

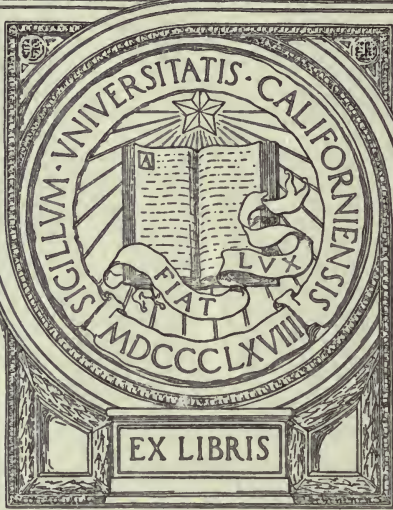
ZOOLOGY
FIELD NOTE-BOOK

FISHES

AMPHIBIANS

REPTILES

MAMMALS



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Field Note-book of Fishes, Amphibians, Reptiles and Mammals

BY

A. H. WRIGHT and A. A. ALLEN

DEPT. OF ZOOLOGY, CORNELL UNIVERSITY

ITHACA, NEW YORK

1913

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Explanatory Note

THE object of this note-book is two-fold: to facilitate the taking of adequate notes in the field, and to teach accuracy of observation.

The six outlines of animal forms represent generalized types toward some one of which every vertebrate (except the bird) will approximate, and which with slight changes will accurately portray the species under observation.

PLATE I—A generalized fish. This with slight modifications, will represent any of the fresh-water forms, and most of the marine species.

PLATE II—A generalized salamander. This will serve for the adult and larval salamanders and newts, and with modification will represent the alligators and the lizards.

PLATE III—A generalized frog. This will represent any frog, tree-frog or toad.

PLATE IV—A generalized snake. This will represent the harmless and the venomous snakes and the limbless lizards.

PLATE V—A generalized turtle. This will serve for any of the turtles, tortoises or terrapins.

PLATE VI—A generalized mammal. This with slight changes will represent any of our smaller native mammals.

The color areas should be outlined with pencil in the field, while the animal is under observation, and after it has been identified, the areas should be colored with crayons or water colors. Egg and larval diagrams should be made in a similar way if the specimens are observed in the field, but otherwise notes as to color, number, size and similar data may be obtained from the instructor or from the texts.

The figures are so designed as to admit of the introduction of such laboratory characters as scalation and costal grooves, when needed.

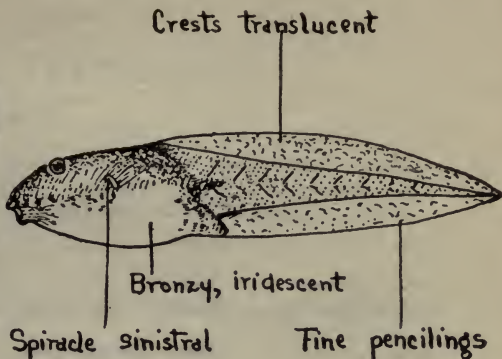
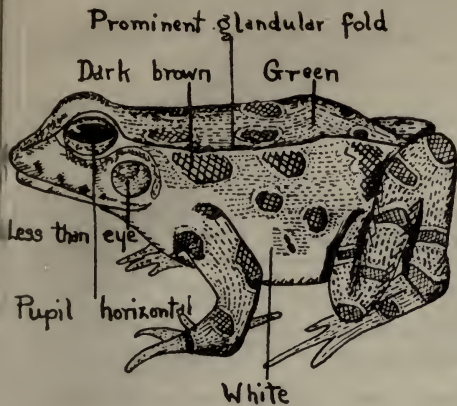
In addition to outlining the color areas, such other items as are observed or given by the instructor should be written in the field. Notes on general distribution, migration and hibernation and other topics not considered or recorded afield, should be obtained from the texts. In determining the size use the ruler on the back cover, except in the mammal studies where well-known forms may be chosen as standards.

In planning this booklet the authors have selected only such features as have been fully tested through ten years of experience in teaching university classes in field study.

MODEL SHEET

Date: May 1, 1914

Where found: Renwick



Size: 3 1/4 inches

Common name: *Leopard Frog.*

Scientific name: *Rana pipiens* Schreber.

Family, and characters of: *Ranidæ*: thorax incapable of expansion, upper jaw with teeth, moist smooth skin, digits without discs.

Confusing species: *Pickerel Frog.*

Recognition marks: *Entire under-parts white; back green or greenish brown, irregularly spotted.*

Distinctive habits:

Distribution:

General: *Eastern North America.*

Local (habitat): *Marshes, ponds, water-courses and moist meadows.*

Seasonal (migration, hibernation): *Mar. 26-Nov. 1; hibernates beneath stones or in mud at the bottom of ponds and streams; in summer leaves water for moist situations.*

Food: *Adults, carnivorous, feeding chiefly on living prey; tadpoles, largely vegetarian.*

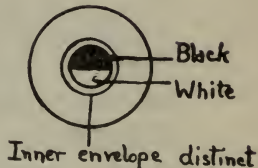
Correlated structure: *Adults with extrusible, viscid tongue; teeth; large mouth. Tadpoles with long intestines; rasping mouth-parts with cutaneous teeth.*

Breeding:

Sexual modifications: *Males smaller, darker, with thumbs much enlarged.*

Courtship: *Pectoral embrace; external fertilization.*

Eggs: *Egg-mass, plinth-like, submerged (3500-4500 eggs); hatching period, 12-24 days; egg-vegetative pole, distinctly white; inner envelope, conspicuous.*



Growth:

Larvae: *Tadpole period, 60-80 days, transforming from June 30 -Aug. 6.*

Young: *At transformation, 18-31 mm. in length; otherwise similar to adult.*

Other Characteristics: *The most abundant frog in Eastern North America; the young occasionally so numerous as to form the so-called "plagues of frogs."*

THE FAUNA OF ITHACA, N. Y.

FISHES

SPECIES	HABITAT	BREEDING TIME	BREEDING PLACE
Lake Lamprey	Lakes	May 9-June 30	Nests; swift shallows above riffles
Brook Lamprey	Lakes	April 28-May 30	Nests; swift shallows above riffles
Lake Sturgeon	Lakes	May -June	Shoal waters and in rapids of streams
Long-nosed Gar	Deep channels, lakes, large streams	May -June	Shoals, streams, possibly attached to plants
Bowfin	Lakes, swamps, and streams	May -June	Nest; shallow, weedy or sandy sloughs, swamps
Spotted Cat	Swift, clear, gravelly streams and rivers	May -June	
Yellow Catfish	Sluggish, weedy, muddy streams and lakes	May -July 20	Nest on muddy bottom
Long-jawed Catfish	Sluggish, weedy, muddy streams and lakes	May 20-June 15	Nest on muddy bottom or under board
Common Bullhead	Sluggish, weedy, muddy streams and lakes	May 20-July 1	Nests; shallow muddy shoals under boards, roots, etc.
Tadpole Cat	Sluggish, muddy, or swift creeks, lakes	May -July 1	Nest; under board, in cans, under crockery
White Sucker	Creeks, diversified habitat	April -May 15	Riffles or swift water
Hog Sucker	Small, and large, clear, gravelly streams	April -May	Shallows of swifter brooks
Chub Sucker	Creeks	April -May 15	Small streams
Red Horse	Lakes and creeks	April -May	Riffles of streams
Red-bellied Dace	Small, cold brooks and streams, lakes	May -June	Shallow water
Silvery Minnow	Quiet rivers, creeks	April 25-June	Quiet water and riffles
Fat-head Minnow	Quiet creeks	May -June	Under stones and logs in quiet water
Blunt-nosed Minnow	Quiet streams, creeks, and lakes	May 15-July 15	Nest; shallow water under stones, etc.
Fallfish	Rapid rocky streams	May	Large pebble heaps in shallow, swift riffles
Horned Dace	Small, quiet, weedy streams, ponds	April 20-July	Smaller pebble heaps in quiet water of riffles and gravel bars in lakes
Golden Shiner	Sluggish, muddy, weedy, bayous, ponds	May -July 1	On vegetation, sluggish, muddy waters
Black-chinned Minnow		May 8-June 12	
Cayuga Minnow	Slow, muddy, creeks, lakes	May 2-August	Quiet water, bayous
Varying-toothed Minnow	Sluggish, clear, cool lakes, streams	May -June	Quiet water, bayous

SPECIES	HABITAT	BREEDING TIME	BREEDING PLACE
Straw-colored Minnow	Swift, clear rivers, streams	May 25-July 16	
Swallow-tailed Minnow	Sluggish or rapid waters		
Silver-fin	Rapid, clear streams, rivers	May 21-June 28	Gravelly riffles
Spot-tail Minnow	Large lakes, rivers	April 25-May	Gravelly riffles
Common Shiner	Quiet, clean brooks, creeks, rivers	May 1-July 6	Hollow in fine gravelly swift shoals
Silver-sided Minnow	Rapids, clear lakes, rivers, larger streams	May 15-June 1	Gravelly riffles
Blood-tailed Minnow	Quiet, clean creeks	June 1-June 15	
Black-nosed Dace	Clear streams and mountain brooks	May 24-June	Shallow water, gravelly riffles or on vegetation
Hornyhead	Rapid, clean creeks, streams and rivers	May 20-June 15	Nest, gravelly riffles
Cut-lip Minnow	Clear creeks	June -July	
Carp	Sluggish, muddy lakes, creeks, rivers	May -June	On vegetation in shallow water
Eel	Seas and lakes		Pelagic eggs but laid in deep water
Alewife	Sea and inland lakes	April-June or July	Mouths of larger streams usually in shoal water
Whitefish	Deep, cool lakes	Oct.-Dec.	Rocky shoals in lakes
Ontario Herring	Deep, cool lakes	Nov.-Dec.	Rocky shoals in lakes
Brown Trout	Clear, cold, rapid streams	Oct.-Jan.	Crevice between stones, under roots, and excavation on bottom
Rainbow Trout	Clear, cold, rapid streams	Nov.-Feb.	Gravel nest in shoals
Lake Trout	Deeper water, lakes	Oct.-Dec. 1	Honey-combed, rocky or gravelly shoals or clay bottom
Brook Trout	Cold, clear, mountain streams and lakes	Sept.-Jan.	Nest in gravel
Mud Minnow	Muddy, sluggish rivers, ponds, lakes	Mar. 16-Apr. 7	Small, transient ditches, overflows, quiet water on plants
Pickereel	Marshy bayous, ponds, lakes	Feb.-June 1	Swampy streams, shallow overflows, ditches
Pike	Clean, sluggish water	Mar.-May	Swampy streams, shallow overflows, ditches
Fresh-water Killie	Lakes and ponds	June 24-Aug. 3	Grassy bottoms
Brook Stickleback	Clear, cool, quiet brooks and ponds	Apr. 10-May	Spherical nest of vegetation attached to plants
Trout Perch	Lakes, larger rivers and streams	May-June 10	Swift, gravelly streams
Brook Silverside	Quiet lakes, streams, and ponds	May-June	Eggs with filaments, attached to vegetation
Calico Bass	Deep, sluggish rivers and lakes	Apr.-June	Nest; deeper water, gravelly or sandy bottom
Rock Bass	Sluggish, shady, clean waters and streams	Apr.-June	Nest; gravelly or sandy shoals
Bluegill	Large lakes and streams	May-June 10	Nest; gravelly or sandy shoals
Common Sunfish	Quiet lakes, ponds and creeks	May-June	Nest; sandy or gravelly shallows

SPECIES	HABITAT	BREEDING TIME	BREEDING PLACE
Small-mouthed Black Bass	Rapid, clear creeks, rivers and lakes	Apr.-June 30	Nest; gravelly and sandy shallows
Large-mouthed Black Bass	Streams or lakes	Apr.-July	Nest, shallows among roots; also on mud, clay or gravel
Pike Perch	Clear, clean lakes, rivers	Apr. 1-June 1	Shallow water, sandy bars, rapids of streams
Sand Pike	Lakes and large rivers	Apr. 1-15	Shallow water, sandy bars
Yellow Perch	Lakes, larger streams	Mar. 1-Apr. 30	Adhesive strings attached to plants
Log Perch	Swift creeks, smaller rivers	May 30-June 25	
Johnny Darter	Swift, small brooks and creeks	Apr. 15-June 1	Gravelly shallows under stones, or overlapping edges
Fantail Darter	Riffles and shallows of gravelly creeks	May	Gravelly shallows, on stones
White Bass	Lakes and large rivers	May, June	Near shore or at mouths of rivers
Sheepshead	Large streams and lakes	Probably Nov. or later	
Miller's Thumb	Clear, rocky brooks, lakes	Apr.-July	Shallow water under stones
Burbot	Deep water, lakes	Nov.-March	Hard or rocky or gravelly bottom of lakes and streams



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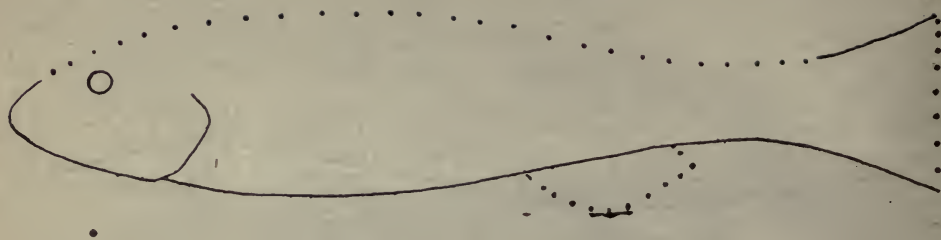
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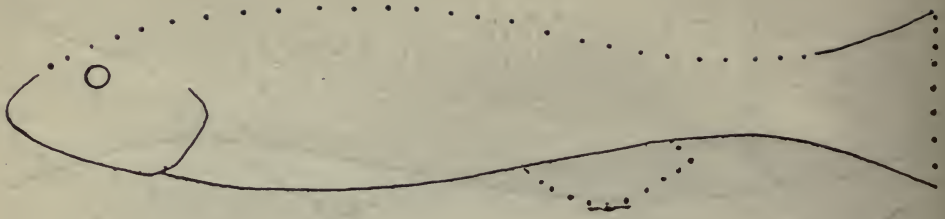
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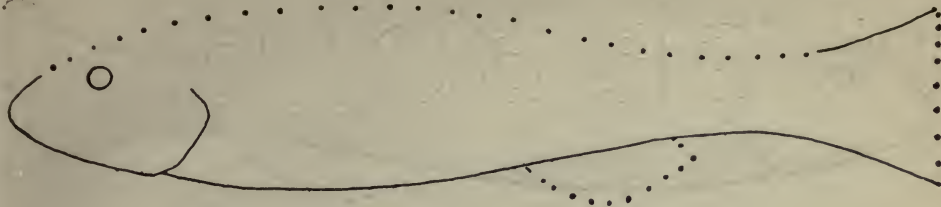
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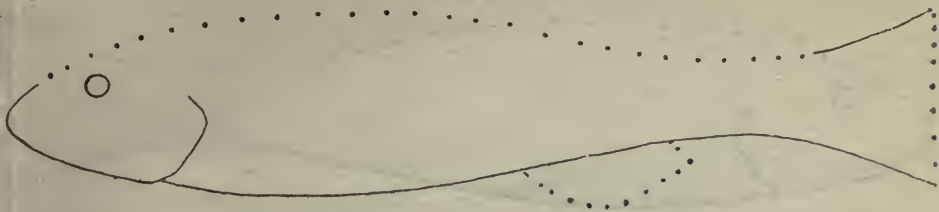
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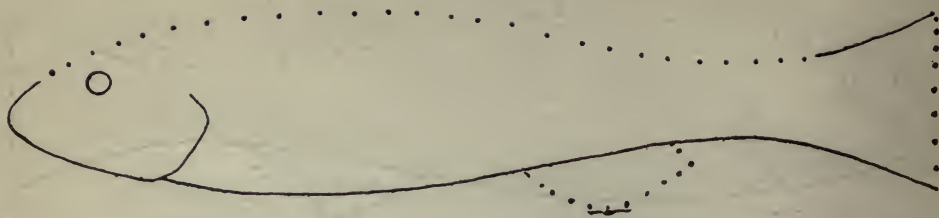
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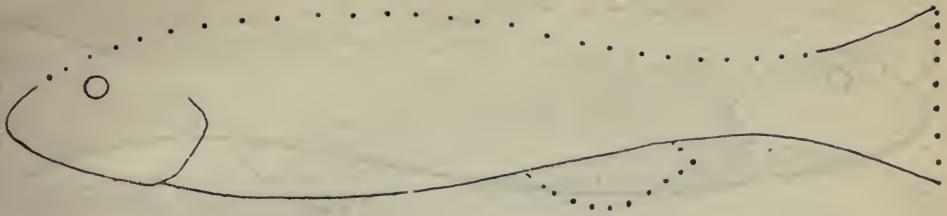
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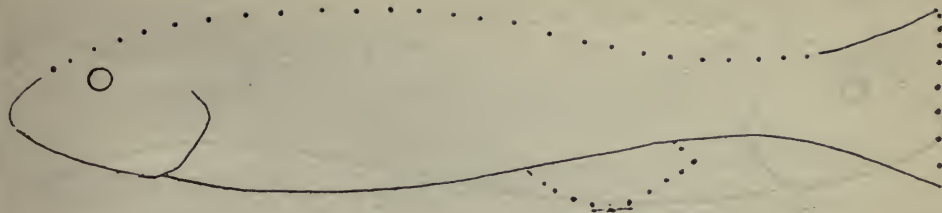
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THE FAUNA OF ITHACA, N. Y.
SALAMANDERS

Species	Earliest Spring Appearance	Spawning Period	Egg-Transformation
Mud Puppy		May 1-June 15	Permanent larva
Spotted Salamander	Mar. 13	Mar. 20-May 1	4-6 months
Four-toed Salamander	Apr. 7	Spring	
Red-backed Salamander	Mar. 17	June 15-July 5	2.5-3 months
Slimy Salamander	Apr. 1	Probably summer	
Purple Salamander	Mar. 14	May, June	Possibly 2 or more years
Two-lined Salamander	Jan. 2, Mar. 12	May 16-June	Possibly 2 years
Dusky Salamander	Apr. 2	June 10-Aug. 1	8-10 months
Newt	Jan. 2, Mar. 20	Apr. 10-June 18	4-8 months

FROGS AND TOADS

Species	Average Spring Appearance	Average Spawning Date	Average Transformation Date	Egg-Transformation
Peeper	Mar. 26	Apr. 10	July 6	90-100 days
Meadow Frog	Mar. 28	Apr. 11	July 12	75-110 days
Wood Frog	Mar. 31	Apr. 4	June 27	60-115 days
American Toad	Apr. 1	Apr. 23	June 21	45-65 days
Pickereel Frog	Apr. 3	Apr. 23	July 23	90-100 days
Green Frog	Apr. 7	June 7	June 28	1 year
Tree Toad	Apr. 28	June 2	July 25	45-65 days
Bull Frog	May 20	July 4	July 16	2 years



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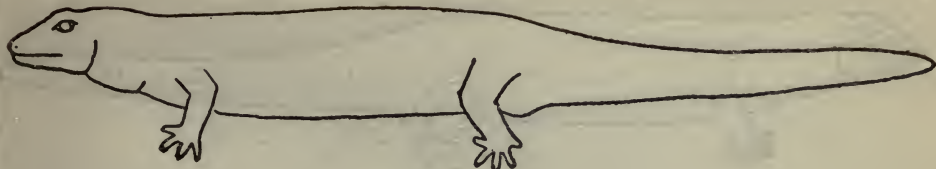
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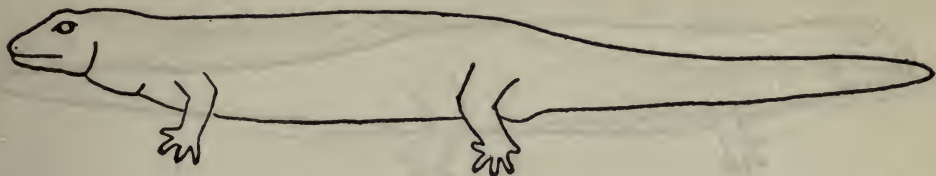
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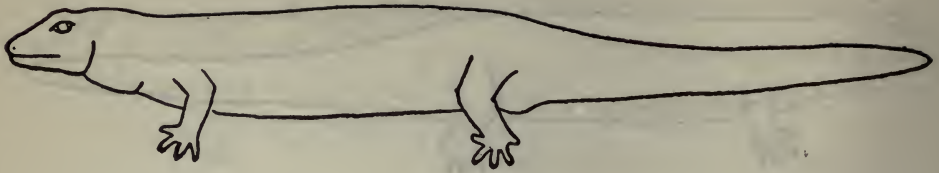
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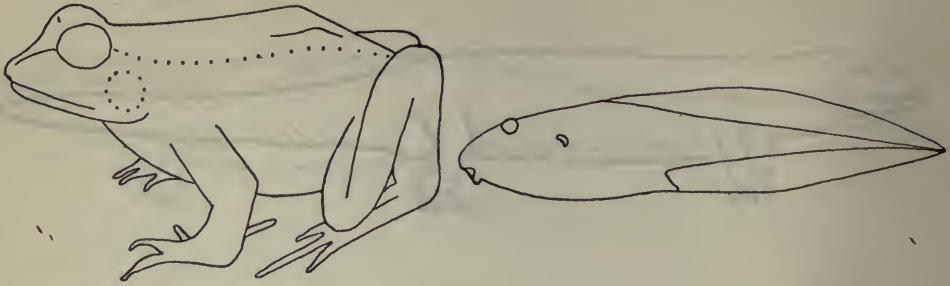
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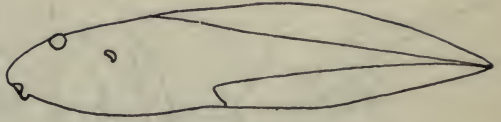
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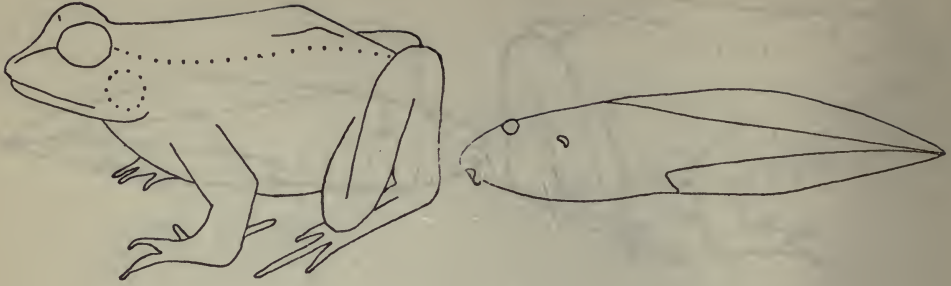
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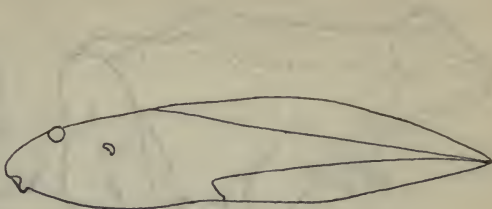
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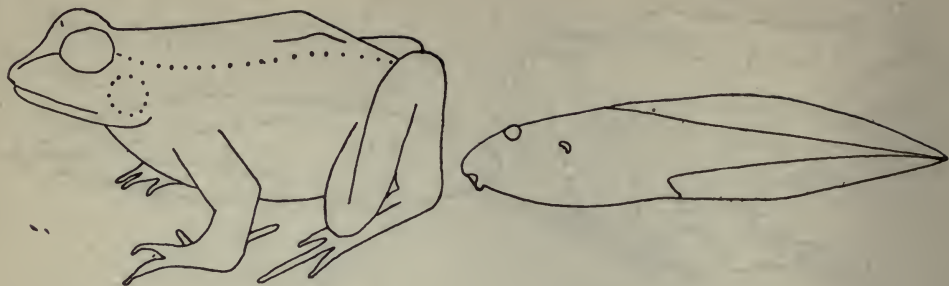
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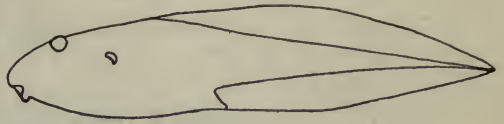
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SNAKES

Species	Earliest Spring Appearance	Latest Fall Record	Reproductive Period	Nature of Reproduction
Ring-necked Snake	Apr. 19	Oct. 16	June 10-July 1	Oviparous, 6-10 eggs
Green Snake	Apr. 9	Oct. 20	July	Oviparous, 9-12 eggs
Pilot Snake	Apr. 27	August	June, July	Oviparous, 10-24 eggs
Black Snake		Aug. 6	June-Aug. 6	Oviparous, 10-25 eggs
Milk Snake	Apr. 16	Sept. 20	July	Oviparous, 8-20 eggs
Water Snake	Mar. 28	Oct. 24	Aug. 15-Sept.	Ovoviviparous, 16-40 young
Red-bellied Snake	Mar. 18	Nov. 1	Aug. 20-Sept.	Ovoviviparous, 7-12 young
Ribbon Snake	Mar. 18	Oct. 30	Aug. 1-Sept. 15	Ovoviviparous, 6-12 young
Garter Snake	Mar. 30	Nov. 2	Aug. 1-Sept. 15	Ovoviviparous, 10-40 young

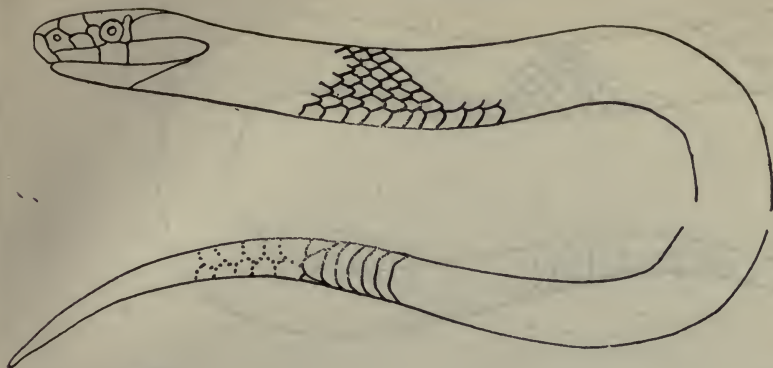
TURTLES

Species	Earliest Spring Appearance	Latest Fall Record	Reproductive Period
Soft-shelled Turtle	Apr. 23	July 26	June 15-July 15
Snapping Turtle	Jan. 25, Mar. 20	Oct. 31	June, July
Musk Turtle	Apr. 1	Sept. 24	June 10-July 10
Painted Turtle	Jan. 2, Mar. 10	Oct. 19	June-July
Muhlenberg's Turtle	Apr. 9		July 20-Aug. 5
Wood Turtle	Jan. 26, Apr. 20	Sept. 28	
Spotted Turtle	Apr. 3		

PLATE IV

Date

Where found



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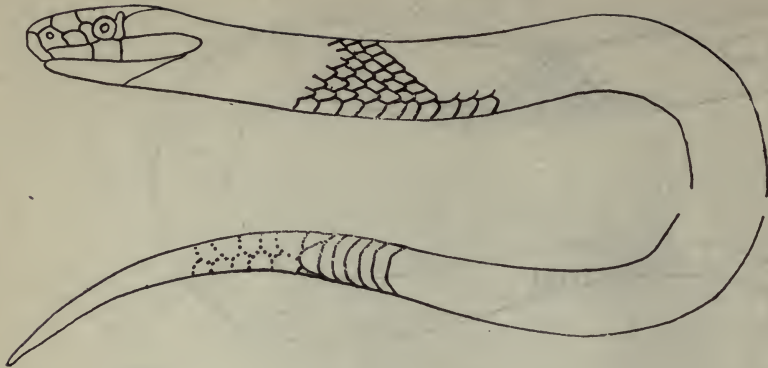
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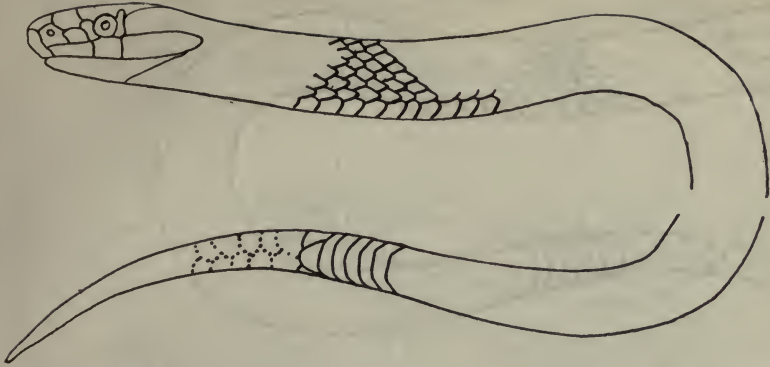
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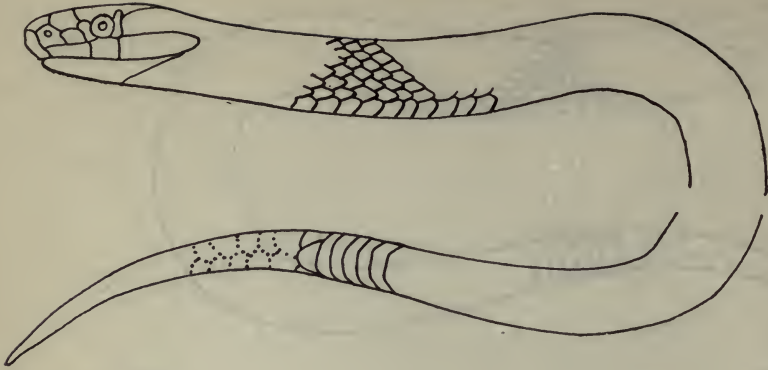
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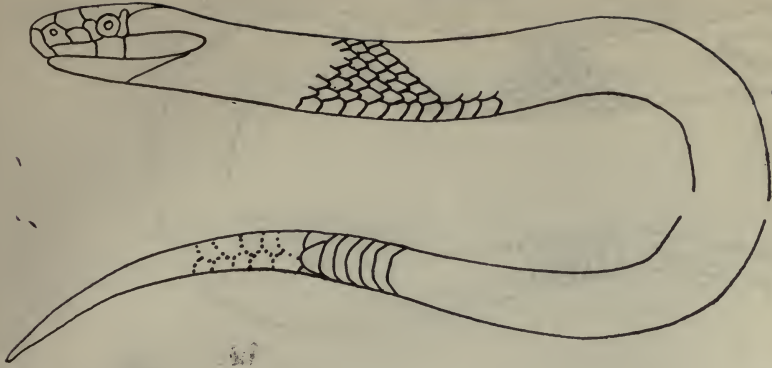
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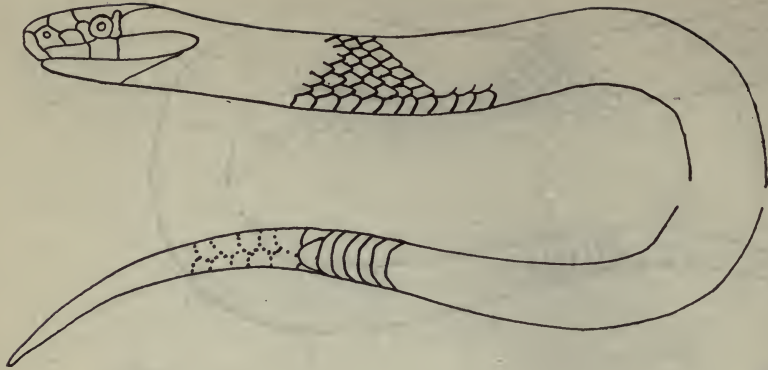
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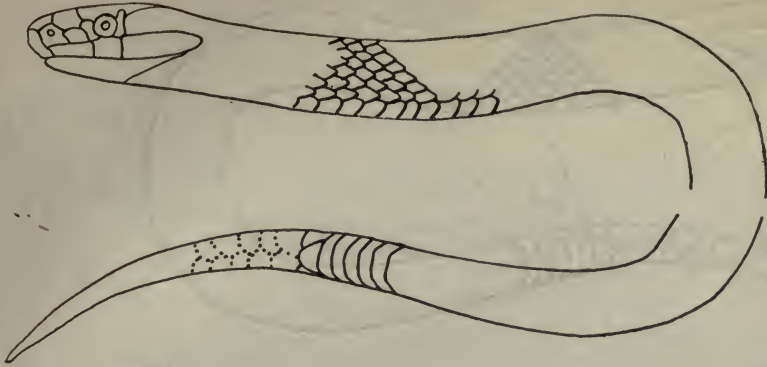
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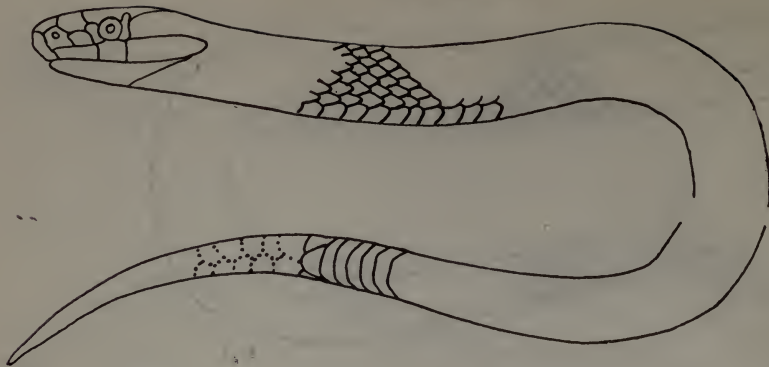
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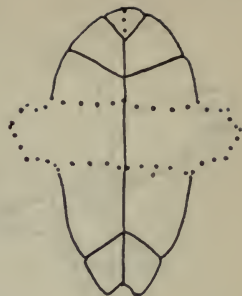
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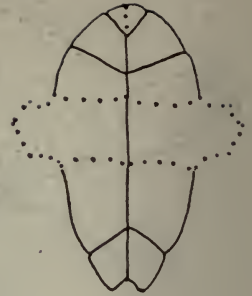
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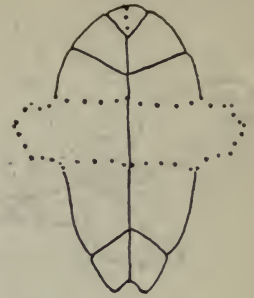
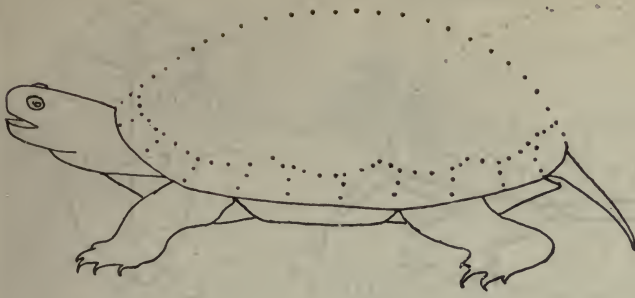
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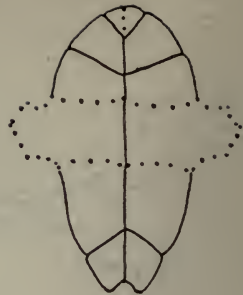
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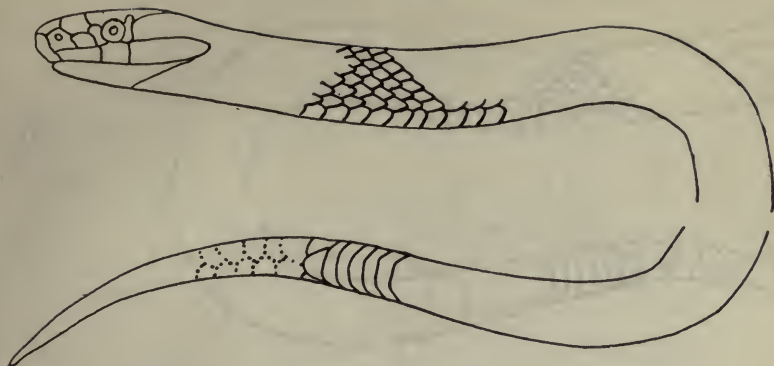
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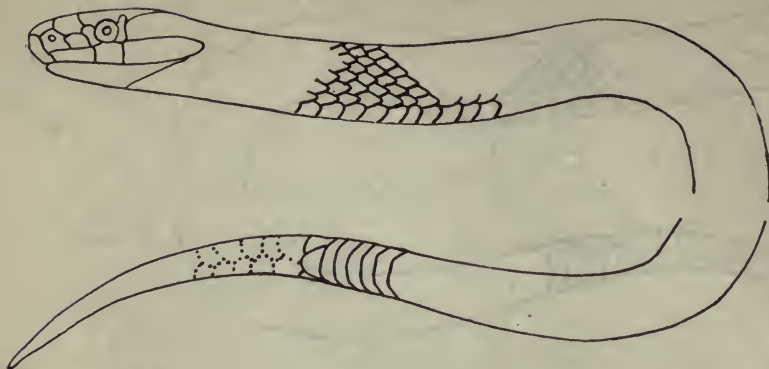
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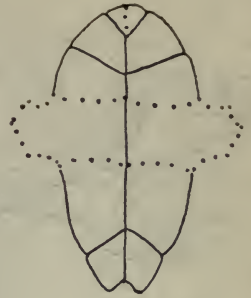
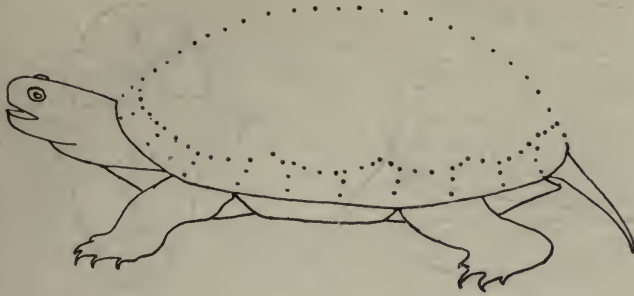
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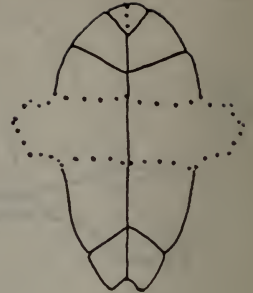
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MAMMALS

SPECIES	HABITAT	BREEDING TIME	BREEDING PLACE	ACTIVITY
Opossum	Woodland	Mar. -	Hollow tree	Nocturnal, hibernates
Red Squirrel	Arboreal, everywhere	Apr.-May	Hole in tree	Diurnal
Gray Squirrel	Arboreal, hardwood groves	Mar.-Apr. (Sept.-Oct.)	Hole in tree, nest in crotch	Diurnal, hibernates during coldest weather
Chipmunk	Terrestrial, dry woods, fence rows	May-July	Burrow in ground or stump	Diurnal, hibernates, Nov. 15-March 1
Woodchuck	Terrestrial, fields and wood borders	Apr.-May	Burrow in ground	Mostly diurnal, hibernates, Oct. 1-Mar. 1
Flying Squirrel	Arboreal, everywhere	Apr. 15-May 1	Hole in dead stub	Nocturnal
House Mouse	Habitations and vicinity	Jan.-Dec.	About buildings	Largely nocturnal
Norway Rat	Buildings, wharves, sewers, etc.	Jan.-Dec.	Burrow or crevice	Largely nocturnal
Deer Mouse	Largely terrestrial, woods and vicinity	Apr.-Sept.	Burrow in stump or beneath log	Nocturnal
Canadian White-footed Mouse	Similar to the preceding	ing but found only	in Boreal woods	
Muskrat	Aquatic, marshes and streams	May	Burrow or marsh nest	Largely nocturnal
Pine Mouse	Subterranean, woods and fields	Apr.-Aug.	Burrow	Nocturnal and diurnal
Field Mouse	Woods and fields	May-Aug.	Nest on ground	Nocturnal and diurnal
Red-backed Mouse	Canadian woods	Apr.-Sept.	Nest below or above ground	Nocturnal and diurnal
Jumping Mouse	Moist meadows	May-Sept.	Beneath clod or board	Largely nocturnal, hibernates, Nov. 15-Apr. or May
Varying Hare	Boreal woods	Apr.-June	Nest beneath bush or stump	Largely nocturnal
Cotton-tail	Woods and fields	May 15-Aug.	Nest on ground in woods and fields	Largely nocturnal
Canada Lynx	Boreal woods	May-June	Cavern or hollow tree	Nocturnal and diurnal
Red Fox	Woods and fields	March-Apr.	Caverns or burrows	Nocturnal or diurnal
Otter	Borders of streams	Apr.-May	Burrow in bank of stream	Largely nocturnal
Mink	Marshes and stream borders	Apr.-May	Burrow or hollow log	Largely nocturnal
Small Brown Weasel	Marshes, stream borders, woodland, fence rows, etc.	Apr.-May	Burrow in ground or stump	Largely nocturnal
New York Weasel				
Skunk	Terrestrial, anywhere	Apr.-May	Burrow	Largely nocturnal, hibernates during coldest weather
Raccoon	Woodland	Apr.-May	Hollow tree	Nocturnal, hibernates Dec.-Feb.
Star-nosed Mole	Subterranean, moist woods and meadows	May-	Burrow	Nocturnal and diurnal
Naked-tailed Mole	Subterranean, alluvial soil	May-	Burrow	Nocturnal and diurnal
Hairy-tailed Mole	Subterranean moist ground	May-	Burrow	Nocturnal and diurnal
Short-tailed Shrew	Terrestrial and subterranean, anywhere	May -(Oct.)	Burrow	Nocturnal and diurnal
Long-tailed Shrew	Terrestrial, woods and fields	Jan.-Dec.	Hollow log or under board	Largely nocturnal
Hoary Bat	Arboreal	May		Nocturnal, migratory, found during October
Red Bat	Arboreal	June-July	Among leaves of trees	Nocturnal, migratory, May 15-Oct. 15
Silvery-haired Bat	Arboreal	June-July	Hollows or crevices in trees	Nocturnal, migratory, May 1-(Sept. 20)
Pipistrelle	Arboreal	July		Nocturnal, migratory, May 1-Nov. 1
Big Brown Bat	Caves and buildings			Nocturnal, hibernates Nov.-Feb., or Apr., also migrates
Say's Bat	Trees and buildings	July	Probably gregarious, attics and caves	Nocturnal, migrates and hibernates
Little Brown Bat	Caves and buildings	June-July	Gregarious, attics and caves	Nocturnal, migrates and hibernates



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