, as the kangaroo rats followed the drill markings and ate the seeds before they germinated.

Louisiana Parish Hires Worker.--The Louisiana Bureau of Parish Health Administration has provided a full-time man to conduct rat-control work throughout the State, in cooperation with the Bureau, according to a report received from Agent Robert B. Deon. Such a plan will serve to relieve the agent of many of the details connected with rat-control campaigns and thus permit him to offer assistance to a larger area. By having a full-time man on the work within the State, more effort can be devoted to developing permanent rat-control measures, including the rat proofing and cleaning of harborages.

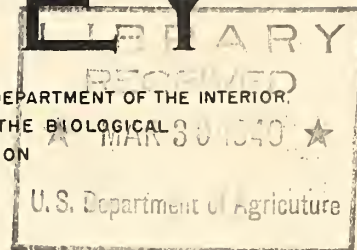




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# THE SURVEY

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## GENERAL NOTES

Speaks at Conference.—Mr. Henderson attended the Conservation Conference of the Connecticut Forest and Park Association at New Haven, Conn., on February 9 and 10. At the dinner on February 9 he spoke on "The New Wildlife Conservation Movement."

Patuxent Sites Named for Chiefs.—Three laboratories and one lake on the Patuxent Research Refuge, Md., were recently named in honor of four former Chiefs of the Biological Survey. Permanent names for the laboratories and lake are approved by Dr. Gabrielson as follows:

Main laboratory number 1 to E. W. Nelson Laboratory; disease laboratory to Henry W. Henshaw Laboratory; food habits laboratory to C. Hart Merriam Laboratory; and lake number 2 to Lake Redington. Snowden Hall, the historic home used as refuge headquarters, will retain its name.

New Section Joins Bureau.—By order of Secretary Harold L. Ickes the Wildlife Division of the National Park Service was recently transferred to the Bureau of Biological Survey and the Bureau of Fisheries. The transfer became effective at once. The change was made, Secretary Ickes said, in accordance with President Roosevelt's reorganization plan to coordinate Federal activities and effect economy. The transfer will provide opportunities for closer cooperation and coordination of the wildlife programs of the Biological Survey, the Bureau of Fisheries, and the Park Service. Under their new status, those employees transferred to the Biological Survey will work through both the Chief of this Bureau and the Director of the National Park Service. Their office will be known as the Section on National Park Wildlife, Division of Wildlife Research, Bureau of Biological Survey.

Head of the new section is Biologist Victor H. Cahalane, who had been chief of the unit in the National Park Service. Assisting Mr. Cahalane in the Washington office are Biologists Clifford C. Presnall and Daniel B. Beard. The following biologists are assigned to the field in National Park Regions: Otis B. Taylor, region 1, with headquarters at Richmond, Va.; Adolph Murie, region 2, Omaha; Walter B. MacDougall, region 3, Santa Fe; and E. Lowell Sumner, Jr., region 4, with headquarters at San Francisco.

The work program of the Section will be based on the needs of the National Park Service and will be directed by Mr. Cahalane in accordance with plans developed in consultation with the Supervisor, Branch of Re-

search and information, and other officials of the National Park Service. Such work program will be approved by the Chief of the Biological Survey and by the Director of the National Park Service. Plans are being evolved to provide for informal and speedy handling of joint problems and policy questions between the two agencies. Commenting on the transfer, Secretary Ickes pointed out that it will give the National Park Service the advantage of increased facilities for research and the benefit of diversified knowledge in many complex fields. Policies on the protection of all fauna will be rigidly observed, he said, as they have been in the past.

Committee Reviews Papers for Conference.--Papers for the technical sessions of the 5th North American Wildlife Conference, which will be held in the Mayflower Hotel, March 18, 19, and 20, were to be in the hands of the committee on arrangements by February 20, Dr. J. E. Shillinger said. Papers relating to warm-blooded animals were to be sent to Dr. Shillinger, Biological Survey, Department of the Interior, Washington, D. C., and those pertaining to fishes to Dr. Paul R. Needham, Natural History Museum, Stanford University, Calif.

The committee was to meet after February 20 and select the papers that are to be used at the conference, Dr. Shillinger said. This year, as in other years, he added, many more papers were being offered than can possibly be heard during the time allotted for the program, and it would be necessary to have the papers arrive promptly so that careful consideration could be given to them. When papers are accepted, the author will immediately be informed of that fact.

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last (January) issue of the Survey:

- No. 39. Revised. Amendment No. 4. Official necessity for travel authorized at Government expense. (January 15.)
- No. 47. Revised. Supersedes No. 47-1. Liability insurance available to operators of Government-owned or rented automobiles, trucks, or tractors. (February 5.)
- No. 104. Revoked. Revocation of AFO No. 104. (February 8.)
- No. 301. Motor-vehicle accidents. (January 18.)
- No. 302. Timing of procurement programs to avoid seasonal congestion. (January 22.)
- No. 303. Enlistment in Marine, Army and Naval Reserve Organizations. (January 23.)
- No. 304. Revising Bureau photograph files. (February 5.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 89. Supplement No. 6. Contract for service-station deliveries of



- gasoline, lubricating oil, lubrication service and anti-freeze, in the Northeastern States for the period October 1, 1939, to March 31, 1940, inclusive; (December 28.)
- No. 122. Supplement No. 1. Contracts for the procurement of snake-bite kits and refills therefor (Class 57, Supplement No. 3). (February 9.)
- No. 124. Changes in Procurement Division contracts. (January 11.)
- No. 125. Supersedes No. 75, dated February 28, 1939. Mandatory contracts for the procurement of office furniture (Class 26). (January 16.)
- No. 126. Supersedes No. 78 and Supplement No. 1 thereto. Mandatory contracts for the procurement of drawing instruments and accessories and attachments; Rules, Mannheim type; Scales, drawing; straightedges; "T" Square; and triangles, (Class 18). (January 20.)
- No. 126. Amendment No. 1. Contracts for the procurement of photographic equipment and supplies (Class 18, Supplement No. 1). (February 14.)
- No. 127. Supersedes No. 92, dated July 15, 1939. Mandatory contracts for the procurement of exploders, dynamite, blasting plugs, blasting powder "B" and special nonsensitive-type blasting powder, and primer or booster charge for nonsensitive powder. Optional contracts for blasting equipment (Class 4, Supplement No. 1). (January 19.)
- No. 128. Supersedes No. 69 and Supplements Nos. 1 and thereto. Mandatory contracts for the procurement of battery and ignition cables, tire chains, clutch facings, replacement cushions. Optional contracts for repair parts and accessories for motor vehicles, tractors, and road-building machinery, including air compressors, graders, shovels, terracers, etc. (Class 8, and Class 66, Supplement No. 1). (January 19.)
- No. 129. Changes in Procurement Division contracts. (February 3.)
- No. 130. Procurement of Chevrolet Universal Generator on an exchange plan. (January 30.)

The following memoranda to field officers have been issued in the "Boat Maintenance Memoranda" series:

- No. 1. Amendment No. 1. Care and maintenance of motor boats. (January 6.)

#### PUBLIC RELATIONS

Talks at School Assembly.--Howard Zahniser spoke to the assembled students and faculty members of the McFarland Junior High School in Washington, D. C., on January 19. He told about the Bureau's bird-banding work and showed the motion picture "The How and Why of Bird Banding."

Tours Gulf Refuges.--On February 3, Mr. Zahniser left Washington for a tour of the Gulf Coast Refuges. On February 5, he arrived in New

Orleans, where he met with Regional Director Roy Moore and others in the regional office. Two days later, with John J. Lynch and John Sutherlin he visited the Delta Refuge. On his return to New Orleans he and Mr. Lynch left with C. E. Gillham for the Lacassine and Sabine Refuges, visiting en route the Rainey Sanctuary of the National Association of Audubon Societies and the banding station of Mr. E. A. McIlhenry at Avery Island, La. He planned later to visit the St. Marks Refuge and return to Washington February 26.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- The crow in its relation to agriculture. By E. R. Kalmbach, senior biologist, Section of Food Habits, Division of Wildlife Research. Farmers' Bulletin No. 1102 (revised June 1939). Received January 13, 1940.
- Officials and organizations concerned with wildlife protection: 1939. Compiled by Frank G. Grimes, administrative assistant, Division of Public Relations. Wildlife Circular 2, 16 pp. December 1939. Received January 26, 1940.
- Status of the American bison in the United States and Alaska, 1939. Compiled in the Section of Wildlife Surveys, Division of Wildlife Research. Wildlife Leaflet BS-143, 10 pp. December 1939. Received January 26, 1940.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Waterfowl observers take to air, car, and boats for annual inventory. Press Statement P. N. 88589. Released January 18.
- Trapper fined \$323 by "lenient" judge. Press Statement P. N. 89242. Released January 24.
- Old-time buffalo hunter teaches youngsters how to handle herds. Press Statement P. N. 89295. Released January 26.
- At least 150 kinds of animals found on Hart Mountain Refuge. Press Statement P. N. 90098. Released February 1.
- Biological Survey finds more than 5,000 buffaloes in United States and Alaska. Press Statement P. N. 90099. Released February 2.
- Doomed to Death by locked horns, moose sawed free by wildlife agent. Press Statement P. N. 90482. Released February 7.
- Hunting facts free in leaflet on fur. In "Current Conservation" (clip sheet), Vol. II, No. 11, February 1940.
- States join game study. In "Current Conservation" (clip sheet), Vol. II, No. 11, February 1940.
- More refuges for wildlife. In "Current Conservation" (clip sheet), Vol. II, No. 11, February 1940.
- Range kings given home. In "Current Conservation" (clip sheet), Vol. II, No. 11, February 1940.
- Game ring is hit by raids. In "Current Conservation" (Clip sheet), Vol. II, No. 11, February 1940.

U-Boat fright mere bird flight. In "Current Conservation" (clip sheet), Vol. II, No. 11, February 1940.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Aldous, S. E. Notes on a black-footed ferret raised in captivity. Jour. Mammal. 21: 23-26. Feb. 1940.
- Bennett, L. J., and English, P. F. Romance over the Barrens. Penn State Farmer 5 (3): 51, 60, illus. Dec. 1939.
- Caminita, L., Jr. Wildlife takes to the air. Nat. Aeronautics 18 (1): 10-11, illus. Jan. 1940.
- Cooke, M. T. Notes on speed of migration. Bird Banding 11: 21. Jan. 27, 1940.
- Hotchkiss, N. Range extensions of marsh and aquatic plants. Rhodora 42 (493): 20-22. Jan. 1940.
- Jewett, S. G. (With E. Raymond Hall). A new race of beaver from Oregon. Jour. Mammal. 21: 87-89, illus. Feb. 1940.
- McAtee, W. L. A venture in song-bird management. Jour. Wildlife Mgt. 4: 85-89. Jan. 1940.
- Correction among animals. Nature Mag. 33: 113-114, illus. Feb. 1940.
- Mills, E. M. Folklore about rats and rat control. Pests 8 (1): 18-19. Jan. 1940.
- Pearson, A. M. (With Carey C. Burnett). Deer food in the Black Warrior National Forest. Alabama Game and Fish News 11 (8): 3-4. Feb. 1940.
- Sheldon, H. P. Guns and game. Country Life 76 (7): 72, 74, illus. Nov. 1939.
- Spencer, H. J. Tree girdling mice again menacing orchards. 44th Virginia State Hort. Assoc. Proc. 28: 67-69. Jan. 1940.
- Taylor, W. P. (With W. B. Davis, senior author). The Texas bighorn. Texas Agr. Expt. Sta. Progress Rpt. No. 560. 2 pp. Jan. 22, 1940. (Processed).
- Young, S. P. North American Big Game. A book of the Boone and Crockett Club. Compiled by the Committee on Records of North American Big Game. New York, Charles Scribner's Sons, 533 pp., illus. September 1939. (Review.) Jour. Mammal. 21: 96-98. Feb. 1940.
- Zahniser, H. Indoors and out. Nature Mag. 33: 7, 55. Jan. 1940.

#### WILDLIFE RESEARCH

Weigh Alabama Deer.--Partial or complete records on 135 deer killed in Sumter County, Ala., during the hunting season were obtained last December by R. J. Wheeler, Jr., and C. C. Burnett, temporary assistants at the Alabama Cooperative Wildlife Research Unit. Live weights were obtained for 101 antlered bucks, according to a report from Dr. Allen M. Pearson, unit leader, and the average weight was 135.2 pounds. During the same period, the average weight of 32 bucks taken from the Black Warrior National Forest in northern Alabama was 150.2 pounds.



First Rabies Outbreak in Ohio Reported.--What is believed to be the first outbreak of rabies among foxes in Ohio was recently investigated by Don Strode, undergraduate assistant of the Ohio Cooperative Wildlife Research Unit. Dr. Lawrence E. Hicks, unit leader, declared that the outbreak occurred largely in Morgan and Athens Counties and was chiefly confined to gray foxes, although many dogs were known to have been affected. Dr. Hicks reported seven known cases, of which four were shown positive for rabies. The report covered the months of November and December 1939.

Helps Plan Oregon Wildlife Conference.--Arthur S. Einarsen, leader of the Oregon Cooperative Wildlife Research Unit, reported that during the early part of December considerable time was spent in helping plan the program and arranging facilities for the Oregon Wildlife Conference, which was held at Corvallis on December 8 and 9. At the conference he delivered a talk on "The Study of Small Game in the Willamette Valley."

### Wildlife Surveys

Searches for Wolf Data.--Stanley P. Young left Washington on January 29 for the field to procure first-hand information for use in his study of the history of the wolf in America. He will confer with many Bureau cooperators and visit several museums and libraries where specimens, books, and unpublished manuscripts on the subject are housed. Before his return to Washington about the middle of March he expects to visit the States of Illinois, Minnesota, Nebraska, Colorado, Utah, Idaho, Oregon, California, Arizona, New Mexico, and Kansas.

Survey Matanuska-Susitna Valley.--Biologist L. J. Palmer spent August 9 to October 7, 1939, with the soil and land-use survey of Matanuska-Susitna Valley, Alaska, as a representative of the Biological Survey. The survey is a general land-use study being conducted cooperatively by many agencies. Mr. Palmer joined the survey to contribute information on such phases as a determination of forage cover, the potential grazing capacity of the range for livestock, its occupation by wildlife and the relationship of colony settlement to continued maintenance of wildlife, and, at the request of the Bureau of Fisheries, a view of the beaver-fish spawning stream relationship. As a result of this preliminary reconnaissance of the area, Mr. Palmer in a recent report concluded that (1) woodland valley range of the immediate colony unit is generally of low grazing capacity and may be improved by clearing and seeding to cultivated forage species such as bluegrass, fescue, wheat grass, and Dutch clover; (2) the mountain ranges are suitable for grazing of livestock (the estimated capacity for a 4-month summer season is 20,980 cattle and 60,132 sheep); (3) the Matanuska-Susitna area has an abundant wildlife population; (4) the present take of moose, sheep, and goats is not excessive and may be maintained; and (5) fishing furnishes a chief means of livelihood for 1,332 people in the Cook Inlet region.

To the residents of Cook Inlet the maintenance of fish spawning streams is of major importance. The passage of fish is obstructed by beaver dams. Because beavers are of economic value in the production of fur and contribute

to the gainful occupation of many trappers, including Indians, the maintenance of both fish and beavers is important. Mr. Palmer also concluded that one means of providing for the maintenance of wildlife, when considering present and probable future increases in the settlement, is to establish a number of strategically placed wildlife reserves closed to hunting and to homesteading. He recommended that any effort by colonists or others to introduce exotic deer, elk, or other exotic game animals be discouraged. He added that provision may be made for livestock development while at the same time maintaining an important wildlife population.

Elephant Seal Skull Received.--Through the efforts of members of the Alaska Game Commission, particularly of Frank Dufresne, executive officer, and Gareld B. Banta, wildlife agent, the Biological Survey has recently received the skull of an elephant seal (*Mirounga angustirostris*). The animal was shot in Kasaan Bay, Alaska, 3 miles east of Kasaan village, Prince of Wales Island, by Jacob Thomas. The seal was undoubtedly astray, since its normal known habitat is off the coast of Mexico, and this record constitutes the first known occurrence of an elephant seal in Alaskan waters.

Bird Sleeps Along Road During Blizzard.--On January 6, during a mild blizzard, Charles H. Rouse drove to the northwest part of the Wichita Mountains Wildlife Refuge, Okla. Along Telephone Creek the snow was blown from places along the road and on one of these spots of bare earth Mr. Rouse found a male American merganser sleeping soundly with its head tucked under its wing. The car was beside the bird before Mr. Rouse recognized it. As he stopped to examine it, the bird awakened and flew away.

Buffalo Blood Serum Examined.--A sample of blood serum from an aged buffalo cow was recently sent by Mr. Rouse to Dr. Alan Boyden, of Rutgers University, for examination. Dr. Boyden is making a study of blood serum of mammals, and the Biological Survey is cooperating by supplying samples. As an item of interest, Dr. Boyden recently made the following comment on a sample from a longhorn steer: "You may be interested to know that the longhorn serum gives a fairly distinct difference from our ordinary domestic cattle, although of course it is more like other cattle than bison."

Transport Antelopes to Wichita Refuge.--Efforts to find the antelopes on the Wichita Refuge early in January while the snow was on the ground, were unsuccessful, Mr. Rouse reported. Frequent patrols, however, revealed that the antelopes are in good condition. No indications of molestation by coyotes or dogs have been found. On January 13, trucks from the New Mexico Game Commission arrived at the refuge with 24 antelopes. When they were liberated near Buffalo Springs, it was found that one 2-year-old doe had died and a yearling buck had been seriously injured. The injured animal was taken to the barn and kept under observation, but it died that night. Skins and skeletons of both animals were saved for the research collection. The doe was carrying twin fetuses. Ticks were quite numerous on both animals. Specimens were collected and sent to the Oklahoma A. and M. College where they were identified as Dermacentor albipictus, a species in that area. The newly liberated antelopes scattered over the northwestern part



of the refuge. A count of 25 animals is the highest that has been made. One herd of 18 animals frequents the hills north of Pleasant Valley and the Fullingame Flat area. The antelope herd should now number 35 head, according to Mr. Rouse.

Afflicted with Tularemia.--Field men of the Biological Survey, particularly those of the Section of Wildlife Surveys who must in the course of their duties prepare many rabbit specimens, have been fortunate in not having been afflicted with tularemia. Frank B. McMurry, of the Wichita Mountains Wildlife Research Laboratory, however, had the misfortune to contract this disease in December when he skinned a cottontail rabbit for a specimen. Although making a good fight against the disease, Mr. McMurry will be incapacitated for full work for some time.

Studies Pacific Whitetail.--The small herd of the rare Pacific white-tailed deer recently discovered by Dr. Victor B. Scheffer on an island in the mouth of the Columbia River, Wash., has been investigated further by him, according to a recent report. He is now studying specimens and notes and will write a report on the Pacific white-tailed deer in Washington and Oregon.

Visits Mammal Laboratory.--On February 7, A. Brazier Howell, of the department of anatomy, Johns Hopkins Medical School, visited the mammal laboratory and conferred with Arthur H. Howell.

Appointed Assistant.--Nolan West, a student from Utah State Agricultural College, has been appointed to assist William H. Marshall for the remainder of the winter in the ecological study of the marten being conducted on the Boise National Forest, Idaho.

#### Food Habits Research

Attends A. S. A. A. Meeting.--Dr. Clarence Cottam represented the Bureau in attending the annual meeting of the American Association for the Advancement of Science from December 27 through the 30th at Columbus, Ohio. While there he had an opportunity to discuss biological problems with many visiting scientists as well as to visit the Ohio Cooperative Wildlife Research Station.

Explains Bureau Activities.--In January Dr. Cottam went to Cornell University, where he spoke to about 100 biology students and faculty members on the work of the Biological Survey. The next day he addressed the students majoring in wildlife management and discussed the details of the research program of the Survey. That evening he met with the same group in a zoology seminar.

Assists in Annual Aerial Survey.--Participating in the annual migratory waterfowl inventory, Biologist Clarence Smith made two flights of nearly 4 hours each up the Rappahannock and York Rivers and the Potomac Watershed. The first trip, on January 15, was over fairly open water. The



ducks, seen in nearly normal numbers, consisted mostly of blacks and canvasbacks. The second flight, a week later, was over water covered with ice. Few ducks were seen, and these were concentrated in small open waterholes.

Unusual Bird Depredation.--An instance of an unusual and somewhat amusing bird depredation was recently reported by Biologist Johnson Neff, of the Sacramento office. In the southern California citrus belt commercially manufactured, electrically driven wind towers had been installed to produce air currents that prevent frost. These towers include electric motors driving large wooden propellers. In one instance a woodpecker pecked a hole in one blade of a propeller, thus unbalancing the blades and necessitating repairs.

Robins Damage Nursery Stock.--An incident of damage to nursery stock brought about by other factors was recently reported by Mr. Neff. Robins had been doing considerable damage to nursery rows of Anemone and Ranunculus, and it was shown that such damage was incidental to the robins searching for angleworms in the seed rows. Water from leaky faucets kept the humus moist; this attracted the angleworms; and they, in turn, attracted the robins. By repairing the faucets and by frightening the birds for several successive days, the damage was controlled.

Experimental Burning of Marsh Justified.--Biologist John Lynch and Regional Director Roy W. Moore, after inspecting experimental burns that had been made in various parts of the Sabine Refuge in Louisiana, reported that the burning program has been successful. Every experimental burn has been used extensively by geese, they reported, while unburned portions of the area were not used. It is estimated that more than 500,000 geese utilized these experimental burns in December. The birds were noted flocking to the areas the day following the fire. Overgrazing of the burned areas and subsequent damage to muskrat food and cover were prevented by burning ample areas and by regulating cattle grazing, the latter prolonging the utility of the burns a good deal.

Goose Gravel Requirements Studied.--Biologist Lynch and Manager Harry E. Adams, of the Sabine Refuge, intend to develop ponds in an area well supplied with gravel suitable for goose grit so as to create a major graveling joint within the refuge and thus offer a safe source of grit for the geese of the region. The gravel now available is confined to shores of the refuge lake, while the large gravel beds outside the refuge are located in heavily hunted areas and are exposed to illegal night hunting.

Conditions Favoring Grass Growth.--Mr. Lynch, in his work on the Texas coast, has found further evidence concerning the part played by grazing in causing the replacement of tall grasses by the more valuable sod-grasses. Moisture and, probably, natural manuring by cattle are factors influencing the growth of Bermuda grass, an important goose food, on the Aransas Refuge. He recommends that the Bermuda grass be fenced off from cattle 2 months before the geese arrive on the refuge so as to allow pro-

duction of more luxuriant foliage and inflorescences, both of which are relished by these birds.

Salt Prevents Cannibalism.--Biologists Ralph B. Nestler and Woodrow W. Bailey, in charge of the Section's nutrition work at the Patuxent Refuge, report that adding salt to the quail diet apparently prevented cannibalism among the adult birds. During the recent heavy snows, many of the liberated quails on the refuge subsisted almost entirely on honeysuckle fruit for food.

Cold Weather Keeps Ducks Out.--Biologist Cecil Williams, stationed at the Bear River Refuge, reported that the waterfowl utilization of the refuge was about 75 percent less in January 1940 than in January 1939. Freezing temperatures and the lack of open water, he said, were partly responsible for this situation. About 5,000 whistling swans were seen on the area. Mallards, pintails, and widgeons were the ducks most often seen. A significant increase in the muskrat populations on the refuge was reported, and it was suggested that this number be decreased so as to improve conditions for goose nesting.

Waterfowl Food in Utah.--The green growths of fall wheat in Utah form a large part of the midwinter diet of the Canada goose, according to Mr. Williams. This was true throughout Utah, wherever goose resting environments were within cruising range of grainfields.

Chemist to Run Food Analyses.--On November 16, 1939, Thomas R. King, of the Virginia Cooperative Research Unit, assumed duties in the Poultry Nutrition Chemical Laboratory, Beltsville, Md., as collaborator with the Biological Survey and with the Bureau of Animal Industry, Department of Agriculture. Mr. King is working with H. McClure, Poultry Nutrition chemist, in running chemical analyses on various wild feedingstuffs used by the bobwhite quail. He expects also to run vitamin A assays with domestic chicks on some of the more commonly used wild seeds.

#### Distribution and Migration of Birds

Activities of Flyway Biologists.--During the latter part of January and the first of February, Harold S. Peters, the Atlantic Flyway biologist, visited the Savannah Refuge, and various points in Florida, to observe waterfowl concentrations. In Daytona he conferred with J. V. Kelsey and Alex. Sprunt. Mr. Kelsey reported the observation of 633,000 waterfowl in the Cape Sable area on January 18. In the Miami and Cape Sable area, on January 31, Mr. Peters, accompanied by Mr. Kelsey made a 3-hour flight in a Coast Guard plane. They saw about 25,000 ducks. On February 5 they went by motor boat on Lake Okeechobee, where 19,000 ducks were seen.

C. E. Gillham, the Mississippi Flyway biologist, during the past month continued waterfowl investigations in his area and reported on woodcock conditions in Louisiana.

Dr. George B. Saunders, the Central Flyway biologist, was handicapped by unusual bad weather during January. The Mexican coastal trails

were impassable, but field work was carried on near Port Isabel, Tex., Holly Beach, and Laguna Madre. On January 31, he visited Mexican officials and arranged to do further work in Mexico.

Luther J. Goldman, the Pacific Flyway biologist, continued to send interesting reports on his field work in Mexico. In January he worked in the vicinity of Guadalupe.

Visits Washington Office.--On February 3, Joseph A. Hagar, director, Division of Ornithology, Department of Conservation, Boston, Mass., visited the section to examine the return cards of banded black ducks.

Bands Woodcocks.--During the recent cold weather in the south, E. A. McIlhenny, of Avery Island, La., banded 103 woodcocks. With the temperature at 14°, he reported, the birds were suffering from a shortage of food and were easily trapped with a hastily constructed net.

Outstanding Returns from Banded Birds.--The following are interesting returns from banded birds, showing band number, place and date of banding, and place and date of recovery:

Herring gull:

703092, Wis., Hat Island, 6/30/28. Wis., Manitowoc, 1/30/40.

Caspian tern:

B608922, Mich., Delta Co., 7/9/32. Haiti, Port-au-Prince, 11/5/39.

(It appears that this may be the first definite record for the Caspian tern in Haiti.)

Blue-winged teal:

36-525611, Mont., Medicine Lake Refuge;  
7/23/39. Colombia, Barranquilla, 10/14/39.

Coot:

36-673604, N. Dak., Upham, 8/28/39. Cuba, Bejucal, 11/16/39.

Pacific great horned owl:

200713, Calif., Benicia, 4/16/27. Calif., Vallejo, 11/23/39.

Fur Resources

Numerous Visitors at Station.--An unusually large number of persons visited the U. S. Rabbit Experiment Station, Fontana, Calif., during December, according to Director George S. Templeton. Rabbit meat prices and the advance of pelt values, he explained, have attracted more people to the industry, particularly individuals interested in handling rabbits in addition to their flocks of poultry as a source of family income. Among the visitors during the month were the 4-H Club from Mira Loma, on December 2; the Chino High School agriculture class, on December 6; and the Home Economics class of Indian girls and their instructors from the Sherman Institute at Riverside, on December 15.

Rabbit Breeders Meet at Station.--Rabbit breeders in the Fontana area held a meeting at the U. S. Rabbit Experiment Station on January 18. More than 50 persons attended. The increase of feed prices has compelled



many breeders, who formerly used proprietary mixtures, to figure more closely on the cost of feeding their rabbits. A breeder writing to the station declared that he was able to save \$14 a ton on his home-mixed rabbit ration based on the station's formula. Formerly he used a pelleted ration.

Muskrat "Mansion" 22' X 10'.--Dr. Herbert L. Dozier, director of the U. S. Fur Animal Field Station on the Blackwater Migratory Bird Refuge, Md., recently reported finding a large muskrat house. By actual measurement this house was 22 feet, 7 inches at the greatest length, 10 feet at its greatest width, and 2 feet, 8 inches high above the water line on still-water marsh. Apparently the house was too large for one family, since a large nest was found in each end of the house. It was estimated that the house contained nine tons of material.

Skunks Reported Rare in Maryland County.--Skunks are so rare in Dorchester County, Md., that when one was trapped on December 20, 1939, an old, life-time resident declared that this was the third "polecat" ever reported in the county. Dr. Dozier said that the man has lived in this area for some 60 years.

Notes Comptability of Marsh Animals.--Large numbers of tadpoles and a few adults of a very small frog were found living on the Blackwater Refuge in the muddy water of one of the muskrat pens adjacent to the pond edge. The frogs were apparently in complete harmony with the muskrats, Dr. Dozier said. The adult frog has been determined by F. M. Uhler, of the Food Habits Section, to be the cricket frog, Acris crepitans.

On December 6, 1939, a brown female muskrat was found inside a nest box with a large female nutria. The muskrat had gnawed through two wire fences of adjacent pens to get to the nutria. The muskrat remained with the nutria for several nights. A similar occurrence was reported twice in 1938. These observations indicate that the muskrat and the nutria could live in harmony with each other if nutria should be liberated on the marshland in this country.

Large Nema Found in Raccoon.--While examining a 10-pound raccoon killed in Castle Haven swamp near Cambridge, Md., on December 14, 1939, Dr. Dozier found a large nema in the hind leg. This parasitic nema was 12-1/2 inches long.

Litter of Nutria Born.--A litter of 11 nutria were born at the Fur Animal Field Station on January 27, Dr. Dozier reported, but all the animals died because of unusually cold weather.

Muskrat Trapping at a Standstill.--Because of prolonged freezing weather on the Eastern Shore of Maryland, trappers in the vicinity of the Blackwater Refuge have discontinued activities during the early part of February. The number of muskrats trapped since January 1 was about one-tenth of normal, it was said. Some of the trappers have reported finding dead muskrats. Conditions, however, are not as severe as in 1934 when hundreds of muskrats in the same area were killed for their fur after they got out on the ice.

Hold Muskrat Skinning Contest.--Dr. Dozier assisted in a muskrat skinning contest held in Cambridge, Md., on February 7. A thousand spectators were crowded into a local theater to see this contest. There were 15 entrants in the men's contest, and 3 in the women's. The winner skinned five muskrats without injury to the pelts in 2 minutes and 38 seconds. There was also a contest on skinning muskrats while the contestants were blindfolded, which was done by the winner in about 40 seconds. Contestants were entered from Delaware, New Jersey, and Maryland, and though faster time was made by some individuals, they were disqualified for cutting the pelts.

Press Interest in Fur Station Increasing.--Charles F. Bassett, director of the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., said that a local newspaper reporter visited the station on December 27, 1939, to obtain information on the electrocution of foxes and a story on the foxes turned loose in the furring run. An Associated Press representative also visited the station on December 28 to take pictures of the station's equipment, particularly that for the electrocution of foxes during pelting time. A feature writer of the New York Herald-Tribune recently obtained detailed information on the farming of minks and foxes when officials of the Section were in New York City.

Collects Material for Studies.--Dr. Robert K. Enders, in charge of the fur-animal embryological studies at Swarthmore College, spent December 4, 5, and 6 at the Fur Animal Experiment Station during pelting operations. He collected material for his embryological studies on foxes and minks.

Fur Trade Studies Experimental Silver Fox Skins.--Frank G. Ashbrook, Charles E. Kellogg, and Mr. Bassett were in New York City, January 15 to 17, to conduct their annual study of all the silver fox skins produced on various rations under investigation at the U. S. Fur Animal Experiment Station. Experts of the fur trade assisted in the examinations. A total of 104 foxes were pelted this year. The majority of these skins had been produced upon rations containing a liberal quantity of soybean meal as replacement for raw meat. On January 18, Messrs. Ashbrook, Kellogg, and Bassett held a conference with Dr. Enders at Swarthmore. The embryological experimental investigations of silver foxes and minks were reviewed, and the foxes recently shipped from Saratoga Springs for use at Swarthmore were inspected.

#### Disease Investigations

Game Birds Get Poultry Diseases.--Well-known diseases of domestic farm poultry are often infectious to wild game birds when the poultry and game are closely associated, said Dr. J. E. Shillinger recently. In the past many game breeders have attempted to propagate quail and other game with the help of broody hens. Too often the farm hens carry insidious or latent infections to which they are resistant and suffer no noticeable harm. Disease organisms are transmitted from the hens to the young birds during the process of hovering the young quail chicks and while feeding with them, and the consequences are usually disastrous. All wild creatures seem to be more susceptible to the various forms of disease than domestic stock. Farm flocks have been



housed and grazed on contaminated premises for so many centuries that they have developed a high degree of resistance to many of the ordinary disease germs and parasites, Dr. Shillinger said. This acquired immunity has not become a part of the wild game birds' physiology and as a result game birds are readily attacked and succumb.

Various writers have recently reported this condition in published articles, and warnings have been issued to breeders to keep game isolated from farm flocks. Maintaining game birds for propagation on wire floors and supplying commercial feed is not wholly satisfactory and is expensive, but by this process more quails can be raised than by the old method with chickens. In the wild state losses from disease also occur when the population becomes too dense and pollution of the ground occurs. These losses are most pronounced during unfavorable weather conditions and when native feed is scarce.

Blood on Axe Used as Evidence.--Recently a game protector brought a confiscated hand ax and a stick of wood, each being liberally stained with what appeared to be blood, to the Section of Disease Investigations. The game official wished to know if these stains were the blood of a deer. Rabbits were sensitized to the blood of deer collected during the legal hunting season. After a series of injections of deer blood the rabbit blood showed a positive reaction to the suspected material when a few drops were taken in a small test tube. This test is similar to that used to identify the origin of certain commercial meats sold on the market and by crime detection organizations in their efforts to solve problems associated with injuries to persons.

#### National Park Wildlife

Harbor Will Not Damage Wildlife.--After investigating a proposed CCC project involving the construction of a boat harbor at Morro Bay State Park, Calif., Biologist E. Lowell Sumner, Jr., reported that little damage to wildlife will be caused by the proposed harbor, since it will not cut through the marshy wildlife area.

Finds Unusual Parasite in Deer's Eyes.--A recent examination of three vials of parasitic worms from a California mule deer, a bobcat, and a gray fox by Dr. M. A. Stewart, assistant professor of entomology at the University of California, Davis, Calif., disclosed 8 specimens of Thelazia californiensis Price from the eyes of a buck deer; specimens of Toxocara cati (Schrank), Toxascaris leonina (Linstow), Taenia pisiformis (Bloch), and Mesocestoides variabilis Mueller from the stomach and gut of the gray fox. The deer, bobcat, and gray fox were taken on the Sequoia National Park, Calif. The presence of Thelazia californiensis from the eyes of the deer represents the first observation of the parasite in this species, although it has been reported from the eyes of dogs and sheep.

Lectures.--Wildlife Foreman Fred M. Packard, of Rocky Mountain National Park, addressed the following groups on conservation problems: University of Colorado, December 8; Senior and Noncollege Vocational classes of the



Passaic, N. J., High School, January 2; Seventh and Eighth Grades of the Brooklyn, N. Y., Ethical Culture School, January 4; Woodward School, Brooklyn, N. Y., January 5; and Brooklyn Bird Club at a special meeting in the Children's Museum, January 5. A class in Wildlife Conservation has been conducted by Mr. Packard once a week for CCC enrollees.

Discusses Conditions on Ozarks.--A resume of and suggestions for wildlife, forestry, and photography activities at the Lake of the Ozarks Recreational Demonstration Area, Mo., have been recently submitted by Wildlife Foreman David Damon, of the National Park Service CCC staff. Considerable progress has been made in wildlife protection in the area during the last 2 years. Some poaching is still known to occur but has been greatly reduced by posting of protection signs. Additional protection to native wildlife has resulted through the nearly complete elimination of livestock grazing. During Mr. Damon's stay in the area, 1,293 birds, representing 46 species, were banded; a record was kept of all birds and mammals found on or near the area; and a small insect collection was started. A proposed dam across the Grand Glazize arm of the lake, below the public area, making possible a nearly constant water level, would permit the establishment of aquatic vegetation and create better habitats for all forms of aquatic life, it was said.

Suggests Grassland Restoration Methods.--The best method of restoring the native grassland at Homestead National Monument, Nebr., would be to obtain the prairie sod from doomed prairie areas and transplant them on the Monument, according to Biologist Adolph Murie. Principally the Monument has two prairie habitats, the well-aerated lowland type occupied by big blue-stem (Andropogon furcatus) and the upland type occupied by little blue-stem (Andropogon scoparius). The sod should be restored in several patches scattered over the area, thus permitting a more rapid spread of the prairie species, Dr. Murie said. Since it is likely that there will not be sufficient sod available to cover the area, other parts could be sown with grasses and various prairie herbs.

Count Waterfowl on Yellowstone.--More than 2,500 waterfowl were counted on Yellowstone National Park, Wyo., when National Park Service observers made their annual inventory on January 24, 25, and 26. This indicated an increase of 45 percent since the 1939 inventory was taken. Of the total reported, 1,877 were ducks, 601 were Canada geese, and 34 were trumpeter swans. The fact that the Yellowstone River was almost entirely frozen over probably accounts for the low trumpeter swan count of 34 as compared with 106 last year.

Attends Meeting.--Wildlife Technician Willis King, of Great Smoky Mountains National Park, attended the meeting of the Knoxville Science Club on January 12. Methods of studying the bacteriology of fresh-water lakes were discussed.

Technician Dies.--Dr. H. M. Jennison, former wildlife technician with the National Park Service, died on January 5. "A staunch supporter

of the wildlife program in the national parks, his loss will be keenly felt by his many friends and associates in the Service," Mr. Cahalane said.

#### FEDERAL AID IN WILDLIFE RESTORATION

Meets with Wisconsin Officials.--Robert M. Rutherford conferred with regional office personnel and representatives of the Wisconsin Conservation Department in Milwaukee on January 22, 23, and 24, relative to problems in the Federal Aid program. He returned to Washington on January 25.

Visits S.C.S. Districts.--William J. Howard, biologist, and representatives of the Soil Conservation Service left Washington, D. C., on January 20 for Mississippi, Louisiana, Arkansas, and Oklahoma, where they inspected the work being done in several Soil Conservation districts, particularly from the standpoint of wildlife restoration benefits and possibilities. Mr. Howard returned to Washington on February 1.

Inspects Federal Aid Accounts.--Howard B. Leach, traveling auditor, left Washington, D. C., on January 17 for an extended trip to Michigan, Colorado, Wyoming, Utah, Idaho, Oregon, and Washington, where he audited cost accounting records on completed Federal Aid projects and advised the accounting sections of the respective State game departments regarding fiscal procedures of their Federal Aid programs. He returned to Washington on February 20.

Grouse Management to be Studied.--Two similar areas in each of three State forests will be established with Federal Aid funds by the Connecticut State Board of Fisheries and Game, it was recently announced. One area in each forest will be developed for wildlife according to present recommended practices; the other will be used as a check area. Grouse and other woodland species will be benefitted. Records will be maintained to ascertain costs of such operations, and the relative value of treatment will be determined by comparison with similar, untreated areas. It is estimated that the State has some 90,000 acres of publicly owned forest land where little has been done to improve conditions for grouse and other woodland species. This is not because the Board has no interest in the problem, it was explained, but because there is no information on suitable practices adaptable to the conditions existing in Connecticut. This investigation will be carefully correlated with other forest wildlife investigations being conducted in the New England States.

Continue to Develop Sandhills.--To provide for the maximum game productivity of the North Carolina Sandhills the Division of Game and Inland Fisheries of the North Carolina Department of Conservation and Development has proposed a Federal Aid program to increase the permanent cover and food-bearing plants on the area. The United States Soil Conservation Service and other agencies are cooperating on the project, which was approved by the Biological Survey on January 24, 1940.

Records indicate that the Sandhills area, which embraces approximately 40,000 acres in south central North Carolina, supported abundant wildlife populations before the eras of large timber operations and agricultural ex-



pansions. The lands are substandard for agricultural purposes and were purchased as a part of the United States Department of Agriculture program of retiring such lands from agricultural use. The administration of the area was subsequently turned over to the North Carolina Department of Conservation and Development. Much development, such as building trails, planting forest trees, and establishing a large fish hatchery, eleven lakes, and a complete game farm unit has been accomplished with funds other than Federal Aid. The area has been closed to hunting since 1936 and observers report that a marked increase can be noted in the populations of resident game.

Ruffed Grouse Restored in Ohio.--The Ohio Division of Conservation and Natural Resources has succeeded in reestablishing ruffed grouse in several places by reintroducing the birds in suitable habitat. The program proved so satisfactory that the State plans to expand the program with Federal Aid funds. The project was approved on January 31 and will provide breeding stock on eight refuges, seven of which are in the south central part of the State. These refuges lie in a territory where grouse habitat was completely destroyed by lumber operations but has now reverted and again provides suitable grouse cover. All birds will be banded at the time of release and will bear the legend "Return to the Ohio Division of Conservation, Columbus," the letter "C", and a serial number. The stocked sites will be closed to hunting for at least 5 years and as long thereafter as may be necessary to insure the continuance of a satisfactory population.

Detailed to Washington.--Dr. A. B. Hatch (see "Personnel," page 56) was detailed to the Washington office for approximately 2 weeks during January. He returned to his official headquarters in Portland, Oreg., on February 1, stopping enroute at Denver and Boise.

Enlarge Winter Deer Range.--The third segment of land to be added to the Sinlahekin winter range for deer in Okanogan County, Wash., will be purchased under a Federal Aid project approved on February 12, it was announced. About 813 acres will be added to the present area. On March 30, 1939, the Biological Survey approved preliminary plans, submitted by the Washington State Department of Game, to acquire approximately 18,000 acres for the deer winter range. The first project, for the purchase of 1,420 acres within this range, was approved on July 6, 1939. On September 12, 1939, purchase arrangements were completed and approved for a second segment embracing 1,508 acres. This is one of several areas within which the State Game Department is purchasing lands under the Federal Aid program.

Buy Elk Range.--The Washington State Fish and Game Department has proposed a program for the acquisition of an extensive range of land in Yakima County to be used as an elk range and wildlife refuge. On February 12, the Department received approval to use part of its Federal Aid funds to purchase the first segment of land in the area. There are approximately 12,000 acres of State and Federally owned land within the exterior limits of this area, which is located in what is said to be one of the finest elk-producing regions in Washington State. Last year, some 1,000 elk were



recorded at "checking" stations in the locality. Many of the animals were killed within the boundaries of the proposed range.

Propose to Develop Antelope Range.--The Washington State Game Commission will purchase 7,850 acres of land as part of a proposed antelope range and wildlife refuge on Squaw Creek in Kittitas County. The Federal Aid project was approved on February 12. While this refuge is primarily for antelopes, it will also benefit sage hens, quails, and other important game birds. The purchase program anticipates the ultimate acquisition of some 10,000 acres of land now principally used for grazing purposes. The State, County, and Federal governments now own approximately 2,000 acres within the area. Practically all the private land within the project has been optioned.

Acquire Panther Creek Unit.--Under a Federal Aid project approved on January 24, the West Virginia Conservation Commission is acquiring 5,268 acres in McDowell County as a wildlife refuge. The entire area will be closed to hunting until there is a surplus of game, at which time controlled shooting will be permitted on not more than two-thirds of the area. A patrolman will be in charge of the refuge and will reside there. The refuge will be fenced and posted, fire lanes established, and, where the need is demonstrated, cover improvements will be initiated. Deer, raccoons, opossums, ruffed grouse, quails, cottontail rabbits, squirrels, and other native forms of wildlife will benefit by the refuge.

Develop Nathaniel Mountain Refuge.--Early in April 1939 the West Virginia Conservation Commission acquired approximately 9,000 acres known as the Nathaniel Mountain Wildlife Management project. Plans to erect headquarters buildings and two overnight cabins were approved by the Biological Survey on February 1. The area is oblong in shape and located in mountainous terrain. The headquarters unit will consist of a four-room refuge-keeper's house, woodshed, workshop, and service building located near the center of the refuge. Two overnight 8' x 10' cabins will be built near the extremities of the property to provide shelter for the patrolman when needed.

Personnel.--Dr. A. B. Hatch, formerly associated with the University of Idaho and with the Idaho Fish and Game Department, was appointed associate regional inspector, it was recently announced. His official headquarters will be Portland, Oreg. Dr. Hatch has had extensive experience in forestry research and in the teaching and management of wildlife.

Miss Vienna Belto, formerly of the Veterans' Bureau, recently transferred to the Division as junior clerk-stenographer.

#### LAND ACQUISITION

Enlarge Upper Mississippi Refuge.--The President on January 24 signed an Executive Order entitled "Enlarging the Upper Mississippi River Wildlife and Fish Refuge--Minnesota and Wisconsin." This order effects the reservation of 15,824 acres of land as part of the refuge. These lands were

acquired by the War Department in connection with the improvement of the Mississippi River for navigation and other purposes. They remain under the primary jurisdiction of that Department.

Necedah Name Changes.--The President on January 15 signed Executive Order No. 8319, entitled "Changing the Name of the Necedah Migratory Waterfowl Refuge and Adding Certain Lands Thereto." This refuge will hereafter be known as the Necedah National Wildlife Refuge.

Add to Susquehanna.--On January 24 the President signed a proclamation entitled "Closed Area Under the Migratory Bird Treaty Act--Maryland." This area is an addition to the Susquehanna Migratory Waterfowl Closed Area, which is located on Chesapeake Bay in Cecil and Harford Counties.

#### Surveys and Maps

Go to St. Marks.--Oswald E. Recroft, cadastral engineer, and Merland H. Benedict, engineering aide, were recently assigned to the St. Marks Refuge, Fla.; where they will be engaged in making boundary surveys of that part of the refuge acquired by the Farm Security Administration and transferred to the Bureau as an addition to the St. Marks unit.

Returns to Field.--Cadastral Engineer Marion E. Phillips has completed a short detail in the Washington office and is now in Mays Landing, N. J., where he is engaged in assembling record data preparatory to further field surveys on the proposed Brigantine Refuge in New Jersey.

#### WILDLIFE REFUGES

In Washington.--L. M. Sinsor and Brice McBride, both of the Salt Lake City engineering office, and George E. Barclay, of the regional office at Albuquerque, arrived in Washington on February 12 to confer with Bureau officials about the Bosque del Apache (N. Mex.), Sacramento (Calif.) and Souris River (N. Dak.) Refuges.

Bureau Employee Drowned.--Joseph G. Teff, employed since January 8, 1934, as a U. S. deputy game warden and deputy reservation ranger on the Upper Mississippi Wildlife Refuge, Minn., was drowned on December 15 when he broke through the ice and fell into about 6 feet of water while patrolling in the Winneshiek Bottoms of the refuge in Crawford County, Wis.

Controlled Burning Effective on Pea Island.--Controlled burning was recently completed on two sections of the Pea Island Refuge, N. C., to improve late winter grazing for Canada geese and to make three-square rootstalks (Scirpus americanus) more readily available to the greater snow geese. During the past season, it has been found that a combination of severe winter weather and a relative scarcity of low Spartina alterniflora feeding grounds has caused the snow geese to feed more extensively on three-square rootstalks. Controlled burning of the Spartina patens-Scirpus americanus association removes the dense over-story of dead vegeta-



tion, giving the snow geese free access to the rootstalks. Spartina alterniflora rootstalks are the staple snow goose food, and feeding on other species, except Scirpus americanus, is usually incidental to the puddling out of rootstalks of these plants.

Controlled marsh burning has also been conducted at the Mattamuskeet and Swanquarter Refuges, N. C., and will be done during February on the Bombay Hook, Del., and St. Marks, Fla., Refuges. Controlled upland burning was also done during February on the Piedmont, Carolina Sandhills, and Savannah Refuges.

Conservation Officials Visit Refuges.--Davis A. Aylward, president of the American Wildlife Federation; J. A. Hagar, of the Massachusetts Department of Conservation; and Regional Director S. Barry Locke recently visited the Back Bay, Va., and Pea Island and Mattamuskeet, N. C., Refuges to observe the methods employed in developing and managing these coastal waterfowl areas. Dr. Clarence Cottam, of the Food Habits Section, and R. E. Griffith, of the Division's Washington office, accompanied the party and explained the details of the program on these refuges.

Sees First Razor-billed Auk.--Refuge Manager S. A. Walker reports that he saw the first razor-billed auk of the winter on the Pea Island Refuge, N. C., on January 8. Although this bird is rare in North Carolina, a few have been seen on the refuge each winter since 1936. Usually only one bird is seen at a time, but in January 1938 Mr. Walker saw 5 along the shore, all covered with oil.

Ducks Winter on Lower Souris.--Between 2,000 and 3,000 mallards used an open water hole on the Lower Souris Refuge, N. Dak., all winter, according to Refuge Manager C. J. Henry. Not even the oldest settlers can recall ever seeing ducks in this vicinity in January, he said. The winter was extremely mild and was normal only during the latter part of January.

Deer Increasing on Refuge.--Mr. Henry reported that 102 deer were counted on 1,720 acres of the Lower Souris Refuge last November, as compared with 152 deer on 3,360 acres in November 1938. Using these figures as a basis, it was estimated that 600 deer were on the refuge in 1938 and 790 in 1939, an increase of 31.6 percent.

Big-Game Animals Sold.--In January Wesley D. Parker, refuge manager of the Sullys Hill Game Preserve, N. Dak., sold 12 big-game animals that were surplus to the needs of the refuge. Six elk and one buffalo were delivered to purchasers after having been slaughtered and dressed out for transportation. One purchaser received 5 buffalo calves, which were hauled alive via truck from the refuge to Barrington, Ill.

Ducks Wintering on Ardoch Lake Refuge.--Mr. Parker, who in addition to being manager of the Sullys Hill Preserve is in charge of some easement refuges in North Dakota, observed two large flocks of ducks on the Ardoch Lake Refuge during the latter part of January. About 300 ducks have been staying on this refuge all winter, he asserted.



Last of Original Longhorn Herd Dies.--"Old Red," the last survivor of the original herd of Texas longhorn cattle brought to the Wichita Mountains Wildlife Refuge, Okla., in 1927, died early in January. Refuge personnel believe that old age and freezing temperatures combined to cause the death of the more than 20-year-old cow. Reared in the mesquite-catsclaw county near Edinburg, Tex., before being brought to the Wichita Refuge, "Old Red" produced 8 longhorn calves in 12 years. Among her offspring are several of the fine steers that are now numbered among the 146 animals in the refuge herd.

Elk Makes Record Jump.--A 3-year-old bull elk recently ran 30 feet and cleared a 9-foot fence at the corrals on the Wichita Mountains Wildlife Refuge, Okla. Ranger William E. Drummond said that in his 18 years at the refuge this is the first time that an animal has been able to clear the high plank fence. The elk's hind feet touched the top of the enclosure, but he landed right side up and unhurt on the other side.

Reports Big Game Numbers.--At the close of the calendar year, there were 416 buffaloes, 188 elk, 13 antelopes, 146 Texas longhorns, and 772 white-tailed deer on the Wichita Mountains Refuge, according to Superintendent Ernest J. Greenwalt. Two buffalo calves were born in December.

Personnel Items.--The following transfers of field personnel have recently been made: Harold W. Hicks, assistant forester, from the White River Refuge, Ark., to the Okefenokee Refuge, Ga., on January 8; Clayton R. Lang, clerk, from the Upper Mississippi Refuge, Minn., to the Wichita Refuge, Okla., November 16; Alastair D. Campbell, assistant refuge manager, from the Bitter Lakes Refuge, N. Mex., to the Bosque del Apache Refuge in the same State, December 22; and Eugene Cypert, junior biologist, from the White River Refuge, Ark., to the Kentucky Woodlands Refuge, Ky., December 11.

Effective December 1, Percy M. Johnson was appointed junior clerk-stenographer at the Wheeler Refuge, Ala.

James Odell IV was appointed on December 12 as clerk-patrolman on the White River Refuge, Ark.

Joseph A. Willey and John R. Phillips were appointed U. S. deputy game wardens on the Blackwater Refuge, Md., on November 1; and Dock A. Rider was appointed to the same position on the Okefenokee Refuge, Ga., on January 1.

Elmo Traylor was given an appointment as cooperative agent on the Rio Grande Refuge, N. Mex., effective January 20.

Julian A. Howard, junior biologist, was appointed to the Sabine Refuge, La., on February 1.

John W. Garner was appointed U. S. game management agent on the Susquehanna Flats Refuge, Md., effective November 7.

The following junior refuge managers have been appointed: Kenneth MacDonald, Arrowwood Refuge, N. Dak., effective December 16; John L. Sypulski, Seney Refuge, Mich., January 16; William E. Green, Upper Mississippi Re-

fuge, Minn., January 11; and Merton W. Heth, Valentine Refuge, Nebr., January 16.

Thomas B. Lawson, patrolman-laborer, who was severely injured in July 1938, while employed on the Lower Souris Refuge, N. Dak., resumed work on the refuge on December 1 on a part-time basis.

Samuel L. Crosthwait II was appointed associate biologist on December 1. He is stationed at the Atlanta regional office.

The following laborer-patrolmen have recently been appointed: Henry H. Grammer, Wheeler Refuge, Ala.; Hugh F. Wright, Kofa Game Range, Ariz.; Harry E. Wehr, Sacramento Refuge, Calif.; Tibald R. Gallo, Bombay Hook Refuge, Del.; Joe Morton, Piedmont Refuge, Ga.; Boyce T. Evans, Noxubee Refuge, Miss.; Harvey G. Potter, Little Pend Oreille Refuge, Wash.; George W. Goodyear, Desert Game Range, Nev.; Elmer C. Anderson, Rice Lake Refuge, Minn.; Clarence H. Buer, Upper Souris Refuge, N. Dak.; Richard J. Hitch, Wichita Refuge, Okla.; Joe B. Phillips, Wichita Refuge, Okla.; Cornelius W. Wallace, Susquehanna Refuge, Md.; Ingvald V. Martinson, Lower Souris Refuge, N. Dak.; Marcelle Leake, Red Rock Lakes Refuge, Mont.; Alfred A. Jones, Hutton and Bamforth Lake Refuges, Wyo.; Edwin M. Wilson, Valentine Refuge, Nebr.; and Franklin Allen, Boulder Canyon Refuge, Ariz. and Nev.

#### CONSTRUCTION AND C.C.C. OPERATIONS

67,000 New Enrollees.--State selecting agents had to turn down more than 100,000 men who sought admission to the CCC during the enrollment period ending January 20. Some 67,000 rookies were selected, bringing the corps back to full strength. The corps, on January 20, contained 300,000 enrolled men, including some 27,000 war veterans.

Inspects Virginia Camp.--Mr. Terhune drove to Pungo, Va., on February 8 to inspect Back Bay Camp BS-1, Va. He returned to Washington on February 10.

Visits Camps in Southwest.--P. S. Munk Pedersen left Washington on January 20 for Kingman, Ariz., where he was met by Mr. Lundeen, regional CCC inspector. Together they inspected the Desert Game Refuge, Nev., the CCC side camps at the Boulder Refuge and the camps at the Bosque del Apache and Bitter Lake Refuges, N. Mex. A visit was also paid to the regional office in Albuquerque. At Houston, Mr. Pedersen was met by Mr. Hedrick, regional CCC inspector. They drove to Aransas Camp BS-1, Tex., and then to Sabine Camp BS-1, La. Mr. Pedersen's last stop was in New Orleans, where he spent a day in the regional office. He returned to Washington on February 6.

Goes to New Jersey, Delaware.--O. W. Teckemeyer left Washington on February 12 and went to Bombay Hook Camp BS-1, Del., and then to Brigantine Camp BS-2, N. J., to investigate CCC activities on the refuges. He returned to the Washington office on February 16.

Side Camp Active.--The work of the sidecamp at White River, Ark., progressed in a satisfactory manner at Jacks Bay last month, according to reports. Logging operations on the White River Levee have been completed



except for barging logs to the sawmill. This will be done later when the water level on the river and Big Island Schute will permit. All control units have been completed in the Goose Lake area with the exception of number one which is under construction and is to be finished shortly, it was said. About 1,500 feet of boundary fence has been completed in the extreme south end fence line, 2 miles south of the side camp. Waterfowl feeding operations on five lakes in the vicinity of Jacks Bay are also being conducted by members of this camp. It is reported that a heavy concentration of ducks may be observed on the Goose Lake feeding range.

Repair Break in Dike.--Heavy rains broke the southwest dike at Tule Lake, Calif., and the camp's heavy-equipment operators were called out. The bulldozer crews worked in double shifts to repair the damage.

Find Indian Skeletons.--Work crews in the gravel pit at Tule Lake recently dug up an old Indian skeleton. A week later four more skeletons were found. These skeletons are believed to be those of warriors killed in the Modoc Indian war.

CCC Boys Turn Lumberjacks.--The supply of coal at Camp Tule Lake was temporarily depleted in January, and the thermometer was near the zero mark. When it was learned that no coal could be obtained for some time, a wood-cutting crew was hastily organized and sent to the Modoc National Forest, 40 miles from the camp. This was the nearest source of available timber for wood. The crew cut huge yellow pine trees into 10-foot logs. A "22" caterpillar was used to haul the logs in the forest and a semitrailer truck to carry them to camp. The camp heat problem was solved.

Celebrate Safety Record.--Rae A. Kneeshaw, camp superintendent at Bombay Hook Camp BS-1, Del., reports as follows: "The success of our 500-day drive without a lost-time accident was rewarded with an elaborate dinner attended by speakers of the Second Corps Area staff and prominent citizens of Philadelphia and local towns in this vicinity. A plaque was presented to the camp by the Second Corps Area. Congratulatory wires and telephone calls were received during the day, one of the most gratifying being sent by Mr. duPont, of the Delaware Safety Council, stating that 'many industrial firms would be mighty proud to make such a safety record.'" On January 31 this camp ended a 16-months period without a lost-time accident.

Four camps in Region 1 have excellent safety records and with Bombay Hook lead all the other camps. As of January 31, Tule Lake Camp BS-3, Calif., had gone 24 months without a lost-time accident; Hart Mountain Camp BS-4, Oreg., had gone 16 months; Five Mile Camp BS-1, Oreg., 12 months; and Sod House Camp BS-2, Oreg., 10 months.

Operate Short-wave Station.--A short-wave radio telegraph station has been installed at the Rice Lake camp, Minn., under the direction of P. G. Carney, engineering aide to the district signal officer at Fort Snelling. The station will be used by radio classes and will afford student radio operators practical training and experience in the sending and receiving of radio messages.



Two More Enrollees Make Good.--Duane A. Geyer and Wilford F. McCumber, leader and project assistant at Medicine Lake Camp BS-2, Mont., have left for Baltimore, Md., where they will work for the Social Security Board. Both young men were successful in passing Civil Service examinations.

Gale Isolates Camp.--Pea Island Camp BS-2, N. C., was isolated for several days in February when a 65-mile gale damaged the bridge that connects the camp with the mainland. Temporary repairs to the bridge have been made. The gale proved helpful in building up sand fences at both Pea Island and Back Bay, Va. At Back Bay, where the wind came from the west, some 6 miles of double-row fencing were completely covered by sand. Several thousand yards of sand were shifted into place overnight.

#### GAME MANAGEMENT

Fined \$80 For Baiting Doves.--Three residents of Greenville, Ala., were apprehended shooting mourning doves over bait on January 2 by a State and a Federal game warden. The violators entered pleas of guilty in State court on January 5. The owner of the property was fined \$80 and costs of \$5, and the other two defendants each paid \$20 and costs of \$5.

Shot After Hours.--Four residents of Arkansas were apprehended shooting wild ducks after 4 p. m., on December 13, 1939, by a Survey agent and a State game warden. Each hunter was fined \$25 in State court.

Killed Fawn.--Killing a deer fawn cost a resident of Tule Lake, Calif., \$75. The violator was fined in State court, after being apprehended on February 3 by a Survey agent and a State game warden.

Used Live Decoys.--Two persons charged with hunting ducks by aid of live decoys were fined \$12.50 each in Federal court for the Northern District of Illinois on December 4, 1939.

Possessed Wood Ducks.--A Survey agent and a State game warden arrested 12 residents of Iowa in November 1939 for killing or possessing wood ducks. The violators were taken into State court, where each was fined \$50.

Close Season Hunters Get Heavy Fines.--A resident of Kentucky, who hunted wild ducks in Missouri on January 2, was fined \$75 and costs of \$26 when arraigned in a State court in Missouri. His hunting companion was fined \$25 and costs of \$11. The evidence was obtained by Federal agents and a State conservation agent.

Three Fined.--Three hunters from St. Genevieve, Mo., were arrested while hunting ducks on February 11. They were apprehended by a Survey agent and State game wardens. The violators, taken into State court, pleaded guilty. Two were fined \$10 and costs of \$5, and the third hunter \$25 and costs of \$5.

Fined and Jailed.--A resident of Atlantic City, N. J., was apprehended near that city on January 12 while hunting wild ducks. A Survey agent and a State game warden made the arrest. The violator appeared in State court at Brigantine, N. J., on the same day and was fined \$20 and costs of \$5.50. In addition he was sentenced to 30 days in the county jail. This sentence was imposed because the violator was attempting to kill ducks that were being fed during freezing weather by sportsmen's clubs, the State Game Department, and the Biological Survey.

Falsified Residence.--After purchasing a resident hunting license, a resident of Oklahoma who hunted and killed a deer in New Mexico on November 4, 1939, was apprehended by a Survey agent. The hunter entered a plea of guilty in State court and was fined \$100 and costs of \$29.50.

33 Fined \$1,705.--Thirty-three persons were arrested in South Carolina during December 1939 for various violations of game laws. Survey agents and State game wardens cooperated in the arrests. The violators were taken into State courts, where fines aggregating \$1,705 were assessed and paid. Some fines assessed were for the following violations: 5 residents of South Carolina shooting ducks over bait, \$50 fine each; 3 residents of Delaware and 1 of North Carolina shooting ducks over bait, \$100 fine each; 1 resident of South Carolina possessing wood ducks and transporting illegal raccoon hides, \$400 fine; 1 resident of Washington, D. C., hunting with improper license, \$100 fine; and 1 resident of Savannah, Ga., hunting ducks from motor boat, \$100 fine.

Dove Hunters Used Bait.--For shooting mourning doves over bait, nine residents of South Carolina were arrested on January 30 and in State court were fined \$25 each. The arrests were made by cooperating State wardens and Survey agents.

Hunt Quail Without License.--Two Texans were fined \$50 and costs of \$29.50 each for hunting quail in New Mexico on December 10, 1939, without a State hunting license. Arrested by a Survey agent, the hunters entered a plea of guilty in State court.

Fined for Killing Deer in Closed Season.--As a result of investigations by a Survey agent and State game protectors, a resident of Blanchard, Wash., who illegally killed a 3-point buck deer, on January 6, was taken into Washington State court on January 31. He was fined \$250 and costs.

#### PREDATOR AND RODENT CONTROL

Tours Western States.--Mr. Green left Washington on January 1 for an extended field trip, on which he conferred on predator-control work with the Regional Director and Division personnel in Colorado, Idaho, Montana, and Wyoming, and with groups of woolgrowers in the various States. He returned via New Mexico and Texas, meeting also with the Regional Director and Division personnel in these States. He arrived in Washington on February 10.

Market for Jackrabbit Meat Encourages Control.--The fur-farming industry in Colorado is the source of at least a limited market for jackrabbit meat, it is reported. The rabbit carcasses are frozen, ground, and fed to foxes as part of the ration. Between November 20, 1939, and January 4, 1940, a cooperative jackrabbit skinnery at Simla, Elbert County, Colo., received some 36,000 jackrabbits and sold 70 tons of jackrabbit meat to the Rocky Mountain Fur Growers Association. Several "pick-up" stations, which act as feeder stations to the main skinnery at Simla, were located throughout the area. Farmers are paid 7 cents a rabbit, delivered to the pick-up station, and the pick-up station man one-half cent a rabbit for handling. During the winter of 1938-39 the skinnery sold 49 tons of jackrabbit meat, mostly on an experimental basis to determine the value of rabbits as fox feed. If this market develops it will give further encouragement to farmers in controlling jackrabbits, Mr. Green declared.

Field Mice Damage Bulbs.--District Agent Geo. B. Lay reports that field mice are a serious menace to at least one bulb grower on Long Island, said to be the largest forced-bulb grower in the United States. The grower states he has lost as much as 10,000 bulbs during one winter season. The bulbs were protected by hay a foot deep. This grower estimates his loss at 4 cents a bulb, which might mean the difference between profit and loss.

Rat Campaigns Successful.--Assistant District Agent Weldon B. Robinson conducted 13 county-wide rat campaigns in New York State on November 22, 1939, in cooperation with the New York Extension Service at Ithaca. Excellent results were recently reported by Mr. Robinson.

Make All-time Record Catch.--District Agent R. S. Zimmerman reports that an all-time predator-catch record was established in Utah during the first 6 months of the current fiscal year when 9,343 predators were taken in cooperative predator control projects. This catch exceeded by 1,143 animals the number that were taken in the corresponding 6 months period last year. October was the high month when 2,311 predators were taken.

Catch Early Breeding Coyote.--On December 21, 1939, a W. P. A. hunter in Washington County, Utah, took a female coyote that was carrying three unborn coyotes, Mr. Zimmerman reports. This is a case of unusually early breeding of coyotes in that State.

Improve Field Mouse Control Practices.--Investigator Donald A. Spencer spent November and the early part of December in West Virginia, where he assisted Investigator H. J. Spencer arranging an exhibit of rodents and their control at the horticultural show at Martinsburg, and in Indiana, Ohio, and Kentucky, where he aided District Agent G. C. Oderkirk in developing improved practices in field mouse control. It is felt that the improved practices as used in the northeastern States may be applicable in other areas, and Mr. Spencer's investigations in the north central States was to determine whether this is true. Mr. Spencer returned to his official station, Poughkeepsic, N. Y., on December 10.



Personnel.--Nelson H. Elliott was appointed junior district agent in the Texas district, under the supervision of District Agent C. R. Landon, effective December 11, 1939. Mr. Elliott's headquarters are at Marfa, Tex.

Clyde R. Madsen was appointed junior district agent in Nevada, under the supervision of District Agent G. H. Hansen, effective January 24. Mr. Madsen was formerly with the Grazing Service of this Department. His headquarters are at Elko, Nev.

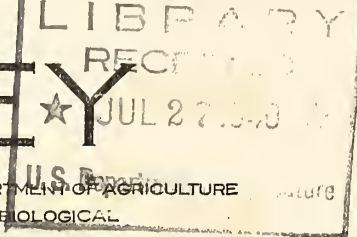
Richard A. Couri was appointed agent, effective February 1, under the supervision of District Agent Geo. B. Lay. Mr. Couri will be stationed at Storrs, Conn.

Mrs. Florence B. Dickover was appointed junior stenographer, effective January 26, under District Agent Geo. E. Holman's direction at the Boise, Idaho, office. Mrs. Dickover will fill the position vacated by Miss Gray H. Walker in May 1939.



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# THE SURVEY



ISSUED MONTHLY FOR THE PERSONNEL OF THE BUREAU OF BIOLOGICAL SURVEY, U. S. DEPARTMENT OF AGRICULTURE  
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Vol. 21

Washington, D. C., March 1940

No. 3

## GENERAL NOTES

Attends Federation Meetings.--On February 22, Dr. Gabrielson attended a meeting of the Maryland Outdoor Life Federation, which was held in Baltimore, Md. From there he went to Arkansas to participate in a meeting of the Arkansas Wildlife Federation, which was held in Little Rock on February 25. After the meeting he visited the following refuges: White River, Ark., Noxubee, Miss., Kentucky Woodlands, Ky., and Lake Isom, Tenn.

Addresses Forum.--On March 13 Mr. Henderson spoke at a meeting of the Cooperative Forum in Washington, D. C. He discussed "Why the Government Protects Wildlife."

Gets South Pole Assignment.--The following radiogram, dated West-base, March 2, was received from Jack E. Perkins, Bureau biologist with the Byrd Antarctic Expedition: "Have been appointed member of three man party attempting to establish outpost in Rockefeller Mountains 125 miles from Little America. Plan to spend winter there studying plants and birds."

Participate in Wildlife Conference.--Some 1,100 persons attended the various sessions of the Fifth North American Wildlife Conference, which was held in the Mayflower Hotel on March 18, 19, and 20, under the joint sponsorship of the American Wildlife Institute and the National Wildlife Federation. Among the officers of the conference was Dr. J. E. Shillinger, in charge, Section of Wildlife Diseases, Division of Wildlife Research, who served as chairman of the committee in charge of the technical sessions. Two of the technical sessions were headed by Biological Survey workers: P. A. DuMont, of the Division of Wildlife Refuges, was chairman of the session on waterfowl habitat management, and Dr. T. S. Palmer (retired) was chairman of the session on introduced species.

Papers presented by Biological Survey personnel were as follows: "Planning for Wildlife Restoration," Dr. Gabrielson; "How Goes the Pittman-Robertson Act?," Albert M. Day; "Ecological Classification of Mammals and Birds of Walker County, Tex.," Dr. Walter P. Taylor; "Non-game Birds Naturalized in North America," May T. Cooke and Phoebe Knappen; "Relation of Franklin's Gull Colonies to Agriculture on the Great Plains," P. A. DuMont; "The Influence of Birds on Local Grasshopper Outbreaks in California," Johnson Neff and C. C. Wilson (Bureau of Entomology and Plant Quarantine); "Birds as a Factor in Controlling Insect Depredations," F. M. Uhler and C. Cottam; "Bird Control: A Statement of Federal Policies with a Suggested Method of Approach," E. R. Kalmbach and Johnson Neff; "Is the Farmer-Sportsman Council the Answer," (panel discussion including D. I. Rasmussen and J. Paul Miller).



"Beaver-Trout Relations in the Rocky Mountain Region," D. I. Rasmussen; "Wildlife Management on Lands Ditched for Agriculture," W. S. Bourn; "The Life Equation of the Ringneck Pheasants in Pennsylvania," Pierce E. Randell; "Cottontail Nesting Study in Pennsylvania," John D. Beule; "Why There Is not More Wildlife on Agricultural Lands," J. Paul Miller and Burwell B. Powell (Bureau of Agricultural Economics); "Collecting and Storing Waterfowl Food Plant Seeds for Propagation," W. F. Kubichek; "Waterfowl Management on the Atlantic Coast Refuges," R. E. Griffith; "Goose Habitat Management in the Western States," Cecil Williams and Clarence Sooter; "The Muskrat: A Factor in Waterfowl Habitat Management," W. L. Krummes; "Crow-Waterfowl Refuges," Merrill C. Hammond; "The Role of Exotics in the Ohio Valley," Lawrence Hicks; "Status of the Hungarian and Chukar Partridges in the United States," Clarence Cottam, Arnold L. Nelson, and L. W. Saylor; and "Wildlife Introductions in Alaska," Olaus J. Murie.

Retired Bureau Employee Dies.--Mrs. Ada Byron Morrison, who retired from active duty on April 28, 1929, died recently in her home in Washington, D. C. Mrs. Morrison, who completed 42-1/2 years of continuous service before retiring, received her first appointment in October 1886. Joining the Survey as a clerk, she later became Assistant to the Chief, serving under C. Hart Merriam, Henry W. Henshaw, Edward W. Nelson, and Paul G. Redington.

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (February) of the Survey:

- No. 21. Revised. Amendment No. 13. Instructions in solicitation and acceptance of bids. 1. Excise Tax Questionnaire. 2. Use of Standard Form No. 33 (Revised), dated January 17, 1939. 3. Delays--Liquidated Damages (where bond is required). (February 23.)
- No. 39. Revised. Amendment No. 5. New edition of Government Travel Regulations. (February 23.)
- No. 195. Amendment No. 3. Revised catalog of supplies and material issued through the Central Supply Section of the Department of Agriculture. (February 17.)
- No. 293. Amendment No. 1. Appointments and other personnel actions in the field service--amendments to procedures. (March 1.)
- No. 294. Amendment No. 1. Distribution of contract bulletins and price lists. (February 16.)
- No. 305. Correspondence between employees of the Biological Survey and the National Park Service. (February 20.)
- No. 306. Bureau and Department forms. (February 21.)
- No. 307. Voluntary contributions of the Civil Service Retirement and Disability Fund; joint and survivorship option of employees retiring on account of age. (March 4.)
- No. 308. Questionnaire on membership in military and naval organizations. (March 5.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 123. Contracts for the procurement of life preservers, canisters, cartridges, filters, gloves, goggles, foot and shin guards, and masks (Classes 23 and 37, Supplement No. 1). (February 21.)
- No. 131. Supersedes No. 74. Mandatory contracts for the procurement of gas and electrically operated refrigerators (Class 26, Supplement No. 1). (February 21.)
- No. 132. Supersedes No. 120. Contracts for the procurement of cement, paints, and paint ingredients (Class 52). (February 21.)
- No. 133. Changes in Procurement Division contracts. (February 23.)
- No. 134. Modification of Bureau procurement policy in connection with equipment and supplies covered by certain non-mandatory Procurement Division and other contracts. (February 27.)
- No. 135. Supersedes No. 79. Mandatory contracts for the procurement of machine tools, small machinery, and accessories and parts (Class 40). (March 9.)
- No. 136. Mandatory contracts for the procurement of brake lining and oil filters (Class 8, Supplement No. 1). (March 13.)

The following memorandum to field officers has been issued in the "Boat Maintenance Memoranda" series:

- No. 15. Spark plugs. (February 15.)

#### PUBLIC RELATIONS

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Suggestions for bird field study. By May Thacher Cooke, biologist, Section of Distribution and Migration of Birds, Division of Wildlife Research. Wildlife Leaflet BS-150, 7 pp. January 1940. Received February 24.
- Raising chinchillas in captivity. Prepared in Section of Fur Resources, Division of Wildlife Research. Wildlife Leaflet BS-151, 3 pp. February 1940. Received February 24.
- The Biological Survey mammal collection. Compiled in the Section of Wildlife Surveys, Division of Wildlife Research. Wildlife Leaflet BS-153, 4 pp., illus. February 1940. Received March 7.
- Ornamental woody plants attractive to birds. By Myer Katz, Section of Food Habits, Division of Wildlife Research. Wildlife Leaflet BS-156, 18 pp. March 1940. Received March 20.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Telltale feathers help catch bluebird hunters. Press Statement P. N. 92124. Released February 20.
- Air line flies ducks across country for release in Washington by Ickes. Press Statement P. N. 93737. Released March 8.

- Many animals can get tularemia, Survey says. Press Statement P. N. 94177. Released March 9.
- 1940 duck stamp design announced. Press Statement P. N. 94465. Released March 13.
- 7-1/2 Million licenses issued to sportsmen, Survey study reveals. Press Statement P. N. 94551. Released March 14.
- Stiff fines, jail sentences given to hunting violators. Press Statement P. N. 94768. Released March 15.
- Biological Survey joins nation in celebrating Wildlife Week. Press Statement P. N. 94840. Released March 17.
- Photos help convict waterfowl hunters in Nevada and Virginia. Press Statement P. N. 94988. Released March 18.
- Take to air as law aid. In "Current Conservation" (Clip sheet), Vol. II, No. 12, March 1940.
- Game agents save human lives as well as wildlife. In "Current Conservation" (Clip sheet), Vol. II, No. 12, March 1940.
- Bird count on Sabine Refuge. In "Current Conservation" (Clip sheet), Vol. II, No. 12, March 1940.
- Conservation agencies listed by United States Bureau. In "Current Conservation" (Clip sheet), Vol. II, No. 12, March 1940.
- Man finds fine a double trouble. In "Current Conservation" (Clip sheet), Vol. II, No. 12, March 1940.
- Spades are trumps in conservation course. In "Current Conservation" (Clip sheet), Vol. II, No. 12, March 1940.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Caminita, L., Jr. Duck shooting in the United States. Field (London, England) 175 (4543): 90-91, illus. Jan. 20, 1940.
- North Dakota has its share of big-game animals. W. Dak. Outdoors 2(1): 3. Feb. 1940.
- Sky chefs in the wild. Nat. Aeronautics 18 (3): 9, illus. March 1940.
- Enders, R. K. A primer for mink breeders. Fur Canada 5 (6): 6, 11, illus. Feb. 1940. Also in Fur Trade Jour. Canada 17 (7): 7, 15, 16, illus. March 1940; Nat. Fur News pp. 3, 22, illus. March 1940; Amer. Fur Breeder 12 (9): 6, 7, illus. March 1940.
- Gabrielson, I. W., Cottam, C., Martin, A. C., and Nelson, A. L. Christmas bird census: Port Tobacco, Charles Co., Md. Bird Lore 42 (1, Sup.): 89-90. Jan./Feb. 1940.
- Gensch, R. H., Knappen, P., and McClanahn, R. C. Christmas bird census: St. Mary's City to Point Lookout, Md. Bird Lore 42 (1, Sup.): 90. Jan./Feb. 1940.
- Green, D. D. Controlling predatory animals. Amer. Wildlife 29 (1): 35-40, illus. Jan./Feb. 1940.
- Handley, C. O. Christmas bird census: Blacksburg, Montgomery Co., Va. Bird Lore 42 (1, Sup.): 90. Jan./Feb. 1940.
- Hicks, L. E. Christmas bird census: Buckeye Lake, Ohio. Bird Lore 42 (1, Sup.): 100. Jan./Feb. 1940.



- Hicks, L. E. Christmas bird census: Ashtabula, Ohio. Bird Lore 42 (1, Sup.): 99-100. Jan./Feb. 1940.
- Kalmbach, E. R., Imler, R. H., and Sperry, C. C. Christmas bird census: Jefferson County, Colo. Bird Lore 42 (1, Sup.): 126. Jan./Feb. 1940.
- Loosli, J. K., and Smith, S. E. Nutrition experiments with foxes and minks. Amer. Fur Breeder 12 (7): 6, 8, 12. Jan. 1940. Also in Black Fox Mag. 23 (9): 10, 229; and 23 (10): 10, 27, 29, 30. Jan./Feb. 1940; Nat. Fur News pp. 3, 20, 21. Jan. 1940; Fur Trade Jour. Canada 17 (6): 6, 7, 17, 18. Feb. 1940.
- Saylor, L. W. Two new generic names for South American beetles. Washington Ent. Soc. Proc. 42 (2): 46. Feb. 1940.
- Sheldon, H. P. Guns and game. Country Life 77 (2): 80, illus. Dec. 1939.
- Zahniser, H. Indoors and out. Nature Mag. 33: 71. Feb. 1940.
- Indoors and out. Nature Mag. 33: 135. March 1940.

## WILDLIFE RESEARCH

Wildlife Surveys

Speaks on Fluctuating Mammal Populations.--At a regular meeting of the Biological Society of Washington (D. C.), which was held on February 24 at the Cosmos Club, Dr. H. H. T. Jackson spoke on "Fluctuating Mammal Populations in North America." He began with a discussion of possible mammal populations in colonial times and continued with accounts of census methods, cycles in populations and their causes, and recoveries from lows in the cycles with examples of heavy population recoveries. He closed with remarks on species that are extinct, are threatened with extinction, or have recovered after being on the verge of extinction.

Talks on Aleutian Islands.--Dr. Victor B. Scheffer, biologist stationed at the University of Washington, gave an illustrated talk on the Aleutian Islands Wildlife Refuge at a meeting of the Puget Sound Academy of Science in Tacoma, Wash., on February 21.

Pacific Deer Specimens in Bureau Collection.--On March 11, Dr. Scheffer sent to Washington, D. C., 23 skulls, 4 skins, 3 scalps, 11 frontlets with antlers, and 12 separate antlers of Pacific white-tailed deer collected near the mouth of the Columbia River. Although the Pacific white-tail was originally described from animals of this same region, there have never been many specimens available for study. It is said that the specimens will be of great value to Maj. E. A. Goldman and Dr. Remington Kellogg in connection with their revision of the North American white-tailed deer, which work is rapidly nearing completion.

Visit Mammal Laboratory.--The following persons visited the mammal laboratory recently: Harry C. Parker, ranger, Olympic National Park, Wash., came on February 21 to see specimens from the Olympic region. Dr. Francis Harper, of Swarthmore, Pa., conferred with Arthur H. Howell on February 26 and 27. C. W. Weems, of New York City, conferred with Major Goldman on March 9. M. F. Skinner, of the American Museum of Natural History, New

York City, visited the laboratory on March 13 to inspect the Antilocapra (Antelope) specimens. On March 15, Claude W. Hibbard, of the Museum of Paleontology, University of Kansas, studied the Xenomys and Nelsonia specimens (Mexican wood rat allies).

#### Food Habits Research

Meadowlarks Ignore Flagging.--Meadowlarks apparently are not frightened by the usual "flags" used in control work, according to a recent report from Biologist Johnson Neff, of the California Food Habits office. Tests on beds of peas, where the usual "flagging" method of control (strips of white muslin suspended from a wire) was used, indicated that the birds will feed within 10 inches of the flags.

Study Sumac in Quail Diet.--Quails can maintain their weight on a diet containing 50 percent sumac but not one containing 75 percent. This fact was learned recently by Biologists Ralph B. Nestler and W. W. Bailey, who investigated quail foods and nutritional values at the Patuxent Research Refuge, Md. The higher percentage of sumac seems to be unsatisfactory to quails.

Mice Damage Rootstocks at Malheur.--The possibility that meadow, harvest, and white-footed mice may do some damage to the rootstocks of certain marsh plants when the latter are exposed during dry conditions was recently investigated by Biologist Clarence Sooter at the Malheur Refuge, Oreg. Counts of the mice on the area indicated that mouse abundance is somewhat higher in Scirpus acutus (hardstem bulrush) stands than in the less desirable Sparganium eurycarpum (giant burreed) areas.

Birds Eat Old Potatoes.--White-fronted geese, snow geese, and even mallard ducks were reported by Mr. Sooter as having fed rather extensively on old rotten and frozen potatoes remaining in the fields on the Malheur Refuge since the last season. Approximately 2,300 white-fronted geese were noted in one field.

#### Distribution and Migration of Birds

Shows Movies of Arctic.--Harold S. Peters, the Atlantic Flyway biologist, recently addressed sportsmen's groups and other organizations. During January and February he spoke before nine groups in North Carolina, South Carolina, and Georgia, and showed movies taken during his 1939 trip to the Eastern Arctic and others taken on the refuges in his flyway. He attended the Wildlife Conference in Washington and returned to his headquarters in Charleston, S. C., on March 22.

Broadcasts on Network.--C. E. Gillham, the Mississippi Flyway biologist, continued his Louisiana investigations during the first part of March. He attended the meetings of the Wildlife Conference. On Sunday, March 24, he discussed his migration work on the program "Outdoors with Bob Edge," which was broadcast from New York City over the Columbia Broadcasting System network.

Continue Work in Mexico.--George B. Saunders, the Central Flyway biologist, continued waterfowl investigations in Texas and Mexico, while Luther C. Goldman, the Pacific Flyway biologist, completed his work in Mexico and returned to headquarters in Berkeley, Calif.

Broadcasts Book Review.--F. C. Lincoln participated in a radio review of his recently published book, "The Migration of American Birds," which was broadcast over Station WJSV, Washington, D. C., on Saturday, March 9, at 1 p. m. Mr. Lincoln was interviewed by Vesta Eales, founder and director of the "Roving Library."

Visitors to the Washington Office.--Last month many birdbanding cooperators visited the Washington office to consult with Mr. Lincoln or examine the banding files. The visitors included Laurence B. Fletcher, of Boston, Mass.; B. W. Cartwright, of Winnipeg, Man.; Mrs. John Redington, of Wilton, Conn.; Dr. Allen M. Pearson, of the Alabama Polytechnic Institute; Dr. Richard Weaver, of Dartmouth College; and Howard L. Mendall, of the University of Maine.

Interesting Returns from Banded Birds.--The following are returns of outstanding interest from banded birds, showing band number, place and date of banding, and place and date of recovery:

Caspian tern:

566280, Mich., Shoe Island, 7/14/27 England, Whitby, Yorks, 1/12/40

Royal tern:

A526799, S. C., Charleston Co.,  
7/18/31 Fla., Jacksonville, 1/11/40

Common tern:

36-341168, Mass., Penikese Is.  
7/4/36 Brazil, Cameta, Para, 2/10/40

Black Skimmer:

A423882, S. C., Charleston Co.  
6/30/30 Fla., New Smyrna Beach, 2/8/40

Double-crested cormorant:

A702766, S. Dak., Webster, 6/28/29 Minn., Grant Co., 10/28/39

Pintail:

36-671661, N. Dak., Kenmare, 7/17/39 Va., Back Bay, 11/25/39  
36-671677, N. Dak., Kenmare, 7/18/39 Cre., Sauvies Is., 11/26/39  
38-654313, Ore., Burns, 9/19/39 Central America, Honduras,  
Catacamus, fall, 1939.  
39-682563, S. Dak., Waubay, 9/5/39 Honduras, La Lima, 11/30/39

Lesser scaup:

36-635884, N. Dak., Kenmare, 4/24/38 Pa., Erie, 11/30/39  
38-664645, Fla., St. Petersburg, 3/25/39 Manitoba, Norway House, 9/20/39  
39-668229, Athabaska Delta, Big Lake,  
9/6/39 Panama, Chauquinola River, 11/8/39  
39-668321, Athabaska Delta, Big Lake,  
9/12/39 Maine, Howland, 11/7/39



## Louisiana heron:

A540319, S.C., Charleston Co., 6/11/32 Fla., near Hialeah, 1/9/40

## Mourning dove:

39-322414, Iowa, Lewis, 6/20/39 San Salvador, Nueva Granada,  
Nov. 1939.

## Osprey:

36-807801, N.J. Cape May Co., 7/16/39 Venezuela, Lagunillas, 12/14/39

## Burrowing owl:

A575106, S. Dak., Northville, 6/7/32 Texas, Yoakum, 2/13/40

## Purple finch:

37-2833, Mass., Milton, 12/30/36 La., Coteau, 1/25/40

Fur Resources

Magazine Arouses Interest in Angoras.--Within 1 week the Washington office received more than 900 inquiries recently for reliable information on the raising of angora rabbits for wool. Most correspondents desired to know the possibility of raising angora rabbits as a money-making enterprise, the source of breeding animals, and satisfactory places for marketing the wool. The rush of inquiries was stimulated by an article in a recent issue of a popular monthly magazine. The article indicated that opportunities for easy money are available in raising angora rabbits. The Bureau's attitude is that the raising of these rabbits for their wool is a legitimate enterprise if conducted in a business-like manner but that there is no great amount of money to be made in it.

Extensive Rabbit Experimental Work Completed.--George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif., recently reported that an experiment begun 2-1/2 years ago, primarily to determine which protein supplements with whole grains are the most valuable for feeding rabbits in a self-feeder system, has just been completed. The results are based on studies of 240 litters of rabbits, totaling 1,636 young. The experimenters concluded that rabbits can balance their own rations when given a free choice of an adequate range of feeds, and that hand-feeding the does during the gestation period is more economical and the does maintain a more satisfactory physical condition than those that are self-fed during this period. The plant protein supplements in the order of their palatability are as follows: Peanut, soybean, sesame, hempseed, cottonseed, and linseed meals in pellet form.

Trap Unusual Type of Muskrat.--Apparently a new type of muskrat was recently trapped on the Blackwater Refuge, Md., according to Dr. Herbert L. Dozier, director of the Fur Animal Field Station at Cambridge. Two of these muskrats were trapped about 2 miles apart. The pelts show peculiar qualities. All the guard hairs are missing and the underfur, which has a glossy, silky texture, has a rippled, wavy effect. Dr. Dozier is retaining these specimens in his collections of unusual types of muskrats.

May Use Apparatus to Measure Luster in Furs.--Progress is being made on the development of a new type of apparatus to study the luster of furs, Dr. Thora M. Plitt, microanalyst, at Beltsville, Md., recently reported. Work

is being done in conjunction with R. S. Hunter, of the Optics Division of the National Bureau of Standards, and with the assistance of Dr. John I. Hardy, of the Bureau of Animal Industry. Mr. Hunter is designing this new instrument with Dr. Plitt and hopes to get an accurate measure of the sheen, or luster, of various types of furs. Luster in furs is of primary importance in determining their value.

Curls of Karakul Lambs Studied.--Small samples of fibers were taken at frequent intervals from karakul lambs by Dr. Plitt to study the growth of the curls. Four lambs selected for this study represent karakul lambs that have the large, medium, small, and broad types of curls.

Find No Vitamin A in Frozen Horse Meat.--Vitamin A determinations (antimony trichloride) were made on three horsemeat samples received by the Cornell Laboratory of Animal Nutrition, Cornell University, from the U. S. Fur Animal Experiment Station, Saratoga Springs, N.Y. The samples were from horses stored 8 months, 6 months, and 1 week. Samples as high as 30 grams gave no indication of the presence of vitamin A. This confirms the previous findings that stored, frozen horse muscle is very low in, if not free from, vitamin A.

A large bladder stone weighing 68 grams and measuring 6 inches in circumference and 2 inches through its longest axis was also analyzed. Preliminary partial tests show this stone to be free of carbonates and uric acids and to contain phosphorus.

Blood serum calcium was determined on a mink that showed the usual symptoms of fatty liver and intestinal hemorrhages. The blood calcium was 8.40 mg., calcium 100 ml. of serum, which is in the normal range.

#### Disease Investigations

Will Inspect Research Stations.--During April Dr. J. E. Shillinger will visit the Bureau research stations where disease investigations are in progress. After leaving the Bear River Refuge (Utah) laboratory he will go to Pullman, Wash., and then to Los Angeles. Enroute he will stop at special points where other investigators are making studies of wildlife and fur-animal diseases.

Hold Conference on Botulism.--To discuss methods of reducing losses from botulism on the western refuges where this disease is prevalent, a conference of research workers engaged in this study, as well as managers of the western refuges, has been called for April 4 to 6 at the Bear River Migratory Bird Refuge, Utah. Invitations to attend the conference have been extended to Canadian workers who are concerned with the technical study of botulism.

Construction Advancing.--The building to be used for disease research at the Patuxent Research Refuge, Md., is nearing completion it was recently announced. Additional rooms are being constructed to increase the space for the laboratory and the office. These will probably be completed during April.

National Park Wildlife

Burros, Cattle Denude Area.--Vagrant bands of domestic cattle and burros should be promptly removed from Cottonwood and Grapevine Canyons in Death Valley National Monument, Calif., according to a recent report from Biologist E. Lowell Sumner, Jr. He investigated the problem of domestic stock in Cottonwood Canyon and found that bands of vagrant cattle and burros have denuded the area and fouled the water so that the region, which at one time must have been a bighorn stronghold, is no longer attractive to bighorns. This vagrant domestic stock is gradually upsetting the entire ecology of Cottonwood and Grapevine Canyons, he reported. If the owners are not disposed to cooperate, Mr. Sumner suggested, the representative of the National Park Service might drive the cattle to the mouth of Cottonwood Canyon where the animals either could be corralled or could be hauled by truck to a more favorable location.

Large Bird Colonies on Santa Rosa Island.--Observations on the bird life of Santa Rosa Island National Monument, Fla., were recently submitted by Robert C. McClaanahan, of the Section of Distribution and Migration of Birds, who reported that colonies of least terns and black skimmers nest on the island and that Cuban snowy plovers also nest there in large numbers. Many bird students in Pensacola, Fla., fear that recreational developments of Santa Rosa will be inimical to the interests of these birds, which are now protected by the inaccessibility of the areas between Pensacola Beach and Fort Walton and between Pensacola Beach and Fort Pickens.

Reduce Buffalo Herd.--Reduction of the buffalo herd in Wind Cave National Park, S. Dak., was concluded in February, Wildlife Ranger Estes Suter recently reported. The remaining animals appear to be in fine condition, he added. Feeding with hay, which was necessitated by range depletion resulting from overstocking during the past several years, has continued with the additional purchase of 65 tons of food. It is believed that this quantity, making a total of 169 tons for the season, will be sufficient until range growth can carry the animals. Elk have not utilized the hay but have remained in the forested areas of the park where there is ample forage.

During the month, Mr. Suter banded 113 birds. Five returns of white-winged juncos were recorded during February. One bird had been banded more than 5 years ago, while the others had been banded from 3 to 4 years previously.

Deer Face Food Shortage.--The status of turkeys, raccoons, and deer on Jamestown Island, Colonial National Historical Park, Va., was investigated on February 23 and 24 by Biologist O. B. Taylor; Charles O. Handley, leader of the Virginia cooperative wildlife research unit; and Federal Aid representatives in Virginia. Most of the larger animals present when the area was first settled are still to be found there today. The investigators agreed that deer may face a food shortage within the next 2 years, unless some of the animals move to the mainland or control measures are undertaken. The deer population seemingly is increasing and extensive browsing is found



over much of Jamestown Island. It is suggested that close observation be made to determine the carrying capacity of the range next winter. Less concern is felt for turkeys and raccoons, although their food supply may be substantially impaired if deer continue to damage food plants.

#### FEDERAL AID IN WILDLIFE RESTORATION

Goes to Wisconsin.--Mr. Day left Washington, D. C., Monday, February 26, for Madison and Milwaukee, Wis., to confer with State and Federal officials. He returned to Washington on March 4.

Confers With Western Officials.--R. M. Rutherford left Washington, D. C., on March 2, for Colorado, Utah, and Idaho to confer with Bureau and State officials about Federal Aid projects. He assisted in drafting preliminary plans for the development of a Federal Aid project at Ogden Bay, Utah, and consulted at length with Idaho officials on projects in that State. Mr. Rutherford returned to Washington on March 16 to attend the Wildlife Conference.

States Coordinate Federal Aid Activities.--One of the most encouraging developments in the Federal Aid program has been the recent efforts of various States to coordinate their Federal Aid programs with work being conducted in neighboring States, according to Mr. Day. An outstanding example of this trend has been the efforts of the Rocky Mountain States to coordinate their activities in studying the Rocky Mountain sheep problem. Representatives of Colorado, Idaho, Utah, and Wyoming met at a round table discussion in the Bureau's office in Denver on December 4, at which time they selected a coordinator for all mountain sheep investigational work being conducted by the States represented. This meeting attracted the attention of the newspapers of the region and considerable space was given to the accomplishments and plans of the group. Outlines for certain phases of the study were proposed and arrangements made for the conduct of the work.

Each State carries on its investigations of the mountain sheep as an individual Federal Aid project. Their work plan, however, is discussed in detail with each of the other States, and reports and information gathered are submitted to the coordinator, who in turn passes the data on to the other States. In this manner the entire program progresses as a single unit and promises to produce results far beyond what would be accomplished by any State working entirely independent of its neighbors.

This is not the only instance of coordinated effort appearing under the Federal Aid program, it was revealed. In the northeast, the State game departments are faced with the problem of the destruction of agricultural crops by deer. A cooperative arrangement has been developed whereby the work is centralized in New York. Neighboring States are cooperating by testing in the field the results of the laboratory and are providing travel facilities for the investigator of the key State. In this manner the group hopes to devise methods of control that will be practical and advantageous to all the participating States.

In this same region another type of coordination and cooperation has developed. Many of the States are particularly interested in investigational work on forest wildlife management. An advisory council has been formed of the leading authorities in this particular field throughout the region. This council will act as an advisory body to all project leaders engaged in this type of work in the northeast. Present plans call for direct assistance to the leaders by having the council visit the projects from time to time and offer first hand advice to the leaders.

These coordinated and cooperative undertakings should produce outstanding results in the field of wildlife management, Mr. Day asserted, and should materially reduce the cost of such investigational work to the participating State game departments.

California to Make Beaver Survey.--The California Fish and Game Commission received approval on February 26 for a Federal Aid project to make a comprehensive survey of the present status of beavers in the State. The purpose of the survey is to gather information on which to base a sound beaver management plan that will result in the perpetuation and wise use of this valuable fur animal. Three species of beavers are said to be native in California: the Shasta, the Golden, and the Sonora. Cooperating with the game department are the California Museum of Vertebrate Zoology of the University of California, the California State Department of Agriculture, the Forest Service, and the Biological Survey.

Beaver Transplanting Continues in Idaho.--In 1939 the Idaho Fish and Game Department conducted a Federal Aid in Wildlife Restoration project to transplant beavers that were interfering with farming practices to areas where their activities would be useful in the conservation of water. The program was so successful that the State received approval on February 26 to continue the work under a new project. An additional 1,500 beavers will be transplanted under the new project. The game department hopes this project will complete the transplanting program of beavers from agricultural areas to mountainous regions throughout the State. All beavers will be tagged, and records will be kept regarding the date, place, and habitat where the animals are caught and similar data on the place of release. The Forest Service and the Biological Survey will cooperate with the game department in this project.

Michigan Adds to Rose Lake Station.--Federal Aid funds will be used by the Michigan Fish and Game Department to enlarge Rose Lake Experiment Station by purchasing 120 more acres. The first segment of the Federal Aid acquisition program for this area, comprising the purchase of approximately 200 acres, was approved on July 25, 1939. The department now owns 963 acres at Rose Lake. The land is farmed under the direction of a technically trained and experienced agriculturist and serves as a proving ground for farm-game management. An effort is being made to adopt recommended farming and game management practices into a practical and unified program.



New Jersey Continues Project.--Deciding to continue work begun in 1939, the New Jersey State Fish and Game Commission received approval on March 11 to use part of its Federal Aid funds to conduct an investigation of the effectiveness of seed stock refuges. The personnel on the project will remain the same as last year. The investigation last year demonstrated that, as in many other pheasant producing States, the species suffers from excessive nest destruction, particularly in alfalfa fields. This and other factors have a most important bearing on the proper selection of seed stock refuges, it was said, and the effectiveness of these sanctuaries is dependent in a large measure on the care exercised in the selection of sites. The new program will emphasize the development of techniques to reduce the high nest mortality, if possible, and a comparison of the nesting activities of the birds in and around seed stock areas will be made with districts where such protection is not provided.

May Produce Rabbits for Restocking.--Being interested in devising some means of producing cottontail rabbits for redistribution throughout various covers in the State, the New Jersey Fish and Game Department will use part of its Federal Aid funds to study the problem. The project was approved on February 15. The cottontail rabbit is one of the most important game animals in the State. In the past, the Commission found it necessary to purchase considerable numbers from outside sources to restock depleted covers. There are indications that in certain areas careful management may produce rabbits in sufficient abundance to permit trapping the surplus for redistribution. If such a procedure can be successfully worked out, it will prove more economical and the stock probably will be more adaptable to new habitats. A 40-acre field has been fenced, and a full-time investigator will be assigned to study techniques, keep records, and perform other duties on the area and elsewhere, incidental to rabbit management in the State.

Develop Morton County Refuge.--The North Dakota Fish and Game Department has recently submitted plans under their Federal Aid in Wildlife Restoration program for the development of the 640-acre Morton County Upland Game Refuge near Bismarck. The project was approved on February 20. The exterior boundary of the refuge will be fenced with a four-strand barb-wire fence to exclude livestock. A small earthen dam will be constructed to provide water for wildlife and shrubs; sweet clover and corn will be planted to provide food and cover. A fire break will be maintained around the entire unit. When fully developed no trespass, haying, grazing, or similar activity will be permitted; game and other wildlife will have undisturbed use of the area. This inviolate sanctuary will prove an important haven and breeding area for pheasants, sharp-tailed grouse, and Hungarian partridges.

Antelope Trapping Operations Successful.--The Fish and Game Departments of New Mexico and Texas are engaged, under the Federal Aid program, in trapping surplus antelopes from overpopulated areas and transferring the animals to suitable ranches where it is desired to increase the present antelope populations. Recent reports indicate that these operations, which have attracted nation-wide attention, have been successful. New Mexico



began work on its project on December 6, 1939, and has conducted three drives that resulted in the capture of 78 animals. Only three fatalities were recorded during the trapping, transporting, and releasing of these animals. The technique used in New Mexico was developed by Paul Russell, under the supervision of Elliott Barker, both of the New Mexico Fish and Game Department.

In October 1939, a Federal Aid project providing for the trapping and moving of antelopes was approved for Texas. The traps and procedure used in Texas vary only slightly from those developed in New Mexico. By the last of December, 237 antelopes had been handled at a cost of less than \$10 each. Only six animals were lost because of injuries. It has proved surprising to game managers, it was said, that nearly 300 antelopes could be trapped from 9 square miles of land on which cattle and sheep were also grazed. The trapped antelopes were liberated on 20 areas, none smaller than the areas from which the animals were taken. As a result, redistribution of antelopes has been accomplished in selected areas totaling nearly 200 square miles. A more complete description of the operations being conducted in Texas appeared in the January issue of the "Monthly Bulletin" of the Texas Game, Fish, and Oyster Commission.

Utah Investigates Mule Deer.--Because mule deer in Utah, as in several other western States, are exerting a definite but undetermined pressure on the native vegetation, the State Department of Fish and Game received approval on February 16 for a Federal Aid project designed to formulate a practical deer management program, to learn the year-long food requirements and preferences of the animals and the values and forage yield of native forage species utilized by deer. The Department recognizes that if fundamental feeding is necessary it should be done intelligently and economically, with a full knowledge of the palatability and nutritive values of the various and supplemental feeds. Many of the ranges formerly used by the deer are now being farmed, and the deer are forced to concentrate on small ranges during the winter months. The native vegetation is thus being killed out by excessive utilization. Heavy losses of deer from malnutrition have resulted, and artificial feeding programs have been inaugurated in many localities in an effort to alleviate the situation.

The present investigation will be conducted in two locations. At Cache Wildlife Experiment and Winter Deer Feeding area near Logan, operations will be limited to the winter months and will deal with methods of supplemental feeding and with winter food and feeding habits of mule deer in conjunction with the big-game winter feeding program of the Utah Fish and Game Department. The Maple Springs deer pasture, near Fillmore, will be administered to determine deer carrying capacities of The Utah Deer Range, which is centrally located and easily accessible for year-long studies.

The Forest Service, Utah State Agricultural College, and the Biological Survey are cooperating with the game department in the investigation.

#### LAND ACQUISITION

Cold Springs Changes Name.--The President on March 19 signed an Executive order entitled "Changing the Name of the Cold Springs Reservation to Cold Springs National Wildlife Refuge and Adding Certain Lands Thereto." The addition to the refuge, which is in Oregon, is an 80-acre area.

Oil Gusher on Refuge "Comes In".--Word was recently received that an oil gusher had come in on the Aransas Migratory Waterfowl Refuge, Tex. The volume of flow is not yet known, but it is believed to be heavy. Mr. Dieffenbach explained that according to the provisions contained in the contract of purchase and in the deed of conveyance for these lands, 40 percent of all royalties will revert to the Government until the full purchase price of the property acquired has been returned to the United States. The title to the refuge lands, containing 45,590 acres and costing approximately \$456,000, will remain in the United States. The area will continue to have a high grazing value and to be of great importance as a migratory waterfowl refuge.

#### Surveys and Maps

Tours Western States.--Bert J. G. Tousey, cadastral engineer, left the Des Moines office on February 29 for an extended detail to projects in the western States. He was to confer with representatives of the Department of Justice at Denver on problems concerning the Malheur Refuge, Oreg., conduct revised boundary surveys covering additional acquisitions on the Hutton Lake Refuge, Wyo., obtain the status of lands from the Bureau of Reclamation on the Minidoka Refuge, Idaho, and, as his longest assignment, to initiate exterior boundary surveys on the Little Bend Oreille Refuge, Wash.

Inspects Sandhills.--Arthur A. Riemer recently attended the trial in condemnation of the Apalachee Club lands consisting of four islands on the St. Marks Refuge, Fla. He also inspected surveys on the St. Marks unit. He later inspected the boundary survey work now in progress on the Carolina Sandhills Refuge, S. C. The work has disclosed discrepancies between the records of the purchasing agency and the physical conditions on the ground. Administration of this area would be very difficult without establishing and posting the boundary lines of this refuge, since the entire area is traversed by many truck trails and secondary roads, as well as by a system of fire lanes. These trails make the area readily accessible to any who are tempted to trespass. Upon completion of the field work, data will be available from which to prepare an accurate refuge map.

Survey Patuxent.--The work of establishing plot boundaries and monumenting these on the Patuxent Research Refuge, Md., continues although it was delayed by severe winter conditions. Plot boundaries and monumentation of the area have been completed for about 35 percent of the refuge. Upon completion of the survey of the plot boundaries, a topographic map of the area will be made.

Court Decides Cape Romain Case.--Notice was recently received that the case of the Cape Romain Land and Improvement Company vs. the United States in the Court of Claims of the United States, has been determined in favor of the Government. This case was filed in the Court of Claims on June 7, 1934. The decision of the Court is dated May 1, 1939. The questions involved in this case were centered about the acreage as determined by

Government survey. The Company had offered for sale to the United States 32,255 acres and the Government acquired, based on its survey, 22,033 acres, the difference being due to overlaps and shortages as against the original surveys.

Personnel.--Lee Roy Woodruff, engineering aide in the Des Moines office, recently resigned his position to complete his collegiate education.

#### WILDLIFE REFUGES

Inspect Proposed Refuges.--A. C. Elmer, accompanied by Richard Griffith, left Washington, D. C., on February 15, primarily to inspect various areas in Massachusetts proposed for refuges. They visited the Moosehorn Refuge, Maine, and then, with Dr. Clarence Cottam, of the Food Habits Section, Director Barry Locke, of Region 1, and Joseph Hagar, of the Massachusetts Fish and Game Commission, inspected the proposed Monomoy Island, Plum Island, Squibnocket, Marthas Vineyard, and Pocha Pond areas. While at Squibnocket, they saw three harlequin ducks. This is the only place on the Atlantic Coast of the United States that this bird is known to winter: A flock of more than 12 spends each winter here. Bad weather prevented the party from inspecting the Parker River area. After visiting the proposed refuges, Mr. Griffith returned to Washington, while Mr. Elmer went to the Montezuma Refuge, N. Y., and returned to Washington on February 24.

Participate in Christmas Bird Census.--Personnel of the following refuges participated in Bird Lore's Fortieth Christmas Bird Census: Bombay Hook, Del.; Mattamuskeet, N. C.; Cape Romain, S. C.; Piedmont, Ga.; Great White Heron and St. Marks, Fla.; Swan Lake, Mo.; White River, Ark.; Delta, La.; Des Lacs and Lower Souris, N. Dak.; Sand Lake, S. Dak.; Aransas, Tex.; Deer Flat, Idaho; Bear River, Utah; Willapa, Wash.; Malheur, Oreg.; and Sacramento and Salton Sea, Calif. One hundred fifteen species and subspecies (33,308 individuals) were reported from the Aransas Refuge, more species than from any other of the Biological Survey refuges included in the census. The largest list came from Harlingen, Tex., where 155 species and subspecies were noted.

Inspects Proposed Drainage Projects.--Dr. W. S. Bourn returned to Washington March 2 after a 2-weeks' inspection of proposed W.P.A. malaria-control drainage projects throughout the South. He spent 2 days surveying the proposed work area of a Soil Conservation Service C.C.C. camp near Clarksdale, Miss.

One Million Waterfowl on White River.--At the opening of the waterfowl shooting season, the number of birds on the White River Refuge, Ark., increased from about 100,000 to 200,000, Manager Howard A. Miller reported. The peak concentration came during the week of January 7-13, when more than a million waterfowl were present.



Many Use Tule Lake Shooting Ground.--More hunters used the public shooting ground on the Tule Lake Refuge, Calif., in 1939 (11,141) than in 1938 (8,601), but the total bag for 1939 was slightly below that of 1938 (25,221 in 1939; 25,316 in 1938). October 22, the opening day of the 1939 season, was the biggest day in the history of the public shooting ground. "Checkers" counted 1,320 hunters at the stations and recorded a total take of 4,141 ducks and geese, an average of 3.1 birds a hunter. The maximum bag was noted on October 25, when 160 hunters took 4.47 birds a man. Waterfowl most commonly killed were white-fronted and cackling geese, followed by pintails, canvasbacks, snow geese, baldpates, mallards, shovelers, and red-heads.

Reports Unusual Duck Concentration.--Manager Hayden A. Carter estimates that 125,000 ducks, almost 100 birds an acre, wintered on the 12,825-acre Savannah River Refuge, Ga. and S. C., this year. Mallards were the most numerous, closely followed by pintails and black ducks and fewer lesser scaups, ring-necked ducks, wood ducks, and green- and blue-winged teals.

Geese Winter on Lacassine.--While the Lacassine Refuge, La., has never been considered of importance as a wintering area for geese, Manager Earl L. Atwood recently reported that four species (Canada, white-fronted, lesser snow, and blue), totaling some 1,350 individuals, remained on the area all winter.

Minnesota Official Pleased with Tamarac.--After visiting the Tamarac Refuge, Minn., recently, Cyril W. Plattes, formerly of the Associated Press and recently appointed Executive Secretary and Coordinator of the Minnesota Department of Conservation, wrote to Regional Director George A. Tonkin complimenting the Bureau on its work on that refuge. He wrote: "Permit me to congratulate you and the Survey on the Tamarac Refuge Project. The weekend was for myself and Jack Conner (reporter for the St. Paul Post Dispatch) one of the most enlightening and pleasant experiences from all standpoints we have had. It opened our eyes to the kind of genuine waterfowl conservation that is being pioneered in this State by your great organization."

Snowmobile Serves as Ambulance.--A snowmobile on the Red Rock Lakes Refuge, Mont., which is the only means of transportation available to the refuge personnel in severe winter weather, was recently used to take a local resident stricken with appendicitis to Monida, Mont., according to Manager Archie V. Hull. From Monida, the roads were open enough to take the patient by car to a hospital in Idaho Falls, Idaho.

Upland Game Birds Counted on Valentine.--During January, 407 sharp-tailed grouse and 3,943 pheasants were counted on the Valentine Refuge, Nebr., Manager Ward M. Sharp reports. Since some birds were undoubtedly overlooked, he estimates that there are at least 500 grouse and 4,000 pheasants on the refuge. This is more than twice as many birds of both species as were present in January 1939, when 230 grouse and 1,620 pheasants were counted and the estimated total was 300 grouse and 1,740 pheasants.

Reports Refuge Revenue.--The sale of fur and hay products and the use of lands on the Valentine Refuge for grazing purposes brought a revenue of \$5,092.79 from May 1939 to March 1940. This revenue included \$3,248.50 received from grazing permittees, \$1,454.44 from the sale of hay, and \$389.85 from the sale of fur products.

Refuge Personnel Help Catch Violator.--An unusual case of law violation on the Ruby Lake Refuge, Nev., which led to the conviction of the violator and his being sentenced to from 2 to 14 years in State prison, was recently reported by Manager Herbert H. Dill. Personnel of the refuge, while on regular patrol duty, noticed tracks on the freshly-fallen snow. These were believed to have been made by a person illegally trapping muskrats. The refuge workers followed the trail and found the trespasser's camp, but he had already gone. Finally they came upon an Indian with a dog. The Indian threatened them with a gun. Later they succeeded in identifying him. The sheriff was called, and he and two deputies joined in the hunt the next morning. The party followed the tracks in a car until the tell-tale signs stopped abruptly. Evidently the Indian had become aware that he was being trailed and covered his tracks by carrying his dog and jumping from one clump of brush to another. He traveled in this way for 5 miles but was finally traced to a camp occupied by several of his race and was prevailed upon to give himself up. Later it was learned the violator was wanted on several charges of grand larceny. He was tried in district court and received a sentence of from 2 to 14 years.

Weather Mild At Sullys Hill.--Because of the mild weather that prevailed during February it was unnecessary to feed hay to the animals on the Sullys Hill Game Preserve, N. Dak., according to Manager Wesley D. Parker. The work of cutting down trees in the experimental area on the refuge was continued and at the end of the month 22 acres had been cleared. The dead brush was burned, but the green limbs and branches were piled up and left for elk and deer browse.

Beavers Increase on Lower Souris.--In a recent survey made of the beaver population on the Lower Souris Refuge, N. Dak., Manager C. J. Henry estimated a total population of 459 beavers. This survey disclosed a decided increase in beavers since 1935, when the refuge was established, when only 50 were estimated to inhabit the area.

New Species of Fish on Lower Souris.--Several common catfish (Ameiurus vulgaris), a new species for the refuge, were noted on the Lower Souris Refuge when the personnel recently transferred an estimated half-million fish over one of the dams to prevent their suffocation. Including this catfish, there are now 14 species of fish in waters on the refuge.

Deer Specimens Collected.--Six specimens of North Dakota white-tailed deer, 3 bucks and 3 does, were recently collected from the Lower Souris Refuge. The specimens are to be used by Bureau personnel for study purposes; the carcasses were given to local relief agencies for distribution to the needy.

Longhorns Photographed by Society.--A cameraman for the National Geographic Society recently visited the Wichita Refuge, Okla., to photograph the longhorn cattle. Manager Ernest J. Greenwalt states the pictures will be used to illustrate an article on the early history of the Southwest soon to appear in the Society's magazine. The cameraman also took several pictures of the buffalo herd.

Reports Unusual Bird Records.--The following unusual wintering records for the Cape Romain Refuge, S. C., were recently reported by Manager Andrew H. DuPre: 27 Canada geese on Cape Island, and 1 whistling swan, 1 avocet, 1 European wigeon, and 1 European teal on the Bull's Island unit of the refuge.

Impressed by Aransas.--Charles B. Carpenter, Bureau of Mines, Dallas, who was detailed to the Aransas Refuge, Tex., to assist the Biological Survey in its study of the pollution resulting from the blow-out of an oil well on the refuge, gives the following impression of the area and the work of the Biological Survey in general. In a letter to the Washington office of the Bureau of Mines he writes:

"Please accept my gratitude for the opportunity of making this investigation because I feel that it is a rare privilege to have visited the Aransas Waterfowl Refuge. I did not know such a refuge existed, or that it is one of the two Federal refuges in the State of Texas, the other being in the Panhandle. The refuge is on a peninsula, and a high fence has been built across the landward end; the water furnishes a barrier on the other sides of the peninsula. From a nucleus of 25 deer, the herd has grown to a Biological Survey count of 4,000, and one almost has to sound his horn to avoid injuring them on the road. Wild turkeys are seen everywhere, and in the winter time, I am told, ducks and geese literally cover the ground. The improvement work is being done by the C.C.C. and in my opinion this is a very worthwhile project. Any one who loves nature would enjoy a trip to this refuge."

Many Waterfowl Winter on Muleshoe.--A 600 percent increase in ducks and a 250 percent increase in Canada geese using the Muleshoe Refuge, Tex., this year over last year's populations, was recently reported by Manager James K. Watson. The peak concentration of ducks was reached on November 30, when about 200,000 were present. During the period January 23-25, when the annual inventory was taken, 75,000 mallards, 15,000 pintails, and numerous other species were noted.

Summarizes Waterfowl Kill.--During the 1939 waterfowl season, 4,247 hunters, 1,210 more than in 1938, hunted on the open portion of the Bear River Refuge, Utah, Superintendent Vanez T. Wilson reports. A total of 11,581 birds was killed, as compared with 13,598 the previous year. The average kill of birds a man-day was 2.727 in 1939 and 4.477 in 1938. This year more pintails were shot than any other species, followed by green-winged teals, mallards, shovelers, and gadwalls, in that order.



Back Bay Favorite Wintering Ground.--At the peak of the winter concentration on December 4, there were almost 100,000 ducks, 3,000 coots, 8,400 geese, and 1,000 swans on the Back Bay Refuge, Va., according to Manager Harry A. Bailey.

Willapa Refuge Development Begun.--Development of the Willapa Refuge, Wash., was begun during the latter part of January, when a crew of 18 WPA men was assigned to the area. The men are now engaged principally in clearing the refuge headquarters tract.

Jackson Hole Elk in Good Condition.--With a few exceptions, the elk on the Elk Refuge, Wyo., are in excellent condition and to date (March 1) it has not been necessary to put out hay for them, according to Manager Almer P. Nelson. He estimated that 9,000 animals are wintering on the refuge and in the adjacent Flat and Sheep Creek foothills. The heavy migration of elk from the Teton State Game Preserve to the refuge began during the latter part of December, Mr. Nelson said. At least 4,000 animals were present on the area on January 4; this number had increased to 8,000 on the refuge and in the adjacent foothills by February 1, and now numbers about 9,000.

Elk Attract Many Visitors.--More than 500 people visited the Elk Refuge on February 10 and 11 to see the elk on their winter feeding grounds. Manager Nelson stated that a count of the automobiles in which visitors came to the refuge revealed 20 from Idaho, 2 from Montana, and 1 each from California and Oklahoma. There were also cars from 11 counties in Wyoming. Only 5 were of local residents. All of the visitors were hauled on sleighs into the fields to see the elk.

#### CONSTRUCTION AND C.C.C. OPERATIONS

Makes Western Trip.--Mr. Terhune left Washington on March 3 for Salt Lake City where he conferred with the Utah State Fish and Game Commissioner about the C.C.C. camp that is to be established on the Ogden Bay Refuge as soon after April 1 as camp buildings can be erected. E. H. Hackenberg, C.C.C. inspector stationed in the Portland regional office, met Mr. Terhune in Salt Lake City, and together they visited Bear River Camp BS-1, Utah. Mr. Terhune later met H. W. Lundeen, C.C.C. inspector with headquarters in Albuquerque, at the Boulder Refuge where an inspection was made of the work being done on that area under Biological Survey direction by detachments of enrollees from nearby camps. Mr. Terhune returned to Washington on March 14.

C.C.C. Anniversary.--The Civilian Conservation Corps will complete the seventh year of its existence on April 5, 1940. The initial C.C.C. legislation was enacted March 31, 1933. The Corps was established by Executive Order of the President on April 5, 1933; the first man was enrolled in the Corps on April 7; and the first camp was established on April 17. Director J. J. McEntee requested that the anniversary again be taken as an

opportunity to acquaint the public with the purpose of the Corps in the national program of conservation and with the work accomplishments of the organization. All Biological Survey camps will again conduct "open house" for the people of the communities in which the camps are located. These "open house" programs have been helpful in familiarizing people throughout the country with the objectives of the C.C.C. and the progress of work programs, it was said. The camp superintendents in cooperation with the commanding officers will arrange "open house" programs by which the people of neighboring communities may visit the camps, meet the C.C.C. staffs and enrollees, inspect physical plants and look over the work projects. The superintendents and their assistants will explain the purpose of the various work projects and how the projects are being carried out. All camp personnel, including enrollees, will act as hosts.

In many camps dinners are being arranged by the personnel, and community officials and civic leaders will be invited as special guests. The anniversary will be celebrated in Washington, D. C., by a dinner and dance at the Mayflower Hotel, on April 5, at which men prominent in C.C.C. activities will speak.

New Director Takes Oath.--J. J. McEntee took the oath of office as Director of the Civilian Conservation Corps on Thursday, March 7. Mr. McEntee, who had been assistant director of the Corps since its establishment, fills the vacancy created by Mr. Fechner's death in December. P. S. Munk Pedersen represented the Biological Survey at the ceremony.

Fifteenth Period Camp Program Begins.--All of the present Bureau C.C.C. camps have been approved for continuation during the next camp period (April 1-September 30, 1940) with the exception of Five Mile Camp BS-1, Oreg., which under the reduced CCC program now before Congress will be closed on May 15. St. Marks Camp BS-1, Fla., and Bitter Lake Camp BS-1, N. Mex., will be moved to locations nearer to the work areas. In addition to the 33 camps to be continued, two new camps will be established, one at Ogden Bay Refuge, Utah, and one at Ruby Lake, Nev. The Ogden Bay Refuge is a State area and Camp BS-2 will operate under a cooperative agreement with the State of Utah, the State's participation being governed by the provisions of the Federal Aid to Wildlife Restoration Act. The work program on this area will consist almost entirely of the construction of dikes and other water-control structures for the elimination of conditions that lead to outbreaks of botulism. The development work to be done on the Ruby Lake area includes the construction of dikes and other water-control structures, roads, trails, bridges, and refuge headquarters facilities.

Speaker System Installed.--A two-way speaker system has been installed at the Moosehorn camp, Maine, to facilitate communication between the headquarters of Company 1129 and the camp buildings. This system should prove particularly helpful at this camp where heavy snows are common.

Plant Bullrushes on New Lakes.--Many miles of the shore line of the newly created lakes on the Medicine Lake Refuge, Mont., are barren of waterfowl food and cover plants. To help correct this condition, 178,000

bullrushes were planted by a C.C.C. crew during 1939, and an equal number of wild celery and smartweed. The bullrush plant is dug by hand, or plowed out with a tractor plow, from portions of the refuge where the growth is dense. It grows generally in clusters containing from 3 to 15 single plants. The C.C.C. boys separate these clusters into single plants and bind them into bundles of 100 plants each. The shore line is staked off into 100-foot stations and a plot 10-foot square is planted at each station using a 100-plant bundle to each plot.

Pea Island Camp Isolated.--Camp BS-2, Manteo, N. C., located on Roanoke Island, was isolated from the rest of the world twice during the month of February. The first isolation came as the ice in Currituck Sound began to melt and break up. A strong wind from the northwest piled the ice against the piling under Wright Memorial Bridge, thus creating a pressure sufficient to cut the piling from under the bridge. Five sections of the bridge, approximately 80 feet, were taken away by the ice as it moved southward. The camp was isolated from Friday, February 2, until February 11. During this time the only communications available with the outside sections were by traveling some 75 miles up the Atlantic beach to the nearest road to Norfolk, or by means of an airplane that began its regular run for mail and telegraph service on February 5.

The bridge was repaired by the North Carolina State Highway Department. On February 18 a large barge, used by a power company in placing new piling just north of the bridge, broke loose from its anchoring. Pushed by a 60-mile wind, the barge struck the bridge with sufficient force to knock the section about 30 feet from its foundation. The highway department put several crews of engineers and laborers at work repairing the bridge for the second time and as a result on February 21 traffic over the structure was resumed.

Operate Short Wave Station.--Bear River Camp BS-1, Utah, now has a short wave broadcasting and receiving set. One enrollee has an amateur operator's license, and others are learning the Morse code.

#### GAME MANAGEMENT

Gets Ducks on Refuge.-- A resident of Somerville, Ala., was apprehended with four dead wild ducks by an agent of the Survey on January 26, 1940, on the Wheeler Refuge. The accused appeared in State court on February 5, at which time a fine of \$25 and costs of \$5 were assessed.

Undercover Agents Catch Bootleggers.--Undercover investigations by Survey agents and State conservation officers in Arkansas recently resulted in information being filed in the United States District Court charging possession and sale of wild ducks by eight persons. Three of these violators appeared in Federal court at Helena, Ark., on March 12, and each was fined \$50. The remaining five violators are in jail for failure to raise bonds of \$1,000 each.



Poachers Jailed, Fined.--Five persons apprehended on the White River Refuge, Ark., for various violations appeared in Federal court at Helena on March 11. Judge Limley imposed sentences as follows: 26 days in jail (1); 30 days' jail (1); 18 months probation (1); \$50 fine (2).

Hunted Geese Out of Season.--Three persons, arrested by a Survey agent near Horseshoe Lake, Ill., for hunting wild geese during the early part of February, were prosecuted in State court at Cairo. Each violator was fined \$25 and costs of \$2.

Two Bootleggers Jailed.--Two residents of Doyline, La., were arrested by a State conservation officer and a Survey agent near Shreveport on February 15 while in possession of 32 wild ducks. These men appeared before Judge Porterie in United States District Court at Shreveport on March 7. One of the violators was sentenced to 65 days in jail and the other one to 75 days.

Killed Goose.--As a result of an investigation by a Survey agent a resident of Dorchester County, Md., appeared in State court on March 18 charged with killing a wild goose on February 18. The accused entered a plea of guilty and was fined \$50 and costs of \$1.50.

Fined in State Court.--Three residents of St. Mary's County, Md., were arrested on February 11 for hunting wild ducks out of season. Apprehended near River Springs, Md., by agents of the Survey, the violators appeared in State court at Leonardtown, Md., on February 12. All entered pleas of guilty, and each was fined \$25 and costs of \$2.50.

Poacher Jailed for 2 Months.--A resident of McGregor, Minn., was found by Survey agents on January 5 spearing muskrats on the Rice Lake Migratory Waterfowl Refuge. He entered a plea of guilty in State court on January 6, and the court fined him \$50 or 60 days in jail. The violator served the jail sentence.

Hunted on Refuge.--Found spearing muskrats on the Upper Mississippi River Wildlife and Fish Refuge, Minn., on February 22, a resident of La Crosse, Wis., was arrested by a Survey agent in Minnesota. The offender appeared before the United States Commissioner at Winona, Minn., the next day. He waived examination and entered a plea of guilty. The United States Commissioner set bond at \$500, and, since the violator was unable to raise bond, he was placed in jail to await trial at the next term of court.

Judge Fines Himself.--A Justice of the Peace in Mississippi was apprehended by a Survey agent last November for shooting at wild ducks after 4 p. m. Since this is also a violation of State law, the judge went into his own court where he entered a plea of guilty and fined himself \$10 and costs of \$5.90.

Serves Jail Term.--Investigations by a Survey agent and State game wardens disclosed that a resident of Dixie Valley, Nev., possessed parts of two doe deer and one buck deer on March 15. The accused appeared in State court at Fallon the same day, and the court assessed a fine of \$200 or 100 days in jail. The violator is serving the jail term.

Bluebird Feathers Telltale Evidence.--Two residents of Sparks, Nev., who were found with three sacks of bluebird feathers, were recently arraigned in State court and found guilty. The judge fined them \$50 each. The evidence was obtained with the cooperation of local city enforcement officers.

Stiff Fines for Using Powerboat.--Two residents of Nevada who were hunting wild ducks and geese from a powerboat on Washoe Lake on October 22, 1939, appeared in Federal court at Carson City, Nev., on February 21, before Judge Harold Louderback. The accused entered pleas of not guilty and demanded jury trials. The jury returned a verdict of guilty, and the court imposed a fine of \$250 each with a sentence of 30 days in jail if the fines were not paid. The fines were paid.

Wait 3-1/2 Hours: Catch Violators.--Survey agents were patrolling in Salem County, N. J., at 5:30 p. m., on March 9, when they heard shots fired on a small island nearby. After waiting 3-1/2 hours the agents apprehended three men who had in possession 2 black ducks, 5 pintails, 1 greenwing teal, and one hen pheasant. The violators were taken into State court at Pennsgrove, N. J. Convicted, their fines and costs aggregated \$181.

Pays \$323 for Trapping Ducks.--Arrested recently for trapping wild ducks in Erie County, a resident of Fremont, Ohio, appeared in Federal court at Toledo and entered a plea of guilty. He was fined \$300 and \$23 costs. Evidence was obtained in cooperation with Ohio game wardens.

One Duck Brings \$28 Fine.--A resident of Choctaw County, Okla., apprehended by a Survey agent for killing a wild duck on February 18, paid a fine of \$25 and costs of \$3 when he appeared in State court on February 19.

Undercover Agents Round Up Gang.--As a result of undercover operations by Survey agents and State conservation officers, informations have been filed in United States District court for the Western District of Tennessee charging 18 persons in Weakley and Fayette Counties with the illegal possession of wild ducks and sale of wild ducks during January and February 1940. In most of the cases bond has been set by the United States Commissioner at \$500. Several of the accused were remanded to jail in default of bond.

Baiting Brings Stiff Fine.--A resident of Germantown, Tenn., and 16 guests, whom he invited and permitted to engage in a mourning dove shoot in a plowed field where large quantities of wheat were found, were apprehended by Survey agents and State conservation officers. The owner of the property appeared in United States District Court at Memphis on March 11 before Federal Judge Martin. He entered a plea of guilty and was fined \$500 and costs of \$50.

Hunted With Wrong License.--A resident of Chattanooga, Tenn., hunted wild ducks and deer in Texas recently, using a Texas resident hunting license. He shipped from Texas to Tennessee, on January 6, a number of wild ducks and two deer taken illegally upon a resident license. A Survey agent and a State game warden learned of this violation of State law and the Lacey Act. An uncle of the hunter appeared in State court at San Antonio and entered a plea of guilty for him, whereupon the court assessed a fine of \$100 and costs of \$19.85.

Stored Birds.--Two residents of San Antonio kept migratory game birds in cold storage until February 8 when a Survey agent and a State game warden found the birds. One individual, who had 45 mourning and white-winged doves, 4 ducks, and 1 goose stored, appeared in State court on February 9 and was fined \$100 and costs of \$11. The other individual, who had 4 ducks in cold storage, appeared in State court on February 12 and was fined \$50 and costs of \$11. Four residents of San Antonio, who also kept wild geese, ducks, and mourning doves in cold storage until February 8, until a Survey agent and a State game warden discovered them, were taken to State court on February 9. Two of the accused each paid a fine of \$75 and costs of \$11, and the other two each paid a fine of \$50 and costs of \$11.

Fined for Using Bait.--Survey agents arrested three residents of Petersburg, Va., in Charles City County on December 2, 1939, for hunting wild geese by the aid and use of wheat and corn. The violators appeared in Federal court at Richmond on March 8. They were convicted, and each was fined \$50 by Judge Robert N. Pollard.

Killed Deer Out of Season.--Two persons killing deer during the closed season were apprehended by a Survey agent and State game wardens on February 17 near East Stanwood, Wash. Both violators appeared in State court on the same day, and each was fined \$250 and costs of \$2.50. The court, however, suspended the payment of fine and costs in one case. Two deer were ordered confiscated.

#### PREDATOR AND RODENT CONTROL

Becomes Supply Depot Manager.--Effective February 9, George W. Kerr was appointed manager of the Supply Depot at Pocatello, Idaho. Mr. Kerr is acquainted with the activities of the supply depot as he was connected with control operations in Idaho when the supply depot was located at McCammon. He also kept informed on the operations of the depot while stationed at Denver recently as senior administrative assistant in the regional office. David Wood, Jr., formerly in charge of the supply depot, was transferred to the regional office at Albuquerque, as senior administrative assistant.

Counties Cooperate in Control Work.--The demand for organized control work in Montana is being met in part through county funds, according to a recent report received from District Agent R. E. Bateman of the Montana



District. Mr. Bateman reports that Madison County appropriated \$1,200 a year; Ravalli County \$4,000 a year; and Powell County \$2,400 a year for 3-year organized rodent-control projects. The work in these counties will begin this spring.

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# THE SURVEY

APR 2 1940

ISSUED MONTHLY FOR THE PERSONNEL, BUREAU OF BIOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR.  
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No. 4

## GENERAL NOTES

Radio Talk Gets Good Response.--When Dr. Gabrielson spoke on the National Broadcasting Company network during the National Farm and Home Hour broadcast of March 18, he offered listeners a copy of a list of Biological Survey publications. Since then, requests for this list have come in from every State in the country. By April 6, almost 1,150 persons had responded to the invitation. New York headed the States with 191 requests; Pennsylvania second with 182; New Jersey third with 61; and California fourth with 55.

The response to the invitation is considered excellent because only a list of publications was offered and the invitation was not emphasized. Dr. Gabrielson spoke on "Our Wildlife Gains and Prospects" in conjunction with Wildlife Week.

Speaks in Missouri.--Dr. Gabrielson left Washington by plane on April 14 for St. Louis, where he met I. T. Bode, director of the State Conservation Commission of Missouri. On April 16, they went to Joplin, where Dr. Gabrielson spoke at a meeting of the Conservation Federation of Missouri on "The Biological Survey and Migratory Waterfowl." He returned to Washington on April 18.

Attends Three Meetings.--In three days, Dr. Gabrielson attended meetings in Chicago, New York, and Boston. On March 28, he attended the convention of the Izaak Walton League of America, which was held in Chicago. The next day he was in New York at a meeting of the Sporting Arms and Ammunition Manufacturers' Institute. On March 30, he participated in the New England Game Conference, which was held in Boston.

Land Society Organized.--A new society, "Friends of the Land," was recently organized in Washington, D. C. J. N. Darling, former Bureau Chief, was among the more active sponsors, according to a statement by the society. A monthly publication entitled "The Land" is being planned. "Within the Government, and without," said Morris L. Cooke, who was elected president, "we need conservation programs which recognize the essential unity of soil, water, forest, game, and human problems, and which are so coordinated as to advance as one."

Wildlife Society Elects Officers.--Victor H. Cahalane, in charge Section of National Park Wildlife, was elected president of the Wildlife Society at the annual meeting held in Washington, D. C., during Wildlife Week. Of the six regional representatives elected, three are Bureau workers: E. R. Kalmbach, of the Food Habits Section; Dr. Walter P. Taylor, of the Texas Cooperative Wildlife Research Unit; and Joseph S. Dixon, of the National Park Wildlife Section.

## ADMINISTRATION

New Section Formed.--W. R. Dillon, chief of the Division of Administration, announced the formation of a Service and Training Section on April 1, with Carey G. Cruikshank in charge. Representatives of the section will make periodic examinations of field stations and will assist field officers who may need aid in the approved procedures of handling administrative matters. "It is hoped that the work of the new Section will be of much practical benefit to field officers in promoting a better understanding of administrative regulations and procedures," Mr. Dillon stated in his memorandum, "and that through the opportunity for personal contact with field officers and the problems with which they are confronted, it may be possible to simplify or otherwise improve business procedures and methods. The cooperation of all field personnel is solicited." The memorandum was approved by Dr. Gabrielson on April 1.

Mr. Cruikshank first joined the Bureau in December 1933 as an auditor in the Division of Administration. In December 1935 he was appointed assistant to S. C. Moore, who was in charge of the Accounting Section. In January 1938 he was appointed in charge of that section. In May 1939 the Service and Training Section was formed, but Mr. Cruikshank had not been assigned regular personnel and offices until recently.

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (March) of the Survey:

- No. 309. Service and Training Section. (April 1.)
- No. 310. Inspection of strategic works under the jurisdiction of the Department. (April 3.)
- No. 311. A statement of procedure in selling furs that become the property of the Bureau of Biological Survey. (April 12.)
- No. 312. Seasonal shut-down of production of automotive equipment. Submission of requisitions for the purchase of articles which will require advertising under bid solicitation. (April 11.)
- No. 313. Specification of sex in requests for certifications of eligibles. (April 12.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 119. Supplement No. 1. Mandatory contracts for the procurement of drafting-room and office supplies (Class 53, Supplement No. 1). (April 3.)
- No. 137. Changes in Procurement Division contracts. (April 5.)
- No. 138. Mandatory contracts for the procurement of drills, tool holders, and reamers (Class 40, Supplement No. 1). (March 23.)
- No. 139. Changes in Procurement Division contracts. (April 1.)
- No. 140. Mandatory contract for the procurement of portable drinking fountains (Class 63, Supplement No. 1). (April 2.)
- No. 141. Mandatory contracts for the procurement of tires and tubes (Classes 8 and 83). (April 5.)



The following memoranda to field officers have been issued in the "Boat Maintenance Memoranda" series:

- No. 16. The Compass. (March 21.)
- No. 17. Miscellaneous nautical information. (March 22.)
- No. 18. Equipment to be carried aboard Bureau boats as required by law. (March 28.)

#### PUBLIC RELATIONS.

WPA Helps with Photos.--Miss Esther Lendenbaum, employed by the Works Progress Administration, was recently assigned to the Section of Current and Visual Information to assist in bringing photographic work up to date.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Attracting birds. By W. L. McAtee, Technical Advisor, Office of the Chief. Conservation Bulletin 1, 15 pp., illus. 1940. Received March 28.
- Suggested action program for sportsmen's organizations. Prepared in Division of Wildlife Research. Wildlife Leaflet BS-152, 5 pp. February 1940. Received March 27.
- Raising mealworms. By Franklin H. May, formerly biologist, Section of Food Habits, Division of Wildlife Research. Wildlife Leaflet BS-155; 2 pp. March 1940. Received April 11.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Survey gives tips on how to become expert on birds. Press release P. N. 96259. Released March 30.
- Field mice invade apple orchard as farmer requests help from Survey. Press release P. N. 96262. Released April 1.
- Conservation commission approves more land for 20 wildlife refuges. Press release P. N. 96575. Released April 2.
- Millions of ducks flying north as migrations begin. Press release P. N. 96630. Released April 7.
- Smallest, largest land mammals in North America in Biological Survey collection. Press release P. N. 96840. Released April 10.
- 2 Million dollars in furs shipped from Alaska in 1939 Survey shows. Press release P. N. 97415. Released April 10.
- Use revolving beacons on farms to protect crops from waterfowl. Press release P. N. 97619. Released April 10.
- New bulletin on "Attracting Birds" is No. 1 in Interior Conservation series. Press release P. N. 97520. Released April 12.
- Feud brings arrest after 2 years; jury finds men guilty in 18 minutes. Press release P. N. 98141. Released April 17.
- Last round-up for "Old Red" marks longhorn passing. In "Current Conservation" (Clip sheet), Vol. III, No. 1, April 1940.

- Cheap foods kill minks. In "Current Conservation" (Clip sheet), Vol. III, No. 1, April 1940.
- New York bird refuge one time factor in presidential race. In "Current Conservation" (Clip sheet), Vol. III, No. 1, April 1940.
- Fine ending for a family affair. In "Current Conservation" (Clip sheet), Vol. III, No. 1, April 1940.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Aldous, S. E. A method of marking beaver. Jour. Wildlife Mgt. 4: 145-148, illus. Apr. 1940.
- Burleigh, T. D. (With G. M. Sutton, senior author). Birds of Las Vigas, Veracruz. Auk 57: 234-243. Apr. 1940.
- Caminita, L., Jr. The last of the longhorns. Our Dumb Animals 73(4): 53, illus. Apr. 1940.
- Cooke, M. T. Winter range of the herring gull. Auk 57: 250-251. Apr. 1940.
- Enders, R. R. (With T. R. Forbes, senior author). Observations on corpora lutea in the ovaries of Maryland muskrats collected during the winter months. Jour. Wildlife Mgt. 4: 169-172. Apr. 1940.
- Evans, C. A. (With R. G. Green, senior author). Studies on a population cycle of snowshoe hares on the Lake Alexander Area. Jour. Wildlife Mgt. 4: 220-238, illus. Apr. 1940.
- Gabrielson, I. N. A century of wildlife. Southern Planter 101 (3): 26-27, illus. Mar. 1940.
- Jewett, S. G. Bendire thrasher in Lincoln County, Nevada. Condor 42: 126. Mar./Apr. 1940.
- Wilson phalaropes and avocets at Abert Lake, Oregon. Condor 42: 124. Mar./Apr. 1940.
- Jones, J. C. Alabama towhee in northeastern Florida. Auk 57: 257-258. Apr. 1940.
- Key West vireo at Miami, Florida. Auk 57: 255. Apr. 1940.
- Black vultures in southern Florida. Auk 57: 246-247. Apr. 1940.
- Loosli, J. K., and Maynard, L. A. The digestibility of animal products and cereals by minks. Amer. Soc. Animal Production Proc. 32d Annual Meetings. pp. 400-403. 1939.
- Neff, J. A. Range, population, and game status of the western white-winged dove in Arizona. Jour. Wildlife Mgt. 4: 117-127. Apr. 1940.
- Salyer, J. C., II. The food and habits of the American merganser during winter in Michigan, considered in relation to fish management. Jour. Wildlife Mgt. 4: 186-219, illus. Apr. 1940.
- Schaefer, W. P. The Moosehorn Migratory Bird Refuge. Alumni News, New York State Ranger School, Wanakena, New York. 1939: 45-48, illus. 1940.
- Scheffer, V. B. Organisms collected from whales in the Aleutian Islands. Murrelet 20: 67-79, illus. Dec. 16, 1939.
- Sheldon, H. P. When not unduly alarmed. Country Life 77 (4): 18, 19, 66, 68, 70, 71, illus. Feb. 1940.
- guns and game. Country Life 77 (4): 46, illus. Feb. 1940.

- Smith, C. F. (With Glading, P., and Biswell, H. H.). Studies on the food of the California quail in 1937. Jour. Wildlife Mgt. 4: 128-144, illus. Apr. 1940.
- Zahniser, H. He knows about wolves. Delta (Sigma Nu Fraternity) 57 (2): 120, illus. Dec. 1939.
- Indoors and out. Nature Mag. 33: 191, 240. Apr. 1940.

## WILDLIFE RESEARCH

Cooperative Unit Leaders Hold Conference.---Following the Fifth North American Wildlife Conference, which was held in Washington, D. C., March 18-20, leaders of the Cooperative Wildlife Research Units met for a 2-day conference in the Bureau. The conference was called by Dr. Bell for the purpose of discussing matters of cooperation in meeting wildlife problems faced by other Bureau divisions. Division chiefs and Section heads in the Research Division discussed matters of research affecting their special fields. The leaders inspected the Patuxent Research Refuge on March 22.

Quail Survive Cold Weather.---Trial-demonstration areas in Alabama were examined for quail during March to obtain a record of the breeding stock available at this season, according to Dr. Allen M. Pearson, leader of the Alabama Cooperative Wildlife Research Unit at Auburn. On the area in Lime-stone County 12 coveys, with a total of 133 birds, were found on approximately 360 acres. This relatively high population indicates that there was little or no loss in this locality due to cold weather, Dr. Pearson said. On the area in Madison County, several hundred shrub and tree seedlings were planted with the assistance of C.C.C. labor.

Minnesota Deer Doing Well.---Because northern Minnesota had an exceptionally mild winter this year deer did not concentrate in any great numbers, according to Shaler E. Aldous, who is working on forest-wildlife relationships at the Lake States Forest Experiment Station, St. Paul. The snow did not exceed 15 inches at any one time, and on the north shore of Lake Superior the depths were less. The movements of the deer were unimpaired so that the food situation was ideal. A contrast between the last two winters illustrates the wide range of conditions that deer have to withstand in this northern area. In March 1939 there was 5 feet of snow on the level, and the deer were severely handicapped in their movements and extremely emaciated from over-exertion and lack of good food. On a 5-mile hike through one of the yarding areas, Mr. Aldous found 14 dead deer and a large number of live deer in poor condition. At the same time of year and in the same area in 1940, the snow varied from 6 to 15 inches in depth. The deer were not restricted and moved everywhere. On a similar hike, no dead deer were found and only 6 healthy deer were seen.

Hold Wildlife Short Course.---A wildlife short course was held at the Animal Industries Building, Agricultural and Mechanical College of Texas, on Friday and Saturday, April 12 and 13, under the joint sponsorship of the Texas Wildlife Federation, the Texas Nature Federation, the Texas Game, Fish and Oyster Commission, the Agricultural and Mechanical College of Texas, and the Biological Survey. The program, which was prepared by Dr. Walter P. Taylor,



leader of the Texas Cooperative Wildlife Research Unit, was designed as a help toward a better understanding of the need for conservation and increase of wildlife resources, and to throw some light on the methods of effectively putting into practice the principles involved in bringing this about. Thirty speakers and conference leaders were scheduled to appear on the program.

### Wildlife Surveys

Studies Martens in Idaho.--William H. Marshall spent practically all of January and February at the Deer Park Guard Station on the Boise National Forest, Idaho, where he studied the activities of martens and other fur animals by tracking. He also made intensive observations on Richardson's and ruffed grouse. Mr. Marshall reports that conditions for tracking martens were very poor this year, but that he was able to get complete activity records on one animal for 14 days in the Hunter Creek Basin.

Turkeys Get Fat.--In March 1939, the wild turkeys on the Wichita Mountains Wildlife Refuge, Cache, Okla, were thin, but this year, thanks to a fair acorn crop, the turkeys are fat, according to Frank B. McMurry, who is stationed at the refuge. Acorns formed a considerable portion of the stomach contents of a gobbler collected on March 9. The acorns were all weevil-infested. The leaves of Claytonia virginica, Allium, and miscellaneous grasses along with the acorns made up the greater bulk of the crop contents, while true bugs (Hemiptera) and a small percentage of miscellaneous leaves made up the remainder. Field examinations of fresh droppings indicate the turkeys are feeding on green vegetation almost exclusively. Turkeys were frequently found in locations where spring annuals and green grass were abundant, as in creek bottoms. They continue to work over piles of leaves to obtain insect, insect larvae, or acorns that may be hidden.

Skunks Dying. --A severe reduction in the skunk population on the Wichita Refuge was noted during March, Mr. McMurry reports. Six skunks were examined. All were very emaciated and were literally covered with lice. Fleas and ticks were also found on the carcasses. Other skunks were found dead, spoiled or partly eaten. Dr. Lewis Moe, associate professor of Veterinary Science at Oklahoma A. and M. College, posted a female skunk. All cultures made by Dr. Moe for pathogenic organisms were negative. An unidentified lungworm has been found in all skunks posted during the month. A severe catarrhal condition, resulting from the presence of the lungworms, and pneumonic areas, probably caused by the weakened condition of the animals, were also found. Other organs have usually appeared normal. Samples of lung and other tissues have been sent to Dr. J. E. Shillinger.

The nematode Strjabingsylus chitwoodorum was found in the frontal sinuses of several skunk skulls. An unusual number of this species of nematode in the frontal sinuses will cause a darkened, perforated, pressure area above the sinus. This nematode, like the stomach nematode Physaloptera sp. (probably p. maxillaris), appears to be a more or less constant parasite in skunks found in this region, as several skulls taken in 1939 show this pressure area.

Writing Life History of Elk.--Olaus J. Murie, biologist stationed at Jackson, Wyo., arrived in Washington on March 15 to work toward the completion of his manuscript on the life history and management of the Rocky Mountain elk. He spent April 9 to 15 in New York City studying specimens and records in the American Museum of Natural History. He will continue his studies in Washington until the middle of May when he will return to his official station.

Visit Mammal Laboratory.--The following persons visited the mammal laboratory during the North American Wildlife Conference, held in Washington, D. C., from March 18 to 20, inclusive: Mr. and Mrs. Norman Preble, Herbert Bezdek, F. D. Haller, K. A. Mitchell, D. D. Elyth, D. T. Katz, and J. S. Rose, all of the Ohio Cooperative Wildlife Research Unit, Ohio State University; Dr. W. P. Taylor, B. Ludeman, L. L. Davis, and R. L. Pitmann, all of the Texas Cooperative Wildlife Research Unit; R. E. Baker and Phil Goodrum, of the Texas Game, Fish and Oyster Commission; Leonard H. Llewellyn, Blacksburg, Va.; John Pearce, Northeastern Forest Experiment Station, New Haven; W. P. Baldwin, Jr., Awendaw, S. C.; L. Butler, Hudson Bay House, Winnipeg, Manitoba; Prof. H. E. Warfel, Boscowen, N. H.; Dr. D. I. Rasmussen, Utah Cooperative Wildlife Research Unit; Cecil S. Williams, Bear River Migratory Bird Refuge, Brigham, Utah; and Claude W. Hibbard, Museum of Paleontology, University of Kansas.

Richard Weaver, of Dartmouth College, called at the mammal laboratory on March 22 to confer with Arthur H. Howell. He brought specimens of Tamiasciurus and Tamias for identification.

#### Food Habits Research

Consults with T.V.A.--Dr. Clarence Cottam at a meeting in Chattanooga, on February 28 and 29, discussed the research work of the Biological Survey on the T.V.A. area during the coming season, with special emphasis being made on the planting program. Several experimental plantings of waterfowl foods made last season were so well accepted by ducks and muskrats that the plantings were in some cases severely depleted.

Many Visitors Inspect Food Habits Laboratory.--The increased activity in the field of wildlife research was clearly reflected in the number of visitors inspecting the Food Habits Research Laboratory during the recent Fifth North American Wildlife Conference, Dr. Cottam states. It was conservatively estimated that more than 100 technical workers engaged in wildlife management studies went through the Food Habits unit to learn first-hand the methods employed by the Biological Survey in making food habits and related studies. The groups visiting the office included wildlife managers of National Forests, Soil Conservation Service wildlife technicians, and graduate students of the Cooperative Research Units. Many of the visitors inspected the new laboratory at the Patuxent Research Refuge. Four trips were made to that area during Wildlife Week, and it is estimated that about 125 persons inspected the Patuxent and its facilities.

Investigate Refuge Possibilities.--Dr. Cottam and Richard Griffiths (of the Division of Wildlife Refuges) spent February 18 to 25 in Massachusetts



investigating the refuge possibilities of many of the coastal areas in that State. Recommendations as to the areas best suited for refuges, and the improvements necessary on each, were outlined and discussed.

On Washington Detail.--Biologist E. R. Kalmbach, in charge of the Denver office of Food Habits, spent March 17 to 26 in Washington attending conferences and discussing various phases of food habits work.

Studies Goose Literature.--Biologist Cecil S. Williams, of the Bear River Refuge, Utah, was on detail in Washington from February 21 to March 26. While here he attended the Wildlife Conference and presented a paper jointly with Clarence A. Sooter. He spent some time in reviewing the literature on Canada geese, redheads, and other waterfowl. Enroute to Utah, he inspected various refuge areas in Wyoming, Colorado, and Oklahoma.

#### Distribution and Migration of Birds

Addresses University of Minnesota Group.--On March 29, F. C. Lincoln participated in the Wildlife Conservation Short Course at the University of Minnesota, speaking on the subject of waterfowl population and its future prospects. He traced the history of the decline of migratory waterfowl in North America. Special attention was given to the responsible causes that resulted in the "duck depression" which hit the low point in 1934. At this time the Survey's program of more stringent regulation and restoration was inaugurated. The success achieved in the past 6 years was treated in some detail.

Visits Flyway Biologist.--Following his address in St. Paul, Mr. Lincoln went to Edwardsville, Ill., the headquarters of C. E. Gillham, the Mississippi Flyway biologist, for a conference on the continuation of Mr. Gillham's work in the Arctic. On the invitation of F. W. Olin, president of the Western Cartridge Company, Mr. Lincoln toured through the large munition plant.

Repeats Lecture for St. Louis Club.--On April 1, Mr. Lincoln repeated his lecture on the past, present, and future status of migratory waterfowl before the St. Louis Bird Club and a large number of invited guests. At the conclusion of the lecture Mr. Gillham showed several reels of his colored motion pictures taken in the Arctic and Louisiana.

Shows Film.--On March 26, Mr. Lincoln addressed Takoma Lodge No. 29, F.A.A.M., Takoma Park, Md. His talk was entitled "Migration Fly-Ways," and was illustrated with the film entitled "The How and Why of Bird Banding."

Activities of Flyway Biologists.--Luther J. Goldman, the Pacific Flyway biologist, is at headquarters in Berkeley, Calif., working on his Mexican report.

Dr. George B. Saunders, the Central Flyway biologist, has returned to his temporary headquarters in Brownsville, Tex., from waterfowl investigations in Tamaulipas and Vera Cruz. While at Tampico he obtained information regarding the recoveries of several banded birds not previously reported.



C. E. Gillham, the Mississippi Flyway biologist, is actively engaged in preparation for further work in the Mackenzie River Delta. He plans to go into that region via Alaska and will have as his assistant John J. Lynch, of the Section of Food Habits.

Harold S. Peters, the Atlantic Flyway biologist, is making plans for the continuation of his waterfowl investigations in the Maritime Provinces.

Establishes New Banding Station in Newfoundland.--Dr. Evarts Green Loomis, of the International Grenfell Association, St. Anthony, Newfoundland, plans to operate an active trapping station in that locality. He will also submit migration observations from that point. Dr. Loomis has been an active cooperater since May 6, 1929, operating a station in Newark, N. J.

Visits Washington Office.--On April 1, R. D. Connor, of Livingston, N. J., visited the section to examine the banding files. Mr. Connor has been an active banding cooperater since July 24, 1923.

Outstanding Returns from Banded Birds.--The following are interesting returns from banded birds, showing band number, place and date of banding, and place and date of recovery:

Double-crested cormorant:

A700108, S. Dak., Waubay, 6/13/29                      Iowa, Jefferson, 1/4/40

Great blue heron:

C622023, Mont., Great Falls, 6/20/33                      Tex., Bruceville, 1/?/40

Black-crowned night heron:

335776, Mass., Barnstable, 6/17/25                      Cuba, Matanzas, 2/10/40

On October 13, 1939, E. W. Ehmann, at Lake Merritt, Oakland, Calif., retrapped one pintail banded in 1924; two banded in 1927; two banded in 1928; and one banded in 1929.

A great skua (Stercorarius s. skua) banded as a nestling on July 3, 1939, at Hermaness, Shetland Islands, was found dead on February 2, 1940, at Swampscott, Mass. The band was inscribed "Witherby-High Holborn-London-401218."

#### Fur Resources

Group Visits Swarthmore Fur-Animal Project.--On April 1, Dr. Hugh C. McPhee, chief of the Division of Animal Husbandry, Department of Agriculture; Dr. W. B. Bell, chief of the Division of Wildlife Research; Dr. Carl G. Hartman, Carnegie Institution of Washington, Baltimore; and Chas. E. Kellogg, of this Section, drove to Swarthmore, Pa., to confer with Dr. Robert K. Enders and to review with him the work he has been doing on the reproductive cycle of fur animals. This work is financed from the Secretary of Agriculture's Special Research Fund (Bankhead-Jones). Although the Bureau has been transferred to the Department of Interior the expenditure of funds must continue to be handled through some organization of the Department of Agriculture. The first cooperative studies of the reproduction of fur animals were in cooperation with the Carnegie Institution of Washington located at Baltimore and under the general direction of Dr. Hartman. Dr. Enders has carried his reproductive studies of the mink to a point where a monograph is being prepared for publication.

Broadcasts During Wildlife Week.--During Wildlife Restoration Week, Charles F. Bassett, director of the United States Fur Animal Experiment Station, Saratoga Springs, N. Y., appeared on a 15-minute program over station WGY, Schenectady, at 6:30 p.m., on March 18.

Minks Digest Raw Starch.--Minks apparently digest cooked starch better than raw starch, whether it be supplied by corn, oats, or wheat, according to Dr. S. E. Smith, working at Cornell University in cooperation with the Bureau. Finely ground raw starches have been digested, but not well, it was reported. These digestion trials were run by Mr. Bernard, a graduate student at Cornell working under the direction of Dr. Smith.

### National Park Wildlife

Deer in Grand Canyon.--A concentration of 25 to 30 deer has been observed around the village area in Grand Canyon National Park, Ariz., in February, according to Ranger Hamilton. The animals browsed rather heavily on juniper, and a definite browse line is noticeable on many of the trees. Mr. Hamilton believes that to maintain a natural reproduction of the juniper in this area some manner of deer dispersal may have to be devised.

Studies Coyote-Javelina Relationships.--The coyote-javelina relationship at Saguaro National Monument, Ariz., was studied by Biologist W. B. McDougall on March 18 and 19. While javelinas are present in the monument, apparently they are not very numerous. This animal is present in only four National Park Service areas: Saguaro, Tonto, and Oregon Pipe Cactus National Monuments, and the proposed Big Bend National Park. Too little is at present known about javelinas to appraise the problem in Saguaro. Rabbits and other rodents are at a very low ebb throughout southern Arizona at the present time, Mr. McDougall reports. As is usually the case, there has been a lag in the decline of the numbers of coyotes behind that of their normal food supply. Local people believe that the coyotes are now taking adult deer, javelinas, and perhaps other animals that they normally would not attack.

Makes Deer Census.--A deer census was recently made by Wildlife Ranger Wm. B. Augustine on the Sequoia National Park, Calif. The strip method was employed, but 2 days were spent making 100 percent counts on sample areas. The aid of 25 CCC boys was enlisted. One hundred percent counts and strip counts will continue to be made throughout the year, it was said. No population figures can be released until more counts are made in various life zones or habitats.

Lecture.--The following talks were made by personnel of the Section: "A Philosophy of Wildlife Management," was the title of a talk by Assistant Wildlife Technician Willis King at the meeting of the Knoxville Science Club on March 15. Dr. Adolph Murie gave five lectures on "Wildlife in Mount McKinley National Park" during March: at a meeting of the Order of Masons, March 4; Biological Society of Washington, March 9; at the home of Professor Griggs at which visiting scientists were present, March 20; Nature Photographic Society, March 26; and the Biological Survey, March 28. An illustrated talk on California wildlife by E. Lowell Sumner, Jr., was given before the San Francisco Sportswomen's Club on March 8. O. B. Taylor gave an address before members of the Science Group, Richmond elementary teachers, on March 14.



## FEDERAL AID IN WILDLIFE RESTORATION

Attends Convention.--Mr. Day attended the 18th Annual meeting of the Izaak Walton League, which was held in Chicago on March 28, 29, and 30. He addressed the Conservation Council on the administration and status of the Federal Aid in Wildlife Restoration program.

Goes on Field Trip.--Fred R. Kessler, acquisition specialist, left Washington on April 13 for West Virginia, Indiana, and Ohio, where he will discuss Federal Aid matters with State officials.

Speaks at Game Conference.--On March 27 J. Paul Miller left Washington for Boston where he attended the New England Game Conference. Mr. Miller spoke on "The Administration of the Pittman-Robertson Act," and "The Relationship of Federal Aid in Wildlife Management Projects to the Land Grant Colleges in the Northeast." He returned on April 1.

Discusses Quail.--Mr. Miller attended the Annual School of Instruction for Game Protectors of the West Virginia Conservation Commission, which was held at Jackson's Mill, W. Va., on February 29. He spoke on the habitat requirements of cottontails and quails.

Arkansas Improves Refuge.--The deer population on the 32,000-acre Howard County Game Refuge, Ark., will be benefited by measures to be undertaken by the State Game and Fish Commission under a Federal Aid project approved on March 11. Deer will be stocked, foods for other species of animals will be increased by plantings, and 6-1/2 miles of deer proof fence will be erected. A residence and headquarters group will be constructed for the State refuge manager on land owned in fee by the Game and Fish Commission. Improvements to increase deer, wild turkeys, quails, and fur animals will be made. The refuge is privately owned and is operated by the State under a long-term lease.

Replenish Refuges With Wild Turkeys.--The Arkansas Game and Fish Commission received approval on March 21 to use Federal Aid funds to purchase wild turkeys for release on five areas aggregating 167,000 acres. Three of the tracts are State Game Refuges, private lands under long-term lease to the Commission, and the remaining two are Cooperative Game Refuges on National Forests. Some of the State Game Refuges and National Forests in Arkansas possess excellent conditions for wild turkeys, but at the present time have insufficient seed stock. This project is designed to correct that condition. All areas are managed by the Game and Fish Commission, and hunting will be prohibited until shootable surpluses become available. The birds will be banded and released at an early date.

Colorado Buys Winter Range.--To solve a critical deer and elk wintering problem, the Colorado Game and Fish Commission will use part of its Federal Aid allotment to acquire 800 acres of land in Grand County. The project was approved on March 19. The area under consideration now furnishes winter forage for big-game animals, and steps will be taken to increase the food supply. Buildings will be reconstructed to house a laboratory and field station for wardens and technical workers. Since the tract is located in an area where there is now a serious game-management problem because



of inadequate winter range, it is well situated as a center for the conduct of planned studies. Agricultural lands on the tract can be worked so as to produce forage for winter feeding if necessary. As an added value, the grazing rights attaching to these lands on the adjacent public domain will be dedicated to wildlife.

Purchase Bird Refuge.--Two requisites of upland game birds in the agricultural areas of Idaho are escape cover in the hunting season and nesting sites in the spring. As its initial effort to meet these needs, the Idaho Fish and Game Department recently received approval for a project to acquire two tracts of submarginal farm land and timberland in Lewis and Idaho Counties. Both tracts are well suited for use by ring-necked pheasants and blue grouse, and under State protection will serve as seed stock refuges for these and other game birds indigenous to the locality.

Buy Hagerman Valley Refuge.--The Idaho Fish and Game Department will use Federal Aid funds to purchase approximately 500 acres of land in Gooding County to be known as the Hagerman Valley Refuge. The project was approved on March 21. Part of the area will serve as a waterfowl sanctuary, and part will be used to grow hay and grain for emergency feeding of big game. Numerous springs, one of which is estimated to produce 30 second feet of water, flow out of the volcanic rim rock bordering the area and provide an abundance of water for expanding the acreage now flooded. Large numbers of waterfowl frequent this area during their spring and fall migrations. At a later date, Idaho expects to submit a project to impound more water, thus increasing the value of the establishment for migratory waterfowl.

Enlarge Rice Lake Refuge.--On March 12, the Iowa State Conservation Commission received approval for a Federal Aid project to purchase additional lands to be added to the Rice Lake Refuge in Worth and Winnebago Counties. The refuge will be for waterfowl and upland game species. The Commission now owns a major portion of this area, part of which was purchased under a previous Federal Aid project. The purpose of the present project is to block the Commission's holdings.

Supply Materials for CCC.--Federal Aid funds to purchase materials for the development of the Harlan Wildlife Restoration Unit, in Kentucky, will be used by the State Department of Conservation. The project was approved on March 22. The materials will constitute the State's contribution as sponsor to the CCC camp that will develop the area. The refuge was purchased under Kentucky's first project.

North Carolina Develops Deer Refuge.--A Federal Aid project to fence and post a deer and wild turkey refuge in Bladen County, N. C., was submitted by the North Carolina Department of Conservation and Development and approved on March 22. This area has played an important part in deer conservation within the State and constitutes an important seed stock refuge. The lands belong to a pulp and paper company and will be leased for 10 years, with an option to renew for an additional 10 years. The area is known as the John Pickett Council Deer Refuge and was noted for its abundant wildlife as early as 1734. In that year a traveler wrote a glowing account of the "great herd of deer" he observed and described the area as

"the pleasantest place that ever I saw in my life." He stated that his party shot sufficient deer for 60 men and wrote that there were large numbers of wild turkeys, geese, ducks, and fish. About 50 years ago John Pickett Council, the owner of the lands, became alarmed at the growing scarcity of deer between the Cape Fear and the Waccamaw Rivers. He and his neighbors agreed to protect deer and turkeys with the result that these species recovered and stocked the surrounding lands.

Consolidate Holdings.--The Dawson Game Refuge in Kidder County, N. Dak., will be consolidated by the purchase of interior holdings, according to the State Game and Fish Department, which received approval on March 12 for a Federal Aid project to purchase 480 acres of land. The area will benefit pheasants, Hungarian partridges, sharp-tailed grouse, prairie chickens, and waterfowl. Improvements to increase the carrying capacity of game will include food and cover plantings and development of water resources. A boundary fence will also be erected, and the refuge properly posted to prevent trespass. A keeper will reside on the area permanently.

Study Three Game Birds.--The North Dakota State Game and Fish Department received approval on March 27 for a Federal Aid project to study the factors influencing the survival of the ring-necked pheasant, the sharp-tailed grouse, and the Hungarian partridge, important game birds in that State. Information obtained from the investigation will be used in formulating sound game management practices. Factors to be considered include nesting and brood mortality, wintering, and the effects of hunting, disease, weather, and food and cover deficiencies. At times these birds are numerous, but during recent years their numbers have declined. Extreme climatic conditions, varying agricultural practices, and other factors are advanced as probable causes of fluctuations, but there is insufficient knowledge of the requirements of these birds in North Dakota to determine accurately the limiting factors responsible. Technical direction will be provided by the State Experiment Station, the North Dakota Agricultural College, and the State University.

Investigate Seed Stock Refuges.--The New Jersey State Fish and Game Commission received approval on March 11 to continue a Federal Aid project to conduct an investigation of the effectiveness of seed stock refuges. The work began in 1939. The investigation demonstrated that, as in many other pheasant producing States, the species suffers from excessive nest destruction, particularly in alfalfa fields. This and other factors have a most important bearing on the proper selection of seed stock refuges, and the effectiveness of these sanctuaries is dependent in a large measure on the care exercised in the selection of sites. On the basis of last year's experiences, the Commission elected to continue the work. The new program will emphasize the development of techniques to reduce the high nest mortality if possible. A comparison of the nesting activities of the birds in and around seed stock areas will be made with districts where such protection is not provided. The personnel on the project remains unchanged.

Continue Sage Grouse Restoration.--The results of a Federal Aid project for the rehabilitation of sage grouse habitat on grazing lands, which was submitted a year ago by the Oregon State Game Commission, were so satisfactory that the Game Commission submitted a new project to expand the



work. Approval was granted on March 26. Under the 1939 project, springs and waterholes were cleaned out; the immediate areas were fenced to prevent trampling by livestock and to allow the vegetation to recover so as to furnish food and cover. In all instances, watering conditions for stock were improved. Under present plans, labor will be furnished by private individuals and public agencies on whose lands the developments will be made. The State will take leases and easements and will use Federal Aid funds to purchase materials. The Grazing Service, the Soil Conservation Service, the Agricultural Adjustment Administration, and the Forest Service will cooperate with the Oregon Game Commission on this undertaking.

Beaver Management Work Expanded.--The Oregon State Game Department will expand the beaver management work started as a Federal Aid project last year. The new project, approved on March 26, is composed of three parts: Surveys, trapping and planting, and habitat improvement. Streams in the areas where beaver planting would be the most advantageous to the State will be surveyed according to the system devised by Colorado on its Pittman-Robertson beaver investigation project last summer. Two survey crews, each having a trained biologist, an experienced beaver trapper, and a Forest Service representative, will work on the National Forests. Biologists and trappers will survey other lands. Beavers will be trapped in the Shasta Beaver Range and in northeastern Oregon and released in locations selected as a result of the survey. Old beaver meadows and stream banks will be planted with willows and other food trees. Where necessary, fences will be erected to protect the plantings from grazing. A. V. Meyers has been named project leader. The U. S. Forest Service, the State Police, the U. S. Grazing Service, and the State Extension Service will cooperate with the Game Department on this work.

Buys Waterfowl Area.--Buffalo Slough in Lake County will be purchased by the South Dakota Department of Game and Fish under a Federal Aid project approved on March 22. This area was formerly a favorite breeding and resting place for large numbers of waterfowl until a drainage ditch was dug in the outlet. Overgrazing has destroyed the nesting cover. Development plans call for a dam at the outlet and fences to protect the area from overgrazing. Limited grazing will become a part of the management plan when fire hazard reduction is necessary. Waterfowl, Hungarian partridges, muskrats, and pheasants will profit by the restoration measures to be undertaken.

Restore Deer.--A two-fold program of restoring deer once abundant in Tennessee but now facing extirpation unless remedial measures are undertaken, was approved on March 21 as a Federal Aid project of the Tennessee Department of Conservation. The Education and Public Relations Division is disseminating information on wildlife in an effort to enlist public support. As a part of its Federal Aid program the Department of Conservation will improve the Cheatham County Refuge for deer. This was purchased under another Federal aid project. Development of a dog and deer proof fence will initiate the development program on the area. A seed stock herd of 50 deer will be established. As the herd increases, surplus animals will be used as foundation stock in various parts of the State.



Develop Area for Wildlife.--The Texas Game, Fish and Oyster Commission recently leased 144,757 acres of land with Federal Aid funds. The lands are in six blocks in various parts of the State and will be scientifically managed to improve conditions for deer, turkeys, and other species of game. To date, 195 deer and 207 wild turkeys have been liberated on these areas, which will be closed to hunting for 5 years. The Executive Secretary of the State game department said, "We hope to not only show landowners and sportsmen how game can be increased by proper management, but to bring better sport to hunters who, after our five-year leases have expired, will be able to use the land under lease. The acres surrounding the six projects will be available for hunting immediately, providing the permission of the landowners is obtained."

Surveys Fur Resources.--On March 27 the Vermont Fish and Game Service received approval to use Federal Aid funds to conduct a survey of the fur resources of the Lake Champlain country. The muskrat is the most important fur animal of the region, and attention will be centered upon obtaining information on methods of trapping and on the economic importance of wild fur to local trappers and fur dealers. The effects of the spring trapping season on populations will be determined by a study of the breeding habits with particular reference to the average size of litters and the survival rates of the young. Specimens will be collected to determine the best seasons for harvesting the fur crop. James Otis, a graduate in conservation and wildlife management at Cornell University, has been named project leader. The University of Vermont will provide technical direction.

Enlarge Squaw Creek Refuge.--The second segment of the Squaw Creek Antelope Range and Wildlife Refuge project submitted by the Washington State Department of Game was approved on March 13. Under this project the State will purchase 883 acres of land. In February a project was approved for the purchase of 7,850 acres of land. This constituted the first acquisition segment for this refuge unit.

#### LAND ACQUISITION

Add Land to 20 Refuges.--The Migratory Bird Conservation Commission recently approved the expenditure of \$349,466 to acquire 48,502 acres of land to be added to 20 refuges in 15 States. The largest acquisitions were authorized in Oregon, where 20,323 acres are to be added to the Hart Mountain Antelope Refuge, near Lakeview, and 14,751 acres to the Malheur Migratory Bird Refuge, near Burns. Other Biological Survey refuges where land will be added are as follows: White River, Ark., 960 acres; St. Marks, Fla., 96; Chautauqua, Ill., 30; Sabine, La., 438; Seney, Mich., 240; Tamarac, Minn., 7,107; Swan Lake, Mo., 885; Crescent Lake, Nebr., 720; and Bitter Lakes, N. Mex., 1,560 acres. Arrowwood, N. Dak., 5 acres; Des Lacs, N. Dak., 9; Lower Souris, N. Dak., 480; Upper Souris, N. Dak., 74; Lake Andes, S. Dak., 80; Lake Isom, Tenn., 325; Skagit, Wash., 80; Willapa, Wash., 201; and Hutton Lake, Wyo., 40 acres. About 640 acres adjoining the Fort Niobrara Refuge, Valentine, Nebr., will be leased.

Surveys and Maps

Joins Des Moines Force.--Bernard J. Shea recently reported for duty as assistant engineering aide in the Des Moines office under temporary appointment.

Assist on Surveys.--Merland H. Benedict and Frank S. Farquhar, engineering aides, were recently assigned to the Little Pend Oreille Refuge, Wash., to assist on boundary surveys.

## WILDLIFE REFUGES

Estimate Pheasant, Goose Populations.--A count of pheasants in Glenn County, Calif., made during the week of March 17 by Sacramento Refuge personnel in cooperation with the State warden of Glenn County, revealed that there were at least 871 of these birds in the county, 509 on the refuge proper and 362 in the rest of the county. The number of geese on the refuge during the same week was estimated to be more than 6,000, as compared with 1,570 for the same period in 1939 and 510 in 1938. Most of the geese were cackling geese, with a few lesser Canadas and Canadas. Manager Peter Van Huizen reports that these birds have been feeding almost exclusively in the 500-acre barley field planted on the refuge, while grain fields immediately adjoining the refuge have not been touched. The barley on the refuge has never grown very high, because the geese have eaten it down to the ground regularly.

Detailed to Fort Peck.--Albert Van S. Pulling, biologist on the Upper Mississippi Wildlife Refuge, Minn., has been detailed to the Fort Peck Game Range, Mont., for a 3-month period to investigate the wildlife potentialities of the area and work out future management plans.

N.Y.A. Boys Great Aid to Refuge Personnel.--Two N.Y.A. boys assigned to the Lake Ardoch Refuge, N. Dak., are proving a real help to the laborer-patrolman on this refuge, according to recent reports. During March, they assisted in cleaning and painting the control gates on the refuge, peeled oak posts, and built a tool box, a supply cabinet, and three tool cabinets. One of the boys reached the age limit for N.Y.A. during the month, and it was necessary to dispense with his services.

Reports Wichita Big-Game Numbers.--On January 31, there were 415 buffaloes, 185 elk, 35 antelopes, 138 long-horned cattle, and 770 white-tailed deer on the Wichita Mountains Wildlife Refuge, Okla., according to Acting Manager Ernest J. Greenwalt. Twenty-four antelopes (5 bucks and 19 does) were shipped to the refuge on January 13 from the New Mexico Department of Game and Fish and released with the 13 animals already there. Two died during shipment, leaving a total of 35 on the refuge at the end of the month.

Easter Pageant Cancelled.--The Easter pageant held annually on the Wichita Mountains Refuge was cancelled this year because of the freezing temperature and a high wind, Mr. Greenwalt said. Some 30,000 persons had

already gathered at the site before pageant officials were forced to call off the ceremonies. The radio broadcast went on as scheduled, all speaking parts having been previously recorded. It is now planned to hold the pageant sometime in June.

Canadians, Americans Discuss Souris.--Brice McBride, hydraulic engineer stationed at Salt Lake City, arrived in Washington on April 1 to attend a conference of Canadian and American officials on the distribution of the water of the Souris River. S. H. McCrory, assistant chief of the Bureau of Agricultural Chemistry and Engineering, and E. J. Thomas, State engineer of North Dakota, were the other American representatives at the conference.

Elk Leave for Summer Feeding Grounds.--Manager Almer P. Nelson, of the Elk Refuge, Wyo., reported that at no time during the winter was it necessary to feed hay to the elk on the refuge. The animals came through the winter in much better condition than usual, he added. No dead calves were seen all winter, although usually the loss in calves is heavy. A few bulls and cows were found dead, but these were believed to have died of old age or from a heavy infestation of scabies. By April 1, most of the 9,000 animals had left the refuge for their summer feeding grounds to the north.

Personnel.--The following laborer-patrolmen have recently been appointed: William C. Good, Montezuma Refuge, N. Y., effective March 4; Ernest W. Creighton, Blackwater Refuge, Md., April 1; and Frank B. Groom, National Bison Range, Mont., February 7. Other personnel changes are: Frank W. Groves, appointed junior refuge manager at the Malheur Refuge, Oreg., effective March 4; Miss Lisa Amman von Barowsky, appointed supervisor of the Chinsegut Refuge, Fla., effective March 20; Bryant W. Crews, appointed U. S. deputy game warden on the Okefenokee Refuge, Ga., on February 16; Gilbert E. Wardwell, assistant refuge manager, transferred on February 1 from the Crescent Lake Refuge, Nebr., to the Boulder Canyon Refuge, Ariz. and Nev.; and Gene H. Crawford, junior refuge manager, transferred from the Elk Refuge, Wyo., to the Crescent Lake Refuge to fill the vacancy created by Mr. Wardwell's transfer.

Miss Imogene Edwards, junior stenographer in the Section of Operations, resigned on February 18 to accept a position with the Wage and Hour Division of the Department of Labor at Indianapolis, Ind. George L. Girard, assistant refuge manager formerly in charge of the Nine-Pipe, Pablo, Pishkun, Willow Creek, and Benton Lake Refuges, Mont., resigned on January 31 to accept a position with the Soil Conservation Service. Miss Virginia Whorley was appointed junior stenographer in the Section of Habitat Improvement on March 7. John R. Stacy was appointed junior clerk-stenographer in the Section of Operations on April 8.

#### CONSTRUCTION AND C. C. C. OPERATIONS

Director Announces Delay in Camp Movements.--J. J. McEntee, director of the Civilian Conservation Corps, recently announced that all company movements for the 15th period will be delayed until May 15. The camp to be established at Ruby Lake, Nev., will probably be occupied with a full company of enrollees on that date, while the new camp at Ogden Bay, Utah, will be occupied on June 30.



Inspects Region 8.--O. W. Teckemeyer recently conferred with Mr. McNamara, of the New Jersey Fish and Game Commission, regarding the development of a State refuge adjacent to the Brigantine, N. J., camp. He also conferred with Mr. Bitter, automotive inspector of Division 1, Central Repair Shop Headquarters, Baltimore, who made the first official inspection of Biological Survey CCC equipment on April 22 and 23 at the Brigantine camp, and with Mr. Harris, chief automotive inspector, Division 1, Central Repair Shop, regarding the inspection of CCC equipment at Biological Survey camps. On April 25, Mr. Teckemeyer inspected the work project activities at the Bombay Hook camp in Delaware.

Establishes Safety Record.--Tulelake Camp BS-3, Calif., continues to lead all other Biological Survey camps in the number of months that CCC operations have been conducted without a lost-time accident, it was recently reported. There has not been a lost-time accident at this camp during the past 26 months. This record has never been equalled by any other Biological Survey camp.

Highway Patrolmen Assist CCC Safety Program.--Many Biological Survey CCC camps are following the example of Camp BS-1, Mud Lake, Minn., and are making arrangements with the State Highway Department to have patrolmen visit the camps to give illustrated safety lectures and explain traffic laws to the enrollees.

Offers Cooperation.--The American National Red Cross and the American Automobile Association recently expressed willingness to provide special safety programs for the camps. Arrangements for speakers and for the showing of motion pictures are to be made locally.

Patuxent Laboratory Buildings Completed.--Officials of the Division of Construction and CCC Operations and the Division of Wildlife Research made a joint inspection of laboratory No. 2 and of the addition to the animal laboratory at the Patuxent Research Refuge, Md., on March 18, preliminary to the acceptance of these newly completed buildings by the Division of Wildlife Research. Doctors Bell and Morley and Messrs. Couch and Nelson expressed satisfaction over the quality of work done under the field supervision of Edw. P. McDermott, assistant architectural engineer, with funds allotted by the Public Works Administration. The buildings were formally transferred to the Research Division on March 22.

P.W.A. Project Started at Saratoga.--Mr. McDermott was recently detailed to the U. S. Fur Animal Experiment Station, Saratoga Springs, N. Y., to supervise the building construction program for which \$48,850 were allotted from Public Works Administration funds. The structural improvements include the remodeling of an old storage building so as to make it suitable for an animal slaughter house; the construction of a cottage-type residence; the construction of some 200 pens suitable for foxes, martens, and minks; the remodeling of an animal laboratory; the construction of a refrigerated storage room; and the completion of a carpenter shop and office building. Mr. McDermott was at the station from April 4 to 13 selecting and marking the sites and making preliminary arrangements for materials, equipment, and labor. He returned to Saratoga Springs on April 24 to begin construction work. The various activities will be conducted so as to avoid interference with the experimental work on foxes, martens, and other animals.

Assigned to Superintendency.--John E. Meyers, foreman of construction and maintenance, was named acting superintendent of CCC Camp BS-1 at the Sabine Migratory Waterfowl Refuge, La., effective April 8.

#### GAME MANAGEMENT

Inspect Boats.--Mr. Crouch and Carl W. Jevreau, associate naval architect of the Bureau, inspected the Division's four patrol boats on the eastern shore of Maryland and Virginia on April 10 and 12.

Confers with Agents.--During the last nine days of March, Chester A. Leichhardt, assistant chief of the Division, conferred on game-law enforcement matters with Agents Birsch, Shuler, Boswell, and Kelsey; Deputy Wardens Graham and Scales; Georgia State District Game Supervisor Fred Brewer; and the personnel on the Cape Romain, Savannah River, Okefenokee, and Sandhills Refuges in Region VII.

Round-up Bootleggers.--Fourteen market hunters were recently arrested in northern California for selling wild ducks to Survey agents. The violators appeared before the United States Commissioner at Sacramento, where bonds ranging from \$500 to \$1,500 were set for their appearance at the next term of court.

Waterfowl Plentiful in Idaho.--Great numbers of migratory waterfowl were seen in Idaho during February, according to Game Management Agent George M. Riddick. Very few streams froze over during the winter. There was ample food in the streams and fields for the birds, he added. Very little artificial feeding was necessary. Complaints of duck depredations to harvested or growing crops were few.

Duck Hunters Fined.--Five persons found hunting wild ducks on March 23 in Calhoun County, Ill., and five other individuals apprehended on March 24 hunting wild ducks in the same area were recently arraigned in State court. Two were fined \$25 each and costs, and the other offenders \$10 each and costs, an aggregate of \$164. The cases were made by State and Federal officers.

Robin Slayers Sentenced.--Eleven persons appeared in Federal court at New Orleans on April 4 for killing robins, jacksnipes, ducks, and coots during closed season. Judge Wayne G. Borah sentenced six of these individuals to serve 5 days in jail each and two to serve 3 days in jail each. One was given 3 years' probation; one 5 years' probation; and one was found not guilty.

Used Unplugged Guns.--Two persons, apprehended in Knox County, Maine, on November 4, 1939, for violations of the Migratory Bird Treaty Act regulations, appeared in United States District Court at Portland on April 8. One of these defendants, using an unplugged shotgun, had killed 21 ducks. He was fined \$100. The other defendant was using an unplugged shotgun while hunting ducks, and his fine was set at \$5.



Fined, Jailed for Killing Swan.--A jury in Federal court for the Eastern District of Michigan took 18 minutes on April 2 to return a verdict of guilty against a defendant charged with killing swans. Another defendant had entered a plea of guilty. One was fined \$400 and sentenced to 30 days in jail, and the other, because of age and his condition of health, received a suspended sentence of 6 months and was placed on probation for 3 years.

Judge Cracks Down on Violators.--On September 17, 1939, three persons were apprehended by a Survey agent and State wardens in Scott County, Minn., while hunting and killing mourning doves after sunset. These three hunters appeared in Federal court at St. Paul on March 27 and entered pleas of guilty. Judge Robert C. Bell fined one hunter \$75, and each of the others were fined \$40. In passing sentence the Federal judge stated "that the price of future game law violations is going up in Federal court in the State of Minnesota."

Fined for Assault.--A defendant appeared in Federal court at Elizabeth City, N. C., on March 26 charged with assaulting a game agent at Maple on January 6 when the agent had a prisoner in custody. The jury returned a verdict of guilty, and Judge Isaac Meekins assessed a fine of \$100 and in addition placed the defendant on probation for 3 years.

Had Ducks, Pheasants.--Six residents of North Dakota were apprehended by Survey agents and State officers in February for hunting ducks in closed season and illegally possessing ducks and pheasants. In State court they paid fines and costs aggregating \$179.90.

State Court Fines Duck Hunters.--A resident of Houston was apprehended in Harris County, Tex., on March 7 by State officers and a Survey agent while hunting ducks in closed season. He appeared in State court on March 11 and was fined \$50 and costs of \$11. Another resident of Houston was apprehended for the same offense on February 6 in Fort Bend County. He appeared in State court on March 14 and was fined \$50 and costs of \$13. As he was unable to pay the fine, he was committed to jail for 20 days.

Had Robins, Meadow Larks.--Two agents of the Survey apprehended three residents of Port Arthur, Tex., while the men possessed 7 meadow larks, 2 robins, and one jacksnipe. Upon their appearance in State court on March 12, each man was fined \$25 and costs of \$11.

Gets Stiff Fine for Baiting.--Pleading guilty in Federal court at Yakima, Wash., on March 30 to the charge of killing wild ducks by aid of bait, a resident of Yakima was fined \$50.

Used Wheat for Bait.--Two residents of Portland, Oreg., were fined \$25 and costs of \$12.75 each on March 15, after pleading guilty in Federal court at Tacoma, Wash., to hunting ducks by aid of wheat.

#### PREDATOR AND RODENT CONTROL

Suppress Rabies Outbreak.--A rat-control project was inaugurated in Rudgby, N. Dak., on March 8, to suppress an outbreak of rabies that



occurred in the vicinity of the city, according to District Agent Lawrence M. Cheney. During February a 7-months' old infant was bitten by a large rat. The rat was immediately killed and sent to the State Health Department at Bismarck, where it was found to be infected with the causative organism of rabies. The original source of the rabies infection is not known. Four townships in and around Rugby were quarantined as a precautionary measure to prevent the spread of the infection. A survey of the town of Rugby revealed that 90 percent of the business properties and 82 percent of the residences were infested with rats. The control work is conducted in cooperation with the State veterinarian, the Agricultural Extension Service of North Dakota, and town officials. A trained rodent-control foreman is in direct charge of the operations. He is assisted by laborers whose salaries are paid from funds provided by the town and the county. To date, good results have been obtained in controlling the rats, it is reported, and subsequent specimens of rats submitted to the State Health Department failed to reveal any further spread of the rabies infection.

Coyote Hunter Gets Bubonic Infection.--A case of mild plague of the bubonic type in a young man at Scipio, Utah, was recently reported by District Agent R. S. Zimmerman. Apparently the man contracted the infection either through skinning a sickly appearing coyote or through the bite of a tick that infested the animal. The attending physician reported that on December 2, 1939, the hunter skinned a coyote that had an infected leg from which, according to the hunter, "awful looking stuff" was exuding. That night the hunter noted an infection under the skin of his hand and shortly thereafter removed a tick from that part of the hand. The bite of the tick may have been responsible for the infection since the hunter reported that he had no skin abrasion while skinning the coyote. Agglutination tests from the blood sample taken from the young man were positive for B Pestis in 1/160 dilution.

Hold Conference on Pine Mouse Control.--A group of District agents met in Winchester, Va., from April 8 to 13, to discuss methods developed by H. J. Spencer to control pine mice in orchards in Virginia, West Virginia, and Maryland. Attending the conference, in addition to Mr. Spencer, were District Agents George B. Lay, Laurence C. Whitehead, Frank N. Jarvis, and G. C. Oederkirk, Assistant District Agent Howard A. Merrill, District Investigator Donald A. Spencer, and W. E. Riter, assistant chief of the Division. The group visited orchards in which different types of cultural practices are in vogue and observed the variation in control practices adaptable to the various cultural methods. The information thus gained will be of material assistance to the personnel that attended the conference, it was said, since pine mice are prevalent to some extent in the middle West and along the Atlantic Seaboard. Dr. Clarence Cottam, of the Food Habits Section, spent a day at the conference to make observations on the food habits of the pine mouse and to note the conditions under which these rodents obtain and store their food.

Personnel.--Miss Julia C. Arthur, for a number of years in the district agent's office at Boise, Idaho, was transferred in April as clerk-stenographer to the district agent's office at Billings, Mont. Robert

Isaac has been appointed junior district agent, effective April 13, under the supervision of District Agent R. E. Bateman in the Montana district. Mr. Isaac will have headquarters at Glasgow.

North and South Dakota were separated into two distinct districts on January 1. Lawrence M. Cheney, who formerly worked under the supervision of District Agent Louis Knowles in the Dakota district, is in charge of the New North Dakota district as district agent, with headquarters at State College Station, P. O. Box 12, Fargo, N. Dak. Effective March 4, Eldores S. Jorgensen, formerly of the Soil Conservation Service, was transferred to the Biological Survey as assistant district agent in the Idaho district under George E. Holman with headquarters at Boise. On April 1, Preston Q. Hale was appointed junior district agent in the Utah district under the supervision of District Agent Zimmerman at Salt Lake City. Since May 1936 he has been employed with the Grazing Service as rodent control foreman on CCC work.

Max E. Turner was appointed as agent on March 1 to work under the supervision of John W. Hamlet in Maine, New Hampshire, and Vermont. Mr. Turner will have headquarters at Portland. Grover C. Marschall was appointed agent on March 25. In cooperation with the city of San Antonio he will supervise a rat-control program in that city to prevent the spread of typhus fever by rats. Frank Glaser, who has been employed in the Bureau since August 2, 1937, as agent in Alaska, was appointed junior district agent on February 13 with headquarters at Anchorage, Alaska. Mrs. Mayme P. Brown resigned from her duties as clerk in the Montana district effective April 1. She had been with the Bureau since February 17, 1936.

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# THE SURVEY

JUL 1940  
U.S. Department of Agriculture  
DEPARTMENT OF THE INTERIOR

ISSUED MONTHLY FOR THE PERSONNEL, BUREAU OF BIOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR.  
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Washington, D. C., May 1940

No. 5

## GENERAL NOTES

Speaks at Scientific Congress.--Dr. Gabrielson spoke before the Agriculture and Conservation Section of the Eighth American Scientific Congress in Washington, D. C., on May 16. His address was entitled "Wildlife in New World Economy."

Meets with Southern Commissioners.--On April 21 Dr. Gabrielson left by automobile to attend the meeting of the Southern Game and Fish Commissioners at Charleston, S. C. En route he stopped at the refuges at Mattamuskeet, N. C., and Bull Island, S. C. He returned to Washington on April 29.

Reelected Editor.--W. L. McAtee, technical advisor to the Chief, was continued for another 3-year term as Trustee of the Wildlife Society at the annual meeting held in Washington, D. C., during Wildlife Week. Mr. McAtee also was reelected by acclamation editor of the Journal of Wildlife Management.

Mammalogists Meet in June.--The 22nd annual meeting of the American Society of Mammalogists will be held in Denver on June 25 to 28, inclusive, according to President H. H. T. Jackson. All regular sessions of the meeting will be held in the Phipps Auditorium, Colorado Museum of Natural History. The program was not completed at the time of writing. All requests to present papers were to be sent to Corresponding Secretary W. B. Davis, of Texas A. and M. College. Members of the local committee on arrangements are: Alfred M. Bailey, chairman, The Colorado Museum of Natural History; E. R. Kalmbach, Biological Survey; Hugo Rodeck, University of Colorado Museum; Julia Smead, The Colorado Museum of Natural History; C. C. Sperry, Biological Survey; and Edward R. Warren.

## ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (April) of the Survey:

- No. 33. Revised. Amendment No. 3. Amplification of the regulations governing transportation of household goods and personal effects. (April 17.)
- No. 39. Revised. Amendment No. 6. Amendments to Travel Regulations. (May 11.)
- No. 94. Amendment No. 6. New Standardized Annual and Sick Leave Regulations. (April 23.)
- No. 299. Revised. Submission of property inventory reports. (April 30.)



- No. 299. Revised. Amendment No. 1. Submission of property inventory reports. (May 11.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 89. Supplement No. 7. Contract for service-station deliveries of gasoline, lubricating oil, and lubricating service in the North-eastern States for the period April 1 to June 30, 1940, inclusive. (April 18.)
- No. 142. Mandatory contract for the procurement of safety cans (Class 42). (April 16.)
- No. 143. Changes in Procurement Division contracts. (May 3.)
- No. 144. Procurement of carbon dioxide, liquid-and-gas, carbon tetrachloride base, and soda and acid type fire extinguishers (Class 58). (May 7.)

#### PUBLIC RELATIONS

Use Wildlife Week Publicity.--Field personnel of the Biological Survey made excellent use of wildlife week stories prepared in the Washington office, according to a summary of reports from all regions except one. These reports show that 222 newspapers in 42 States and Alaska published an aggregate of 332 stories. Seventy-one newspapers ran series of two to five stories. Many of the Bureau employees reported that the stories were used in many other newspapers but that clippings were not available. The prepared radio script also was reported as used effectively by field personnel. The script was used on 56 stations in 27 States. In a few instances, the script was slightly revised. Some stations gave additional time to wildlife week by interviewing Survey workers. The script was also used for a broadcast over the Texas Quality Network, while a revised version was used on the Colonial Network in New England.

Aids in Correspondence.--Mrs. Louise Z. Ruff joined the Section of Current and Visual Information as a temporary clerk-typist on May 11. She formerly worked in a similar capacity with the Federal Deposit Insurance Corporation. Mrs. Ruff will help Mrs. Helen C. Wood in replying to requests for Bureau publications.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Nutrition of fur animals. By Charles E. Kellogg, biologist, Section of Fur Resources, Division of Wildlife Research. Year book Separate Reprint No. 1717 (1939), pp. 871-892, illus. 1940. Received April 23.
- Feeding requirements of gallinaceous upland game birds. By Ralph B. Nestler, associate biologist, Section of Food Habits, Division of Wildlife Research. Yearbook Separate Reprint No. 1718 (1939), pp. 893-924, illus. 1940. Received May 8.

- Federal aid in wildlife restoration: General information. By Albert M. Day, Chief, Division of Federal Aid in Wildlife Restoration. Wildlife Circular 3, 11 pp. April 1940. Received May 8.
- Sullys Hill National Game Preserve, North Dakota. Prepared in the Division of Wildlife Refuges. Wildlife Leaflet BS-157, 4 pp., illus. April 1940. Received May 6.
- Original and present breeding ranges of certain game birds in the United States. By Robert C. McClanahan, biologist, Division of Wildlife Research. Wildlife Leaflet BS-158, 21 pp., illus. April 1940. Received May 6.
- The chukar and Hungarian partridges in America. By Clarence Cottam, Arnold L. Nelson, and Lawrence W. Saylor, biologists, Section of Food Habits, Division of Wildlife Research. Wildlife Leaflet BS-159, 6 pp. April 1940. Received May 6.
- Wildlife in land planning. By W. L. McAtee, technical adviser and research specialist, Office of the Chief. Wildlife Leaflet BS-160, 6 pp. April 1940. Received May 6.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Transplant 1,800 pheasants from refuge to State areas. Press release P. N. 98421. Released April 28.
- Federal judges crack down on violators of game laws. Press release P. N. 98909. Released April 23.
- United States investigators disprove reports of duck starvations. Press release P. N. 99558. Released May 5.
- 17 Market hunters and wildfowl bootleggers convicted as Survey ends West Coast roundup. Press release P. N. 100244. Released May 5.
- Federal aid law helps States restore wildlife. Press release P. N. 100747. Released May 13.
- Judges in 5 States sentence Federal game-law violators. Press release P. N. 101247. Released May 15.
- Plane rescue in Alaskan wilds out-thrills movie thrillers. In "Current Conservation" (Clip sheet), Vol. III, No. 2. May 1940.
- Peck packs peck of farmers' woe. In "Current Conservation" (Clip sheet), Vol. III, No. 2. May 1940.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

- Aldous, C. M., and Mendall, H. L., Game birds of Maine. Maine Agr. Ext. Serv. Bull. No. 275: 38 pp. illus. Mar. 1940.
- Gaminita, L., Jr. Wildlife comes to Alaska. Our Dumb Animals 73 (5): 68. May 1940.
- Gabrielson, I. N., and Jewett, S. G. Birds of Oregon. 650 pp., illus. Apr. 26, 1940. (Published by the Oregon State College, Corvallis, Oreg.)
- Merovka, L. J. The woodcock in Louisiana. Louisiana Conserv. Rev. Winter 1939-40, 10-14, illus.
- Neff, J. A. Range, population, and game status of the western white-winged dove in Arizona. Jour. Wildlife Mgt. 4: 117-127. Apr. 1940.

- Oberholser, H. C. "October to January birds about Washington." Bird-Lore 42: 214. Mar./Apr. 1940 (Supp.).
- Young, S. P. "Catnipping" our big cats. Western Sportsman 4: 4-8, illus. May 1940.

## WILDLIFE RESEARCH

Weather Slows Down Duck Flights.---Inclement weather in Iowa during March slowed the northern migrations of ducks and geese in that area, according to observations made by Jessop B. Low, a graduate student with the Iowa Cooperative Wildlife Research Unit. In previous years, most of the ducks and geese had already passed that State by March, he reported. With ice remaining on the lakes and sloughs and only pot-holes offering open water, thousands of ducks and geese concentrated on the Ruthven area during the period March 24 to 27. On March 28 and 29 approximately 225,000 ducks and 30,000 to 40,000 geese left the area, and by March 31 only some 8,000 ducks were present. The migrating ducks were largely mallards and pintails, and most of those remaining were scaups, ring-necked ducks, baldpates, and teals.

Gray Squirrel Hunters Report Take.---The results of a hunting survey on gray squirrels were recently reported by Luther L. Baumgartner, graduate assistant with the Ohio Cooperative Wildlife Research Unit. One of the ways of determining trends in squirrel populations is to note the average success of representative groups of hunters during consecutive hunting seasons. In the 1938 season, 22 percent of the hunters were unsuccessful; 54 percent bagged from 1 to 4 squirrels; 16 percent shot from 5 to 9; 7 percent took from 10 to 17; and 1 percent bagged from 18 to 32 squirrels. During the 1939 hunting season 14 percent were unsuccessful; 55 percent bagged from 1 to 4 squirrels; 19 percent shot from 5 to 9; 9 percent took from 10 to 17; and 3 percent bagged from 18 to 32 squirrels. The drop in hunting success from 1938 to 1939 is a true reflection of the mast crop failure of 1939, it was said. This drop was probably independent of any cyclic phenomena.

Conduct Deer Count in Utah.---Members of the Utah Cooperative Wildlife Research Unit made two deer counts in that State during March, according to Dr. D. Irvin Rasmussen, leader. A count was made from March 4 to 7 on the Wasatch Game Preserve and adjacent areas. In the 4 days, Unit workers counted 2,398 deer, of which 1,264 were within the preserve boundaries. It was estimated that approximately 1,850 deer wintered on the preserve. The area counted outside the preserve included the south side of Lost Creek from Devil's Slide to Gilder Sleeve. The group counted 1,134 deer and estimated that there were about 1,400 deer on this area. On March 8 and 9 Everett Doman, research assistant with the Unit; Warden Noel, of the Utah Fish and Game Commission; and 10 wildlife students made a count of Perry Canyon and the adjacent deer ranges. There were 845 deer counted from Boxelder Canyon to North Ogden Canyon, and it was estimated that about 1,000 deer were on this area. The animals were all in excellent condition for this time of year, there being very little winter loss. Only five kills were observed on these two areas. Four kills were attributed to coyote predation and one to poaching.

Writes on Bird Life in Mexico.---A report on the bird life of Jacala, Hidalgo, Mexico, was recently completed by Thomas D. Burleigh, associate



biologist in charge of forest fauna research at the Southern Forest Experiment Station, and Dr. George M. Sutton, professor of ornithology at Cornell University. The report, based on studies of the 1939 John B. Semple Expedition to eastern Mexico, will probably appear in the Condor.

#### Wildlife Surveys

Views Columbia Basin Project.--In April Dr. Victor E. Scheffer made a 1-day trip by Government boat down the Columbia River from Hunters, Wash., to Grand Coulee Dam, with the committee on recreational possibilities of the Columbia Basin Project. The committee concluded that the 150 miles of backwater above the dam will be almost of no value for waterfowl because of the steep walls of the reservoir and the great fluctuation in water level, which will probably be about 80 feet at the dam.

Visit Mammal Laboratory.--Mr. and Mrs. Walter L. Necker, of the Chicago Academy of Sciences, spent 2 days in the mammal laboratory and the Section of Wildlife Surveys. Mr. Necker is interested in a study of Illinois mammals and spent April 30 in the mammal laboratory examining specimens and May 11 gathering records from the mammal files of the main offices. Dr. W. H. Osgood, of the Field Museum of Natural History, Chicago, visited the laboratory on May 10 and 11. Dr. Francis M. Harper, of Swarthmore, Pa., visited the laboratory on May 14.

#### Food Habits Research

Planting Program for TVA Continued.--Biologists Clarence Cottam, of the Section of Food Habits, and Robert Smith, of the Division of Wildlife Refuges, spent April 11 to 13 inspecting TVA impoundment areas at the Wheeler Refuge in Alabama. They were accompanied by John Steenis, who has been assigned for the summer to conduct research work on the Wheeler Refuge. Mr. Steenis was temporarily transferred from the Sney Refuge, Mich., and will probably return to that area in October. A conference with several TVA officials was held at Decatur to discuss the cooperative work and planting programs for the summer between the TVA and the Biological Survey. Details were worked out for the planting of various species of food plants beneficial to wildlife, and the planting program for May is now well under way.

Inspect Potential Wildlife Refuge.--A. C. Martin and R. H. Gensch spent April 20-23 in Charleston, W. Va., assisting State officials in appraising the wildlife utility of a tract now under option as a potential preserve and refuge. Weather conditions thwarted plans for the inspection; rising waters of the Ohio and Kanawha Rivers isolated the tract from all approach. En route to Charleston, Messrs. Martin and Gensch stopped at Blacksburg, Va., where they conferred with C. O. Handley and viewed current quail management projects.

W.P.A. Has Grasshopper Control Project.--On April 20, C. C. Sperry, accompanied by officials of the W.P.A. office, the Agriculture Extension Agent for Crowley County, Colo., and members of the Board of County Commissioners,

inspected WPA grasshopper control projects near La Junta, Colo. Every effort is being made to promote effective grasshopper control and at the same time prevent any damage to wildlife habitat, Mr. Sperry said.

Gives Talks on Birds to Public Schools.--With the return of birds from the south the Bureau receives an increasing number of calls from schools and natural history groups for lectures about birds. In response to requests, some eight talks were delivered by Phoebe Knappen in six different schools in the District of Columbia, Maryland, and Virginia between April 8 and May 10. The following groups were addressed: Junior Biological Society of Washington, Central High School, April 8; Massachusetts Avenue Extended School, Westmoreland, Md., April 11, (Grades 1-2, Grades 3-6, judged bird house contest); Lafayette Junior High School, Baltimore, Md., April 15, (10th Grade Assembly); Montgomery Blair High School, Silver Spring, Md., April 18, (10th Grade Science Classes); Washington and Lee High School, Arlington, Va., May 6, (7-8-9th Grade Assembly); and Claude Swanson High School, Arlington, Va., May 9, (7-8-9th Grade Assembly, 8th Grade Science Class).

#### Distribution and Migration of Birds

Addresses Garden Club.--On Friday, May 10, F. C. Lincoln addressed the annual meeting of the Conservation Committee of the Garden Club of America at the Lord Baltimore Hotel in Baltimore. The title of his address was "The Flyway Concept of Bird Migration." The audience of about 300 was made up of a selected group from member clubs throughout the United States, most of whom are leaders who can give assistance on conservation problems.

Returns to Maritime Provinces.--Harold S. Peters, the Atlantic Flyway biologist, will soon leave for the Maritime Provinces where he will continue his investigations of waterfowl conditions. En route he will spend a short time in Cambridge, Mass., abstracting material from the late Fred H. Kennard's notes on the geese of the Arctic.

Head for Arctic.--Accompanied by John J. Lynch, of the Section of Food Habits, Mississippi Flyway Biologist C. E. Gillham left his headquarters in Edwardsville, Ill., on May 12, and went to Los Angeles, preparatory to the annual trip north. They expect to "run" the Yukon River from Circle to Fort Yukon by motorboat, as there is no river steamer this early in the year.

Remains in Texas.--George B. Saunders, the Central Flyway biologist, will continue work he is now doing in southern Texas. In his stead, Robert C. McClanahan, of the Washington office, will conduct waterfowl investigations in the Prairie Provinces during the next few months.

Goes to British Columbia.--Luther J. Goldman, the Pacific Flyway biologist, left headquarters in Berkeley, Calif., during the latter part

of May for points in British Columbia and Alberta where he will continue his annual waterfowl investigations.

Visits Washington Office.--On April 18 Lony B. Strabala, of Leetonia, Ohio, visited the Washington office to examine banding records. Mr. Strabala has been an active banding cooperater since March 23, 1926.

Returns of Outstanding Interest.--Caspian tern No. 566533, banded July 14, 1927, at Shoe Island, Mich., was shot on January 20, 1940, at Biloxi, Miss.

Starling No. 37-202673, banded on January 24, 1939, at Cleveland, Ohio, was shot on January 27, 1940, at Edenton, N. C.

A brown thrasher, No. 36-353395, was banded on May 22, 1937, at Holy Cross College, Brookland, D. C. The bird, a male, was retrapped on April 20, 1938, at which time its mate, No. 38-318676, was banded. Both birds returned to a trapping station at the Capuchin College in Brookland on April 23, 1939, and on April 23, 1940.

#### Fur Resources

Rabbit Skin Market High.--Rabbit skins have increased in price during the past 12 months, according to George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif. Fryer pelts are bringing from 85 to 90 cents a pound (about 7 pelts to the pound), butcher-run doe pelts about 20 cents each, and buck pelts about 15 cents each. Apparently the producer is not getting any of the increased price on the pelts, Mr. Templeton reports.

Citrus Meeting.--Citrus farmers of Southern California held a meeting at the Rabbit Experiment Station on March 11. The meeting was held to discuss the fertilizer programs for citrus groves. Much of the data presented was obtained from several experimental plots of oranges and grapefruit that are receiving different kinds of fertilizer, including rabbit manure.

Muskrat Parasite Survey Continued.--During February, Dr. Herbert L. Dozier, director of the U. S. Fur Animal Field Station, Cambridge, Md., collected a large number of muskrat viscera and after they were quick-frozen he shipped them to Lawrence R. Penner, of the University of Minnesota, for detailed study. This material was taken from many different trapping areas of the Blackwater Refuge to get an idea of the degree of parasitism among the various types of marsh. A report from Mr. Penner shows that one area was generally infested with the ship worm (Trichis opaca). The material collected from points in New Jersey and Delaware, as well as the Eastern Shore of Maryland, show that the fluke (Mudacotyle novicia) is rather widely distributed.

Observes Color Variances of Maryland Muskrats.--Dr. Dozier has been studying many muskrat pelts and live animals showing divergent color variations from the ordinary brown and the black muskrat. Those reported during



the trapping season in Dorchester County, Md., are light gray, white, gray-black with white guard hairs, brown with guard hair tips mostly white, maltese gray, light golden fawn, white pink-eyed albino, black with guard hairs tipped white, dark maltese gray, and black with white spot on each shoulder.

Muskrat Recipes Collected.--Dr. Dozier is attempting to assemble the favorite recipes and ways of preparing muskrat meat in the various sections of the country. Recipes from Michigan are quite distinct from any of those used on the Eastern Shore of Maryland, he said.

#### Disease Investigations

Returns from Field Trip.--On May 9 Dr. J. E. Shillinger returned from a trip through the western and southern States where he discussed pathological conditions in fur animals and other wildlife with many of the Bureau personnel. He reports a great variety of pathological conditions in species of economic importance that until now have received slight attention. Knowledge of a much wider distribution of diseases in wildlife that are communicable to human beings was gained, especially with sylvatic plague, encephalo-myelitis, and tularemia.

Parasitologists Neglecting Pathological Aspects.--Dr. Shillinger declares that many field biologists collect parasites from wildlife without taking cognizance of the injury caused by these organisms. He points out that the essential reason for studying parasitic infestations is to determine what damage is produced by them and what relation they have to sickness or to the reduced numbers of the hosts. He urges all collectors of parasites to make arrangements for study with collaborating pathologists who are in a position to evaluate the importance of the insects and worms collected. Such information should be centralized in the Section of Disease Investigations so that correlations can be made with observations along similar lines throughout the country.

W.P.A. Gives Funds for Disease Study.--A W.P.A. project initiated by Everett E. Horn, stationed in Berkeley, Calif., for increasing the activities on disease research at Los Angeles has been approved, it was recently announced. It is planned to make a comprehensive survey of abnormal conditions affecting wildlife, especially on national forest areas where Mr. Horn is engaged in research. Dr. Edward L. Vail, who will be in charge of this project, will also endeavor to learn what wild animals serve as a reservoir for the virus of myxomatosis during the months when it is not endemic among domestic rabbits.

Staff Member Affected With Tularemia.--Dr. William H. Armstrong, stationed at the wildlife-disease laboratory at the Patuxent Research Refuge, Md., has been suffering with an acute attack of tularemia and is now convalescing in Providence Hospital, Washington, D. C. He was affected with a pulmonary infection of the disease, probably acquired in the laboratory. Although the ordinary precautionary measures were observed, it is believed that inhalation of an invisible infective spray during the course of his official work was responsible for the attack. A large portion of one lung was involved and necessitated a chest puncture for drainage.

Finds New Disease in Minks.--At Pullman, Wash., Dr. F. D. McKenney is making a study of a pathological condition known locally among fur farmers as "cotton minks." This disease has heretofore not been described. These animals exhibit digestive disorders and an abnormal fur. The underfur becomes very pale, almost white, and the pelt is of little value when marketed.

#### National Park Wildlife

Begins Alaska Study.--Dr. Adolph Murie sailed from Seattle on April 20 for Mount McKinley National Park, Alaska, where he will continue his studies of the Dall sheep-wolf relationships in the park. It is expected that Dr. Murie will continue his studies until November 15.

Hold Mountain Sheep Study Conference.--Fred Mallery Packard, senior wildlife foreman, Harold M. Ratcliff, ranger, and Raymond Gregg, park naturalist, all of Rocky Mountain National Park, Colo., represented the National Park Service at the second conference on mountain sheep studies held at the University of Wyoming in Laramie on April 8. The group discussed interbreeding in mountain sheep herds and agreed that this factor was probably not important and should be dropped from immediate consideration. Parasitologists emphasized that ordinarily parasites alone do not cause death and other factors must be carefully considered. Additional work in determining mineral deficiencies and food preferences is needed, they said. Experiments have shown that the sheep show little interest in mineralized salt blocks, but there is some evidence that a certain adjustment of the sheep to the use of common salt blocks and rock salt is required.

Visits Washington Office.--J. J. ter Pelkwijk, of Leiden, Holland, visited the section on April 18 and 19. En route to Dutch Guiana where he intends to spend a year making zoological collections for the National Museum at Leiden, Mr. ter Pelkwijk plans to visit several of the national parks of the United States in June and July to observe some of the native birds and animals of North America.

Dr. Adolfo D. Holmberg, director of the Zoological Gardens of Buenos Aires, also came to the office during April. Dr. Holmberg has spent the past 6 months in the United States visiting various national parks and zoological gardens.

#### FEDERAL AID IN WILDLIFE RESTORATION

Takes Western Trip.--Mr. Day left Washington on April 27 for an extended trip through the western part of the United States. He will confer with various State and Bureau officials on the Federal Aid program.

Inspects Projects.--Biologist William J. Howard left Washington on May 1 to inspect Federal Aid projects in North Carolina and Virginia. He returned May 20.

Audits Accounts in South.--Howard B. Leach left Washington on May 7 for an extended trip through the South to audit the accounts and assist the



States cooperating on the Federal Aid program with fiscal matters. He planned to visit Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Tennessee, Louisiana, Arkansas, Texas, and Oklahoma.

California Surveys Fur Resources.--On April 25 the California Fish and Game Commission received approval for a Federal Aid in Wildlife Restoration project to survey the fur resources of the State. The new project is designed to determine the quantity, composition, and value of California's fur crop; the number and classification of trappers; and the present status of each species of fur animals. Further information concerning the habits of each species will also be obtained. The commission intends to use the information to develop a management plan for the fur resources of the State. Howard Twining has been selected as leader of the project.

Continue Study of Mule Deer.--The California Fish and Game Commission received approval on April 24 for a Federal Aid in Wildlife Restoration project to complete the mule deer studies in southern California initiated cooperatively 3 years ago by the United States Forest Service, the State Game Department, and the Biological Survey. The study has made satisfactory progress to date, but it was reported financial difficulties made it impossible to continue under the previous arrangements. The new program provides investigations of the effect of predation, influences of food and water on distribution, composition of the mule deer herds, effect of hunting on the herds, and the determination of the hunting regulations most desirable from a management viewpoint. The Forest Service and the Biological Survey will cooperate with the commission in the investigations.

Develop Range for Sage Grouse.--Believing that the protection and reclamation of waterholes constitutes one of the best development activities possible for the restoration of sage grouse and other forms of desert wildlife, the Idaho Fish and Game Commission presented plans to use part of its Federal Aid allotment for the development of two natural springs, known as Monument and Granite Springs, in Owyhee and Twin Falls Counties. The plans were approved on May 4. Restoration of the springs involves cleaning and walling, fencing a quarter section around each spring, and piping water to troughs outside the enclosures for stock watering. The C.C.C. and U.S. Grazing Service are cooperating with the game department by providing the labor and the lands on which the developments will be conducted. As opportunities for similar developments arise and funds are available, the commission plans to extend this program. The availability of a dependable water supply is of great importance to wildlife and livestock in the semi-arid and arid regions of the West, it was explained. Water holes are often many miles apart, and their dependability determines the carrying capacity of the range for both livestock and wildlife. When natural springs and seeps are unprotected they are frequently damaged by trampling, and the protective vegetation surrounding them is badly overgrazed.

Reclaims More Springs.--The development of four more springs, in cooperation with the U. S. Grazing Service and the Civilian Conservation Corps, was approved on May 4 as a Federal Aid project of the Idaho Fish and Game



Commission. The land near mountain springs is overgrazed, and it will be beneficial to wildlife to protect nesting areas immediately adjacent to the water supply. The springs are all located in Owygee County and will be fenced to permit revegetation for sagehen and grouse nesting sites. Water will also be available for livestock, deer, and antelopes.

Develops Game Bird Refuges.--Two upland game bird refuges purchased in Idaho under Federal Aid projects approved on April 18 will be developed according to plans submitted by the State Fish and Game Commission. Both areas will be enclosed by stock and predator-proof fences and will be posted with State game refuge signs. Food and cover will be provided by planting trees, shrubs, and grasses.

Initiates Statewide Wildlife Survey.--A statewide wildlife survey and demonstration project by the Indiana Fish and Game Department was approved on May 1 as part of the State's Federal Aid in Wildlife Restoration program. The project provides facilities for obtaining information on the distribution of wildlife in the State and for determining the limiting factors and remedial procedures necessary to restore satisfactory wildlife conditions. The information obtained will be used as a basis on which to recommend improved management practices. Special attention will be given to a study of the results of stocking. Experimental and demonstrational areas will be established throughout the State to test management procedures. Purdue University, through its Agricultural Experiment Station and Department of Zoology, will cooperate with the State game department.

Purchases Materials for Refuge.--The Kentucky Department of Conservation will use Federal Aid funds to purchase materials for the development of the Flatwoods Wildlife Restoration Unit. The project was approved March 29. The area, purchased under a previous Federal Aid project, is being developed by a Civilian Conservation Corps camp.

Develops Windsor Forest.--As the fifth segment of the Massachusetts State Department of Conservation's Federal Aid program to develop areas on State forests for wildlife benefits, the department received approval on May 8 to develop the Windsor State Forest in Berkshire County. To discourage trespassing the State will brush the boundaries of the wildlife area to a width of 8 to 20 feet and near the inner edge of this line will be placed a single strand of wire. The area will be adequately posted. The work plan has not been completely formulated, and the State anticipates submitting other development plans for this forest.

Acquires 1,800 Acres.--The Michigan Department of Conservation has recently completed negotiations to purchase approximately 1,800 acres of land suitable for wildlife purposes in the southwestern part of the State. Two Federal Aid project segments incorporating the several tracts involved were approved on April 24. The department does not contemplate a large scale development program at the present time, although required food and cover management will be undertaken to improve conditions for rabbits, pheasants,

waterfowl, and other species. The department plans to enlist the cooperation of local people to carry out prescribed management programs.

Mississippi Surveys Wildlife Resources.--A survey and inventory of the wildlife resources of Mississippi will be undertaken by the State Game and Fish Commission with Federal Aid funds approved for the project on April 11. Sections of the State will be studied to determine the present population and distribution of the principal game and fur species. The effects of hunting pressure, changing agricultural practices; drainage, and depletion of timber supplies will also be studied, and, where possible, practical methods of restoration will be outlined. Primary consideration will be given to quails, deer, turkeys, squirrels, beavers, raccoons, doves, and waterfowl. Miss Fannye A. Cook, biologist of the commission for the past 8 years, has been named project leader. She will be assisted by two biologists. Dr. Clay Lyle, of the State College, the United States Forest Service, the State Forest Service, and the Soil Conservation Service will cooperate with the commission in the survey.

Restores Quail.--A Federal Aid project to rehabilitate quail in Nebraska was approved on April 8. In recent years no hunting of the species has been permitted. The Nebraska Game, Forest and Parks Commission will make food and cover improvements on selected areas throughout the southeastern part of the State. The first step in the project will be to survey and select areas for development and to enlist the cooperation of landowners in areas where the commission wants to improve conditions for birds. Cooperative agreements will be signed permitting the commission to create small refuges to be posted and closed for 5 years. The refuges will be improved by planting grasses, legumes, shrubs, and trees when such improvements are required. When necessary to exclude stock, fences will be erected. Small numbers of quail will be stocked if required, but not before the spring of 1941. Much interest in quail restoration has been manifested by landowners, and the commission believes the planned refuges will serve as a demonstration of how quail can be restored in many parts of the State.

New Hampshire Makes Duck Survey.--Although the duck population in New Hampshire is comparatively small, the Fish and Game Commission feels it may be increased by developing some of the State's ponds and lakes. Under its Federal Aid in Wildlife Restoration program the State received approval on May 4 for a project to determine the species of ducks nesting in the State and the relative numbers and distribution of each species, and to make a chemical analysis of the soils and waters in selected lakes to determine the adaptability of these lakes to such development. From the information gathered, the commission will formulate management plans for ponds and lakes that seem best suited for development.

Develops Prairie Chicken Range.--On April 29 plans submitted by the New Mexico Department of Game and Fish were approved for the development of the prairie chicken areas purchased in Roosevelt County, eastern New Mexico, under two previous Federal Aid projects. Since these areas are located in



an arid section where no natural water supply is available, four rain-water collecting units will be built to provide water for prairie chickens and quails. One of the areas is now fenced, and provision is made in this project for fencing the other area.

Improves Habitat on State Land.--The New York Conservation Commission received approval on April 22 to use a portion of its Federal Aid funds to plant 400,000 trees and shrubs on 18 State-owned areas. The planting will provide winter shelter, breeding grounds, and summer and fall feeding areas for deer, grouse, and cottontail rabbits. Besides benefiting wildlife, the plantings are designed to arrest erosion and conserve soils and to have potential value as a forest.

Ohio Develops Grouse Area.--The establishment and development of a sanctuary for ruffed grouse in Jackson County, Ohio, was proposed by the State Division of Conservation and Natural Resources as part of its Federal Aid program and was approved on May 7. The sanctuary will be fenced and adequately posted. The cover on two-thirds of the lands involved is comprised of older age-class hardwoods averaging 40 to 60 years of age. Approximately one-third of the area supports young hardwoods (5-30 years old), interspersed at frequent intervals with young coniferous growth. Small abandoned fields (homestead sites and old orchards) are scattered throughout the young hardwood stand. The State plans to improve environmental conditions in the older age-class sections by release operations. Approximately 25 or 30 acres will be treated for the improvement of grouse habitat. The area will be maintained as an absolute sanctuary for at least 5 years.

Studies Ruffed Grouse Management.--The ruffed grouse was once common over much of Ohio, but its range was depleted when the forests were cleared for agriculture. A considerable acreage in the southeastern and northeastern parts of Ohio proved unsuited to farming, with the result that these lands are now reverting to forests. Much of this land seems suited to game but does not produce satisfactorily. The Ohio Division of Conservation and Natural Resources received approval on April 11 to use Federal Aid funds for a study of methods to restore and increase ruffed grouse populations. The study will include an investigation of food and cover requirements and of the value of restocking. The winter food supply will be increased by planting, release cutting, and pruning. S. S. Dietz, supervisor of grouse management, has been named project leader. The Ohio Wildlife Cooperative Unit and Ohio State University will act as cooperating agencies.

Texas Studies Desert Bighorn.--A project to investigate certain phases of the habits of the desert bighorn and to make an inventory of lands suitable for refuges was approved as a Federal Aid project on April 11 as the first step in a plan to restore these sheep. The Texas Game, Fish and Oyster Commission will station a project leader in the mountains west of the Pecos River, where he will make detailed observations of the types of habitat frequented by the sheep, relations to domestic stock, predation, breeding habits, and the general ecology of the region. If results of the project justify such



action, refuges will be set up for the protection and restoration of the big-horns of the region. This project is a continuation of work that the commission started in 1938 in the Sierra Diablo and Beech Mountains. Earlier studies revealed that approximately 300 sheep live in these mountains.

Will Trap and Stock Peccaries.--On the John Mitchell Ranch in Crockett County, Tex., there are approximately 2,500 collared peccaries. The animals have been protected for a number of years and have increased to such an extent that their range is being damaged. The Game, Fish, and Oyster Commission received approval on April 18 for a project to trap surplus animals on the ranch and transport them to suitable areas. This project will mark a new venture in wildlife management, as javelinas, as the peccary is termed in Texas, have not previously been trapped in large numbers. The peccaries' favorite food, lecheguilla, is disappearing, and they are turning to foods necessary for livestock. Other ranches in Texas can maintain the wild pigs, and ranchers want some of the animals for seed stock, as they are a favorite game animal.

Virginia Restores Quail.--Because of unusually heavy snows in Virginia last winter, the State Commission of Game and Inland Fisheries feels that an extensive quail restoration program is necessary in the sections where the winter kill has been the most severe. Accordingly, a Federal Aid project was approved on April 15 to stock these birds near the Piedmont and the Tidewater Refuges on the lands owned by interested farmers. The areas will be selected and marked, and a sufficient seed stock will be liberated. The refuges will remain closed to hunting for two breeding seasons. Qualified biologists will investigate the results of the stocking and the efficiency of the refuges.

Acquires More Deer Winter Range.--As the fourth segment of its acquisition program in the Sinlahekin deer winter range, the Washington State Game Commission has completed negotiations and optioned an additional 1,250 acres. This brings the lands being acquired in this area to approximately 5,000 acres. The latest land purchase segment was approved as a Federal Aid project on May 7.

Developed Deer Range.--As another segment in the comprehensive development program on the Sinlahekin deer winter range and wildlife refuge, the Washington game commission submitted plans to use part of its Federal Aid funds for the construction of four cattle guards and for the completion of the fencing required on this area. The project was approved on April 8. The long range plans call for the construction of a headquarters site, four dams, and 3 miles of road, and the clearing of 260 acres of land for flooding. The water areas will provide resting places for waterfowl and home-sites for fur animals. The cattle guards and fencing will serve to exclude grazing. This is an important factor since the area has been seriously overgrazed in the past.

Acquire Land for Squaw Creek.--On February 12 and on March 13 the Game Department of the State of Washington received approval for a Federal Aid project to acquire approximately 9,000 acres of land in Kittitas County for the Squaw Creek Refuge. The Refuge has been developed primarily for antelopes but will also benefit sage hens, quails, and other important game birds. On

May 8 a project to fence the area was approved. The State has been importing antelopes from Oregon and Nevada and finds that for proper management the refuge should be fenced to exclude domestic stock and to assist in holding the antelopes until they have become established on the area. This fencing, coupled with the improvement of water conditions by the reclamation of natural water facilities, constitutes the principal development now proposed for the area. Irrigation of about 20 acres to expand the food supply is also included in the State's plans.

Personnel.--Miss Margaret Stokes accepted an appointment in the Division on April 22 as junior clerk-stenographer. She is from Jefferson City, Mo., and had been previously engaged in Federal Aid work with I. T. Bode in the Missouri State Conservation Commission.

Miss Mary Ann J. Quartulli reported for 3 months' temporary assignment on May 6 as junior clerk-stenographer. She was previously on temporary detail in the Department of Labor.

#### LAND ACQUISITION

Works on Condemnation of Lands.--Mr. Dieffenbach left Washington on April 20 for Springfield, Ill., where he consulted with officials of the Department of Justice and the Biological Survey in connection with the pending condemnation proceedings for lands on the Chautauqua Migratory Waterfowl Refuge. He also went to St. Paul, Minn., to consult with State officials in connection with land acquisition problems in that State and stopped at Winona to confer with Superintendent Ray Steele on the current acquisition work on the Upper Mississippi River Wildlife Refuge.

Inspects Lands.--Charles S. Cook, cadastral engineer in charge of the Des Moines office, recently inspected lands proposed to be acquired on the Lake Andes Refuge, S. Dak., and conferred with the Board of Educational and School Lands at Lincoln, Nebr., regarding lands proposed to be leased on the Niobrara Refuge. During April, he attended the condemnation proceedings in connection with the acquisition of land on the Chautauqua Migratory Waterfowl Refuge.

#### Surveys and Maps

Goes to North Carolina.--Arthur A. Riemer recently visited the North Carolina Wildlife Management Area in connection with proposed boundary surveys of the area.

Assigned to Moosehorn.--Oswald E. Recroft, cadastral engineer, and John A. Wilson, Jr., engineering aide, are being assigned to boundary surveys on the Moosehorn Refuge (Edmunds Unit), Maine.

Complete Surveys.--Field surveys have recently been completed on the St. Marks Refuge (Panacea Unit), Fla., and on the Carolina Sandhills Refuge, S. C. Boundaries were marked and monumented.



Survey Piedmont Refuge.--T. M. Conrardy, cadastral engineer, and Martin C. Gowdey, engineering aide, were recently assigned to make boundary surveys on the Piedmont Refuge, Ga.

### Appraisals and Negotiations

Negotiates for Lands.--During April, Elmon Radway was in Philadelphia and in New Jersey in connection with acquisition of lands on the Brigantine Refuge, N. J. He also recently examined and negotiated for lands for refuges in North Carolina.

Negotiates for Refuge Lands.--Richard H. Putnam, of the Central Area, is on detail to the Upper Mississippi River Wildlife Refuge negotiating for lands including those on which the War Department has flowage easements as a result of activities by that Department for navigation purposes.

Testify at Proceedings.--William L. Towns, of the Des Moines office, testified at the condemnation proceedings on lands for the Chautauqua Refuge, Ill., as did Lester L. Corrie, a former employee of the Division.

### WILDLIFE REFUGES

Inspects Proposed Drainage Projects.--Dr. Warren S. Bourn returned to Washington April 17 after a 3-weeks' inspection of proposed drainage projects in Illinois, Michigan, Ohio, and Wisconsin to determine their possible effect on wildlife. He also inspected the migratory waterfowl refuge possibilities of Crab Orchard Lake, Ill., and Indian Lake, Ohio.

Feed Conditions Good on Ranges.--There was so much precipitation in southwestern Arizona last fall and winter that the desert grasses and shrubs are in the best condition they have been for 28 years, according to Manager Malcolm N. Allison, of the Kofa and Cabeza Prieta Game Ranges. Many of the barrel cacti appear about to burst with the moisture they have absorbed, he added. During rains the tissues of this cactus plant soak up large quantities of water, and the outer surface becomes practically smooth. When there is a scarcity of moisture, the tissues shrink and the outer surface contracts into ridges.

Geese Feed Near Big Lake.--About 4,000 blue and snow geese visited the Big Lake Refuge, Ark., and its vicinity during March, Manager Olin H. Cash reported. This is the first time in many years that geese have fed in the cultivated fields adjoining the refuge, although a few of the birds rested on the refuge during last year's spring migration and many during the fall migration. Farming was under way in March when the birds were feeding, but they would not flush until the farm machinery was within 100 feet of them.

Birds Nest Early on Florida Islands.--Birds started nesting on the Florida island refuges this year from 30 to 45 days earlier than they did in 1939, Patrolman William C. Lehmann reports. On January 6, he saw the nests of several pairs of Ward's herons on the Anclote Refuge, and by March 28, 75 pairs



of American egrets and 500 pairs of cormorants were nesting on this area. About 30 pairs of Ward's herons were nesting on the Pelican Island Refuge on February 9, more than five times the number nesting on this area at the same time last year. Newly-hatched Ward's herons were seen on the Indian Key Refuge on February 20.

Many Ducks Use Sabine.--Twenty-one species of ducks were identified on the Sabine Refuge, La., during the past year, according to Manager Harry E. Adams. Two species, the mottled duck and blue-winged teal, nest on the area, the former in great abundance. The first brood of young mottled ducks was seen this year on April 20.

Trumpeter Swan Seeks Its Mate.--Although it has long been assumed that trumpeter swans mate for life, an interesting confirmation was recently noted at the Red Rock Lakes Refuge, Mont. Manager Archie V. Hull reported that last fall when the refuge waters froze, an adult female trumpeter swan that was unable to fly was captured and kept penned up with another swan already in captivity. The two swans lived together in harmony all winter. Early in April a male swan, apparently the mate of the captured female, appeared at the pen where the two birds were held captive and remained there. Immediately the female swan began attacking her fellow captive and trying to get out of the pen. Since she appeared able to fly, she was liberated and went off with her mate.

Albino Meadowlark Seen.--Personnel of the Fort Niobrara National Wildlife Refuge, Nebr., recently saw an albino meadowlark in a large flock of meadowlarks stopping on the area, according to Manager Geno A. Amundsen. The bird was all white with the exception of a brown spot on the back of its head.

Northern Phalaropes Seen on Pea Island.--Manager S. A. Walker saw 122 northern phalaropes feeding in the wash along the seashore of the Pea Island Refuge, N. C., on May 4. Only twice before since the establishment of the refuge have these birds been reported on the area, and then only in small numbers. Two phalaropes were observed on May 14, 1937, and one on May 25, 1938.

Waterfowl Flight Late at Sullys Hill.--The waterfowl flight through the vicinity of the Sullys Hill Refuge, N. Dak., was about 10 days later in 1940 than in 1939, according to Manager Wesley D. Parker. While there did not appear to be as many ducks as in 1939, there were more geese. The buffaloes, elks, and deer on the refuge came through the winter in good condition, Mr. Parker reports.

Reports Upper Mississippi Fur Take.--At least 63,000 muskrats and 880 minks were trapped on the Upper Mississippi Wildlife Refuge during the 1939 trapping season, November 15 to December 31, according to a recent report from Manager Ray C. Steele. A total of 56,247 muskrats and 713 minks were trapped on the Wisconsin portion of the refuge, and 6,710 muskrats and 168 minks on the Iowa portion. Reports have not yet come in from Minnesota. The muskrats taken in both States brought \$59,976.96, and the minks, \$5,874.84.

Personnel.--Mrs. Viola L. Potts was appointed junior stenographer in the Section of E.R.I. effective April 23. Elmer C. Trentman was appointed clerk-patrolman on the Valentine Refuge, Nebr., on April 24. Wm. C. Adams, assistant clerk-stenographer, was transferred on April 27 from the Division of Land Acquisition office at Des Moines to the district engineer's office at Salt Lake City. Frederic T. Staunton, junior refuge manager, was transferred on April 23 from the Bear River Refuge, Utah, to the Long Lake Refuge, N. Dak. Wallace M. Leonard, junior refuge manager, was transferred from the Sheldon Refuge, Nev., to the Sacramento Refuge, Calif., on May 1. Clarence A. Bryce was appointed mechanic on the Seney Refuge, Mich., effective April 8. Wm. Grant McFarland was recently appointed junior refuge manager on the Bear River Refuge, Utah.

The following laborer-patrolmen have recently been appointed: Edgar J. Hook, Turnbull Refuge, Wash., April 2; Robert Forder, Mud Lake Refuge, Minn., April 16; Karl E. Marshall, Ruby Lake Refuge, Nev., April 19; Johncy Mouton, Sabine Refuge, La., May 9; and John E. McNealey, Hutton Lake Refuge, Wyo.

#### CONSTRUCTION AND C.C.C. OPERATIONS

Makes Field Inspection.--Mr. Terhune left Washington on May 6 for an inspection of the following Bureau camps: Swan Lake, Mo., White River, Ark., Aransas, Tex., Sabine, La., and Wheeler, Ala. Mr. Terhune also expected to visit the New Orleans regional office. In addition he was to visit representative camps of other using services in Arkansas, Illinois, Indiana, Mississippi, Texas, and West Virginia. He expected to return to Washington about May 26.

C.C.C. Celebrates Seventh Anniversary.--The seventh anniversary of the Civilian Conservation Corps was celebrated in April by many of the Biological Survey camps. Celebrations were held in each of the 35 Bureau camps. Back Bay Camp BS-1, Va., chose April 11 on which to celebrate as this date marked the second anniversary of the establishment of the camp. About 350 to 400 people attended this camp's open house. The administrative and supervisory personnel invited 150 people prominent in public life in nearby communities to be their guests at a special dinner. The program for the day included registration of visitors, inspection of the camp, dinner, and a screening of movies showing thousands of migratory waterfowl on the refuge during the past year and how these birds were fed during the cold weather by members of the Biological Survey.

Approximately 300 visitors were shown through Elm Island Camp BS-1, Okla., on April 7, the date on which that camp observed the anniversary. On the same date 150 guests were present at Hart Mountain BS-4, Oreg. On April 5, Mattamuskeet Camp BS-3, N. C., played host to a large number of visitors who were furnished with guides to explain the various jobs and the purpose of the C.C.C.'s Mattamuskeet work program. Almost 650 people from four States attended the open house celebration at White River Camp BS-1, Ark. Miniature models of dams, lookout towers and other work projects were of particular interest to the visitors.



Foreman Training Course for Interior.--The Department recently adopted a plan that it hopes will improve the quality of job training given to enrollees in C.C.C. camps. Approximately 20 field representatives of the 485 C.C.C. camps and 72 units on Indian Reservations in the Department were in Washington for 2 weeks beginning May 13 for an intensive course in foreman training. This course consisted of instruction and demonstration in training and was conducted by Frank Cushman, consultant in vocational education, U. S. Office of Education. Mr. Cushman is one of the foremost authorities on foreman training in the United States, and a considerable amount of his time is devoted to training key men in industries so that they in turn can train foremen. A territory consisting of three or four States will be assigned to each of the foremen taking the course in Washington, and each foreman upon return to the field will conduct courses in enrollee training for foremen in all Interior camps in his territory. One-half of the supervisory personnel of the camps in a particular territory will be brought together for 4-day meetings, on schedules to be worked out among the bureaus. Each bureau will accept in its scheduled field meetings the personnel of the other bureaus within its territory so as to avoid duplication of training effort. Meetings will then be held for the other half of the supervisory personnel. In this way all supervisory personnel will receive training without disrupting the work program.

Two regions have been assigned to the Biological Survey: (1) Tennessee, North Carolina, and South Carolina, and (2) Georgia, Alabama, Mississippi, and Florida. E. D. Sampey, Jr., of Savannah Camp BS-1, S. C., was selected as the Biological Survey field representative from region 1, and C. D. Harkins, of Wheeler Camp BS-1, Ala., as field representative from region 2. It is estimated that approximately 3 months will be required to carry out the entire plan. The training courses, which each man will conduct, cover only on-the-job and off-the-job courses as they pertain to work projects. The academic education of the enrollees will not be touched in this field training course.

Tree Planting at Hart Mountain.--Two thousand small trees received from the Tule Lake Refuge, Calif., were planted in the camp area on Hart Mountain during April.

New Sites for Two Camps.--To bring the St. Marks Camp BS-1, Fla., closer to the new work area, the camp was moved on May 4 from its old location, a road distance of about 15 miles north of the area, to a site 1 mile south of Wakulla. The camp will now be known as BS-2 and its mailing address will be Wakulla. Because of the gypsum dust condition at Bitter Lake BS-1, N. Mex., the camp was moved to the town of Roswell on April 1. The camp now becomes Bitter Lake Camp BS-3, N. Mex. The mailing address remains Roswell.

Oregon Camp Receives New Enrollees.--Hart Mountain Camp BS-4 recently received 105 C.C.C. recruits from Georgia. The boys arrived in the Oregon desert in the midst of a sleet and snow storm.

New Road at Hart Mountain.--The construction of a new road at Hart Mountain was a difficult engineering job, it was reported. The road is an



extension of the highway from Lakeview to the camp and leads from the C.C.C. camp site at the foot of the mountain (elevation 4,400 feet) on the west side of the area to the refuge headquarters on top of the mountain (elevation 5,500 feet). The road is 3 1/2 miles in length, and long stretches of it had to be cut through almost solid rock. This road was closed in April for final blasting and completion.

#### GAME MANAGEMENT

Sellers Fined, Jailed.--Ten cases involving violations of the Migratory Bird Treaty Act were successfully closed in Federal court at Jonesboro, Ark., on May 6 before Judge Thomas Trimble as follows: Possessing ducks in close season and selling same \$100 and 60 days each (2); hunting ducks before 7 a. m., no plug, no stamp, \$25 each (3); hunting ducks after 4 p. m., \$10 (1); and possessing ducks in close season and selling, discharged after being in jail 26 days awaiting trial (1); and discharged after being in jail 6 weeks (1).

Given Severe Sentences.--Cases involving 14 persons were successfully terminated at the March and April terms of Federal courts at Helena and Little Rock, Ark., before Judge Harry Limley. Eight violators were charged with trapping, hunting, or trespassing on the White River Refuge. Sentences in these cases were as follows: 30 days in jail (1); 26 days (1); and \$50 fine (6). Six persons charged with violations of the Migratory Bird Treaty Act were sentenced as follows: \$50 fine (1); \$100 fine (1); \$50 fine and 30 days in jail (1); 30 days (2); and 3 months (1). These relatively severe sentences should deter persons in eastern Arkansas from violating Federal game laws and should result in fewer trespasses and violations upon the White River Refuge, Bureau officials said.

Had No Stamp.--An individual who entered a plea of guilty when arraigned in Federal court at Helena, Ark., on March 12 to hunting without a Migratory Bird Hunting Stamp and with a gun capable of holding more than three shells was fined \$100. Another defendant charged with hunting ducks prior to 7 a. m. was fined \$50.

Bootleg Ring Caught.--As a result of evidence collected during November and December 1939 by Survey agents and State game wardens, 15 persons charged with buying or selling wild ducks appeared in Federal court before Judge Harold Louderback at Sacramento. Sentences were imposed as follows: 9 months in jail (1); 7 months (1); 5 months (1); 4 months (3); 3 months (3); 45 days (1); \$50 fine (2); \$25 fine (1); and \$20 fine (1). Of these 15 individuals, one is in the hospital and will be sentenced when he gets out. Another individual charged with serious game law violations is a fugitive from justice. Survey agents said the violators were members of a well-organized Pacific Coast bootleg ring.

Arrest Shorebird Killers.--Nine persons charged with the sale of shorebirds and wild ducks near Morro Bay, Calif., during December and January appeared in Federal court at Los Angeles on April 8. Four of these violators

had each been in jail for 74 days because of their inability to raise bond. Federal Judge Campbell Beaumont took this fact into consideration when these men entered pleas of guilty and sentenced each of the men to 1 year probation. The other 5 defendants entered pleas of not guilty, demanded a jury trial, and were found not guilty by the jury.

Fined \$250 for Having Beaver Skins.--Seven persons who illegally possessed beaver skins were successfully prosecuted in Idaho State court during May. One was fined \$250 and sentenced to jail for 3 months; another was fined \$50. The others were fined \$25 each, and in addition two violators were given suspended jail sentences of 30 days each and 3 suspended jail sentences of 6 months each. Forty-four beaver hides and 130 beaver castors were confiscated. State wardens and a Federal agent cooperated on the cases.

Can't Hunt, Fish for 1 Year.--A Survey agent and a State conservation officer on March 31 apprehended two residents of Doon, Iowa, who were shooting at wild geese. These men appeared in State court at Rock Rapids on April 2 and 3, at which time one of the hunters was sentenced to 1 year in jail and then paroled in the custody of the County Sheriff, the condition of the parole being that the violator is not to hunt or fish for 1 year. The other violator was sentenced to 30 days in jail, of which sentence 10 days were suspended.

Judge Cracks Down on Night Hunters.--Four persons who killed 13 geese and 4 ducks while shooting from 9 p. m. March 28 until 2 a. m. March 29 in Lyon County, Iowa, were brought into State court at Rock Rapids on April 23 by a Survey agent and a State conservation officer. Three of these men were each fined \$200 and costs of \$5.35. The fourth hunter was fined \$100 and costs of \$5.35, and in addition sentenced to 30 days in jail. An unusual feature of this case was the fact that floodlights were used to illuminate wooden duck and goose decoys, while a high-powered flashlight was used to single out decoying or passing birds to be shot.

Bootleggers Fined \$25 a Duck.--Two residents of Comanche, Iowa, charged with selling wild ducks, were found guilty in Federal court at Davenport on April 4. One violator, who sold 10 ducks, was fined \$250 and costs, and the other, who sold 5 ducks, was fined \$125 and costs.

Confiscate 200 Live Decoys.--On January 3 following the disposition of six cases in Federal court against persons charged with violating the Migratory Bird Treaty Act, Judge G. L. Porterie, of Louisiana, entered an order confiscating some 200 live decoy ducks seized by officers. He ordered that the birds be disposed of, preferably by liberating them on a bird refuge.

Twelve Found Guilty.--Twelve persons appeared in United States District court at Lake Charles, La., before Judge Benjamin Dawkins during the May term for violations of the Migratory Bird Treaty Act regulations. All were found guilty, and sentences were imposed as follows: Sixty days in jail (1); \$25 fine (9); and \$50 fine (2).



Maine Shipper Caught.--As a result of information obtained in Pennsylvania by the Survey's New Jersey agent, a resident of St. Davis, Maine, who made an illegal shipment of a beaver hide, recently entered a plea of guilty in Maine State court and was fined \$50 and costs of \$7.57.

Shipped 600 Pelts.--Cooperation between Survey agents and State game wardens resulted in the apprehension of a fur buyer who had illegally transported 600 muskrat pelts from Minnesota to South Dakota in December 1939 and January 1940. The accused appeared in State court at Fairmont, Minn., on April 17 and was fined \$300 and costs of \$12.35 or, as an alternative, sentenced to serve 9 months in jail. The violator is in jail.

Warns Offenders, Jails Them.--Seven Montana residents, five charged with unlawfully hunting on Federal refuges and two charged with hunting ducks with guns not properly plugged, entered pleas of guilty in Federal court at Missoula, Mont., on April 9. Judge James H. Baldwin, who some time ago indicated that persons arraigned before him charged with violating the Federal game laws would receive jail terms, sentenced each defendant to 10 days in jail.

Jailed, Pays Fine, Released.--On March 15 a convicted violator was committed to jail by order of a State court in Nevada in default of a fine of \$200. After serving 20 days he was released upon payment of \$160. He was charged with the illegal possession of parts of two female and one male deer. State and Federal officers cooperated on the case.

Hunters Can't Trespass, Judge Rules.--After being found guilty in Federal court at Washington, N. C., on April 1 of entering the Mattamuskeet Lake Refuge during the past open season without a permit in order to retrieve a goose claimed to have been shot while flying outside of the area, a defendant was placed on probation for 1 day.

Gets 1 Year Jail Term.--Two commercial hunters recently received heavy fines because of the patience of enforcement agents. Survey and State conservation officers were patrolling a waterfowl concentration area on April 17 near Castalia, Ohio, after receiving reports of illegal hunting. About 6:30 p. m. that evening two men were apprehended for having in possession one pheasant. One of these men was known as a commercial hunter and so admitted in State court at Castalia on April 18. Both hunters pleaded guilty, and one of the violators was fined \$300 and costs of \$7.25. As this man was unable to pay his fine he was sentenced to serve 308 days in jail. The second violator was fined \$50 and costs of \$7.25.

Shot Upland Plovers.--A hunter killed 4 upland plovers near Fort Worth, Tex., on April 19. A game management agent and State game wardens learned of the illegal hunting, and as a result the hunter appeared in State court on April 29. He entered a plea of guilty and was fined \$200 and costs of \$11.

Eastern Shore Violators Fined.--Sixteen game-law violators apprehended on the Eastern Shore of Virginia during the past few months appeared in



United States court at Norfolk, Va., before Judge Luther B. Way on May 6 and 10. All were found guilty and received fines ranging from \$5 to \$200. One guide was fined \$100 for baiting a duck blind with corn; another person had trapped ducks in possession and also was fined \$100. The \$200 fine was imposed upon a second individual who possessed trapped ducks. A woman who was baiting a duck trap with corn was placed on probation for 2 years.

Trespassers Sentenced.--Apprehended on the Upper Mississippi River Wildlife and Fish Refuge in Iowa, Minnesota, and Wisconsin 12 persons appeared in State courts recently for violations of State game laws. In seven cases fines and costs aggregating \$175 were imposed. In two cases 30-day jail sentences were served, and in one case a 60-day and in another a 90-day sentence was served. In the twelfth case 30 days' jail sentence was suspended, and the violator placed on six months' probation.

Set 26 Traps on Refuge.--Two residents of Buffalo City, Wis., were apprehended by Survey agents on April 6 on the Upper Mississippi River Wildlife and Fish Refuge. These men had in possession 5 wild ducks and 1 muskrat and had set 26 steel traps on the refuge during the closed season for trapping in Wisconsin. The violators appeared in State court the same day, and each was fined \$50 and costs of \$3.50. Being unable to pay the fine, each was sentenced to 60 days in jail.

#### PREDATOR AND RODENT CONTROL

Cooperative Control Expands in Colorado.--On February 17 the Montezuma Woolgrowers Association, of Colorado, voted to levy an assessment of 5 cents a head on sheep belonging to the members of the association. The money raised will be used to conduct further cooperative predatory-animal control work, according to District Agent Paul T. Quick, of the Colorado District. The San Miguel Woolgrowers Association voted to levy 3 cents a head on sheep belonging to members of that association for similar work. The San Juan Woolgrowers Association voted to continue the 5 cents a head levy on association sheep. The combined funds raised in these three areas, which are adjacent to one another in southwestern Colorado, amount to \$7,660.

Bird Exhibit Presented to State.--An exhibit of 150 bird specimens of 77 species was deposited with the State of Idaho by the Survey through District Agent Geo. E. Holman on April 20 as an educational exhibit. The exhibit was placed in the custody of the State Fish and Game Commission. Several incomplete cases and 100 birds are yet to be placed on exhibition. The mounted bird project was started several years ago by T. B. Murray, who formerly served as district agent in the Idaho district. Mr. Holman made the presentation to Governor C. A. Bottolfson. Funds to purchase materials for the construction of the stands for the exhibit cases were furnished by the State Wildlife Federation of Idaho and the Ada County Wildlife Sportsmen's Organization. It is anticipated that the State Fish and Game Commission will continue the development of the project until a pair each of all birds common to Idaho will be included in the exhibit. Numerous favorable comments

have been received from local people and tourists, and several schools in the State have taken classes to view the exhibit, according to Mr. Holman.

Proper Care of Skins Pays.--The proper method of skinning, fleshing, and stretching the skins of small fur animals pays big dividends for the local trappers in the Carolinas and Georgia, according to District Agent L. C. Whitehead. Agent Hunter Andy Ray, engaged in predator control in these States in cooperation with the State game departments, has, through instructions in the proper methods of fleshing and stretching pelts, aided the local trappers in obtaining from \$1.25 to \$1.50 for trade-acceptable furs taken at the end of the season. Formerly they received 25 cents to 50 cents for small furs through the prime season. Hunter Ray has also aided the South Carolina Department of Game and Fish considerably in their program of trapping wild turkeys for restocking purposes.

Two Mothers in One Den of Coyotes.--An interesting and unusual incident that happened on a sheep ranch near Absarokee, Mont., was recently reported by District Agent R. E. Bateman. Numerous depredations to lambs on this ranch had been reported, and Mr. Bateman, in company with Hunter Drew, spent most of April hunting the coyote den of a pair of killers. Finally, on the last of the month, the den was located in a washout, or sink hole. Seven pups and two female coyotes were taken from the den. One female was 2 or 3 years old, apparently the mother of the seven pups, and the other, about 7 or 8 years old and a pegleg with one front foot off, presumably was trying to mother the pups, having none of her own. Mr. Bateman reported that this is the first time he has ever found two old females in the same den with pups. Undoubtedly it was this pair of females that had taken a toll of 20 lambs from the ranch.

Feeding Habits of Meadow Mice Vary.--Meadow mice apparently vary their feeding habits in different localities and also from year to year, it is indicated by studies conducted by District Agent Ernest M. Mills, who is in charge of the Bureau's rodent control work in New Jersey and Delaware. In a single planting of Scotch pines at the watershed at Charlotteburg, N.J., meadow mice girdled 90 percent of 1,000 8-year trees. Larch trees were also girdled in another section, but red pines were not touched. Injury occurred during the winter 1938-1939. A company in Phillipsburg, N. J., planted 15,000 trees in a 10-acre plot that had an equal distribution of Scotch pine, red pine, and larch. Under cover of snow during the winter of 1935-1936, mice girdled 5,000 larches and 5,000 red pines but did not touch the Scotch pines. Several years ago Messrs. Isaac and Merrill, agents of the Bureau, made an observation on a watershed in Fairfield County, Conn., where they noted that on a plantation where Scotch pines were interplanted with red pines, 7,200 Scotch pines were girdled by mice and the red pines were uneaten.

Gas Rats.--According to a report from District Agent Geo. B. Lay, a New York City pest-control operator recently used four cyanide guns at one time, one at each corner of a small piggery, and obtained practically 100

percent control. An examination of the premises after the gassing operation disclosed that all rats had been killed under the center of the building.

Use Taylor Funds for Control Work.--The last two counties receiving 50 percent Taylor Grazing funds in New Mexico have signed to spend a portion of it cooperatively with the Survey on rodent-control work, according to District Agent E. C. Cates. In all, 12 counties within the grazing districts have used a portion of their Taylor Grazing funds for rodent or predatory-animal control work in this State.

Attempt to Control Plague in New Mexico.--Mr. Cates reports that the U. S. Public Health Service again has one of its field laboratories in New Mexico in an endeavor to trace the advancement of sylvatic plague in rodents, which was discovered for the first time 2 years ago in western Catron County. The laboratory serves to warn the public of the dangerous, infected areas. To date no human cases of the plague have been reported in this State.

Gopher Control Prevents Soil Erosion.--A number of ranchers in New Mexico are convinced that pocket gophers play a large part in excessive soil erosion, Mr. Cates reports, and are including gopher-control work in their soil-conservation practices. Several large ranchers who have reseeded denuded range lands have called upon the Biological Survey for assistance in the control of this pest so that the new grasses might mature and reproduce.

Control Pine Mice Damage.--The advanced-station method for the control of pine mice, as developed by District Investigator H. J. Spencer, has given good results against depredations on holly, rhododendron, red bud, evergreen, and fruit trees on estates in Reynolda, N. C., according to District Agent Whitehead.

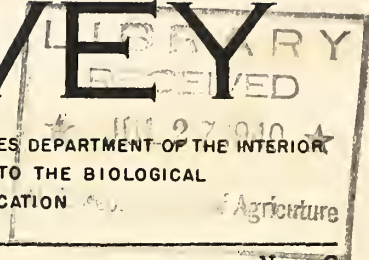
Coyotes Kill Deer.--Hunters Wood and Homan, working on the King Ranch, which lies in Kennedy County north of Raymondville, Tex., have reported finding 31 bucks killed by coyotes from January 1 to March 31, according to District Agent C. R. Landon. This heavier-than-usual loss, according to the hunters, is explained by the fact that (1) the deer were in very poor condition early in winter because of severe drought last summer, (2) this 3-month period following the rutting season usually finds the bucks in poor condition, and (3) it is at this time of year that the deer lose their horns. During the other 9 months of the year, the loss of deer from coyote depredations is negligible, according to Mr. Landon.





# THE SURVEY

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Washington, D. C., June 1940

No. 6

## GENERAL NOTES

Goes to Alaska.--Dr. Gabrielson left Washington early in June for Alaska where he is conducting a tour of inspection of wildlife conditions in the Territory. He is accompanied by Charles E. Jackson, acting commissioner of the Bureau of Fisheries. Dr. Gabrielson's itinerary includes visits to Juneau, Cordova, Seward, Kodiak Island, the Aleutian Islands, Pribilof Islands, Nunivak Islands, Anchorage, and Fairbanks. He expects to conclude the trip by August 18.

Fish and Wildlife Service Formed.--On June 30, 1940, the Bureau of Biological Survey and the Bureau of Fisheries were no more. Both organizations had been consolidated into a new wildlife conservation agency, The Fish and Wildlife Service. Secretary of the Interior Harold L. Ickes appointed Dr. Gabrielson as the first Director of the Service, and Mr. Henderson and Mr. Jackson to the posts of Assistant Directors. Members of the former Biological Survey will continue functioning as they have in the past until memoranda to the contrary are issued.

Visits Fisheries Laboratories.--Mr. Henderson left Washington on May 12 for an inspection trip through New England. He visited the Boston regional office, and Fish Cultural Stations and Fisheries' Biological Laboratories in Massachusetts, Vermont, Maine, and Connecticut. Enroute he also visited the Brigantine Refuge in New Jersey. He returned May 22.

Collect Funds for Red Cross.--A total of almost \$300 was received as contributions from personnel in the Washington office in a recent War Relief Fund drive conducted by the American Red Cross, according to a statement submitted by Ruth Richards to Dr. W. B. Bell, chairman of the Biological Survey committee. In a memorandum to Dr. Gabrielson, Assistant Secretary of the Interior Oscar L. Chapman stated that the Red Cross was conducting the drive in an effort to lessen the suffering that exists in so much of the world today.

Dr. Bell appointed the following keymen to collect contributions: Wildlife Research, Ruth Richards and Viola Schantz; Administration, Madeline J. Chaput, Johanna H. Corsack, and Carrie B. Wagner; Public Relations, Maude S. Ponton; Federal Aid, Eva C. Elledge; Land Acquisition, Margaret A. Roberts; Wildlife Refuges, Irene P. Kricun; Construction and C.C.C. Operations, Gladys Torson; Game Management, Burnetta E. Muth; and National Park Wildlife, Ethel Gogorza.

Survey Group Aids Symphony.--"The Biological Survey Group of Friends of the National Orchestra" donated \$63 to this year's sustaining campaign, which ended May 16, according to Wm. H. Cheesman, chairman of the Group. The contributions of the 31 members of the Bureau constituting this Group, together with small amounts given by other members of the Survey who are interested in continuing music of this character in the Nation's Capital, give this Group two voting memberships in the National Symphony Orchestra Association. Miss Clara Ruth, who was retired last year, returned to carry on the Group's campaign and was assisted by Miss Ruth Richards.

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (May) of the Survey:

- No. 21. Revised. Amendment No. 6, Supplement No. 2. Instructions in solicitation and acceptance of bids concerning the application of certification No. 4. (May 22.)
- No. 33. Revised. Amendment No. 4. Routing of shipments moving on Government Bills of Lading. (May 31.)
- No. 39. Revised. Amendment No. 7. Ownership of automobiles operated on a mileage basis. (June 12.)
- No. 111. Amendment No. 4. Telegraph service--change in rates; economies in use requested. (June 17.)
- No. 265. Revised. Certification as to "Citizenship" of employees to be shown on pay rolls. (June 6.)
- No. 285. Amendment No. 1. Discontinuance of the use of Form 124b-Field, in connection with temporary appointments under Civil Service Rule VIII. (June 11.)
- No. 314. Instructions relative to furnishing copies and permitting inspection of the records of the Interior Department. (May 20.)
- No. 315. Attendance of National meetings of veterans' organizations. (June 5.)
- No. 316. Change in appointments of all agents (predatory-animal hunters), agents (junior predatory-animal hunters), and agent (foremen); service records; cooperative fund pay rolls. (June 14.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 145. Changes in Procurement Division contracts. (May 15.)
- No. 146. Contracts for the procurement of cement, paints, paint ingredients, and floor wax (Class 52). (May 17.)
- No. 147. Contracts for the procurement of life preservers, special wearing apparel, and safety equipment (Classes 23 and 37, Supplement No. 1). (May 23.)
- No. 148. Procurement of enamel and lacquer paint for use on automotive and heavy equipment. (June 5.)
- No. 150. Mandatory contracts for the procurement of drills, tool holders, and reamers (Class 40, Supplement No. 1). (June 15.)



## PUBLIC RELATIONS

Visit New England.--Leo K. Couch, assistant chief of the Division of Wildlife Research, accompanied by Ludwig Caminita, Jr., of the Section of Current and Visual Information, left Washington, D. C., on May 26 for a 10-day trip through the New England States, New York, and Pennsylvania. They visited the New Haven Forest Experiment Station, the Boston Regional office, the Maine Cooperative Wildlife Research Unit, the Moosehorn National Wildlife Refuge (Maine), the U. S. Fur Animal Experiment Station (N.Y.), the Montezuma National Wildlife Refuge (N.Y.), and the Pennsylvania Cooperative Wildlife Research Unit. John Pearce, biologist with headquarters at the New Haven Experiment Station, joined them at New Haven and left them in Saratoga Springs, from which point Mr. Pearce returned to New Haven and Mr. Couch and Mr. Caminita continued their trip. Enroute they also visited newspaper writers and discussed the work of the Biological Survey.

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Flora of the Patuxent Research Refuge, Maryland. By Neil Hotchkiss, biologist, Section of Food Habits, Division of Wildlife Research. Wildlife Leaflet BS-154, 34 pp., illus. May 1940. Received June 8.
- Wildlife technology. By W. L. McAtee, technical adviser, Office of the Chief. Wildlife Leaflet BS-161, 5 pp. May 1940. Received May 31.
- Birds as a factor in controlling insect depredations. By Clarence Cottam and Francis M. Uhler, biologists, Section of Food Habits, Division of Wildlife Research. Wildlife Leaflet BS-162, 6 pp. May 1940. Received June 17.
- Common salt as a curative for cannibalism among game birds in captivity. By Ralph B. Nestler, biologist. Wildlife Leaflet BS-163, 2 pp. June 1940. Received June 19.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Small water developments in Canada aid United States waterfowl program in North. Press release P. N. 101403. Released May 15.
- Biological Survey inventory shows waterfowl increase for fifth year. Press release P. N. 101532. Released May 19.
- Mourning doves don't travel far or fast migration studies show. Press release P. N. 102920. Released May 29.
- Fish and Wildlife Service organized Ickes names Gabrielson director of new Service. Press release P. N. 103221. Released June 2.
- 3,572,582 duck stamps sold in 5 years help pay for refuges. Press release P.N. 1040669. Released June 16.
- Sportsmen hope sea lettuce will bring back brant, but birds respond slowly. Press release P. N. 104667. Released June 17.
- Bald eagle, symbol of freedom, protected from hunters' guns. Press release P.N. 104837. Released June 16.
- Wildlife worth millions in cold cash each year and worth saving. Press release P. N. 104991. Released June 18.

Birds help farmers, orchardists by reducing insect depredations. Press release P. N. 105430. Released June 21.

Woodcock, mystery game bird, being banded and studied by shrewd scientists. Press release P. N. 105244. Released June 24.

Males are all alike; whether birds or humans, they strut. Press release P. N. 105437. Released June 24.

Help United States in game studies. In "Current Conservation" (Clip sheet), Vol. III, No. 3, June 1940.

Hawks. In "Current Conservation" (Clip sheet), Vol. III, No. 3, June 1940.

Outside Publications.--Articles by members of the Survey appearing in outside publications have been reported as follows:

Black, D. V. Establishing wildlife refuges. Fed. Business in Maryland 9(1): 5-9. Jan./Feb./Mar. 1940.

Cahalane, V. H. Some relationships of wildlife to the field of recreation. Utah Juniper 11: 8-10. 1940.

-----Your national parks--and you. Nature Mag. 33: 257-265, 303. May 1940.

Caminita, L., Jr., Wildlife doctor. Amer. Wildlife 29 (2): 67-68, illus. Mar./Apr. 1940.

Cheesman, W. H. Bureau of Biological Survey. Amer. Ann. 1940: 71-72.

Fugate, R. Beaver born in captivity. Murrelet 21: 11. Apr. 30, 1940.

Howell, A. H. Brown bear killed on St. Lawrence Island. Jour. Mammal. 21: 216. May 14, 1940.

Jackson, H. H. T. Gregory, Tappan. Eyes in the Night. Thomas Y. Crowell Co., New York. 243 pp., illus. (Review). Jour. Mammal. 21: 225. May 14, 1940.

Jewett, S. G. The Arctic tern at Portland and Diamond Lake, Oregon. Condor 42: 164. May 15, 1940.

----- The house finch in western Oregon. Condor 42: 169. May 15, 1940.

Kalmbach, E. R. Manpower in wildlife research. Utah Juniper 11: 14-16, illus. 1940.

Long, W. H. Traumatology in wildlife management. Amer. Wildlife 29 (2): 88-92. Mar./Agr. 1940.

McAtee, W. L. Sound placing by birds. Nature Mag. 33: 357. June/July 1940.

Marshall, W. H. A survey of the mammals of the islands in the Great Salt Lake, Utah. Jour. Mammal. 21: 144-159, illus. May 14, 1940.

Moore, A. W. A live mole trap. Jour. Mammal. 21: 223-225, illus. May 14, 1940.

Murie, O. J. Notes on the sea otter. Jour. Mammal. 21: 119-131, illus. May 14, 1940.

Oderkirk, G. C. A city-wide rat campaign. Pests 8 (5): 8-9. May 1940.

Pearson, A. M. (With G. C. Moore, senior author). Mourning dove migrations from Alabama. Alabama Game and Fish News. 11 (12): 7, 13, illus. June 1940.

Peters, H. S. European cormorants nesting in Nova Scotia. Canadian Field-Naturalist 54 (4): 59-60. Apr. 1940.

- Peters, H. S. Pintail increasing as nesting bird in New Brunswick. Canadian Field-Naturalist 54 (4): 58. Apr. 1940.
- Georgia-banded chimney swift nests in Ontario. Bird-Banding 11: 61. Apr. 1940.
- Sheldon, H. P. Guns and game. Country Life 77 (5): 60, 86, 87. Mar. 1940.
- Shillinger, J. E., and Coburn, D. R. Diseases of game birds. Jour. Vet. Med. 35: 124-127. Feb. 1940.
- Smith, C. F. Weights of pocket gophers. Jour. Mammal. 21: 220. May 14, 1940.
- Taylor, W. P. Texas should lead in game. Cattleman 27 (1): 47-49, illus. June 1940.
- Zahniser, H. Indoors and out. Nature Mag. 33: 255, 309. May 1940.
- Nature in print. Nature Mag. 33: 319, 370. June/July 1940.

## WILDLIFE RESEARCH

Caribou Reported Near Ely, Minnesota. --Shaler E. Aldous, who is working on forest-wildlife relationships at the Lake States Forest Experiment Station, in St. Paul, reports that on January 8, Ranger Henry Jacobs came upon a caribou in the woods about 6 miles southeast of Ely, Minn. The animal still retained its antlers and was within 50 to 75 feet of Mr. Jacobs when observed. The closeness of Mr. Jacobs to the animal and the fact that the antlers were still present makes the identification quite positive. This observation probably means that a few caribous in the State have been overlooked or that one has strayed in from Canada. The last known caribous in Minnesota are in the Red Lake Refuge area, about 120 miles west from where this animal was seen. Mr. Aldous was personally unable to find this animal in the same general location 1 week later.

Makes Field Inspection Trip. --Dr. Bell left on April 28 for a field trip in North Dakota and Minnesota. In Minnesota he visited the Upper Souris Lower Souris, Des Lacs, and Lostwood Refuges, being accompanied by the refuge managers. He was met by Regional Directors George Tonkin and Burnie Maurek; S. E. Aldous; Dr. Wm. L. Strunk, Minnesota conservation director, and three other members of the commission; and J. Manweiler, of the Soil Conservation Service at Thief River Falls, Minn. The members of the party attended a sportsmen's dinner at Thief River Falls at which Dr. Strunk was the principal speaker. Dr. Bell, along with others, was called on to give short talks. The group then visited the Beltrami area and the Mudlake, Rice Lake, and Thief Lake Refuges in Minnesota.

Addresses Iowa Ornithologists. --Dr. Bell attended the annual meeting of the Iowa Ornithologists' Union at Dubuque, Iowa, on April 11 and 12. At the dinner meeting on April 11, he was the principal speaker, giving an address on the progress being made in wildlife restoration and conservation. He showed motion pictures of wildlife on Mount McKinley National Park, Alaska, and a woodcock management film.

Conference Held in Missouri. --The Forestry-Wildlife Conference, held at the University of Missouri on May 9 and 10, was attended by more than 100



persons representing the U. S. Forest Service, the National Park Service, the Biological Survey, the Missouri Conservation Commission, the University of Missouri, Conservation Federation of Missouri, and the Soil Conservation Service. Addresses were given on wild turkey studies, chukar partridge in Missouri, deer browse studies, and the breeding cycle of the cottontail rabbit.

Begins Waterfowl Studies in Texas.--Dr. W. P. Taylor reports that W. C. Glazener began residence at the Aransas Migratory Waterfowl Refuge early in June. He will continue in residence there and in the nearby territory for at least a year, "living with the geese," studying food habits, installing test plots, setting up devices for driving waterfowl from cultivated farm crops, checking feeding activities, and accumulating as complete a record as possible of all pertinent developments. He will attempt to identify and quantitatively determine the rank of foods utilized by wintering geese. Mr. Glazener will conduct studies to determine goose-livestock and goose-farm crop relations, to determine the effectiveness of certain range management practices and of methods of goose range improvement, and possible correlations between local, daily, or seasonal weather phenomena and feeding activities of geese.

Check Woodcock Numbers.--From May 4 to 18, Clarence M. Aldous and Howard Mendall checked on the woodcock conditions in Washington County, Maine, and in New Brunswick, Nova Scotia, and Prince Edward Island. At the conclusion of the singing ground check in Maine, it was found that there was a 37.5 percent drop in the number of occupied grounds as compared to 1939. Opinions in the Maritime Provinces varied as to the relative abundance of the birds this year.

Service Work in Oregon.--The Oregon cooperative wildlife research unit participated in a survey of the problem deer range in eastern Oregon and devoted additional time to a survey of elk problem areas. The inspections were made in conjunction with the Oregon State Game Department and the Forest Service. A hearing was also attended in eastern Oregon, which was mandatory under the laws of the State, to establish the effect of past open antlerless deer season in Grant County. Developments of the hearing proved that (1) the range has improved remarkably, because of a fine open winter and the lack of heavy usage of the range by domestic animals and deer, and that one severe winter would perhaps not jeopardize the deer on that range; (2) greater restrictions are being made on the use of the range by domestic animals; (3) all those testifying at the hearing were in favor of a restricted or controlled shoot of deer rather than an indiscriminate unlimited hunt for antlerless deer; and (4) the deer have scattered widely and have not used the Murderer's Creek Basin, except in a limited way, this year but that there are other concentrations at some distance from this problem range and must be

managed accordingly. The enclosure grazing plots maintained by the unit, which have shown a complete restoration of desert grasses and a partial restoration of browse plants, offer evidence that deferred grazing and re-seeding with Idaho fescue is very effective in rebuilding range that seems impossible to improve. These trial plots are on the poorest, most abused part of the range.

### Wildlife Surveys

Bighorn Areas.--Dr. H. H. T. Jackson left Washington, D. C., on June 18 to inspect several big-game areas in the West and to attend the meeting of the American Society of Mammalogists, which will be held in Denver on June 24 to 28, inclusive. He will stop at the Wichita Mountains Wildlife Refuge, Okla., for a few days before going to Denver. After the Mammal Society meeting, Dr. Jackson will go with Olaus J. Murie to the Cabeza Prieta and Kofa Game Ranges, Ariz.; Boulder Canyon Wildlife Refuge, Desert Game Range, and Charles Sheldon Antelope Refuge and Range, Nev.; Death Valley National Monument, Calif.; Hart Mountain Antelope Refuge, Oreg.; and Fort Niobrara Game Preserve, Nebr. They will also spend some time in the badlands of South Dakota. Dr. Jackson will return to Washington, and Mr. Murie to Jackson, Wyo., about August 10.

Antelope Bands Scatter.--The antelope herd at the Wichita Mountains Wildlife Refuge, Okla., split up during May and is now rather widely scattered, according to Biologist Charles H. Rouse. Fourteen antelopes still remained in one band on June 12, while the others were single or in pairs. The most complete count during May was 24 animals. Two does were in Winter Valley during most of May, and on the 23rd two fawns were with them. It is definitely established that five antelope fawns, and possible six, have been born this season. It is also quite apparent that very few, if any, fawns will be borne by the antelopes brought in from New Mexico last January, Mr. Rouse stated.

Coyote Meets Gobbler.--Biologist Frank B. McMurry, stationed at the Wichita Refuge, reports that on April 17, while watching a turkey gobbler with three hens about sundown, he observed a coyote walking down a small drainage towards the turkeys. The turkeys had noticed the coyote earlier, as they had been uttering their sharp warning notes before Mr. McMurry was aware of the coyote's presence. The coyote did not sneak close to the ground, but walked a few steps, stopped, and again walked a few steps until within about 15 feet of the gobbler. Then he ran at the tom turkey, which promptly flew up into his roost. The coyote took to the brush as fast as it could when it winded the observer.

Studies Seal Herds.--Dr. Victor B. Scheffer left Seattle on June 10 on the Bureau of Fisheries boat "Penguin" for the Pribilof Islands, Alaska, where he will study seal herds for 3 months. He has been asked to make studies and observations covering (1) present methods of estimating seals and sea lions, and possible improvements in methods; (2) sealing operations, and as much of the life habits as possible; and (3) analysis of factors affecting the blue foxes on the islands. He has also been requested to make observations and collections of the fauna in general on the islands.

Continues Antelope Range Research.--Olaus J. Murie, biologist, left Washington, D. C., on May 16 for his headquarters at Jackson, Wyo., after working several weeks on his elk manuscript, now in the hands of the editor. Mr. Murie left Jackson on June 1 for the Charles Sheldon Antelope Refuge and Range, where he continued until June 20 his research on antelope range and grazing problems.

Visit Mammal Laboratory.--On May 7, John P. Holman, of Fairfield, Conn., visited the mammal laboratory and conferred with Stanley P. Young and Major E. A. Goldman concerning conservation and publication matters. Wetmore Hodges, of Ennis, Mont., visited the mammal laboratory to confer with Stanley P. Young on Friday, June 14. Mr. Hodges is a conservationist interested in archaeology and all wildlife problems. He is cooperating with Mr. Young on the color plates for the North American Fauna on "Wolves of North America."

#### Food Habits Research

Presents Radio Talk on Snakes.--Biologist Clarence F. Smith gave a short talk on snakes on the May 19 broadcast of "America's Wildlife," which is sponsored each Sunday by the American Wildlife Institute and the National Wildlife Federation and is broadcast over the Mutual Broadcasting System network. The discussion briefly described the various species of poisonous snakes in the United States and explained how they differed from their harmless near relatives. The commonly overlooked fact that snakes are on the whole of much value economically as "mousers" or as consumers of noxious insects and other small invertebrates and vertebrates, was explained.

Nesting Study at Crescent Lake to Be Concluded.--On April 18, Biologist Ralph H. Imler left Denver to resume his studies of nesting ducks on the Crescent Lake Refuge, Nebr. Attention will be focused on further experimentation with measures for reducing the excessive losses from bull-snakes. Mr. Imler will also supervise certain experiments in the control of snapping turtles at the LaCreek Refuge, S. Dak.



Ravens Disrupt Telephone Service.--An ornithological problem that has been only partially solved persists in a section of southeastern Colorado where nesting white-necked ravens interfere with telephone and telegraph transmission lines. This group of birds, apparently isolated from the main range of the white-necked raven to the south, inhabits a treeless area where nesting sites and nesting material are scarce. The crossarms of the transmission poles often are used as sites, and scrap wire is brought in as nesting material, with frequent disruption of the multiple services to which the lines are being put. Insulating tubing installed over the wires at critical points on 50 miles of line have greatly reduced the trouble. Recently Biologist E. R. Kalmbach joined officials of the company most concerned in an inspection of the trouble area and suggested additional measures for trial. The problem will be given further study at the Denver Laboratory.

Muskrats Damage Utah Marshes.--Muskrats have caused a tremendous change in some marsh areas of the Bear River Refuge, in Utah, according to Biologist Cecil Williams, and the effect of this on waterfowl production is quite serious. Pioneer growths of emergent plants extending into the open waters of the units serve as barriers protecting waterfowl nesting in the interior of the marsh from being flooded by wave action. Where this vegetation, mostly cattail and alkali bulrush, has been removed by the rats, considerable egg loss of the Canada goose has resulted.

Geese Nest in Utah.--Approximately 6,000 Canada geese wintered in Utah last year according to Mr. Williams, who adds that very likely these are birds that also breed within the State. The winter foods included salt grass, winter wheat, rabbitsfoot grass, spike rush, foxtails, and buttercups. The migration north from the wintering grounds started about February 6. By February 15, many geese were paired on the breeding grounds and were already selecting nesting sites.

#### Distribution and Migration of Birds

Addresses Meteorological Society.--On May 28, at the George Washington University, Washington, D. C., F. C. Lincoln addressed a meeting of the District of Columbia branch of the American Meteorological Society. The subject of his talk was "Effect of Weather on Bird Migration." Slides and 4 reels of motion pictures on wild bird life were shown.

Consults Distribution File.--On June 7, Dr. Herbert Friedmann, of the National Museum, spent the day consulting the distribution file for his forthcoming work, Part IX, of the "Birds of North and Middle America."

Observes Conditions in Nova Scotia.--Harold S. Peters, the Atlantic Flyway biologist, arrived in Fredericton, N. B., on June 2. He spent some time conferring with Col. Ritchie, the chief game warden, and made a waterfowl survey by car and canoe with Col. Ritchie on June 4. The next day he went to Amherst, Nova Scotia. Investigations were made in Amherst, Charlottetown, P. E. I., and Midgie, N. B. At Antigonish, Nova Scotia, a cormorant nesting colony was visited and 275 occupied nests were counted. On June 15 he and Robie W. Tufts took a motor boat trip to East Brook to observe nesting wood ducks.

Heads for Old Crow.--C. E. Gillham, the Mississippi Flyway biologist, wrote from Fairbanks, Alaska, on May 31 that he and John J. Lynch, of the Section of Food Habits Research, were leaving the next day up the Yukon heading for Old Crow.

Reports Depredation on Doves.--Central Flyway Biologist George B. Saunders is conducting extensive studies of the nesting white-winged doves in Cameron County, Texas. He reports serious depredations to eggs and young birds by green jays, great-tailed grackles, and black snakes.

Rain Strikes Drought Area.--From Swift Current, Saskatchewan, R. C. McClanahan, of the Washington office, writes that rain has finally hit the drought area. A newspaper account states that this area is having more rain than it has had at one time in 10 years. Mr. McClanahan has been successful in taking movies of red foxes, pelicans, avocets, godwits, and ring-billed gulls.

Works in British Columbia.--Luther J. Goldman, the Pacific Flyway biologist, is conducting waterfowl investigations in the vicinity of Kamloops, B.C.

Visits Washington Office.--Dr. J. F. Bronckle, of Mallette, S. Dak., who has cooperated in birdbanding work since December 1929, visited the Washington office on June 15. His total of banded birds is now more than 37,000.

Returns of Outstanding Interest.--A kittiwake, *Rissa tridactyla*, banded as a nestling on the Kharlov Island, Barents Sea, near the coast of Murmansk, was shot about 3 miles from shore on the northeast coast of Newfoundland, not far from Twillingate. The bird was shot about November 14, 1939. It was marked under the direction of the Central Agrobiostation in Moscow, U.S.S.R. A double-crested cormorant banded June 21, 1939, in Muscongus Bay, Maine, was found dead April 8, 1940, in Leon County Fla. Another cormorant from the same colony was found dead July 29, 1940, in Clearwater, Fla. Both birds were banded as nestlings. A red-shouldered hawk banded June 4, 1933, at Laurel, Md., was caught in a steel trap April 27, 1940, in Severn, Md. A white-throated sparrow banded May 9, 1939, at Blue Island, Ill., was found dead about April 22, 1940, in Gilbert, La.

#### Fur Resources

On Trip to Alaska.--Frank G. Ashbrook, in charge, Section of Fur Resources, left Washington May 22 for an extensive trip to Alaska, particularly to the Pribilof Islands. Enroute he stopped in Chicago and St. Louis to confer with various individuals on matters pertaining to the fur trade. He sailed from Seattle on June 1, the first stop being Petersburg, Alaska, where he visited the Fur Animal Experiment Station established in 1937 with Dr. J. B. Loftus as superintendent. From Petersburg, he went to Juneau and spent a week with Frank Dufresne and other Survey personnel. He visited many blue



fox farmers who lease islands from the Government. During the latter part of June Mr. Ashbrook will be on the Pribilof Islands studying fur seal operations in cooperation with officials of the Bureau of Fisheries. Mr. Ashbrook expects to return to the Washington office sometime about the middle of July.

Studies Relative Seasonal Gain on Rabbits.--Where no changes were made in the ration for the different seasons, rabbit does and their litters consumed more feed during the winter than in other seasons, according to George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif. Rabbits produced during the winter season were heavier than those produced during the summer. The feed conversion did not vary with the season. Mr. Templeton states that though rabbit breeders and livestock breeders know that their animals consume less feed during the warm season, not many breeders realize that the feed consumed is utilized just as efficiently in summer as in winter.

Addresses Two Meetings.--On May 23 Mr. Templeton talked before the Rotary Club of Lynwood, Calif., on rabbit feeding and other work that the Rabbit Experiment Station is carrying on. On May 29 he talked to 50 seniors from the Vermont High School, Los Angeles, when they visited the station.

Fifth Annual Field Day Held.--Some rabbit breeders came from a distance of 150 miles to be present at the Fifth Annual Field Day held at the Rabbit Station on May 19. There were 251 visitors this year. Director Templeton adopted the policy of holding the Field Day on Sunday so as to accommodate a greater number of rabbit breeders. He reports that this was the most satisfactory Field Day yet held. Emphasis was placed upon the new self-feeder, made from an old 5-gallon oil can, and the simplified ration that has been developed for Southern California. The cost of feed to produce a pound, live weight, of fryer rabbit under Southern California conditions was this year only 4.33¢ when the self-feeder furnishing whole grains was used. Dr. Vail was also present to answer inquiries relating to disease problems. The breeders were very complimentary about the Field Day and expressed a desire for two or three each year.

Find Magnesium in Bladder Stones.--Dr. S. E. Smith, agent for the nutritional cooperative experimental work with fur animals at Cornell University, recently reported the analyses of six bladder stones collected from post mortems of minks and foxes. The stones were phosphates, primarily magnesium ammonium phosphate, with traces of calcium in two cases. The presence of such large amounts of magnesium is surprising and puzzling, Dr. Smith reports.

Muskrat Gestation Period Studied.--The gestation period of a muskrat is probably not more than 29 days, Dr. Herbert Dozier, director of the U. S. Fur Animal Experiment Station, Cambridge, Md., believes. He based his information on the fact that a female that had given birth to five young had been penned with a male only 29 days.



Visits Experimental Projects.--Dr. Dozier recently accompanied Chas. E. Kellogg on a trip to Cornell University and Saratoga Springs, N. Y. While at Cornell Mr. Kellogg and Dr. Dozier attended a seminar of the Animal Nutrition Laboratory, at which time all phases of the research work of this unit during the year were reviewed. Among the speakers were Dr. S. E. Smith and Dr. J. K. Loosli, who are conducting the research work at Cornell on the nutrition of fur animals. Mr. Kellogg and Dr. Dozier also visited the Montezuma Refuge, Seneca Falls, N. Y., and talked with Superintendent Merton Radway on various problems affecting muskrats. One day was spent at Saratoga Springs where an inspection was made of the work being done at the fur farm.

#### National Park Wildlife

Lectures.--"Wildlife in Mount McKinley National Park" was the subject of two talks given by Victor H. Cahalane on May 20 and Clifford S. Presnall on May 21 before the Washington, (D.C.) Chapter, Society of Landscape Architects, and the King David Lodge, respectively. Wildlife Ranger Estes Suter, of Wind Cave National Park, presented a talk on birds before the local P. E. O. Club of Hot Springs, Ark., in May.

Visits Zion Park and Monument.--W. B. McDougall, regional biologist, visited Zion National Park and Zion National Monument, Utah, during the period May 3 to 11 and has treated his observations and recommendations in one report as the areas are contiguous and are similar both geologically and biologically. Most of the monument is so much overgrazed that grass is much less evident than in the park, he states. Mule deer and bighorn are the important large mammals in the area. Most of the park is excellent deer range, while the monument provides poor range for these animals because of excessive overgrazing. There is, at present, a problem of overpopulation of deer in Zion Canyon, and it has been recommended that 50 or more of the animals be transferred to the petrified forest portion of the park where both food and water are available.

#### FEDERAL AID IN WILDLIFE RESTORATION

Develop Desert Game Range.--The California Fish and Game Commission received approval on May 20 to develop the desert range in six southeastern counties of the State as a part of its Federal Aid in Wildlife Restoration program. The project will involve the development of existing and the creation of new water supplies by the construction of check dams and catchment basins. In the beginning several types of catchments will be constructed so that their relative efficiency may be determined. The Gambel quail, valley quail, mountain quail, cottontail, desert bighorn, antelope, and chukar partridge are to be benefited from the developments.

Restore Sage Grouse Habitat.--Plans submitted by the California Fish and Game Commission for a Federal Aid project to improve sage grouse habitat in northeastern California were approved by the Biological Survey on May 8.

It is anticipated that it will require two years to complete the planned restoration work in this region. Natural springs in this region once produced succulent green food necessary to the welfare of immature sage grouse. During recent years, however, heavy use of these springs by livestock turned them into little more than trampled mud holes denuded of green food and all nesting and escape cover. The reclamation program proposes the procurement of easements from property owners to permit the development of water supplies and the construction of enclosures varying in size from 5 to 50 acres. Deferred grazing will be provided on the larger enclosures, since it is recognized that proper use of the cover by livestock in certain instances is decidedly beneficial. Troughs will be constructed outside the enclosures to provide water for livestock at all times.

Improves Hovey Lake Refuge.--Federal Aid funds will be used by the Indiana Department of Conservation to improve the Hovey Lake Game Refuge in Posey County for migratory waterfowl and resident upland species. The project was approved on May 28. Work proposed under the project includes the construction of a caretaker's cottage and service building, the building of an entrance road, the erection of a concrete dam to maintain a constant water level in the lake, the fencing and posting the boundaries. Hovey Lake was acquired under Indiana's first Federal Aid project.

Expands Tuscola Area.--The first segment of a land purchase program undertaken by the Michigan Department of Conservation and approved as a Federal Aid project on November 18 was followed by a second segment, which was approved on May 13 and adds 150 acres to the area previously acquired. Ring-necked pheasants, ruffed grouse, bobwhite quails, cottontail rabbits, and fur animals will be benefited through the acquisition and management of these lands.

Add Wildlife Lands in Michigan.--The third segment of the Michigan Conservation Department's land-acquisition program in the Barry County unit located in the southwestern part of the State was approved as a Federal Aid project on May 8. The total program involves the purchase of a large area on which management practices conducive to the increase of cottontail rabbits, quails, ruffed grouse, ring-necked pheasants, waterfowl, and raccoons and other fur animals will be conducted.

Minnesota Posts Refuges.--A Federal Aid project to post 114 State game refuges was submitted by the Minnesota Department of Conservation and approved by the Bureau of Biological Survey on June 14. Though the refuges are all privately owned, the Department of Conservation under State law is authorized to designate them as refuges and control the wildlife thereon. The various areas range in size from 640 to more than 100,000 acres and will be marked with embossed metal signs supported by steel posts.

Purchases Land for Sage Grouse.--Approximately 2,600 acres of land in Taos County, N. Mex., will be purchased for sage grouse restoration under a Federal Aid project submitted by the State Department of Game and Fish and



approved by the Biological Survey on June 5. The area is composed of three tracts of sage brush land that have been grazed to the extent that sufficient cover for nesting no longer exists. After the land is purchased by the game department it will be fenced to prevent grazing, and water supplies will be developed.

Ohio Surveys Wildlife Resources.--The Ohio Division of Conservation and Natural Resources received approval on May 29 for a State-wide wildlife survey and game management project. Work under the project will be divided into three categories: inventory of species and influencing factors, determination of methods of conservation and restoration, and demonstrations of game management. The entire program will be directed by Edwin P. Rinchart, who has been appointed project leader. The first task will be to make a survey of present populations and their distribution and the favorable and limiting factors. Investigations then will be made of present methods of management, including results of artificial stocking and the effectiveness of predator control and influences of land use practices.

Methods of coordinating wildlife management on a State-wide basis with the agricultural program will be studied, and the aid of landowners and State and Federal agencies will be solicited. Management practices will be instituted where and when needed. For the purposes of the project, the State has been divided into seven geographical and ecological regions. Ohio State University, Ohio University, and other educational institutions have been named as agencies that will furnish technical information. The Soil Conservation Service, the C.C.C., and the U. S. Forest Service will act as cooperators.

#### LAND ACQUISITION

Establishes Refuge.--The President on June 14 signed an Executive order establishing the Noxubee National Wildlife Refuge in Oktibbeha, Noxubee, and Winston Counties, Miss.

Helps in Water-Rights Case.--Donald Chancy, of the Solicitor's Office of the Department of the Interior, cooperated with the Survey and on May 22 went to Sioux City, Iowa, and Pierre, S. Dak., where he made preparations for the closing of the water-rights case on LaCreek Migratory Waterfowl Refuge.

Works on Bombay Hook Case.--Joseph S. Needle, of the Legal Section, left Washington on May 13 for Dover, Del., to work on the final closing of cases on the Bombay Hook Migratory Waterfowl Refuge.

#### Appraisals and Negotiations

Inspects Federal Aid Projects.--Upon the completion of his detail for inspecting and appraising the Jasper-Pulaski Federal Aid in Wildlife Restoration project in Indiana, Martin Harylow went to Cassopolis, Mich., where he was joined by Joe E. Smoke to inspect and appraise the Crane Pond and Gratiot-Saginaw Federal Aid in Wildlife Restoration projects in Michigan.



Attends Condemnation Proceedings.--During May, William L. Towns attended condemnation proceedings on the Tamarac, Rice Lake, and Upper Mississippi Refuges in Minnesota. He also went to Sioux City in connection with the closing of the water rights case on LaCreek Migratory Waterfowl Refuge in South Dakota.

Appraise Parker River Refuge.--Elmon Radway and Earl F. Gates left Washington on May 20 for Massachusetts on a detail to examine and appraise lands within the proposed Parker River Refuge near Newburyport, Mass. They returned to Washington May 31.

Inspects Horicon Marsh.--Edward E. Ripper left Des Moines on May 28 and went to Mayville, Wis., where he assisted Richard H. Putnam in the inspection, appraisal, and negotiation of lands on the Horicon Marsh Migratory Waterfowl Refuge, and assisted the Wisconsin Department of Conservation in negotiating for that portion of the Horicon Marsh project being acquired by the State under the Federal Aid in Wildlife Restoration Act.

#### WILDLIFE REFUGES

Gambel Quails Abundant on Kofa and Cabeza Prieta.--Gambel quails are very numerous on both the Cabeza Prieta and Kofa Game Ranges, Ariz., and coveys can be seen at almost any time of the year or day at the watering places, Manager Malcolm N. Allison reports. A covey of 14 (two adults and 12 young at least two-thirds grown) was seen on the refuge on March 25. Since quail hatching ordinarily begins in April, it would appear that these birds were hatched about 60 days earlier than usual.

New Records Established.--Another species was recently added to the list of birds observed by Bureau employees on the Sacramento Refuge, Calif., when 3 adult snowy plovers were seen by Manager Peter J. Van Huizen. According to Mr. Van Huizen, this is not only a new record for the refuge, but also for the locality. A mountain lion was seen on the refuge on May 27. It evidently was passing through on its way west to the mountains.

New Nesting Records Established.--Three new records were established this year at the Salton Sea Refuge, Calif., when western grebes, Brewster's egrets, and white-faced glossy ibises were observed nesting by Manager Luther C. Goldman. There is only one previous record of the western grebe's having nested on the Pacific slope of Southern California, and Brewster's egrets and white-faced glossy ibises have never before been reported nesting in the Salton Sea region.

New Species of Grass Discovered at Chinsegut.--The Chinese gut Refuge, Fla., is the type locality for a new species of grass, Digitaria albicoma. This grass was described in the May 15, 1940, number of the Journal of the Washington Academy of Sciences by Jason R. Swallen, of the Bureau of Plant Industry, from a specimen collected by him on November 18, 1938.

Rescues Young Man from Drowning.--Manager Ralph C. Winslow, of the Deer Flat Refuge, Idaho, recently rescued a young man whose sail boat had capsized on the lake. The young man was clinging to the side of the overturned craft when Mr. Winslow reached him in the Government boat. The rescue was difficult because of a strong wind and high waves.

W.P.A. Plants Trees, Shrubs.--A total of 247,544 trees, 20,051 shrubs, and 1,975 pounds of seed was planted by W.P.A. labor on the Kentucky Woodlands Refuge from February 1 to May 6, according to Manager Gerald F. Baker. All of the trees and shrubs were supplied by the Soil Conservation Service. This planting will not only greatly improve food and cover conditions, but will also help control erosion on the refuge.

Mud Lake Water Conditions Good.--About three times more run-off was received this spring at the Mud Lake Refuge, Minn., than last year, Manager Carl B. Vogen advises. Although the pools on the refuge are not yet filled to capacity, their condition is very satisfactory.

Nesting Ruddy Ducks Increase.--An unusual number of ruddy ducks are nesting this year on the Mud Lake Refuge, according to Mr. Vogen. At least 500 nesting birds are present this year as compared with about 50 each year since the establishment of the refuge in 1937.

Eight Species of Sparrows Feed on Refuge Lawn.--The snow that fell the last day of April at the Tamarac Refuge, Minn., brought many birds to the feeding stations, Manager Gilbert K. Gigstead reports. Among the birds feeding on the newly-planted grass seed at the refuge headquarters at that time were 8 species of sparrows (tree, vesper, clay-colored, song, chipping, fox, white-throated, and English), as well as purple finches and juncos. Millet was placed out to attract these birds from the refuge lawn.

Waterfowl Feed in Refuge Fields.--The importance of the grain crops planted on the refuges as feed for the birds is shown by the fact that the birds on the Swan Lake Refuge, Mo., this year fed almost exclusively in the fields, while last year, when an adequate food supply was not available, they fed in wheat fields outside the area and caused considerable damage to the farmers' crops. At the height of this year's spring migration, there were at least 75,000 birds concentrated on the Swan Lake Refuge.

Lays Eggs In Wood Pile.--Manager George E. Mushbach, of the National Bison Range, Mont., reports that refuge personnel recently found 6 pheasant eggs on a bare pile of wood in the refuge woodshed. The workers constructed a nest of chips and horsehair and placed the eggs in it. The pheasant hen returned to the nest, laid 4 more eggs, and is now incubating 8 eggs. Two eggs were destroyed by a predator.

Sandhill Cranes Increase.--Manager Herbert H. Dill estimates that the number of sandhill cranes using the Ruby Lake Refuge, Nev., has increased 800 percent since the establishment of the refuge in 1938. Approximately



50 pairs are nesting this year, about the same number as last year. Three young cranes were seen on May 5, which is 3 weeks earlier than young have been seen in previous years.

Reports Water Conditions in Region Nine.--Regional Director Burnie Maurek submits the following on water conditions on refuges in his region after the spring run-off: The run-off at the Sand Lake Refuge, S. Dak., was about the same as it was last year, filling Mud Lake and providing sufficient water for the low-water system. All of the low-water units of Arrowwood Lake on the Arrowwood Refuge, N. Dak., were filled to capacity. Water areas of the LaCreek Refuge, S. Dak., also were filled to capacity. Water units of 19 of the North Dakota easement refuges are known to be full, and a number of others probably are but have not been visited yet this spring, Mr. Maurek adds that the spring waterfowl migration through his region has been the largest in years.

Good Rains Received.--A total of 2.63 inches of rain was received in the vicinity of the Des Lacs Refuge, N. Dak., during the first 2 weeks of May, Manager Seth H. Low reports. This is an unusual amount of rainfall for that part of North Dakota and has greatly improved water conditions on Des Lacs Refuge.

Wild Canada Geese Nest on Lower Souris.--At least two pairs of wild, unpinioned Canada geese nested on the Lower Souris Refuge, N. Dak., this spring. Although the Canada goose was a common nesting bird of this section of North Dakota years ago, Manager, C. J. Henry states that this is the first time since the establishment of the refuge that wild geese have nested in the locality. It is believed that the nesting birds are offsprings of the captive Canada geese on the refuge. Both nests are situated in the middle of large, artificial islands constructed by the Survey.

Ducks Winter on Lower Souris.--About 200 or 300 ducks spent the entire winter on the Lower Souris Refuge, Mr. Henry reports. During most of the winter between 2,000 and 3,000 mallards were present, but all except 200 or 300 left late in February. The birds were successful in keeping a water hole open most of the winter, but the hole froze over late in February and the birds that remained were forced to spend the rest of the winter in holes kept open by springs. The ducks fed in a field just south of the headquarters where there was an abundance of durum wheat and barley.

Easement Refuges in Good Condition.--Mr. Henry, who also is in charge of a number of the North Dakota easement refuges, reports that two of these areas under his supervision, Lake Nettie and Sheyenne Lake, are in the best condition they have been for years. Sheyenne Lake, dry for about 3 years, is fairly well filled this year and has an estimated maximum depth of 2 or 3 feet. He advises that this lake contains one of the finest stands of bulrush he has seen in North Dakota.



Buffalo and Longhorn Increase.--Forty-nine buffalo calves were born during April on the Wichita Refuge, Okla., according to a report from Manager Ernest J. Greenwalt. This brought the total number of buffaloes on the refuge to 460 on April 30. Twelve longhorn calves were born in March and 19 in April, making the total number of these animals on the area 169 on April 30.

Photographs Wichita Wildlife.--Mr. Greenwalt advises that a cameraman of the Soil Conservation Service recently visited the Wichita Refuge and obtained motion pictures of longhorns, buffaloes, elk, prairie dogs, and rabbits for a Soil Conservation Service motion picture. The film, entitled "The Heritage We Guard," will be released in the near future.

Malheur Grounds Saturated.--During the period January to April, inclusive 5.98 inches of precipitation were received at the Malheur Refuge, Oreg., according to Manager John C. Scharff. Only 6.40 inches occurred during the entire calendar year 1939. As a result of this abundant rainfall, the ground is thoroughly saturated and the unirrigated ranch lands show every evidence of supporting an excellent stand of forage. Since the inauguration of weather records at the Harney Branch Equipment Station, near Burns, 26 years ago, this is the first time the ground and surface waters have met.

Wood Ducks Choose Chimney for Nesting Site.--Manager Andrew H. DePre, of the Cape Romain Refuge, S. C., reports that while wood ducks have not yet nested in the boxes placed out for them on the Bulls Island unit of the refuge, two birds had to be removed from the dwelling when they attempted to find a suitable nesting site in the chimney and descended into the living quarters of the house.

Canada Geese Nest on Sand Lake.--A pair of wild Canada geese nested this year on a floating island in the display pond on the Sand Lake Refuge, S. Dak. Manager Watson E. Beed reports that this is the second time since the establishment of the refuge that wild Canada geese have been recorded as nesting there, one brood having been hatched on Mud Lake in 1939. The number of migrating snow and blue geese on the area on April 23 was estimated at 200,000.

Waterfowl Increase Noted.--The number of waterfowl using the Mecedah Refuge, Wis., during this spring's migration was more than double the number present last spring, according to Manager Robley W. Hunt. Mallards were the most numerous, followed in order of abundance by lesser scaups, pintails, ring-necked ducks, and Canada geese.

## CONSTRUCTION AND C.C.C. OPERATIONS

Makes Field Inspection.--Mr. Pedersen left Washington on June 2 to make an inspection of camps in the Middle West. His first stop was in Milwaukee, where he was joined by Mr. Vroman, regional CCC inspector. They inspected CCC activities in the following camps: Necedah Camp BS-2, Wis.; Rice Lake, Mud Lake, and Tamarac Camps, Minn.; Medicine Lake Camp BS-2, Mont.; and Upper Souris, Lower Souris, and Des Lacs Camps, N. Dak. At the end of the inspections they visited the regional office in Des Moines. Mr. Pedersen returned to the Washington office on June 17.

Survey and T.V.A. Camps Cooperate.--Enrollees from Wheeler Camp BS-1, Ala., have expended 596 man days in planting trees on T.V.A. lands. In exchange for this labor, enrollees from a T.V.A. camp near Huntsville will work a similar number of man days on the northeastern part of the refuge, thus eliminating the necessity of Survey enrollees making a round-trip of 85 miles each day to work on this part of the area.

Foreman Training Course Will be Held.--The new training plan to improve the quality of job training given to enrollees in the camps has been changed slightly from the plan outlined in last month's SURVEY. The training assistants to the project superintendents from all Interior camps will be brought together for conferences, and it is hoped that the camp superintendents will be able to attend at least some of the meetings. Each leader will hold two 4-day conferences in his territory. Immediately after the conferences, the training assistants will give the same course of instruction to the foremen in their own camps. They will use the conference method to analyze work problems. Instruction in the teaching method will also be given so that the foremen will in turn be equipped to train enrollees, which is the primary purpose of the training project.

Personnel.--Charles F. Field, former underclerk at Montezuma Camp BS-1, N. Y., has been transferred to the Washington office. He reported for duty on May 23 and will serve as an assistant statistical clerk in the Section of Equipment, Training, and Education. Mr. Field replaces Paul Leonhard who is now employed by the Federal Security Agency.

Crawford B. Saunders, assistant mechanical engineer, will leave the Division on June 30.

E. L. Doeling has been transferred to the Ruby Lake (Nev.) area where he will act as superintendent of the newly established CCC camp. A CCC company arrived at Ruby Lake Camp BS-3 on May 8.

LeGrand Harris has replaced Mr. Doeling as superintendent of the Boulder Canyon side camp.

Ogden Bay Camp BS-2, Utah, is expected to be ready for occupancy on or about June 18. William C. Cakden, the present superintendent at Bear River Camp BS-1, will assume the superintendency of this camp.

## GAME MANAGEMENT

Fur Shipper Pays \$484.--As a result of cooperation between game management agents and State game wardens in Alabama, 528 raw raccoon and fox pelts illegally handled were seized for evidence on March 9 at Cottonwood, Ala. On April 16 the fur shipper appeared in State court there and entered a plea of guilty to 46 separate counts. The court imposed a fine of \$460 and costs of \$24.75. The furs were returned to the owner.

Jailed for 30 Days.--An alleged market hunter apprehended near Stuttgart, Ark., on December 15, 1939, while shooting ducks after 4 p. m. He was taken to Federal court on April 1 and was sentenced to 30 days in jail.

Sellers Convicted.--As a part of the undercover activities directed against sellers of game in southern California last winter, two residents of Bakersfield appeared in State court on February 19, charged with the possession of doe deer. Each defendant was sentenced to serve 180 days in jail. Another resident of Bakersfield, who was apprehended as a result of this activity, possessed and sold 34 shorebirds. He appeared in State court at Bakersfield on April 12 and fined \$100.

Buyer Fined \$250.--A resident of San Francisco, who purchased wild ducks, was fined \$250 when arraigned before Federal Judge Adolph St. Sure on May 6. Another resident, who aided in the purchase, was fined \$50.

Baited Mourning Doves.--Nine persons were apprehended on November 27, 1939, in Colquitt County, Ga., by State wildlife rangers for hunting mourning doves by the aid of corn and wheat. The violators appeared in United States District Court at Macon, Ga., on May 13. One hunter was fined \$50, five hunters were each fined \$25, and three were each fined \$10.

Used Unplugged Guns.--A Deputy United States Game Management Agent apprehended three individuals in Bibb County, Ga., on January 31 while hunting mourning doves. Each used a shotgun capable of holding more than three shells at one loading. These hunters entered pleas of guilty in Federal court at Macon on May 27, at which time each was fined \$25.

Had Avocet, Fined \$50.--On April 21 a Survey agent and a State game warden apprehended a hunter near Roberts, Idaho, in possession of one avocet. The violator appeared in State court on April 22, entered a plea of guilty, and was fined \$50.

Trespassed on Refuge.--Two persons apprehended by the manager of the Moosehorn Migratory Bird Refuge while hunting deer on the area on December 14, 1939, appeared in Federal court at Bangor, Maine, on May 8 and entered pleas of guilty to charges of unlawful entry and hunting upon a Federal game refuge. Federal Judge John A. Peters sentenced them to serve 60 days in jail each, then suspended sentence.



Caged Birds.--A resident of Mound, Minn., was apprehended by a Survey agent and a State game warden on May 14, in possession of a number of caged insectivorous birds protected by the Migratory Bird Treaty Act. The accused appeared in State court on this same date, entered a plea of guilty, and was fined \$50 and costs of \$4 with the alternative of spending 60 days in jail.

Killed Mountain Sheep--Charged with killing two mountain sheep, a resident of Moapa, Nev., was arraigned in State court at Overton on May 21. He was fined \$100 and also given 60 days in jail. The evidence was obtained by a laborer-patrolman.

Hunter Fined \$170.--A resident of Devils Lake, N. Dak., was apprehended by game management agents and State officers on May 13 shortly after his return from a hunting trip. He was found in possession of 1 duck, 16 pheasants, and 1 prairie chicken. The hunter entered a plea of guilty on May 14 in State court and was fined \$150 and costs of \$25.70.

14 Pay \$1,075.--Fourteen cases relating to the sale of wild ducks were disposed of by Judge Jno. D. Martin, Sr., in Federal court at Jackson, Tenn., on May 14. Three defendants were fined \$25 each, two \$50 each, and nine \$100 each, or a total of \$1,075.

Alias No Protection.--A resident of Silsbee, Tex., who operated under an assumed name, illegally shipped skins of fur animals to Missouri. His true identity, however, was established through the efforts of Federal agents and a State game warden, and the violator was arrested. He entered a plea of guilty in State court on March 12 and was fined \$100 and costs of \$11.

Used Resident License.--Apprehended as a result of investigations by game management agents, a resident of Illinois, who hunted in Texas with a resident hunting license on December 4, 1938, entered a plea of guilty in State court at Dallas, Tex., on June 3, 1940, at which time he was fined \$100 and costs of \$11.

Confession Traps Trapper.--A Colorado trapper, who shipped sixteen illegal pelts to Wyoming, appeared in State court at Laramie, Wyo., on June 5, at which time he was fined \$100 and the pelts confiscated by the State. These skins had an approximate value of \$250. A United States game management agent obtained a confession from the Wyoming resident receiving the fur that it had been transported illegally from Colorado. The agent interviewed the Colorado trapper, who agreed to appear in a Wyoming State court and enter a plea of guilty to a charge of transportation of illegal fur.

## PREDATOR AND RODENT CONTROL

Makes Field Trip to Southwest.--W. E. Riter, assistant chief of the Division, left Washington, D. C., on April 27 for a field inspection of the predator and rodent control work in Oklahoma and Texas. In western Oklahoma he noted the effect of rabbit control on the success of the Farm Forestry Shelterbelt plantings. In many areas, prior to extensive control operations, plantings of Chinese elm and honey locust were completely destroyed by rabbits, whereas after the rabbits were controlled the young tree plantings showed a satisfactory degree of survival. Mr. Riter reports that cooperative pocket-gopher control work in east Texas is meeting with success and is favored by farmers in that section. These projects are initiated to protect valuable pasture lands, fruit trees, farmcrops, and shrubbery, and also terracing structures that are being established as part of the soil conservation program. He conferred with the Bureau's control personnel, as well as numerous cooperators in the two States. The spirit of enthusiasm and mutual support that exists between the cooperating agencies and the Bureau personnel in the areas is noteworthy, Mr. Riter said. Enroute to Washington, D. C., he conferred with Regional Director Roy Moore, District Agent Robert Deen, and the Bureau's cooperators at Starkville, Miss. He returned to Washington on May 26.

Coyote Eats House Cat.--Acting District Agent Harold H. Haecker, of the California district, states that a resident of Oroville, Butte County, Calif. reported taking a coyote in April 1940 which was carrying a half-eaten house cat. The coyote dropped the cat when the trap was hit and regurgitated the other half. This evidence that coyotes kill house cats is the first on record, according to Mr. Haecker.

Two Coyote Mothers Use Same Den.--Mr. Haecker reports the first record of two adult coyotes of practically the same age and both mothers of litters using the same den. Usually when two females use the same den, one is an old female and the other a young mother. This den was found in April near Tulalake, Calif. One litter consisted of 9 and the other of 8 pups of nearly the same age.

Reports Sex Ratio in Coyote Pups.--District Agent E. C. Cates recently reported that in the litters of coyote pups taken from dens in New Mexico during the past denning season 75 percent were females and 25 percent males. It was also indicated that the number in the litter was smaller than usual, being from four to five.

Large Coyote Litter in Oregon.--On April 19, Junior District Agent Harold W. Dobyns, working in Morrow County, Oreg., dug out a coyote den containing 1 adult female and 15 coyote pups, according to a report received from District Agent Roy Fugate.

Two Litters in One Den.--Mr. Fugate reports that on April 10 Hunter Cecil D. Jordan, working in Wasco County, Oreg., took one den containing

15 coyote pups and 2 adult females. The pups were of two distinct litters. Two similar cases were recently reported from the California and Montana districts.

Coyote Found in Portland Suburb.--Coyotes have been causing considerable losses to sheep and poultry in a heavily settled suburban area near Portland, Oreg. Mr. Fugate reports that five coyotes have been trapped by Hunter Bell, and losses have now been curtailed.

Cattle Carrying Capacity Raised.--A 5-year pocket gopher control program, conducted on a 50-acre pasture in Nacogdoches County, Tex., was instrumental in raising the carrying capacity of the land by 35 head of cattle, according to a report received from District Agent C. R. Landon. Previous to control work the pasture would not carry more than 5 head of cattle for 8 months in the year, whereas it now carries 40 head of cattle for 9 months.

Coyote Kills 26 Lambs.--Hunter Jack Beechley succeeded in capturing on the Ralph Collins 18 Ranch in Fisher County, Tex., a coyote that in 30 days had destroyed 26 yearling ewe lambs valued at \$8 each. This coyote had lost two toes in a trap several months before. It was readily distinguished by its way of killing, as well as by its track. It was the only coyote in the pasture during this period.

Gets Wolf.--One wolf killed 200 lambs on the Harry Curtis ranch in McCulloch county, Tex., before Hunter Manuel Palmer put an end to his depredations. Mr. Curtis stated that the losses caused by this wolf amounted to \$1,500 on his ranch.

Conduct Rat Campaigns.--The city of Kingsville, Tex., conducted a city-wide campaign through the cooperation of the city and county governments, Texas A & I College, the Woman's Club, the Boy Scouts, the Rotary Club, the Kiwanis Club, the Boosters Club, Missouri Pacific Railroad, Chamber of Commerce, and the Kleberg County Medical Association. An intensive clean-up campaign to remove rat harbors and food was followed by a house to house survey in the residential district to determine where rats were. Bait was delivered by the Woman's Club and the Boy Scouts to 1,006 residence where rats were reported to be. In the business district, every business house was inspected. Bait was exposed where rat signs were found. A total of 1,254 pounds of bait was exposed on 1,211 premises.

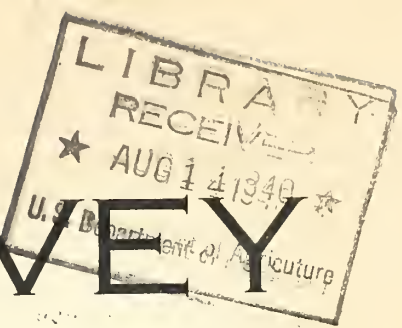
Benjamin E. Foster Dies.--Benjamin E. Foster, Bureau employee, died at Spokane, Wash., on May 12. Mr. Foster was born at Grapevine, Tex., 46 years ago and attended high school and business college at Amarillo. He entered the employ of the Bureau of Biological Survey in 1919, doing rodent-control field work in the New Mexico district, and in 1920 transferred to predatory-animal control work in this same district. In 1921 he transferred to the Arizona district as biological assistant and in 1934 became district agent with headquarters at Phoenix. Due to the effect of climatic conditions on his health, Mr. Foster was transferred in 1936 to act as assistant to District Agent John Finley in the Washington district, with headquarters at Spokane.



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# THE SURVEY



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Vol. 21

Washington, D. C., July 1940

No. 7

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## GENERAL NOTES

THE SURVEY Continues Temporarily.--Though the Fish and Wildlife Service became a legal entity in the Department of the Interior on June 30, THE SURVEY, official house organ of the former Bureau of Biological Survey, will continue publication under its old name until sometime late in summer or in fall when the name, format, and editorial contents of the Fish and Wildlife Service house organ will be determined.

Pay Tribute to Arthur H. Howell.--Many members of the former Biological Survey attended the funeral services of Arthur Holmes Howell in Washington on July 11, and still other fellow employees joined in sending a floral tribute. Mr. Howell, who had served the Federal Government for more than 45 years, was stricken with a cerebral hemorrhage at his work in the mammal laboratory on July 9 while he was examining a tray of squirrel specimens. He died early the next morning.

Mr. Howell, who became a well-known authority on both birds and mammals, began his Biological Survey service at the age of 23, working first in northern Montana. His field service took him to many States, but his most notable work was done in the South. He assisted in biological surveys in Texas, New Mexico, Louisiana, Georgia, Tennessee, Missouri, Illinois, Kentucky, Montana, Arkansas, Alabama, and Florida. He wrote "A Biological Survey of Alabama." His publications on birds included "Birds of Alabama," "Birds of Arkansas," "Florida Bird Life," and two reports on a study of the relation of birds to the cotton boll weevil. In 1918 he had the honor of discovering a species of bird new to science--the Cape Sable seaside sparrow (*Ammodramus mirabilis*). Outstanding among Mr. Howell's contributions to the science of mammalogy were his revisions of the scientific classifications of many genera, described in eight numbers of the North American Fauna Series. These publications deal with two genera of skunks, the harvest mice, marmots, flying squirrels, pikas, chipmunks, and the ground squirrels. "A Revision of the American Arctic Hares" was published in the Journal of Mammalogy. At the time of his death, he was working on a revision of the classification of red squirrels, and on accounts of the birds of Georgia, the mammals of Florida, and the mammals of Mount Mitchell, N.C.

Mr. Howell was a charter member of the American Society of mammalogists and the chairman of the editorial board of the Journal of Mammalogy. He was also a Fellow of the American Ornithologists' Union; a member of the Baird Ornithological Club, Cooper Ornithological Club, and the Biological Society of Washington; and a corresponding member of the Linnaean Society in New York. He was also a member of musical organizations and was an organizer of the Biological Survey Group of Friends of the National Symphony Orchestra.

Mr. Howell was born on May 3, 1872, in Lake Grove, N. Y., the son of Elbert Richard and Anne Johnson (Holmes) Howell. He was educated in the public schools of Brooklyn, N. Y., but was a self-made naturalist, receiving in connection with his work most of the training that made him an authority on natural history.

New Service Flag Raised.--On July 4th, Dr. Gabrielson raised a new Fish and Wildlife Service flag on St. Paul Island, Alaska, as some 200 Service employees, fur company workers, and Aleuts sang "America." The new flag, temporary pending approval, consists of the Department emblem, the buffalo, in white on a red circle in the center of a blue field. In each corner is a figure in white--a moose in the upper left, a blue goose in the upper right, a salmon or trout in the lower left, and a fur seal in the lower right corner. The flag was designed by Mrs. Lee C. McMillin, wife of the agent in charge of the island; Mrs. G. Roger Chute, wife of the assistant to the agent in charge; Mrs. R. J. Walters, wife of the dentist on the reservation; Seton H. Thompson, assistant chief of the Division of Alaska Fisheries; and Frank G. Ashbrook, in charge of the Section of Fur Resources, Division of Wildlife Research.

During the Independence Day exercises Mr. Jackson addressed the gathering and pledged the cooperation of the former Bureau of Fisheries staff in the new Service. Mr. Thompson read the July 4, 1872, entry from the Pribilof Island official log book and traced the history of the seal reservation from the time it was under the jurisdiction of the Treasury Department to the present. In a telegram to Mr. Henderson, Dr. Gabrielson stated that on the morning of July 4, the small community participated in baseball games and other athletic events. St. Paul Island is about 350 miles from the mainland of Alaska and is in the Pribilof Island group.

Research Laboratories at Denver Consolidated.--Effective July 1 the Food Habits Research Laboratory, of the Division of Wildlife Research, and the Control Methods Research Laboratory, of the Division of Predator and Rodent Control, were consolidated. The consolidated unit will be known as the Wildlife Research Laboratory and will be under the administrative direction of the Division of Wildlife Research. The address is 562 Custom House, Denver, Colo. The new laboratory will be supervised by E. R. Kalmbach as director. All personnel formerly working on food habits research at the Denver laboratory and all the personnel working on control methods research will be directly responsible to Mr. Kalmbach.

The combining of the two laboratories is being effected to economize as much as possible on supervisory personnel and to better correlate the closely allied economic and ecological projects of food habits and control methods.



F. E. Garlough, formerly director of the Control Methods Research Laboratory, will be transferred to Washington, D.C., as technical assistant to the Chief, Division of Predator and Rodent Control, where his long experience in control operations and control methods research will enable him to give technical advice on matters coming before the Division of Predator and Rodent Control for consideration. In Washington Mr. Garlough will be responsible for the preparation of control publications setting forth improved control procedures resulting from the Service's investigations, and for the revision of publications that are now obsolete. He will also act as a liaison officer between the Division of Predator and Rodent Control and the Division of Wildlife Research, and in this capacity will assist in formulating plans for further research on control procedures and for other research projects of the Division of Wildlife Research which affect the operations of the Division of Predator and Rodent Control.

Former Employee Dies.--Walter T. Greene, who was a clerk in the Division of Biological Investigations from May 1917 to December 1918, died at Jacksonville, Beach, Fla., on July 5. He served in both the National Guard and regular army and had civilian employment in the Navy Department, in the Canal Zone, and in the Bureau of Animal Industry before coming to the Biological Survey. Interment with military honors was in Arlington Cemetery on July 9.

Brazilian Visits Service.--During the weeks of July 8 and 15 Senor Armando V. Ribeiro, who is in charge of the hunting and fishing work of the Department of Agriculture in the State of Bahia, Brazil, was a visitor in the Washington offices of the Service and at the Patuxent Research Refuge. Beginning a year's tour of the United States to observe methods of handling hunting and fishing problems, Senor Ribeiro planned to visit the Service's regional offices in Boston early in August and to visit other offices, refuges, and fish hatcheries during his trip.

Mammalogists Elect Officers.--Dr. Walter P. Taylor, leader of the Texas Cooperative Wildlife Research Unit, was elected president of the American Society of Mammalogists at the society's 22nd annual meeting, which was held at the Colorado Museum of Natural History in Denver on June 25 to 28, inclusive. Dr. Taylor succeeds Dr. H. H. T. Jackson, in charge of the Section of Wildlife Surveys, who headed the organization from 1938 to 1940. Elected vice-presidents were A. B. Howell, professor of zoology at John Hopkins University, and E. R. Hall, of the Museum of Vertebrate Zoology, University of California. R. T. Orr, of the California Academy of Science, was reelected recording secretary; W. B. Davis, of the Department of Wild Game, Texas A. and M. College, was reelected corresponding secretary; and Viola Schantz, of the Section of Wildlife Surveys, was reelected treasurer.

Two Fish and Wildlife Service employees were elected to the Board of Directors: Victor H. Cahalane, in charge of the Section of National Parks Wildlife, will serve for the term 1940-41, filling the vacancy created by Mr. Hall's election to the vice-presidency; and Joseph Dixon, of the National Parks Wildlife Section, was elected to serve for the

term 1940-42. Others who will serve on the Board of Directors for the 1940-42 term are G. Willett, of the Los Angeles Museum; Dr. C. C. Sanborn, of the Field Museum of Natural History; Dr. W. B. Burt, of the Museum of Zoology, University of Michigan; and W. E. Saunders, of London, Ontario.

About 125 persons attended the session. Papers read by members of the Fish and Wildlife Service were as follows: "Life History and Ecology of the White-throated Wood Rat in Southern Arizona," by Dr. Charles T. Vorhies and Dr. Walter P. Taylor; "Certain Natural Protective and Other Habits of Mammals," by Francis E. Garlough; and "Food of Feral House Cats in Oklahoma," by Frank B. McMurray and C. C. Sperry. Two motion pictures were shown by Service employees; "Wildlife in Mount McKinley National Park," by O.J. Murie, and "Handling Animals Without Fright or Injury," by Vernon Bailey (retired).

The local committee on arrangements was headed by A. M. Bailey, of the Colorado Museum of Natural History, and included E. R. Kalmbach and C. C. Sperry, both of the Fish and Wildlife Service; Hugo Rodeck, of the University of Colorado Museum; Julius Smead, of the Colorado Museum of Natural History; and E. R. Warren, of Colorado Springs.

Pennsylvania Bird Book Published.--"Birds of Western Pennsylvania," by Dr. W. E. Clyde Todd, a long-anticipated book on which work was begun nearly half a century ago while the author was a member of the Division of Ornithology and Mammalogy, later the Biological Survey, has recently been published for the Carnegie Museum by the University of Pittsburgh Press with the financial assistance of the Buhl Foundation. The 710-page quarto volume has 22 color plates by George Miksch Sutton illustrating 118 species, a topographic map, and numerous text figures including distribution maps and small pen and ink sketches by Mr. Sutton. Dr. Todd began his work for the Biological Survey in 1891 at the age of 17 and remained with the organization until 1899, when he left to accept a position with the Carnegie Museum in Pittsburgh, where he is still the Museum's curator of birds.

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (June) of THE SURVEY:

- No. 114. Amendment No. 1. Instructions concerning use of the facilities of the Pocatello Supply Depot. (June 17.)
- No. 123. Revised. Supersedes AFO's Nos. 123 and 124. Disposition of remittances for proceeds of sales of refuge products, predatory-animal and experiment farm furs, surplus property, refunds, disallowances, etc., and payment of incidental expenses of sales. (July 5.)
- No. 212. Amendment No. 2. Submission of Forms 3-357 and letter of authorization pay rolls to regional office instead of the Washington office as heretofore. (June 24.)
- No. 238. (Admin. Memo. No.91) Amendment No. 1. Revised accounting classification of expenditures. (June 21.)
- No. 265. Revised, Amendment No. 1. Certification as to citizenship. (July 3.)



- No. 265. Revised, Amendment No. 2. Certification as to citizenship. (July 13.)
- No. 317. Establishment of the Fish and Wildlife Service through consolidation of the Bureau of Biological Survey and the Bureau of Fisheries. (June 21.)
- No. 318. Reorganization of regional plan of field activities. (June 21.)
- No. 318. Amendment No. 1. Reorganization of regional plan of field activities. (June 29.)
- No. 319. Maintenance of records on bulk gasoline, oil, grease and fuel oil. (June 29.)
- No. 320. (Admin. Memo. No. 146.) Investigations of subversive offenses. (June 29.)
- No. 321. Supersedes AFO Nos. 15 and 20. Uniform system of accounts prescribed for use in all field stations, except CCC camps. (June 29.)
- No. 322. Supersedes AFO No. 143. Appraisal of quarters and other allowances in kind furnished by the Government to employees in the field service of the Bureau. (June 29.)
- No. 323. Leave to members of the National Guard. (July 10.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 127. Amendment No. 1. Mandatory contracts for the procurement of dynamite (Class 4, Supplement No. 2). (June 29.)
- No. 151. Supersedes No. 89 and all supplements thereto. Contracts for service-station deliveries of gasoline and lubricating oil for the period July 1, 1940, to June 30, 1941, inclusive. (June 24.)
- No. 152. Supersedes No. 97 and Supplement No. 1 thereto. Contract for the procurement of antifreeze compound (PRESTONE AND TREK) for the period ending June 30, 1941 (Class 51, Supplement No. 5). (June 29.)
- No. 153. Changes in Procurement Division contracts. (July 1.)
- No. 154. Supersedes No. 109, dated October 9, 1939. Mandatory contracts for the procurement of paper drinking cups (Class 53, Supplement No. 2). (July 2.)

The following memorandum to field officers has been issued in the "Boat Maintenance Memoranda" series:

- No. 19. Care and operation of outboard motors. (June 17.)

#### PUBLIC RELATIONS

"Tranquillity" Is Revisited.--A second collection of the sketches and tales in which Colonel Harold P. Sheldon has described and narrated the experiences of sporting companions, neighbours, and distinguished guests in the New England locality that he chooses to call "Tranquillity" was recently published by the Derrydale Press of New York in a de luxe edition limited to 485 copies. As in an earlier volume, the incidents



related and the experiences recalled are concerned with the quiet excitements of sport and of life in a village where the outdoors is always at hand. Two of the characters associated with "Tranquillity" are now missed, but as the Colonel writes in his title essay: "The others are there, thank Heaven, only a trifle older than when the reader met them first in an earlier chronicle of the village; they are there--the Doctor, the Judge, the Dark-Haired Lady and the Captain and all their friends, kindly, humorous, tolerant, loyal and brave."

Entitled "Tranquillity Revisited," the 130-page royal octavo volume includes fifteen essays by the Colonel and reproductions in color of seven paintings by A. Lassel Ripley. "The assistance of Louise Garver Prior in the preparation of this manuscript," says an author's note, "is gratefully acknowledged." Mrs. Prior in her official capacity is a member of the Service's Editorial Section.

Radio Programs Transcribed.--Work was completed in June on the transcription of a series of thirteen 15-minute radio programs produced through the cooperation of the American Wildlife Institute, the National Wildlife Federation, and the Radio Section of the Department's Division of Information. Each of the programs consists of a dramatized presentation of some wildlife problem or feature followed by the remarks of a representative of what was then the Biological Survey. Copies of the records made are now being prepared for distribution to local radio stations throughout the country. Scripts for the dramatic portions were written by Bill McCormick, of the American Wildlife Institute.

Report on Status of Wildlife Issued.--A 457-page, illustrated report on the "Status of Wildlife in The United States," has been printed and is available to the public. Members of the Fish and Wildlife Service may obtain copies by writing to the Division of Public Relations. Issued as Senate Report No. 1203 by the Special Committee on the Conservation of Wildlife Resources, the publication discusses all phases of wildlife conservation. The report of the Biological Survey was written and compiled by Col. Sheldon. Also included are complete discussions from the Bureau of Fisheries, Forest Service, National Park Service, Soil Conservation Service, Civilian Conservation Corps, Bureau of Reclamation, Grazing Service, Agricultural Adjustment Administration, and the Land Classification Section.

Bear Picture Produced.--Work was completed in June on the last Biological Survey motion picture, a one-reel 35-mm. sound picture entitled "Bears in Alaska." Distribution copies in both 35-mm. and 16-mm. sizes are now available in the Photographic Section of the Department's Division of Information. Photographic material for the film was obtained by Mr. Joseph Yolo in a cooperative undertaking among the Alaska Game Commission, the Biological Survey, the Forest Service, and the Department of Agriculture's Division of Motion Pictures. Production of the picture, directed by Howard Zahniser, also involved many cooperators. The film was edited and the scenario outlined by W. F. Kubichek, on a detail from the Division of Wildlife Refuges. The narration, voiced by Mr. Zahniser, was written by Ludwig Caminita, Jr., and

Mr. Zahniser, with the subject-matter assistance of George A. Hossick, of the Alaska Unit of the Division of Game Management, and Dr. H. H. T. Jackson, chief of the Section of Wildlife Surveys in the Division of Wildlife Research. Specially arranged organ music was provided by Art Brown at the Capitol Theatre in Washington, and was recorded with facilities made available through cooperation of the theatre, the Mutual Broadcasting Company, and the Radio Section of the Department's Division of Information. The editing work was done with the help of the Department's motion picture laboratory, and the sound recording was done by Reuben Ford, of the Division of Motion Pictures, Department of Agriculture, which also handled the film in the final production states.

Official Publication, copy of which may be obtained from the Division of Public Relations, has been issued as follows:

Economic status of the English sparrow in the United States. By E. R. Kalmbach, Section of Food Habits, Division of Wildlife Research. Technical Bulletin No. 711, 66 pp., illus. June 1940. Received July 11.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

Breeding ranges of game birds reduced, Survey report reveals. Press release P.N. 105846. Released June 24.

Fillers on wildlife. Press release P.N. 105845. Released June 28.

Few changes made in Alaska game regulations this season. Press release P.N. 106095. Released June 27.

Cannibalism among captive game birds may be cured by table salt. Press release P.N. 106096. Released June 28.

55 years of wildlife history are recalled as Biological Survey, Fisheries consolidate. Press release P.N. 106094. Released June 30.

Chukar and Hungarian partridges raised by breeders throughout United States. Press release P.N. 106434. Released July 1.

Ornamental woody plants around home attract variety of birds. Press release P.N. 106556. Released July 7.

Tourists see big-game animals at Sullys Hill Wildlife refuge. Press release P.N. 106886. Released July 5.

Marsh hawks eat lots of mice, not pheasants, study reveals. Press release P.N. 106885. Released July 7.

2-1/3 Million dollars apportioned to States for wildlife restoration. Press release P.N. 107459. Released July 10.

Woodcocks in precarious position, reports indicate. Press release P.N. 107408. Released July 12.

New flag raised on American soil as new agency celebrates July 4. Press release P.N. 107482. Released July 11.

Officials pay tribute to naturalist Howell. Press release P.N. 107593. Released July 11.

Duck guests stay like folks when meals are free. In "Current Conservation" (Clip sheet), Vol. 111, No. 4. July 1940.



Outside Publications.--Articles by members of THE SURVEY appearing in outside publications have been reported as follows:

- Bassett, C. F. Tripe and its place in the summer feeding of minks. Fur Canada 5 (8): 21. May 1940. Also in Black Fox Mag. 24 (1): 9. May 1940; Nat. Fur News, p. 8. June 1940.
- Cooke, M. T. The winter range of the herring gull. Auk 57: 250-251. Apr. 1940.
- McAtee, W.L. On scholarly writing and critical reviewing. Sci. Mo. 51: 77-79. July 1940.
- Rasmussen, D. I. Utah's Wildlife Research Unit, its program and objectives. Utah Juniper 11: 17-20. 1940.
- Sheldon, H. P. Guns and game. Country Life 77 (6): 62, 64, 68, illus. Apr. 1940.
- Smith, S. E. The use of tomatoes and tomato products in the feeding of fur animals. Black Fox Mag. 24 (1): 11, 17, 24. May 1940. Also in Fur Canada 5 (8): 17. Apr. 1940; Canadian Silver Fox and Fur 6 (5): 14-15, May 1940.
- (With J. K. Loosli, Junior author). Some nutritional studies with minks. Fur Jour. 6 (6): 3-5. Apr. 1940. Also in Fur Canada 5 (8): 23, 24, 25. Apr. 1940; Black Fox Mag. 24 (2): 6, 17, 22, 25. June 1940.

#### WILDLIFE RESEARCH

Visits Western Areas.--Leo K. Couch, assistant chief of the Division, left Washington, D. C., on June 25 for Denver, where he attended the meeting of the American Society of Mammalogists (see story on page 167). While in Denver, he conferred with Francis Garlough, William Riter, and E. R. Kalmbach on the consolidation of the Control Methods and Food Habits laboratories in that city (see story on page 166). On June 28, he left Denver to visit the University of Colorado Summer Forestry School and, later, the Rocky Mountain National Park. He was accompanied on this part of the trip by Dr. D. Irvin Rasmussen, leader of the Utah Cooperative Wildlife Research Unit; Cecil Williams, of the Food Habits Section; and A. D. Smith, professor of Range Management, Utah State Agricultural College. The group also visited Dinosaur National Monument in Jensen, Utah; Ashley River State Waterfowl Refuge, near Vernal; and the Strawberry Valley National Wildlife Refuge.

On July 1, Mr. Couch, accompanied by Dr. Erling R. Quortrup, of the Section of Wildlife Diseases, and Neil Hotchkiss and Mr. Williams, of the Food Habits Section, examined the Bear River National Wildlife Refuge and noted the experimental work being conducted there, especially the work on botulism. Later he went to Logan, Utah, to inspect deer feeding pens constructed near the State college with Federal Aid funds. After other conferences, including one with R. Scott Zimmerman, of the Division of Predator and Rodent Control, he returned to Washington, arriving on July 4.



Food Habits Research

Inspects Research at Wheeler Refuge.--Dr. Clarence Cottam left Washington on July 3 for Decatur, Ala., to inspect research work being conducted at the Wheeler Waterfowl Refuge relating to correlation of methods of refuge development with mosquito control. This work is being conducted by Biologist John H. Steenis and is being carried on in cooperation with the Tennessee Valley Authority. Dr. Cottam reports that numerous plantings of duck foods have been made at the Wheeler Refuge, and careful observations are being made to ascertain the effects of these plantings on the production of mosquitoes. Subsequent to his inspection at Decatur, Dr. Cottam was scheduled to visit various areas in the West to inspect the work of members of the field staff.

Take Movies of Caltrop from Blimp.--On June 27, Biologists Clarence F. Smith, of the Section of Food Habits, and Robert H. Smith, of the Division of Wildlife Refuges, took aerial motion pictures of the extensive water caltrop beds on the Potomac River. These pictures will be used in a one-reel film dealing with the water caltrop menace on the Potomac River. Some ground pictures have already been taken, and it is planned to continue taking others during the summer. The War Department and the Civilian Conservation Corps are continuing to cooperate in water caltrop control on the Potomac.

Bandtails Scarce.--Biologists Johnson A. Neff, who visited a mountainous area near Nogales, Ariz., in June, reported that band-tailed pigeons were unusually scarce, although slightly more abundant than in May. He added that the food crop for the birds promises to be exceedingly good. The nesting pigeon population, he indicated, was abnormally scarce in the Washington Camp, Tumacacori, and adjacent small mountain ranges.

Visit Denver Laboratory.--During the meeting of the American Society of Mammalogists (see story page 167) numerous visitors called at the food habits laboratory, according to E. R. Kalmbach. Staff members, during and after the meeting, had the opportunity of conferring with Service officials regarding research projects.

Report on Mosquito Control.--That a reasonable degree of mosquito control need not be inimical to wildlife conservation was disclosed by Lawrence W. Saylor, Robert H. Smith, and Dr. Clarence Cottam following an inspection made on June 11 and 12 at the Bombay Hook Refuge, Del. Experiments have been in progress there for 2 years in an attempt to coordinate control operations with wildlife conservation by maintaining constancy of adequate water levels and by facilitating more rapid runoff from intermittent ponds. Impoundment in some areas has been carried on. As a result, the mosquito crop on the control areas has been materially lessened and at the same time the units have been made more attractive to waterfowl.

Doesn't Give Up the Skiff.--Few people appreciate the hazards of an aquatic biologist, A. L. Nelson states. The following excerpt is from the itinerary of Ted O'Neil, stationed at the Delta National Wildlife Refuge:

"Fri, 21, Delta, Field A. M. Broke down (Skiff) - water pump out of order. Field - Boat broke down again. (Skiff) - 4 miles from headquarters, walked in - progress 1 mi. per hour, 10% of travel on all fours across mats of *Alternanthera*. Notes taken along way. Towed skiff in - distributor out of order. (P. M.)"

Food Habits Laboratory at Patuxent.--The Food Habits Laboratory was officially transferred on June 25 to the recently completed modern laboratory at the Patuxent Research Refuge, Bowie, Md. The laboratory is housed in a 3-story, brick building. Two floors are for laboratories and the third is used to store collections, equipment, and supplies. In addition to the new laboratory, the staff will have a modern greenhouse for use in carrying on wildlife food propagation studies. Studies with aquatic plants will be conducted on the recently created impoundment known as Cash Lake. The laboratory also contains space for a chemistry and nutrition unit. The new building will be known as the C. Hart Merriam Laboratory in honor of the first Chief of the Biological Survey. The laboratory will be under the direction of A. C. Martin. Administrative offices of the Food Habits Section, with Dr. Clarence Cottam in charge and A. L. Nelson as assistant, will remain in Washington, D. C.

Observe Changes in Flora.--C. F. Smith and F. M. Uhler made a study of vegetation plots in muskrat feeding grounds on the Blackwater National Wildlife Refuge, Md., in June to record any changes that had occurred since previous surveys were made. Chemical and physical data were also obtained on each plot to aid in interpreting major changes in the flora. A check of another series of vegetation plots on which the control of certain undesirable plants has been attempted by means of chemical sprays also was made. Interesting results in selective control are still apparent from chemical applications made nearly 5 years ago, it was reported.

Bullsnakes Limit Nesting Success.--Nesting success is still at a low point at the Crescent Lake National Wildlife Refuge, Nebr., because of the depredations of bullsnakes, according to Biologist Ralph H. Imler. This is true despite the fact that more than 400 of these reptiles were removed during the nesting season largely through the use of traps and "drift fences." Any relief that has been obtained through the removal of these snakes has not yet been sufficient to show improvement in nesting. A reduction in the number of waterfowl nesting on the refuge in 1940 compared with those present in preceding years may be the reason for the continued high degree of predation on remaining birds, he believed.



Discusses Marsh Biology.--On June 27, Biologist Albert H. Trowbridge informally discussed with a nature group gathered at the Swift Creek Recreation Demonstration Area, near Richmond, Va., problems relating to marsh biology with emphasis on the economic and ecological aspects of the subject. About 40 people attended the meeting.

Personnel.--Ted O'Neil was appointed a student assistant on May 15 for duty at the Delta National Wildlife Refuge, Pilot Town, La. Mr. O'Neil is a graduate student of Louisiana State University and has had considerable experience in problems relating to marsh management and ecology. He was formerly employed by the Farm Security Administration as a biologist assigned to develop the Delacroix marshes for muskrat production. He was also employed by a fur corporation as marsh biologist. Mr. O'Neil is well acquainted with the Gulf coast marshes and is in a position to carry forward the research program at the Delta in the absence of John Lynch, who is engaged in waterfowl investigations in the Arctic.

#### Distribution and Migration of Birds

Radio Address.--In cooperation with the American Wildlife Institute, F. C. Lincoln took part in a narrative radio program over the Mutual Broadcasting System on Sunday, July 14, at 12:30. This program, number 132 in a series of broadcasts on American wildlife, was devoted to a discussion of the eagle.

Finds Waterfowl on Increase.--Harold S. Peters, the Atlantic Flyway biologist, has returned to his headquarters in Charleston, S. C., after covering 4,748 miles inside the Maritime Provinces since June 2. On his return trip he visited Bert Smith, manager of the Moosehorn National Wildlife Refuge in Maine, to discuss woodcock and waterfowl conditions. He also visited the Washington office for a day's conference with Mr. Lincoln. The duck situation in the Maritimes is summarized by stating that all nesting waterfowl are in excellent numbers and show a consistent and steady increase over the past few years. Ringnecks have now spread to Prince Edward Island in good numbers, and pintails are increasing as a nesting bird.

Hunt White-winged Doves.--Dr. George B. Saunders, the Central Flyway biologist, is continuing his studies of the white-winged dove in Texas. He states that during the early part of the 1939 season several State field men working in the lower valley recorded 1,160 hunters, whose average bag was 9.54 birds. The total number of white-wings taken by these hunters was 11,069. Biologists of the State game commission reported that on one flight line in the San Manuel area, where more than one half of all the white-wings of southeastern Texas were believed to have concentrated, 80,557 birds were killed in 9 shooting days. That figure was believed to represent approximately one-fourth of the whitewings in the flight. Along 25 miles of roads in this locality



there were approximately 10,800 empty shotgun shell boxes, representing some 270,000 shells used in the first 9 days of shooting. This area, Dr. Saunders pointed out, is only one of several where whitewings were being hunted. Last season State workers estimated a total whitewing population of 500,000 to 600,000, and observers believe that all or nearly all of the doves were raised in the valley. Of this total, approximately 328,300 were in the San Manuel area, Hidalgo County.

Nesting Not Up to Expectation.--An early nesting season with some pintails and mallards that have reached the flying stage is reported from Clinton, B. C., by Pacific Flyway Biologist Luther J. Goldman. As the season has advanced, however, the production is not up to expectations. The situation is further complicated by a dry, early summer season in southern British Columbia, the precipitation being the lowest known in the Province for several years. While the situation does not mean danger of losses among the birds, it does mean that the nesting values of some of the sloughs have depreciated during this season, Mr. Goldman stated.

Predicts No Drought.--Rains extending from north of Camrose, Alberta, south to the U. S. border, and from the foothills east over the whole province, indicate that the ducks in both southern Alberta and Saskatchewan will not suffer from drought conditions, according to Robert C. McClanahan, of the Washington Office, who is conducting waterfowl investigations in the Prairie Provinces. In Edmonton he spent 2 days in the field with Dr. Watson, of Ducks Unlimited, and plans were made to assist Prof. William Rowan, of Alberta University, in the capture and banding of crows on July 24.

Banded Birds Pass 3-1/2 Million Mark.--During the fiscal year 1940, the Service banded 428,185 birds, bringing the total to 3,712,402. Of the new banded birds 93,777 were waterfowl. A total of 32,016 returns were received, the grand total now being 234,929.

Outstanding Returns from Banded Birds.--The following are interesting returns from banded birds, showing band number, place and date of banding, and place and date of recovery:

Common tern:

C319569, Mass., Hyannis, 7/10/34

Peru, Cerro de Pasco (16,000 ft. in Peruvian Andes) 3/1/40

Royal tern:

37-522159, S. C., McClellanville, summer of 1937

Venezuela, Lake Maracaibo, 1/7/40

Herring gull:

564130, Wis., Green Bay, 7/5/27

Wis., Green Bay, 6/19/40

Mallard:

B654976, Mich., Augusta, 12/2/31

Ont., Kenora District, 5/17/40

Blue-winged teal:

39-438482, Man., Lake Winnipeg, 9/12/39

B. W. I., Falmouth, Jamaica, 1/1/40

## Pintail:

39-681629, N. Dak., Kenmare  
8/27/39

S. A., Colombia, Cali, 1/10/40

38-654313, Oreg., Burns,  
9/19/39Honduras, San Jose de Rio  
12/4/39

## Lesser scaup:

A689593, La., Abbeville,  
1/23/31

Ill., Valemeyer, Fall 1939

## Little blue heron:

A567234, S. C., Charleston,  
6/12/33S. A., Colombia, Tumaco,  
April 1938.

## Sparrow hawk:

B381292, Alta., Peers,  
5/25/34Mexico, near Kauki, Campeche,  
May 1936 (not reported until  
spring 1940)

## Osprey:

36-807827, N. J., Cape May Co.,  
7/23/39S. A., Colombia, Puerto Berris,  
5/10/40

## Great horned owl:

559004, Man., Winnipeg,  
6/12/31

Man., Winnipeg, 2/12/40

## Chimney swift:

C90514, Ill., Clayton,  
9/10/31

Ark., Marmaduke, 5/7/40

## Yellow-headed blackbird:

38-236986, S. Dak., Columbia,  
7/28/38Mexico, Guadalajara, Jalisco,  
4/7/40

## Olive-back thrush:

Ark., Ft. Smith, 4/16/39

N.Y., Fairport, 5/2/40

## Robin:

36-234115, N. Dak., Fairmount,  
8/13/38Mexico, Mondova, Coahuila  
1/20/40Fur Resources

Unusual Raccoon Trapped on Refuge.--In 1932, five dark western raccoons were turned loose close to the Blackwater National Wildlife Refuge, Md. Dr. Herbert L. Dozier, of the U. S. Fur Animal Field Station, reports that on May 17 a local trapper caught one of these original raccoons, which weighed 10-1/2 pounds and had a 21-inch body and 9-inch tail. Another trapper caught a woods raccoon weighing 19-1/2 pounds. The animal was gray, with distinct black rings on the tail, and was so old that all of its teeth were worn down.

Musk rats in Pens Producing Well.--Dr. Dozier reports the arrival of the sixteenth muskrat litter this season at the Fur Animal Field Station. This is the best production that has been attained in pens so far. It is believed that quietness and gentle handling are responsible for the success this season. This year the season was 2 weeks later than normal. One pair of the muskrats in pens already has produced two litters. Of particular interest is a maltese gray whose parents are both of smoky white color.

Musk rats Trapped for Embryological Material.--Both live trapping and dead trapping of muskrats was continued throughout May to check on breeding in the open marsh and to supply embryological material for detailed study by Dr. Enders at Swarthmore College, Dr. Dozier reported. He obtained 48 muskrats during the month. The viscera of these muskrats were also preserved for a parasite survey.

#### Disease Investigations

Increased Activities on Botulism.--By an arrangement with the Division of Wildlife Refuges, it has been made possible to enlarge the Service's research program on waterfowl diseases, Dr. J. E. Shillinger reports. To obtain more complete information on factors pertaining to botulism, arrangements have also been made whereby Neil Hotchkiss, of the Section of Food Habits Research, will assist on this project. Leo Young, of the Bear River National Wildlife Refuge, Utah, will aid in developing mechanical appliances designed to reduce danger from botulism.

Joins Botulism Investigations.--Hubert W. Lakin, of the Division of Soil, Chemical, and Physical Investigations of the Bureau of Plant Industry, left Washington, D. C., on July 16 on a 6-week assignment in the Western States where he will make a study of the chemical factors involved with outbreaks of botulism in waterfowl. Mr. Lakin has made extensive surveys in that part of the country, Dr. Shillinger said, and his activities will be very valuable in the studies being made by Dr. Quortroup and Mr. Hotchkiss on botulism. This group making field studies of the disease met at the Des Lacs National Wildlife Refuge, N. Dak., on July 17. From there the group planned to go to the Bowdoin and other refuges in the Northwest before returning to the established laboratory at the Bear River Refuge at Brigham, Utah.

Mosquito Transmission of Myxomatosis Confirmed.--Recent laboratory studies by Dr. Edward L. Vail, at Los Angeles, has confirmed his earlier field observations on mosquito transmission of myxomatosis in domestic rabbitries. This is a highly fatal disease of rabbits raised in the



commercial rabbitries in certain districts of California. A knowledge of the nature of the virus and its natural mode of transmission will be of material help in controlling the losses, it was said. Since this information has been developed, a number of rabbit raisers are screening their hutches to exclude mosquitoes in accordance with Dr. Vail's recommendations.

Sheep Disease Observed in Deer.--A disease known as caseous lymphadenitis has been observed among deer in Washington by Lee Seghetti and Dr. Frank D. McKenney. This disease, caused by the bacterial organism Coynebacterium ovis, is a frequent infection in sheep and, according to these workers at the cooperative disease research station at Pullman, is rather common in deer in that region.

#### National Park Wildlife

Approves Fisheries Agreements.--On June 7, Secretary Ickes approved the plan designed to clarify the administration of fisheries matters in Glacier National Park and in other units of the National Park System stocked from Federal hatcheries. By this agreement the Fish and Wildlife Service will engage in the trapping of fish and taking of spawn from areas administered by the National Park Service in such a manner as to avoid depletion of the native fish population and, upon the basis of scientific investigations, make assignments of fish from hatcheries located in national parks for the purpose of stocking such areas. The National Park Service will have charge of the planting of all fish received at Federal hatcheries or elsewhere and, in the units of the National Park System, will administer all matters concerned with fish resources, including the review and approval of plans for fisheries structures constructed by other agencies.

Will Issue Joint Publication.--On June 17 Secretary Ickes approved publication of a book entitled "Fading Trails - A Story of Endangered Wildlife," which is a cooperative effort of the National Park Service and the Fish and Wildlife Service. The Secretary indicated that he concurred in the general layout plan for this publication and the use of color plates from paintings by Chief Scientific Illustrator Walter A. Weber.

Porcupines Controlled.--Brief visits were made by Biologist W. B. McDougall to the South Rim of Black Canyon on the Gunnison National Monument, Colo., on June 8 and to the North Rim on June 9, primarily to observe the progress of porcupine control there. On the South Rim no porcupine control has been carried out, and at present it seems unlikely that control will be needed in the future. Deer and marmots are abundant on the South Rim. Grouse, for some unknown reason, are not in evidence this year. On the North Rim, porcupines have been thinned out in the eastern end where pinon trees are scarce. Control, Dr. McDougall believes, should be continued whenever porcupines are found in that part of the area where the trees are scarce and have a special value, but the animals should not be molested in the forested portion of the monument where the trees are reproducing and the porcupines are a normal part of the biotic community.

Some damage to small twigs, especially service berry and mountain mahogany, is due to the activities of tuft-eared squirrels, probably Sciurus aberti ferreus, rather than to porcupines. A good crop of bighorn lambs is reported on the area this season, Ranger Leach having seen 13 in one group. Prairie dogs also are frequently observed on the North Rim both inside and outside of the monument boundary.

Inspects Capitol Reef.--General wildlife conditions on the Capitol Reef National Monument, Utah, were inspected by Dr. McDougall on May 16-17 to compare the vegetative cover in the area to that of Arches National Monument. About 200 or more cattle overrun the Capitol Reef monument, he reported. If all domestic animals could be removed, the area probably would support a herd of 200 deer or more, he believes. Deer are not reported in the monument at present, although they are present on all sides. A few coyotes, ring-tailed cats, rodents, birds, and reptiles are present, and as this area represents a certain biological type Dr. McDougall hopes that eventually it can be administered in such a way as to represent this type normally. Primarily the area is a geological monument, but it is large enough to be biologically significant if properly protected, he asserted.

To Develop Recreation Facilities.--The Provo Metropolitan Park, located on the bank of Utah Lake at Provo, Utah, was visited by Dr. McDougall on May 18-19. The city of Provo at present owns about 500 acres of land on which recreational developments are planned. Those locally interested in the project have hopes of obtaining additional land on both sides of the present holdings, and if this is accomplished the area may become very important to wildlife. In addition to the swamp land on the east side of the lake, it is hoped to include also Rock Island, 6 miles out in Utah Lake. A sea gull rookery covering perhaps 25 or 30 acres is situated on this island, on which are between 10,000 and 11,000 sea gulls and about 7,500 nests. Dr. McDougall observed about 50 Caspian tern nests in one part of the rookery, and there are also known to be half a dozen or more wild goose nests on the area. At present the island has practically no protection. If and when the land for this project is acquired, it is believed that a Federal agency will be requested to help with its administration. Unfortunately, the area is overrun by one exotic plant, tamarisk, and one exotic bird, the pheasant. Dr. McDougall expressed the hope that the proposal to introduce, chukars will be abandoned. The area should, so far as possible, be kept inviolate for the abundant native species, he believes.

Inspects Cedar Breaks.--Dr. McDougall made an initial inspection of Cedar Breaks National Monument, Utah, on May 22, and although his knowledge of the animal life on the area is meager, he reported that the monument has good summer habitat for deer. Squirrels, marmots, coyotes, bobcats, and possibly a few mountain lions are present. The formations in this monument consist of the eroded head of a mountain valley and most of the area, aside from the formations, is covered with spruce fir forest with some bristle-cone pine (Pinus aristata) and limber pine (P. flexilis). The



forested area of the monument is not very large and because of its elevation contains no winter habitat. If enough of this mountain could be added to the monument to include some winter habitat, Dr. McDougall believes it would offer good opportunities for wildlife.

Notable Observations.--At Rocky Mountain National Park, Senior Wildlife Foreman Packard reported the first sight record of American goldeneye on Grand Lake on May 6. A bronzed grackle was also observed at Moraine Park, at 8,200 feet elevation. Dr. Frank Chapman is of the opinion that this record constitutes a westward extension of the range of the species. At Great Smoky Mountains National Park the small frog, Acris crepitans, was collected at Chilhowee, Tenn., on June 14, just across the road from the proposed park boundary. This frog had not been previously found closer to the park than Sevierville, Tenn., but now can be included in the roster of amphibians for the park. A new salamander for the park was discovered in a collection made in Cades Cove on September 2, 1937, by Dr. Carl Hubbs and Dr. King. The form is Leurognathus marmorata, an aquatic plethodont. The species was taken again in Kephart Frong on June 27, 1940, by Drs. Hubbs and King. The Cades Cove record extends the known range of the species into Tennessee and adds another name to the park's salamander fauna.

Draft Hunting Regulations.--General hunting regulations applicable to all recreational demonstration areas in Pennsylvania were drafted at a meeting held in Harrisburg on May 8 by representatives of the Service and were approved by Secretary Ickes on June 14. Three basic principles are set forth calling for agreement between the Department of the Interior and the State of Pennsylvania on species to be hunted, bag limits, seasons, and other regulatory measures, in any individual RDA in Pennsylvania, cooperation of the State in enforcement of hunting regulations, and an understanding that Department of the Interior personnel may be deputized to assist in carrying out such regulations.

#### FEDERAL AID IN WILDLIFE RESTORATION

Investigate Valley Quail.--The California Fish and Game Commission received approval on May 21 to use a portion of its Federal Aid funds for a 5-year project to investigate factors affecting valley quail populations. During recent years the quail has been diminishing in numbers, and the object of the project will be to ascertain what measures may be taken to restore favorable environmental conditions and increase the population of California's favorite game bird. Quail management in California is linked with land use, so economic as well as biological relationships will be stressed in the project. At first, special study will be made of the effects of grazing and the appropriation of water by range stock, erosion, disease, overshooting, and other apparent limiting factors on quail populations. The Fish and Wildlife Service, the Soil Conservation Service, the State Department of Agriculture, and the State Division of Forestry have been named as cooperating agencies.



Develop Hagerman Valley Refuge.--On June 28, the Fish and Wildlife Service approved plans of the Idaho Fish and Game Commission for the development of the Hagerman Valley Refuge in south-central Idaho as a part of the State's Federal Aid in Wildlife Restoration program. The Hagerman Valley Refuge is considered an important waterfowl and upland game refuge. Improvements will include repairs to roads; remodeling of a caretaker's residence, bunk house, and granary; and erection of 4-1/2 miles of fence. Last March the State purchased this 500-acre area with Federal Aid funds.

Seed Stock Areas Developed on Farms.--A Federal Aid project to improve the wildlife habitat in the prairie regions of Illinois was submitted by the Illinois Fish and Game Department and approved by the Fish and Wildlife Service on June 28. The development proposals are based on recommendations made as the result of the Federal Aid Investigations and Survey Project 11-R, conducted from October 1, 1939, to March 31, 1940. Pheasants, quails, rabbits, squirrels, and fur animals are to benefit by the acquisition of small, scattered acreages in the intensively farmed black-prairie district. The areas are acquired by easement for a minimum of 5 years and will be fenced where necessary without expense to the landowners. The areas developed will be posted against all trespass, but hunting on adjacent areas will be permitted at owners' discretion or under controlled hunting provisions, depending on which is agreed upon by the landowners and the State Game Department. On one area deficient in cover, food-producing trees, shrubs, and self-seeding annuals will be planted. Sixty-one tracts have been selected in the counties in central and northern Illinois.

Horseshoe Lake Improved for Geese.--A Federal Aid project to improve the Horseshoe Lake Refuge in Alexander County, Ill., for Canada geese, other waterfowl, and upland species was submitted by the Illinois Department of Conservation and approved by the Fish and Wildlife Service on May 18. As the area is one of the most important wintering grounds of Canada geese on the Mississippi flyway, efforts will be directed toward improving conditions for that species. Seventy acres of former farm land that has reverted to scrub growth will be cleared and planted to goose foods. An administrative headquarters (including a work shop, a laboratory, an office, and storage space) will be constructed, and the entrance road will be graded to provide access for vehicles and act as a gravel bank for the geese.

Investigate Raccoons and Squirrels.--The Illinois State Department of Conservation received approval from the Fish and Wildlife Service on June 18 to use a part of its Federal Aid funds for a project to investigate the best methods of managing and increasing squirrels and raccoons. Louis S. Brown, who recently completed a survey of the fur animals of Illinois, has been named leader of the project. The investigation will be State-wide and will include both gray and fox squirrels, as well as raccoons, in all types of habitat. The study will extend over a 2-year period. Although the raccoon is the most popular, it is also the most rapidly declining fur animal in Illinois, while the squirrel is the most important game mammal. Information about these animals will be gathered through field observations, interviews with interested persons, and questionnaires.

Kingman County Park Improved.--Approval was received on June 17 by the Kansas Forestry, Fish and Game Commission to use a portion of its Federal Aid allotment to improve conditions for ring-necked pheasants, bob-white quails, and migratory waterfowl on the Kingman County State Park. Developments will consist of planting 10,000 trees and shrubs for food and cover, posting with refuge signs, and supplying the necessary tools and equipment to plant food patches.

Repair Dam on Waterfowl Area.--A Federal Aid project to improve the Republic County State Game Preserve for migratory waterfowl was submitted by the Kansas Forestry, Fish and Game Commission and was approved by the Fish and Wildlife Service on June 6. The area is now known as the Republic County State Park but the name will be changed to Game Refuge. The chief wildlife feature is a 765-acre lake on Salt Creek. Heavy evaporation in the dry months and leaks in the timber dam at the lake outlet are impairing the effectiveness of the water body for waterfowl. The purpose of the project is to seal the leaks in the dam and place an earth blanket above the structure to prevent ice damage in the winter.

State Forest to be Developed.--The wildlife area on the Federation of Women's Club State Forest in Worcester County, Mass., will be developed for rabbits, deer, and ruffed grouse by the Department of Conservation with Federal Aid funds set aside for a project by the Fish and Wildlife Service on June 5. Work will include brushing and marking boundaries with signs, erecting a single-strand wire to prevent trespass, and type mapping, as well as the formulation of a work plan for the future. Developments on this forest are a segment of a program designed to improve conditions for wildlife on Massachusetts State Forests.

Work on Red Lake Region.--The Minnesota Department of Conservation received approval from the Fish and Wildlife Service on June 28 to use a portion of its Federal Aid funds to make improvements that will facilitate protection from fire and trespass on the Red Lake Game Refuge in Beltrami and Lake of the Woods Counties. The area will be posted with refuge signs, and a fire break will be brushed out along 25 miles of the boundary. A single-strand, smooth wire, which is the customary game-refuge designation, will be erected on 35 miles of the boundary. The 435,000-acre Red Lake Refuge is famed as the land where the woodland caribous are making their last stand in the United States. Deer, elk, and moose are plentiful, and sharp-tailed grouse, prairie chickens, ruffed grouse, and waterfowl are also abundant. Beavers are aiding in improving the area for wildlife by increasing the water surface through the construction of dams.

Develop Leroy Percy Refuge.--The State Game and Fish Commission of Mississippi received approval on June 27 to use a portion of its Federal Aid funds for the development of the Leroy Percy Game Refuge in Washington County. The area is State owned and now supports a fair deer population. To protect the food and cover for the deer and to further develop food and cover, the State proposes to construct a fence around the area that



will prevent the intrusion of hogs and wild-running dogs. The refuge will be posted, food strips cleared and planted to perennials and self-reseeding annuals, and a limited number of wild turkeys released on the area.

Mississippi Improves Refuge.--On June 27 the Fish and Wildlife Service approved plans submitted by the Mississippi Game and Fish Commission as a Federal Aid project for the development of the H. B. Cole Refuge Area. This is a 5,800-acre refuge leased by the State for 10 years and on which all hunting and trapping will be prohibited. By improving the habitat conditions, the area is expected to function as a feeding ground and sanctuary, particularly for deer and wild turkeys, for a large part of the surrounding territory. The commission plans to erect fourteen miles of hog-proof fence, post the area, and establish 200 half-acre food plats. If the resident seed stock of deer, turkeys, quails, and small fur animals proves inadequate, additional stock will be provide

Turkey Refuge Improved.--A project to improve the Caney Mountain Turkey Refuge in Ozark County, Mo., for wild turkeys, deer, ruffed grouse, and beavers will be sponsored by the Missouri Conservation Commission, which received approval from the Fish and Wildlife Service on June 14 to use part of its Federal Aid funds for this purpose. The improvements will include the building of a stock-proof fence, marking the boundaries with signs, building ponds at the heads of streams, and the constructing of a cabin for the resident biologist. An old residence will be renovated to provide quarters for a refuge patrolman. The entrance road will be graded, ditched, and resurfaced for allweather use. An increased and diversified supply of food for turkeys and deer will be provided by clearing small fields in the woods and planting them to domestic grains. Sufficient numbers of deer, ruffed grouse, and beavers to establish seed stocks will be released upon the refuge.

Lease Seed Stock Refuges.--A Federal Aid project to provide small refuges for pheasants, quails, grouse, rabbits, and insectivorous birds in Somerset County, N. J., was submitted by the State Fish and Game Commission and approved by the Fish and Wildlife Service on June 21. Twenty-five areas ranging from 6 to 25 acres have been leased for 5 years by the commission in a program to provide seed stock refuges for small game in agricultural localities. The areas will better conditions for wildlife by providing food and cover in a region where clean farming is practiced. The plan is already in operation in other parts of New Jersey and, according to the State commission, is functioning so satisfactorily that its expansion is fully justified.

Acquire Feeding and Nesting Area.--The New Mexico Department of Game and Fish received approval from the Fish and Wildlife Service on June 5 to use a portion of its Federal Aid funds for the purchase of three contiguous tracts of land in Sandoval County for a feeding and nesting area for wild turkeys, ducks, muskrats, beavers, and deer. The three



tracts, together with a fourth piece of land that the U. S. Forest Service will convey to the State in exchange for land elsewhere, will make a refuge of 267 acres. In addition to these lands, the Forest Service will exclude grazing on an adjacent section of land so that the refuge will be enlarged. The refuge will have a diversity of cover, including woodlands, grassy meadows, a marsh, and cut-over brush.

Purchase Sage Grouse Refuge.--Approval was received by the New Mexico Department of Game and Fish on June 17 to use Federal Aid funds to purchase land in Taos County for sage grouse restoration. The area comprises about 1 square mile of sage brush land and is surrounded by U. S. Forest Service land. Sage grouse have been planted in the vicinity in the past, and it is thought that their restoration has been retarded by the lack of suitable nongrazed land. The land to be purchased is well suited to sage chickens as it supports a good stand of sage brush and grass. The food and cover will improve after sheep are excluded by a stock-proof fence.

Consolidate Gerkin Refuge.--Federal Aid funds will be used by the South Dakota Department of Game and Fish for a project approved on June 18 for the purchase of lands to consolidate State holdings at the Gerkin Refuge in Faulk County. At the present time the refuge consists of two artificial lakes and very little land. This project will enable the State to obtain lands surrounding the lakes and will greatly enhance the value of the area for waterfowl, pheasants, and Hungarian partridges. When possible, the State plans to rent agricultural lands for grain raising and to allow its share of the crop to be harvested by migratory waterfowl and upland game birds. The purchase project involves 960 acres.

Virginia Surveys Wildlife.--The Virginia Commission of Game and Inland Fisheries received approval on June 28 to use a portion of its Federal Aid funds for a 5-year project to conduct a State-wide survey of the wildlife resources of the State. During the first year, attention will be focused on obtaining information on quails, deer, turkeys, and fur animals so that these species may be increased. Information will be gathered by surveys and, in certain instances, by actual experimentation in management. This project brings together under one authority all the investigational work Virginia has been conducting under the Pittman-Robertson program. Chester F. Phelps, superintendent of game propagation, has been named project leader, and Henry S. Mosby assistant. Four additional assistants will be selected in the near future. The project will deal with all the principal game species.

Replenish Deer.--On June 28 the Fish and Wildlife Service approved plans submitted by the West Virginia Conservation Commission as a part of its Federal Aid in Wildlife Restoration program for the reestablishment of deer in eleven West Virginia counties. Sixty-four percent of the State is now forest or potential forest land. Extensive lumbering operations have created many thousands of acres of brush and young tree growth, on which the present deer population is far below the carrying capacity. Last year the State released 50 animals with remarkable success. The commission now desires to hasten the increase of this game animal to numbers more compatible with the potential carrying capacity of the ranges by releasing additional seed stock on fully protected but depleted areas.

Will Take Inventory of Resources.--The West Virginia Conservation Commission received approval from the Fish and Wildlife Service on June 28 to use a portion of its Federal Aid funds for a survey of the wildlife resources of the State. This inventory will form the basis of future activities under the Federal Aid program. Wildlife management programs for various land-use types, as well as wildlife-restoration plans of cooperating Federal and State agencies will be formulated and coordinated. Charles B. Pierle, game technician of West Virginia, has been named project leader, and four assistants to be appointed will be assigned to as many geographical and ecological regions of the State. The program is designed to operate over a period of 5 years.

#### LAND ACQUISITION

Meets With State Officials.--On June 12, Mr. Dieffenbach left Washington, D. C., to consult with State officials of Minnesota and Wisconsin relative to negotiative problems on the Tamarac, Rice Lake, and Mud Lake Refuges in Minnesota and the proposed Horicon Refuge in Wisconsin. He also conferred with Army officials regarding Lac Qui Parle in Minnesota. He returned to Washington June 29.

#### Surveys and Maps

Inspects Brigantine.--Arthur A. Riemer recently made an inspection trip to the Brigantine unit in New Jersey. Boundary surveys are under way on that area, with Marion E. Phillips, cadastral engineer, in charge, and Raeburn W. Macdonald, engineering aide, assisting.

Make "Topo" of Patuxent.--Field work has been completed on the establishment and monumentation of plot boundaries on the Patuxent Research Refuge in Maryland. Work will proceed toward completing a topographic map of the area.

Transferred.--George L. Ducret has been transferred from the Washington office to Region 2, Albuquerque, as engineering aide.

Chief Draftsman Appointed.--The position of chief draftsman is being filled by the transfer from the War Department of Walter A. Meves, who was formerly chief draftsman in the U. S. Engineer Office at Rock Island, Ill.

New Machine Installed.--A new Paragon-Revolute machine has been installed in the Section to be used in duplicating maps by the Ozalid process. This equipment will greatly increase the facilities for mapping work since it will be possible to make reproductions of certain types that were entirely impractical with the old equipment. Because of some difficulty encountered in obtaining the electrical current required, there will necessarily be delays in filling requests for reproductions of maps at the present time, Mr. Reimer said.



Appraisals and Negotiations

Goes to Boston.--Elmon Radway has been transferred to the Boston office where he will supervise land-acquisition activities in that region.

Detailed to Salem.--Paul A. Ulman, who has been employed on abstract work in connection with the Brigantine Refuge in New Jersey, was detailed to Salem, Mass., where he did preliminary title work on the proposed Parker River Refuge. Mr. Ulman's temporary appointment was terminated on June 30.

Works on Two Refuges.--Joseph S. Needle was in Delaware and New Jersey early in June examining and obtaining curative material in connection with the Bombay Hook and Brigantine Refuges.

## WILDLIFE REFUGES

Returns from Inspection Trip.--Mr. Salyer returned to Washington on July 3 after inspecting existing and proposed refuges in the middle-west and attending the International Joint Commission hearing at Minot, N. Dak., on the use and control of the water of the Souris River. He was accompanied by William V. Taylor, in charge of the Section of Structures, on his inspection of a number of the areas.

Attend Mammalogists Meeting.--Frank L. Earnshaw, in charge of the Section of Land Management, and Almer P. Nelson, manager of the Elk Refuge, Wyo., represented the Division at the annual meeting of the American Society of Mammalogists at Denver, Colo., June 25-29.

Many Fish at Okefenokee.--The Okefenokee National Wildlife Refuge, Ga., continues to attract numerous fishermen. During the period February through April, 718 persons fished on the refuge and took 3,848 fish. Perch was the most commonly caught fish, followed by catfish, black bass, mudfish, and jackfish, in that order.

Studies Woodcock Mating Habits.--In observing the courtship and mating habits of the woodcock, Manager Bertrand E. Smith, of the Moosehorn National Wildlife Refuge, Maine, has concluded that mating pairs apparently prefer small openings in a growth of young alders and that normally the male makes his flight from the edge of an open field only when it is adjacent to alder cover or other small bushes. The female seems to prefer to stay in cover. Mr. Smith reports hearing a female call from within cover to a male in a small opening of about 10 feet in diameter. The call consisted of two short, low "whews." The male immediately responded and began to gyrate in a small circle, raising and lowering his wings and emitting a low, gurgling whistle. To promote the greatest use of the Moosehorn Refuge by woodcocks, the cover on the slopes and bottoms of the principal stream valleys is being cut on a rotation



basis that gives promise of providing and maintaining an optimum habitat on lands adapted to management for this species. Observations indicate that the woodcock is quick to accept and use strips that are cut shortly before the spring migration.

National Emergency Council Visits Range.--Superintendent George E. Mushbach, of the National Bison Range, Mont., was host to members of the National Emergency Council on June 10. After explaining the administrative aspects of the refuge and showing the party the headquarters buildings and lookout tower, he conducted the visitors on a tour over most of the area showing them buffaloes (including the white bull), elk, deer, and numerous small animals and birds.

Wildlife Conditions Good on Sullys Hill.--Manager Wesley D. Parker advises that more insectivorous birds nested on the Sullys Hill Refuge, N. Dak., this year than in any of the past 9 years. He attributes this increase to the fact that there was more rain than usual this spring and that insects and worms are plentiful. Because of improved water conditions, more ducks are also nesting on the area this year than last. All the vegetation is in good condition, and there is ample food and cover available for the wildlife on the area.

Visit Anaho Island Refuge.--Game Management Agent James C. Savage, accompanied by James Scott, of the TWA Aircraft Company, recently visited the Anaho Island Refuge, Nev. They report that the white pelican colony on this area is large this year and that there were between 1,000 and 1,200 young birds present. In addition to the pelicans, about 600 adult and several hundred young California gulls and two small colonies of Farallon cormorants were seen.

Search for Lost Child.--Refuge personnel, CCC enrollees, soldiers from nearby Fort Sill, and others joined in a search for an 8-year-old boy lost on Elk Mountain, of the Wichita Refuge, Okla., on June 2. The search began at 1 p.m. and continued until 6 o'clock the next morning, when the boy was found 2 miles west of headquarters. He was uninjured and had spent the night in a tree.

Aransas Attracts Many Birds.--The Aransas National Wildlife Refuge, Tex., now has a bird list of 254 species. Among these are 24 species of hawks and all species of herons, egrets, and ibises occurring in the United States with the exception of the great white heron. Manager James O. Stevenson reports that he saw his first swallow-tailed kite on the refuge on March 26. Two of these rare birds had been seen on the area in 1937, but this is a first record for the area since its establishment as a refuge. The avocet, a rare nesting bird in Texas, was observed mating late in April, and the northern phalarope, also rare in the State, has been seen on several occasions recently.

Inspects Refuges.--William V. Taylor, in charge of the Section of Structures, left Washington, D. C., on June 7 to confer with District Engineer L. H. Winsor at Salt Lake City, Utah, about engineering matters on refuges in Mr. Winsor's district and to inspect the engineering

developments underway on refuges in Nevada, California, Oregon, Washington, Montana, North Dakota, Minnesota, and Michigan.

Personnel Items.--In connection with the regional reorganization, the following changes in official stations of Division personnel have been made: Paul T. Kreager, associate refuge manager, has been transferred from Milwaukee to the regional office at Portland, Oreg.; Francis C. Gillett, associate refuge manager, from Omaha, to the new regional office at Minneapolis; John H. Sutherlin, associate refuge manager, from New Orleans to the regional office at Boston; Arthur F. Miller, associate civil engineer, from Des Moines to the regional office at Atlanta; and Warren E. Hall, civil engineer in charge of Engineering District No. 2, and his staff, from Des Moines to Minneapolis.

Miss Martha N. Garrison, assistant clerk-stenographer, was married on June 1 to George M. Garvin.

Marvin H. West was appointed laborer-patrolman at the Valentine Refuge, Nebr., effective May 27.

Miss Elizabeth H. Wilson was appointed junior clerk-stenographer on May 31. She is stationed at Las Vegas, Nev., and is assigned to both the Boulder Canyon Refuge and the Desert Game Range.

Burton S. Webster was recently appointed junior forester at the White River Refuge, Ark.

#### CONSTRUCTION AND C.C.C. OPERATIONS

Makes Field Inspection.--Mr. Terhune left Washington, D.C., on July 10 for an inspection of CCC activities at Bombay Hook Camp BS-1, Del., and Brigantine Camp BS-2, N. J. He returned to Washington on July 13.

Calisthenics for All Junior Camps.--Setting-up exercises have been ordered for all junior camps by C.C.C. Director James J. McEntee. Exercises will be held for 15 minutes each day before breakfast, except on Sundays and holidays. Time devoted to the exercises will not shorten the time put in on the work projects.

Florida Camp Moved.--St. Marks Camp BS-1, Fla., has been moved to its new location on Highway No. 10 to St. Marks, and landscaping of the new camp site has been started. Rock-crushing work has been speeded up to 85 yards or more a day. All rock has been mined and hauled to the rock-crushing plant and from there has been spread on the roads. A yacht basin on Appalachicola Bay was completed in June for excavation and has been ripped to prevent erosion of the jetty that protects the basin inlet.

Construct Boats.--Okefenokee Camp BS-1, Ga., completed construction of six small boats for rough work in the swamp. Three of these boats are to be equipped with inboard powered motors.

Dike Filled In.--A break in the sand fence dike, where the ocean washed through the dike, has been completely filled in by wheelbarrow crews, according to a report from Pea Island Camp BS-2, N. C. The flooded area on the ocean side has started to dry up and it is expected that this section of the dike is now equally as strong, if not stronger, than the sand fence dike construction.

Convert Chimney to Tower.--The chimney stack at the headquarters building of Mattamuskeet Camp BS-3, N. C., was converted into a lookout tower, repainted, and completely waterproofed, according to a recent report. The top member of the tower has been reinforced to withstand wind action.

Boat Awaits Test.--The refuge boat "Skimmer" has been completed and is awaiting a test run by Mr. Leveau, according to word received from Savannah River Camp BS-1, S. C. The boat was given a thorough overhauling and is now in first-class condition, it was said. The boat has a new motor and fittings, new deck and cabin space, was repainted and re-covered, and now looks like a new boat.

Personnel.--Mrs. Barbara F. Bingham and Russell G. Merryman were transferred from the Division of Administration to the C.C.C. division on July 1.

#### GAME MANAGEMENT

##### Law Enforcement

No Duck Stamp, Fined \$25.--A hunter was apprehended in Wabasha County, Minn., on October 15, 1939, while hunting ducks without having a duck stamp. The violator appeared in Federal court at Winona, Minn., on June 18, 1940, and entered a plea of guilty to the charge. He was fined \$25.

Hunted Deer in Closed Season.--Seven residents of Greenwood, Miss., who hunted deer in Louisiana in the closed season and transported the meat to Mississippi, entered pleas of guilty in Federal court at Vicksburg, Miss., to a violation of the Lacey Act on May 20 and were fined \$25 each.

Shipped Otter Pelt.--A resident of Mississippi, who illegally shipped an otter pelt to Missouri during March, which shipment was discovered by an agent in Missouri, entered a plea of guilty and was fined \$17.75 in Mississippi State court on June 28.

Fine Suspended; Jailed.--A hunter apprehended on April 27 in Hancock County, Miss., while killing ducks, appeared in Federal court at Biloxi on June 3 and was fined \$5. Payment was suspended. In addition, he was sentenced to serve 60 days in jail, which was not suspended. The violator was apprehended by a game management agent and State game wardens.



Buyers Fined.--Two residents of Nebraska, apprehended by game management agents and State game wardens in December 1939 for the purchase of wild geese, appeared in Federal court at North Platte recently. One of the defendants was fined \$50 and the other \$10.

Beaver Shipper Caught.--A shipment of beavers from Pennsylvania to a tanning establishment in New York was discovered by the U. S. game agent in New York to contain skins from animals illegally taken. The investigation was concluded by a Pennsylvania game protector. The guilty shipper was fined \$250 when arraigned in a local court in Pennsylvania.

Bootlegged Bounty Pelts.--Two residents of Pennsylvania handling fox pelts purchased in Missouri with intent to collect bounties thereon recently had five Western gray fox pelts seized and were fined \$100 each in a Pennsylvania State court. Evidence was obtained through cooperating State and Federal officers.

#### Alaska Game Law Administration

Meet Director at Ketchikan.--On June 1 Executive Officer Frank Dufresne went to Ketchikan, where he and Earl N. Ohmer, chairman of the Alaska Game Commission, met Dr. Gabrielson and Mr. Jackson, who arrived there on a commercial steamer. The party continued northward to Petersburg, leaving Chairman Ohmer, and transferred to the M/S "Brown Bear" to continue across the gulf of Alaska to Kodiak Island and other westward points. At Kodiak Mr. Dufresne left the "Brown Bear" and returned to Juneau by commercial steamer, later to rejoin Dr. Gabrielson in the Bristol Bay area.

Service Officials Visit Alaska.--During the quarter ending June 30 the Juneau office of the Alaska Game Commission was visited by Adolph Murie, Dr. Victor B. Scheffer, Charles E. Gillham, and John J. Lynch. Mr. Murie was enroute to McKinley Park where he is conducting investigations of wildlife in that area. Dr. Scheffer was on his way to the Pribilof Islands to make a study of the fur seal industry, and Biologists Gillham and Lynch were on their way to the McKenzie River country in Canada to conduct studies of waterfowl nesting areas in that region.

Prosecute 73 Violators.--During the quarter ending June 30, there were 73 game-law violations reported, 9 of which involved aliens. Fines aggregating \$1,865 were imposed, and jail sentences totaling 665 days were meted out. Seized articles, including 138 furs, of which 87 were beaver skins, had an estimated value of \$2,714.

Patrol Vessels Assist in Fisheries Work.--The "Bear," "Grizzly Bear," and "Black Bear" were placed in condition to cooperate in the enforcement of fisheries laws and regulations. Considerable study was given by Mr. Dufresne regarding sport and commercial fishing. Plans were completed for full cooperation with the fisheries branch of the Service, actual patrol work being assumed on July 1. All wildlife agents have been designated to enforce the fisheries regulations.

Fur Expert in Territory.--Frank G. Ashbrook, biologist in charge of the Section of Fur Resources, Division of Wildlife Research, arrived in Alaska on June 1 to visit the experimental fur farm at Petersburg and to study the fur seal project on the Pribilof Islands. While at Petersburg Mr. Ashbrook, accompanied by Agent Hosea Sarber, visited several nearby mink ranches, and later left aboard the M/S "Penguin" for the Pribilof Islands.

Seattle Agent Busy Sealing Beavers.--U. S. Game Management Agent Webster H. Ransom, in charge of the Seattle office of the Alaska Game Commission, has been exceptionally busy this quarter sealing tagged beavers shipped from Alaska. This service has been a great aid to trappers and fur dealers in placing the beaver skins on the early markets. Several seizures and investigations made by Agent Ransom resulted in court cases in Alaska.

Sitka Designated as Wildlife Agents' Headquarters.--Early in May Assistant Executive Officer Homer Jewell left Juneau on board the M/S "Bear" in company with Agents Saber and Jeffrey to conduct special investigations of violations and to make arrangements for establishing agents' headquarters at Sitka. Deputy Wildlife Agent C. Douglas Swanson is in charge of the station. While at Sitka the Alaska Game Commission motion pictures were shown to the officers and men at the Naval Air Base, and to the pioneers of Alaska at their home. The showing of the pictures to the old pioneers, 75 of whom were present, brought back memories of the early days and some of the more pleasurable moments of their generally hazardous and uncertain existence.

Biologist Goes to Matanuska Valley.--On May 28 Biologist L. J. Palmer, of the Section of Wildlife Surveys, Division of Wildlife Research, returned to Alaska from Washington State and accompanied Dr. Gabrielson and his party on board the "Brown Bear" as far as Seward. From this point he proceeded to Matanuska Valley where he is carrying on studies with regard to wildlife and domestic stock.

Patrol Aleutian Islands.--During the first part of the quarter ending June 30, Refuge Manager H. Douglas Gray completed a patrol of the Aleutian Islands district. Fur farmers and Unimak Island permittees were visited and arrangements made for the issuance of new permits. A patrol of the sea otter areas was also conducted, including an inspection of the rookeries along the Alaska Peninsula. Mr. Gray accompanied Dr. Gabrielson on board the "Brown Bear" in making a survey of fish and wildlife conditions.

Visits Grouse.--Deputy Alaska Game Warden Jack Jeffrey, assigned to Wildlife District No. 1, conducted enforcement work in the Juneau district and made a patrol of the Sitka area where 3 cases of major violations were completed in the courts. Warden Jeffrey made an extensive patrol of the grouse area in the vicinity of Juneau during the nesting season.



Use Plane for Patrol.--Agent Harold Gallwas, in charge of the Dillingham station, made a patrol of the northern part of this district by plane in company with Agent Grenold Collins. Wolf bounty certificates were completed, several investigations were made, and a great deal of educational work done among the Eskimos of the Kotzebue area. Other places visited on this trip were Nome, Noorvik, Kiana, Shungak, Kobuk, Selawik, and Unalakleet. The sealing of beavers and completion of the Marshall headquarters' building took up most of Agent Gallwas' time during the latter part of this quarter.

Bounty Claims Certified.--A great deal of Agent Sam O. White's time during the quarter was devoted to certifying wolf and coyote bounty payments. An exceptionally large number of predatory animals were taken in the Fairbanks district this past season. Agent White piloted the Alaska Game Commission two-place Monocoupe plane and furnished transportation to and aided Deputy Agent House in the McGrath district. Investigations pertaining to violations of the Alaska Game Law were made and several court cases completed. More than 2,200 miles were covered on the trip, which reached as far south as Goodnews Bay. The sealing of beavers in the Kuskokwim area was completed by Agent White and Deputy Agent House. Several fire-patrol trips were made for the Alaska Fire Control Service by Agent White, who furnished transportation to persons attached to this service. He completed several investigations and court cases in the Fairbanks region and gave assistance to persons connected with the Federal Bureau of Investigation.

Ice Hinders Travel.--Agent Peter McMullen, of Fort Yukon, was held close to his headquarters during the first part of the quarter because ice break-up conditions prohibited plane or boat travel. He carried on the regular educational work among the natives, made several short patrol trips on foot, and observed and counted many thousands of birds during the migration in the vicinity of Fort Yukon. Later in the quarter one post-season patrol was made in company with Agent White. The officers were successful in carrying out cases in court pertaining to violations of the Alaska game law and completing investigations of long standing.

Seals Beavers.--Agent Jack O'Connor, of the Anchorage District, conducted beaver sealing operations during the greater part of the quarter, covering the Seward and Anchorage districts. He was assisted at times by Agent Collins. These officers made many investigations in Districts No. 5, 8, and 9 during the quarter and completed several cases in court. Trips by plane were made covering nearly the whole of Districts 5 and 9. The two agents met Dr. Gabrielson at Seward. Conferences were held with Dr. Gabrielson, Mr. Dufresne, Mr. Jackson and Agent Rhode. Cooperation with the fisheries branch of the Service was worked out for the Prince William Sound district and Cook Inlet areas. During this quarter Agent O'Connor gave much time and assistance to operators of the Federal Bureau of Investigation and also assisted in taking a census in the outlying areas of his district.



Fly Over Valley of 10,000 Smokes.--During the latter part of March, Wildlife Agents Carlos Carson and Grenold Collins, using a small plane, visited the Katmai National Monument to investigate and apprehend trappers in this closed area. Three trappers were apprehended and successfully prosecuted in the U. S. Commissioner's Court at Waikeke.

The following excerpts from Agent Carson's report of this visit are interesting:

"Visiting the Valley of Ten Thousand Smokes, 2,300 above sea level, was indeed a revelation as many individuals were of the opinion that all of the smokes had died out ... We found thousands of smokes as well as two large volcanoes which were boiling in all their fury, emitting white, billowy clouds of hot steam ... There were numerous small jets of steam the size of a lead pencil issuing from the ground, so hot that it would cook one's hand in short order ... There were hundreds of other jets ranging upwards of 20 feet across ... The superheated steam was so intense as to scorch one's face if standing close ... The ground was pumice sand, vari-colored in every hue, literally smoking from every pore ... To lie on the ground even though the plane reposed a few hundred yards away in the deep snow, was like lying on the hottest sands of a tropical desert ... To view this wonderful sight was a privilege few persons have had ... People would travel many thousands of miles just to sit and gaze at the many hundreds of fumaroles of all sizes, colors, and shapes ... Also in the background were two lofty columns of solid rock fully 7,000 feet high sending forth billowy white clouds, roll after roll ... Souvenirs of cobalt blue cinders as hard as tempered steel can be had just for the taking... A swimming pool, close by, warmed by a stream coming from the depths of the earth ... Across the valley are foot prints, plainly visible, of a very large wolf, and at the head of the valley looking skyward the great Katmai volcano with its enormous crater now stilled and with cold lava, dripping with water, encircling its peak, stands sentinel over this great valley."

Seal Pelts in Short Time.--Deputy Agent Wayne House, in charge of the McGrath station, carried on several post-season patrols on foot in the vicinity of McGrath and Takotna during the first part of the quarter. Accompanied by Agent White, he covered the Kuskokwim River district south of McGrath by plane. Many alleged violations were investigated on this trip, and a great deal of educational work was carried on among the natives. Four court cases were completed. The take of beavers in this district was fair, he reported. The sealing of pelts was completed in about one-quarter of the time consumed in former years. The saving of time was credited to plane service and to the fact that two agents worked together. At the close of this quarter Mr. House was at his headquarters at McGrath working on reports and taking an inventory of the property.

Kodiak Violators Prosecuted.--During the first 2 months of this quarter, Wildlife Agent Norman J. Benson successfully completed six game-law violations in the U. S. Commissioner's court at Kodiak. The most important of these cases resulted in the conviction and heavy penalizing of an undesirable itinerant for taking and possessing 12 beaver skins

taken in closed area, almost in sight of the Alaska Game Commission headquarters' buildings. Another case involved the killing of a cow elk on Afognak Island. Two residents and two non-residents were penalized for hunting brown bears without a license. Preliminary surveys were made of the elk herd on Afognak Island and the deer on Long Island.

Agent Conducts Aerial Patrols.--Throughout the quarter, Agent Collins of the Seward District, was in charge of and operated the two-place Aeronca plane, chartered by the Alaska Game Commission. Mr. Collins, accompanied by Agent Gallwas, covered the Nome-Kotzebue district, using the chartered plane. On this trip arrangements were made for tagging beavers and for the certification of wolf and coyote skins. Much educational work was carried on among the native and white trappers. Office of Indian Affairs teachers were visited and their cooperation solicited for the furtherance of this work. Agent Collins returned Agent Gallwas to Marshall on April 11 and continued the patrol alone, covering parts of the lower central Yukon River and the McGrath area of the Kuskokwim district. He returned to Anchorage on April 13. During the remainder of the quarter, he furnished plane transportation to Messrs. O'Connor and Carson. He also carried on sealing operations in both the Anchorage and Dillingham districts. Due to the excellent work performed by the chartered two-place plane, piloted by Agent Collins, the beaver sealing activities were greatly expedited in these two districts and many investigations and court cases completed.

Lost Trapper Rescued.--During the first part of the quarter Agent Clarence Rhode, of the Cordova District, in connection with his regular duties, took the census in the outlying areas of his district. Several airplane trips were made over nearly the entire district. Investigations were made during the spring flight of migratory birds, and several trips were made to the Copper River flats, where thousands of migratory birds were counted. He assisted in a search by plane for a lost trapper in a part of the country where the trapper would surely have perished had not the search been successful, according to reports. Agent Rhode also helped Federal Bureau of Investigation agents, the United States Attorney, the Deputy U. S. Marshal of the Third Division, and the Chief of Police of Cordova.

Agent Aids in Rescue.--Agent Hosea R. Sarber, of District No. 2, assisted in the rescue of a C.C.C. boy who was stricken with acute appendicitis while at a two-man camp located some 40 miles from civilization at the head of Anan Creek. The stricken man's partner rowed into Wrangell, arriving there late at night on June 1. At 2 o'clock in the morning, Agent Sarber, accompanied by Pilot Tony Schwamn, flew to Petersburg where they picked up a rubber boat belonging to the Alaska Game Commission and flew to Anan Creek. A stiff wind had sprung up to add to their hardships. After pumping up the rubber boat, the agent and his pilot started up the stream, but Schwamn was forced to return to save the plane from becoming wrecked in the heavy seas. Agent Sarber continued alone, sometimes rowing and sometimes carrying the unwieldy



boat over the rapids that could not be navigated. Upon reaching the C.C.C. boy, Sarber found him unable to move. However, the youth said the pain in his side had eased. Sarber knew it meant his appendix had ruptured. Never expecting the C.C.C. boy to reach Wrangell alive, Sarber put him in the boat and floated him safely down to the waiting plane. The take-off in the turbulent seas was dangerous. They arrived in Wrangell at 6:30 a.m., Sunday, and the stricken boy was operated upon at the Bishop Rowe Hospital, where he is reported doing nicely.

Investigates Wolf Trapping.--Agent Sarber conducted a postseason patrol during the first part of the quarter, covering nearly the entire district. Investigations concerning illegal wolf trapping were successfully carried out and violators prosecuted. Accompanied by Deputy Alaska Game Warden Jeffrey, he made a patrol of the beaver areas in the Lake Bay country. A plane patrol was made of Admiralty Island in company with I. K. Mck. Williams, Civil Aeronautics inspector. Mr. Sarber attended the Indian Potlatch held at Wrangell, where he showed the Alaska Game Commission wildlife pictures and gave a talk on the wildlife of Alaska. He assisted Frank G. Ashbrook during the latter's stay in Petersburg, and several short trips were made to fur farms in the nearby districts. Agent Sarber gave much time and assistance to the Petersburg Experimental Fur Farms during the incubation period of the pheasants now being raised by the Alaska Game Commission.

Will Construct Floating Airplane Hanger.--Deputy Wildlife Agent Banta, of District Number 3, made a patrol of the west coast of Prince of Wales Island by boat, during the first part of the quarter, where he completed investigations of game and fur violations. He also visited the Behm Canal district. Many salmon canneries were inspected for guns and aliens. During the latter portion of the quarter he completed a set of drawings for the construction of a floating airplane hanger in Thomas Basin for the housing of the new Fairchild plane to be stationed at Ketchikan. He met and conferred with Dr. Gabrielson at Ketchikan.

#### PREDATOR AND RODENT CONTROL

Woodchucks Attack Cabbage Crops.--District Agent George B. Lay reports that in recent years woodchucks have been devastating cabbage crops in some areas in the Northeastern States. Woodchucks generally attack the hearts of the young cabbage plants and completely destroy them, he said. One cabbage raiser in New Jersey lost 2,000 young plants valued at \$150. Another New Jersey grower lost 4,000 cabbage plants to woodchucks during the 1938 season, and 5,000 during the 1939 season.

New Mexico Counties To Participate in Control Work.--Present indications are that New Mexico counties that received 50 percent Taylor Grazing funds will use a portion of their 1941 allotment for predatory animal and rodent-control work in cooperation with the Fish and Wildlife Service, according to information received from District Agent E. C. Cates.

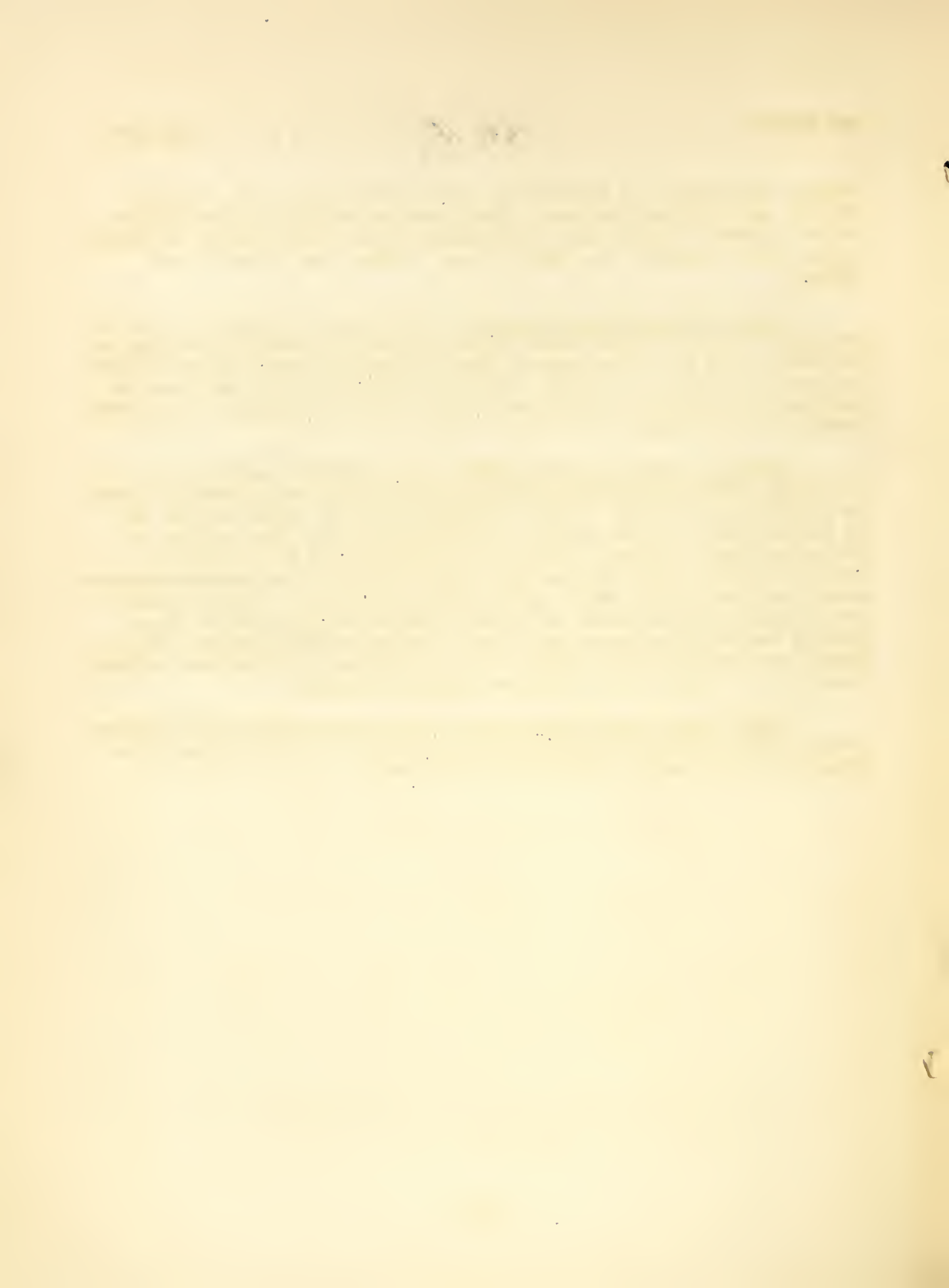


Working agreements have already been signed with Otero, Eddy, Catron, Socorro, and McKinley Counties. Other counties desiring to participate in the program, provided they can properly budget their reduced 50 percent Taylor funds, are Dona Ana, Sierra, Luna, DeBaca, Lea, Valencia, and Hidalgo.

Local Rabies Outbreak Reported.--Several local outbreaks of rabies have been reported in New Mexico during the last few months, according to Mr. Cates. One person and several head of livestock have died as a result of these outbreaks, it is said. Fish and Wildlife Service employees are watching the situation closely and to date have not identified the disease among any wild animals.

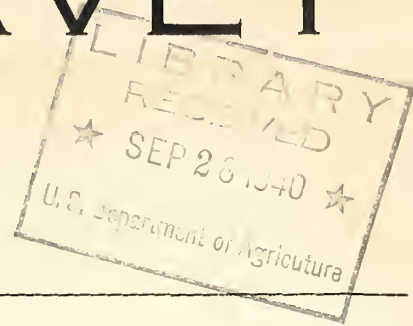
Wolverine Taken in Wyoming.--The first authentic record of a wolverine having been taken in Wyoming in many years was recently reported by District Agent Adolph S. Hamm. The wolverine was taken on April 20 in the Red Desert in the vicinity of Table Rock, Wyo. That morning a camp mover for a livestock outfit was rounding up his horses when he heard a commotion among coyotes just over the hill. Upon investigation he noted that four coyotes were fighting off an adversary. When the camp mover appeared on the scene the coyotes immediately left and his dogs pursued the remaining animal and drove it within shooting range. The animal was shot and it was found to be a wolverine. The specimen is being saved for the museum of the Fish and Wildlife Service.

Albino Pocket Gopher Taken.--The first known specimen of an albino pocket gopher taken in Wyoming was taken in June near Rock Springs by a predatory-animal hunter, according to Mr. Hamm.



# THE SURVEY

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Washington, D. C., August 1940

No. 8

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## GENERAL NOTES

THE SURVEY Continues Temporarily.--Though the Fish and Wildlife Service became a legal entity in the Department of the Interior on June 30, THE SURVEY, official house organ of the former Bureau of Biological Survey, will continue publication under its old name until sometime late in summer or in fall, when the name, format, and editorial contents of the Fish and Wildlife Service house organ will be determined.

Attend Commissioner's Meeting.--Dr. Gabrielson arrived in Washington, D. C., on August 23, returning from an extended trip to Alaska. Three days later he left for Canada where, after a brief vacation, he will attend the annual meeting of the International Association of Game, Fish, and Conservation Commissioners, which will be held in Toronto from September 2 to September 4, inclusive.

Dr. Gabrielson is scheduled to address the conference. Other representatives of the Fish and Wildlife Service will include Frederick C. Lincoln, in charge of the Section of Distribution and Migration of Birds, and Albert M. Day, chief of the Division of Federal Aid in Wildlife Restoration.

Becomes Institute Secretary.--J. Paul Miller, who has been in charge of the Section of Research and Program Planning, Division of Federal Aid in Wildlife Restoration, will resign, effective September 15, to accept an appointment as Secretary of the American Wildlife Institute. He will be succeeded by William J. Howard, his assistant.

Mr. Miller will fill the vacancy created by the resignation of C. M. Palmer, Jr., present Institute secretary who has entered private business. Mr. Miller came to the former Biological Survey in 1930 as a biologist in the Section of Food Habits, Division of Wildlife Research. In 1935 he transferred to the Section of Wildlife Surveys and was assigned to conduct studies on forest-wildlife relationships in the New England States.

When the Federal Aid Division was organized in 1938, he transferred to that Division and was placed in charge of the research program.



Addresses Oystermen's Convention.--Mr. Henderson gave a brief talk at the annual convention of the National Shellfisheries Association of America and the Oyster Growers and Dealers Association of North America on July 31 at New Haven and read a message from Secretary Ickes. He attended the session of this convention at the new laboratory of the Fish and Wildlife Service at Milford, Conn., on August 1. Regional Director S. Barry Locke also attended the convention.

## ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (July) of THE SURVEY:

- No. 27. Revised, Amendment No. 2. Accessories not chargeable to the limitation on "purchase price" of passenger carrying vehicles. (July 12.)
- No. 130. Revised, Amendment No. 2. Ownership of predatory-animal furs taken on refuges by cooperatively paid predatory-animal hunters. (August 9.)
- No. 267. Revised. Bid invitation and contract symbols and numbers. (July 23.)
- No. 320. Amendment No. 1. Reporting of alleged violations of Federal laws relating to neutrality, espionage, etc. (August 8.)
- No. 324. Consolidation of Food Habits and Control Methods Research Laboratories at Denver, Colorado. (July 17.)
- No. 325. Compensation and leave status of employees called upon for jury service. (August 3.)
- No. 326. Prior approval of manuscripts for outside publication (or for addresses). (August 8.)
- No. 327. Charges for meals and lodgings secured at Government residences by employees traveling on official business. (August 9.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 126. Supplement No. 2. Contracts for the procurement of instruments of precision and photographic supplies (Class 18, Supplement No. 2). (July 11.)
- No. 151. Supplement No. 1. Contracts for service-station deliveries of gasoline and lubricating oil in the State of North Dakota for the period ending June 30, 1940. (July 15)
- No. 155. Supersedes Contracts Memo. No. 98. Contracts for repair of office machines for the period July 1, 1940, to June 30, 1941 (Class 54, Supplement No. 6). (July 11.)
- No. 156. Supersedes Nos. 128 and 136. Contracts for the procurement of motor-vehicle accessories and parts (Class 8) and construction and road-building machinery parts (Class 66, Supplement No. 1). (July 20.)

- No. 157. Supersedes No. 93 and Amendment No. 1 thereto. Procurement of lubricating oil requirements (one gallon or more) under Navy Department contracts during the fiscal year 1941. (July 25.)
- No. 158. Field distribution of circulars indicating changes in the Procurement Division contracts. (August 1.)

The following memoranda to field officers have been issued in the "Boat Maintenance Memoranda" series:

- No. 18. Amendment No. 1. Equipment to be carried aboard Bureau boats as required by law. (July 9.)
- No. 20. Caulking. (June 27.)
- No. 21. New Federal Motorboat Law. (July 9.)
- No. 22. Error in Regard to Fog Horns as Published in the April 1939 Issue of the Bulletin, Bureau of Marine Inspection and Navigation. (July 29.)

#### PUBLIC RELATIONS

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Food habits of a group of shorebirds: Woodcock, snipe, knot, and dowitcher. By Charles C. Sperry, biologist, Section of Food Habits, Division of Wildlife Research. Wildlife Research Bulletin 1, 37 pp., illus. 1940. Received August 12.
- Research in the administration of Federal refuges. By E. R. Kalmbach, biologist, Section of Food Habits, Division of Wildlife Research. Wildlife Leaflet BS-164, 22 pp. June 1940. Received July 15.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Woodcocks in precarious position, reports indicate. Press Release. Released July 12.
- Wildlife value economic as well as recreational. Press Release. Released July 22.
- Hard life of a wildlife expert is told college youths. Press Release. Released July 23.
- Refuges under Fish and Wildlife Service will have uniform names. Press Release. Released August 1.
- New wildlife research laboratory formed by consolidating two units. Press Release. Released August 2.
- Beaver studies show forest engineers help other wildlife. Press Release. Released August 3.

- Establish new wildlife research station in west. Press Release. Released August 7.
- Photos show effort to combat duck sickness. Press Release. Released August 11.
- Federal duck hunting rules are liberalized. Press Release. Released August 12.
- Great white herons increasing on wildlife refuges in Florida. Press Release. Released August 19.
- Tips and Briefs (Clip sheet). Vol. I, No. 9. Released August 20.
- Reports wildlife benefits from Federal Aid program. Press Release. Released August 24.
- Fur-farming increase conservation feature. In "Current Conservation" (Clip sheet). Vol. III, No. 5. August 1940.
- Star athlete does stuff -- elk sets high jump mark. In "Current Conservation" (Clip sheet). Vol. III, No. 5. August 1940.
- Half-million pretty polls beg for crackers in forty years. In "Current Conservation" (Clip sheet). Vol. III, No. 5. August 1940.
- Quick death saves furs. In "Current Conservation" (Clip sheet). Vol. III, No. 5. August 1940.

Outside Publications.--Articles appearing in outside publications have been reported as follows:

- Baldwin, W. P. Bald eagle robbing marsh hawk. Auk 57: 413. July 1940.
- Burleigh, T. D. (With G. M. Sutton, senior author). A new warbling vireo from Hidalgo. Auk 57: 398-400. July 1940.
- Caminita, L., Jr., Big-game in northern America. Field (London) 175: 1001-1003, illus. June 29, 1940.
- Evans, C. A. (With R. G. Green, senior author). Studies on a population cycle of snowshoe hares on the Lake Alexander area. II. Mortality according to age groups and seasons. Jour. Wildlife Mgt. 4. : 267-278. July 1940.
- Howell, A. H. (deceased). A new race of the harvest mouse (Reithrodontomys) from Virginia. Jour. Mammal. 21: 346. August 1940.
- Jones, J. C. An unusual roadside casualty in southern Maryland. Auk 57: 412-413. July 1940.
- Lincoln, F. C. Arizona hooded oriole in Kansas. Auk 57: 420. July 1940.
- McAtee, W. L. An experiment in songbird management. Auk 57: 333-348, illus. July 1940.
- Marshall, W. H. An "eagle guard" developed in Idaho. Condor 42: 166, illus. May 1940.
- More notes on salt feeding of red crossbill. Condor 42: 218-219. July/August 1940.
- Merrill, H. A. Rodent control. Connecticut Agr. Expt. Sta. Bull. 434, pp. 254-258, illus. June 1940.



- Murie, O. J. Food habits of the northern bald eagle in the Aleutian Islands, Alaska. Condor 42: 198-202. July/August 1940.
- Neff, J. A. Notes on nesting and other habits of the western white-winged dove in Arizona. Jour. Wildlife Mgt. 4: 279-290. illus. July 1940.
- Pulling, A. V. S. The animal "census." Jour. Wildlife Mgt. 4: 327-329. July 1940.
- Scheffer, V. B. A newly located herd of Pacific white-tailed deer. Jour. Mammal. 21: 271-282, illus. August 1940.
- Trowbridge, A. H. (With N. L. Whitaker, junior author). A new kangaroo rat from Oklahoma. Jour. Mammal. 21: 343-345. August 1940.
- Young, S. P. Big Bertha of Poverty Flats. Western Sportsman 5 (3): 17, 18, 30, 31, illus. August 1940.
- Zahniser, H. Nature in print. Nature Mag. 53: 383, 427, 429. August/September 1940.
- Education in conservation: Discussion. Nat. Wildlife Fed. Com. on Ed. Pamphlet No. 2, pp. 27-29. 1940.

Personnel.--Mrs. Gardia C. Major, junior-clerk stenographer in the Section of Current and Visual Education, resigned, effective June 30.

#### WILDLIFE RESEARCH

Redheads Like Small Potholes.--Redhead ducks apparently like to nest in small potholes and marshes from 5 to 20 acres in size, according to Jessop B. Low, of the Iowa Cooperative Wildlife Research Unit, who has been conducting a survey of nesting redheads in northwest Iowa. More than 60 percent of the nests were found in corners and ends of potholes and marshes, even though the sides and centers of these areas had the same vegetation and water depth. An open body of water within 50 yards of the nest site appeared necessary to nesting. Areas with dense stands of vegetation were avoided by nesting redheads. The investigation and other research indicate, the Iowa scientist said, that marshes choked with rank growths of emergent vegetation may be improved by clearing operations. A successful blasting technique was developed by unit investigators.

Study Plants in Breeding Areas.--Dr. Ada Hayden, of the Iowa Cooperative Wildlife Research Unit, reports that the identification, filing, and distribution of the entire collection of plants useful to waterfowl as food, nest-building materials, and cover includes 5,000 specimens, deposited in Iowa State College Herbarium. More than 18,000 duplicates were distributed or are ready to be distributed to other institutions. From a partial analysis of the materials available, investigators have found about 700 species of seed plants in the Ruthven area in Clay and Palo Alto Counties. This number comprises one-third of the known seed plants in the State. About 25 species new to Iowa have been found in these two counties.

Talks at 4-H State Meeting.--Dr. Allen M. Pearson, leader of the Alabama Cooperative Wildlife Research Unit, addressed the State Leadership Camp for 4-H Club delegates, which was held at the Auburn Polytechnic Institute (Ala.) from July 8 to July 13, inclusive. Dr. Pearson gave a general talk on "Wildlife," outlining ways in which 4-H members may help in developing this national resource by producing food and shelter and protecting animals.

### Wildlife Surveys

Visits Desert Bighorn Areas.--Dr. H. H. T. Jackson returned to Washington on August 1 after attending the meeting of the American Society of Mammalogists at Denver and inspecting several wildlife areas, including desert bighorn regions. During July, in company with Biologist Olaus J. Murie, he spent some time on the Kofa Game Range and Boulder Canyon Wildlife Refuge, Ariz., the Desert Game Range, Nev., and Death Valley National Monument, Calif., making observations preliminary to more extensive studies on desert bighorn sheep. Several bighorns, for the most part in excellent condition, were seen on each of these areas. Dr. Jackson believes it should be possible with this nucleus to do much towards saving the desert bighorn from extinction. Jackson and Murie also visited Hart Mountain Antelope Refuge, Oreg., and Charles Sheldon Antelope Range, Nev., where the Section is conducting range ecology research. Mr. Murie remained at the Sheldon Refuge, where he and Charles H. Rouse will continue range studies.

Studies Pribilof Seal Herd.--Dr. Victor B. Scheffer reached the Pribilof Islands June 21 to begin summer biological research on the islands with particular reference to the fur seals and blue foxes. He reports that the most important work was the annual count of fur seal harems made by C. E. Johnston, superintendent of the Pribilof Islands, and himself, July 16-24. There were 11,650 harem bulls on St. Paul and St. George Islands, an increase of about 6 percent over last year. The fur seal harems were beginning to break up by the end of July, when pups were congregated in masses of several hundred at the back of the rookeries. The first pups seen attempting to swim were among the rocks on North Rookery, on July 25. Dr. Scheffer reports a maximum temperature of 54 degrees for July, with one-half day of sunshine.

Continues Matanuska Survey.--Biologist L. J. Palmer spent several days during the last part of June and in July running biological transects in the Matanuska Valley, Alaska, and making a detailed study of wildlife resources and problems in the region. This work is a continuation of the general land-use survey of Matanuska-Susitna Valley begun last year.

Observes Fox Color Phases.--Biologist William H. Marshall reports that in tagging operations on foxes at Squaw Meadows, Idaho National Forest, in September 1938 and September 1939, out of 30 foxes the ratio of color phases and sexes was 7 male red and 5 male cross, 6 female red and 6 female cross, and 3 unsexed red and 3 unsexed cross foxes.

Analyzes Owl Pellets.--After attending the meeting of the American Society of Mammalogists, Frank B. McIlhenny, with official headquarters at the Wichita Refuge, spent the first week in July at the Food Habits Laboratory in Denver analyzing the food contents of owl pellets and snake stomachs.

Visit Mammal Laboratory.--Professor Henry Madden, of the Department of History, Stanford University, Palo Alto, Calif., called at the mammal laboratory and conferred with Major E. A. Goldman on August 12.

Mark E. Musgrave, formerly of the Fish and Wildlife Service and now of the Soil Conservation Service, with headquarters at Albuquerque, visited the mammal laboratory on July 19 and conferred with Stanley P. Young and Major Goldman on wildlife problems.

#### Food Habits Research

Carp Cause Decrease in Aquatic Vegetation.--Biologist Francis Uhler conferred with M. O. Steen, of the Fish and Wildlife Service Regional Office at Minneapolis, and R.J. Door, of the Minnesota State Department of Conservation, during the first week in July about proposed Federal Aid projects on the Carlos Avery and Talcot Lake Refuges in the State. Later he made field examinations of the two refuges. He also stopped at Rice Lake near Lake Mills, Iowa, in connection with Federal Aid work. From July 27 to August 8, Mr. Uhler, with R. H. Smith, of the Division of Wildlife Refuges, and W. E. Green, of the Upper Mississippi Wildlife Refuge, made a study of proposed open and closed units for hunting purposes. The outstanding detrimental factor to wildlife noticed on the trip was the tremendous decrease in the aquatic vegetation in parts of the upper Mississippi Refuge. The decrease was due to the turbidity of the water caused by European carp. Talcot Lake was devoid of aquatic vegetation because of this rooting action of the carp.

Delaware Research Work Progresses.--Experimental areas that were set up on the Bombay Hook Refuge to determine better methods of correlating mosquito control and wildlife conservation are functioning quite well, according to Biologist Larry Saylor, and the number of mosquito larvae on the area has been greatly reduced. Surveys made on August 7 and 8 revealed no larvae on the research area on Kent Island, while several control ponds separated from the research areas by 2-foot dikes were alive with mosquito larvae and pupae.

Inspects Western Refuge Areas.--Mr. Saylor spent the last 2 weeks in July inspecting the various research projects and collecting invertebrate materials on many of the western refuges. He visited Sacramento and Tule Lake, Calif., Klamath Lake, Sleepy Lake, Hart Mountain, and Malheur, Oregon; and Bear River and Strawberry Valley, Utah. He spent several days at the Denver Food Habits Laboratory studying the invertebrate reference collections there. Previously Mr. Saylor made a 3-weeks personal collecting trip into western coastal Mexico, going slightly south of Guadalajara. Several species of insects new to science were obtained.



Cooperators in Food Habits Laboratory.--In accordance with the present policy of encouraging graduate students of the various Cooperative Wildlife Research Units to carry on at least a part of their investigations in food habits work in the Food Habits Laboratory, the following men are now conducting research work at the Patuxent Research Refuge, Md.: From the Alabama Cooperative Wildlife Research Unit, Ray C. Erickson (working on quails and doves), Ford Wilke (quails and doves), O. E. Frye (quails, doves, and foxes), and J. E. Herbert (foxes); from the Missouri Cooperative Unit, Leroy J. Korschgen (turkeys); and from the Oregon Cooperative Unit, J. S. Morse (pheasants). Charles McLaughlin and Carl Nelson, of the Massachusetts Federal Aid projects, also spent several days during the latter half of August examining pheasant, skunk, and fox food materials.

Detailed to Study Ecology of Botulism.--Biologist Neil Hotchkiss left Washington, D. C., on June 15 for the Bear River National Wildlife Refuge, Utah, to initiate a field study to determine what relationship, if any, there may be between ecological factors and outbreaks of botulism. Mr. Hotchkiss will probably travel throughout the regions where botulism outbreaks have occurred in past years. He will make extensive observations of conditions of plant growth in marshes where waterfowl are affected with botulism. Studies will also be carried on in areas where birds are not affected with the disease to compare plant and other conditions in botulism and nonbotulism-producing areas. This work will be conducted in close cooperation with refuge managers and with Dr. Erling Quortrup, of the Section of Disease Investigation.

Observes Grouse Broods.--An average of 4 young a brood were seen in some 35 broods of ruffed grouse observed on the George Washington National Forest, Va., from May 20 to July 20, according to Biologist Robert H. Gensch, who is conducting a study of the grouse of Virginia.

Transferred to Mt. Shasta.--Clarence T. Smith, of the Food Habits Section, left August 3 for Mt. Shasta where he will conduct experiments on the relation of rodents to reforestation in the brushy country of Northern California. Enroute to California, Mr. Smith spent August 5 to 9 at the Wildlife Research Laboratory in Denver, reviewing the results of previous research work on the relationship of rodents and reforestation.

#### Distribution and Migration of Birds

Speaks over Radio.--On August 15 T. C. Lincoln participated in the weekly radio broadcast of "Your Conservation Reporter," a Department of the Interior program directed by Shannon Allen and presented on the Mutual Broadcasting System network each Thursday. After reporting on other conservation activities of the Department, Mr. Allen interviewed Mr. Lincoln on the subject of the recently announced Migratory Bird Treaty Act regulations.

Get Good Rains in Prairie Provinces.--Continued rains in Alberta should prove to be of value in maintaining an adequate water level for this year's crop of ducklings, according to Robert C. McClanahan, of the Washington office, who is carrying on waterfowl investigations in the Prairie Provinces of Canada this season. Mr. George Spargo, fish commissioner for Alberta, has placed his wardens and their boats at Mr. McClanahan's disposal. As a result, Lac La Biche and Cold Lake were covered by boat. Lakes Wabamum and St. Anne and Lesser Slave Lake will also be covered in this way. Mr. McClanahan states that redheads are not numerous but scaups and ruddy ducks are showing remarkable increases. He has accepted an invitation to accompany officials of Ducks Unlimited on an aerial survey of the Athabaska delta.

Will Investigate Mourning Dove Status.--Harold S. Peters, Atlantic Flyway biologist, has returned to his headquarters in Charleston, S. C., and is engaged in the preparation of his report on the season's work in the Maritime Provinces. He will shortly make a trip to North Carolina to obtain data on the mourning dove investigations being conducted in that State. Later he will return to Canada to join Dr. Harrison F. Lewis, chief Federal Migratory Bird Officer of Quebec, on a trip through the James Bay region to investigate the status of migratory waterfowl while the fall migration gets under way.

White-winged Doves Lose Breeding Sites.--By the end of August every pair of breeding white-winged doves in the Lower Rio Grande Valley have reared at least two young to maturity, Dr. George B. Saunders, Central Flyway biologist, believes. While this might be considered an indication of a satisfactory increase, Dr. Saunders points out that the destruction of breeding grounds continues at a rate that is in excess of any gains made. He believes that more drastic action will be necessary to place the management of this species on a sound conservation basis.

Pacific Flyway Investigations.--L. J. Goldman, Pacific Flyway biologist, has completed his work in British Columbia and has returned to the United States. He will inspect waterfowl areas in Idaho, Utah, and Nevada, before returning to headquarters at Berkeley.

Back in Civilization.--C. E. Gillham, Mississippi Flyway biologist, who virtually dropped out of sight for 2 months while working in the isolated territory of northern Canada, reports that he and J. J. Lynch, of the Food Habits Section, have arrived safely at Fort Chipewyan, Alberta. He states that, considering weather conditions and other factors that affect work in high northern latitudes, they had a good trip in the Mackenzie delta.

Visits Service Office.--Robert W. Allen, Museum of Zoology, Ann Arbor, Mich., visited the Section on August 6 to study the Service's data on the purple martins recorded in the banding files. He is doing work in connection with his course at the University of Michigan.

Outstanding Returns from Banded Birds.--The following are interesting returns from banded birds, showing band number, place and date of banding, and place and date of recovery:

## Horned grebe:

39-668188, Alberta, Big Lake, N. C., South Creek, 2/19/40  
Athabaska Delta, 9/2/39

## Atlantic murre:

A-708073, Quebec, Saguenay Co., Quebec, Saguenay Co., 7/12/39:  
7/22/30 previous dates of recapture at  
same station: 6/30/31,  
7/14/33, and 7/12/38

## Common tern:

403726, Mass., Tern Is., Mass., Tern Is., Chatham, 6/8/40  
Chatham, 7/12/36  
A-328315, Mass., Tern Is., Mass., Tern Is., Chatham, 6/11/40  
Chatham, 7/8/29

## Black skimmer:

A-424332, S. C., Bulls Bay, Fla., Boca Raton, 2/5/40  
Charleston Co., 7/10/30

## Mourning dove:

651000, Mass., North Eastham, Mass., North Eastham, 4/11/40  
8/21/32  
36-418091, Manitoba, Norwood, Fla., Newberry, 1/27/40  
7/10/38

## Junco:

B-127485, N. J., Mohonk Lake, N. J., Mohonk Lake, 3/28/39;  
9/25/31 previous dates retrapped at same  
station: 3/21/32, 4/23/34, and  
4/7/38

## Mountain bluebird:

38-108471, Alberta, Camrose, Texas, Wingate, 11/30/39  
6/9/39



Disease Investigations

Exhibits at National Veterinary Meeting.--To portray the various disease conditions in wildlife with which the Section of Disease Investigations is concerned, Dr. J. E. Shillinger arranged an exhibit shown at the annual meeting of the American Veterinary Medical Association held at the Mayflower Hotel in Washington, D. C., August 23 to 30. Museum specimens of diseased tissues, a series of lantern slides, and motion pictures were on display. Demonstrations of the blood protozoan parasites found in the various wild birds were given by Mrs. P. W. Wetmore in the poultry disease exhibit rooms.

Confers With Editor.--On August 13 Dr. Shillinger conferred with Dr. Norman R. Stoll, editor of the Journal of Parasitology, located at the Rockefeller Institute of Medical Research, Princeton, N. J., on the preparation of papers for that publication. Dr. Stoll accepted a paper recently prepared in the Section of Disease Investigations, which will appear in an early issue.

Transfers Waterfowl from Secretary's Preserve.--Because of an insidious outbreak of botulism on the waterfowl refuge on Secretary Ickes' farm, it was necessary for Dr. Shillinger to transfer birds to the open water areas of the Blackwater Refuge in eastern Maryland. The outbreak was caused by the lowered water supply in the Secretary's ponds.

Personnel.--On August 16 Osmundro Reynante, clerk-stenographer, reported for duty at the Henshaw Laboratory to handle the clerical and stenographic work for the staff engaged in disease research at the Patuxent Research Refuge, Md.

National Park Wildlife

Help Natural History Institute.--Clifford C. Presnall, acting in charge of the Section, and Biologist O. B. Taylor, of the Richmond office, assisted the Virginia Natural History Institute in launching the newly organized Nature Leaders School at Swift Creek in Chesterfield County. Mr. Presnall spent 5 days at Swift Creek, laying out a course of study for the students, and conducting field trips and lectures on wildlife subjects.

Sketches National Park Wildlife.--Walter A. Weber, chief scientific illustrator for the National Park Service and temporarily assigned to this Section, is now visiting several western parks to obtain sketches for a contemplated series of popular guides to the birds, mammals, and fishes of the National Parks. Mr. Weber expects to visit all the northwestern parks before returning to Washington late in September.

Restore Wildlife to Park.--Approval was recently given for the reintroduction of deer, turkeys, and beavers to Mammoth Cave National Park, Ky., following recommendations made by Mr. Taylor, who recently conducted a 3-day range study of the area, and the park superintendent. The Fish and Wildlife Service will furnish some turkeys from the Kentucky Woodlands National Wildlife Refuge, Ky., and Alleghany State Park and Colonial National Historical Park will probably supply deer and beavers. Mr. Taylor declared that ecological factors on Mammoth Cave are favorable for all native species but that deer and turkeys probably have the best chances for success. The park superintendent also would like to have bears on the area if there is a reasonable assurance that they will not become a liability.

Visits Southwestern Monument.--Dr. W. B. McDougall visited the Bandelier National Monument, N. Mex., on July 11 and 12 to observe wildlife conditions. Although primarily an archeological monument, the monument has a variety of habitat and is the only Park Service area in Park Service Region III that has wild turkeys. The monument has other wildlife, including deer and wild burros. The burros are exotic and are a menace to the native wildlife, Dr. McDougall believes.

Recommends Changes.--Believing that Garton Well Lake on the White Sands National Monument, N. Mex., should be set aside strictly for wildlife use, Dr. McDougall, who visited the area on July 23 and 24, recommended that a C. C. C. sidecamp be established near Garton Well to do work necessary to improve the habitat for wildlife. He also recommended that public bathing be prohibited in the pool.

Turkeys Abundant on Demonstration Area.--The Falls Creek Falls Recreational Demonstration Area, Tenn., was visited by Mr. Taylor to learn what may be done for retaining some fields in a semi-open state and to investigate the status of turkeys and deer. A rapidly growing vegetation was observed. Some of the forest that had a distinctly open character 3 years ago now has a dense understory. ERA wardens made many records of turkeys last winter. It is believed that 150 hens were on the area during the mating season and that they should have more than 1,000 turkeys this fall. Presumably, this is the carrying capacity of the area, and many birds in subsequent years will overflow into the adjacent territory.

Deer are scarce on the area but are thought to be increasing slowly. Small birds and mammals have shown a decided increase and seem to be plentiful throughout the area. It is not considered necessary to release more turkeys, but a few deer would be acceptable. It is difficult to enforce regulations, Mr. Taylor said, and he recommended that fishing be prohibited for the present except on the lake. It is his opinion, however, that if a plan can be devised for enforcing regulations and reducing the objectionable features, favorable consideration might be given fishing.

Gives Lecture.--"Vanishing American Wildlife" was the topic of an illustrated lecture delivered by Daniel B. Beard at a National Capital Parks campfire program held in Washington, D. C., on July 26. Mr. Beard used color slides of paintings made by Walter A. Weber.

#### FEDERAL AID IN WILDLIFE RESTORATION

Addresses Conventions.--Mr. Day left on August 1 for Casper, Wyo., where he addressed the Izaak Walton League State Convention on August 9-10. He talked on "The Status of Migratory Waterfowl." He also addressed the annual conference of the Western Association of Fish and Game Commissioners, which was held at Seattle, Wash., on August 22-23. His subject was "What the Pittman-Robertson Program is Doing for Conservation." Mr. Day will inspect a number of Pittman-Robertson projects in the West and will confer with State game officials about their Federal Aid programs.

Personnel.--On June 14, Harold T. Smither transferred from the Public Works Administration to the Division to accept a position as traveling accountant. Prior to his employment in the Public Works Administration, Mr. Smither worked in the accounting divisions of the Southern Railway Company, Interstate Commerce Commission, and Bureau of Public Roads. He is a native of Virginia and received his master's degree in accountancy from Benjamin Franklin University, Washington, D. C.

On July 12, Miss Athalie Sumrall, clerk-typist, transferred to this Division from the Division of Loans and Currency of the Treasury Department. She is a native of Mississippi and is a graduate of Jones Junior College. She also was graduated from the Chillicothe Business College, Chillicothe, Mo.

Visits Midwestern States.--On July 28, Fred Kessler left Washington, D. C., to confer with State game officials and to inspect Federal Aid projects in West Virginia, Ohio, Indiana, Michigan, Illinois, and Iowa.

Confers with Game Officials.--William J. Howard recently left Washington, D. C., for Missouri, Kansas, Oklahoma, and Texas, to confer with State game department officials concerning their Federal Aid programs.

22 States Continue Long-term Projects.--Although Federal Aid in Wildlife Restoration projects are frequently designed to operate over a period of years, the details of such projects are approved only on a fiscal-year basis, and projects of this type require annual renewal. Thirty-seven investigation and survey projects were renewed on July 1 for Alabama, Arizona, Colorado, Connecticut, Delaware, Idaho, Illinois, Maine, Massachusetts, Michigan, Missouri, New Hampshire, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, Texas, Utah, Vermont, Wisconsin, and Wyoming. In addition, seven long-term development projects are to be continued in Maine, Mississippi, Nebraska, New Hampshire, North Carolina, and Oregon.



Redistribute Beavers and Muskrats.--The Alabama Conservation Department recently received approval to use part of its Federal Aid funds to live-trap beavers and muskrats where their numbers are sufficiently abundant to warrant such action and to use these animals for restocking suitable sites not now supporting these animals. A State-wide wildlife survey in Alabama revealed that beavers and muskrats were in need of management. Previous experiments with the reestablishment of muskrats along the Gulf coast were successful. Many areas were examined and were found to be suitable for these species although the animals did not occur on the areas. The State Department of Conservation indicated that the majority of beaver colonies in the State are on private land, while at the same time there are some 200,000 acres of public land (national forest, State forests, and State institution lands) which have no beavers on them.

Develop Great Divide Sanctuaries.--The Service recently approved plans submitted by the Colorado Game and Fish Commission for the development of the Great Divide Sanctuaries as a part of its Federal Aid in Wildlife Restoration program. Sage grouse will be the principal species benefited. With the cooperation of the Soil Conservation Service, the commission plans to close approximately 20,000 acres of land where all forms of hunting will be prohibited for several years. These closed lands will in general surround the absolute sanctuaries that will be created by fencing and planting operations.

Expand Sage Grouse Program.--Plans to develop the range for sage grouse were approved on June 28 as a part of the Idaho Fish and Game Commission's Federal Aid in Wildlife Restoration program. The project consists primarily of impounding small bodies of water and fencing 40-acre units against grazing to provide nesting sites for the birds. Provisions will be made for maintaining a water supply outside the enclosure for stock using the range. The project provides for the development of eight units on 8,000 acres. The U. S. Grazing Service is cooperating with the Idaho Fish and Game Department in the restoration of sage grouse in this area.

Improves Lyon County Area.--A Federal Aid project submitted by the Forestry, Fish, and Game Commission of Kansas providing for the fencing and posting of Lyon County State Park was approved by the Service on August 10. The park is operated as a game refuge, and the fencing and posting of its exterior limits were deemed necessary to prevent trespass. A WPA project provides all necessary labor on this project. The fencing

will confine ingress and egress to two locations. Heretofore, automobiles had been able to move in and out of the area at numerous places, resulting in damage to established food and cover plants and in the disturbance and loss of wildlife, especially during the nesting seasons.

Restore Pheasants.--Because Kansas has many places in each of the 70 western counties which are suitable for the natural propagation of ring-necked pheasants but now carry inadequate populations, the Kansas Forestry, Fish and Game Commission recently received approval to lease lands for the control of hunting and to improve the habitat on such lands for the benefit of ring-necked pheasants. Only areas now possessing inadequate seed stock will receive additional birds. Where such releases are made, all birds will be banded, and records will be kept as to the location, number and condition of birds, and the date of release. The State will limit restoration efforts to one well-adapted area in each of the 70 counties. All of the technical resources of the department will be made available to cooperators, who will be given technical guidance in the planting of food and cover for this species.

Conduct Ecologic Survey of Muskrat.--A State-wide ecologic survey of muskrat populations and habitats was approved as a Federal Aid project for the Michigan Department of Conservation by the Fish and Wildlife Service on August 14. The work outlined for this project will involve an inventory of representative muskrat habitats throughout the State, the study of muskrat populations, and experiments in muskrat management. Records on fur returns in Michigan disclose that the muskrat is by far the most important wild fur animal in the State. Despite the financial importance of these animals, no attempt has been made to survey either the population or the habitats of this species. The Conservation Department desires to assemble essential facts concerning the proper management of muskrats so that it will be prepared to advise interested individuals and thus foster the best possible utilization of this valuable natural resource.

Barry County Unit Enlarged.--The fourth segment of the Michigan Conservation Department's land-acquisition program in Barry County was approved by the Fish and Wildlife Service on July 9. Located in southwest Michigan and designed to improve conditions for many forms of wildlife, the area should prove to be an important adjunct to the State refuge system, according to reports.

Expand Work in Missouri.--On June 28 the Service approved plans submitted by the Missouri Conservation Commission for the revision of the program of surveys and investigations then in operation. The new plan calls for an expansion of the work already under way in that State and will more closely coordinate work in the wildlife field being undertaken by other State and Federal agencies in Missouri.

Arthur L. Clark will act as project supervisor, and Dr. Paul D. Dalke as technical supervisor.

Jersey Improves Refuges.--The New Jersey State Fish and Game Commission will improve 25 areas previously acquired by the State for wildlife refuges under its Federal Aid in Wildlife Restoration program. The areas range from 6 to 25 acres in size and are under the control of the commission for periods of not less than 5 years. This Federal Aid project provides for the construction of fences around these units to protect them from over-grazing and misuse. The areas will be posted, and about 65 acres will be planted to trees and shrubs that will benefit wildlife. Food patches will be provided where required.

Improve Mountain Sheep Range.--As a part of its Federal Aid program, the New Mexico Department of Game and Fish recently received approval of plans for the development of the Big Hatchet Mountain Sheep Range. Hatchet Mountain is a typical arid desert range located in the extreme southwestern corner of New Mexico. For the most part, it consists of public land under the jurisdiction of the Grazing Service. The New Mexico Conservation Department advised that the mountain is without water except for one well on the eastern slopes, but that the mountain would be suited for mountain sheep if it had a dependable water supply. The use of Federal Aid funds for the purpose of providing a water supply for game, particularly mountain sheep, fulfills a most pressing need in the interests of wildlife restoration in this area. Because of the unusual character of the mountain, a special type of development is required. To accomplish this purpose, small concrete dams will be constructed well up in the canyons, where the natural formation is impervious to water seepage.

Seed Stock Refuge Program Expanded.--Because of the success experienced with its seed-stock refuge program, the New York Conservation Department submitted plans and recently received approval for the extension of the development of this program. The conservation Department has followed the practice of establishing seed-stock refuges in districts where severe hunting pressure occurs. It has been demonstrated that these refuges materially assist in the preservation of adequate brood stock of game birds and mammals. The State feels that to administer these areas effectively it is desirable to control the number of hunters and obtain a record as to how much game is being removed during the hunting season. It therefore inaugurated a permanent system for the control of hunting on surrounding areas which proved successful during the first year of operation.

Water Impounded on Sandhills.--Five additional water impoundments will be created on the Sandhills Upland Game Area by a Federal Aid project sponsored by the North Carolina Department of Conservation and approved by the Fish and Wildlife Service on June 28. It is planned ultimately to establish 20 such lakes and ponds in the area. During the past season 30 beavers from Pennsylvania were released in ponds previously constructed. The area is also important to waterfowl. During the migration season great numbers of ducks and Canada geese frequent the existing waterways.



Continue Development of Holly Shelter.--Plans for the continued development of the Holly Shelter Refuge in North Carolina during the current fiscal year were submitted by the North Carolina Department of Conservation and were approved by the Fish and Wildlife Service on June 28. The work program for the period July 1, 1940, to June 30, 1941, provides for the erection of 11 miles of 2 circuit metallic telephone lines, the clearing of 30 miles of 10-foot right-of-way around the inviolate refuge areas, the construction of a warden's residence and one-room warden cabins in strategic points on the area, and the building of approximately 100 miles of foot trails. The Works Progress Administration is furnishing a large portion of materials and labor for this project.

Until May 31, during the past fiscal year almost 66 miles of boundary have been surveyed and marked with 318 signs, 25 miles of boundary brushed out 8 feet wide and 15 miles brushed 25 feet wide, 11 miles of roadway surveyed and located, 6-1/2 miles of right-of-way cleared, and more than 6 miles surfaced with an additional 6 miles of roadway-fill in place.

Oklahoma Restores Quails.--The Oklahoma State Game Department again plans to use a portion of its Federal Aid funds for the restoration of bobwhite quails on areas throughout the State. The program was approved by the Fish and Wildlife Service on June 28. The State reports that the previous project has been successful and recommends that this work be continued another year. Technicians on the State-wide Federal Aid survey project examine each area to determine the adequacy of cover and need of seed stock. If the areas are suitable and in need of additional seed stock, their leasing by the department is recommended. Quails are placed only on established refuges and in numbers not to exceed those needed to establish seed stock for the particular area. All birds are banded and complete records kept of all releases. In some instances it is recommended that certain habitat improvements, such as fencing and the planting of food and cover, be accomplished on the refuges before any releases are made. To test the adequacy of this program the State is maintaining "check areas" near established refuges.

Oregon Encourages Game Production.--Establishing seed-stock refuges for small game in the Willamette Valley will be part of the Federal Aid program sponsored by the Oregon State Game Commission. Detailed plans for the undertaking were recently approved by the Fish and Wildlife Service. After a careful survey to determine suitable areas possessing adequate food and cover requirements for pheasants, quails, and other small upland-game species, the commission selected six refuge sites totaling more than 15,000 acres. The refuge areas will be posted, and habitat conditions will be improved, usually with the cooperation of the landowners. Arrangements have been made to maintain careful population data on the areas to determine the results of the various developments undertaken. Cover maps are being prepared for each area to provide a basis for future development work.

Acquires Vobejda Lake.--The acquisition of nesting grounds for waterfowl and upland game surrounding Vobejda Lake was approved on July 13 as a Federal Aid project for the South Dakota Department of Game and Fish. Vobejda Lake is an artificial lake of approximately 47 acres. The surrounding lands have been heavily grazed in the past, and with the exclusion of grazing, wildlife conditions surrounding this body of water will be greatly improved. The State proposes to acquire approximately 80 acres as nesting sites for waterfowl, ring-necked pheasants, and Hungarian partridges. The area will be posted and maintained as an inviolate sanctuary.

Begin Extensive Redistribution Program.--The Fish and Wildlife Service approved on July 17 plans submitted by the Texas Game, Fish and Oyster Commission as a part of its Federal Aid for the trapping and moving of many important game and fur species, including deer, turkeys, antelopes, quails, prairie chickens, beavers, raccoons, muskrats, minks, squirrels, and javelinas. The State-wide wildlife survey project was designed first to determine the present populations and distribution of game species in the State. The redistribution project is based on the recommendations made as the result of the previous survey. Some areas of suitable habitat proved to be very much underpopulated. Other areas are sufficiently well stocked, and the removal of a limited number of animals to provide seed stock for the depleted areas will in no way jeopardize the species or the hunting in those areas. The removal of a few animals is expected to improve conditions. Careful attention will be given to live-trapping and handling techniques, and any new or improved methods developed will be reported.

Utah Continues Development of Ogden Bay.--By its submission of a water-impoundment project at Ogden Bay, which was approved on July 23, 1939, Utah became the first State to benefit under the provisions of the Federal Aid act. This project, located on Great Salt Lake, provides fresh water in an area where waterfowl have previously been severely decimated by botulism, or duck sickness. On June 28, 1940, the State Fish and Game Department received approval to continue development work at Ogden Bay. The original project was the first portion of a long-time development program of this nature. Development work was continued by another project, approved on October 10, 1939, which provided for construction of dikes, water control structures, roadway for access, and fencing. Utah also has the distinction of being the first State operating under the Federal Aid act to obtain the assignment of a CCC camp to aid in its development activities. A Federal Aid project cooperating in the State's sponsorship of the camp covering that portion of the camp life in the fiscal year 1940 was approved on May 28, 1940.

Winter Deer Range Purchased.--The acquisition of approximately 3,400 acres of winter deer range by the Utah Fish and Game Department with Federal Aid funds was approved by the Fish and Wildlife Service on July 10. This area, located near Brigham, has for a number of years been heavily grazed by domestic stock and deer. As a result, the watershed was so



badly denuded that a few seasons ago communities in the foothills suffered serious flood conditions that took human lives. Following the disaster the communities took steps to acquire the watersheds and restrict grazing so as to permit the vegetation to become reestablished. Such action is beneficial to deer, and for the past 2 years the game department has assisted the communities by leasing additional lands and by curtailing grazing. So that the vegetation may be more adequately protected and the deer benefit thereby, the department now plans to purchase the lands.

Buys Lands For Millard Refuge.--On June 28 the Utah State Fish and Game Department received approval to use part of its Federal Aid funds to purchase 2,120 additional acres to be added to the Millard County Deer Winter Range. The first segment of this acquisition for the purchase of 1,924 acres was approved last December. The tract adjoins the Fishlake National Forest and will provide winter range for deer that are forced by deep snows from the higher altitudes in the National Forest. Because of overgrazing by domestic livestock and game, the browse at the lower elevations has been depleted, and the deer have suffered serious food shortages during winter months. Winter range for big game constitutes one of the major administrative problems facing the Utah Fish and Game Department.

Increase Panther Creek Refuge.--On June 28, the Fish and Wildlife Service approved the purchase of approximately 2,700 acres, to be added to the Panther Creek Refuge in West Virginia. On January 24, the State used Federal Aid funds to acquire more than 5,200 acres in McDowell County for this refuge. The entire area will be maintained as a refuge closed to hunting until such time as a shootable surplus of game is available, when controlled hunting will be permitted, though never on more than two-thirds of the area. In accordance with the laws of West Virginia, a patrolman or refuge keeper will reside on the area and be in charge of the lands. The boundaries will be marked and posted, and some habitat improvement work is contemplated. The refuge will benefit deer, raccoons, opossums, ruffed grouse, quails, cottontail rabbits, squirrels, and other native wildlife.

Build Game Refuge Headquarters.--Plans for the construction of a caretaker's headquarters and service buildings on the Braxton County Game Refuge were submitted by the West Virginia Conservation Commission and were approved by the Service on June 28, as a portion of the State's Federal Aid program. This is the second segment for the project providing for the development of this area. The first segment involved brushing out a fire lane around the exterior limits of the refuge, stretching a single strand of smooth wire along the outside of the lane, and posting the refuge with metal signs at intervals of 150 to 200 feet.



Develop Waterfowl Management Plans.--The Service on June 26 approved plans submitted by the Wisconsin Conservation Department as a part of its Federal Aid program to investigate possibilities of a waterfowl management program for the State. The department reports that in recent years some of Wisconsin's most important waterfowl breeding and feeding areas have been showing definite signs of deterioration due to physical, chemical, biological, or economic factors. In the interest of the wildfowlers of the State, the department recommends that an aquatic survey be made of the State's important waterfowl lakes, sloughs, and marshes, with the objective of making recommendations for practical management procedures to remedy the situation as soon as possible.

Will Study Deer Herd.--On June 26 the Wisconsin Conservation Department received approval to use part of its Federal Aid funds for a survey of the deer situation in the State. The Wisconsin white-tailed deer herd is an important natural and economic resource of the State, and the department is anxious to afford the animals the best administration and management possible. The distribution of the animals during all seasons of the year will be determined and mapped. The prevailing habitat conditions will be noted and, where needed, recommendations will be made to remedy undesirable situations. An interesting phase of the investigation will be a study of the effectiveness of deer refuges in an effort to determine the best size, location, and essential requirements under Wisconsin conditions.

Investigate Grouse.--Plans for the thorough investigation of pinnated and sharp-tailed grouse were submitted by the Wisconsin State Conservation Department as a part of its Federal Aid program and were approved by the Fish and Wildlife Service on June 28. Wisconsin is known to be one of the remaining strongholds of the pinnated grouse and although the State is considered to have excellent range for this bird, this range has apparently been shrinking in recent years. There are many theories as to the causes of this reduction in distribution. The department is anxious to determine the reasons and to initiate management practices to improve conditions and forestall any further diminishing of the species. Because the sharp-tailed grouse is also important and a study of the species can be conveniently correlated with that of the pinnated grouse, the joint investigations are being conducted.

To Acquire 4,000 Acres Of Marsh.--Wisconsin will purchase some 4,000 acres of land in the Horicon Marsh in Dodge County with Federal Aid funds set aside for this purpose on August 6.

For many years the Conservation Department and interested sportsmen of Wisconsin have been desirous of restoring the Horicon Marsh, which was at one time an outstanding wildlife producing area. With the availability of funds under the Federal Aid act, the State decided to acquire the southern part of the marsh and to take such additional action as is necessary to restore wildlife habitat, particularly through the stabilizing of water levels.

Plan Pheasant Management.--Plans submitted by the Wisconsin Conservation Department as a part of its Federal Aid program for a survey of the status of the ring-necked pheasant in the State were approved by the Service on June 29. Wisconsin is an important pheasant producing State, having a reported annual kill of more than 500,000 birds. Through a cooperative program the State is now stocking about 250,000 birds of both sexes and maintains probably the largest artificial winter feeding program for pheasants in the United States. Because of this large propagation and stocking program, the department feels that in the interests of better administration more facts are needed regarding the pheasant in Wisconsin. Officials plan to study the mortality of propagated birds that are released at ages of 7, 8, 9, and 10 weeks under various environmental conditions and with or without artificial feeding and watering, making a comparison with wild stock. The department also plans to determine the value of small refuges, winter feeding (artificially and in food patches), as well as to gather other pertinent information to determine management methods adaptable to Wisconsin conditions.

#### LAND ACQUISITION

Visits Proposed Refuge.--Mr. Dieffenbach left Washington on July 15 for a field trip to Minnesota and Wisconsin where he conferred with State officials regarding the Horicon Refuge in Wisconsin and with field officials about the Upper Mississippi River Refuge. He returned to Washington on July 24.

Custodial Areas Assigned to Service.--President Roosevelt on August 8, signed Executive Order No. 8509 establishing the Missouri Wildlife Management Area in Boone County. This area will be administered by the State of Missouri through the various colleges and departments of the University of Missouri. Also on August 8, the President signed Executive Order No. 8510 establishing the Carolina Sandhills Wildlife Management Area in Chesterfield and Darlington Counties, S. C. This area, which adjoins the Carolina Sandhill National Wildlife Refuge, will be administered by the State of South Carolina through its Commission of Forestry. These are the first of the custodial areas assigned to the Department of the Interior. Action is being taken to set aside additional areas of this type in North Carolina, Wisconsin, and Minnesota.

Change Names of Refuges.--On July 25, President Roosevelt signed a proclamation changing the names of certain Federal wildlife refuges. This proclamation effected the change of the designations of 193 bird, waterfowl, and wildlife refuges and reservations, most of which were established by Executive order. The names were changed to "national wildlife refuges" thereby indicating their national character. The former designations of these refuge units did not show that the areas were owned by the Federal Government nor that they were administered as national wildlife refuges. The designation "national wildlife refuge" is prefixed by the name or part of a name of a local geographic feature or

in a few instances the name of a particular protected species. Copies of the proclamation will be distributed to the divisions and to the regional offices in the near future.

#### Appraisals and Negotiations

Inspects Ohio Unit.--Albert J. Rissman inspected and examined the East Harbor unit in Ohio during July.

Appraise Marsh Areas.--During July, Richard H. Putnam and Joe E. Smoke, of the Minneapolis office, were engaged in conducting examinations, appraisals, and negotiations on the Upper Mississippi River Refuge in Minnesota and the Horicon Marsh area in Wisconsin.

#### WILDLIFE REFUGES

Estimate Bighorn Sheep Numbers.--Refuge personnel estimate that there are now more than 400 desert bighorn sheep on the Boulder Canyon Refuge, Ariz. and Nev. This is a considerably higher estimate than previous ones, but is believed to be more accurate since intensive studies of the animal have been conducted on the refuge during the past few months. (See Bighorn Sheep Estimate, Page 221.)

New Bird Record Established.--Snowy plovers were observed on the Tule Lake Refuge, Calif., on May 9, establishing a new refuge record.

Reports Nesting Increase.--Mallards, pintails, ruddy ducks, shovelers, redheads, and baldpates nested on the Camas Refuge, Idaho, in greater numbers this year than ever before since the establishment of the refuge, according to Manager Howard J. Sargeant. A greater proportion of the refuge was used for nesting than in previous years, he reports.

Fulvous Tree Duck Nests on Lacassine.--Twenty-five young fulvous tree ducks were observed on the Lacassine Refuge, La., on June 6, establishing a new breeding record for the refuge, according to Manager Earl Atwood. This is also one of the few breeding records for the State, although the birds are common late in spring and in summer.

More Waterfowl at Swan Lake.--At the height of the spring migration this year, 75,000 waterfowl were estimated to be on the Swan Lake Refuge, Mo., as compared with 25,000 the previous spring.

Freezing Temperatures at Red Rock.--Manager Archie V. Hull reports that on the night of July 27 and the morning of July 28 it was so cold at the Red Rock Lakes Refuge, Mont., that a thin layer of ice covered the water on certain parts of the refuge.



Gull Island Popular Nesting Site.--Gull Island, a 1-acre island on the Medicine Lake Refuge, Mont., this year supported 600 terns, 150 gulls, 50 pelicans, 5 cormorants, 12 ducks, and 3 shorebird nests, or 1 nest for every 6 square yards. Nine duck nests were counted within 22 feet of a photographic blind.

Bighorn Sheep Numbers Estimated.--There were 350 bighorn sheep and 175 mule deer on the Desert Game Range, Nev., at the end of the fiscal year 1940, according to Manager Joseph C. Allen. Range conditions for the big-game animals were excellent, he said. (See Bighorn Sheep Estimate, Page 220.)

Return to Refuge.--About 800 antelopes returned to their summer range on the Sheldon Antelope Refuge, Nev., this spring, refuge personnel estimate, and about 400 fawns were born this year, making a total of 1,200 animals now on the refuge.

Praises Lower Souris Refuge.--In a recent talk at the annual convention of the North Dakota Wildlife Federation, Mrs. J. N. Lies, president of the Wells County Council of Homemakers' Clubs, said of the Lower Souris Refuge, which she had recently visited: "Water can be seen in every direction here. The buildings are fireproof and the place is well kept. We were impressed with the three huge lookout towers, the telephone system which covers the entire refuge, the fire fighting system, and the dams..... There are thousands of ducks and other waterfowl, all kinds of birds, 700 deer, and water wherever you look..... This is indeed a wildlife haven, and we urge every one who has a chance to do so to see this place with wildlife in all its glory. As I took one last look when we drove away, I saw North Dakota as I saw it 47 years ago."

Nests on Des Lacs for First Time.--At least four pairs of Holboell's grebes nested on the Des Lacs Refuge, N. Dak., this year. This is the first time since the establishment of the refuge that these birds have been known to nest on the area. The western grebe population is more than three times that of last year and now numbers close to 200. About 60 nests of this bird have been seen in one of the lakes on the refuge.

Good Rains at Sullys Hill.--Although the first 2 weeks of July were very hot and dry, an abundance of rain was received at the Sullys Hill Preserve, N. Dak., during the latter part of the month. The vegetation, which turned brown early in the month, has again become green.

Big-Game Herds Increase.--There were 497 buffaloes, 202 elks, 32 antelopes, 799 deer, and 171 longhorns on the Wichita Refuge, Okla., at the end of the fiscal year 1940. These figures represent considerable increases in the number on the refuge last year. With additional range made available by the curtailment of grazing by domestic stock, the longhorn herd was permitted to increase from 149 to 171.

Lacreek in Good Condition.--Regional Inspector Francis C. Gillett, who recently visited the Lacreek Refuge, S. Dak., reports that all the water units, except one which was lowered to make necessary repairs, are full, and that excellent marsh conditions are developing in all units.

More Ducks Nest at Lacreek.--Refuge personnel estimate that 15,600 ducks nested on the Lacreek Refuge this year, as compared with 2,275 in 1939 and 13,930 in 1938. Most of the birds were blue-winged teals, shovelers, mallards, and gadwalls. The low number of nesting ducks in 1939 is attributed to the scarcity of water in the early part of the nesting season.

Nesting Franklin's Gulls Increase.--There were more than 40,000 nests of Franklin's gulls on the Sand Lake Refuge, S. Dak., this year. In 1939, 20,000 nests were found; in 1938, 6,100 nests; and in 1937, the first year the birds nested on the refuge, 6,000 nests. The area used by the gulls for nesting was increased to nearly 1 square mile this year.

Wildlife Conditions Improve.--Superintendent Vanex E. Wilson, of the Bear River Refuge, Utah, advises that conditions on the refuge during the fiscal year 1940 showed a marked improvement since last year. Food and cover were improved, and more wildlife used the refuge than during any other year since its establishment. The most noteworthy increase in wildlife use was in the number of nesting Canada geese. During the 1939 nesting survey, 235 nests were found. In 1940, 404 nests were found in the same areas, an increase of about 42 percent. Approximately 1,600 young geese were raised in 1939 and 2,300 in 1940. Nesting redheads increased at least 30 percent.

Birds Treated for Botulism.--During the fiscal year 1940, 13,115 birds were picked up dead from western duck sickness on the Bear River Refuge, Utah. Of the 7,572 sick birds treated at the hospital, 5,896 recovered and were released.

Brant Feed on Triglochin.--After 2 years of observation, refuge personnel have concluded that black brant on the Willapa Refuge, Wash., feed extensively on arrowgrass (Triglochin maritima) at certain periods of the year, although this plant has never been recorded as a food of this species. The portions of the plant taken are the tender growing tips and the growing seed heads. A bird held in captivity in 1939 refused to eat freshly-picked eelgrass when triglochin was placed in the pen at the same time.

Black Brant Seen on Dungeness.--Biologist Stanley G. Jewett saw 12 black brants on the Dungeness Refuge, Wash., on June 21. Although the black brant is a regular winter visitor to the coasts of Oregon and Washington, it is unusual for the bird to spend the summer months so far south.

## CONSTRUCTION AND C.C.C. OPERATIONS

CCC Coordinator Inspects Camps.--H. E. Weatherwax, CCC coordinator for the Department, Mr. Terhune, and Harry W. Lundeen, CCC inspector now stationed in Boston, left Washington on August 14 by boat for Norfolk, Va., to inspect the Back Bay camp.

Inspects Southwest Camps.--Mr. Terhune flew to Albuquerque on July 18 to confer with Regional Director Gatlin and CCC Inspector Hedrick. From there he and Mr. Hedrick left for Bosque del Apache and Bitter Lake camps where inspections were made. Mr. Terhune also visited the Boulder, Nev., side camp. He returned to the Washington office on July 25.

Goes to Regions 1 and 2.--Mr. Teckemeyer flew to Salt Lake City on July 23 to meet Mr. Gatlin, CCC Inspectors Hackenberg and Hedrick, and Mr. Stevens, supervising mechanic, for a discussion of CCC activities in Regions 1 and 2. He inspected the Bear River camp and the new camp at Ogden Bay. At the conclusion of the conference in Salt Lake City, Mr. Hackenberg accompanied Mr. Teckemeyer on an inspection of camps in Oregon and California. Mr. Teckemeyer returned on August 8 by plane from San Francisco.

Enrollees Get Jobs.--Three former enrollees of Camp BS-1, Ark., now have permanent jobs. Robert Holmes is employed by Arkansas County as a tractor driver, Lucian Sneed is a cook on a boat operating in the White River, and Frank Decker works in a machine shop in Detroit.

Buildings Saved from Fire.--Earnest Knight, a machinist at the Tulelake (Calif.) camp, gave the alarm when a fire broke out on the Steele ranch. Aided by a stiff breeze, the fire headed toward the camp. All available men were assembled and held in readiness. Preparations were made to start back-fires if necessary. A change in the wind checked the fire long enough to get the flames under control. Another crew, under Foreman Ray Rowan, succeeded in saving the refuge headquarters from burning.

Fight Grass Fire.--On April 17 the Medicine Lake, Mont., camp received an emergency call for assistance in combating a grass fire on land adjoining the refuge, north of the refuge headquarters. The company was turned out and equipped with barrels of water, condemned overalls, sacks, and strips of comforters, and had the fire under control in an hour, after it had burned over 600 acres. The owner of the land wrote to the enrollees and supervisory personnel as follows:

"This is to express my appreciation of the promptness with which you came to my aid in extinguishing a dangerous grass fire. The quickness with which the fire was brought under control clearly demonstrated the value to the community of the availability of a body of trained men such as you are, during emergencies. The efficiency displayed by the enrollee personnel of the company in extinguishing the fire could not have been equalled by a similar number of untrained men, and was an eye-opening demonstration of the value of CCC supervision and training."



Storm Kills Waterfowl.--For the first time since the establishment of the Medicine Lake Refuge, ducks were killed by hailstones. During one of the severest storms in the history of the State, 360 ducks were killed. The wildlife crew of Camp BS-2, under the supervision of Foreman Joe Pederson, estimated that 19 pelicans, 130 coots, and some 70 shore birds also lost their lives.

Riprap Rio Grande Bank.--A large force of enrollees, averaging 21 daily, was used on a brush and willow riprap project at Bosque del Apache, N. Mex. A total of 2,454 man days were expended and 7,500 square yards of woven wire, post, and brush riprap were placed along the west bank of the Rio Grande as a flood-control project. Black willow posts were placed in a water-filled trench, cottonwood posts set to retain wire, and black willow brush woven between posts.

Has Unusual Pet.--James S. Green, superintendent of Five Mile Camp BS-1, Oreg., about a year ago found a young deer near the Malheur Refuge whose mother had been killed. He took the orphaned animal to his home, near the camp, and kept the deer as a pet. The animal follows him around the camp like a faithful dog, to the great interest of all visitors.

Personnel.--Amos Wakefield, formerly with the Forest Service, has been appointed camp superintendent of the Bear River camp, replacing William Oakden who was transferred to Ogden Bay.

#### GAME MANAGEMENT

Agents Retire at 62.--The Civil Service Commission has complied with the request of the Department in assigning game management agents, deputy game management agents, Alaska wildlife agents, and deputy wildlife agents to the 62-year retirement age group, effective September 30.

Tours Southern States.--Chester A. Leichhardt, assistant chief of the Division, returned to Washington on July 19 from a trip through several southern States where he conferred with Service employees and cooperators on Federal game-law enforcement problems. At Blacksburg, Va., on July 11 and 12, and at Norris, Tenn., on July 13 and 15 he spoke on game-law enforcement subjects before the Virginia and the Tennessee State Game Warden Schools.

Sold Mockingbirds.--Two residents of Raton, N. Mex., were apprehended recently for trapping, possessing, and offering for sale live mockingbirds. They appeared in State court there on July 20 at which time they entered pleas of guilty, and each paid fines and costs amounting to \$54.50.

Jacklight Deer.--Two residents of La Conner, Wash., were apprehended jacklighting deer on July 30 by an agent of the Service and a State game warden. The violators appeared in State court on July 31 and each was fined \$250. As the defendants could not pay the fine, they were sentenced to 86 days in jail each. Three deer carcasses were confiscated.

## PREDATOR AND RODENT CONTROL

Takes Western Trip.--Mr. Green left August 3 to visit districts in the central, western, and southwestern parts of the United States. Conferences were held at Lincoln, Nebr., with Forest Service officials and the District agents of the shelterbelt area; at Albuquerque, with district agents and Regional Director Gatlin; and at Portland, Oreg., with district agents and Regional Director Laythe. Mr. Green expects to return to Washington about September 6.

Retire.--Chas. G. Poole, in charge of the Service control work in the California district since 1920, retired on June 30 of this year. Mr. Poole transferred to this Service in 1920 from the Forest Service, where he had been employed since 1896. He was born at Boston, Mass., on June 18, 1870. Mr. Poole is retiring because of age limit. "He has very successfully carried on the work of the control projects in California and will be greatly missed by the entire personnel of the Division," Mr. Green said. Harold H. Haecker, who transferred from the Shelterbelt Project to the California district to act as Mr. Poole's assistant in 1936, succeeded Mr. Poole as district agent in charge of the control projects in that State, effective July 1, 1940.

Thomas L. English, employed by the Service in the New Mexico district since May 1923, retire from the Service on July 18 because of physical disability. Mr. English has served in the capacity of hunter, foreman in rodent and predatory-animal control work, and at the time of his retirement, was acting as assistant to District Agent E. C. Cates. He also served in the World War. "Mr. English's devotion to his duties and his sincerity in carrying out field work under all conditions have been most appreciated by his superior officers and the Service as a whole," Mr. Green stated. "The New Mexico district, in particular, is reluctant to lose his valued services."

J. Edward Barker, first appointed for work in the Texas district in 1937, and for the past year acting as junior district agent at Lubbock, Tex., has transferred to Albuquerque, N. Mex., to serve as assistant to District Agent E. C. Cates, in Mr. English's stead.

Help Suppress Rabies.--On August 13 the State veterinarian of Georgia issued a quarantine order to suppress an outbreak of rabies in Burke County. Beginning August 20, no dogs shall be permitted to run at large in Burke County for 90 days. The rabies epidemic is being spread primarily by wild foxes. District Agent Whitehead reports that his office is cooperating with the Georgia Division of Wildlife, the State Board of Health, the State Department of Agriculture, Burke County Commissioners Court, and the Burke County Health Department, in suppressing the rabies outbreak. A number of hunters are being employed under Mr. Whitehead's direction to capture rabid foxes and other infected animals. Of 23 foxes caught, 10 were found to be rabid. Within 3 miles of Waynesboro, on August 15, a mad dog bit two children and their father. A week before, the dog had been bitten by a fox.



Rats Exact Heavy Toll in Providence.--One of the largest stores in Providence, R.I., sustained a weekly loss to merchandise of \$100 as a result of rat depredations until control measures were instituted, according to District Agent George B. Lay. Merchandise damaged by rats included candy, powder puffs, woolen blankets, kid gloves, bird seed, and men's wearing apparel. Under the general direction of the local Fish and Wildlife Service representative a man was employed by the store to control the rat infestation, and special emphasis was placed on rat proofing the store structure.

Rats Kill Fawn Deer in Zoo.--An unusual case of rat depredations occurring in the zoological park at San Antonio, Tex., was recently reported by District Agent C. R. Landon. Rats had become accustomed to nipping and chewing baby black-tailed deer when the deer were lying in their pens at the zoo. The rats finally killed two of the fawns. The black-tailed deer is less active than other common species, and the animals permitted the rats to attack them. Rats have recently infested the zoo to an alarming extent. Subsequent control operations conducted by the local representative of the Fish and Wildlife Service resulted in a complete clean up of the rats.

Coyote Kills Sheep and Lambs.--Sheep and lambs valued at \$500 were killed by one coyote during June on a ranch in the vicinity of Aspermont, Tex., according to District Agent C. R. Landon. The sheep were enclosed by a woven wire fence, and the coyote entered by climbing over the top of the fence. A hunter of the Service was dispatched to the area and succeeded in taking the marauding animal.

Wolves Kill Turkeys.--Two ranchers living near Cedar Creek, Tex., reported a loss of 375 turkeys by a pair of wolves during the past season. On June 17 a Service hunter caught one of the wolves and the next day succeeded in taking its mate. This control stopped further losses in the area.

Personnel.--F. E. Carlough, formerly Director of the Control Methods Research Laboratory at Denver, Colo., transferred to the Washington office of this Division, reporting on August 8 to become technical advisor to the chief of the Division. He will also prepare technical bulletins on the work of the Division and will act as liaison officer for the Division. The personnel formerly assisting Mr. Carlough has been transferred to the new Wildlife Research Laboratory at Denver.

Weldon B. Robinson, formerly acting as junior district agent in Region 8, with headquarters at Ithaca, N. Y., transferred in July to the Wildlife Research Laboratory at Denver to do research work on the control of coyotes.

Noble E. Buell, assigned to research work on methods of controlling coyotes since September 1939, has returned to predator and rodent-control work in the Wyoming district, as assistant to District Agent Adolph S. Hamm. Mr. Buell, will have headquarters at Evanston, Wyo.



Elonzo G. Pope has been appointed as agent to carry on the work in northwest Texas, with headquarters at Lubbock.

Walter W. Dykstra was reallocated, effective July 1, to serve as principal assistant to Geo. B. Lay in the New England area. His headquarters are at Amherst, Mass.

John N. Hamlet, junior district agent with headquarters at Portland, Maine, has been transferred to College Park, Md., to assist in the rodent-control project in the southern portion of Region 5. Mr. Hamlet will continue to work under the supervision of District Agent Geo. B. Lay.

Luther T. Burchfield, predatory-animal hunter, has been transferred from San Antonio to Jackson, Miss., to carry on bobcat-control work in cooperation with the Mississippi State Game Commission to further the propagation of wild turkeys in that State.

Miss Ruth Knisley transferred on August 21 to the Division of Predator and Rodent Control in the Washington office from the Division of Administration.



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# THE SURVEY



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Washington, D. C., September 1940

No. 9

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## GENERAL NOTES

The Survey Continues Temporarily.—Though the Fish and Wildlife Service became a legal entity in the Department of the Interior on June 30, THE SURVEY, official house organ of the former Bureau of Biological Survey, will continue publication under its old name until sometime in the fall when the name, format, and editorial contents of the Fish and Wildlife Service house organ will be determined.

Judge Williams Dies.—Chief Counsel Robert W. Williams died in Emergency Hospital in Washington, D. C., on Thursday, September 19, a few hours after he had been stricken with a heart attack in his office. The Judge, an honorary title conferred upon him by his associates when he was Solicitor of the Department of Agriculture, would have been 63 years old next December 5. He had assumed the new position of chief counsel on July 1, 1940. He transferred to that post from the Section of Importations and Permits, Division of Game Management, which he had headed since 1931.

"Judge Williams' life was patterned on the highest ideals of public service," said Dr. Gabrielson in a statement that was released to the press. "His associates know him as a kindly, courteous gentleman whose knowledge of wildlife-conservation laws and codes was more extensive, perhaps, than that of any other person. He will be mourned by many throughout the United States and Canada and particularly by his associates of the Fish and Wildlife Service."

Born in East Carroll Parish, La., in 1877, the Judge moved to Florida where he spent his boyhood days. After receiving his LL.B. degree from Northern Indiana Law School in 1898, he practised law with his father in Tallahassee for 4 years. In 1902, he joined the former Bureau of Biological Survey as a game law assistant. In 1907, Judge Williams transferred to the Office of the Solicitor, Department of Agriculture. In 1920 he was named Solicitor and held that position for 9 years.

In 1929, he returned to the Biological Survey as supervisor of refuges in the southeastern States with headquarters at Tallahassee. When Talbot Denmead transferred to the Bureau of Fisheries, Judge Williams was brought to Washington as head of the Section of Importations and Permits.

Judge Williams was known for his wide legal background. He had often been credited with probably knowing more about wildlife-conservation laws than any other individual in the country.



Charles G. Poole Dies.--Charles G. Poole, former district agent of the California district, died at his home in Sacramento, Calif., on September 1, his death resulting from a heart ailment from which he had suffered for some months. As reported in the last issue of THE SURVEY, Mr. Poole retired on June 30 last, after many years of conscientious work in the California district, where he directed the Service's cooperative predator and rodent control projects.

Returns from Alaska.--On May 25 Dr. Gabrielson left Washington for an extended trip through Alaska. Among other places, he visited Seward, Kodiak Island, Unalaska, Amchitka Island, various points in the Aleutian Island chain and the Pribilof Islands, Naknek, Iliamna Lake, Anchorage, McKinley Park, Circle, and Valdez. On his return to the States he attended the meeting of the Western Association of State Game and Fish Commissioners in Seattle on August 22. He returned to Washington on August 23.

Attends Conventions.--Dr. Gabrielson left Washington for Canada on August 26. While there he attended the meeting of the International Association of Game, Fish, and Conservation Commissioners, which was held in Toronto on September 2, 3, and 4. On September 9 and 10 he attended the meeting of American Ornithologists' Union in Boston. He returned to Washington on September 10.

Named to A.O.U. Council.--At the 58th meeting of the American Ornithologists' Union, which was held in Boston from September 9 to September 15, Dr. Gabrielson was elected a member of the Council. Stanley G. Jewett, of the Division of Wildlife Refuges, was made a fellow of the Union. Re-elected to office were: James P. Chapin, of New York, president; James L. Peters, of Cambridge, Mass., and George Willett, of Los Angeles, vice-presidents; Dr. Lawrence E. Hicks, leader of the Ohio Wildlife Cooperative Research Unit, secretary; and Rudyerd Boulton, of Chicago, treasurer and business manager.

Various sessions of the meeting were held at the New England Museum of Natural History, the Institute of Geographical Exploration of Harvard University, and the Hotel Statler. Fish and Wildlife Service employees appearing on the program were Dr. T. S. Palmer (retired) whose contribution, "In Memoriam: Otto Widmann," was read by title; May Thacher Cooke, of the Section of Distribution and Migration of Birds, who discussed "Accurate Publication;" and W. F. Kubichek, of the Division of Wildlife Refuges, who showed a colored motion picture entitled "Trumpeter Swans and Other Interesting Birds on National Refuges."

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (August) of THE SURVEY:

- No. 278. Amendment No. 1. Regional office officials authorized to administer oaths to accounts for travel or other expenses against the United States. (Undated. Distributed August 22.)
- No. 298. Amendment No. 1. Interpretation and application of the Hatch Act. (August 26.)
- No. 328. Personal photographs for Department files. (August 19.)
- No. 329. Restrictions on use of franking privilege by employees not under appointment or not paid from Federal funds. (August 19.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 159. Stenographic reporting service. (August 9.)
- No. 160. Contracts for the procurement of hand tools, Class 41. (August 16.)
- No. 161. Contracts for the procurement of cement, paints, paint ingredients and floor wax (Class 52). (August 16.)
- No. 162. Procurement of repair parts for Kohler generating sets. (September 3.)
- No. 163. Mandatory contracts for the procurement of storage batteries, battery equipment and parts, and automatic battery fillers and parts therefor (Class 17, Supplement No. 2), September 1, 1940, to August 31, 1941. (August 30.)
- No. 164. Mandatory contracts for office equipment (Class 54) to June 30, 1941. (September 3.)
- No. 165. No memorandum with this number will be issued in this series.
- No. 166. Mandatory contracts for the procurement of incandescent electric lamps, including lamps for motor vehicles and flashlights, and photographic flash lamps (Class 17, Supplement No. 3). (September 11.)
- No. 167. Mandatory contracts for the procurement of electric fans (Class 17, Supplement No. 1). (September 12.)

#### PUBLIC RELATIONS

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Regulations relating to game, land fur animals, and birds in Alaska, 1940-41. Alaska Game Commission Circular 18, 32 pp., illus. July 1940. Received August 16.
- Seasons for migratory game birds, 1940-41. Compiled by Frank G. Grimes, administrative assistant, Division of Public Relations. Poster 64, 1 p. August 1940. Received August 28.
- Regulations relating to migratory birds and certain game mammals: 1940. Wildlife Circular 9, 13 pp. August 1940. Received September 11.
- Infectious myxomatosis of domestic rabbits (Mosquito disease; big-head disease). By F. D. McKenney and E. L. Vail, veterinarians, Section of Disease Investigations, Division of Wildlife Research. Wildlife Leaflet 166, 2 pp. July 1940. Received August 19.

The annual fur catch of the United States. Prepared in the Section of Fur Resources, Division of Wildlife Research. Wildlife Leaflet 170, 21 pp. August 1940. Received September 12.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Reports wildlife benefits from Federal Aid program. Press Release. Released August 24.
- Resigns from Federal service to be Wildlife Institute secretary. Press Release. Released August 25.
- Raise snowshoe rabbits in captivity in Maine. Press Release. Released August 26.
- Moves ground, nest, and sitting wild bird 25 miles to photographer's studio. Press Release. Released August 28.
- Examine 1,639 stomachs of 5 shorebirds to determine food habits of the species. Press Release. Released August 28.
- Game birds have different names in various sections of the country. Press Release. Released August 29.
- The story of Wildlife Service food-habits investigators. Press Release. Released September 1.
- Game species dying out, but may yet be saved Texan says. Press Release. Released September 5.
- Tattoo snakes to study depredations on ducks. Press Release. Released September 6.
- Two Alaska game agents will fly planes from Washington. Press Release. Released September 5.
- Cottontail rabbit, popular game animal, being studied by experts. Press Release. Released September 17.
- Success of alien game birds studied in United States. Press release. Released September 18.
- Tips and Briefs (Clip sheet). Vol. 1, No. 10. Released September 20.
- Game expert in new job. In "Current Conservation" (Clip sheet). Vol. III, No. 6. August 1940.
- New trick in old clothes put law enforcement men to test. In "Current Conservation" (Clip sheet). Vol. III, No. 6. August 1940.

Outside Publications.--Articles by members of the Service appearing in outside publications have been reported as follows:

- Caminita, L., Jr. Naturalist--by chance and by choice. Amer. Wildlife 29: 168-172, illus. July/Aug. 1940.
- Cottam, C., Nelson, A., and Saylor, L. The chukar and Hungarian partridges in America. Mod. Game Breeding 10 (7): 6-7, 12. July 1940.
- Pearce, J. (With L. H. Reineke, junior author). Rabbit feeding on hardwoods. Northeast. Forest Expt. Sta. Leaflet 35 (Processed). June 1940.
- Plitt, T. M. Problems in fur fiber research. Nat. Fur News 12 (7): 5, 17, illus. Aug. 1940.
- Saylor, L. W. Ten new West Indies beetles of genus Phyllophaga with two new names. Washington Acad. Sci. 30: 305-314, illus. July 15, 1940.



- Taylor, W. P. (With C. T. Vorhies, junior author). Life history and ecology of the white-throated wood rat, Neotoma albigula albigula Hartley, in relation to grazing in Arizona. Univ. Arizona Tech. Bull. 86, 455-529, illus. June 1, 1940.
- Ward, J. C., Garlough, F. E., and Crabtree, D. G. Red squill VIII--further notes on bioassay methods. Journ. Amer. Pharm. Assoc. 29: 354-357. Aug. 1940.
- , Spencer, H. J., Crabtree, D. G., and Garlough, F. E. The influence of altitude upon the toxicity of red squill powder to alpine rates. Journ. Amer. Pharm. Assoc. 29: 350-353. Aug. 1940.
- Young, S. P. The come-back of the antelope. West. Sportsman 5 (4): 6, 7, 8, 23, 31, illus. Sept. 1940.

## WILDLIFE RESEARCH

Undertake New Duties.--C. M. Aldous, former leader of the Maine Cooperative Wildlife Research Unit, Orono, arrived at Ogden, Utah, on September 1 to become head of the forest and range wildlife-research work in connection with the Intermountain Forest and Range Experiment Station. The work will be done under the McSweeney-McNary Forest Research Act. S. Barry Locke, now regional director at Boston, initiated the rodent-range studies at Ogden several years ago. Mr. Aldous will cooperate with the Forest Service, Grazing Service, Soil Conservation Service, and the Utah State Fish and Game Department, and will collaborate with Dr. D. Irvin Rasmussen, leader of the Utah Cooperative Wildlife Research Unit at Logan, on forest and range wildlife problems. His territory will include Utah, Idaho, western Wyoming, and Nevada. John Pearce, who has been in charge of the forest-wildlife relationship work at the Northeastern Forest Experiment Station in New Haven, replaced Mr. Aldous as leader of the Maine Unit. The work at New Haven will be temporarily discontinued.

Wildlife Surveys

Confers on Mammal Marking.--Donald R. Griffin, of Harvard University, conferred with Dr. H. H. T. Jackson on August 29 on methods of marking mammals. Mr. Griffin has probably done as much as any single individual towards such studies and particularly has made contributions in connection with bat-banding research.

Studies Wolves in McKinley Park.--Biologist L. J. Palmer, who has headquarters at Juneau, Alaska, spent the last 2 weeks of August assisting on the wolf-mountain sheep relationship research project in Mount McKinley National Park. He ran several biological transects, besides making observations on wolves and mountain sheep.

Investigates Alaska Buffalo Herd.--Jack W. Warwick, assistant to Mr. Palmer, spent some time in July and August studying the conditions and population of the Alaska buffalo herd. His earlier field studies were on Jarvis Creek and the east side of Big Delta River. On a bar of the river, he

counted 54 animals--20 bulls, 18 cows, 8 yearlings, and 8 calves, all in good condition. Mr. Warwick believed most of the buffaloes were on the west side of the Big Delta River. His completed estimate has not yet been received.

Receives Scholarship.--William H. Marshall, biologist stationed at Boise, Idaho, has received a graduate scholarship at the School of Forestry and Conservation, University of Michigan, Ann Arbor, and will spend the college year, 1940-41, studying and doing research along his special lines in zoology and wildlife management. Mr. Marshall arrived in Washington, D. C., September 8 for a detail of some 3 weeks duration to make studies on his marten and Richardson grouse material that could not be made elsewhere.

No Lava-Bed Bighorns.--Following up rumors and reports of the occurrence of lava-bed bighorns in certain mountains of northwestern Nevada, Olaus J. Murie made a careful inspection during August of the Jackson Mountains and several ranges near Gerlach, Nev., including Black Rock Point, Granite Mountains, the Badlands, and other areas. No sign of bighorns was found, and Mr. Murie and Dr. Jackson are convinced, after investigating this last hope, that the lava-bed or rimrock bighorn, Ovis canadensis californiana, is extinct.

Releases Lesser Prairie Chickens.--On August 24, Frank B. McMurry released eight young lesser prairie chickens on Antelope Flat in the Wichita Mountains Wildlife Refuge, Okla., and nine at a point one-half mile west of the corrals. Mr. McMurry said that all the birds flew about one-eighth mile after release before settling down. The chickens were trapped on the Wilson Ranch, near Arnett, through the cooperation of Mr. Wilson.

Last Tailless Coyote Dies.--The last of 3 tailless coyotes, kept for breeding purposes in connection with genetic studies conducted by Mr. McMurry, died on August 15 at the Wichita Refuge. The coyotes came from a litter found in the wild in northern California, where at least 3 other similar litters had been known. The animals carried not only the mutation of almost taillessness but had an abbreviated and crowded spinal column, crowded intestines, and other peculiarities that will be studied on preserved specimens.

Visit Mammal Laboratory.--Dr. Jose R. Quiroga, president of the Bolivian Dental Association, chief of the Bolivian Army Dental Corps, and professor at the University of San Andres, La Paz, Bolivia, visited the mammal laboratory on August 27. Dr. Quiroga was interested in learning about methods of preparation and care of scientific mammal specimens in the field, especially as developed and improved by the Fish and Wildlife Service.

Ensign and Mrs. Henry A. Stewart, U.S. Naval Reserve, Naval Proving Grounds, Dahlgren, Va., visited the laboratory on August 30 to see

the type specimen of Ursus magister shot by Ensign Stewart's father, Henry A. Stewart, in Santa Ana Mountains, Calif., in August 1900.

Tappan Gregory, of Chicago, president of the Izaak Walton League of America, called at the laboratory on September 16. Mr. Gregory, besides his interest in mammals, is one of the nation's leading photographers of wildlife. He conferred with Stanley P. Young and Major E. A. Goldman regarding progress on the Fauna being compiled on the North American wolf, in which he is deeply interested. He has also aided materially by donating color plates that will illustrate the wolf Fauna in part.

Donald J. Wooley, field biologist of the Commission of Game and Inland Fisheries, Richmond, Va., visited the laboratory on September 11 to confer with Major Goldman about Virginia deer.

#### Food Habits Research

Attend A.O.U. Meeting.--Dr. Clarence Cottam, Lawrence Saylor, and Phoebe Knappen attended the recent meeting of the American Ornithologists' Union in Boston (See story on page 230). While in Boston, Dr. Cottam did some work at the bird range, and Mr. Saylor studied specimens in the invertebrate collection of the Museum of Comparative Zoology.

Study Eelgrass Areas Along Coast.--Dr. Cottam and Mr. Saylor inspected eelgrass areas along the coast on their way north to the A.O.U. meeting. They reported that in some areas the eelgrass stands were improving, but in other localities the waterfowl plant remained in a poor condition.

Makes Nesting Observations.--Biologist Clarence A. Sooter reported that his recent studies of waterfowl nests in the Malheur National Wildlife Refuge, Oreg., indicate a slight increase in the number of Canada geese but a general decrease in the number of ducks nesting in that refuge as compared with the 1939 nesting season. He has observed 327 Canada goose nests and 302 duck nests, including mallards, gadwalls, cinnamon teals, pintails, shovelers, green-winged teals, and redheads. Twelve sandhill crane nests also were under observation during the present season.

Personnel.--Biologist Albert H. Trowbridge has been transferred from the Washington, D. C., offices to the Santa Rita Experimental Range near Tucson, Ariz. He will be engaged in studies on rodent populations in relation to southwestern ranges, it was explained. He will work under Biologist E. E. Horn, in charge of rodent range studies in California. Mr. Trowbridge will cooperate with the Forest Service, Grazing Service, Soil Conservation Service, and the University of Arizona, and will be assigned to the staff of the Southwestern Forest and Range Experiment Station. The work is under the McSweeney-McNary Forest Research Act.



Distribution and Migration of Birds

Attends Izaak Walton League Meeting.--On August 24 and 25, F. C. Lincoln attended the summer meeting of the Minnesota Division, Izaak Walton League of America in Minneapolis. Following a dinner attended by about 150 members, he gave an address on the present status of migratory waterfowl and the research conducted by the Service as a basis for regulatory action. The next morning he held a conference with Basil C. Walters, editor of the Minneapolis Star-Journal, who is contemplating the inauguration of a conservation department in his paper and desires aid from governmental agencies.

Goes to Canada.--Mr. Lincoln attended the meeting of the International Association of Game, Fish, and Conservation Commissioners, which was held in Toronto from September 2 through 4. On the 4th an executive session was held with the State officers, at which time he outlined the latest information on the status of migratory waterfowl, woodcocks, and mourning doves. On September 8, he went to Boston to attend the A.O.U. meeting (See story on p. 230). Robert C. McClanahan and Miss May T. Cooke also represented the Section.

Visits James Bay Area.--Harold S. Peters, the Atlantic Flyway biologist, is accompanying Dr. Harrison F. Lewis, of the Department of Mines and Resources, Ottawa, on a trip to investigate waterfowl in the James Bay Region. He then plans to visit waterfowl areas in New York, Pennsylvania, and Ohio. During the last week in August he was in North Carolina to observe that State's work on a dove project.

Gets Movies of Arctic Bird Life.--C. E. Gillham, the Mississippi Flyway biologist, as a supplementary feature of his work in the far north during the past summer, obtained 3,800 feet of colored motion pictures dealing with the bird life of the western Arctic, including photographs of nests and eggs of the lesser snow goose and black brant.

Observes Young Doves.--As a feature with his work with white-winged doves, Dr. George B. Saunders, the Central Flyway biologist, is attempting to learn the age at which young doves become independent of their parents. In working on this problem he is keeping several young birds in captivity and reports that eight young from 3 to 4 weeks old are, with one exception, unable to sustain their growth and weight unless fed by him.

Observes Waterfowl in Idaho.--Pacific Flyway Biologist Luther J. Goldman investigated waterfowl conditions in Idaho during August, working south via the Bear River Refuge, Utah, and east across Nevada to California.

Visit Washington Office.--Donald R. Griffin, of Barnstable, Mass., and one of the birdbanding cooperators of the Service, visited the Washington office on August 29. He examined return records of herring gulls and common terns to determine the number of coastal-bred birds recovered

subsequently in the interior of the country, as a part of a study he is making on their sense of orientation.

J. Murray Speirs, of the Department of Zoology, University of Illinois, spent September 13 and 14 in the Washington office, abstracting data from the file of robin returns.

Interesting Returns from Banded Birds.--The following are returns of outstanding interest from banded birds, showing band number, place and date of banding, and place and date of recovery:

Blue-winged teal:

39-505007, Mich., Germfask,  
Seney Refuge, 8/23/39

B.W.I., Trinidad, Port of Spain,  
2/27/40

Osprey:

36-807827, N.J., Cape May Co.,  
7/23/39

S.A., Columbia, Puerto Berrio,  
5/14/40

Bank swallow:

139-27559, Ill., Palos Park,  
7/16/49

S.A., Peru, Iquitos, La Tempes-  
tad, 1/6/40

Lutescent warbler:

40-5362, Calif., Eagle Rock,  
4/3/40

Alaska, Wards Cove, 6/21/40

Waterfowl Book Still Available.--In response to numerous requests from the field, Mr. Lincoln, while recently in Boston, made inquiry of the Houghton Mifflin Company regarding the availability of "American Waterfowl," on which he collaborated with Dr. John C. Phillips. He learned that the book is still available.

Fur Resources

Attends Fur Consultant's Training Course.--Frank G. Ashbrook attended the Fur Consultant's Training Course, which was sponsored by the Associated Fur Coat and Trimming Manufacturers, Inc., and was held in Hotel Pennsylvania, New York City, during the week of September 9. He was the first speaker on the program and gave an illustrated lecture on muskrat production in the United States. He further advised students of the organization of the Fish and Wildlife Service and more particularly of the broader aspects of the work on fur resources. Most of the students came from the larger cities of the United States. Many persons prominent in the fur trade, including fashion editors of women's magazines, were present.

Visits Fur Animal Station.--Mr. Ashbrook recently visited the U.S. Fur Animal Experiment Station at Saratoga Springs, N.Y., in company with P.S. Hunk Pedersen, assistant chief of the Division of Construction and C.C.C. Operations. They inspected the construction work at the station. The

building program has progressed satisfactorily, Mr. Ashbrook said, and should be completed by October 15. This provides a new residence for the station director's assistant, additional laboratory facilities, a refrigerating unit, a slaughter house, a carpenter shop, and additional pens for the fur animals. With this new equipment, it will be possible to expand the research work for the feeding, breeding, and handling of fur animals in captivity.

Indian Service Officials Study Karakuls.--Mr. Ashbrook, Chas. E. Kellogg, and Dr. Thora Plitt joined officials of the Bureau of Animal Industry on September 18 to review for a delegation from the Indian Service the cooperative research work being done in karakul sheep breeding.

A flock of 15 selected, young Navajo ewes, property of the Indian Service, was recently received at the Agricultural Research Center. These sheep are to be used in the research study of crossing with pure bred karakul rams. The practicability of encouraging the Indians to produce Persian lambskins by crossing the karakul with the Navajo sheep was discussed.

Attends Fur Seal Sale in St. Louis.--Mr. Kellogg on September 9 attended the Alaska fur seal and the blue fox skin sale at St. Louis. This was the largest Alaska seal skin sale ever held. He spent the following day at the plant of the Fouke Fur Company observing the dressing and dyeing operations. He also conferred with officials of the company on contemplated research work with the fur seals on the Pribilof Islands. Mr. Kellogg also discussed fur-farming problems with the research staff of a large feed company in St. Louis.

Personnel.--Merle Markley, a graduate of Oregon State College, Department of Fish and Game Management, was recently appointed a junior biologist in the Section and will be assigned to the Washington office. Previous to this appointment Mr. Markley was employed as junior aquatic biologist with the Bureau of Reclamation at Redding, Calif., where he worked on stream surveys in connection with the Shasta Dam Salmon salvage investigations.

#### National Park Wildlife

Lectures.--On August 23, Clifford C. Presnall talked to a group of 500 persons in Rock Creek Park, Washington, D.C., on "Wildlife in Mount McKinley and Alaska." He showed one reel of Dr. Adolph Murie's Alaska film and one reel of the Fish and Wildlife Service sound film "Bears in Alaska." The talk was sponsored by National Capital Parks.

Talks to Sierra Club.--Field Biologist E. Lowell Sumner, Jr., recently gave several talks before the Sierra Club at its East Lake Camp. He spoke on wildlife problems of the High Sierras and on the grazing study he is making on the Kings Canyon National Park, Calif.



Plant Trout.--Through cooperation with the Arizona State Hatchery at Pinetop, personnel of the Grand Canyon National Park, Ariz., recently made an unusual and very successful planting of rainbow trout, according to Assistant Chief Ranger W. F. Hamilton. The plant was made in Clear Creek, located down in the canyon 17 miles by trail from the point of delivery by truck on the South Rim. In Grand Canyon National Park the usual difficulties of planting trout in streams far removed from roads are complicated by the hot weather often experienced in the bottom of the canyon. Losses of fry that have had to be packed into the hot canyon by mules have usually been high. To meet this difficulty, arrangements were made for a night-time planting of Clear Creek. With the aid of workers from the State Hatchery, 20,000 rainbow fry were delivered to the South Rim late in the evening. There the fry were packed on 10 mules, and another mule was loaded with extra water for changing en route. The pack train departed at 11 p.m. and arrived at Clear Creek at 6:20 the next morning. Water temperature in the cans remained low throughout the trip, and park officials estimate that 80 to 90 percent of the fry survived the trip, one of the most successful plantings made in the history of the park.

Field School Closes for Season.--The Yosemite Field School of Natural History, Calif., closed on August 3. Mr. Joseph Dixon reported a successful season. The two major biological projects were (1) a comprehensive study of three deer grazing quadrats located at Indian Caves, El Capitan, and Bridal Veil Meadow on the floor of Yosemite Valley, and (2) a study of the flora and fauna of the Mud Flow on the Swamp Lake Research Area as compared with that of the glacial moraine that covered much of the surrounding ridges. The deer grazing quadrats were selected some 4 years ago as being critical areas on the winter and summer range of the California mule deer, and by comparison with the adjacent area outside of the fenced quadrats on which the deer browse freely it was possible to obtain the browse pressure on the native vegetation. The students also were able to identify and locate all annual and perennial plants growing on the three quadrats. Their findings gave the National Park Service valuable basic data for its wildlife management program and afforded the students an excellent opportunity to apply their scientific training. On the second project, important new scientific data were obtained on the nature and distribution of the extensive lava mud flow which occurred in this area.

Stream surveys on the Maclure Fork of the Merced River and of certain high mountain lakes were made, and reports will be available to the park for use in connection with the park fish-planting program. Many new park records for species of insects were obtained and the Mount Lyell salamander was found in another area, Triple Divide Peak. The first recorded nesting record of the western lark sparrow in the park was also obtained.

Investigate Reports of Relapsing Fever.--In connection with the recent reported cases of what is thought to be relapsing fever at Manzanita Lake, the California State Department of Health has been given authority to collect such rodents from the Lassen Volcanic National Park as may be necessary to determine whether or not the rodents are carriers of the spirochaetes

of relapsing fever. Mr. Dixon recommends that if fumigation be used it be of a type that will also kill ecto-parasites on an infected animal. If the rodent is killed by shooting or by use of the ordinary lethal rat trap, the ticks and fleas on the rodent will leave the dead animal in search of a new home, Mr. Dixon believes. He suggests that if a rodent is caught or captured alive in a box or other type of "live" trap the ticks and fleas are more likely to remain on the rodent. The animal can be examined and if not found infected or carrying ticks can be released at a remote portion of the park away from human habitation. Mr. Dixon recommends that attention be given to the problem this fall before the chipmunks and ground squirrels go into hibernation. He also believes that park visitors should be cautioned against close contact with chipmunks and golden-mantled squirrels.

#### FEDERAL AID IN WILDLIFE RESTORATION

Colorado Buys Refuge for Deer.--The Colorado Game and Fish Commission on September 12 received approval for a project to purchase 2,069 acres of land in Rio Blanco County as a winter feeding area for deer. Census work under a survey and investigation project now in operation in Colorado indicates that more than 50,000 deer winter in this general locality. Through cooperation with the Grazing Service preferential consideration will be accorded wildlife on adjacent public lands.

Idaho Develops Upland Bird Refuge.--The State of Idaho received approval on September 12 for a project for fencing and habitat development of an addition to the Nez Perce Upland Bird Refuge, located in Lewis County. Idaho had previously purchased the refuge and provided for its development. After the original acquisition, another tract was purchased to increase the refuge area. The lands included in the two purchases are of particular benefit to pheasants, Hungarian partridges, and sharptailed grouse.

Reports on Beaver Studies.--A comprehensive report of activities and accomplishments for August 1940 under the beaver management program in Oregon was recently received from A. V. Meyers, the project leader. The report shows that the Eastern Oregon Unit Stream Survey required 29 man days, during which time 29 streams were completely surveyed and portions of 13 additional streams were investigated. A total of 197 miles of stream and one lake was viewed in the month's activities. A sample census showed there was a population of some 240 beavers, with 20 planting sites sufficient for an additional 100 animals. The total estimated carrying capacity was 1,500. On the Willamette National Forest Unit Stream Survey, 54 man days were required to completely survey 17 streams and partially investigate 3. A total of 86 miles of streams and 50 lakes revealed 13 planting sites with a capacity of 60 animals and a total estimated capacity of the area of 650. More than 140 beavers were trapped with a loss of only 6, and 105 of the animals have been released on available sites.



## LAND ACQUISITION

Increase Acreage of Delta Refuge.--The President on August 16 signed an Executive order entitled "Changing the Name of the Delta Migratory Waterfowl Refuge to Delta National Wildlife Refuge and Adding Certain Lands--Louisiana." The addition to the refuge covers approximately 41,500 acres.

Inspects Refuge.--Mr. Dieffenbach left Washington, D.C., on August 25 to inspect established and proposed refuge units in Region 5. While in Boston, he conferred with Regional Director S. Barry Locke. He returned to Washington on August 30.

Regional Land Acquisition Offices Established.--Effective July 1 with the reorganization of the regional set-up, the Division of Land Acquisition established offices in each of the regions. To take care of the land-acquisition activities, the following personnel have been assigned to the various regions:

Doren E. Woodward, land valuation engineer, was transferred from Denver to Portland, Oreg., to take charge of land-acquisition activities in Region 1. Bert Tousey, cadastral engineer; Merland Benedict and Frank S. Farquhar, engineering aides; Charles T. Annis, draftsman; and Leah Lloyd, senior stenographer, have been transferred to Portland to assist in acquisition work.

To head up the land-acquisition work in Region 2, Carey H. Bennett, land valuation engineer, was transferred from Denver to Albuquerque. Mr. Bennett, formerly with this Division, has for the past 4 years been employed as a refuge manager in the Division of Wildlife Refuges. Kenneth C. Kern, cadastral engineer; Martin Hawrylow, Jr., land valuation engineer; and George L. Ducret, engineering aide, are Mr. Bennett's assistants.

Chas. S. Cook, cadastral engineer, was transferred from Des Moines to Minneapolis as head of the land-acquisition work in Region 3. Richard Putnam, land negotiator; Theodore M. Conrardy, cadastral engineer; Joe Smoke, acquisition aide; Martin C. Cowdey and John A. Wilson, engineering aides; and Mrs. Eleanor P. Hallinan, senior stenographer, will assist Mr. Cook.

William L. Towns, land valuation engineer, was transferred from Des Moines to Atlanta to take charge of land-acquisition activities in Region 4. Transferred to Atlanta to assist Mr. Towns were Edward E. Ripper, land valuation engineer; Osvold E. Recroft, cadastral engineer; and Frank S. Hemmings, engineering aide.

Elmon Radway, land valuation engineer, and formerly in the Washington office, is in charge of the land-acquisition activities in Region 5. William A. Schmidt, cadastral engineer, and R. W. MacDonald, engineering aide, have been named Mr. Radway's assistants.



### Surveys and Maps

Base Maps Completed.--A base map of the Patuxent Research Refuge, Md., has been completed to the scale of 1 inch equals one-fourth mile on a standard atlas sheet 18 inches by 21 inches. A base map of this refuge has also been completed to the scale of 1 inch equals one-eighth mile in two standard atlas sheets, size 33 inches by 21 inches. Prints of these are now available.

Map Work Progresses.--Part of the base atlas of the St. Marks National Wildlife Refuge, Fla., has been completed to the scale of 1 inch equals one-fourth mile on standard atlas sheets 33 inches by 21 inches and 35 inches by 21 inches. These two sheets cover the extreme western part of the refuge and the greater part of the land recently added to the refuge by Executive Order No. 7977. Prints of these are now available.

Survey Boundaries on Brigantine.--Arthur A. Riemer recently inspected the Brigantine unit in New Jersey, where William A. Schmidt, cadastral engineer, has been detailed to make boundary surveys.

Personnel.--Marion E. Phillips, cadastral engineer, is being transferred to the Civil Aeronautics Authority.

Lee Roy Woodruff has recently been reinstated in the Service in the position of engineering aide and is in the Region 3 office.

Martin C. Gowdey, engineering aide, has submitted his resignation to be effective about October 1. Mr. Gowdey is accepting a position with the Department of Public Works of the Commonwealth of Massachusetts.

### Appraisals and Negotiations

Inspects Refuges and Confers with Regional Officials.--Albert J. Rissman during August inspected proposed refuge units in Texas, Ohio, Virginia, and Maryland and conferred with regional land-acquisition personnel in Atlanta and Texas.

Negotiates with State.--Negotiations have been completed with Minnesota officials for the leasing of approximately 60 percent of the Lac Qui Parle lands acquired by State for flood-control purposes. This lease will give the Service control of an important migratory-waterfowl area in the heart of the breeding range of the Mississippi River flyway.

Cooperates with T.V.A.--Negotiations have been conducted with officials of the T.V.A. whereby that organization has agreed to acquire fee simple title to approximately 3,800 acres of land lying between the present boundary of the Kentucky Woodlands National Wildlife Refuge and the Tennessee River. The Service has agreed to purchase approximately 1,000 acres lying in this same territory, which will be made inaccessible as a result of the construction of the Gilbertsville Dam by the T.V.A. Under this agreement, the 4,800 acres will be administered as part of the refuge.

Horicon Marsh to be Restored.--An agreement with the State of Wisconsin provides that the State will acquire through a Federal Aid project the south one-third of the Horicon Marsh, and the Service the north two-thirds. Options on approximately 12,000 acres of the northern part of this unit have been obtained. This comprises more than half the area needed to restore this once-famous waterfowl area to its former value as a haven for migratory birds.

Examines Malheur Lake.--In connection with court proceedings to determine title to the bed of Malheur Lake, a detailed examination of the cover types comprising the bed of Malheur Lake has been made. Edward E. Smith was detailed from Region 3 and Martin Hawrylow from Region 2 to aid in this work.

Federal Aid Projects Examined.--Examination has recently been completed for Federal Aid projects in Colorado and Michigan. The Missouri Creek area in Colorado comprises 2,070 acres of land and the Crane Pond area in Michigan contains 8,302 acres. This brings the total number of units examined and appraised under the Federal Aid Act to 53, containing a total of 319,130 acres.

Personnel.--Five men have been appointed to the position of assistant land valuation engineer to fill positions that have been created not only to meet the responsibilities of the Division in connection with the acquisition of land under the provisions of the Migratory Bird Conservation Commission but to carry out the Division's responsibilities incident to the execution of the Federal Aid Act. The following were appointed and assigned to their headquarters: Ennio Abbiati, on July 26 to Boston; Robert E. Lines, on August 5 to Atlanta; Edward E. Smith, on August 7 to Minneapolis; Florian G. Spoden, on August 19 to Washington, D.C.; and Harold A. Carter, on September 3 to Minneapolis.

Miss Marjorie L. Hass has been appointed junior stenographer in Region 3 effective September 13.

#### Title Section

Water Rights on Lacreek Purchased.--The purchase of an important water right from Mrs. Fred W. Schwartz and the Central Electric and Telephone Company has been completed and gives the Service a supply of water necessary for the Lacreek National Wildlife Refuge, S. Dak.

Title to Refuge Land Approved.--The Attorney General by his opinion dated August 30 has approved title to 1,586.57 acres of land in Effingham County, Ga., which were tendered as a gift to the United States by Dr. F. C. Wilson and is intended to be established as the Wilson National Wildlife Refuge.

## WILDLIFE REFUGES

Hurricane Damage Slight.--The hurricanes that swept Louisiana and the South Atlantic Coast States during the early part of August did comparatively little damage to the wildlife refuges in these territories, according to reports from the field. In Louisiana, the protection levee in front of the headquarters at the Delta Refuge was cut through in one place, flooding the headquarters area, and a considerable amount of earth was removed along its entire length. One building was capsized and one rowboat was demolished. Little damage was done at the Lacassine Refuge, but headquarters buildings at the Sabine Refuge were flooded with approximately 4 feet of water. The front beach at the Bulls Island Unit of the Cape Romain Refuge, S.C., broke through, but the protection dike held. At the Savannah Refuge, Ga. and S.C., shingles were taken off the roof of the main residence and service buildings and parts of the roofs were blown off another residence building and the boathouse. The damage at Blackbeard Island, Ga., was negligible. (See also story on p. 248.)

Paroquet Auklets on Haystack Islets.--Manager H. Douglas Gray, of the Aleutian Islands Refuge, Alaska, advised that he recently located a colony of several hundred paroquet auklets on the Haystack Islets. This is the most eastern colony he has found in his patrol work in Alaska. Tens of thousands of nesting Pacific kittiwakes were also present on the Haystack Islets, he said. This is the second largest colony Mr. Gray has seen in Alaska.

Prospector Perishes Near Refuge Boundary.--The body of a prospector who had perished from lack of water was found a short distance from the west boundary of the Cabeza Prieta Game Range, Ariz., Manager Malcolm N. Allison recently reported. The body was found about 3 miles from the prospector's abandoned car, which had two flat tires. The drain-cock of the radiator was open, indicating that the water had been drained into a canteen. The prospector had an ample supply of groceries in the car. All the fruit cans had been opened and the juice drunk from them.

New Records for Big Lake.--A mature king rail was seen on the Big Lake Refuge, Ark., on June 30 and a male and female with 12 young on July 16. This is the first time the king rail has been recorded on the area since the establishment of the refuge. On July 19, a mallard hen with 14 young was seen. This is the first mallard nesting record for the refuge in recent years.

Smartweed Replaces Water Primrose.--O.D. Cash, manager of the Big Lake Refuge, reported noteworthy success in an experimental effort to establish water smartweed (*Polygonum mihlenbergii*) in areas occupied by water primrose (*Jussiaea diffusa*). The water primrose, a species of very low value as a food plant, is removed and smartweed transplanted to the cleared area. An effort is also being made to replace rice cutgrass (*Zizaniopsis miliacea*) in the same manner.



Least Terns Increase at St. Marks.--Least terns nesting on the St. Marks Refuge, Fla., increased about 100 percent this year, according to Manager Donald V. Gray. Most of the nests are situated on dikes and spoil banks from river dredging operations. On one small bank in the river, more than 60 nests were counted.

Nesting Boxes Intensively Used.--Seventy percent of the board-type wood duck nesting boxes on the Chautauqua Refuge, Ill., were used this season, according to Manager Homer C. Bradley. This high percent of utilization reflects proper construction and maintenance and careful selection of sites for installation. A picture taken on the refuge shows a young wood duck dropping from the nest and proves that at least some of the immature birds leave the nest under their own power. Recent observations on the Tamarac Refuge, Minn., reveal that goldeneyes were using a high percentage of the slab-type nesting boxes. W. F. Kubichek, in charge of the Section of Habitat Improvement, recently obtained a series of moving pictures in color showing these boxes in use.

Investigate Damage to Muskrats.--An investigation of the effect of the high water on the muskrat population of the Sabine Refuge, La., was made by refuge personnel a few days after the recent hurricane. Manager Harry E. Adams reports that they found the muskrats working in haste to keep their houses above water. Family houses were built from 6 inches to 1 foot above the level of the water. The old muskrats worked while the young ones perched on the houses watching the older animals work. Muskrats with no family responsibilities made rafts or built houses not more than 1 or 2 inches above water. Mr. Adams believes that the only losses of muskrats were among the very young animals that could not swim.

Marsh Hawk Kills Ruddy Duck.--Manager Gilbert K. Gigstead, of the Tamarac Refuge, Minn., recently saw a marsh hawk catch a young ruddy duck on the open water of the refuge. When he first saw the hawk, it was hovering over the water, making a series of dives to the surface. Finally it settled on the water with open wings. As Mr. Gigstead's boat came near, the hawk lifted the duck out of the water several feet and then dropped it. Mr. Gigstead recovered the duck, but it died in about 10 minutes.

Bowdoin Birds Exhibited at Fair.--Two white pelicans, two cormorants, and two blue herons from the Bowdoin Refuge, Mont., were recently exhibited at the North Montana State Fair at Great Falls. The birds were collected by Refuge Manager B. M. Hazeltine under permit from the Washington office and were returned to the refuge after the close of the Fair. Fair officials reported that the birds were a popular attraction among visitors.

Lake Mason a Wildlife Haven.--The artesian well water impounded in Miller Reservoir of the Lake Mason Refuge, Mont., an easement project, is attracting a large number of wildlife, according to W.P.A. Project Engineer W. A. Rodgers, who advised that more than 100 antelopes and numerous sage hens and other game birds are now feeding in the area. Miller Reservoir

is the only body of water of any size within a radius of many miles. The second artesian well is now being drilled and is already flowing about 1,000 barrels a day.

Magpies Friends of Deer.--The magpie, a much maligned bird in the West, has some redeeming traits, according to Superintendent George E. Mushbach, of the National Bison Range, Mont. In support of this statement, he submits the following: "One evening, recently, a number of mule deer came onto the headquarters lawn to nibble the tempting green grass, as has been their custom since the range grasses dried up. After feeding for a time, three deer lay down on the lawn to rest. Shortly, four magpies joined the group and perched on the recumbent animals, apparently feeding on insect pests with which the deer are infested, in all probability the deer tick fly. The most interesting part of this performance was the care exercised by the birds in their operations. There was an evident desire on the part of the magpies to inflict no punishment on the deer; and instead of jabbing and picking with their sharp, strong bills, they very carefully inserted their beaks among the hairs and gently felt about on the skin for the insects. . . From all appearances the deer were appreciative of the attention they received."

Buffalo Bull Injured in Duel.--One of the buffalo bulls on the National Bison Range, Mont., is minus an eye and has a bad gash in its side as a result of a recent altercation with another bull. Patrolman Frank Groom, who found the animals shortly after the duel, reported that while the injured buffalo had evidently been defeated, it was still on the war-path and ready to meet all comers, including the officers in charge of the range. Because of the bull's belligerent attitude, Mr. Groom was unable to render first aid.

Trout Planted in Pishkun.--Ten thousand rainbow trout were planted in the Pishkun Reservoir, Mont., during August, according to Refuge Manager Leon C. Snyder. Exceptionally good catches of rainbow and native trout were taken by fishermen during the month, one party of two catching in 2 hours 10 fish that totaled 30 pounds. On several occasions, fish taken on the refuge received the weekly prizes offered by Great Falls and Choteau sporting goods concerns.

Trumpeter Swans Protect Young.--Manager Archie V. Hull, of the Red Rock Lakes Refuge, Mont., recently reported an interesting case of an attempt by parent birds to hide their young. During the fall of 1939, he drove up to the shore of the lower lake of the refuge in time to see two adult swans cautiously swimming out into the lake. When they were about one-fourth of a mile from shore, two cygnets came out of the cover bordering the lake and swam toward the adults. Immediately the adults flew back to the cygnets and beat them with their wings and pecked at them until the young retreated into the cover. The adults then returned to the middle of the lake, while the young remained hidden.



Trumpeter Swans Counted.--The number of trumpeter swans in the United States has increased from 202 in 1939 to 212 this year, according to Mr. Hull. Although numerous fires in Yellowstone National Park in August prevented officials from making a "count" of the number of swans in the park, they estimate that there are 25 cygnets and 53 adults in that area, which with the 54 cygnets and 74 adults seen on the Red Rock Lakes Refuge and adjacent lakes, the 3 adults on the Malheur Refuge, Oreg., and the 3 adults on the Elk Refuge, Wyo., makes a total of 79 cygnets and 133 adults, or 212 birds. Last year there were 17 cygnets and 53 adults in the park, 59 cygnets and 70 adults on the Red Rock Lakes Refuge and adjacent lakes, and 3 adults on the Elk Refuge, Wyo., a total of 202 birds.

Many Bullsnares Taken.--Manager Gene H. Crawford reports that 549 bullsnares were trapped or otherwise taken on the Crescent Lake Refuge, Nebr., during the 1940 nesting season, as compared with 182 during the 1939 season. Sixty-three traps were in operation. The bullsnake is the most serious predator of nesting ducks on the refuge, but a better percentage of hatch is occurring each year as a result of control activities, it was reported.

Estimate Number of Mountain Sheep.--Latest estimates by refuge personnel place the number of mountain sheep on the Desert Game Range, Nev., at 300. This year's lamb crop, although few in number, has survived exceptionally well. The sheep all appear to be in excellent physical condition.

Diamond-backs Released on East Coast Refuges.--In cooperation with the Bureau of Fisheries, before the recent reorganization, hundreds of diamond-back terrapins produced at the Beaufort, N.C., hatchery were released on Pea Island, N.C., Cape Romain, S.C., and other coastal areas.

Nesting Gadwalls Increase at Pea Island.--Eight pairs of gadwalls nested this year on the Pea Island Refuge, N.C., as compared with one pair in 1929. The broods averaged 9 young, and one brood of 14 was seen. The number of nesting blue-winged teals and black ducks also increased.

New Bird Found at Pea Island.--A Cory's shearwater was picked up dead on the beach of the Pea Island Refuge, thus making a new refuge bird record. The skin was deposited in the North Carolina State Museum.

Many Gulls on Ardoch Lake.--There were about 10,000 Franklin's gulls on the Ardoch Lake Refuge, N. Dak., during August, according to Manager Wesley D. Parker, of the Sullys Hill Preserve. Water conditions on this easement refuge are better than in any year since its establishment, he said.

Upper Souris Damaged by Rain and Hail.--A heavy rain and hail storm that occurred on August 1 severely injured the crops and wildlife on part of the Upper Souris Refuge, N. Dak., Manager F. Sheldon Dark reported. One field was entirely ruined, another had about a 75 percent loss, and a third



a 15 percent loss. The corn field was badly cut up, but it is believed there will be only about a 25 percent loss. The hail storm was so severe that it killed rabbits and muskrats. Many ducks and other birds were found with their wings and legs broken, eyes knocked out, and so dazed that they could not move. The rain was so heavy that the culverts were unable to take the run-off and the gravel was washed from the truck trails on the steep slopes.

Upland Game Birds Increasing at Malheur.--In 1935 the few upland game birds (ring-necked pheasants, Hungarian partridges, California valley and plumed quails) on the Malheur Refuge, Oreg., were centralized on the P Ranch, but their numbers have increased manyfold since then and they are now spreading over the entire refuge, according to Superintendent John C. Scharff. An increase in numbers was noted in 1935 and 1936, but the severe winter of 1936-37 resulted in the apparent annihilation of the quail and a marked decrease in the pheasant and partridge populations. In the fall of 1937, a system of feeding stations was set up and has played an important part in the increase in upland game birds since that time. Pheasants have now spread over the entire refuge, and Hungarian partridges are being observed in new territory each year. The 39 California valley quails placed on the refuge last winter are increasing, and several broods of young were seen this summer.

Visits Three Arch Rocks Refuge.--Regional Biologist Stanley G. Jewett, who visited the Three Arch Rocks Refuge, Oreg., late in June, reports that at that time there were at least 750,000 California murres on the three rocks comprising this 17-acre refuge. The birds had crowded out the tufted puffins and Beal and fork-tailed petrels that were once abundant on the area, but Brandt's and Baird's cormorants were holding their own and a few nesting western gulls were seen. Mr. Jewett said that some of the rocks are crumbling into the sea and if a few more ridges fall, it will be impossible to climb to the top of the rocks.

Black-necked Stilts Spend Summer at Cape Romain.--Black-necked stilts, a rare bird in the vicinity in recent years, resided on the Cape Romain Refuge, S.C., in increased numbers this summer. Fourteen birds were observed on Cape Island and from 2 to 4 on Bulls Island. The behaviour of the birds on Cape Island indicated that they nested there, but no nests were found.

Cape Romain Wildlife Damaged by Hurricane.--The hurricane which hit the Cape Romain Refuge, S.C., did considerable damage to the wildlife of the area, according to Refuge Manager William P. Baldwin (see story p. 244). Clean-up and repair work around the headquarters prevented an early investigation of the wildlife losses, but when a survey was made about a week after the storm, it was evident that at least 400 of the estimated 650 loggerhead turtle nests on the refuge had been destroyed, which means a loss of some 40,000 turtles. Most of this year's crop of herons, egrets, skimmers, least terns, and Wilson's plovers were on the wing, but those unable to fly

were swept away. Clapper rails suffered the greatest loss; a large percent of this year's young was killed. The late broods of most of the colony-nesting birds were also lost. Raccoons suffered slightly. Considerable damage was done to the wildlife food plants, particularly on Bulls Island, where it is expected that the fall and winter food of raccoons and deer will be materially reduced.

Eight New Species Observed.--During May, June, and July, 8 species of birds were recorded on the Aransas Refuge, Tex., for the first time since the establishment of the refuge. This brings the total bird list to 262. The new species were the purple gallinule, clapper rail, Cabot's tern, Philadelphia vireo, Sennett's titmouse, summer tanager, Bullock's oriole, and sycamore warbler. The recording of a Cabot's tern on the area brings the total species of terns known to use the refuge to 6, all of which, except the Cabot's, nest there.

Whooping Cranes Become Tame.--From three to eight whooping cranes fed near the Intracoastal Canal right-of-way on the Aransas Refuge a good part of the winter, according to Manager James O. Stevenson. An Army dredge was at work digging the canal, but the birds were not disturbed and oftentimes fed within 300 to 400 feet of the scene of activity.

Wild Turkey Attacks Hawk.--A worker on the Aransas Refuge recently saw a wild turkey attack a red-tailed hawk. Hearing a commotion in some oak brush, he investigated and saw the hawk fly out, followed by a hen turkey which struck the hawk from above with its feet. The turkey then circled and returned to the brush, where its young were evidently hidden.

Canada Geese and Redheads Increase.--This year 404 Canada goose nests were located on the same areas on the Bear River Refuge, Utah, on which 235 were found last year. Refuge personnel estimate that the refuge will produce about 2,300 young geese this year. There was also a noticeable increase in the number of redhead ducks nesting on the refuge over the number nesting in previous years; about 700 pairs are estimated to be nesting this year.

Hay Harvest Completed at Elk Refuge.--Hay harvest on the National Elk Refuge, Wyo., began on July 5 this year and was completed on August 3. Only enough hay to complete filling the sheds (8,674 bales, or 394 tons) was cut and baled. With the 3,300 tons carried over from last year, nearly 3,700 tons are now stored on the refuge for winter feeding of the elk. The remainder of this year's crop was left standing in the fields and will serve as a pasturage for the elk.

Personnel.--Albert Van S. Pulling, formerly associate biologist at the Upper Mississippi Refuge, was transferred on August 20 to the Fort Peck Game Range, Mont. His title has been changed to that of associate refuge manager.

Ancil O. Talmage, under refuge manager, was transferred on August



10 from the Sand Lake Refuge, S.Dak., to the Nine-Pipe and Pablo Refuges, Mont.

The following laborer-patrolmen have recently been appointed: Roy R. Cramer, Camas Refuge, Idaho, effective July 25; Raymond H. Hunter, Bosque del Apache Refuge, N.Mex., effective August 1; and Elmer W. Toney, Sheldon Refuge, Nev., effective July 24.

#### CONSTRUCTION AND C.C.C. OPERATIONS

Region 5 Inspection.--O.W. Teckemeyer left Washington, D.C., on August 19 with Harry W. Lundeen, of the Boston office, for an inspection of C.C.C. activities in Region 5. They stopped at the Beltsville, Md., Central Repair Shop; Division 1 Central Repair Shop headquarters in Baltimore; Bombay Hook Camp BS-1, Del.; Brigantine Camp BS-2, N.J.; New Brunswick, N.J., Central Repair Shop; Second Corps Area Headquarters at Governors Island, N.Y.; and the Boston regional office. Mr. Teckemeyer returned to the Washington office on August 27.

Find Cannon in River.--The White River Refuge headquarters in Arkansas has a new flagpole and near it a cannon. Enrollees of Camp BS-1, stationed at the refuge, raised the cannon from the bottom of the White River where it had lain since the Union boat on which it had been mounted was sunk during the Civil War.

Hurricanes Hit CCC Camps.--Hurricane warnings were received on August 6 at Sabine Camp BS-1, La., and after completion of the work that day, 108 enrollees were evacuated to a Soil Conservation Service camp at DeRidder, La. (see story p.244). Forty other enrollees were evacuated to the Sulphur high school, and 23 enrollees stayed in camp. The wind maintained an average velocity of between 35 and 40 miles an hour for two and one-half hours but did little damage beyond knocking over a small outdoor projector building and wetting down a small amount of construction materials. At the height of the storm the camp had 2 feet of water over the entire area with 3 to 4 feet of water on the highway outside of the camp. This drained away rapidly and on August 8 most of the enrollees returned to the camp. On the evening of August 8 another heavy rainfall, varying from 12 inches to 24 inches closed all the roads in the vicinity of the camp. The road from Lake Charles south towards Hackberry was covered with 6 feet of water and the only means of transportation was by boat, food being brought in by Service boats from Lake Charles. The houseboat "Marionette" sank, due to high wind and rain, but will be raised as soon as the water goes down.

A 70-mile an hour wind struck Savannah Camp BS-1, S.C., on August 11. Little advance notice was given of the storm. No one at the camp knew of weather conditions until the wind began to blow so hard it was dangerous to try to evacuate the camp. Everything was made as secure as possible on such short notice. All power lines and about half of the trees on the camp area were blown down. About 40 feet of the technical service truck shed was completely blown down. Two doors were blown off the technical service garage, and numerous window panes were broken. The camp office was completely



drenched, although all windows were shut and a desk was jammed against the door. Roof jacks were blown from several of the roofs. High water washed over levees in several places doing some damage but not completely breaking them. A temporary coffer dam was broken on the river bank north of the boat house. A coffer dam was broken on this same bank where a spillway is being built but it was caught on low tide the next afternoon and was stopped before it washed out to any considerable length. Trees were blown down and debris scattered all over the refuge.

A detail of enrollees from Pea Island Camp BS-2, N.C., was authorized to help with clearing work at Manteo, N.C., following the storm there.

A severe wind storm hit Wheeler Camp BS-1, Ala., on the morning of August 8. Two garage camp buildings were completely demolished. Damage to trucks and materials was estimated at \$240.

Summer Rains Reduce Botulism.--Botulism has been cut considerably this summer on the Upper Souris Refuge, N.Dak., according to reports. This drop in the frequency of recurrence of this disease is attributed largely to the frequency of rains during the summer months which helped to prevent water stagnation, as well as improved methods of care and treatment. On August 1, however, a hailstorm struck in the area of BS-1 and several thousand ducks were killed. A crew of about 55 men worked for 2 weeks picking up and burying these ducks, many of which had broken necks from the hail stones. A small crew of enrollees has been working all summer picking up and treating the sick ducks at the camp duck hospital. Treatment at this hospital included medical care and hand feeding where necessary. Recovery so far in the present season is estimated at about 65 percent. All birds recovering from this sickness are banded before they are released.

Conclude Fire Training Course.--The fire-suppression training course for all foremen and rated enrollees at Ruby Lake Camp BS-3, Nev., was completed during the last week of August. Ranger McKenzie, of the Forest Service, who was assisting Superintendent E. L. Doeling with the training program, decided to forego any fire-control demonstrations because of the high fire hazard existing in the vicinity of the Ruby Lake Refuge. Nature provided an opportunity for fire-control practice when lightning started a fire on the National Forest. The fire spread over about 13,000 acres and required 5 days to bring under control. During the training course, two other fires were extinguished on the refuge with little damage done, and Supt. Doeling now feels that he has a crack fire crew that can be justly called "smoke eaters."

Road Construction at Charles Sheldon.--During the summer of 1939 a cooperative agreement was reached between Camp Sheldon and officials of Humboldt County, Nev., to improve the road to Winnemucca. Of the 138 miles of road from the camp to Winnemucca, 40 miles were nearly impassable during wet or snowy weather and 20 miles were in poor condition, although graded and sparsely graveled several years previously. Work on this project was begun in August 1939, both the Fish and Wildlife Service and Humboldt

County furnishing labor, equipment, and supplies. Several miles of the road were relocated, all of it graded, and all but 3 miles graveled. A total of 46 miles of road was finished in the fall of 1939, before the onset of winter. Work was resumed on the remaining 14 miles last spring and the entire job completed near the end of July. The completed road, totaling slightly more than 60 miles of construction, was built at an average cost of \$256 a mile. Maintenance work on that section of the road lying on the Sheldon Refuge will be done by the Federal Government and the remainder of the road will be maintained by Humboldt County.

Help Suppress Fire.--During August, 362 enrollee man days were expended by Sheldon Camp BS-2, Nev., in fire-suppression work under an existing cooperative fire agreement with the U.S. Forest Service. In answer to a call from the Forest Service, 50 men were dispatched on August 4 to a fire on the Modoc National Forest. The crew returned to camp on August 7. The next day 50 men were dispatched to the same fire, which was again beyond control. This crew returned to camp 2 days later, after being assured that the fire was completely out. According to local residents, this was the largest fire recorded on the Modoc National Forest. A detail of enrollees from Hart Mountain Camp BS-4, Oreg., was also sent out to help fight this fire.

Reports Progress at Malheur.--Carl W. Jackson, in charge of C.C.C. activities at the Malheur Refuge, Oreg., has submitted the following report of work done by the C.C.C. on that area:

"Since the beginning of development work by the C.C.C. camps, in 1935, there has been a very noticeable increase in the number of birds nesting on the Malheur Refuge from year to year. We believe this increase in the number of birds is largely due to the development work that has been done, such as the construction of dikes and canals which have increased the water areas and made more suitable nesting areas. Some of the major accomplishments by the C.C.C. in developing the refuge have been the construction of 255 miles of fence, excavation of 1,477,892 cubic yards of earth and rock in the building of dikes and canals, and the construction of two diversion dams, 103 water-control structures, 70 miles of telephone system, and 123 miles of truck trails.

"The construction of buildings for administration purposes in an area the size of the Malheur Refuge is a project of considerable magnitude. To date there have been nine stone buildings and three storage and equipment sheds erected, the P-ranch house has been renovated and made into two apartments, the Frenchglen hotel has been reconstructed and one of the old dwellings has been remodeled to house one of the patrolmen."

Camp Does Much Work in 5 Years.--E. S. Jaycocks, superintendent of the Savannah River camp, in his narrative report for the last quarter of the fiscal year, tells the following story of 5-years' accomplishment on the refuge:

"Since I came to work here in July 1935, Savannah River Refuge has changed from a tract of tidal marsh land ebbing and flooding with each



tide and divided by U. S. Highway No. 17, to an area provided with 3,385 acres of duck ponds with water-control structures to control water levels within them. The refuge office has since been moved from the top of a 75-foot steel tower to a modern building close to a refuge manager's residence, two-well boathouse, marine shop, marine railway, and other up-to-date utility buildings. Another laborer-patrolman's residence has been built also. Roads connect these points, and truck trails have been constructed over the refuge to facilitate its patrol. Many acres of objectionable white marsh, which grew so abundantly when I first came here in 1935, have been destroyed and in its place are various desirable wildlife foods. It has been no easy job to bring the refuge to this present stage of development. In the beginning, it was necessary to work draglines with the tide as much as possible and in flooded fields which caused considerable lost time. Large breaks in the canal had to be stopped by hand, which took meticulous care in order that an incoming tide did not wash away several days work. In going to and from work on the refuge it was necessary to travel by boat and by foot, very often in water up to the waist. Although the battle has not been won, we are well on the way."

Tight Fire.--Early in September enrollees of Bear River Camp BS-1, Utah, helped representatives of the Grazing Service put down a large grass and brush fire.

Sportsmen Inspect Utah Camp.--Seventy-five prominent Utah sportsmen recently inspected the work projects at Ogden Bay Camp, BS-2. The guests were served dinner in the mess hall, after which speeches and a show on wildlife were given.

#### GAME MANAGEMENT

Try 18 Violators.--Eighteen persons were recently apprehended in Colorado, Illinois, Missouri, Michigan, Nebraska, New York, New Mexico, and South Carolina by agents of the Service and State game wardens, for various violations of State and Federal game laws. All violators appeared in State courts where fines ranging from \$1 to \$100 were assessed. Fines and costs aggregated \$574.50, and one violator is now serving 30 days in jail.

Baiting Brings Fine.--Two residents of Thomaston, Ga., appeared in Federal Court for the Middle District of Georgia at Columbus on August 14. The men were charged with having taken mourning doves by aid of bait during the past open season. One hunter was fined \$25, while the other offender, accused also of hunting with an unplugged gun, was fined \$100.

Jailed for 3 Months.--An individual who illegally transported 45 beaver skins from Montana to Minnesota was apprehended by a United States game management agent and State game wardens in Minnesota. He was convicted of a violation of the Lacey Act and will be released from jail on September 13, after serving 90 days.



## PREDATOR AND RODENT CONTROL

Rodents Damage Structures on Reservation.--A project for the control of kangaroo rats, pocket gophers, and ground squirrels on the Papago Reservation was recently submitted by the superintendent of the Sells Indian Agency in Arizona. On this reservation nine large earthen dams have been constructed to store and spread water. Burrowing rodents have caused 63 breaks in the structures which have cost approximately \$5,700 to repair. The local Indian Service official reported that the cost of repairing these structures was not the only factor involved; the breaks threaten to destroy the means of livelihood for the Indian farmers either by causing them to lose their crops to drought or preventing them from planting their crops.

Dies From Bubonic Plague.--A death from bubonic plague infection occurred at Emmett, Idaho, on September 6, according to a report received from District Agent George Holman. The victim was a 14-year-old boy who contracted the infection some 2 or 3 months ago. The source of the infection has not as yet been definitely determined, though field rodents are being suspected. The Public Health Departments are cooperating in a field study in Idaho to determine the possibility of the existence of infection among field rodents.

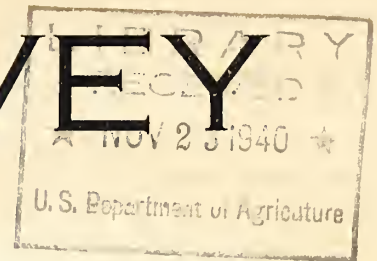
Raffle Ram to Hire Hunter.--Reynolds County, Mo., situated in the heart of the Ozark Region, is cooperating in the program for the control of wolves, according to a recent report from District Agent A.E. Gray. The program is being inaugurated in cooperation with the livestock interests, the county, the Missouri Conservation Commission, and the Fish and Wildlife Service. The county's share of the proceeds for the employment of a predatory-animal hunter was raised through raffling off a pure-bred ram, the proceeds of this raffle amounting to \$214. Mr. Gray reports that Reynolds, Iron, and Dent Counties make up the center of the wolf population in that part of Missouri.

Counties Cooperate in Control Work.--Several Montana counties have given further financial cooperation to conduct organized predator and rodent control work during the current fiscal year, according to a recent report received from District Agent R. E. Bateman, of the Montana district. Meagher County appropriated \$2,430 for predator work; Powell County \$840 for predator work and \$3,500 for rodent control; McCone County \$1,000 for rodent control; Garfield County \$1,000 for rodent control; and Phillips County \$900 for predator control.

Control Work Expands in North Dakota.--According to reports from District Agent L. H. Cheney, the cooperative predator-control work is increasing in North Dakota. Recently cooperative agreements with the predatory-animal control associations of Dunn, Grant, Morton, and Sioux Counties have been executed for the employment of hunters. The Service's cooperative predator and rodent control work in North Dakota is conducted with the North Dakota Agricultural Extension Service.

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# THE SURVEY



Vol. 21

Washington, D. C., October 1940

No. 10

## GENERAL NOTES

THE SURVEY Continues Temporarily.--Though the Fish and Wildlife Service became a legal entity in the Department of the Interior on June 30, THE SURVEY, official house organ of the former Bureau of Biological Survey, will continue publication under its old name until sometime in the fall when the name, format, and editorial contents of the Fish and Wildlife Service house organ will be determined.

Speaks in Norfolk.--Dr. Gabrielson was the principal speaker at a meeting of the Norfolk, Va., chapter of the Izaak Walton League of America on Thursday, October 24. The next day, he left Norfolk for Manteo, N. C., where he visited the Pea Island National Wildlife Refuge. He returned to Washington, D. C., on October 26.

Broadcasts.--On October 10 Dr. Gabrielson discussed the subject "Sportsmen Are Gentlemen" with Mr. Shannon Allen, Director of the Department's Radio Service, in an interview broadcast by the Mutual Broadcasting System. The interview was part of the Department's regular program "Your Conservation Reporter" broadcast each Thursday at 12 noon. Dr. Gabrielson also recently participated in two interviews transcribed for broadcasts sponsored by the Sporting Arms and Ammunition Manufacturers' Institute on 10 local stations in mid-western and southern cities. One of the interviews was on "Conserving the Ducks" and the other was entitled "Behind the Migratory-Bird Rules." On November 6 Dr. Gabrielson is scheduled to participate in the Columbia Lecture Hall program broadcast by the Columbia Broadcasting System at 3:45 p. m., E. S. T.

American Republics Sign Convention.--Plenipotentiaries of six Latin American governments and the United States signed the Convention on "Nature Protection and Wildlife Preservation in the Western Hemisphere" on October 12, when it was deposited and opened for signature at the Pan American Union in Washington, D. C. Signing on behalf of their governments were the Ambassador of Cuba, the Minister of El Salvador, the Minister of Nicaragua, the Ambassador of Peru, the Ambassador of Venezuela, and the First Secretary of the Dominican Republic. The ceremony was held at 11 a. m. in the Governing Board Room of the Pan American Union and was witnessed by representatives of several nature protection organizations and wildlife preservation societies. Representing the Fish and Wildlife Service were Dr. Gabrielson; Clifford Presnall, of the Division of Wildlife Research, and Dr. T. S. Palmer (retired).

The Convention was drawn up by a Committee of Experts from the 21 American Republics, which met in Washington May 13 to 16 of this year, and was approved by the Governing Board of the Pan American Union at its June meeting. The formulation of the Convention was recommended in one of the resolutions of the Eighth Pan American Conference, held at Lima, Peru, in December, 1938.

As set forth in its preamble, the Convention has for its purpose the protection and preservation in their natural habitat of representatives of all species and genera of the native flora and fauna of the American Continent, "in sufficient numbers and over areas extensive enough to assure them from becoming extinct", and the protection and preservation of "scenery of extraordinary beauty, unusual and striking geologic formations, regions and natural objects of aesthetic, historic or scientific value."

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (September) of THE SURVEY:

- No. 330. Reporting of unauthorized occupation of public lands. (September 25.)
- No. 331. Contracts memoranda not to be construed as authorizing purchases in absence of available allotments. (September 27.)
- No. 332. Employees excused on October 16 for purposes of military registration. (October 9.)
- No. 333. Furlough of employees called to military or training service; employees excused for purpose of registering or serving in connection therewith. (October 12.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 168. Mandatory contract for the procurement of spark plugs for use in Government-owned internal combustion engines, except aircraft (Class 17, Supplement No. 6). (September 24.)
- No. 169. Contracts for the procurement of floor and window coverings (Class 27, Supplement No. 1). (October 5.)

The following memorandum to field officers has been issued in the "Boat Maintenance Memoranda" series:

- No. 23. Admendment to motor boat law. (September 10.)

#### PUBLIC RELATIONS

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

Information for the guidance of field men and cooperators of the Fish and Wildlife Service engaged in the control of predatory animals and injurious



- rodents. Prepared in the Division of Predator and Rodent Control. Wildlife Circular 5, 8 pp. July 1940. Received September 30.
- Grubs in minks. By J. E. Shillinger, veterinarian, Section of Disease Investigations, Division of Wildlife Research. Wildlife Leaflet 167, 2 pp. September 1940. Received Sept. 23.
- The digestibility of animal products and cereals by minks. By J. K. Loosli, collaborator; S. E. Smith, agent; and L. A. Maynard, collaborator, Bureau of Animal Industry, Department of Agriculture; in cooperation with the Fish and Wildlife Service. Wildlife Leaflet 168, 5 pp. September 1940. Received September 27.
- Mink breeding--elementary principles. By Robert K. Enders, biologist, Bureau of Animal Industry, Department of Agriculture; in cooperation with the Fish and Wildlife Service. Wildlife Leaflet 169, 4 pp., illus. August 1940. Received September 20.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- State groups get long-time leases to develop wildlife on Federal areas. Press release. Released September 22.
- Nation-wide survey of fur catch shows lax handling of resource. Press release. Released September 22.
- Rare trumpeter swan increases to 212 birds in United States. Press release. Released September 23.
- Judge Williams dead; was noted conservationist. Press release. Released September 24.
- Franklin's gull, nomadic bird, settles down on wildlife refuge. Press release. Released September 25.
- Mice relish pine trees, but nurserymen don't like mice. Press release. Released September 26.
- Three U. S. game-law agents retire from active service. Press release. Released September 30.
- Buffaloes, elk, and mule deer to be sold to public. Press release. Released October 2.
- Four wildlife refuges established; land added to 11 other sanctuaries. Press release. Released October 3.
- Two wild elk start trip to Argentina. Press release. Released October 6.
- Manager of national wildlife refuge a jack-of-all-trades. Press release. Released October 20.
- Liberal rules feature year's hunting. In "Current Conservation" (Clip sheet). Vol. III, No. 7, October 1940.
- Mail on wildlife big postal task for U. S. Bureau. In "Current Conservation" (Clip sheet). Vol. III, No. 7, October 1940.
- Wildlife items. In "Current Conservation" (Clip sheet). Vol. III, No. 7, October 1940.
- Flying warden rescues CCC boy stricken at remote camp. In "Current Conservation" (Clip sheet). Vol. III, No. 7, October 1940.
- Cash no cure for arctic skeeters, bird expert says. In "Current Conservation" (Clip sheet). Vol. III, No. 7, October 1940.

Outside Publications.--Articles by members of the Service appearing in outside publications have been reported as follows:

- Bennett, L. J. (With P. F. English, senior author). November foods of ringneck pheasants and bobwhites. *Pennsylvania Game News* 11 (6): 8, 9, and 31, illus. Sept. 1940.
- Burleigh, T. D. (With G. H. Lowery, Jr., junior author). Brewer's blackbird in Florida. *Auk* 57: 574-575. Oct. 1940.
- Caminita, L., Jr. King of the animal underworld. *Pests* 8 (10): 12-13. Oct. 1940.
- Cates, E. C. The Yucca outlaw. *Producer* 22 (5): 8-9, illus. Oct. 1940.
- Lincoln, F. C. An American Caspian tern in England. *Auk* 57: 569. Oct. 1940.
- Caspian tern in Haiti. *Auk* 57: 569. Oct. 1940.
- Loosli, J. K., and Smith, S. E. The meat problem in the fur animal diet. *Amer. Fur Breeder* 13 (3): 10, 12. Sept. 1940; *Fur Canada* 5 (12): 6-7, Aug. 1940; *Nat. Fur News*, p. 5 Sept. 1940; *Fur Jour.* 6 (10): 3-4. Aug. 1940.
- McAtee, W. L. A manual of aquatic plants. By Norman C. Fassett. 382 pp., illus. 1940. McGraw Hill Book Co., New York, N. Y. (Review.) *Wilson Bull.* 52: 218-219. Sept. 1940.
- Mimicry by a brown thrasher. *Auk* 57: 574. Oct. 1940.
- Gurdon Trumbull (Obituary). *Auk* 57: 597-598. Oct. 1940.
- McClanahan, R. C. Lark sparrow in Maine. *Auk* 57: 577. Oct. 1940.
- Mills, E. M. Rodent problems in nurseries. *Amer. Nurseryman* 72 (7): 5-6, illus. Oct. 1940.
- Routing rodents. *Garden Digest* 12 (7): 47-49. July/Aug. 1940.
- Oderkirk, G. C. Rat and mouse control in fruit storages. *Wisconsin Hort.* pp. 3-4. Sept. 1940.
- Plitt, T. M. Problems in Federal fur fiber research. *Fur Canada* 5 (12): 7-8. Aug. 1940; *Amer. Fur Breeder* 13 (2): 14-15, illus. Aug. 1940.
- (With J. I. Hardy, junior author) Types of fur fibers. *Amer. Fur Breeder* 13 (2): 29. Aug. 1940; *Fur Jour.* 6 (10): 12. Aug. 1940.
- (With J. I. Hardy, senior author). An improved method for revealing the surface structure of fur fibers. *Fur Jour.* 6 (10): 6, 12. Aug. 1940.
- Scott, T. G. (With R. Moorman, junior author). Turkey vultures in central Iowa. *Iowa Bird Life* 10 (3): 34-37, illus. Sept. 1940.
- Sheldon, H. P. Guns and game. *Country Life* 78 (1): 68-69, illus. May 1940.
- Guns and game; War; the woodcock; and honest man. *Country Life* 78 (3): 40-41. July 1940.
- Smith, S. E. (With C. M. McCay, senior author). The use of dried tomato pomace in animal nutrition. *Amer. Fur Breeder* 13 (2): 26-27, illus. Aug. 1940.
- Ward, J. C. Sources of rat poisons and methods of determining toxicity. *Pests.* 8 (9): 6-7. Sept. 1940.

## WILDLIFE RESEARCH

Wildlife Surveys

Cooperate on Range Survey.--In a conference at Reno, on July 18, Dr. H. H. T. Jackson and District Grazier Ira J. Fyock, of the Grazing Service, made arrangements for a cooperative study of range conditions on the Charles Sheldon Antelope Range, the Pine Forest Mountains, and parts of the intervening area in Nevada. Charles H. Rouse has been assigned to the study, with field counsel from Olaus J. Murie. Work was begun on the project on August 10, when Leland L. Fallon, of the Grazing Service, reached the Sheldon Range, and continued until September 7. A complete type-mapping of the Charles Sheldon Antelope Refuge and Range is planned, and work will be resumed next spring cooperatively by the two Services.

Brands Seal Pups.--Taking advantage of the fact that 20 prolonged storms delayed his return to Seattle, Dr. Victor B. Scheffer branded 5,000 seal pups on Saint Paul Island, Alaska, and made a census of the reindeer there. Dr. Scheffer had been on the Pribilof Islands all summer conducting a fur seal investigation. He sailed on the Service boat "Penguin" on October 1 and reached his headquarters at Seattle on October 14.

Add to Mammal Collection.--J. W. Warwick, field assistant, stationed at Fairbanks, Alaska, recently sent to the mammal laboratory three fine prime wolverine skins and skeletons which were trapped by George Bishop at the Salcha River. Apparently this was a family consisting of a male, female, and young female. These valuable accessions were preceded in the collection by only two other complete wolverine specimens from Alaska.

Adolph Murie, of the Section on National Park Wildlife, on field duty in Mount McKinley National Park, Alaska, sent two large wolf skulls, a male and a female, for the Service collection. These specimens were collected by Frank Glaser, Service agent in charge of predator control work in the Territory. The male skull, taken 50 miles up Seventy Mile River from the town of Seventy Mile, is one of the largest in the Service collection.

Stanley P. Young received a Pleistocene wolf skull that was taken from the Rancho la Brea, California tar pits. It will be used to compare in size with the largest modern wolf now occurring in the Arctic region, and it is believed to have been contemporary with the wolf that left tracks found 20 feet underground in the sandstone quarry of the Nevada State Penitentiary, Carson City, Nev., of which plaster casts were recently made by Olaus J. Murie and Dr. Jackson.

Detailed to Washington.--Frank B. McMurry, biologist at the Wichita National Wildlife Refuge laboratory, Okla., arrived in Washington on October 1 for a 1-month detail in the Washington office and laboratories, where he will study specimens and reports in connection with his research projects being conducted on the refuge. Mr. McMurry will spend about half of his time at the C. Hart Merriam Laboratory at the Patuxent Research Refuge, Md., examining quail and wild turkey stomachs and crops collected on the Wichita Refuge.



Visit Mammal Laboratories.--William Clough, of Rifle and Denver, Colo., long associated with the livestock industry and a cooperator of the Service in its predator and rodent control work, viewed the mammal collection on October 11. Clifford Berryman, the cartoonist, visited the mammal laboratory on October 15 to confer with Stanley P. Young on the progress of the wolf fauna.

#### Food Habits Research

Attend Conference at Cornell.--On September 17, Dr. Clarence Cottam and A. L. Nelson participated in a conference with Dr. F. B. Hutt, of Cornell University, and Messrs. Gardiner Bump and R. W. Darrow, of the New York Conservation Department, concerning the cooperative work being done on the physiology and metabolism of game birds by W. H. Long, agent of the Fish and Wildlife Service. Arrangements were made for work projects to be undertaken during the coming year. Satisfactory progress has been made by Mr. Long in assembling suitable equipment for studying the physiology and metabolism of wildlife species, Dr. Cottam said. Several items in the equipment are new designs and are in themselves contributions to metabolism work. Dr. Cottam added that the cooperative project at Cornell is attracting considerable attention from other workers in this field.

Inspects Sabine Refuge.--Dr. Cottam, in company with Refuge Managers Harry Adams and Julian Howard, inspected Sabine National Wildlife Refuge in Louisiana on July 9 and reported that the area was frequented by larger numbers of ducks and geese than had occurred there in recent years. The chief reason for the present abundance appears to be the burning of dense stands of Cladium last year, thus allowing the birds and other animals easier access to the marsh.

Ends Dove Study for Season.--Final surveys along the lower Gila River and interviews with sportsmen at Yuma completed Biologist Johnson A. Neff's field work for this season on the white-winged dove in Arizona. He returned to Sacramento early in September and is preparing the 1940 report.

Woodpeckers and Jays Attack Almonds.--Woodpeckers recently destroyed \$50,000 worth of almonds in 1 county, according to a letter received by Mr. Neff from Agricultural Commissioner Thomas Chalmers, of San Luis Obispo County, Calif., who requested advice on combatting woodpeckers and California jays that were attacking almonds. Mr. Chalmers stated that owing to a very light acorn crop and a relatively light almond crop the damage was severe. Apparently woodpeckers were responsible for most of the damage. Indications from Sacramento Valley rice counties are that blackbird populations are increasing, Mr. Neff reports, and that after a lapse of nearly 5 years control operations may become necessary next season.

Altitude Affects Tolerance of Rats.--One of the more important developments in research work connected with the use of red squill as a rat poison

has been a demonstration of the fact that altitude strongly affects the tolerance of rats to this poison. Experiments conducted on the top of Mt. Evans, Colo., at an altitude of 14,200 feet; at Denver, at an altitude of 5,280 feet; and at Winchester, Va., at an altitude of 717 feet indicate that male rats in Virginia were three times more resistant to red squill than the rats at the top of Mt. Evans, and two times more resistant than those at Denver. A carefully prepared article on this experimental work appeared in a recent number of the Journal of the American Pharmaceutical Association. J. C. Ward, H. J. Spencer, D. Glenn Crabtree, and F. E. Garlough are joint authors.

Laboratory at Denver Continues Work on Red Squill Fortification.--

Because of the uncertainties connected with the importation of red squill during the present international crisis, the Wildlife Research Laboratory at Denver has continued to operate a plant where more potent red squill powder is prepared from the relatively low grade powder now on the American market. By this process squill powder wholly unsuited for direct use can be strengthened so that it is a satisfactory raticide. Should the international situation clarify itself and a steady supply of potent red squill again become available there probably would still be need for experiments to find a means of preparing a suitable standard product. With an enlarged program, this work would necessitate the establishment of an operation plant, and the Denver laboratory would be relieved of such routine production work. Its present small-capacity plant would then be used entirely to further the research program.

Visits Northcentral States.--J. C. Ward left Denver on September 19

for an extended trip through the northcentral States in connection with studies of deterrents used in protecting forest plantings from rodents. Stops were made in Wisconsin, Minnesota, North Dakota, and South Dakota. While at Jamestown, N. Dak., he arranged to continue research in the problem of rabbit control through the employment of Keith A. McKee, who will be stationed at that point.

Field Men at Patuxent Laboratory.--Biologist John J. Lynch, of the

Food Habits field force, returned in September from the Arctic where he accompanied Charles Gillham and studied the summer range and habits of the snow goose. He returned to his headquarters at Delta Refuge early in October. Enroute he inspected some of the East Coast refuges to observe the status of present development programs. Biologist William Marshall, from the Section of Wildlife Surveys, spent September 16-18 at the laboratory, where he examined the food of Richardson's grouse previously collected by him in Idaho. (See also story page 259, "Detailed to Washington.")

Talks on Snow Geese.--Mr. Lynch gave an illustrated talk on the snow

goose at the October 5 meeting of the Biological Society of Washington. He discussed the species as it is found in its wintering grounds on the Gulf Coast, particularly on the Mississippi Delta, and in the Arctic breeding grounds on the Mackenzie Delta. Mr. Lynch illustrated his talk with his own color slides. The importance of the Service's Gulf Coast refuges to conservation of this valuable species was emphasized.



Estimate Meadow Mouse Population.--Eleven Fish and Wildlife Service investigators stationed in the northeast participated in a survey of meadow mouse populations in northeastern states from Maryland to Maine in an effort to determine what damage might be expected in the orchards this winter. Field studies were made on approximately 150 *Microtus* habitats, and intensive trapping was carried out on 18 1-acre quadrats. The results of the inventory indicate a below-average population of these rodents in most sections of the northeast. Infestations of 10 meadow mice an acre will be usual this fall, according to the investigators. In some sections, however, local infestations of 150 *Microtus* an acre will be encountered. It is reported that the 1940 breeding season has not been favorable for meadow mice. Biologist Donald A. Spencer, who summarized the reports of the various investigators, indicated that, because of the extreme variation in *Microtus* numbers this fall, growers should carefully examine their orchards for mice infestations even though the population for the northeast as a whole was at a low level.

Dry Weather Reduces Nesting.--On the Crescent Lake Refuge in the sand hills of western Nebraska there was a decrease of about 75 percent in the number of nesting ducks in 1940 compared to the previous 2 years, according to Ralph H. Imler. Many of the potholes and some of the larger lakes were completely dry, he said. At the same time the dry weather seemed to favor the experimental work in bull snake trapping. More than 700 of these reptiles were removed during the summer season, about 600 being captured in 63 traps set around three of the principal lakes. It is hoped that the removal of this number of egg-eating snakes will result in improvement in nesting during following seasons.

Works on Frightening Devices.--At the conclusion of the season's work on the Crescent Lake Refuge, Mr. Imler spent several weeks in eastern Nebraska continuing his studies of frightening measures against grape-eating birds. Damage of this type, inflicted largely by orioles and robins, is more pronounced in the vicinity of the larger cities and in the immediate neighborhood of groves of trees. Remedial measures have been restricted largely to frightening devices.

Discusses Wild Turkey.--Biologist Harold L. Blakey discussed problems relating to wild turkey management before a meeting of the South Carolina Game and Fish Association at Newberry, S. C., on September 26. Although emphasizing the wild turkey situation as it is at present in South Carolina, Mr. Blakey also presented a summary of efforts that were being made in various parts of the country to restore this game species. He stressed the fact that South Carolina had a decided advantage over most States in that one of the purest strains of wild turkeys is still present in sufficient numbers to permit not only preservation but management as a game resource. He emphasized the importance of dedicating certain strategic habitats within the State for turkey management.

Presents Paper at Wisconsin Meetings.--Biologist Neil Hotchkiss, who is working on the ecology of botulism in the West, attended the Symposium on Hydro-Biology at the University of Wisconsin on September 6, where he presented a paper on "The Limnological Role of Higher Plants." He particularly



stressed the interrelationships of higher plants in making lakes more habitable for waterfowl and fishes even though in so doing the plants help to destroy the habitat both for themselves and their animal associates.

Visits Food Habits Laboratory.--Ex-senator Frederic C. Walcott, past president of the Connecticut State Board of Fisheries and Game, recently visited the Food Habits Laboratory at Patuxent Research Refuge, Md.

### Distribution and Migration of Birds

Australian Banding Work Planned.--D. L. Serventy, of the Marine Biological Laboratory, Cronulla, Australia, has written the Service to obtain information on trapping methods, types of bands, and other bird-banding practices that have been found successful in this country. He is preparing to develop a banding project in Australia. A few years ago Mr. Serventy, while in this country, visited many banding cooperators. In Pasadena, he ran 150 feet of color film showing the various aspects of the banding work of Mr. and Mrs. Harold Michener.

Attends meeting.--On September 21 and 22, Robert C. McClanahan attended the fall meeting of the Georgia Ornithological Society in Rome, Ga. About seventy members attended. Talks were given by "Bob" Atkins and Mr. Cornwell, both of the Wildlife Division, Natural Resources Department of Georgia. R. J. Fleetwood, of the Piedmont National Wildlife Refuge, discussed the refuge program of the Fish and Wildlife Service, and Earle Greene, of the Great White Heron Refuge, Fla., gave a resume of the bird life to be seen about Key West. The dove situation in Georgia was also discussed.

Activities of Flyway Biologists.--During September Harold S. Peters, the Atlantic Flyway biologist, continued waterfowl investigations in the James Bay area. On September 28 he observed 175 brants on Charlton Island. On October 5 he went from Hannah Bay to Moose Factory, completing an 850-mile boat trip on James Bay.

During September C. E. Gillham, the Mississippi Flyway biologist, investigated dove conditions in Tennessee. At the annual Centre County Hunters' Banquet at State College, Pa., on October 18, he showed movies taken in the north country. Numerous other requests for the showing of his pictures indicate the growing interest of sportsmen and conservationists in the birds of the western Arctic. Following his visit to State College Mr. Gillham worked in the Washington office, until October 31.

Dr. George B. Saunders, the Central Flyway biologist, is continuing his dove studies in the vicinity of Brownsville, Tex.

During the latter part of September Luther J. Goldman, the Pacific Flyway biologist, conducted field investigations in the vicinity of San Diego, Calipatra, and Brawley, Calif. On September 29 he visited the State game refuge on the Alamo River.

Outstanding Returns from Banded Birds.--The following are interesting returns from banded birds, showing the band number, place and date of banding, and place and date of recovery:

## Royal tern:

A516927, S. C., Beaufort Co., 7/18/30 Fla., St. Augustine, 11/12/39

## Green-winged teal:

36-522409, N. Dak., Upham, 10/31/39 Cuba, Masti, Matanzas, 12/19/39

## Mourning dove:

36-339911, Ariz., Phoenix, 7/13/36 Ariz., Phoenix, 8/10/40  
(Trapped and released).

## Kingbird:

B146840, Mass., North Eastham, 5/16/33 Mass., North Eastham, 8/21/40  
(Trapped and released).

## Chickadee:

A99188, Mich., Chippewa Co., 12/21/27 Mich., Chippewa Co., 5/6/34  
(not reported until 10/15/40)

### Fur Resources

Buckwheat Proves Palatable to Rabbits.--Buckwheat has proved to be more palatable than whole oats or peanut pellets, according to the results of an experiment conducted by George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif. Buckwheat was fed to young rabbits from weaning time until the animals were developed. Nearly twice as much buckwheat was eaten as either whole oats or wheat, and it proved entirely satisfactory for developing young rabbits. There was no indication of any skin eruption or other adverse effect.

Additional Advantages of Self-feeder for Rabbits.--The system of self-feeding does and litters during the lactation period when continued with the weaned rabbits reduces to a minimum the shock and shrinkage due to weaning, according to Mr. Templeton, who ran tests on 600 young rabbits. This self-feeder is valuable to commercial rabbit raisers, who usually sell the 8-week-old rabbits direct from the doe but frequently find it necessary to keep young rabbits for varying periods of time until a buyer arrives. Because the market may be low at weaning time, it is sometimes desirable to carry the animals until the market improves.

Sunshine Better Than Vitamin D.--Vitamin D apparently is not a good remedy for rachitic minks. This was indicated by the results obtained on 12 mink kits that had been on a rachitic diet at Cornell University, where Dr. S. E. Smith is conducting a cooperative research project on nutrition. Extensive studies are being made of the calcium and phosphorus in the blood, the ash in the bones, and the pathological changes that occur in the long bones. It was found that the addition of 1 percent bonemeal to the rachitic diet resulted in good bone healing, 2 weeks of daily sunshine resulted in excellent bone healing, and 40 units of Vitamin D a day resulted in only slight healing in rachitic bones.

Genetics of Minks Studied.--Dr. Smith, in a cooperative research project with the Fish and Wildlife Service, has gathered data from mink breeders that show that the platinum color in minks bred by certain farmers is inherited as a simple, recessive, and autosomal character. Consideration is also being given to the genetic basis of white spotting in a strain of sport minks. Dr. Smith is also endeavoring to make a genetic analysis of certain strains of platinum foxes to determine if they are similar to the platinum foxes produced in Norway.

Seeds Can be Identified from Plastic Impressions.--A technique for making plastic impressions of fur fibers, which was developed by Dr. Thora M. Plitt, of this Service, and Dr. J. I. Hardy, of the Bureau of Animal Industry, has been modified to record the individual variations in the outer coat of various seeds. Such impressions can be used by the Food Habits Section to identify the various kinds of seeds that are eaten by wildlife. The plastic impressions will also be valuable to workers in the Bureau of Plant Industry, who may want to make a fine distinction between various kinds of plants. Photomicrographs of numerous seeds were made to be included in a publication entitled "Seed Impressions on Plastic Films."

Series of Karakul Curl Types Studied.--Dr. Plitt reports that mounts between glass slides were made of Karakul curls from Karakul lambs showing growth during the first month. These samples were collected last spring from Karakul lambs having large, medium, small, and broad curls. Certain general trends in growth were noted, and it is anticipated that samples taken during the coming season may clarify some of the developments in the growth of the curls.

#### Disease Investigations

Government School Offers Course in Diseases.--The Graduate School of the Department of Agriculture this year includes a course in "Diseases of Wildlife," which will be taught by Dr. J. E. Shillinger. Meeting for 15 weekly 2-hour sessions, the course will deal with basic information on the nature of diseases, disease-producing agents, the economic importance of wildlife diseases, and control measures. Drs. D. R. Coburn, W. R. Armstrong, and E. W. Price, and Mrs. P. W. Wetmore will be visiting lecturers. The course begins on October 7 and concludes on January 27, 1941.

Will Vaccinate Buffaloes.--Dr. Shillinger left Washington, D. C., on October 24 for the National Bison Range, Moiese, Mont., where he will immunize the young buffaloes in the herd against Bang's disease. Through long, continued experimentation with cattle, animal pathologists have perfected a method to effectively vaccinate young stock between 4 and 8 months of age. Application of this vaccine eliminated the danger and inconvenience of repeatedly collecting blood samples for laboratory test and removal or isolation of the reactors, Dr. Shillinger said.



Attend Scientific Conference.--On September 17-19 Dr. Shillinger and Dr. Coburn attended the Bicentennial Conference held at the University of Pennsylvania at Philadelphia. At this gathering some of the Nation's outstanding scientists gave discussions on phases of research of direct interest to the staff of the Section of Disease Investigations. Of special note were the papers on viruses and other infectious agents involved with animal diseases. Dr. Shillinger and Dr. Coburn also visited the New Jersey State Experiment Station at New Brunswick, where they conferred with Dr. Selman J. Waksman and Dr. F. R. Beaudette on viruses and bacterial organisms involved in the diseases of birds.

Speaks at Meetings.--During the past several months Dr. F. D. McKenney, stationed at Pullman, Wash., has had occasion during field trips to speak at conferences of the Northwest Veterinary Medical Association and Puget Sound Fur Farmers' Summer School.

Completes Busy Field Season on Botulism.--H. W. Lakin, soil chemist in the Bureau of Plant Industry, has returned to the Washington, D. C., laboratory where he is continuing his analysis of material collected last summer in the botulism-affected districts of the West. Mr. Lakin and Neil Kotchkiss, of the Section of Food Habits Research, spent considerable time with Dr. E. R. Quorstrup on refuges and at the field laboratory at the Bear River Refuge studying the flora and fauna and the chemical composition of the botulism areas and the feeding activities of the various species. Experiments are also being conducted with mechanical devices for reducing losses from botulism.

Prepares Rabies Report.--Because of the importance of rabies in wildlife as a problem involving the welfare of domestic stock and the safety of humans, the Committee on Rabies, which will meet in Chicago on December 2 in conjunction with the U. S. Live Stock Sanitary Association, has requested Dr. Shillinger to prepare a part of the report pertaining to outbreaks of rabies in wildlife. It is apparent, Dr. Shillinger states, that the sanitary officials are taking cognizance of the wildlife factor in handling epizootics of the disease.

#### National Park Wildlife

Speaks in Keystone State.--On September 22, Clifford C. Presnall inspected the Laurel Hill Recreational Demonstration Area, Somerset, Pa., and while there addressed some 3,100 persons on the subject of "Building Citizenship in National Park Areas."

Attends Meetings in Canada.--Mr. Presnall attended sessions of the International Association of Game, Fish, and Conservation Commissioners, at Toronto, Canada, from September 2 to 4, inclusive. On September 5, he attended some of the sessions of the American Fisheries Society. While in Canada, he obtained information on Canadian wildlife and participated in discussions of wildlife problems with outstanding conservation officials of the country.

Investigates Relapsing Fever.--Dr. Thomas Aiken, a graduate student of the Department of Entomology of the University of California, will investigate the presumed cases of relapsing fever reported in Lassen Volcanic National Park, Calif., according to a recent report from Biologist E. Lowell Sumner, Jr. Upon the completion of Dr. Aiken's study an appraisal will be made of such control measures as may seem practicable. Mr. Sumner also reports that fumigation methods may be effective in the better constructed cabins. Rodent-proofing installed at the time of construction would almost wholly prevent the introduction of the ticks and should be seriously considered in future planning, he said.

Surveys Wildlife Conditions in Park.--During the construction of the proposed Shadow Mountain and Granby Reservoirs near Grand Lake in the Rocky Mountain National Park area, Colo., Wildlife Foreman F. M. Packard completed a reconnaissance survey of wildlife conditions on these areas so that a criterion will be available for comparison with conditions prevailing after the completion of the project. The topography of the areas is largely meadow and rolling country. The principal conifer is lodgepole pine, the principal shrub being willow. The only real concentration of game consists of between 200 and 500 deer (Odocoileus h. hemionus). A band of about 25 elk (Cervus c. nelsoni) known to inhabit the Columbine Creek country and the slopes of Mount Acoma may be affected by the submersion of the meadows on the South Fork. In some areas beaver habitats will be destroyed and in others additional habitats will be created. Badger habitats will be destroyed, and, in some cases, coyotes may be crowded back into the park or dispersed elsewhere. One effect of the creation of the lakes will be to destroy some acreage of nesting habitats of a number of songbirds. The only terrestrial birds that will be seriously affected are the sage hens. It is questionable whether the local population will long survive the creation of the reservoir. On the other hand, it was pointed out, these lakes will doubtless be of benefit to waterfowl. It is reported by settlers that at one time geese, cranes, and several species of ducks occurred in some abundance.

Wild Burros Usurp Bighorn Areas.--The bighorns on the Boulder Dam National Recreational Area, Nev., are in grave danger because of the presence of rapidly increasing numbers of wild burros, according to Biologist W. B. McDougall, who visited the area August 16 to 20. Though the largest reservoir in the world has been constructed in this desert region it will not insure adequate water for all the animals that could possibly be produced on the area, he said. When the lake reaches its ultimate level the banks will be so precipitous that large animals will be unable to get to the water, except in a few places. Already there is evidence that some of the available watering places are being utilized almost to the total exclusion of bighorns. Several springs within the area have been badly trampled by burros, and have been rendered practically useless for bighorns. The wild burros, he added, compete with bighorns for food as well as water. Dr. McDougall reports



that the situation in the area is rapidly becoming acute and recommends that steps be taken at once to initiate a program to eliminate the exotic burros and save the bighorns in this important area. After a consultation on this report in Washington, the superintendent of Boulder Dam National Recreational Area was instructed to work with local Fish and Wildlife representatives in getting a burro control program started.

Establish Fishing Record.--Fishing on Crater Lake National Park, Oreg., this August increased 165 percent over the previous catch for August 1937, according to Ranger Naturalist D. S. Farner. The 1940 fishing season was the best yet recorded on the area, he added. The total season catch was 4,188 (3,998 silverside salmon and 190 rainbow trout), which is 220 percent greater than that of 1937, the previous season. An interesting observation is that the park has not planted any silverside salmon in Crater Lake since 1937, yet the catch this year consisted almost entirely of 3-year old silversides. Although the park has continued to put in 100,000 rainbow each year the total rainbow catch this year was only 190 trout. This, it would seem, would point to the need for further research to ascertain the reason for the great difference.

Sketches Wildlife Scenes.--Walter Weber, National Park Service artist, returned on September 30 from a trip through some of the western national parks, where he made oil and pencil sketches that will be used in making illustrations for a series of popular natural history guide books and in preparing three murals of wildlife in Wind Cave National Park, S. Dak.

Personnel.--Shortly after the middle of September, Biologist Daniel B. Beard left Washington, D. C., for his new post at Omaha, where he will direct biological work in the Park Service areas of Region II. He will also continue work on his manuscript, entitled "Fading Trails".

Effective September 16, Dr. Adolph Murie formally joined the Washington office staff of the Section. He will remain, however, in Alaska until May 1 to continue the wolf-sheep study he is conducting in that area.

#### FEDERAL AID IN WILDLIFE RESTORATION

Arkansas Stocks Turkeys.--In furtherance of its desires to reestablish wild turkeys in suitable habitats, the Arkansas Game and Fish Commission recently received approval for an experimental project for the purchase of 10-weeks-old turkey poults that will be placed in large, open-top wire pens located within extensive refuge areas. In this manner, the birds will become accustomed to the refuges selected for stocking, thus reducing the likelihood of their migrating beyond the refuge limits when they are able to fly out of the enclosures. Previous experiments were conducted by the Arkansas Commission with mature birds that had had their wings clipped. The results showed that by confining the turkeys in this manner the birds gradually disperse from the enclosure when their wings grow out but do not travel far before becoming established.



Remodel Refuge Residence.--The Colorado State Game and Fish Commission on August 14 received approval for a project to remodel a residence on the Hot Sulphur Springs Refuge and to perform other related work. The lands on this refuge were previously acquired under a Federal Aid project, and a succeeding project for work to increase their productivity was outlined in a release dated August 20. Under the present project the State will undertake certain remodeling work on a well-constructed residence that will adequately serve existing needs for a field headquarters and laboratory. The building will also be used to store field equipment used by Federal Aid employees conducting game management investigations in this locality. Electric wiring will be installed, as well as plumbing fixtures that are needed, and a dependable water supply will also be provided inside the house. Under another project, approved on August 19, the State will repair a flume and ditch, bring water to the land, and seed the area with timothy and clover. The resultant crops will be used in the immediate vicinity whenever critical conditions in the surrounding mountainous territory make it necessary to feed deer and elk to prevent starvation.

Improve Water Facilities for Wildlife.--A Federal Aid project for the development of small bodies of water for the exclusive use of wildlife on the Great Divide Sanctuaries owned by the United States Government was submitted by the Colorado Game and Fish Commission and approved on September 10. These areas are within a land-utilization project purchased by the Soil Conservation Service. Their development will be effected through cooperative construction activities by that Service and the Fish and Game Commission. Required materials will be furnished by the Soil Conservation Service and the State of Colorado under this project. Labor will be supplied by the Civilian Conservation Corps. Improvements planned include the impoundment of water and fencing of a sufficient area to provide food and nesting cover around each water area. Sage grouse will receive primary benefit from this activity, but it will also be beneficial to other species of wildlife.

Purchase Butte Lake Refuge.--The Colorado Game and Fish Commission will purchase land in Jackson County to establish the Butte Lake Refuge under a Federal Aid project approved on October 2. The site, which is located on the easterly slope of the Great Divide, fronts approximately three-quarters of a mile on Delaney Butte Lake and is unusual in that it will afford haven for sage grouse and waterfowl, and, in critical winter periods, for deer. This acquisition constitutes another step in a long-term program to furnish areas of this type where winter concentrations are greatest.

Expand Nez Perce Refuge.--An additional tract of land will be acquired for the Nez Perce Bird Refuge in Lewis County, Idaho, as part of a Federal Aid project sponsored by the Idaho Fish and Game Department and approved on August 17. This land joins that acquired for the refuge early this year. It consists of submarginal agricultural, timber, grazing, and brush lands. The entire area, which is well-suited for use by ring-necked pheasants and blue grouse, will, under State protection, serve as a seed-stock refuge in a locality subjected to heavy hunting pressure.

Through the acquisition of this additional land, the Game Department will control Little Canyon Creek for a distance of approximately 2 miles. Beavers are now present in the area and with the dedication of these lands for the exclusive use of wildlife are expected to increase and expand their activities.

Green River Refuge Enlarged.--The Illinois State Department of Conservation received approval on October 1 for the use of Federal Aid funds to acquire 280 additional acres to round out the Green River Waterfowl and Upland Game Refuge in Lee County. The first segment of the acquisition program was approved on December 29, 1939, and comprised an area of 1,129 acres. When completely in State ownership, the refuge will be developed to provide desirable conditions for waterfowl, prairie chickens, and fur animals.

Adds to Jasper-Pulaski Preserve.--Federal Aid funds will be used by the Indiana Department of Conservation to purchase two tracts of land to enlarge the Jasper-Pulaski Game Preserve in Jasper, Pulaski, and Stark Counties. The project was approved on August 30. At one time or another in the past, all species of game native to Indiana were found in the immediate vicinity of the preserve. Today, a large quantity of birds and mammals, including quails, pheasants, Hungarian partridges, prairie chickens, ducks, geese, squirrels, rabbits, raccoons, muskrats, minks, and beavers, is found on the area. The purchase of the tracts will comprise one segment of a program to block in and add to the existing game refuge.

Develop Holding Pen for Aquatics.--The Department of Inland Fisheries and Game of Maine recently received approval for a Federal Aid project to construct a holding station for aquatic plants. As one of its first projects under the Federal Aid Act, Maine undertook a survey of its lakes, which are estimated to number 2,500, to ascertain what could be done to develop additional food supplies primarily for migratory waterfowl and to some extent, for other forms of wildlife that make use of **aquatics**. As a result of the findings of that investigation, a second project was submitted which had as its purpose the planting of various aquatics in habitats found suitable for them. Because of the high cost of desirable stock purchased on the open market, it was decided to collect the seeds and tubers of suitable aquatics and to construct a pond and storage house in which to hold the plants until the proper time for planting.

Maryland Increases Refuge Area.--On September 16 the Maryland State Game and Inland Fish Commission received approval to use Federal Aid funds to purchase a 38.95-acre tract for the enlargement of the Indian Springs Game Refuge in Washington County. The original purchase of some 1,200 acres for this refuge constituted Maryland's first Federal Aid project, which was approved on September 23, 1939. Consistent with the State's land-acquisition program, this additional tract was obtained when its purchase was advantageous to the State. The new land will round out the external boundaries of the area. The refuge will demonstrate management practices that benefit deer, wild turkeys, ruffed grouse, bobwhite quails, cottontail rabbits, and squirrels. Under a development project, improvements are now being made to aid these upland game species.



Improve Boxford Sanctuary.--As a part of its program to develop State forests for wildlife under the Federal Aid Act, Massachusetts received approval on September 23 to improve the 320-acre Boxford Wildlife Sanctuary, which is located in a State forest in the extreme north-eastern part of the State. A cover-type map and work plan will be prepared to record the original biological condition of the area and to form a definite plan of development. Some work on foot trails and thinning and clearing will also be done.

Michigan Studies Waterfowl.--The Michigan Department of Conservation submitted a Federal Aid project for a waterfowl survey, which was approved on August 8. Problems concerning waterfowl in the neighborhood of the Great Lakes shores of eastern Michigan are constantly under consideration. At present the Department of Conservation has inadequate information on waterfowl populations or the factors that influence them. There is a real need for the assembling of facts on the numbers of waterfowl frequenting suitable areas at all seasons of the year, the condition of submerged aquatics and marsh habitats, hunting pressure and the effect of different hunting technics on waterfowl populations, the extent of winter starvation, the loss of waterfowl due to lead poisoning, and the effects of oil pollution.

The study will also include an evaluation of the relative worth of waterfowl breeding areas and a determination of the factors that lead to success or failure for the species and individuals using these areas. The study area will embrace Saginaw Bay, Lake St. Clair, the Detroit River, Lake Erie, and marshes adjacent to those waters.

Develop Rose Lake Station.--Under a project approved on August 21 the Michigan Department of Conservation will repair and remodel a house situated on the Rose Lake Wildlife Experiment Station in Clinton County, thereby making available additional housing facilities for the station staff and providing laboratory space. Included in the project are the purchase of a refrigeration unit and scientific equipment required to operate properly a field laboratory. In addition, some 7,000 trees and shrubs will be purchased and planted by the WPA to test the value and growth of a variety of trees and shrubs in different combinations and on different soils.

Through a previous Federal Aid project the State acquired certain desirable lands to expand its ownership in this unit and for about 2 years a farm-game study project has been underway to determine the practical coordination of game management and farming practices.

Improve Game Lands.--A project for the development of those portions of the Barry County game lands previously acquired by the Michigan Department of Conservation with Federal Aid funds was approved on September 24. Michigan is engaged in a long-term acquisition program of lands in Barry County that are valuable for game. Purchases are made when the lands



become available at reasonable prices. The developments under this project will consist of spot plantings with trees and shrubs, seeding food patches, and providing herbaceous cover. The State hopes in this manner to reduce open, abandoned fields to small units of 5 to 10 acres and thus provide suitable adjacent cover and travel lanes for wildlife. In addition to the planting program, the lands will be properly posted.

Nebraska Studies Game Birds.--The Nebraska Game, Forestation and Parks Commission received approval on September 19 to use a portion of its Federal Aid funds for a project to study the distribution, feeding, nesting habits, and mortality factors of the common upland game birds of the State. In the past, Nebraska had large numbers of prairie chickens, sharp-tailed grouse, and bobwhite quails. These three species are still residents, but their numbers now are reduced and their distribution is limited. The reasons for their limited distribution and wide fluctuations are not definitely known. The ring-necked pheasant, an exotic, is another important member of Nebraska's group of upland game birds. Factors influencing the lives of the four birds will be investigated so that sufficient information may be collected to enable the commission to outline a program of conservation and restoration of the State's game birds.

Sage Chicken Area Improved.--The Tres Piedras Sage Chicken Area in Taos County, N. Mex., will be improved by the New Mexico Department of Game and Fish with a Federal Aid project approved on September 13. Through previous land-acquisition projects, more than 3,000 acres of land have been acquired. The prevailing cover is sage brush. The heavy stand of sage brush, located in a range free from timber, makes this area particularly well suited for sage chickens except for the lack of natural or artificial water supplies. Efforts to restore sage chickens here in the past have not succeeded because of the lack of water. Under this project water-impoundment structures will be erected to meet present needs. It is expected that the developments will also benefit pronghorn antelopes that range in the locality.

Study Deer Problem.--The North Carolina Department of Conservation received approval on August 22 to use part of its Federal Aid funds for a 5-year project to study the deer situation so that a State-wide management program may be formulated. Guided by experience in other States where deer have become numerous and their management has become a serious problem, North Carolina recognizes that the State herd can be managed satisfactorily if a definite program is outlined before the animals become too numerous. At present, deer in satisfactory numbers are on only a small percentage of the available potential range. The principal objective of the investigation will be to determine how areas now underpopulated with deer may be improved and how distribution should be accomplished. Other factors incidental to sound management will receive attention. For the present, the leader, Seth Gordon, Jr., will devote the major portion of his time to the herd of the Fort Bragg Military Reservation and the surrounding country. Eventually,

the scope of the project will be widened, and consideration will be given to other parts of the State. North Carolina is divided into three physiographic types, the Coastal Plain, the Piedmont, and the mountains; and as the social, economic, and land-use problems of the areas differ, a uniform management plan for the entire State probably cannot be devised. The United States Army, the North Carolina State College, Duke University, and sportsmen's clubs have been named as cooperators.

Purchases County Refuge.--The purchase of 640 acres in Wells County, N. Dak., as an upland game refuge under the Federal Aid program was approved on September 23. The land, owned by Wells County, will be acquired at a nominal cost representing the investment of the county in the area. The exterior boundaries will be fenced and posted, water facilities provided, and cover developments effected. Sharp-tailed and pinnated grouse, ring-necked pheasants, and Hungarian partridges will be primarily benefited by the refuge.

Move Beavers.--The South Dakota Department of Game and Fish received approval on August 19 to use part of its Federal Aid funds to trap and distribute beavers. A survey conducted by the State disclosed that there is a surplus of beavers in southeastern South Dakota, particularly along the James, Vermillion, and Sioux Rivers and their tributaries. The existing food resources in that territory are not sufficient to support the present population and the animals are damaging timber stands. A survey conducted in the Black Hills, however, showed that area has ample food and water for additional beavers. The State plans to trap approximately 300 beavers in the Southeastern part of the State and transport them to the Black Hills, where the animals will be placed in selected sites and protected until such time as an excess population warrants taking the surplus. All beavers trapped and moved to new locations will be marked so that information may be assembled on subsequent movements.

#### LAND ACQUISITION

Management Area Established.--The President on September 24 signed Executive Order No. 8548 establishing the North Carolina Wildlife Management Area in Moore, Richmond, and Scotland Counties, N. C. This area, under the custody of the Fish and Wildlife Service, will be administered by the State of North Carolina through its Department of Conservation and Development.

#### Surveys and Maps

Map Work Progresses.--Part of the base atlas of the Malheur National Wildlife Refuge, Oreg., has been completed in the form of 11 standard atlas sheets to the scale of 1 inch equals one-fourth mile. These sheets cover Malheur, Mud, and Harney Lakes, and prints are now available.



Base Map Completed.--A base map of the Wolf Island National Wildlife Refuge, Ga., has been completed in one standard atlas sheet to the scale of 1 inch equals one-fourth mile.

Personnel.--Lee Roy Woodruff, Region 3, has been promoted from assistant engineering aide to engineering aide.

William A. Schmidt has been transferred from the Washington office to Region 5 and has been promoted from junior cadastral engineer to assistant cadastral engineer. Mr. Schmidt is in charge of cadastral surveys in Region 5.

#### WILDLIFE REFUGES

Observes Many Whiskered Auklets.--Manager H. Douglas Gray, of the Aleutian Islands Refuge, Alaska, reports that he saw more whiskered auklets on the refuge this summer than he has ever observed before in the islands. Flocks of 50 to 200 were commonly seen in the Four Mountain group this year.

Power Line Struck by Lightning.--Power service to the peninsula cabin on the Tule Lake Refuge, Calif., was disrupted on September 19 when lightning struck the power line leading to the cabin. The force of the lightning broke two poles in half and knocked the cross arms off two other poles.

Delegation Visits Tule Lake.--A delegation from the California Department of Natural Resources visited the Tule Lake Refuge on September 13, Manager C. G. Fairchild reports. In the party were Richard Sasche, director of Natural Resources of the State of California; Nate Milnor, president of the California Fish and Game Commission; Lee F. Payne, Germain J. Bulcke, Edwin L. Carty, Capt. A. A. Jordan, and Wiley Ben Williams, members of the California Fish and Game Commission; U. S. Forest Supervisor Russell Beeson; and Mr. Byrde of the Department of Natural Resources.

Waterfowl More Abundant.--Ducks and geese were more numerous at the Tule Lake Refuge this fall than they have been for several years, according to Mr. Fairchild. He believes that the unusual concentration this year is due to a very dry season and lack of water in eastern Oregon and northern California.

Easement Refuge Attracts Many Waterfowl.--Reports from the field indicate that early in September there were about 40 acres of water on the small Kit Carson Refuge, an easement project in Colorado, and that large numbers of waterfowl were concentrated on the area.

St. Marks W.P.A. Project Closed.--The W.P.A. project at the St. Marks Refuge, Fla., was closed on August 30 after 19-1/2 months of operation. A large amount of worthwhile work was accomplished during that period, including the construction of roads and bridges and the improvement of old roads, wildlife food and cover plantings, fencing, and the clearing of of refuge boundaries and food patches.



Avocets Visit Blackwater.--Manager David V. Black, of the Blackwater Refuge, Md., reported on October 5 that a pair of avocets had remained in the vicinity of the headquarters since September 30. This bird is rarely seen anywhere in the East.

Inspects East Coast Refuges.--A. E. Elmer, assistant chief of the Division, inspected the Blackwater, Md., Bombay Hook, Del., and Susquehanna, Md., Refuges on September 26, 27, and 28. He reports that the dike work at Blackwater is progressing satisfactorily, and that the fresh-water pond will probably be in operation before the 1941 spring migration. Approximately 3,000 bushels of corn are being produced under the Service's share-cropping program at this refuge. After much difficulty, the job of driving the piling for the boathouse at Bombay Hook is nearing completion, and plans are under way for pine-clearing operations for the fresh-water pond. This work will start as soon as weather conditions permit, and the new Whitehall dike will be begun shortly. At Susquehanna, Mr. Elmer inspected the W. P. A. project in operation on Battery Island and reports that an excellent job is being done in remodeling the old building, clearing the channel, and building a rock wall along the headquarters side of the channel.

Anhingas Nest on Noxubee Refuge.--Manager Samuel H. Lamb, of the Noxubee Refuge, Miss., found a colony of 5 pairs of water turkeys nesting on an arm of Bluff Lake this year. This is the first time these birds have been recorded nesting in the area in recent years.

Unusual Rainfall at Red Rock Lakes.--Precipitation during September at the Red Rock Lakes Refuge, Mont., amounted to 2.19 inches, Manager Archie W. Hull reports. August was very dry, but the September rains caused new grass to make its appearance on the refuge and the crested wheatgrass at the headquarters to come up very heavily even though it had already made its annual growth. Mushrooms were numerous over the refuge and adjacent lands and were gathered by the local people for food.

Cygnets Now Able to Fly.--By the end of September most of the trumpeter swan cygnets on the Red Rock Lakes Refuge were able to fly, some of them as easily as the adults, according to Manager Hull. In teaching the young to fly, the adults beat them with their wings and peck at the young to get them to exercise their wings. On several occasions refuge personnel have observed the adults fly better than a half mile from the cygnets and then wait for them to catch up. When the young reach them by alternately flying and beating their wings on the surface of the water, the adults again fly away.

Sullys Hill Refuge Hit by Frost.--Several heavy frosts occurred in September at the Sullys Hill Refuge, N. Dak., according to Manager Wesley D. Parker. By the end of the month most of the leaves had fallen from the trees on the higher land of the refuge, but the trees on the lower land were still covered with colored leaves.

Malheur Botulism Outbreak Light.--Botulism outbreaks on the Malheur Refuge, Oreg., were much less severe this year than in 1938 and 1939, according to Biologist Clarence A. Sooter. The first and only serious outbreak occurred before July 8. On July 9, a total of 228 dead and 26 sick ducks were picked up along the southeast shore of Malheur Lake. During the remaining part of July and August, few dead or sick ducks were found.

Estimates Goose Population at Malheur.--Some 3,200 Canada geese were counted on part of the Malheur Refuge on August 7, according to Mr. Sooter. He estimates that this count included about a third of the geese present on the refuge on that date. The geese were feeding mainly on young Hordium jubatum, Chenopodium rubrum, Rumex persicarioides, Eleocharis palustris, and Sparganium eurycarpum shoots and on Potamogeton spp. and Scirpus acutus seeds.

Crane Nesting Attempts Successful.--Studies on 30 sandhill crane nests on the Malheur Refuge during the 1938, 1939, and 1940 seasons reveal that a high percent of the nesting attempts of these birds are successful, according to Mr. Sooter. A 3-year average of 88 percent of the nests and 86.67 percent of the eggs hatched successfully. Hardstem bulrush (Scirpus acutus) and giant bur-reed (Sparganium eurycarpum) were used as nesting cover by 84 percent of the birds. The incubation period of the sandhill crane on the Malheur Refuge is approximately 28 days.

#### CONSTRUCTION AND C.C.C. OPERATIONS

Change Designation.--On and after October 1 the designation of Fish and Wildlife Service C.C.C. camps will be "FWS" instead of "BS."

Inspection Trips.--Mr. Terhune spent October 9 and 10 at Bombay Hook Camp FWS-1, Del., and Brigantine Camp FWS-2, N. J. He was accompanied by Wm. V. Taylor, of the Division of Wildlife Refuges. Mr. Terhune left Washington, D. C., on October 13 for Ogden where he was met by J. J. Hedrick and E. H. Hackenberg, regional C.C.C. inspectors. The three men expect to inspect the Ogden Bay and Bear River camps in Utah. From there Mr. Terhune and Mr. Hackenberg will drive west to inspect C.C.C. activities at the Ruby Lake and Sheldon camps in Nevada and the Sacramento and Tulalake camps in California. They also will confer with C.C.C. officials at the corps area headquarters in San Francisco and regional office officials in Portland. Mr. Terhune expects to return to Washington on November 3.

Visits Camps in Region 4.--P. S. Munk Pedersen left Washington, D.C., on September 17 to visit C.C.C. camps in Region 4. His first inspection was at Wheeler Camp FWS-1, Ala., where he met W. J. Gregson, C.C.C. inspector for Region 4, and continued his trip with him. They spent a day in the Atlanta office and then proceeded to the St. Marks camp in Florida. Here, among other projects, the completed yacht basin and canal were inspected. A visit was made to the Okefenokee camp near Folkston, Ga., which



included a trip to the interior of the area. The method used for cleaning boat runs was observed. The last camp to be inspected was Savannah River FWS-1, S. C. Mr. Pedersen and Mr. Gregson attended a safety meeting at which practical demonstrations were given by the enrollees of what should be done when certain types of accidents occur. Mr. Pedersen returned to the Washington office on September 24.

Safety Congress.--O. W. Teckemeyer, together with S. M. Lauderdale, C.C.C. safety engineer, and other members of the C.C.C. Safety Council, attended the National Safety Congress held in Chicago from October 7 to 11.

California Camp Heads Safety Honor Roll.--Tulelake Camp BS-3, Calif., heads the safety honor roll with a record of 31 months of operation without a lost-time accident. This record not only places the camp in the number one position at this time, but it also gives Tulelake the distinction of being the only camp since the beginning of the CCC in this Service to operate 31 months without an accident. Until July the Bombay Hook camp, with 21 months without a lost-time accident, was Tulelake's nearest rival but an accident put Bombay Hook back at the starting point. At the present time the Bitter Lake and Mud Lake camps are striving for second place on the honor roll, both camps having operated 16 months without a lost-time accident. Next in line are Savannah River with 15 months, Pea Island with 14, and Back Bay with 13 months.

Progress in Minnesota.--The Rice Lake CCC camp celebrated its first anniversary on October 2. During the year, work has been begun on many projects, including power lines, surveys, truck trails, fencing, dikes, a dwelling, equipment shed, and a service building. During August a crew of enrollees gathered a quantity of bulrush seeds. The fleet of six CCC ricing boats built in August and launched in September proved seaworthy and serviceable, and all boats were engaged in the wild rice seed harvest conducted in September. In addition to collection of wild rice, a considerable quantity of wild celery seed pods was also harvested. The season for aquatic seed collection ended September 28, at which time the CCC had collected 200 pounds of bulrush seeds, 250 pounds of celery pods, and 2,800 pounds of wild rice.

Enrollees Receive Training Certificates.--At the close of the current quarter's training program at Medicine Lake Camp FWS-2, Mont., 5 unit certificates were granted in surveying, 1 in wildlife management, 10 in auto mechanics, and 12 in truck maintenance and operation. Proficiency certificates, which denote that a certain desired standard of performance has been attained in a specific job, were also given to five enrollees. The camp educational committee selected three enrollees



to attend Medicine Lake High School during the day. Two of these boys were given night guard duty, and the third is an officer's orderly. Special evening classes are conducted in the high school for enrollees. Teachers from the high school staff hold classes in camp, and the enrollees have the use of the high school gymnasium.

C.C.C. Boys Get Jobs.--Four enrollees of Upper Souris Camp FWS-1, N. Dak., received honorable discharges during September to accept private employment. Two of the boys have jobs with the Great Northern Railroad, one is working for a construction company, and the other is working in a store.

Personnel Changes.--James S. Green will replace Victor H. Meseke as superintendent of Sacramento Camp FWS-2, Calif., during the year that Mr. Meseke, who is a reserve officer, is on active duty. Joseph D. Sanders will replace Mr. Green as superintendent at Five Mile Camp FWS-1, Oreg.

#### GAME MANAGEMENT

Takes Trip Through West.--Mr. Crouch returned to Washington, D. C., on September 23 from an extended cross-country field trip. At Portland, Oreg., he conferred with Regional Director Leo L. Laythe and all the game agents and deputy agents in Region 1. He met Regional Director John C. Gatlin and several game agents and other enforcement officers in Denver. While in Minneapolis he conferred with Regional Director Burnie Maurek and other employees of Region 3. Mr. Crouch also visited other Service employees enroute, as well as individual cooperators and members of State Game Departments.

Meet With Conservation Officials.--Mr. Crouch, F. P. Callaghan, and Talbot Denmead went to New York City, during the week beginning October 14 and met with representatives of the New York Conservation Department, U. S. Customs Service, Nation Audubon Society, and other organizations. Afterward, Mr. Crouch and Mr. Callaghan inspected several hunting clubs on Long Island.

Instructs Wardens.--Chester A. Leichhardt discussed game-law enforcement problems with Game Management Agent Robert C. Soaper and Inspector James T. Hammond at Vincennes, Ind., on October 2. He then proceeded to Jefferson City, Mo., where he conferred with game agents Jesse F. Thompson and Curtis S. Allin and officials of the State Conservation Commission. While in Missouri he was guest instructor at the third annual school of the Protection Division of the Commission. Mr. Leichhardt commented favorably on the business-like method of conducting the school and the eagerness of the Conservation Officers to attain the objectives of their leaders.

Dove Hunters Apprehended.--Seven persons hunting mourning doves with unplugged shotguns or from automobiles were recently apprehended by an agent of the Service. All were taken into State courts and fined from \$10 to \$50 each, plus costs, for an aggregate of \$250.50.

Dove Hunter Fined \$50.--State wardens in Pima County, Ariz., apprehended a resident of Tucson who had killed 12 mourning doves on August 21. The facts were reported immediately to the game management agent for Arizona, who arrested the violator and arraigned him before the United States Commissioner. The hunter appeared in Federal court at Tucson on September 26, at which time he was fined \$50 for taking doves during closed season.

Fined \$100.--A fine of \$100 was imposed on a resident of Parker, Ariz., who was recently apprehended for illegally possessing parts of a deer. A game management agent and State game wardens secured evidence regarding this violation.

39 Men Fined Almost \$1,700.--United States game management agents in cooperation with State game wardens apprehended 39 game law violators in California, Missouri, Oregon, and Texas during September. All the violators were taken to State courts and fined from \$1 to \$100 each for an aggregate of \$1,692.50.

Had Goldfinches.--Three residents of Aguilar and Trinidad, Colo., were apprehended by agents of the Service and State game wardens recently for possessing goldfinches and offering to sell mockingbirds. These men appeared in State courts, where each was fined \$25 and costs ranging from \$3.60 to \$5.

Deer Slayer Fined.--Service agents and State game wardens apprehended four persons who illegally killed or possessed deer in Oregon and Idaho. Two men of the group, arrested in Idaho, appeared in State court on September 26, at which time each was fined \$100 and costs of \$3. The other two persons involved were arrested and tried on September 27 in Oregon. Each was fined \$50 and costs of \$5 and also sentenced to 30 days in jail. The jail sentences were suspended.

Dynamite Fish; Pay Heavy Fines.--Personnel of the Upper Mississippi River Wildlife and Fish Refuge, in cooperation with State game wardens in Iowa, recently apprehended six persons for taking fish by the use of dynamite and trammel nets. Two of these individuals were each fined \$100 and costs of \$3 in State Court. Two others each paid fines of \$10 and costs of \$3.75, while another paid a fine of \$100 and costs of \$30.75. The sixth violator was fined \$275 and costs of \$30.75.

Illegal Fishermen Jailed.--Residents of Iowa and Wisconsin were recently apprehended by refuge employees and State game wardens for taking fish illegally. One, a resident of Trempealeau, Wis., was apprehended for taking fish with a dip net from the Trempealeau Lock and Dam in Winona County, Minn. He appeared in State court on August 7 and was fined \$50 and costs of \$5.10. Unable to pay the fine, the violator was sentenced to 60 days in jail. Three residents of Iowa were apprehended for taking fish from nets belonging to a commercial fisherman on the Upper Mississippi Refuge in Iowa. Two men were each fined \$25 and costs of \$7 in



State court; the third was fined \$100 and in lieu of the fine was sentenced to 30 days in jail.

Possess Nongame Birds.--Criminal informations were filed against 32 persons apprehended in Louisiana during August and September for violations of the Migratory Bird Treaty Act regulations. The majority of the violations consisted of the killing and possessing of nongame birds. The following birds were seized: 26 black-crowned night herons, 3 egrets, 2 little blue herons, 1 great blue heron, and 1 bittern. Also seized, were 11 king rails, 1 duck, and 2 yellowlegs.

Hunted Coots from Motorboat.--Two residents of Flint, Mich., were apprehended near there by an agent of the Service and a State Game Warden for hunting coots from a motor boat on October 1. The men entered pleas of guilty in State court, and each was fined \$50 and costs of \$7.

One Chukar Costs \$75.--A resident of Nevada was apprehended on September 1 by Federal and State game-law enforcement officers in Lyon County for possessing a chukar partridge in closed season. The accused appeared in State court on September 5 and was fined \$75.

Hunted Out of Season.--An agent of the Service and a State game warden apprehended two men hunting wild ducks on September 15 in Nye County, Nev. In State court at Tonopah, each was charged with hunting ducks during the closed season and hunting without a license. The court imposed a fine of \$100 each.

Five Hunters Pay Stiff Fines.--The Service agent at Albuquerque, N. Mex., apprehended five illegal hunters recently. Two of these men were using unplugged shotguns in taking mourning doves, two others jointly had 76 doves in possession, and the fifth was hunting without a State license. All appeared in State court, where fines ranged from \$20 to \$75 with costs, and aggregated \$233.90, or an average of \$46.78 each.

Trespassers Penalized.--Federal Judge I. M. Meekins disposed of several cases of game law violations on September 30 and October 1 at Washington, N. C. One man who trespassed on the Swanquarter Refuge on December 2, was sentenced to 90 days in jail. Sentence was suspended, and the violator placed on probation for 1 year. For hunting geese in Hyde County on December 1, 1939, with an unplugged shotgun and without a duck stamp, a hunter was fined \$25. Another violator was sentenced to 60 days in jail for trespassing and trapping on the Lake Mattamuskeet Refuge on November 17, 1939.

Had Fawn Deer Meat.--Eight residents of Klamath Falls, Oreg., were apprehended by U. S. game management agents and members of the Oregon State police on September 29 while in possession of fawn deer meat. The violators appeared in State court at Lakeview on the same day, and each was fine \$25 and costs of \$4.50.



Hunted Pheasants in Close Season.--Game management agents and a member of the Oregon State police on October 1 apprehended two residents of Klamath Falls, Oreg., who were hunting pheasants in closed season. Each had a pheasant in possession. The same day, the hunters appeared in State court, where a fine of \$100 was imposed on one and a fine of \$25 on the other.

Duck Hunter Fined.--Apprehended by agents of the Service and State game wardens for hunting migratory waterfowl in closed season on September 29 in Klamath County, Oreg., a resident of Klamath Falls appeared in State court on the same day, at which time he entered a plea of guilty and was fined \$100.

Caught with Reedbirds.--A hunter apprehended on September 6 in Delaware County, Pa., by State and Federal game wardens paid a fine of \$70 in State court for possessing 18 reedbirds.

Jailed for Selling Ducks.--Two game bootleggers of Karnak, Tex., were apprehended on January 18, 1940, by State game wardens and a Service agent while possessing wild ducks, jacksnipe, and woodcock, and after they had sold four wild ducks. The violators appeared in Federal court at Tyler, Tex., on October 7, when Judge Randolph Bryant sentenced each to 60 days in jail and placed them on probation for 3 years.

Dynamiter Jailed.--On August 1 State and Federal officers apprehended a man dynamiting fish in Bowie County, Tex. He appeared in State court where he was fined \$50 and sentenced to 60 days in jail.

Fined \$422.--A resident of Kilgore, Tex., was apprehended on August 23 in Tarrant County for killing 12 upland plovers and 4 mourning doves. He paid a fine of \$400 and costs of \$22 in State court.

Dove Hunter Pays Stiff Fine.--Apprehended in Wise County, Tex., on September 1 by State wardens and an agent of the Service, a resident of Fort Worth who possessed 47 mourning doves appeared in State court on September 6 at Decatur, where he was fined \$400 and costs of \$22.

Killed Doves from Auto.--Two hunters were apprehended in Palo Pinto County, Tex., on September 15, for killing mourning doves from an automobile. They appeared in State court at Mineral Wells the same day, and each was fined \$50 and costs of \$11.

Dove Hunter Guilty.--On September 15 a resident of Dallas, Tex., was apprehended in Navarro County by State and Federal officers while in possession of 18 mourning doves. He appeared in State court at Corsicana on October 2 and was fined \$200 and costs of \$11.

Fines Average \$66.--Ten residents of the Texas Panhandle were apprehended recently by a Service agent and State game wardens for game-law violations ranging from killing quails and ducks during closed season to

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killing doves from an automobile. Fines and costs in State courts ranged from \$36 to \$130.90 and aggregated \$666.90.

Sold Game Fish.--An agent of the Service and a State game warden apprehended three persons in northern Texas for selling game fish. Each was fined \$50 plus costs of \$11.

Bootlegger Fined, Jailed.--On November 13, 1939, a tavern-keeper of Butte des Morts, Wis., sold 10 wild ducks. On September 4, 1940, he appeared in Federal court at Oshkosh, Wis., before Judge F. Ryan Duffy and entered a plea of guilty. The accused, described as a chronic violator of the game laws, was fined \$100 and sentenced to 30 days in jail.

#### Importations

Canaries Imported from Japan.--Since the elimination of the privilege of allowing steamship passengers to bring in 5 or less canaries without a permit, the number of permits issued has increased considerably. On almost every large steamer arriving at United States ports from foreign countries are many individuals with one, two, or more canaries, and under a new ruling by the U. S. Customs officials a permit must be obtained for all importations. From one steamer alone during one week in October, 20 individual applications were received for the entry of canaries at the port of San Francisco. The first large shipment of canaries for the fall trade arrived at the port of San Francisco from Japan on September 21. The shipment was addressed to a large importing concern in New York City, and this was followed a few days later by two more large shipments from the same country for the same concern. This, and the fact that the importer declares that these canaries are actually bred in Japan, may be an indication that Japan has replaced Germany, at least for the duration of the war, as the principal source of supply for canaries. Prior to the war, the bulk of the canaries imported into the United States came from Germany. Among the more interesting importations during the month were two Paraguayan jays, two red-crested finches, five black-crested finches, two Argentine grosbeaks, two Geoffroy's cats from South America, and four walruses from Greenland.

#### Alaska Game Law Administration

Veteran Agent Retires.--Veteran Wildlife Agent Peter McMullen was lost to the Commission during this quarter by reason of having reached the 62-year retirement age. Agent Harold F. Gallwas moved up-river from Marshall to take over the Fort Yukon headquarters, and after getting settled in his new home, went to Fairbanks to assist in enforcing the new caribou law along the Steese Highway. Afterward he made a rush trip back to Fort Yukon in time to conduct a river patrol up as far as Eagle on the boundary before the freeze-up.

Executive Officer Makes Field Inspection.--Leaving Juneau on June 29, Executive Officer Frank Dufresne traveled to Seward by commercial steamer, and from there down Kenai River and Skilak Lake to Cook Inlet by river boat,



with Game Commissioner Andrew Simon's, Agent Jack O'Connor, and wildlife writers Corey Ford, Alastair MacBain, and Dan Holland. From the village of Kenai on Cook Inlet, Mr. Dufresne flew to Iliamna Lake and after visiting several points on Lake Clark and vicinity continued to Bristol Bay with a Fisheries' speedboat. On July 15, he met Dr. Gabrielson who had arrived at Dillingham aboard the Brown Bear. The Executive Officer traveled with Director Gabrielson to Naknek, later up the Kvichak River to the head of Iliamna Lake, and across the 11 mile portage to join the Fishery vessel Teal in Iliamna Bay on July 27. Several stops were made along Cook Inlet enroute to Anchorage, after which McKinley Park, Fairbanks, and Circle were visited. From Fairbanks he traveled south by Government car to Valdez, where he embarked for Juneau via Cordova aboard the Brown Bear. He arrived in Juneau on August 14.

Goes to Seattle.--On August 15, Assistant Executive Officer Homer Jewell left Juneau aboard the Brown Bear and went to Seattle to confer with U. S. Game Agent Webster H. Ransom and to buy equipment for the patrol vessels and field stations. Mr. Jewell conferred with Mr. Crouch, Regional Director Laythe, and with Washington State Game Director B. T. MacCauley. He also attended the conference of Western State Game Commissioners. He returned to Alaska with Pilot Frank Renshaw in the new Fairchild seaplane (see story below.)

Airplanes Acquired.--During the quarter two Fairchilds 4-place airplanes were purchased at a cost of \$20,000. Pilot Ray Renshaw, of Ketchikan, and Wildlife Agent Sam O. White, of Fairbanks, took delivery of the planes at Hagerstown, Md., and flew them to Alaska. One of the planes is powered with a 145 h.p. Warner Radial Engine for wheel and ski work out of Fairbanks. The other plane has a 175 Ranger in-line engine for pontoon work in Southeastern Alaska.

Violations Reported.--During the quarter ending September 30, 49 violations of the Alaska game law were reported. Fines totaling \$1,350 and 390 days in jail were assessed. Seven firearms and 141 furs were seized. One caribou and 15 deer were seized.

Pheasants Planted.--During the quarter 100 Mongolian pheasants, hatched at the Petersburg Experiment Station, were liberated at Wrangell. Another shipment of 85 Mongolian, 2 Cheer, and 3 Reeve pheasants went to Cooper Landing on Kenai Peninsula for liberation, to determine which, if any, of the three species could survive the winter conditions in that locality. The Commission also liberated 85 Mongolian, 230 ring-necked, and 26 Manchurian pheasants near Petersburg. No birds are being retained in captivity at Petersburg at this time except two pairs of Nepal Kaleege, which species appears to hold considerable promise for Southeastern Alaska. The Mongolians liberated along Wrangell Narrows a year ago wintered successfully and raised broods last summer. Additional shipments of these birds, and possibly some Koklass and other species, may be received from the Wisconsin Game Department this fall.



"Brown Bear" Prepares for Winter.--The Brown Bear, under Captain John O. Sellevold left Juneau on August 15 and five days later arrived in Seattle where the boat is being repaired and overhauled before leaving on its winter patrol of the Aleutians early in January.

Seals Beaver Skins at Seattle.--U. S. Game Management Agent Webster H. Ransom, of Wildlife District No. 15, sealed hundreds of Alaskan beaver pelts that were shipped to Seattle from Alaska during the quarter. He also continued to render valuable service in the inspection of Alaska furs and game trophies. Seattle is one of the key points in the Commission's law-enforcement system. The influence of a game agent at this port of entry to the States is felt in nearly every Alaskan trading post.

Beaver Castors Sent to Pocatello.--Forty-one pairs of beaver castors seized from poachers were forwarded to the Pocatello bait-mixing station in September.

Inspects Aleutians.--Manager H. Douglas Gray, of the Aleutian Islands Refuge spent the first 6 weeks of the last quarter on the Brown Bear in the vicinity of the Alaska Peninsula, Aleutian Islands, and Bering Sea. Having returned to Juneau late in August, he has been issuing permits and foreclosure notices in line with agreements reached in the Washington office last winter.

Seals Beaver Skins.--Early in August, Deputy Agent Wayne House, of the McGrath District, went several hundred miles down the Kuskokwim River by outboard-motored poling boat to Bethel, to seal beaver skins in that area. From Bethel, Mr. House freighted a load of supplies back to his McGrath headquarters in preparation for the winter season. The district is under much better control than formerly, it is reported, and there is less tendency to violate regulations in the summer time. Preseason and postseason trapping, and poaching of beavers, are the principal violations to guard against on the Kuskokwim.

Contraband Furs Seized.--Wildlife Agent Carlos M. Carson, of Dillingham, covered his district by motorboat and airplane during the quarter, making several trips that were both dangerous and fatiguing. On July 2, he and Pilot Waltka found a hidden cache of 147 illegal beaver pelts in two oil drums suspended in a tree by steel cables. The cache was in a swamp 150 miles up the Nushagak River. Other contraband furs, consisting of beavers, foxes, lynxes, and land otters were seized in the Katmai Monument and were released by violators to the Commission. This district is one of the hardest to control in the entire Territory.

Deer Confiscated.--Two Hoonah Indians with 15 deer aboard the seine boat Washington were apprehended by Deputy Warden Jack Jeffrey, of Wildlife District No. 1, working out of the Executive Office. Nine of the deer were confiscated and given to charitable institutions. The Indians pleaded guilty, and each was fined \$100 and given a suspended

sentence of 4 months. Mr. Jeffrey carried on the enforcement work in his district by outboard-motored speedboat and by automobile. On September 1 he patrolled on the Taku River to the Canadian Boundary, observing moose hunting conditions.

Guards Deer Herd.--Wildlife Agent Hosea R. Sarber, of Wildlife District No. 2, divided his time during the last quarter between Stikine River trips, fishery patrols, guarding the deer herd, and overseeing pheasant propagations at the Petersburg Experiment Station. In addition to apprehending several fishing-law violators, he made a careful study of the brown bear's condition on Admiralty Island.

Conducts Fishery Patrol.--Deputy Agent Gareld Banta, of Wildlife District No. 3, was extremely active on fishery matters during the last quarter, covering 4,333 miles during July and August on such work. He also made preliminary arrangements for the construction of a seaplane hangar in the tidal basin along side the Commission float and spent many evening hours on big-game hunting and registered-guide matters. Ketchikan is a port of entry to Alaska and is the scene of much activity for nonresident hunters entering the Territory. He also worked with U. S. Customs officials on outgoing shipments of furs and game trophies.

Wildlife District Established at Sitka.--Shortly after July 1, wildlife agent headquarters were established at Sitka under the direction of C. Douglas Swanson, former captain of the Grizzly Bear and recently appointed as a deputy wildlife agent. During the quarter, Mr. Swanson devoted most of his time to fishery patrols. He also acquainted the personnel of the Sitka Naval Base with the game laws. The outstanding game case during the quarter was the arrest of a poacher for killing a doe deer during the closed season. The violator was fined \$125 and costs by the Sitka Commissioner.

Surveys Game on Afognak Island.--In addition to making several fishery patrols and superintending the completion of the headquarters' building in Kodiak, Agent Jack Benson, of Wildlife District No. 6, conducted a game survey of the brown bears, transplanted elk, deer, and snowshoe hares on Afognak Island. Kodiak has now become an important wildlife station. Close guardianship is necessary because the Naval Air Base has added several hundred people to the area.

Airplanes Curtail Violations.--The great value of airplanes in preventing violations has already become apparent in wildlife district 9, according to reports. Those tempted to violate the game laws often think better of it after looking at the airplanes in the sky, not knowing which one may be piloted by a wildlife agent. District 9 now includes Anchorage and the Seward-Kenai district. The combined district is handled jointly by Wildlife Agents Jack O'Connor and Grenold Collins. Six thousand soldiers and civilian workers have recently moved into the area to work at the army Air Base near Anchorage, thus creating a nonresident hunting problem that requires almost constant patrolling of the highways and



local waterways. Agent Collins flew many miles on patrol during the summer, using the Commission-owned Monocoupe for wheel landings and a chartered Aeronca for pontoon landings.

Nonresident Caribou Hunters Arrested.--Early in July, Wildlife Agent Clarence J. Rhode transferred from Cordova to Fairbanks, but during the quarter he made several visits to the former area. Visits to this district were also made by Agent Collins in a seaplane. During the first few days of the caribou season, Mr. Rhodes made many arrests. Mostly the violators were nonresidents attempting to hunt big-game on resident hunting licenses.

Personnel.--George McC. Gullufsen was permanently appointed to the position of engineer-operator on the patrol vessel Black Bear on August 29. During the period July 1 to August 28 he served in this capacity in a temporary status.

Roberta G. Dooley was appointed from the Civil Service register to the position of clerk-typist on September 4.

#### PREDATOR AND RODENT CONTROL

Returns from Field Trip.--Mr. Green returned to Washington on September 8 after spending more than a month in the West. During his trip he attended a conference of district agents in the Shelterbelt States at Lincoln, Nebr., on August 5. Rodent-control problems in connection with the Prairie States' Farm Forestry Project were discussed with the district agents and Forest Service officials. A conference of district agents in Region 2 was held at Albuquerque on August 12 to 14. Many problems confronting the control projects were discussed in detail. A similar conference was also held with the district agents of Region 1 at Portland, Oreg., on August 19 to 21. The consensus was that these conferences were worthwhile, because specific problems could be discussed in detail. It is Mr. Green's opinion that such conferences should be held at least once a year. While in the West Mr. Green also inspected predatory-animal control work on the summer sheep ranges in the Big Horn Mountains of Wyoming. He also inspected field offices in Colorado, California, Washington, Utah, and Idaho, as well as the Pocatello Supply Depot in Idaho.

Helps Finance Hunter.--District Agent A. E. Gray reports that the Texas County Fox and Wolf Hunters Association of Missouri is cooperating in a project for the control of wolves in that county. The project is intended largely for the protection of livestock, but the county's share of the costs will be raised through the membership of the Fox and Wolf Hunters Association. The association has expressed itself to the effect that if predator-control work is necessary it should be done through a Government hunter because it provides the maximum of safety to other animals. The association has invited the farmers and livestock interests to report their wolf depredations directly to the president of the Fox and Wolf Hunters Association or to the hunter himself.



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# THE SURVEY

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## GREETINGS FROM THE DIRECTOR

EVENTS IN THE YEAR 1940 have emphasized in many ways the richness of American life and have deepened the national determination to safeguard this way of living. In these circumstances the American public has come to appreciate more highly than ever before the importance of conserving the natural resources that underlie institutional and personal welfare. We who are members of the Fish and Wildlife Service have, as a result, an improved opportunity to serve the Nation effectively and to enjoy the encouragement that comes with appreciation. The success of our programs so far and the vision we all have of further needs are added inspirations. We enter the holiday season in a spirit of mutual congratulation and face the new year with a well-founded resolution.

Within our own special sphere of interest the year 1940 has brought a closer organization of all Federal efforts to conserve the Nation's natural resources, making cooperation easier than ever before. It is our responsibility now to make the most of the opportunity to work together. This, of course, is a pleasant responsibility and one that will be increasingly pleasant as we all share the interest in our many diversified projects, in a spirit of good fellowship and close cooperation.

THE SURVEY has long been an aid in the promotion of this sort of common interest and cooperation. Its success indicates clearly the need for a continuing information service "within the family," and this service will be performed as well as possible in a new house organ. Through its pages we shall have an opportunity to keep ourselves informed about the many activities of an increased number of fellow workers in the new organization of which we are all a part, and I trust that we shall find it both interesting and helpful in furthering cooperation and good fellowship.

It is a pleasure for me to have the privilege of using the pages of this last issue of THE SURVEY to wish you all a Merry Christmas and, in announcing the new house organ, to express my earnest hope that each issue will be helpful in making 1941 a Happy New Year for every one of you in the Fish and Wildlife Service.

With your families in your homes, you all have my best personal wishes for a most joyful and merry holiday season.

*Ira H. Gabrielson*

Attends Salmon Hearings.--Dr. Gabrielson left Washington, D. C., on November 7 to attend hearings on salmon which were to be held in Seattle, Wash. Enroute, he was scheduled to speak at various meetings and visit some national wildlife refuges. At Ann Arbor, Mich., on November 8, he spoke to the student body of the School of Forestry. On November 9, he was scheduled to meet Regional Director Burnie Maurek and to inspect the Horicon marshes, the Necedah refuge, and other areas. On November 14, he attended the Midwest Wildlife Conference at Urbana, Ill. He was to visit Okoboji Lake and the Des Moines regional office on November 17, and the Wilson Ornithological Club meeting in Minneapolis on November 22. The salmon hearing in Seattle began on November 25.

Entertain Division Heads.--Dr. and Mrs. Gabrielson, Mr. and Mrs. Henderson, and Mr. and Mrs. Jackson entertained the chiefs and assistant chiefs of the Service Divisions and their wives at a dinner and dance at Snowden Hall, Patuxent Research Refuge, Md., on October 29. Following the dinner, a color motion picture showing last summer's visit of Service officials to Alaska was shown. The picture, taken by Mr. Jackson, included interesting scenes of fishes, wildfowl, and sea mammals.

Community Chest Pledges Above Quota.--In the Washington Community Chest campaign the quota for the Fish and Wildlife Service was \$2,834, and 352 employees pledged \$2,894, or 102.12 percent of the quota, according to the latest figures available. The campaign committee included Dr. Gabrielson, chairman; Assistant Director Jackson, vice-chairman; and the following keyworkers: Mrs. Barbara Aller, representing Fisheries personnel; Ruth Richards, Viola Schantz, and Mrs. Emma Lou Henry, of the Division of Wildlife Research; Mrs. Eva C. Elledge, of the Federal Aid Division; Clona C. Whitaker, of the Division of Predator and Rodent Control; Mrs. Bur-  
netta E. Muth, of the Division of Game Management; Gladys Torson, of the Division of Construction and CCC Operations; Mrs. N. Beth Woodin, of the Division of Wildlife Refuges; Marguerite A. Evans and Mrs. Madeline J. Chaput, of the Division of Administration; E. Nell Scruggs, of the Division of Land Acquisition; and Mrs. Sylvia P. Kershner, of the Division of Public Relations. Wilma I. Aho served as secretary.

Want Books.--Personnel working on the Patuxent Research Refuge, Bowie, Md., are collecting books for a library to be placed in Snowden Hall for the use of guests. In a memorandum to Division Chiefs, Dr. W. B. Bell asked for donations of books for the library. The memorandum follows:

"Snowden Hall is now serving as a dormitory, operated by the Welfare Association to provide accommodations for personnel, cooperators, and guests using the facilities of the Patuxent Research Refuge. Furniture was made by the C.C.C. camp at Lake Mattamuskeet Wildlife Refuge, New Holland, N. C.

"It is requested that a canvass be made through the Divisions for donations of books for building up a library for the use of guests at Snowden Hall. Books on fish and wildlife subjects owned by persons in this Service will be gratefully received if they can be spared. A limited number of books on other subjects including fiction will be acceptable. Kindly

send donations to Mrs. Ponton, Room 1348, South Agriculture Building, for listing."

Join Red Cross.--During the fall, 241 employees of the Fish and Wildlife Service in Washington offices enrolled as members of the Red Cross, donating a total of \$278.25, according to Guy W. Lane, division chairman for the Service.

Speak at Federation Meeting.--Three members of the Fish and Wildlife Service attended the Louisiana Wildlife Federation's Convention in New Orleans on October 27. Leo Couch, assistant chief of the Division of Wildlife Research, was one of the speakers at the dinner held in the Jung Hotel. Albert M. Day, chief of the Division of Federal Aid in Wildlife Restoration, was one of the principal speakers of the evening session. Walter A. Gresh, regional inspector of the Federal Aid Division, also attended the convention.

Doves Scarce in Parts of Northeast.--Doves are reported to be scarce generally throughout the northern part of Region 4, where the shooting season opened in September or in October, according to Roy Moore, assistant regional director. The birds were particularly scarce in Kentucky, Tennessee, and north Georgia. Ducks are concentrated in the rice growing district of southwest Louisiana where the hurricane destroyed the fields this summer just before harvest, he said. The birds are there in greater numbers than in any recent year, according to local people, and Service agents estimate the wintering population in the hundreds of thousands. The ducks are harvesting the crop that was lost to the farmers.

Planning Board Meets in Dallas.--Mr. Moore attended a meeting of the Regional Advisory Committee of the National Resources Planning Board at Dallas on September 23-24. Representatives of various Government agencies comprising the committee met to help the regional office of the N.R.P.B. in preparing a report on the resources and plans for development in the Dallas region, which includes Texas, Oklahoma, Louisiana, and Arkansas. Mr. Moore presented a paper on wildlife and discussed the need for wildlife planning.

#### ADMINISTRATION

Memoranda to Field Officers Issued.--Following is a list of the memoranda issued in the "Administrative Field Office" (AFO) series since the last issue (October) of THE SURVEY:

- No. 21 Revised. Amendment No. 6 (Supplement No. 3). Amended language of the Eight-hour Law. (October 23.)
- No. 21 Revised. Amendment No. 14. Open market purchase limitation. (October 8.)
- No. 39 Revised. Amendment No. 8. Decrease in the maximum rate authorized for travel in privately owned automobiles on a mileage basis. (October 11.)
- No. 279. Amendment No. 1. Sale of surplus Civilian Conservation Corps materials, equipment, or supplies. (October 23.)



- No. 297. Amendment No. 1. Observance of instructions to consignees on purchase orders issued by the Department Purchasing Office. (November 19.)
- No. 334. Coordination of research with activities of operating divisions. (October 16.)
- No. 335. Lending of vehicles to Post Office Department during Christmas period. (November 2.)
- No. 336. Withholding of bulk mailings, December 10 to 26.
- No. 337. Designation of Thanksgiving Day. (November 14.)

The following memoranda to field officers have been issued in the "Contracts" series:

- No. 170. Mandatory contracts for the procurement of tires and tubes (Classes 8 and 83). (October 12.)
- No. 171. Mandatory contract for the procurement of safety cans (Class 42). (October 18.)
- No. 172. Contracts for the procurement of first aid kits and refills therefor (Class 57). (October 16.)

#### PUBLIC RELATIONS

Official Publications, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Pseudopregnancy in domestic rabbits. By George S. Templeton, director, United States Rabbit Experiment Station, Section of Fur Resources, Division of Wildlife Research. Wildlife Circular 4, 13 pp., illus. 1940. Received November 1.
- The Java sparrow. Compiled by Phoebe Knappen, biologist, Section of Food Habits, Division of Wildlife Research. Wildlife Leaflet 171, 8 pp. October 1940. Received October 25.
- Fryer rabbit production. By George S. Templeton, director, United States Rabbit Experiment Station, Section of Fur Resources, Division of Wildlife Research. Wildlife Leaflet 173, 10 pp., illus. October 1940. Received November 8.
- Abstract of fur laws, 1940-41. Compiled by Frank G. Grimes, Administrative Assistant, Division of Public Relations. Wildlife Leaflet 174, 39 pp. October 1940. Received November 2.

Press Statements, copies of which may be obtained from the Division of Public Relations, have been issued as follows:

- Hunters urged to reduce losses of crippled birds. Press release. Released October 20.
- More than 1 million sportsmen will hunt migratory waterfowl. Press release. Released October 23.
- Waterfowl corporation pays big dividends to conservationists. Press release. Released November 1.

- Buffalo herds go modern; doctor vaccinates calves. Press release. Released November 3.
- Tips and Briefs. Clip sheet. Released November 8.
- Agents nab lookouts and duck hunters for baiting waterfowl. Press release. Released November 12.
- Rabbits can be raised to supply meat at home or for market sale. Press release. Released November 15.
- Alaska still important producer of wildlife, annual report shows. Press release. Released November 18.
- State lapses cost sum aid. In "Current Conservation" (Clip sheet) Vol. III, No. 8, November 1940.
- Critters outsmart people; Service records reveal. In "Current Conservation" (Clip sheet) Vol. III, No. 8, November 1940.

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## WILDLIFE RESEARCH

Inspects Recreation Area.--On October 24 Dr. Bell inspected the facilities of the Pleasant Valley Recreation Area in Garrett County, Md., to consider the possibility of using certain lands in this area under the administration of the University of Maryland in a research program of wildlife conservation, education, and demonstration work. Other members of inspection group were: Robert H. Gensch; Dr. T. B. Symons, dean and director of the Extension Service, University of Maryland; Dr. Roger B. C. Corbett, director of the Maryland Agricultural Experiment Station; and E. I. Oswald.

Inspect Cooperative Units.--J. Paul Miller, secretary of the American Wildlife Institute, and Leo K. Couch left Washington, D. C., on October 16 to inspect the work of the Virginia, Alabama, and Texas Cooperative Wildlife Research Units. They also were shown samples of the Soil Conservation Service's wildlife program through the courtesy of Verne Davison, regional biologist, in the vicinity of Spartanburg, S. C. Mr. Couch inspected the Santee-Cooper project and Harold L. Blakey's turkey work on the Santee. The two attended the organization meeting of the Louisiana Wildlife Federation, October 27, at New Orleans (See story page 289). On their return from Texas, they conferred with Thomas Burleigh at Gulfport, Miss., and travelled with him to Thomasville, Ga. The wildlife work being done by Herbert L. Stoddard, collaborator of the Service, in the Coastal pine region was also seen. They returned to Washington on November 3.

On November 12, Mr. Miller and Mr. Couch left Washington, D. C., to inspect the Ohio Unit at Columbus, and with Dr. Hicks, leader of the Unit, and Daniel L. Leedy, assistant leader, they attended the Midwest Wildlife Conference at Urbana, Ill., on November 21 to November 23. There they conferred with Federal and State conservation officials. Later they met with Dr. J. Alfred Hall, director of the Central States Forest Experiment Station at Columbus, Ohio, and returned to Washington, D. C. on November 24.

Wildlife Building Completed in Alabama.--Dr. Allen M. Pearson, leader of the Alabama Cooperative Wildlife Research Unit, reports that on September 10 his office and laboratory equipment was transferred to the new Wildlife Building, which had just been completed on the campus of the



Alabama Polytechnic Institute. This transfer has made available adequate and convenient space for the wildlife workers. Now provided for use by wildlife employees are six offices, two laboratories, a workshop, and sufficient storage room. Fred Barkalow, in charge of the Alabama Federal Aid investigative projects, is housed with Dr. Pearson.

Redhead Nesting Affected by Water Level.--Renesting attempts of red-head ducks found in Iowa during the latter part of June and July numbered 9, or 13.85 percent of the total nests found during the year, according to Jessop B. Low, graduate student of the Iowa Cooperative Wildlife Research Unit. Of these renesting attempts, 4 (44.47 percent) successfully produced juveniles, while 5 (55.58 percent) nests failed. Average clutches of renesting attempts held 6.6 eggs. The most destructive factor throughout the 1940 nesting season was the recession of water levels from established nests, Mr. Low reported. When the water receded beyond the depth where the female could swim to the nest with ease, desertion of the nest almost invariably resulted. This was in direct contrast to the most important nest mortality factor in 1938, in which 23.84 percent of the nests were flooded. Abnormally heavy precipitation during the nesting season (as in 1938) resulted in the failure of one-fourth of the nests, while abnormally light precipitation (as occurred in 1940), with a resultant lowering of water levels, was the direct agent in the desertion of 14 (21.69 percent) nests. The 1939 water levels in the lakes and sloughs of the Ruthven area held fairly constant throughout the nesting season, and is shown in the fact that only one nest was flooded and the percentage of successful nesting attempts was 30 percent above the 1938 and 1940 figures.

Tests Electric Fences as Repellents.--Various types of electric fences under varying ground conditions were tested as deer repellents during the past summer, Walter Kittans, graduate student of the Maine Cooperative Wildlife Research Unit, reports. One of these, of 4-point barbed wire, two strands, one at 22 inches and the other at 38 inches above the ground, which was erected around a 14-acre orchard was only partially effective. Another single strand of barbed wire at 26 inches around a smaller orchard was so ineffective that it was abandoned after 7 weeks. Both of these fences gave reduced shocks because of dry soil. A three-strand, two-way circuit, made of 4-point barbed wire, with the strands 18 inches, 33 inches, and 57 inches above the surface, was set up around a bean field. Between these three strands, two ground wires were installed. These were attached to an iron pipe set 5 feet in the soil. No animals passed this fence. The shock was increased, but indications also pointed to the fence acting as a mechanical barrier as well.

White twine, white cloth streamers, highway flares, and other scaring devices all proved ineffective, although the flares did keep deer away from a garden for the first twelve nights. An automatic carbide exploder used intermittently for a month in a 4-acre field kept deer out, but cost and time required to operate it were prohibitive.

Birds Consume Jack Pine Seeds.--A bird invasion into a jack pine forest shortly after a fire was described in a report received from the Huron

National Forest, Mich., by Shaler Aldous, located at St. Paul, Minn. During the four days immediately following the fire, the seedfall was very heavy. It was estimated that between 200,000 and 2,000,000 seeds an acre fell. Armies of robins, grackles, blackbirds, and other species flocked into the forest and lined up like soldiers, systematically working the area. It was not definitely proved whether they were eating seeds or baked insects. When an attempt was made to shoot some birds and study the contents of their stomachs, most of the birds had left. The low amount of reproduction found indicates that much of the seed must have been destroyed. Opportunities for a biologist to be on the ground when these occurrences take place are rare. These observations are undoubtedly sound, it was said, and prove that birds on certain occasions play an important part in retarding forest regeneration. The fact that disced areas and border furrows produced a good catch of trees indicates that the seeds which fell in those places escaped the ravages of the birds.

Completes Chukar Partridge Studies.--W. O. Nagel, research assistant with the Missouri Cooperative Wildlife Research Unit, recently completed his studies on the chukar partridge. In part he concluded that since most of the 1,800 chukars released, and those reared in the wild, left the areas and scattered out widely, without subsequently taking up permanent residence on any range, this dispersal, whatever the cause or causes, is primarily responsible for the failure of the birds to establish themselves in any large numbers. In view of the low mortality and good production, it is possible that if the chukars had remained on the areas in anything like the concentrations released there, establishment would have resulted. The reason establishment did not result is that not enough birds remain on the areas to accomplish this, and this in turn is probably due to some environmental deficiency in kind, quantity, or arrangement of food and cover. Conditions in Missouri are not suitable for the establishment of the Indian Hill partridge on the basis of releases reaching an average density of one bird per acre.

Concludes Pheasant Nesting Studies.--Don H. Strode, graduate student of the Ohio Cooperative Wildlife Research Unit, recently completed his 1940 pheasant nesting studies. There were 539 nests found on the 4 sections of land, the first nest observed being found on April 25 and the last on September 12. Three major cover types constituted only 55.3 percent of the entire area, but yielded 100 percent of the nests found. The three types were hay (including alfalfa, alsike, red clover, timothy), small grains (including wheat, oats, and barley), and wasteland (including woods, pastures, fencerows, roadsides, and ditchbanks). Hay comprised 14.9 percent of the total area, but yielded 67.9 percent of the nests found. In 589 acres of small grains (22.9 percent of the area), 48 nests (8.9 percent) were found. Wasteland consisted of 444 acres (17.3 percent of the area), but yielded 125 (23.2 percent) of the total nests found.

Will Study Blacktails.--An intensive study of the Columbian black-tailed deer will be conducted on an area selected in the coastal range of mountains west and north of Reston, Douglas County, Oreg., by Lee Kuhn and Ed Chatelain, graduate students of the Oregon Cooperative Wildlife Research



Unit. This area, west of the summit of the Cascade Mountains, is well populated with people, yet apparently provides good range for the deer. It is typical of the coastal range of western Oregon and contains mature timber, reproduction and shrubby underbrush, farm lands and orchards, and openings made by fire, roads, and electric powerlines. A study was begun on the food habits of the deer by watching them feed and by noting the plant species and degree of browsing.

Counts Deer on Aransas.--A population of approximately 3,800 deer is on the Aransas National Wildlife Refuge, according to Arthur F. Halloran, graduate student of the Texas Cooperative Wildlife Research Unit, who recently conducted a deer census by a cruising method count on existing trails and fence-lines. Counts from an automobile and deer drives are not considered as accurate as the cruising method. This count can be duplicated by 7 man-days of 5 hours each. A comparative index count by auto over an 8-mile route shows promise of becoming a good index of deer population, he said. Duplication of this index yearly would involve a daily 20-minute trip over a good road for 25 days. A direct correlation between morning temperature and number of deer seen was found.

Inspects Montezuma.--C. M. Aldous, enroute from Orono, Me., to his new assignment at Ogden, Utah, recently inspected the Montezuma National Wildlife Refuge, Seneca Falls, N.Y. He suggested ways and means for improving conditions for woodcock on the area.

Fawn Mortality High.--The majority of the mule deer fawns in the Fish Lake National Forest were dropped in the first 3 weeks of June, according to Wilber Bartels, graduate student of the Utah Cooperative Wildlife Research Unit, who is working on the area. June 15 represented the peak of fawning activity. On a 750-acre experimental pasture, a heavy mortality of fawns occurred during the first weeks of life. Random samples on a 31-acre area showed a total of 39 fawns, of which 9 were dead. There was no predation. The high number of fawns per acre is not typical of the pasture.

Takes Brood Counts of Grouse.--Dewitt H. Sehver, graduate student of the Virginia Cooperative Wildlife Research Unit, at the Mountain Lake Area, made 22 grouse brood counts during the season, and secured data on 12 additional broods from volunteer cooperators. All of these were believed to be different broods, located within a radius of about 10 miles from the head of Little Stoney Creek. The average number of chicks per brood was exceptionally low, averaging from four to six.

#### Wildlife Surveys

Add to Mammal Collection.--An important specimen of bushy-tailed woodrat (Neotoma cinerea saxanans), collected by Stanley Bishop at Unuk River, Southeastern Alaska, was received at the mammal laboratory on November 13. This is the second Alaska record of this woodrat now represented in the Service mammal collection.



Matanuska Survey Continued.--Work was continued for nearly 2 months last summer on the Matanuska-Susitna Valley, Alaska, range and wildlife survey. It was intended to employ CCC personnel, as was done last year, but enrollees were not available, having left to work at the Army air base. During July one field assistant was employed temporarily to assist L.J. Palmer. The survey will furnish basic information pertaining to range and wildlife conditions on which to measure the effects of settlement and to plan future development. Colony officials have informed Biologist Palmer that his reports are to be incorporated in a grazing development plan for the Matanuska Colony.

Count Reindeer.--On September 28, shortly before taking the boat for Seattle, Dr. Victor B. Scheffer, assisted by two other government employees, counted approximately 1,100 reindeer on Saint Paul Island, Pribilof Group, Alaska. This herd is too large for the carrying capacity of the island and will be reduced as speedily as possible. On Saint George Island, Wildlife Agent Jack Benson counted 53 reindeer.

Transplant Lemmings.--The black-footed lemming (*Lemmus nigripes*) found only on Saint George Island, Pribilof Group, was first reported from the island by H. W. Elliott in 1874, first collected by C. H. Merriam in 1891, and described by F. W. True in 1894. It has been deemed advisable to establish, if possible, the species on Saint Paul Island, as another source of blue fox food. Dr. Scheffer, with the assistance of Wildlife Agent Benson, obtained 13 black-footed lemmings on St. George Island and released them on St. Paul Island on October 1. Twenty lemmings were trapped on St. George Island, but 7 died during the 2 days that they were subjected to stormy weather aboard ship. Dr. Scheffer believes that the chances of survival of these lemmings on St. Paul Island is small, since so few were introduced. Efficient means of trapping and transporting the animals have been worked out and larger plantings may be made in the future.

Dall Sheep at Mount Hayes Region.--Last summer an intensive study was begun on the mountain sheep of the Mount Hayes region, Alaska, with particular attention to the relationship of wolves, man, and other factors in the maintenance of a desirable wildlife balance in areas occupied by Dall sheep. This study should prove especially useful in correlation with similar studies now being conducted in Mount McKinley National Park by the Section on National Park Wildlife. Field work in the Mount Hayes study area, which covers about 400 square miles, has been conducted by Field Assistant J. W. Warwick. Mr. Warwick, in a joint report with Mr. Palmer, estimates the total number of Dall sheep on the area at 605, of which 270 are ewes, 180 rams, 140 yearlings, and 15 lambs. The low estimate on lambs was probably because the count was made early in the summer before many of the lambs were born.

Visit Mammal Laboratory.--Rogers McVaugh, of the Bureau of Plant Industry, U. S. Department of Agriculture, visited the mammal laboratory on October 28 to confer with Major E. A. Goldman about some Mexican botanical problems.

On October 30, Mr. and Mrs. E. T. Clark, of Goshen, N.Y., visited the laboratory to see the mink and marten collections.

Donald J. Woolley, of the Commission of Game and Inland Fisheries, Richmond, Va., visited the laboratory on October 19 to confer with Major Goldman about Virginia white-tailed deer. Mr. Woolley plans to send the Service some specimens during the hunting season for the mammal collection.

Dr. Thomas Barbour, of the Museum of Comparative Zoology, Cambridge, Mass., visited the laboratory on November 8 to confer with Major Goldman.

#### Food Habits Research

Progress is Noted on Wheeler Refuge.--Dr. Clarence Cottam left Washington, D. C., on September 24 to inspect the progress of a cooperative study on the Wheeler National Wildlife Refuge, Ala. On September 26 a formal meeting of the Technical Committee established to coordinate wildlife conservation with malarial control and other activities of the Tennessee Valley Authority was held at Wilson Dam. Dr. Cottam reported that satisfactory progress has been made. After reviewing wildlife conditions on the Wheeler and Guntersville Reservoirs, conference was held at Chattanooga with officials of the malaria control division of T.V.A. to devise means of dewatering and impounding certain units of the Wheeler Refuge. An effort is being made to effect both malarial control and wildlife conservation on this area.

Inspects Southern Area.--On October 2, Dr. Cottam and W. V. Taylor, of the Division of Wildlife Refuges, inspected units of the Piedmont National Wildlife Refuge, Georgia. This area as a whole has genuine possibilities for upland game development, Dr. Cottam reports. While in the South he visited the Santee-Cooper project and on October 7 attended a meeting of officials of the South Carolina Public Service Authority to consider certain developments for wildlife conservation in proposed impoundments. Biologist John Lynch and Dr. Cottam spent October 9 on the Mattamuskeet Refuge studying food problems, particularly with the view to suggesting possible means of cutting down wave action and increasing the food supply in the water area.

Visit Delaware Marsh Areas.--Dr. Cottam and Lawrence Saylor, of the Division of Wildlife Research, and Dr. Warren S. Bourn and Richard Griffith, of the Division of Wildlife Refuges, spent October 23 and 24 in coastal and central Delaware inspecting various marsh areas on and near the Bombay Hook Refuge. Experimental grass plots were burned to test the feasibility of attracting geese to such areas by burning the old matted grass growth, thus making the tubers, roots, and invertebrate life more available as food. The Service's experimental areas, which are designed to test methods of better correlating mosquito control operations with wildlife welfare, were visited and found to be functioning as planned. Other marsh areas at Malton, Pickern, and Bowes Beaches, and the Mispillion River areas were also inspected and the changes in flora and fauna caused by indiscriminate ditching there noted.

Talks to High School Students.--Miss Phoebe Knappen gave a talk on October 28 before the students of the senior class of the Montgomery-Blair (Md.) High School who were interested in natural history or in scientific



illustrations. She indicated some possibilities now available for advanced biological training and methods of placement in the field of biology. This talk was followed by a discussion of the positions open in strict biology and in related fields.

Additional Research Area Installed.--Mr. Saylor spent all of October at the Bombay Hook Refuge where he was engaged in setting up an experimental area to test the principles of modified sump drainage as applied to mosquito control and wildlife conservation. The work was done with the aid of two C.C.C. crews furnished by the camp assigned to the refuge. Six other areas, each of them testing a different type of drainage practice, are now functioning and it is hoped that next season's results will shed further light on the problem. Careful type-maps made of the flora on the areas will give accurate checks on any changes that may take place because of fluctuating or reduced water levels. Numerous tide staffs scattered throughout the areas are so designed as to furnish accurate records of the number of times each area is submerged by tides or rainfall and the minimum and maximum fluctuation of the water levels at each.

Rats Attack Children.--Newspaper reports of rats attacking sleeping children were found to be true in Denver on October 21 when B. F. Lowery, of the Wildlife Research Laboratory, cooperated with city officials in an investigation. On two succeeding nights prior to that date rats had bitten a 4-year-old girl on the finger and arm, and a 2-year-old child on the foot, according to reports. Mr. Lowery aided in controlling the rats.

Bears Eat Domestic Stock.--Analyses by C. C. Sperry of the contents of 20 stomachs of stock-killing bears taken in Colorado and Wyoming last summer and early last fall revealed that domestic stock comprised 60 percent of the food. Other items were ants, 16 percent; rabbits, 2 percent; deer and porcupine, trace; wild fruits and nuts, 13 percent; herbaceous plants (chiefly grass), 9 percent.

Rodent Control Studies Made in New Mexico.--E. R. Kalmbach, accompanied by R. H. Inler and Jack Welch, visited the Jornada Range Reserve, and the Experimental Ranch, of the New Mexico Agricultural Experiment Station on October 14 and 15. They inspected various quadrats used to determine rodent and rabbit pressure on the range and discussed the problem of rabbit control with Federal and State officials. They also saw the experimental work being conducted by Mr. Welch in the control of rodents on the Lincoln National Forest.

"The Mail Must Go Through".--The "pony express" has almost been forgotten in this day of air-mail service, but to the Fish and Wildlife Service the beginning of mail and package service between the Washington offices and the Patuxent Research Refuge on October 23 was almost as significant an episode as was the first pony schedule. Mail is picked up each morning from Rm. 1855, South Building, Agriculture, by regular messenger service through the Post Office of the Department of Agriculture. It is then sent by way of Beltsville, Md., and delivered at the Patuxent Refuge the same day. Mail from the refuge also reaches the Washington offices each afternoon.



Will Carry on Research Work at Patuxent.--Biologist Cecil S. Williams, stationed at the Bear River Migratory Bird Refuge, Brigham, Utah, arrived at the Washington office on November 13. He expects to spend 3 months at the Patuxent Food Habits Laboratory to conduct goose food habits research and prepare a manuscript for a bulletin on the Canada goose.

Verify Toxicity of *Crotalaria Spectabilis* Seed for Quail.--The toxicity of *Crotalaria spectabilis* for bobwhite quail as demonstrated by Thomas in his work in 1934 has been verified by the workers on the quail nutrition project at the Patuxent Research Refuge, according to A. C. Martin, in charge of the Food Habits Laboratory. Under ordinary conditions, however, seeds of *Crotalaria spectabilis* are not eaten by the quail where there is a choice of feeding stuffs. In fact some bobwhites may starve themselves rather than eat such material, though apparently a few birds will eat large quantities, especially if other feeding stuffs are scarce. If a few seeds of *Crotalaria spectabilis* are picked up, accidentally or otherwise, by the quail there is a good possibility that they will be evacuated from the bowels undigested and so do little harm, Mr. Martin said.

Additional Equipment for Laboratory.--Equipment for chemical and nutrition studies to be conducted by the Patuxent Food Habits Laboratory is now being installed. The suite of rooms reserved for these studies will have, when completely equipped, the latest facilities for analytical work on wildlife foods.

Reflooding Correlates with Duck Sickness.--Field observations and experiments on duck sickness on the Bear River Refuge last season indicates that the malady may be correlated with the reflooding of the tension zone of muck bordering the fringes of alkaline waters. Whenever these zones were covered by water due to wind action or water level increase, green-winged teals and pintail ducks flocked in to feed and a rise in mortality of these species was observed.

Drought Affects Duck Foods in Utah.--The drought period in northern Utah last summer resulted in the drying up of several units of the Bear River Refuge as well as most of the sloughs and potholes of the region with a consequent loss of many acres of green aquatic foods. According to Biologist Williams, good water conditions prevailed long enough during the growing season to permit the formation of seeds and tubers of sago pondweed. These food items persisted in the top soils until the fall influx of water, at which time they attracted many thousand ducks, Canada geese, and whistling swans.

Redhead Duck Kill is Large.--According to Mr. Williams, an abnormally large number of redhead ducks fell before hunters' guns in Utah during October. The species does not normally migrate from the Utah breeding grounds before the first week in November and because of this fact most hunters had difficulty in staying within the limit of three birds.

Sage Hens Refuse Poisoned Grain.--In a recent study carried out at Farson, Wyo., to determine the susceptibility of sage grouse to strychnine-poisoned grain, J. C. Ward found that the birds completely refused to eat the poisoned grain bait. The tests also included the feeding of poisoned alfalfa, stomach tubing of a solution of strychnine sulphate, and intraperitoneal injection of the poison. The birds failed to eat sufficient treated alfalfa to cause symptoms of poisoning even after a period of starvation. This study was conducted in cooperation with the Wyoming Fish and Game Commission and with the active assistance of Malcolm Martin and Warren Allred, of the sage grouse study crew working under Federal Aid funds.

Personnel.--Biologist Robert Gensch was transferred, effective November 9, to the Nicolet National Forest, Wis., where he will conduct basic research on forest-wildlife relationships under the immediate direction of Shaler Aldous, who is detailed to the Lake States Forest Experiment Station at St. Paul. The work will be carried on under the McSweeney-McNary Forest Research Act. Mr. Gensch's headquarters will be at Rhinelander, Wis.

Len Anthony Blakemore on October 9 joined the Food Habits Laboratory at the Patuxent Research Refuge, Md., as a collaborator in the employ of the Alabama Cooperative Wildlife Research Unit. He will make stomach examinations for Dr. Allen Pearson, leader of the Unit.

L. M. Llewellyn was on temporary assignment during October at the laboratory as a collaborator from the Virginia Cooperative Wildlife Research Unit. While there he conducted turkey stomach analyses.

Miss Catherine Bounelis joined the Patuxent Laboratory on October 9 on a month's appointment as an under clerk-typist.

#### Distribution and Migration of Birds

Flies Over Niagara.--Harold S. Peters, the Atlantic Flyway biologist, returned to his headquarters in Charleston, S. C., on October 25 after completing waterfowl investigations in the Maritime Provinces. On October 13 at Niagara Falls, N.Y., he made an hour's flight in a small plane over the Niagara River, Rapids, Falls, Whirlpool, and the river below the Falls. From there he drove to Erie, Pa., where he visited the Presque Isle State Park, the Pymatuning Lake area on the Pennsylvania-Ohio line, where the afternoon was spent with William Grimm, of the Pennsylvania Game Commission. On October 15 he examined East Harbor and other Sandusky, Ohio, marshes. The next few days were spent in the field with Game Management Agent Fred Brint and several deputies in the vicinity of Sylvania, Port Clinton, and Castalia, Ohio. The next week Mr. Peters attended conferences at the Ohio State Museum and State University in Columbus. On October 21 he observed 400 blue geese flying over the city.

Has Narrow Escape.--During the severe storm in the midwest early in November, Mississippi Flyway Biologist C. E. Gillham had a narrow escape from the fate which overtook a number of duck hunters and others who were stranded. According to reports, Mr. Gillham was on an island in the Mississippi River when the storm broke. He was marooned there for more than 12 hours because of the inability of his boatman to reach him from the Illinois side. At that time a hunter on a neighboring island made an

unsuccessful attempt to reach the mainland by boat and was swept by the tremendous waves to the island where Mr. Gillham was stranded. Despite the hunter's protest that they could never make it, Mr. Gillham insisted on making the attempt and after a long struggle they were successful in reaching the Illinois shore, jumping for land just as the boat sank. When seen a few days later by Leo K. Couch, Mr. Gillham indicated that some parts of his anatomy had not thawed out from his ducking in the icy waters. Mr. Gillham left for Louisiana where he will continue his winter's work along the Gulf coast.

Doves Decrease.--During the early part of October Dr. George B. Saunders, the Central Flyway biologist, continued field work in Texas on the eastern white-winged dove, to obtain data on distribution, relative abundance, ratio of immature and adult birds, and food habits. The consensus of field observers indicated a decrease in total population of this subspecies compared to the numbers last year. This year, again, too heavy a toll was taken by hunters, he reported. The general opinion in the lower Rio Grande Valley seems to favor additional legislative restrictions, and plans are now being made by valley hunters and conservationists to hold meetings and obtain petitions preparatory to sending a committee before the State Legislature next January. Dr. Saunders participated in meetings at Harlingen, Tex., on October 24 and at McAllen on October 29, at which impetus was given these plans. A series of articles has been prepared and sent to 24 newspapers in the Valley to aid this conservation program. On October 7 and 8 he went to northern Tamaulipas to obtain data on the southward flight of whitewings from the Lower Rio Grande Valley. Migration flights were reported by resident Mexicans as having occurred on October 7, as well as during September.

Dr. Saunders also observed waterfowl migrations. Flights of teals and pintails were heaviest during the first half of October. Redheads were beginning to congregate for the winter at Laguna Madre near Port Isabel. Flights of lesser Canada geese and lesser snow geese were noticeably heavier than last year, he reported. By the end of October most of the ducks, except redheads, had moved to Mexico.

Prepares Waterfowl Report.--Luther J. Goldman, the Pacific Flyway biologist, has spent October in working on notes for a Mexican waterfowl report. He was to leave for that country early in December to continue his investigations. He states that pintails, cinnamon teals, and spoonbills were reported as early as August 23 from Guadalajara (the Lake Chapala country). Green-winged teals were reported there early in September.

Visit Washington Office.--On November 8 Leroy Wilcox, of Speonk, Long Island, N.Y., studied the banding returns files to abstract material on ospreys and piping plovers.

On November 19, William F. Rapp, Jr., of Rutgers University, to whom a banding permit has just been issued, visited the Washington office to discuss various phases of the work and to obtain information that will aid him in establishing a successful station.



Three Outstanding Returns from Banded Birds.--No. 542595, crow, banded 6/19/32, Indian Head, Saskatchewan; shot 6/5/40, Katapena, Saskatchewan.

No. 140-2026, white-throated sparrow, banded 10/15/40, Platteville, Wis.; trapped and released 11/7/40 Blacksburg, Va.

No. L64727, chipping sparrow, banded 9/27/34, North Eastham, Cape Cod, Mass.; trapped and released at same locality, 8/22/40.

### Fur Resources

Broadcasts at Consumer Quiz Club.--On November 8 at 12:45 E.S.T. over WOR, Frank G. Ashbrook broadcast information of interest to women who either own fur coats or are looking forward to buying one. He described the various features to look for when purchasing a fur coat and gave advice regarding the proper care of a fur garment.

Buildings Completed at Fur Station.--Mr. Ashbrook visited the Fur Animal Experiment Station at Saratoga Springs, N.Y., on November 12 and 13 to inspect the construction work that had just been completed. This work has been in progress since 1939, when Secretary Ickes allotted \$50,000 of PWA funds to enlarge the laboratory, purchase new refrigerating equipment, construct a home for the station assistant director, and remodel a number of other buildings on the property. Edward P. McDermott, associate agricultural engineer of the Division of Construction and CCC Operations, supervised the project and completed it in record time, Mr. Ashbrook said. The new buildings and equipment will facilitate the research work with fur animals at this station.

Research on Fur Seals.--Mr. Ashbrook, Charles E. Kellogg, and Dr. Thora M. Plitt were in St. Louis at the Fouke Fur Company on December 2 to 4. The purpose of this trip was to outline the details of research work to be done with 407 seal skins taken for experimental purposes this summer after the regular season had ended. One of the primary purposes of taking these skins was to study the extent of the prime fur period in fur seals.

Talks at Fur Animal Show.--Mr. Kellogg attended the Michigan-Ohio Fox and Fur Breeders Annual Show, held in Grand Rapids, Mich., on November 26-28. This is the largest live fur animal show in the United States. Mr. Kellogg spoke to the breeders on November 26 on "The Federal Fur Animal Research Program." He also attended the Society of Animal Production meetings in Chicago on November 29 and 30. Animal nutrition and breeding specialists from Federal and State experiment stations throughout the United States meet annually to exchange information.

Numerous Meetings Attended.--George S. Templeton, director of the U. S. Rabbit Experiment Station, Fontana, Calif., and Mr. Kellogg, during the period October 21 to 26, attended rabbit raisers' meetings in Baltimore and Pearl River, New York, and also conferred with several research investigators using rabbits as laboratory stock. Of particular interest was the visit to the Rockefeller Research Laboratory where a herd of 2,000

breeding rabbits is maintained for investigations on inheritance of certain abnormalities and diseases. They also met with Dr. Carl G. Hartman, Carnegie Institute of Washington, located at Baltimore.

Mr. Templeton and Mr. Kellogg obtained from experts in the fur trade detailed descriptions of some experimental rabbit skins produced at the rabbit experiment station. Before returning to Washington, they visited the Fur Animal Field Station on the Blackwater Migratory Bird Refuge at Cambridge, Md.

Addresses National Rabbit Convention.--Mr. Templeton told those assembled at the National Rabbit and Cavy Breeders Convention and Show, on October 29 at Grand Rapids, Mich., about the more recent experimental work on the production of fryer rabbits. On his way East Mr. Templeton talked before a group of rabbit breeders in St. Louis and visited one of the large research laboratories of a commercial feed company in the Midwest.

Foxes Turned Into Furring Run.--On the completion of two experiments with adult fox vixens and one with adult fox males, the animals selected for breeders at the Fur Animal Experiment Station Saratoga Springs, N.Y., were turned into the 2-1/2 acre furring run at the rear of the station property, where the 57 animals confined together seem to be thoroughly enjoying their freedom. Since the breeding herd is continually being improved, the foxes present a spectacular appearance this year and are a major attraction for visitors.

Rodent Control Measures Taken.--The number of rats and mice has been increasing at the Fur Animal Experiment Station for the past few months, according to reports. The present and past construction work, together with the fragments of mink and fox feeds that drop under the elevated animal pens, have made conditions almost ideal for the propagation of these pests. W. W. Dykstra, of the Division of Predatory-Animal and Rodent Control, supervised an extensive "blitzkrieg" on rats and mice. The results are gratifying, it is reported. With cooperation from the rodent-control experts, the damage wrought by rats and mice will be held at a minimum.

Chipmunks Beware!--While gathering nuts for winter use, an unsuspecting little chipmunk recently worked his way into the pen of a female marten at the Fur Animal Experiment Station, only to be promptly pounced upon and destroyed by the occupant on whose ground he was trespassing. It is interesting to note that, in spite of several generations in captivity, the marten still recognizes its natural prey.

WPA Project Improves Station.--A project to improve the grounds at the Fur animal Experiment Station, particularly in the vicinity of the recently constructed and remodeled buildings, was started on October 10. The work outlined includes installation of a year-round water system to the pens, escapeproofing the marten and mink units, and the construction of various roads and walks throughout the farm.

Speak Before Biological Society.--Dr. R. K. Enders and Dr. Thora M. Plitt discussed briefly certain phases of their research work before the Biological Society of Washington on November 16.

Reviews Karakul Investigations.--At a conference on Karakul sheep breeding, which was held at the Beltsville Research Center, Md., on November 18, Dr. Plitt reviewed the research work that had been done by German investigators. Officials of the Bureau of Animal Industry and of the Section of Fur Resources attended the conference.

#### Disease Investigations

Attends Veterinary Conference.--On November 7 and 8 Dr. J. E. Shillinger addressed the Veterinary Short Course for Veterinarians at the State University, Columbia, Mo. Motion pictures and lantern slides were shown to illustrate some of the pathological conditions in wildlife. While in Columbia Dr. Shillinger conferred with Dr. Paul Dalke and Dr. Rudolph Bennett and gave a talk to their group of students in management.

Visits Eastern Institutions.--Dr. E. R. Quotrup, in charge of the disease laboratory at the Bear River Migratory Bird Refuge, Utah, is spending part of November and December in the East making special studies of bacteriological and pathological problems connected with botulism. His particular point of interest is the soil bacteriological laboratory at New Brunswick, N.J. He will also confer with scientific workers at the University of Pennsylvania and the U. S. Public Health Service.

Personnel.--Miss Frances L. Bushnell has been appointed as junior laboratory helper in the disease research laboratory at Pullman, Wash. She has had previous experience in the type of work in the laboratory formerly located at Fontana, Calif.

#### National Park Wildlife

Fry Plantings Successful.--A study of fish problems in the Colorado River below Boulder Dam, Ariz., was recently made by Supervisor of Fish Resources David H. Madsen, who gave particular attention to a possible site for trout rearing pools at Willow Beach, Ariz. He recommends against construction of trout rearing pools at Willow Beach or any other site along the Colorado River below Boulder Dam, because past experience has shown satisfactory results from planting fry direct from the hatchery. The condition of the river and the fine catches of trout made there lead Mr. Madsen to believe that a continuation of fry plantings will insure the future success of the stream as an angler's paradise.

Yosemite Bear Situation Improved.--Wildlife Ranger Otto Brown reported that he trapped 16 bears in Yosemite Valley in November and hauled them to Gin Flat, where limited feeding is being done to induce the bears to stay away from the valley. Only one bear is known to have returned to the valley. By starting this fall to relieve the surplus bear situation, it is hoped that definite curtailments can be made in the bear show next summer.

Ship Bears, Elk to Buenos Aires.--Two grizzlies from Yellowstone and a pair of elks from the Wichita Mountains Wildlife Refuge were shipped to



the Buenos Aires Zoological Gardens this fall. The animals left New York on September 27 and October 11 respectively. The transfer of live animals to South America was arranged through negotiations started last June between Dr. Rudolpho Homberg, director of the Gardens, and officials of the National Park Service. Other donations from Yellowstone during the month included one bear to the city zoo at Memphis, Tenn., and one to the Columbus, Ohio, zoo. (See story, page 310.)

Waterfowl Protection at Washington's Birthplace.--On October 12 the National Park Service requested the Fish and Wildlife Service to cooperate in more complete protection of waterfowl at Washington's Birthplace, through a possible acquisition of Pope's Creek as a refuge area. At the close of the month plans were made for field study by the Division of Wildlife Refuges.

#### FEDERAL AID IN WILDLIFE RESTORATION

Visits Region 4.--Mr. Day left Washington, D.C., on November 23 for a 2-week's inspection trip in the southeast. Accompanied by Walter A. Gresh, regional inspector in Region 4, he will inspect Pittman-Robertson projects and confer with State game officials in North and South Carolina. He will return to the Washington office on December 1.

Goes to Convention.--Mr. Day left Washington, D.C., on October 20 and returned on November 5 after visiting officials at Atlanta; Montgomery, Ala.; New Orleans, where he attended the organization meeting of the Louisiana Wildlife Federation; Paducah, Ky.; Little Rock; Vicksburg, Miss.; Jacksonville, Tenn.; and Nashville.

Auditor Goes to Midwest.--Howard Leach, traveling Auditor of the Division, left Washington, D.C., on November 11 for Michigan, Ohio, and West Virginia. He will return about November 30.

Confers With Officials.--Biologist William J. Howard left Washington, D.C., on October 20 for Minneapolis, where he was joined by Melvin O. Steen, regional inspector for Region 3. They conferred with State game department officials in North Dakota, South Dakota, Minnesota, and Wisconsin. Mr. Howard returned to Washington on November 5.

Attends Conference.--Mr. Day left Washington, D.C., on November 12 to attend the 3-day meeting of the Midwest Wildlife Conference at Urbana, Ill.

Sees Turkey Restocking Operations.--Robert M. Rutherford, senior acquisition and construction specialist, left Washington, D.C., on November 14 for Richmond, Va., where he conferred with State department officials and watched the releasing of wild turkeys on closed areas for restocking purposes.

Restore Pheasants in Irrigated Valleys.--On October 3 the Service approved a project submitted by Arizona to provide a limited seed stock of pheasants in irrigated river valleys of that State. Although much of Arizona

is mountainous, dry, and unsuitable for pheasants, State-wide wildlife surveys and investigations have shown that there is good reason to believe that ring-neck pheasants will thrive in river valleys where crops are produced under irrigation systems. This project provides for the placing of a limited number of birds in suitable coverts so as to provide seed stock of this game bird, which is now protected by a closed season.

Post State Refuges.--The Arkansas Game and Fish Commission received approval on October 21 to use a portion of its Federal Aid funds to define and post the boundaries of 20 State game refuges. These areas comprise an aggregate of 36,000 acres. Boundaries not along roads or streams will be brushed out so that they are easily recognizable and afford fire protection. Appropriate signs and markers will be erected to identify the lands as wildlife refuges.

Restores Quail Habitat.--The Arkansas Game and Fish Commission received approval on November 6 to use a portion of its Federal Aid funds for the restoration of quails throughout the State. One of the principal limiting factors in this State is the lack of proper food and cover. By this project the State plans to install refuge areas where habitat improvement will be conducted to provide nesting and escape coverts, as well as food patches, for the quails. The areas will be closed to hunting and properly identified as refuges. When determined necessary, limited releases of the birds for seed stock purposes will be made.

Develop Addition to Hagerman Area.--A project for the development of lands added to the Hagerman Waterfowl Area in Gooding County, Idaho, was approved on November 6. Developments will consist principally of fencing and properly posting the lands so that they can be easily identified as property of the State. On the same day the State received approval to purchase an additional tract of land for inclusion in the area, which borders the Snake River. An ample water supply for this establishment is provided by springs. The eastern part of the area will be maintained as an inviolate refuge for migratory waterfowl, and the western part, which embraces the new tract, will be open to hunting.

Continue Development of Horseshoe Lake.--A project providing for the construction of a combination administration headquarters and lookout tower with suitable fencing, submitted by the Illinois Department of Conservation, was approved under the Federal Aid program on October 15. The Horseshoe Lake Refuge, owned by the State, is located in one of the greatest concentration areas for Canada geese in the Mississippi flyway. The privately owned adjacent areas are subjected to heavy hunting pressure. By a previous Federal Aid project the State improved the habitat on the refuge.

Deer Stocked Refuges.--White-tailed deer will be stocked on 7 State refuges under a Federal Aid project approved by the Service for the Indiana Department of Conservation on September 11. Lands comprising these refuge areas were abandoned from agricultural use and have reverted to forest cover suitable for deer. To supply adequate seed stock on the areas, Indiana

will release deer to provide the nuclei of State-wide populations of this animal, which at one time was found throughout the State. The entire State is now closed to hunting of deer.

Land Acquisition Program Continues.--Under the Federal Aid program, approval was accorded on October 2 for the sixth segment of Michigan's acquisition of Barry County lands. This provided for the purchase of 570 acres as a part of the long-range acquisition program for this area, the whole of which will constitute a desirable upland game area. Provisions have already been made for some food and cover plantings, release cuttings, and other activities designed to benefit rabbits, quails, squirrels, raccoons, migratory waterfowl, and other forms of wildlife.

Beavers Transplanted.--The Mississippi Game and Fish Commission received approval on September 19 to use a portion of its Federal Aid funds for the restoration of beavers in some of the State streams suitable for the animals but not now having satisfactory populations. At one time the true southern beaver was widely distributed over the State but with the passage of time they were reduced to the vanishing point. Through the injection of sound conservation practices in recent years, beaver populations have increased sufficiently in the southern portion of the State to warrant their wider dispersion. Under this project surplus animals will be trapped and transplanted to suitable streams which are in need of seed stock.

Will Restore Ruffed Grouse.--A project providing for the restoration of ruffed grouse in southern, southeastern, and northeastern Ohio under the Federal Aid program was approved on November 7. These portions of Ohio at one time supported a good ruffed grouse population but the encroachment of civilization caused their disappearance. The forests having been cut and many of the farms abandoned because of their submarginal character, large areas in these sections have reverted to conditions favorable to the birds. To provide satisfactory seed stock, Ohio plans limited stocking of ruffed grouse on 8 areas owned or controlled by the State. The lands will be closed to hunting and management practices inaugurated as a result of Ohio's grouse investigations.

Wild Turkey Restoration Progress in Virginia.--As a result of liberation activities conducted during the fall of 1939 and the spring of 1940, 378 turkeys were released in eight areas in the Thomas Jefferson National Forest in southwestern Virginia. The areas formerly supported good turkey populations, but because of over-hunting and other causes none remained prior to the inauguration of this turkey restoration program. Planting stock was obtained at the Camp Lee, Va., game farm operated by the Virginia Commission of Game and Inland Fisheries. The birds are the offspring of pen-reared hens of wild origin which were wing clipped and confined to fenced enclosures away from human interference and where wild gobblers are available. Experience elsewhere indicates that pen-reared turkeys often show a pronounced tendency to move to nearby farms. A careful check of these releases, however, disclosed that less than 10 percent of the liberated



birds moved out of the mountainous areas where they were placed, and when they moved to farms their stay was only temporary unless they were baited or confined. By August, 112 poults had been observed and subsequent observations indicate that the reproduction from the stockings amounted to approximately 50 percent of the number of birds released. The number of poults observed to date lends considerable encouragement to the hope that Virginia through this and other restocking efforts will succeed in reestablishing wild turkeys in the southwestern part of the State from which they were extirpated.

Restore Bobwhites.--Virginia received approval on October 22 to use a portion of its Federal Aid funds for the restoration of bobwhite quails in 50 counties where there is a deficiency in populations. The State, under another Federal Aid project, located the areas having a suitable habitat for quail but a low population. Control of the wildlife on these areas was obtained by agreement with landowners to closure for a period of at least 2 breeding seasons. Bobwhite quails in satisfactory numbers to constitute seed stock are being placed on these lands.

Acquire Deer Range.--Washington State's first segment of the land acquisition program for the purchase of the Sinlahokin Deer Range in Okanogan County, under the Federal Aid program, was approved by the Service on October 15. Although only two tracts are included in this segment, the total area involved is approximately 1,500 acres and brings the acquisition program for the Sinlahokin area near completion. Considerable additional areas of both State and Federal lands will be included with the lands purchased by the State under the Federal Aid program to complete this refuge, which will afford much-needed winter range for deer.

Acquisition of Horicon Marsh Continues.--The Service approved the second segment of Wisconsin's Horicon Marsh acquisition program under the Federal Aid Act on October 19. Some 3,000 acres are involved in this area, which brings the total purchases of the State in the marsh under this program to more than 7,000 acres. Once a famous waterfowl area which has suffered from lowered water levels due to drainage activities, restoration of the Horicon Marsh is planned by structural developments designed to return it to its original condition.

Personnel.--Dr. Floyd B. Chapman was appointed assistant regional inspector for Region 5 on November 16. After a short time in the Washington and Atlanta offices, Dr. Chapman will return to his headquarters in Boston. He did his undergraduate and graduate work at Ohio State University where he received his Ph.D. in Wildlife Conservation in 1933. He resigned from his position as Supervisor of Forest Game Management in the Ohio Division of Conservation and Natural Resources to accept this new post.

Miss Athalie Sunrall of the Division of Federal Aid, married Frank G. Arrotta, of the Bureau of Agricultural Economics, on Friday, November 1, 1940.

## LAND ACQUISITION

Establishes Refuge.--The President on October 22 signed an Executive order establishing the Thief Valley National Wildlife Refuge in Oregon. This area, comprising approximately 1,495 acres, is located in Baker and Union Counties.

Closes Area.--The President on November 7 signed a proclamation designating as closed area under the Migratory Bird Treaty Act certain lands and waters adjacent to and in the vicinity of the Willapa National Wildlife Refuge, Washington.

Changes Name, Enlarges Area.--The President on November 12 signed an Executive order changing the name of the Lake Bowdoin Migratory Waterfowl Refuge and adding approximately 1,300 acres of public lands to the area.

Get Administrative Sites.--The President on November 18 signed an Executive order setting aside approximately 80 acres of public lands in Pima and Yuma Counties, Ariz., as administrative sites for the Cabeza Prieta Game Refuge and the Kofa Game Range.

## WILDLIFE REFUGES

Avocets Seen on Blackwater.--A pair of avocets was seen by Refuge Manager David V. Black on the Blackwater Refuge, Md., on September 30, establishing a new record not only for the refuge, but so far as known, also for the State. The pair remained until October 18, when one of them left, but the other bird remained until November 2.

Waterfowl Numbers Increase.--There were more waterfowl on the Tamarac Refuge, Minn., this fall than during any previous fall since the establishment of the refuge, Manager GillGigstead reports. Approximately 80,000 ducks, geese, and coots were present, as compared with 71,000 in 1939. Lesser scaups, mallards, and ring-necked ducks showed the greatest increases, but baldpates and pintails also were more plentiful.

Lower Souris Deer Largest in Collection.--One of the three white-tailed deer specimens recently sent to the Washington office by Manager C. J. Henry from the Lower Souris Refuge, N. Dak., is believed to be one of the largest, if not the largest, in the entire Washington collection.

Reports Hunting Conditions.--Manager Wesley D. Parker, of the Sullys Hill National Game Preserve, N. Dak., reports that most of the hunters in the vicinity of Ardoch Refuge got a fair bag of ducks during the first week of the open season. Patrolman Nelson apprehended five violators during October, one for carrying a gun while on the Ardoch Refuge, one for carrying a gun of more than three-shell capacity near the Kellys Slough Refuge, one for having no license in his possession and two for hunting ducks after 5:15 p.m.

Niobrara Refuge Wildlife Displayed at Fairs.--Three specimen cases filled with bird, mammal, and reptile specimens were recently loaned from the museum on the Fort Niobrara Refuge, Nebr., to the Lacreek Refuge, S. Dak., for display at the Bennett County Fair at Martin, S. Dak., according to Manager Geno A. Amundson. This display was the principal attraction in the show room at the fair, it was said. A large longhorn steer, a mature cow, and a calf from the Fort Niobrara Refuge were displayed at the Cherry County Fair at Valentine, Nebr. Much interest was evidenced in these animals by the ranchers of the sandhill country, many of whom could remember a day when longhorns were a common sight in the region.

Trumpeters Robuff Whistlers.--The three trumpeter swans transferred to the Malheur Refuge, Oreg., from the Red Rock Lakes Refuge, Mont., in 1939 are adapting themselves admirably to their surroundings, Manager John C. Scharff reports. The swans remain within sight of the headquarters at all times, and their relationship with migrating whistling swans has been carefully noted. Although the trumpeters seem to get along well with ducks and geese, they have readily discouraged all attempts of whistling swans to associate with them except in one case. A lone whistler joined them sometime ago and although his initial reception was very hostile, he has finally succeeded in getting in the good graces of the trumpeters and is now accepted as one of the family, Mr. Scharff reported.

Governor Visits Wichita Refuge.--Acting Superintendent Ernest J. Greenwalt, of the Wichita Mountains Refuge, Okla., conducted Governor Leon Phillips and a party of members of the State Legislature and others on a trip up Mount Scott and over the refuge on October 15. The visitors, who occupied 30 cars, were impressed with the 200 buffaloes and 100 longhorn cattle they saw.

Newsreels Shoot Buffaloes, Longhorns.--Jack Barnett, newsreel cameraman of the Fox Movietone Company, spent all of November 12 photographing the longhorns and buffaloes on the Wichita Mountains Refuge, Okla., Acting Superintendent Ernest J. Greenwalt reports. Mr. Barnett believes he obtained some very good pictures and expressed his appreciation for the cooperation given him by the refuge personnel. Arrangements to take newsreel pictures of the Wichita herds were made by the Division of Public Relations.

Elks Transferred to Argentina.--Two elks were recently captured on the Wichita Mountains Refuge, Okla., and transported 6,000 miles by rail and steamer to Argentina, where they will be exhibited at the Buenos Aires Zoological Garden. Special crates were built at the refuge for transporting the animals, and their horns were cut to within 6 inches above the hair. Now 2 years old, the animals, a male and a female, weigh about 350 pounds each at the present time, but will weigh between 475 and 500 pounds when fully grown. (See story page 305)

Headquarters Shade Trees Attract Many Owls.--The shade trees on the lawn at the headquarters of the Malheur Refuge, Oreg., are proving a favorite roosting place for some of the small owl species this fall, according to Manager Scharff. On September 20, one of the rare flammulated screech owls was found



in one of the trees. This is the second record for this bird on the refuge, the first being made at the identical place in the spring of 1939. Both of the owls were taken and are now in the Washington collection. In mid-October, one of the more common but rarely seen saw-whet owls also was captured in one of the shade trees on the lawn but was later released.

Malheur Gets Peter French Brand.--The Oregon State Department of Agriculture recently assigned the old Peter French brand to the Malheur Refuge, Mr. Scharff reports. The brand is a small "P" on the left stifle of horses. It is appropriate that this old iron will be perpetuated on the refuge, a good part of which was once owned by Peter French.

National Geographic Society Official Visits Bear River.--Superintendent Vance T. Wilson reports that Gilbert Grosvenor, president of the National Geographic Society, and Mrs. Grosvenor, visited the Bear River Refuge, Utah, in September.

Personnel.--John H. Carter was recently appointed deputy U. S. game management agent on the Tule Lake Refuge, Calif.

Two marriages have recently occurred in the Division. Miss Margaret A. Campbell became Mrs. Theodore M. Lefebvre and Miss Lida Price became Mrs. William A. McDevitt.

Raymond B. St. John, formerly assistant superintendent of the Tule Lake Refuge, Calif., has been transferred to the regional office at Albuquerque, where he is now employed by the Division of Land Acquisition.

Gale Monson, assistant biologist, and Edgar Balme, junior clerk-stenographer, have recently been transferred from the Soil Conservation Service to the regional office at Albuquerque to assist in the soil and moisture conservation program in Region 2.

The following laborer-patrolmen have recently been appointed: William J. Tirre, Tule Lake Refuge, Calif.; Oden B. Keen, Susquehanna Refuge, Md.; John A. Kempton, Cabeza Prieta and Kofa Refuges, Ariz.; Wilbert A. Rodgers, Montana easement refuges; Martin I. Goldman, Bitter Lakes Refuge, N. Mex.; and Roy C. Demmer, Aransas Refuge, Tex.

The following under clerk-patrolmen have recently been appointed: Ralph A. Katus, Sand Lake Refuge, S. Dak.; Jordan E. Keister, Upper Souris Refuge, N. Dak.; Henry C. Ponder, Sabine Refuge, La.; Clement E. Mercier, Tamarac Refuge, Minn.; and Carl V. Fermanich, Wecedah Refuge, Wis.

Richard W. Butt has been appointed Clerk-patrolman on the White River Refuge, Ark., and Mac T. Finley, clerk-patrolman on the Cabeza Prieta and Kofa Refuges, Ariz.

#### CONSTRUCTION AND C.C.C. OPERATIONS

Accomplishments of the C.C.C.--Director James J. McEntee reported that as of October 1, more than 2,726,000 men have seen service in the C.C.C. since its establishment in 1933. Of this number approximately 2,493,900 have been junior enrollees and 233,000 have been war veterans.

Since 1933, some 1,956,000,000 trees have been planted; 5,743,000 man days have been expended in fighting forest fires; 79,500 miles of telegraph

lines have been built; 114,000 miles of truck trails and roads have been constructed; and 5,456,000 check dams and 44,300 bridges have been built.

Inspect Bombay Hook.--O. W. Teckmeyer, accompanied by Nat G. Baker, of the C.C.C. Coordinator's office, spent October 29 and 30 at Bombay Hook Camp FWS-1, Del. The met H. W. Lundoon, regional C.C.C. inspector, at the camp. Particular attention was paid to equipment and safety matters.

Enrollees Learn Taxidermy.--There are 16 members in the taxidermy class at White River Camp FWS-1, Ark. Already enrollees have stuffed snakes; squirrels, pigeons, hawks, and fish, and it is expected that many species of ducks will be mounted as soon as the season opens.

Many Species of Ducks on Refuge.--Superintendent Jorgenson, of Mud Lake Camp FWS-1, Minn., reports that ducks of all species have been seen on the waters of the refuge and that particularly large groups are to be found on Mud and Green Stump Lakes. Sharp-tailed grouse and Hungarian partridges are seen almost every day. A few pheasants are also seen on the area. Deer are seen daily, and one group of three was observed. An albino deer has also been glimpsed a number of times.

Training Program Shows Results.--News received this month from Medicine Lake Camp FWS-2, Mont., tells of three enrollees who within the last 10 months have received Government jobs. The three enrollees worked in the technical service office under the direct supervision of the technical service clerk, Daniel J. Fonton. He gave them daily instruction in bookkeeping, filing, typewriting and general office work and as a result of this instruction each of the enrollees successfully passed a civil service examination. All three of the enrollees have now accepted jobs as clerks with the United States Government.

The following employments have been reported at Pea Island Camp FWS-2, N. C.: The assistant mechanic, who was an enrollee, obtained a job in the Chrysler plant at Newport News, Va. His training was entirely in the garage of the camp. The blacksmith, also an enrollee, obtained a place in the Navy Yard at Portsmouth, Va. His training was also in the camp blacksmith shop. Several truck drivers have been discharged to accept similar employment with private concerns. Four enrollees were discharged in October from the two Malheur camps to accept civilian positions. One boy, who was mechanic's helper at Camp FWS-1, Oreg., has been employed as camp mechanic in a Grazing Service camp. The other three boys who have been given jobs are all from Camp FWS-2, Oreg. One is now a tractor operator, one a gas station attendant and the third, under-clerk typist in the CCC office at Malheur.

The purpose of the educational program is to increase the knowledge of the enrollees and give them experience that will be of value in obtaining jobs in civilian life.

Medicine Lake Camp Reports on Duck Sickness.--As a preventive measure against the possibility of an outbreak of duck sickness on the Medicine Lake Refuge, Mont., the 22 caterpillar tractor and a hay rake were used to agitate water along the entire shoreline of Katy's Lake and the Homestead unit. This method was tried last year and found to be effective, as oxygen was introduced

into the stale and brackish water and much rotting debris from the last spring run-off was removed from the shoreline. An outbreak of duck sickness occurred during the first part of July, however, and all available men were put to work. Dead and hospitalized birds included ducks, geese, shorebirds, coots, pelicans, blue herons, and bitterns. Muskrats also were affected.

Famous Star Visits Bear River.--Wallace Beery, the motion picture actor, was among the duck hunters on the Bear River Refuge, Utah, last month. The star has visited the refuge on previous occasions and is a favorite with enrollees of Camp FWS-1.

Reports Water Shortage.--Wm. C. Ockdon, camp superintendent of FWS-2, at the Ogden Bay Refuge, Utah, reports that warm weather and no rain last summer caused the most severe shortage of water known in years. In spite of this condition, only 35 birds were lost from botulism compared with thousands in previous years.

Personnel.--Jack J. Sadosuk, former Forest Service camp superintendent, reported for duty as superintendent of Camp FWS-2, at the Brigantine Refuge, N. J., on November 25.

Louis Stevens, whose headquarters were in the Portland regional office, and Clarence Moore, whose headquarters were in the Minneapolis regional office, have resigned their positions as supervising mechanics for Regions 1 and 3, respectively.

Mrs. R. LaPreal Monson, junior clerk-stenographer in the Washington office, transferred to the Quartermaster's Corps, War Department, on November 6.

#### GAME MANAGEMENT

Meets with Agents.--Mr. Crouch left Washington, D. C., on November 16 to confer with game management agents operating in Illinois and to get a first-hand picture of this year's hunting conditions in that State.

Speaks at Sportsmen's Club.--Chester A. Leichhardt was guest speaker of the Sportsmen's Luncheon Club in Baltimore, Md., on November 19. He spoke on Federal game-law enforcement work.

Killed Egret.--A resident of Roberts, Idaho, was apprehended on September 20 in Jefferson County by a Service agent and a State game warden for killing and possessing an egret. He appeared in State court the same day and was fined \$50.

Had Avocet.--A Service agent and a State game warden apprehended a resident of East St. Louis, Ill., on October 16 for killing an avocet near there. The hunter appeared in State court on September 18 where he was fined \$15.

Hunted from Motorboat.--A resident of Louisville, Ky., was apprehended shooting ducks from a motorboat on the Ohio River on October 16 by a United States deputy game warden. The hunter appeared in State court at Louisville on October 24, entered a plea of guilty, and was fined \$50 and costs of \$9.50.



Hunted on Baited Area; Fined \$500 Each.--Seven men killing wild ducks over a baited marsh area near Monroe, Mich., were apprehended recently. Five of the hunters appeared in Federal court at Monroe on November 18, and each was fined \$500, a total of \$2,500. The other 2 men will be tried shortly.

Pay \$105 for Baiting Area.--Apprehended by Service agents in Dakota County, Minn., on October 13, 1939, for hunting and killing wild ducks on a baited field, four men appeared in Federal court at St. Paul on November 18, 1940, and entered pleas of guilty to the charges. The court imposed a sentence requiring the payment of \$100 on the first count and \$5 on the second count, by each defendant.

Used Motorboat.--A resident of St. Louis, Missouri, was apprehended on the Lake of the Ozarks on November 6 by a United States deputy game warden for hunting wild ducks from a motorboat. The accused appeared in State court the same day and was fined \$25 and costs of \$9.30.

Baited Area; Used .22 Rifle.--Two residents of Seneca Falls, N. Y., were apprehended on October 20 at Cayuga Lake by a Service agent and State game wardens for taking wild ducks by aid of bait and with a .22 rifle. The violators appeared in State court, where each was fined \$50 and costs of \$2.50.

Bootlogger Fined, Jailed.--Because Horbert Smith, of Moscow, Tenn., sold a wild duck on January 12, 1940, and 11 wild ducks and 46 quails on January 19, 1940, he was arrested on March 1 and arraigned before the United States Commissioner at Memphis 3 days later. Smith entered a plea of guilty and was released on bond of \$1,000. He appeared before Federal Judge Marion S. Boyd at Memphis on November 18, entered a plea of guilty to the charges, and was fined \$100 and also sentenced to 30 days in jail.

Dove Hunters Used Automobiles.--Four persons hunting mourning doves in Texas from automobiles in September were apprehended by State and Federal game-law enforcement officers and tried in State courts, where the violators entered pleas of guilty. Two were fined \$50 each and costs of \$11; the others \$25 each and cost of \$11.

#### Alaska Game Law Administration

Cooperate on Fishery Patrols.--During the quarter ending September 30, the patrol vessels "Bear," "Grizzly Bear," and "Black Bear" were used extensively in fishery patrols. Wildlife Agents Sarbor, Banta, Swanson, Rhode, and Benson, who worked closely with or under the supervision of fishery officers, apprehended violators along the coast, while Agents O'Connor, Collins, and Hous enforced game fish regulations in the interior. Reports from these agents show that they were responsible for the apprehension of 39 violators of fishery regulations who were assessed fines totaling \$2,615. In addition the violators forfeited 7,679 salmon and 55 fathoms of net.

Agent Broadcasts.--Clarence J. Rhode, wildlife agent of the Alaska Game Commission, recently took part in a prepared broadcast from KFAR, America's northernmost radio broadcasting station. The broadcast featured Alaska as the "last frontier" from the standpoint of wilderness wildlife.

## PREDATOR AND RODENT CONTROL

Aids in Defense Program.--An investigation of the Boston Navy Yard area was made during October by W. W. Dykstra, assistant district agent, who ascertained the best methods for the Yard to employ to protect defense materials against damage from rats. A full report was presented to Navy officials, and control operations will be undertaken soon. The survey showed rats to be a problem in certain portions of the area where they were doing damage to many types of stored materials.

Rats in Muskrat Nest.--During the trapping season wild rats have been found making nests on top of muskrat houses in the marshes of Delaware and doing damage by eating the muskrats caught in the traps, according to a recent report from Ernest M. Mills, assistant district agent.

Study Mouse Populations.--Last September rodent control field personnel and regional investigators in Region 5 made a mouse population inventory in the New England and other States in that region. The investigators found spotty infestations of *Microtus*, but in some areas the population had increased since last year. Populations approaching 150 to the acre were found. From indications in the May mouse count an increase had been expected in the same areas by the field men. Cooperators have been notified that control is highly necessary this fall, although mouse populations are not half the 1938 fall level, even in the most infested spots.

Study Tick-Mouse Relationship.--Robert M. Berg will assist the regional investigator of the Wildlife Research Laboratory in the tick-mouse relationship study being conducted on Marthas Vineyard Island in cooperation with the Bureau of Entomology and Plant Quarantine, Department of Agriculture. An inspection trip was recently made on the island by representatives of the Bureau and of the Fish and Wildlife Service and the results considered. These indicate that the populations of mice and ticks fluctuate in about the same ratio and that removal of the mice may control the ticks. More intensive work is planned for the small Cedar Neck area, and a larger isolated area, the entire Nonamessit Island which lies just off Woods Hole point, was inspected and considered suitable for the purpose. Assistance will be given the research units to remove the mice from these areas.

Rabies on Decline.--The outbreak of rabies among foxes in Burke County, Ga., appeared to be on the decline at the end of September, according to Assistant Regional Director Roy Moore. The efforts of the State Game Department, the State Health Department, the State Veterinary Department, the County Commissioners of Burke County, and the Service were coordinated in the campaign to suppress the disease. Latest reports show that of 154 foxes taken, 61 were positive for rabies. Seven persons and 227 head of livestock have been bitten by rabid foxes in the county. The disease has spread to four or more nearby counties and requests for work similar to that done in Burke County have been made by at least two of those counties.

Rat Proof Private Homes.--Inquiries from prospective home-builders relative to methods of making their new homes rat and mouse proof are increasing in Massachusetts, according to the district agent of Region 5. Architects are helpful by aiding in planning and recommending this type of construction.

Cooperative Project Begins.--On October 28 an informal cooperative agreement for the control of predators was entered into by the Service and the Southwestern Cattlemen's Protective Association, Coldwater, Comanche County, Kans. The agreement provides that the Cattlemen's Association, together with the County government, will pay two-thirds of a hunter's salary for 3 months; the balance of the hunter's salary will be paid from Federal funds. John J. Pickens, of the Oklahoma hunter force, will be assigned to this project shortly after November 1. Coyotes are reported to be numerous and in several instances to have killed calves.

To Control Coyotes.--On November 1 an informal cooperative agreement for the control of coyotes was entered into by the Service and the West Union Livestock Association of Woods County, Okla. The agreement covers a period of 3 months, includes an area of approximately 12 miles square, and provides that the Livestock Association will pay one-half the hunter's salary; the balance to be paid from Federal and cooperative funds. Horneth Snow, local hunter, has been employed to work this project. This is the first instance, since starting the cooperative predator control work in Oklahoma, where local financial cooperation has been obtained.

Reports Interesting Data on Coyotes.--Some interesting information has been gathered from the records of the district agent in New Mexico in connection with the coyote control operations in 1940. During the year, 5,241 coyotes were taken; of these 4,235 were taken in traps and the remainder in other ways. Several of those taken had three pegged legs. One old adult, male coyote that was trapped had two perfectly developed sets of canine teeth. The average weight of the adults taken by one hunter in the northern part of New Mexico and by one hunter in the southern part was 20½ pounds, the heaviest being 30 pounds.

The species of the coyotes taken in the South is likely Canis nearusi and in the north and high regions possibly Canis lestes.

The average weight of adult bobcats was 19½ pounds, the heaviest being 30 pounds and 2 ounces.

Eleven of the 14 New Mexico counties having any appreciable amount of 50 percent Taylor Grazing funds are allotting a portion of them to cooperative predator and rodent control projects with the Fish and Wildlife Service during the current year. This source of cooperative funds for the present year amounts to \$11,730 for predator control and \$16,733 for rodent control.

State Controls Rat.--New York State, through the cooperation of the Extension Service and its county agents, will conduct about 24 rat campaigns in various counties. The campaigns will stress, even more so than last fall and spring, long-term and permanent control. The work is being organized under the supervision of W. W. Dykstra, assistant district agent.