



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR – BUREAU OF LAND MANAGEMENT

STATUS OF GREATER SANDHILL CRANES IN PICEANCE BASIN

Compiled by: Michael H. Getman

BUREAU OF LAND MANAGEMENT MEEKER, COLORADO



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STATUS OF GREATER SANDHILL CRANES IN PICEANCE BASIN

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Abstract: The status of the greater sandhill crane (Grus canadensis tabida) was studied in the Piceance Basin Wildlife Management Area of northwestern Colorado from February to May 1976. Greater sandhill cranes were observed to determine if they danced, staged or nested in the Piceance Basin. Habitat factors considered were water, feeding meadows, nesting cover, minimal disturbances, along with the conflicts of proposed oil shale developments. Although one whooping and five sandhill crane sightings were recorded during the spring of 1976, no cranes remained in the area longer than three days. No evidence of cranes dancing, staging, or nesting was found. Results indicate that cranes utilize Piceance Basin during migration as a rest stop and feeding area to avoid nocturnal flying and/or oncoming storm fronts.

STATUS OF GREATER SANDHILL CRANES IN PICEANCE BASIN

INTRODUCTION

The study area was located in the Piceance Basin in Rio Blanco County southwest of Meeker, Colorado (Fig. 1). The region is semiarid with an annual precipitation of 35 cm. The topography consists of steep hillsides and gullies with intermittent stream flows. Only a few streams in the area are perennial. Elevation varies from 1586 m on the northwest to 2623 m at Cathedral Bluffs on the southwest rim. The primary land use is domestic livestock grazing. Cattle graze along major drainage points throughout the winter, and later they are moved to higher elevations during the summer. Oil shale development is possible in the near future. The two dominant habitat types located in the Piceance Basin are sagebrush (Artemisia tridentata) and pinyon (Pinus edulis)-juniper (Juniperous osteosperma). Intermittent stream bottoms support stands of sagebrush and greasewood (Sarcobatus vermiculatus).

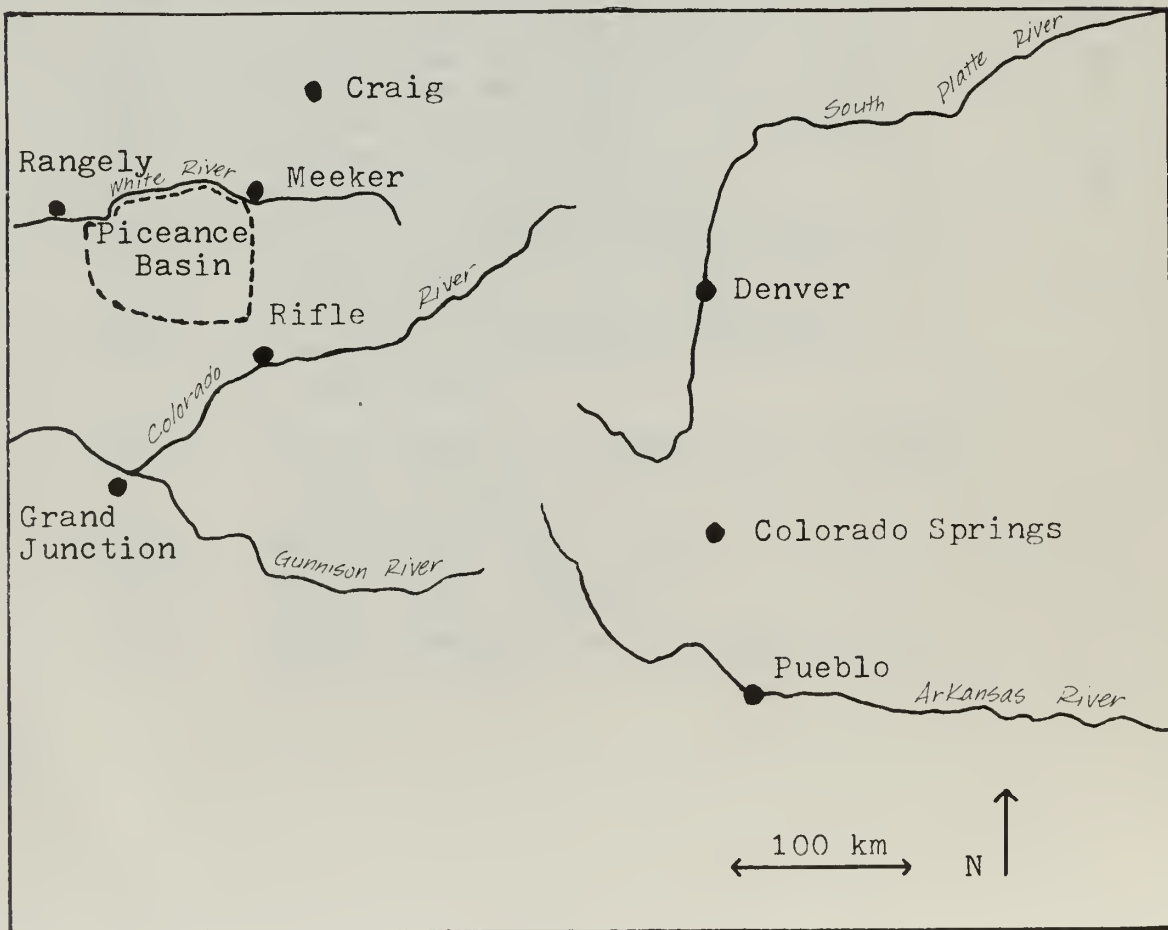


Fig. 1. Piceance Basin, Colorado

The White River runs north of the Piceance Basin and east to west through the towns of Meeker and Rangely. Land use along the White River is mainly agricultural; hay meadows, small grain fields, and livestock pastures. Oxbows supporting cattails (Typha latifolia), rushes (Juncus spp.), willows (Salix spp.), and cottonwoods (Populus spp.) are common in the White River Valley.

Greater sandhill cranes originally bred in suitable habitat throughout the northern United States, from the Great Lakes west to the Pacific states and southern Canada (Bent 1926: 250-251, Walkinshaw 1949: 30). Based on the 1968 population estimate of about 6,000, the greater sandhill crane was placed on the nationally threatened wildlife list during 1969 by the United States Bureau of Sport Fisheries and Wildlife. Littlefield and Ryder (1968) estimated the population to be about 10,000 to 15,000, with evidence that this subspecies of crane was increasing in certain portions of the breeding range. The result of the Littlefield and Ryder increases caused the removal of the greater sandhill crane from the nationally threatened species list.

The population of greater sandhill cranes nesting in Colorado had been placed on the Colorado state endangered species list by the Division of Wildlife (Colorado Wildlife Commission 1973); therefore no open hunting season has been declared on this subspecies of crane in Colorado. The threatened classification does not apply to cranes temporarily resting or feeding within the state during migration.

In the fall, greater sandhill cranes move to a major premigration staging area nearest their summer nesting site, where they remain two to seven weeks prior to their southward migration (Drewien and Bizeau 1974). Cranes generally require available grain in proximity to an adequate water supply at their fall staging area (Drewien and Bizeau 1974). Eighty-four Mesa, north of C-a Oil Shale Tract and west of Yellow Creek (Fig. 2), lacks both of these habitat criteria for a fall staging area.

Ecology Consultants Inc. (ECI 1975), reported between eleven and 29 greater sandhill cranes displaying and foraging in sagebrush flats on 84 Mesa, from 25 April to 30 April 1975. On 25 October 1975, two flocks of greater sandhill cranes, consisting of five and six birds, respectively, were observed on 84 Mesa by Dr. Alan Olson, archaeological contractor for Rio Blanco Oil Shale Project (ECI 1975). These spring and fall sightings may indicate the 84 Mesa region is a staging area for migrating cranes and/or cranes nesting nearby (Dr. Walt Graul, Colorado Division of Wildlife, 9 February 1976 personal communication).

OBJECTIVES

The objectives of this study were to determine the status (nesting or migratory) of greater sandhill cranes in the Piceance Basin and the conflicts of energy and mineral developments with cranes utilizing this region.

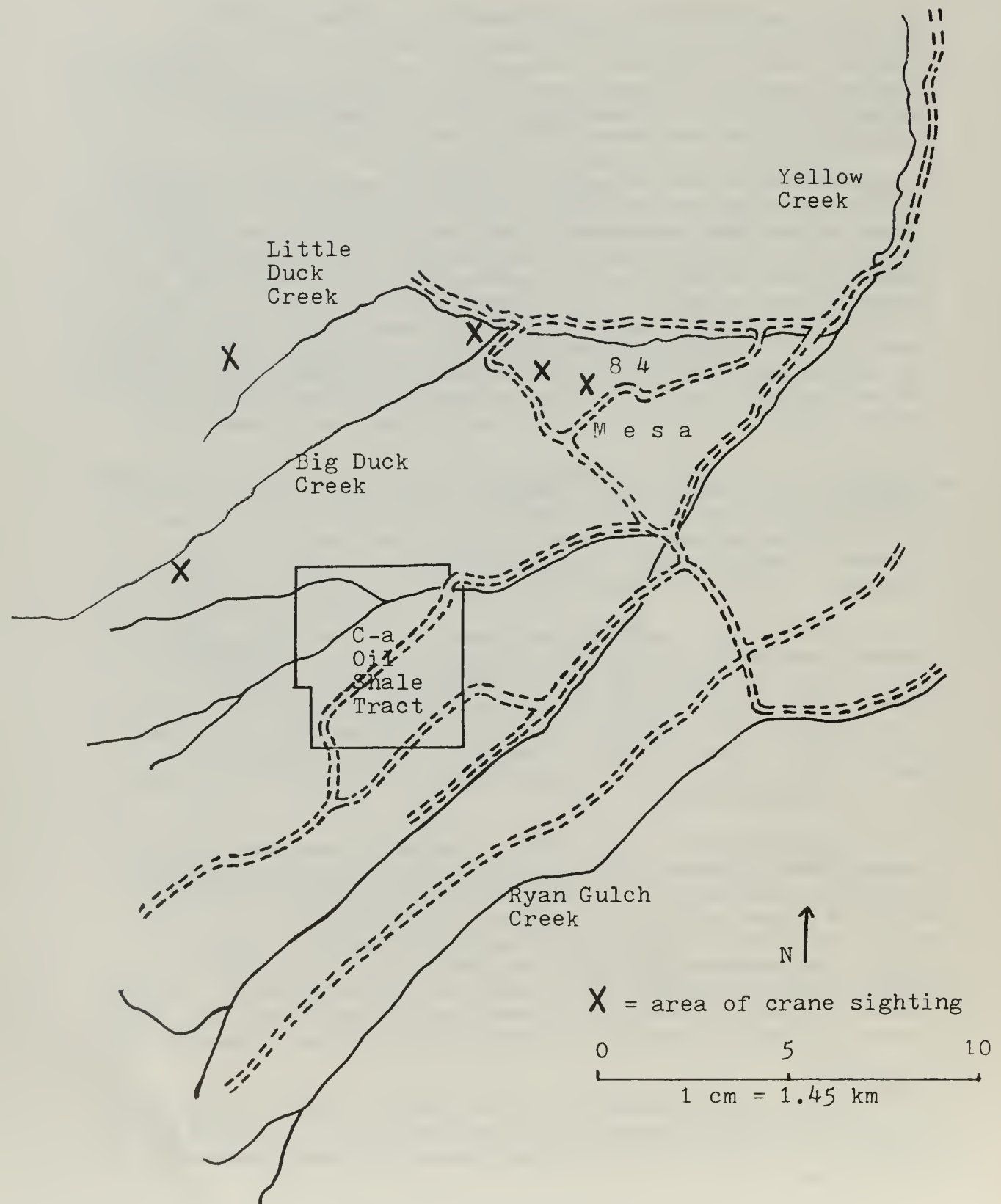


Fig. 2. Greater Sandhill Crane sightings on 84 Mesa from 25 April to 30 April 1975.

METHODS

An initial ground survey of the study area was conducted from 1 March to 26 March 1976, to locate potential greater sandhill crane habitat by driving along rural roads and stopping to identify the vegetation. Habitat types were classified by using the Bureau of Land Management manual, section 6610.31A for Wildlife Habitat Components format. Vegetation classes were color coded on reduced 22 cm by 28 cm U.S. Geological Survey (USGS) topographical maps. Suitable greater crane breeding habitats are tracts having nearby water, a feeding meadow, nesting cover, and minimal disturbances (Littlefield and Ryder 1968). These criteria were used to classify the following critical crane breeding habitat elements in the study:

(1) Water Requirements

Free water is essential to cranes for nesting habitat (Walkinshaw 1965). Although springs, streams, and stock ponds were located on USGS topographical maps and visited for ocular analysis, only perennial water sources fulfilled the water requirements for crane habitat.

(2) Feeding Meadow

Cranes are largely carnivorous, eating small birds, mice, crawfish, and invertebrates (Walkinshaw 1949). During fall and winter, cranes feed on waste grain in stubble fields, changing to a more carnivorous diet in the spring and summer. Cranes prefer to feed in meadows or shallow water along the shores of lakes and rivers (Blake 1974).

(3) Nesting Cover

Predominant vegetation used for nests are burreed, bulrush, grass, forbs, and cattails (Walkinshaw 1949). Major nesting habitat in Colorado's Routt and Moffat Counties consists of willow bottoms along creeks and rivers (Blake 1975).

(4) Minimal Disturbances

A narrative description of human disturbances was written for each area.

Habitats were classified into four categories, Class III habitat being the most suitable for sandhill crane use and Class 0 habitat being the least suitable. Class III habitat types contained all three essential components: water, feeding meadows, and nesting cover. Class II habitat types contained only one of three components, and Class 0 did not contain any of the habitat components.

Two vehicle reconnaissance routes were established for crane observation (Fig. 3 and 4). Each route was driven once every two days during the migration seasons. The vehicle stopped approximately every .5 km (depending on the field of view) to scan the area using 7 x 35 binoculars or a variable 15-60 power spotting scope. Areas inaccessible by four-wheel drive truck or unobservable from the vehicle were traversed on foot. Surveys were conducted from 27 March through 3 May. Areas of past greater sandhill crane sightings and potential nesting sites, as designated by Ecology consultants, Incorporated, were investigated biweekly.

A letter, return envelope, and postcard (Fig. 5 and 6) describing plumage color, overall size, physical appearance, status, periods of migration and nesting for greater sandhill cranes were sent to twenty-nine livestock grazing permittees in the Piceance Basin Planning Unit.

Piceance Basin residents and ranchhands were interviewed to determine if they had observed greater sandhill cranes in the area. Interviewees were asked about any crane sightings and the approximate date and location of the observations. Those unfamiliar with this bird were shown a color picture of a crane, instructed how to identify it and not to mistake it for the great blue heron--a bird of similar appearance also found in the area. Each person was given a postcard, and information sheet and encouraged to report any sightings.

An aerial survey, using a fixed-winged aircraft, was conducted on 30 March in cooperation with CDM/limnetics Enviromental Consultants to observe potential use areas. The route (Fig. 7) was flown at an altitude of 50 m above ground surface at an airspeed of 140-150 kilometers per hour.

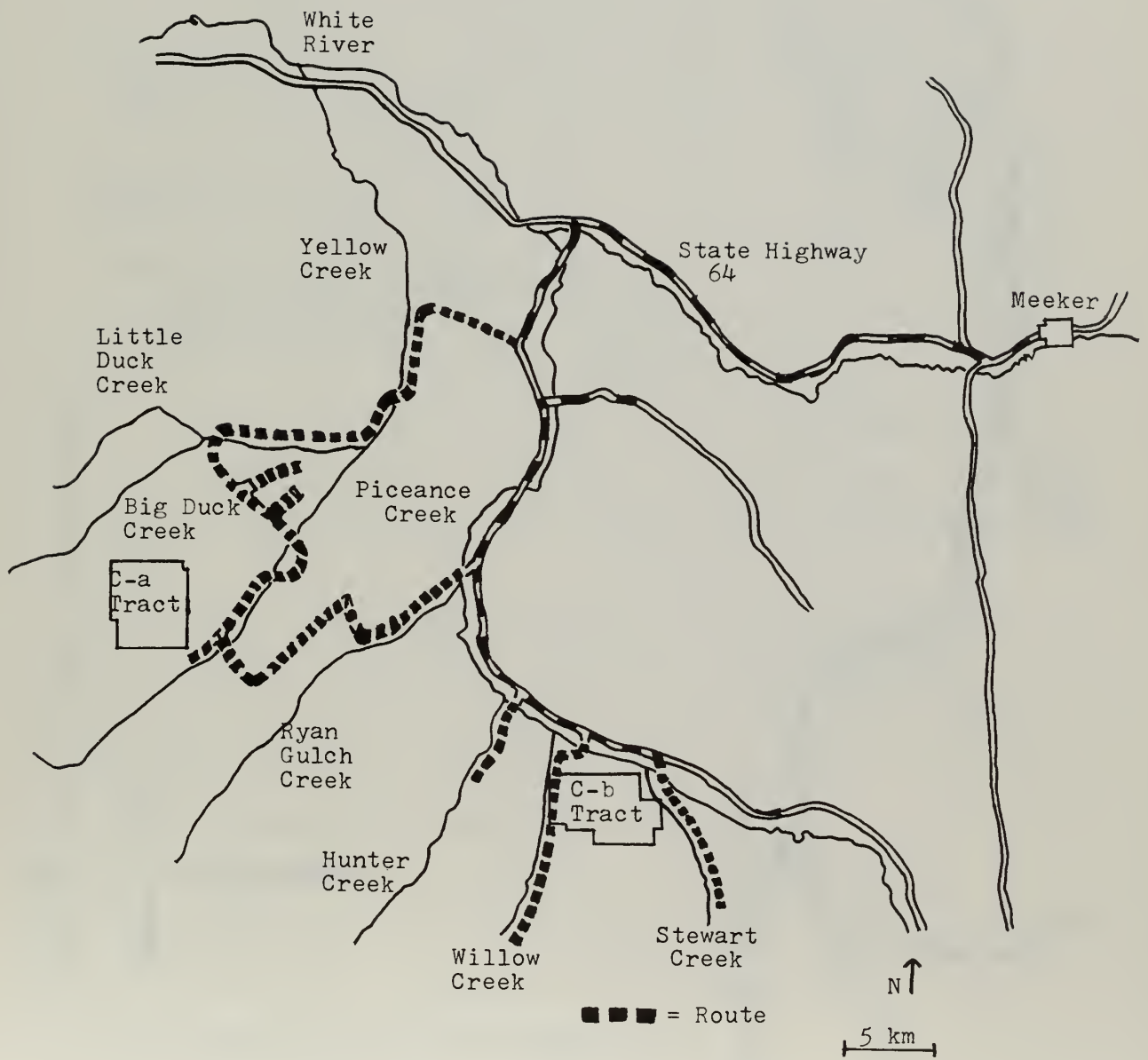


Fig. 3. Vehicle reconnaissance route number I.

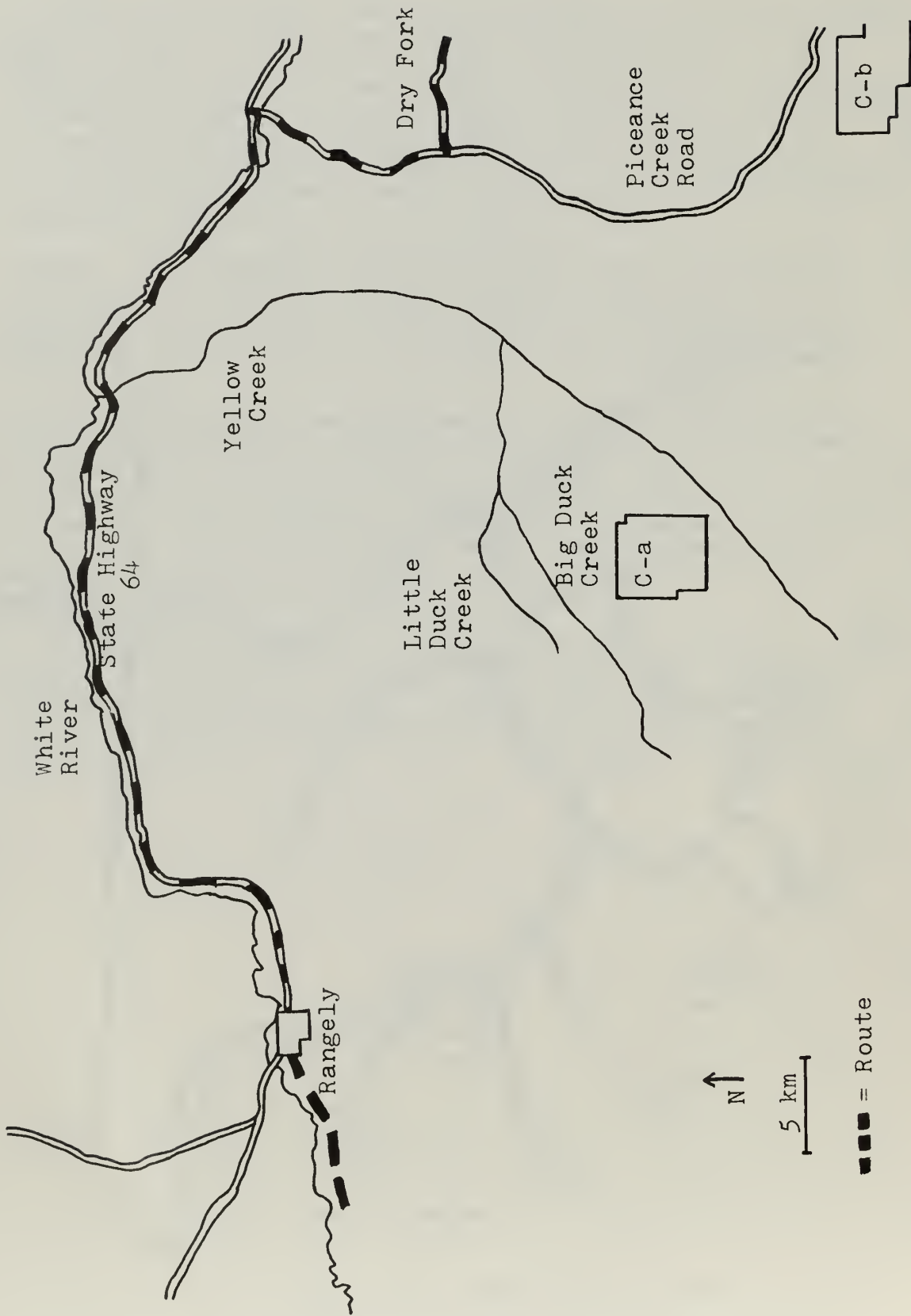
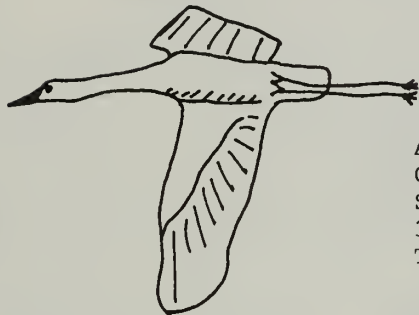


Fig. 4. Vehicle reconnaissance route number 2.

INFORMATION WANTED

ABOUT THE
GREATER SANDHILL CRANE



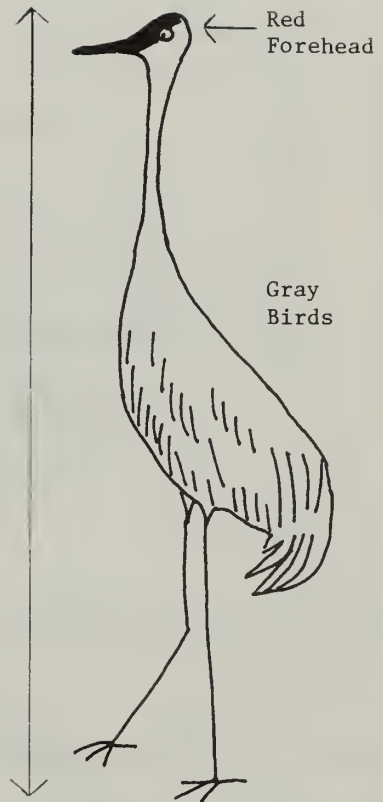
Adult
Cranes
Stand
3 Feet
Tall

Sandhill Crane in flight:
neck and legs are fully
extended.

Young Sandhill Cranes are a rusty
brown color and do not have a red
forehead.

Sandhill Cranes:

1. Migrate into northern Colorado during April
2. Begin nesting in June
3. Migrate south in October



ADULT SANDHILL CRANE

The Greater Sandhill Crane is classified as an endangered species in Colorado. These large gray birds nest in Routt County, Moffat County, and possibly Rio Blanco County.

Reports of cranes, especially nesting pairs, will help to determine the population of cranes, their range, and the number of young produced.

If you know the location of a Sandhill Crane or its nest, please contact Mike Getman or R. V. Ward at 878-5084.

The following information would be very helpful:

<u>Date</u>	<u>Number of Cranes</u>	<u>Location</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Fig. 5. Greater sandhill crane information sheet.


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 STEAMBOAT SPRINGS, CO 80477



REPORTING FORM FOR ENDANGERED GREATER SANDHILL CRANE

NUMBER OBSERVED _____ DATE _____ TIME _____

ADULTS _____ YOUNG _____ WEATHER _____

LAND OWNERSHIP / / FOREST / / PRIVATE / / STATE / / OTHER FEDERAL
 LOCATION _____

DRAINAGE _____ ELEVATION _____

SECTION _____ TOWNSHIP _____ RANGE _____ TYPE OF ACTIVITY
 OBSERVED (FEEDING,
 OTHER INFORMATION _____ NESTING, ETC. _____

OBSERVED BY _____ (over)

ADDRESS _____

Fig. 6. Greater sandhill crane postcard reporting form.

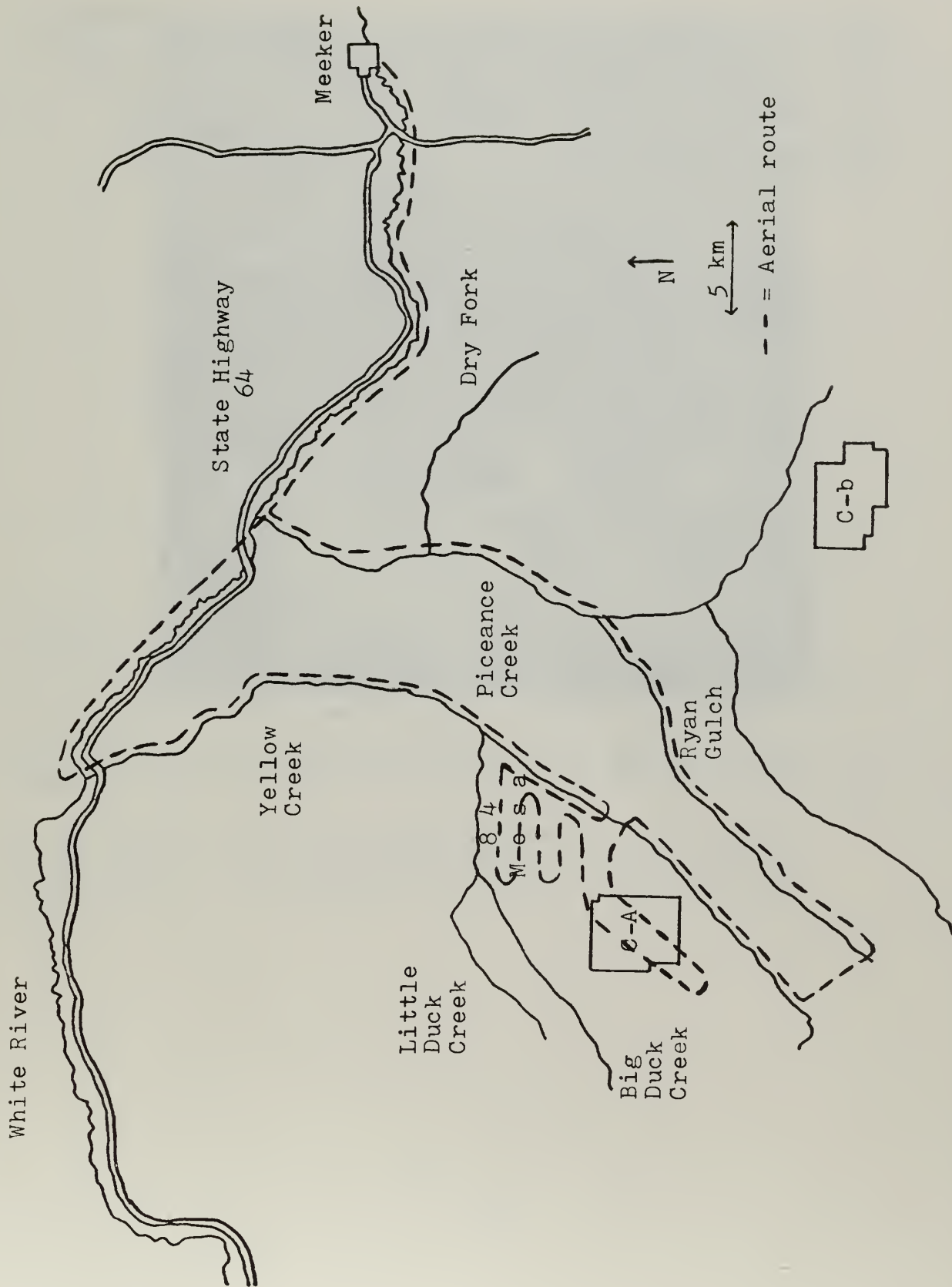


Fig. 7. Aerial survey routes.

Valleys with permanent water were traversed on foot and examined for cranes, scat (Fig. 8), feathers, tracks, and/or feeding signs (Fig. 9) to determine if greater sandhill cranes inhabit these areas: Yellow Creek, from the road washout (T. 2 N., R. 98 W., Sec. 36) to the junction of Yellow Creek and Greasewood Creek; and Stake Springs Draw from lower stockpond (T. 2 S., R. 99 W., Sec. 12) to upper stockpond (T. 2 S., R. 99 W., Sec. 14), were walked.



Fig. 8. Greater sandhill crane scat found at Upper Stake Springs pond.



Fig. 9. Soil disturbance from greater sandhill crane feeding in meadow.

Migration data concerning the start, peak, and termination of migration was obtained from Monte Vista National Wildlife Refuge personnel (Table 1). Daily field observations and ground surveys were conducted during the migration season. Continuous observation of cranes within the study area was made to determine the crane's status, either migratory or residential. Cranes were considered migratory if they were observed spiralling northward and not seen again.

Weather data for April 1975 and March, April, and May 1976 was obtained from K. James Cook, Cooperative Observer for the Meeker Herald (Table 2 - 4) and correlated to dates of crane sightings (Table 5).

Table 1. Greater sandhill crane migration data from Monte Vista National Wildlife Refuge, San Luis Valley, Colorado.

Date	Comments
March 10	Population estimate of cranes on staging area about 15,000. Cranes spiralling, but not leaving Valley.
March 16	Start of migration. Noticeable decrease in number of cranes.
March 16 - 26	About 4,000 cranes have left Valley. Losing birds daily. Migration peak.
May 5	Few cranes left in Valley. Migration period is nearly over.

Table 2. Weather Report: April 1975.

Station: Meeker						
County: Rio Blanco						
State: Colorado						
Date	Temp. (C.)		Precipitation Last 24 Hrs.		Snow-Ground Observation (cm).	Cloud Cover
	Max.	Min.	Rain (cm)	Snow (cm)		
1	1	-7	1.37	25.4	22.9	Cldy
2	3	-22			12.7	Clear
3	10	-13			3.80	Clear
4	12	-1				Clear
5	16	-1				Clear
6	12	-3				Pt Cldy
7	13	-3	.54	10.16	7.62	Cldy
8	3	-9	T		T	Clear & Windy
9	6	-7				Clear & Windy
10	11	-7				Clear
11	10	-2				Pt Cldy & Windy
12	10	-7				Cldy
13	11	-7				Pt Cldy
14	13	-5				Pt Cldy
15	16	0				Clear
16	16	1				Pt Cldy
17	13	1	.33	.64	T	Cldy & Windy
18	6	-3	.54	7.62	T	Pt Cldy
19	9	-6				Var Cldy
20	12	-2				Pt Cldy
21	18	-3				Pt Cldy
22	19	-2				Clear & Windy
23	17	0				Pt Cldy
24	18	-2				Clear & Windy
25	21	-2				Clear & Hi. Winds
26	19	-1				Cldy
27	5	-7	1.17	15.2	2.54	Cldy
28	8	-4	.71	1.3	T	Cldy
29	7	-7	.20			Cldy
30	9	-3				Pt Cldy

Table 3 Weather Report: April 1976.

Station: Meeker						
County: Rio Blanco						
State: Colorado						
Date	Temp. (C.)		Precipitation Last 24 Hrs.		Snow-Ground Observation (cm).	Cloud Cover
	Max.	Min.	Rain (cm)	Snow (cm)		
1	17	-13				Pt Cldy
2	15	- 8				Clear
3	18	- 7				Clear
4	18	- 4	T			Pt Cldy
5	18	- 8	T			Cldy
6	10	- 9	.23			Cldy
7	10	- 1	.66	1.27		Cldy
8	16	- 4				Clear
9	17	- 7				Clear & Windy
10	17	- 4				Clear
11	21	- 3				Clear
12	16	1	.64			Cldy
13	13	1	.03			Cldy
14	13	- 1	T			Cldy
15	12	- 1	T			Cldy
16	14	- 1				Cldy
17	9	- 1	.84	8.89		Cldy
18	7	- 1	.39	3.81		Cldy
19	10	0	.15			Cldy
20	14	- 2				Pt Cldy
21	16	2				Cldy
22	19	0				Clear
23	13	- 1	T			Clear
24	18	- 5				Clear
25	19	- 4				Cldy & Windy
26	18	- 1				Cldy
27	13	- 3	.25			Pt Cldy
28	18	- 1				Clear
29	18	- 1				Pt Cldy
30	14	1				Pt Cldy

Table 4 Weather Report: May 1976.

Station: Meeker						
County: Rio Blanco						
State: Colorado						
Date	Temp. (C.)		Precipitation Last 24 Hrs.		Snow-Ground Observation (cm).	Cloud Cover
	Max.	Min.	Rain (cm)	Snow (cm)		
1	18	-5				Clear
2	21	-3				Windy
3	22	1				Pt Cldy
4	20	7				Cldy
5	18	2	.03			Pt Cldy
6	19	3	.28			Cldy
7	17	3	.15			Cldy
8	17	3				Clear
9	19	5	.15			Cldy
10	21	1				Pt Cldy
11	21	3	.48			Cldy
12	15	-1				Pt Cldy
13	23	-2				Clear
14	28	2				Clear
15	22	5				Pt Cldy
16	19	-4				Clear
17	26	-1				Clear
18	26	3				Clear
19	24	7				Cldy
20	22	7	.38			Cldy
21	16	7	.10			Cldy
22	16	5	.97			Cldy
23	16	5	.25			Cldy
24	21	5	.86			Cldy
25	21	2				Pt Cldy

Table 5. Greater Sandhill Crane Sightings in Piceance Basin: Spring 1976.

Date	Location	Number	Activity	Comments
7 April	Powell Park 5 Km West of Meeker Hwy. 64	1	Circling Powell Park	Called frequently during flight. Apparently separated from migrating flock. Flew south towards Rifle.
April (first week)	2 Km north Piceance Creek and Ryan Gulch junction. (T. 1 S., R. 97 W., Sec. 32)	2	Feeding	Reported by Gail Perrine. Observed once in hay meadow and once near pond.
26 April	Yellow Creek (T. 1 S., R. 98 W., Sec. 2)	30-40	Feeding	Reported by Burke Bros. First seen evening 25 April in irrigated hay meadow. 8 seen morning 26 April. Apparently resumed migration flight.
27 April	Upper Stake Springs Stock- pond (T. 2 S., R. 99 W., Sec. 14)	2	Feeding and Preening	Began spiralling about 0945. Northward flight direction. Storm front during previous evening.
3 May	1 Km east of 84 Ranch Buildings (T. 1 S., R. 98 W., Sec. 29)	3-greater sandhill cranes 1-whooping crane	Feeding in wet area adjacent to undeveloped spring in hay meadow	First observed by Craig Kling, ECI Wildlife Biologist. Mike Brennan reported same birds. Had left area by 1045. Could not be located again - apparently resumed migra- tion flight.

RESULTS

HABITAT DESCRIPTION AND RATING

The following areas were considered as potential staging areas where cranes may land and forage during migration or to stage prior to nesting in the immediate area, or further north, in Idaho, Wyoming or Montana.

84 Mesa

Description: This site is a mesa nearly 4,150 ha in size with sagebrush being the dominant plant species. Scattered groves of pinyon and juniper are present on the higher slopes to the west, on hill crests, and in the larger valleys to the east. Scattered knolls of grass occur as well as stands of greasewood and shadscale (Atriplex confertifolia). Sandhill cranes have been sighted here in the spring for the last two years.



Fig. 10. 84 Mesa (T1S R99W Sec 13W)

Habitat rating: II. Intermittent streams provide water in the spring when cranes are most likely to use this area. Grassy knolls and sagebrush hills provide fair feeding areas. Sagebrush provides adequate cover and protection. Human disturbances are from environmental researchers and ranchers.

Bar D Mesa

Description: Vegetation and topography is similar to 84 Mesa, except the sagebrush appears in denser and taller stands.

Habitat rating: I. No water is available. Few areas where cranes could feed. Adequate cover from sagebrush. Human disturbances are from environmental researchers and ranchers.

Magnolia Peak

Description: Vegetation appears to be in early successional stage. Pinyons and junipers are scarce. Sagebrush is shorter with a large plant percentage of vegetative parts with few decadent plants. A greater diversity of forbs and shrubs is found here than on nearby ridges.

Habitat rating: I. Scattered springs provide the only water source. Fair areas for crane feeding and cover are few. Heavy human impact from oil company headquarters.

PERENNIAL WATER DESCRIPTIONS AND RATINGS

The following perennial streams and rivers were evaluated as habitat that cranes may utilize for nesting.

White River

Description: Flood plain peninsulas and islands harbor willows (Salix spp.), cattails (Typha latifolia), and rushes (Juncus spp.). The valley is used mainly for agricultural purposes. Wheat, oats, barley, and corn are grown along the lower stretches from the Yellow Creek - White River junction, west to Rangely. The area west of Rangely provides cottonwood-willow habitat.

Habitat rating: III. Good water supply, feeding areas, and cover. Human disturbances from irrigation, harvesting of crops, and from winter grazing.

Piceance Creek

Description: The stretch from Dry Fork to Rio Blanco is heavily used for winter grazing and hay crops. The stretch south of the Dry Fork is mainly sagebrush. Sandhill cranes have been reported feeding along this creek.

Habitat rating: 1. Stands of cattails, rushes and wildrye (Elymus cinereus) are supported by springs scattered along the creek. Water drawdowns and fluctuations occur during irrigation season. Insufficient feeding and nesting habitat. County road parallels stream causing vehicular disturbances.

Dry Fork of Piceance Creek

Description: Valley consists of sagebrush and greasewood intermixed with meadows 1-5 ha in size. Stream water is alkaline. A 2 ha pond with marshy areas of cattails and rushes receives year round waterfowl use.

Habitat rating: II. Insufficient water with only one spring fed stream. Good feeding meadows and nesting cover. Area receives high human impact from fishermen.

Black Sulphur Creek

Description: Most of the land bordering this creek is privately owned and used for agriculture--hay fields and winter grazing.

Habitat rating: I. Good water supply, but lacks sufficient feeding areas and cover. High human impact from ranchers.

Stewart Creek

Description: East and West Forks are lined with sagebrush and the streamflow is intermittent. Middle Fork has a small stream 15 m wide with a stock pond. Stewart Creek is wider (10 m), winding, and gentle flowing with aquatic vegetation along the banks. Area used by waterfowl. Entire area is privately owned and under agricultural use: Summer-hay, winter-grazing.

Habitat rating: II. Sufficient water and nesting cover. Fair riparian vegetation for feeding area. Moderate human impact.

Yellow Creek

Description: Upper area (Stake Springs) contains year round water, is intermittent from 84 Mesa to lower Yellow Creek (4 km north of Pinto Gulch, T. 1 N., R. 98 W., Sec. 1), and then is spring fed to White River (Fig. 11). Lower Yellow Creek valley is wider, supporting willows, saltgrass (Distichlis stricta), and squirrel tail (Sitanion hystrix). Extreme lower end (3 km south of White River) lacks riparian vegetation.

Habitat rating: 0. Insufficient water, vegetation for feeding, or nesting. Minor human impact on road along the creek.



Fig. 11. Lower Yellow Creek (T1N R99W Sec 35).

Fawn Creek

Description: Very small stream heavily lined with sagebrush.

Habitat rating: 0. Insufficient water. No suitable feeding or nesting habitat. Human impact from Atomic Energy Commission work in area.

Douglas Creek

Description: Creek is in bottom of deep, wide, eroded gully. Sagebrush lining gully with few willow stands. Highway 139 parallels creek causing impact on area.

Habitat rating: I. Some riparian habitat. Inadequate vegetation for nesting. Heavy human impact in area.

Willow Creek (Fig. 12)

Description: Slow flowing stream 2 m wide. Two stockponds harboring cattails and marsh grasses. Upper Willow Creek is lined with sagebrush.

Habitat rating: III. Sections of stream with adequate habitat for feeding and nesting. Grazing management allows sufficient vegetation for cover. Minimal disturbances from ranchers and vehicular traffic.



Fig. 12. Stockpond with aquatic vegetation on Willow Creek (T3N R98W Sec. 14).



Fig. 13. Sagebrush habitat along Big Duck Creek.

Streams similar in topography and vegetation

Little Duck Creek
Big Duck Creek (Fig. 13)
Corral Gulch
Barcus Creek
Ryan Gulch

Description: Streams lie in gully bottoms 1' to 4' deep. Banksides are lined with sagebrush. Streams are usually dry by 1 May. No riparian vegetation.

Habitat rating: 0. Insufficient water supply. All lack suitable habitat for crane use. Corral Gulch and Ryan Gulch receive heavy impact from road usage.

Two bodies of water in the area provide good habitat for potential crane use:

Rio Blanco Lake

Description: Largest body of water in basin (48 ha). Campgrounds, boat dock, and parking area on north and east ends. White River flows along south end of lake providing riparian habitat of cottonwoods and cattails. Three small ponds provide cover and feeding areas.

Habitat rating: III. Good riparian habitat for feeding and nesting. Limiting factor is heavy use from campers and fishermen during spring and summer.

Stake Springs Ponds (T. 2 S., R. 98 W., Sec. 12 and T. 2 S., R.98 W., Sec. 14) (Fig. 14)

Description: Both ponds provide riparian vegetation. Ponds are used by waterfowl and shorebirds. Ponds have shallow areas providing good feeding areas. Two cranes used area during spring of 1976.

Habitat rating: III. Sufficient water and aquatic vegetation for crane use. Two roads within 200 m of ponds. One of the best areas for cranes in the Piceance Basin.



Fig. 14. Dry Stockpond (TIS R98W Sec 2).

CRANE SIGHTINGS

One greater sandhill crane was sighted on 7 April during a vehicle reconnaissance survey. Four other sightings were reported during this study. All were checked for accuracy and verification by consulting the persons submitting the report or by locating the cranes immediately following the sighting report.

Of the twenty-nine letters and postcards sent to permittees in the Piceance Basin, three were returned - two reporting no crane sightings and one reporting several spring migrational sightings.

Interviews with residents and ranchhands resulted in several reports of cranes seen in the spring and fall; none were reported to have nested in the area. Most sightings occurred along Piceance Creek. No cranes were observed staying in the area longer than one to three days.

No evidence of greater sandhill crane usage along Yellow Creek or Stake Springs Draw was discovered while walking transects.

A correlation seems to exist between weather and greater sandhill crane sightings. Adverse weather conditions of precipitation, heavy cloud cover, and wind were present during each crane sighting. Cranes may have been forced to land to avoid oncoming storm fronts. Cranes resumed migration once the weather cleared.

DISCUSSION

In 1975 and 1976 cranes used a wide distribution of areas as stop-over points (Fig. 15). Twenty-five to thirty cranes were observed to inhabit 84 Mesa for two weeks during a storm from 17 April to 30 April 1975. This is the longest recorded period of crane usage in the study

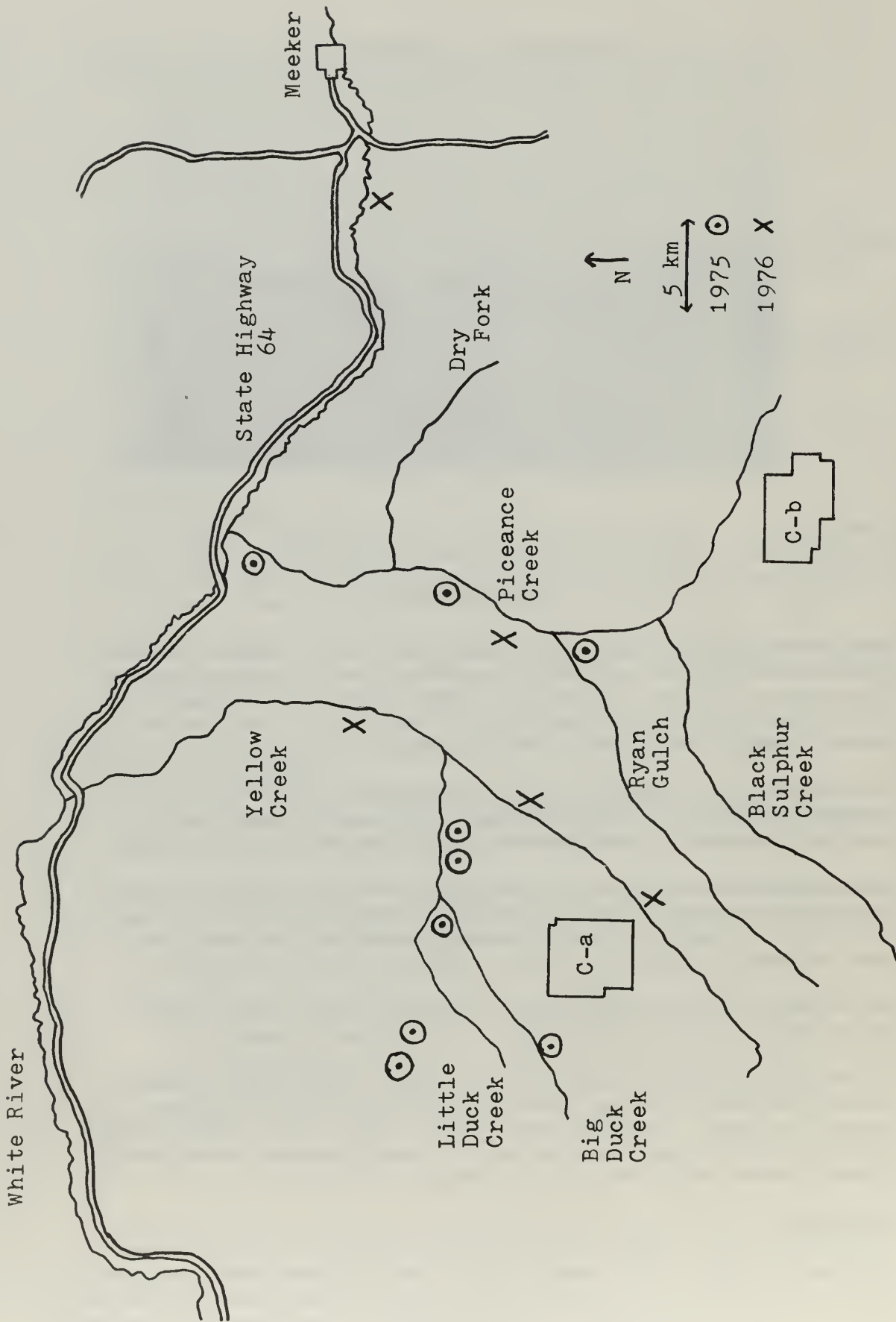


Fig. 15. Location of crane sightings in Piceance Basin, 1975 and 1976.

area. During 1975 and 1976 eleven different locations were used by cranes with only three areas receiving more than one crane sighting--evidence that no one area received significantly greater utilization than another. All 1976 stopover sites had a water source that provided a feeding area.

Use of 84 Mesa as a staging area or dance site was not observed.

No greater sandhill cranes were known to have been sighted in the study area after 3 May.

No greater sandhill cranes were known to nest in the area during the summer of 1976.

It is possible that cranes may extend their range to include portions of the study area in the future due to a recent increase in crane populations in Colorado (Dr. Walt Graul, Colorado Division of Wildlife 9 February 1976, personal communication).

Most of the nesting habitat used by cranes in Colorado is considered marginal in other states.

Conflicts may occur with oil shale development. Areas selected as proposed dump sites overlap crane habitat, especially Stake Springs Draw (Fig. 16 & 17). Management principles to protect water sources and riparian vegetation should be practiced if development occurs.

Construction of a marshy area to provide greater sandhill crane habitat may concentrate birds in a single area, simplifying management and conflicts. Ponds accumulating spring runoff would provide areas of aquatic and riparian vegetation which could serve as feeding areas for migrating cranes. Fencing would be important to control grazing and to reduce removal of vegetative cover.

On 3 May, three greater sandhill cranes and one whooping crane were reported feeding at a meadow seepage 1 km east of 84 ranch along Yellow Creek (Mike Brennan, 3 May 1976, personal communication). This sighting indicates greater sandhill cranes from Grays Lake National Wildlife Refuge used the study area during migration. Two additional whooping crane sightings were reported (but unverified) by U.S. Fish and Wildlife Service personnel on West Piceance Creek (John Wondelleck and Pat Kennedy, personal communication). Additional field observations are needed to determine if whooping cranes continue using this area as a rest stop during migration.

Sandhill cranes are diurnal migrants (Drewien, personal communication). Cranes may occasionally stop along the migration corridor (Fig. 18) to avoid night flying. Exact migration routes traversed by cranes from breeding grounds to the San Luis Valley are not well documented, therefore there are no known important stops until they arrive in the Valley (Drewien and Bizeau 1974).

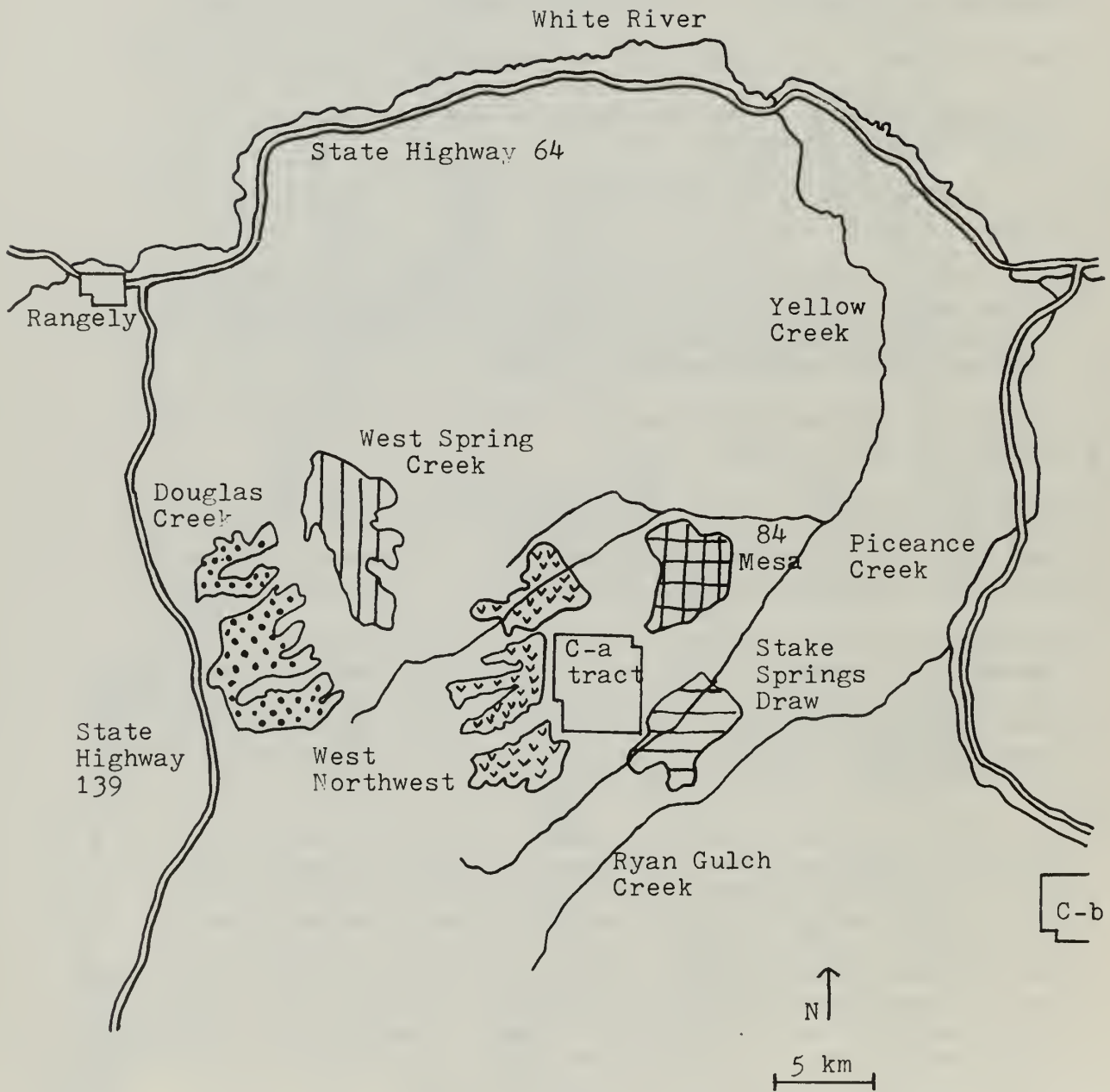


Fig. 16. Waste dump site alternatives.



Fig. 17. Two greater sandhill cranes feeding at Upper Stake Springs Stockpond. Class III habitat type.

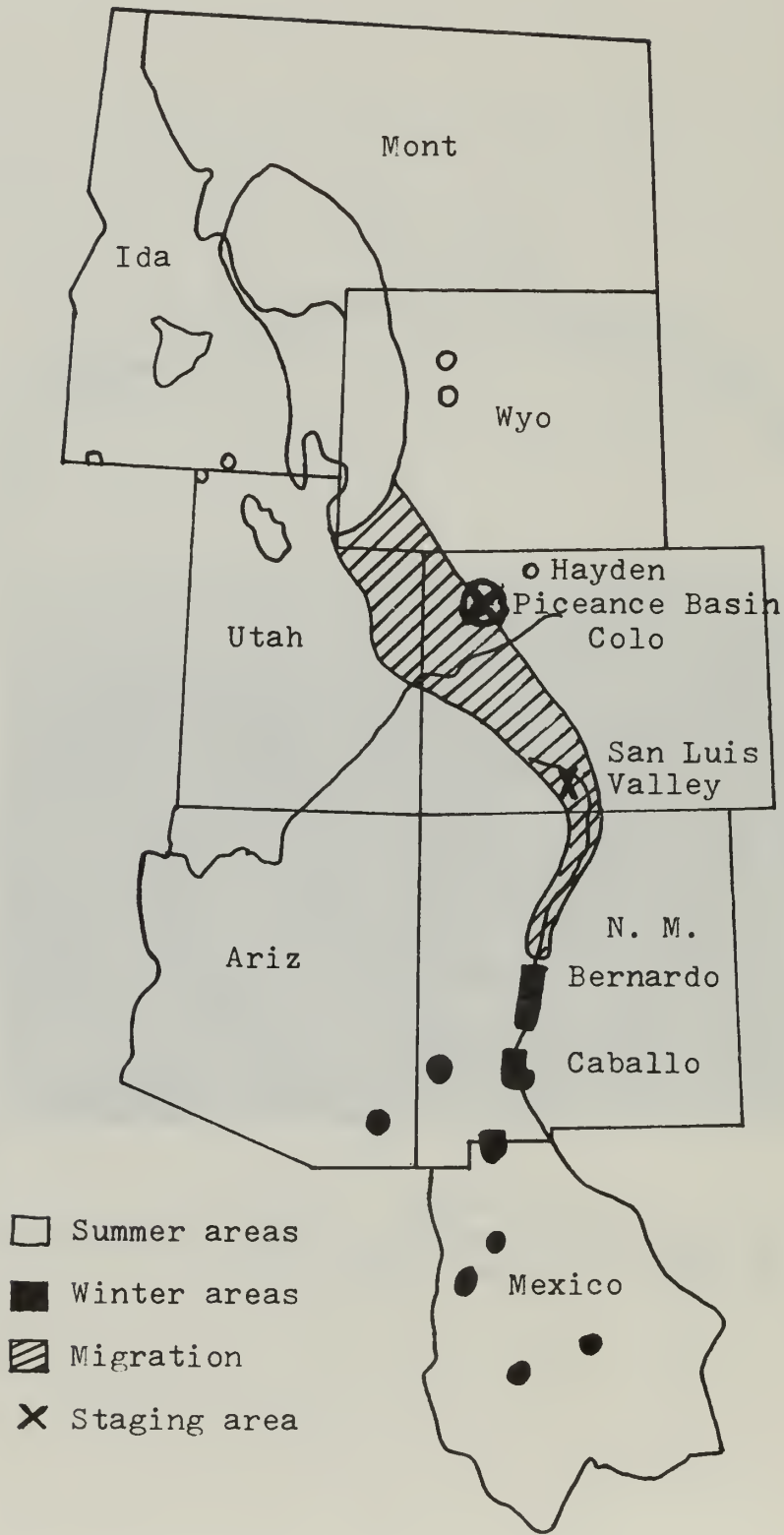
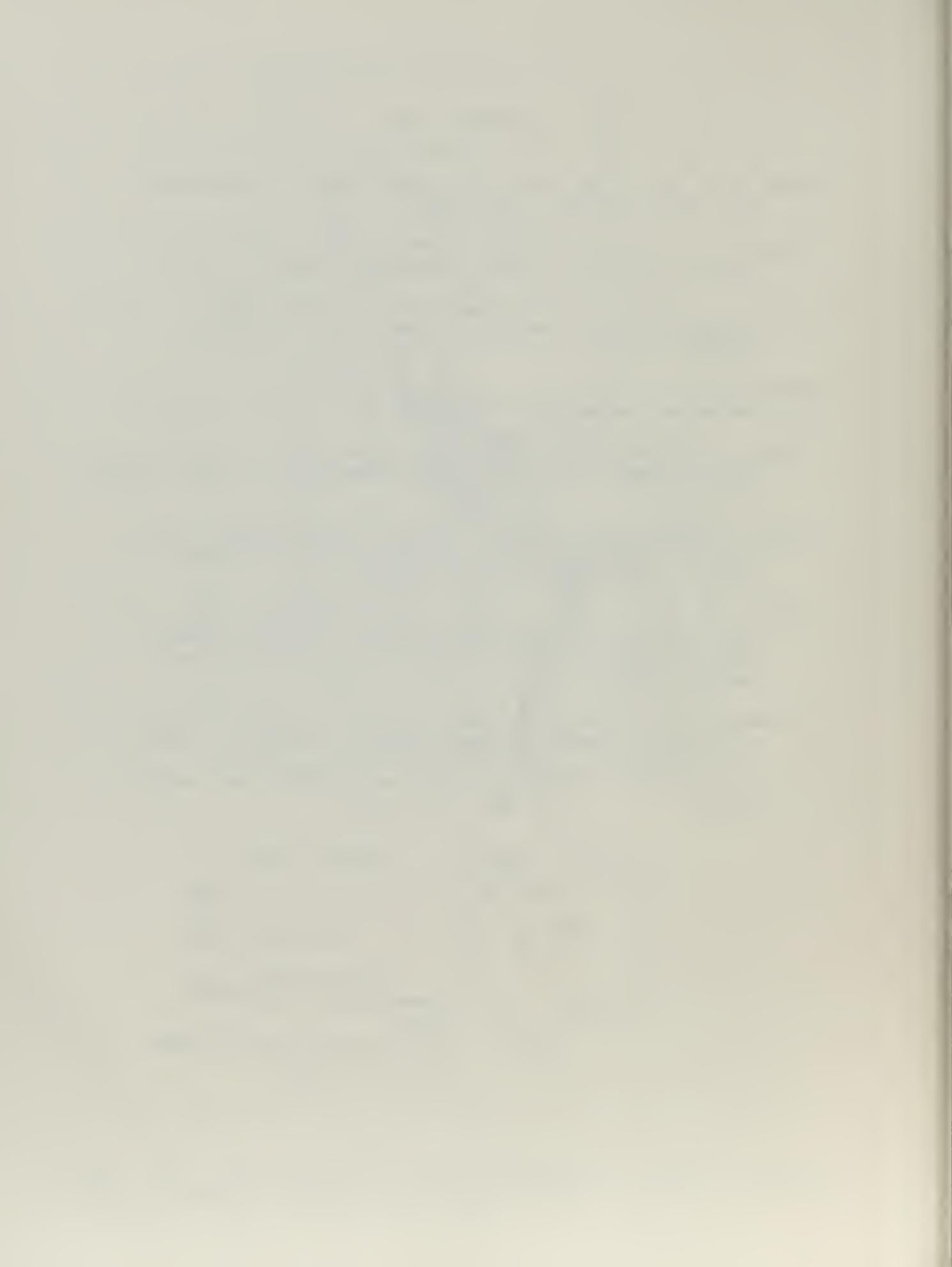


Fig. 18. Distribution of the Rocky Mountain greater sandhill crane population (Drewien and Bizeau 1974).

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