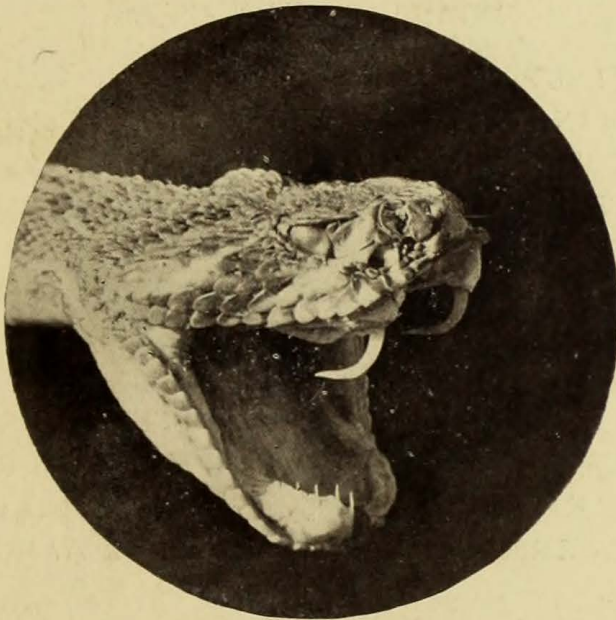


AMERICAN MUSEUM OF NATURAL HISTORY

The
Reptiles of the Vicinity
of
New York City



BY

Raymond L. Ditmars

Curator of Reptiles, New York Zoölogical Park

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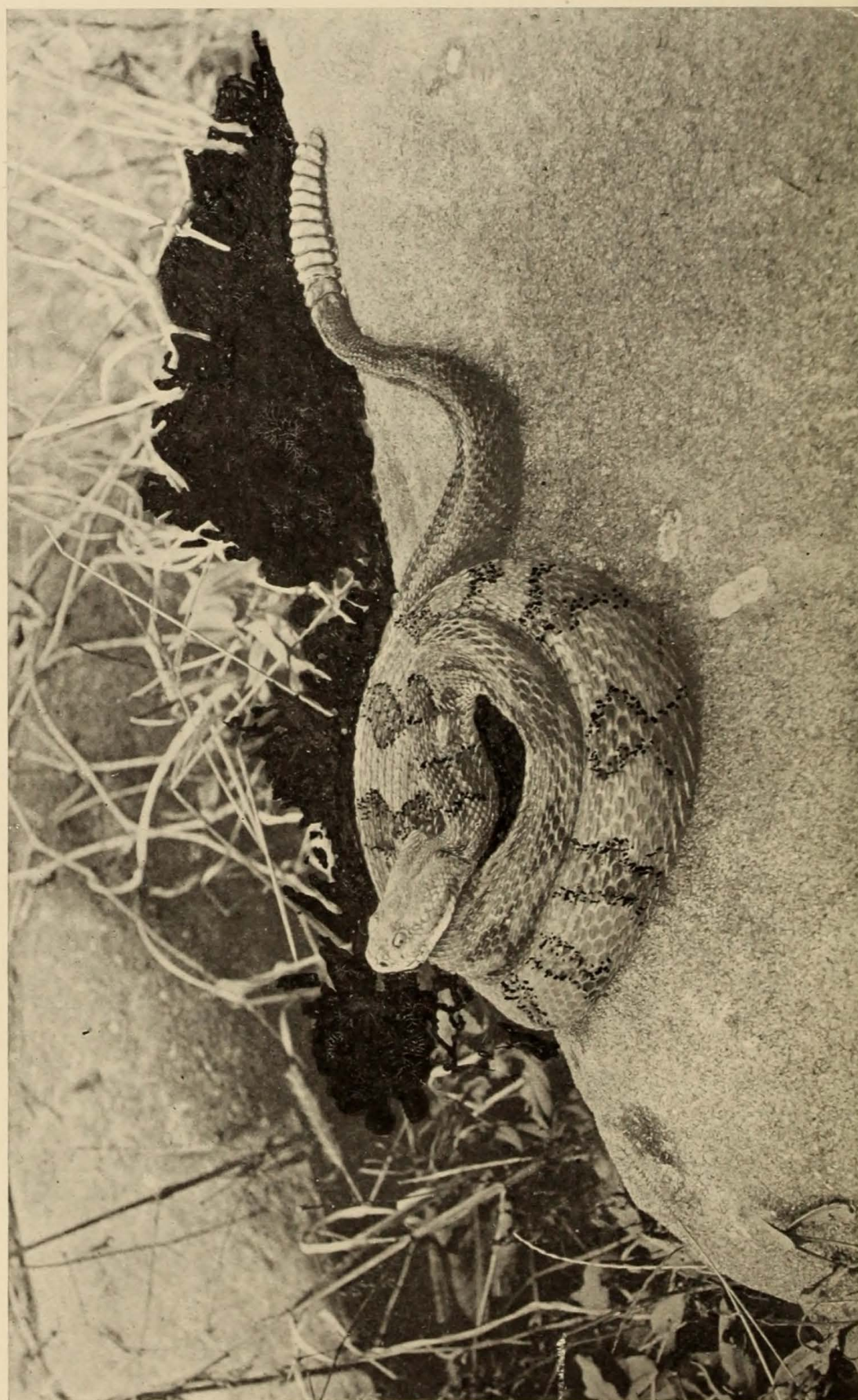


FIG. 1. BANDED RATTLESNAKE

The
Reptiles of the Vicinity
of
New York City

With Reference to the Collection in the
American Museum of Natural History.

By

RAYMOND L. DITMARS,

CURATOR OF REPTILES, NEW YORK ZOÖLOGICAL PARK.

GUIDE LEAFLET No. 19.

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PREFATORY NOTE.

The Museum gratefully acknowledges the coöperation of the New York Zoölogical Society in the preparation of this Leaflet. The author is Curator of Reptiles at the New York Zoölogical Park, Bronx Park. Through Director W. T. Hornaday the abundant living material of the Zoölogical Park was placed at the disposition of the Museum for the purpose of making photographs for the illustrations; and through Director C. H. Townsend similar courtesies were extended at the New York Aquarium, Battery Park.

Mention should also be made of the valuable assistance rendered by Mr. Herbert Lang of the Museum, who took the photographs from which thirty-seven of the half-tone illustrations (Figs. 4-8, 10-12, 16, 17, 21-47) were prepared. The remaining photographs were furnished by the author.

The collection to which the Leaflet refers may be found at present in the Synoptic Hall, No. 107 of the ground floor of the Museum building. The animals may be seen in the flesh at the Zoölogical Park and the Aquarium.

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THE REPTILES OF THE VICINITY OF NEW YORK CITY.¹

BY RAYMOND L. DITMARS,

Curator of Reptiles, New York Zoölogical Park.

INTRODUCTION.

IN compiling this guide for the identification of the local reptiles, the writer has endeavored to present the subject in a simple and concise manner, avoiding technicalities as far as possible. The usual descriptions of reptiles concern arrangements of the scales upon the head and certain other physical characteristics that are necessarily associated with technical terms, but the keys for identifications and descriptions of the species in the present work appeal principally to the *coloration* and *form* of the reptiles. With but a limited number of species to consider, this plan seems appropriate, since it greatly simplifies the subject.

The reptiles described are those which have been found within a radius of about fifty miles of New York City. Within this section 28 species are represented. Of these species 14 are serpents, 2 are lizards and 12 are turtles. Thus our local fauna may be said to be quite rich in reptile life. In fact, it is within the limits of the area described that certain species of snakes (the Garter Snake, *Thamnophis sirtalis*, and the Brown Snake, *Storeria dekayi*) abound to such an extent that hundreds of specimens are annually killed and captured without apparent decrease in their numbers.

There are but two local species of poisonous snakes, the Banded Rattlesnake and the Copperhead. In certain districts both are fairly abundant, but may be hardly called a menace to mankind, as one is shy and retiring in habits, while the other

¹ Reprinted from *The American Museum Journal*, Vol. V, No. 3, July, 1905.

evinces an unmistakable characteristic of warning. There are but few records of the bites of venomous snakes in this portion of the United States.

SNAKES.

Order *Ophidia*.

The snakes are well represented in the Atlantic states, fourteen species being distributed through sections of the region surrounding New York City. Some of these reptiles attain fair dimensions, and several of the species are brilliantly colored. Two are venomous and of sufficient size to be formidable to man. These dangerous snakes, the Rattlesnake and the Copperhead Snake, may be recognized by their triangular heads which are quite distinct from the neck. The blunt tail of the Rattlesnake, terminating in its warning appendage, is a character hardly possible to be overlooked by the most indifferent observer. The Copperhead Snake is so strongly marked that identification is but the question of a moment's intelligent examination after an idea of the color pattern has been acquired.

Several of our harmless snakes have been provided with eccentric and misleading titles. To those unacquainted with reptiles, such species as the "Flat-headed Adder," the "Spotted Adder," the "Water Moccasin" and others of equally formidable appellation might be regarded as reptiles not entirely devoid of harm. Many of our harmless snakes which are of substantial economic importance in the destruction of the smaller injurious mammals possess the most evil reputation, although they really aid the agriculturist. The slaughter of these useful reptiles by the misinformed is a genuine calamity.

In the key to the identification of the local snakes, the attention of the student is especially directed to *color* and the *formation of scales*. Snakes are either provided with *smooth* or *keeled* scales, the latter having a distinct ridge, or keel, running lengthwise. The Garter Snake and the Water Snake are examples of snakes possessing *keeled* scales. This simple plan makes identification easy, and excludes the usual technical reference to the complicated arrangement of the scales or shields of the head, which requires technical knowledge for satisfactory

comprehension. To aid in this idea, the species are grouped in the key without regard to technical classification.

*Key to the Snakes.*¹

a. SCALES SMOOTH.

Size small.

Light brown above; pinkish beneath;
snout conical..... **Worm Snake** (*Carpho-*
phis amænus).

Pale green above; white beneath.... **Green Snake** (*Cyclo-*
phis vernalis).

Dark gray above; a yellow ring
around the neck; yellow beneath.. **Ring-necked Snake**
(*Diodophis puncta-*
tus).

Size moderate.

Gray, with chestnut saddles above;
beneath white, with square spots of
black..... **Milk Snake** (*Lampro-*
peltis dolia *trian-*
gulus).

Size large.

Uniform satiny black above; black
beneath, with the chin and throat
white..... **Black Snake** (*Bascan-*
ion constrictor).

aa. SCALES OF THE BACK FEEBLY KEELED.

Size large.

Black above; beneath white, blotched
with gray; scales of the sides show
white edges..... **Pilot Blacksnake** (*Co-*
luber obsoletus).

b. SCALES KEELED.

Size small.

Brown above; pink beneath..... **DeKay's Snake** (*Sto-*
reria dekayi).

Brown or gray above; bright red
beneath..... **Storer's Snake** (*S. oc-*
cipito-maculata).

Dark brown or black above, with a
yellow stripe down the back and a
similar stripe on each side on third
and fourth rows of scales from
underside..... **Ribbon Snake** (*Tham-*
nophis saurita).

¹ All of the local harmless snakes have eyes with round pupils. The two species of local poisonous snakes have elliptical (cat-like) pupils.

Size moderate.

Dark brown or black above, with a yellowish stripe down the back and a light stripe on each side on second and third rows of scales from under-side.....

Garter Snake (*Thamnophis sirtalis*).

Dark brown or gray above, with reddish transverse bands; white or yellow beneath spotted with red...

Water Snake (*Natrix fasciata sipedon*).

Dark yellow or brown, with darker transverse markings; snout upturned and sharp.....

Hog-nosed Snake (*Heterodon platyrhinus*).

Head triangular, distinct from neck.

Light chestnut brown or pinkish-gray, with a series of dark brown transverse bands, narrow on the back and becoming wide on the sides.....

Copperhead Snake (*Agkistrodon contortrix*).

Yellow, with dark transverse bands; sometimes dark tan or uniform black; tail ending in a rattle.....

Banded Rattlesnake (*Crotalus horridus*)

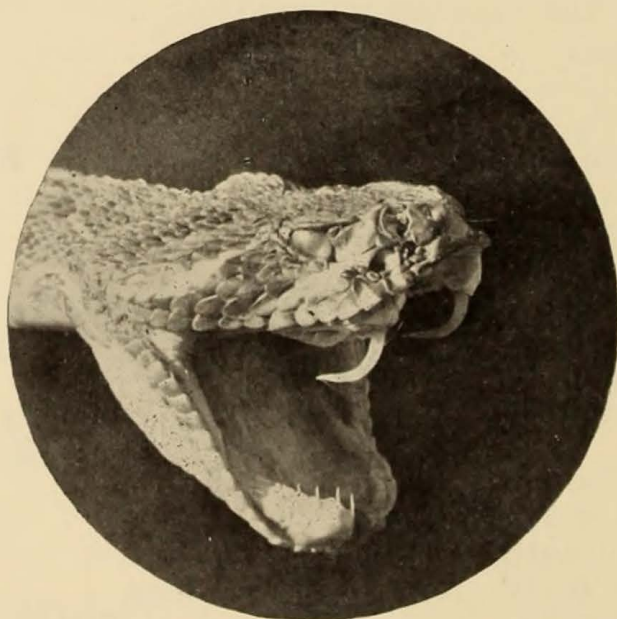


FIG. 2. HEAD OF DIAMOND-BACKED RATTLESNAKE. SOUTHERN STATES

DESCRIPTIVE LIST OF THE SNAKES.

HARMLESS SPECIES.

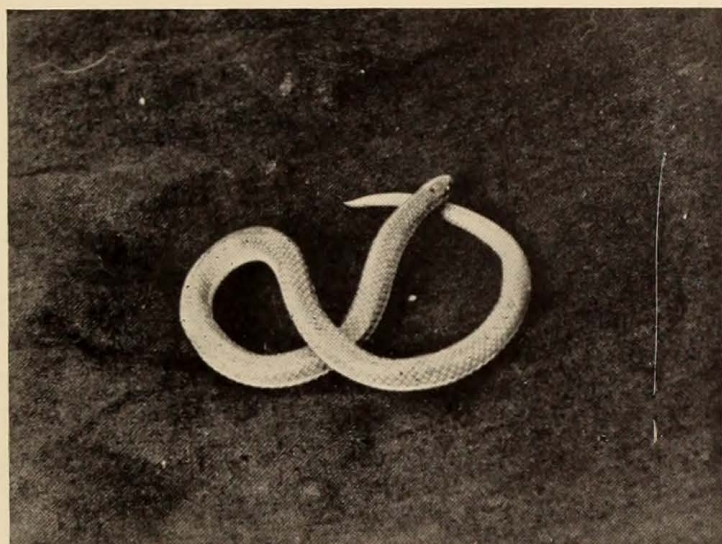


FIG. 3. WORM SNAKE

The Worm Snake, *Carphophis amoenus* (Fig. 3), is a diminutive species which, though fairly abundant, is seldom seen, owing to its secretive habits. The Worm Snake is quite characteristic in appearance with its smooth, shining, cylindrical body and sharp snout; the head and neck are of the same width. In color this little serpent is quite somber and in harmony with the surroundings in which it lives. Above, it is light brown or brownish gray; beneath, the color is a delicate shade of pink. In length, the species seldom exceeds eleven inches.

This reptile might possibly be confounded with the Storer's Snake and the DeKay's Snake, which small, retiring species it in a way resembles, principally in color and size, but it may be immediately recognized by its smooth scales; both of the other

species having keeled scales. The Worm Snake frequents damp localities and soft, loose ground, where it burrows with the aid of its sharp snout. Specimens are sometimes found in decaying logs. It is seldom found wandering about above the surface, except among damp leaves or after showers. The food consists largely of earthworms and soft grubs. This snake is oviparous.

Range: Central and eastern United States.

Local distribution: Long Island; Palisades of the Hudson.

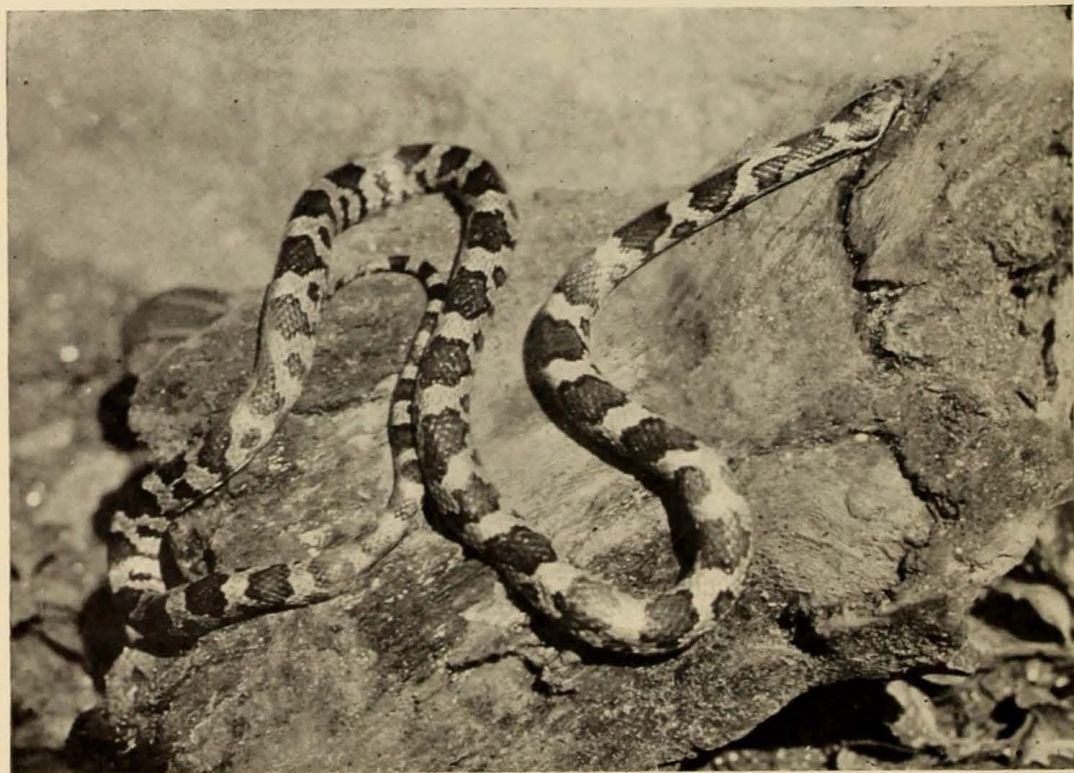


FIG. 4. MILK SNAKE

The Milk Snake, *Lampropeltis dolius triangulus* (Figs. 4 and 5), is one of the most brightly colored of the local snakes.

Milk Snake. The body above is yellowish brown or gray, with a series of irregular chestnut-brown or reddish spots edged with black, about fifty in number; on the sides are smaller spots in alternation with those of the back. Beneath, the reptile is white, with numerous, small oblong spots of black. The length, when mature, is from three to four feet. The scales are smooth and polished.

Although this species is generally distributed, it is not of common occurrence. From a habit of sometimes frequenting the neighborhood of stables and dairies, it has acquired the reputation of obtaining milk from the cows. This is an illogical

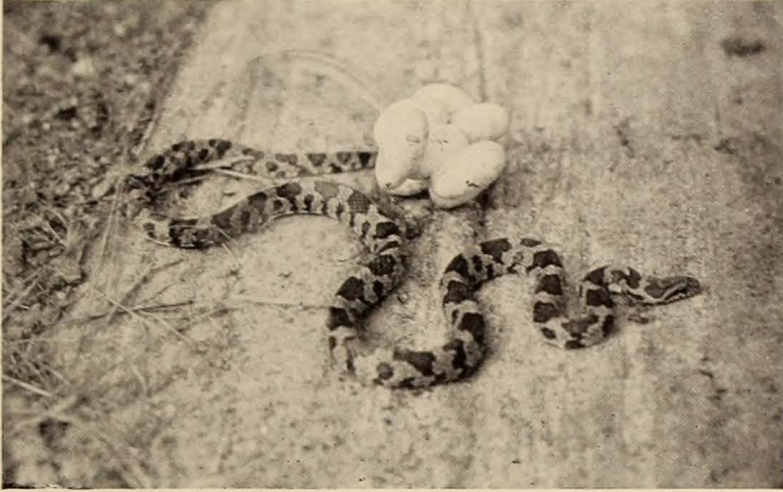


FIG. 5. MILK SNAKE ; WITH EGGS

theory, and proof of the actual deed from reputable observers is wanting. In captivity this serpent is wholly indifferent to milk, but will eat mice, young birds and small snakes other than its own species. It is a constrictor and closely related to the King Snake of the southern states. The Milk Snake is oviparous, laying eggs to the number of two dozen or more.

Range: The central and eastern United States; Canada.

Local distribution: General; frequents woods.

The Ring-Necked Snake, *Diadophis punctatus* (Fig. 6), is the most easily distinguished of the various local snakes. The scales of this little reptile are smooth and shining, while the body is a uniform dark gray or bluish black, with a brilliant yellow ring around the neck immediately behind the head. Beneath, the color is orange yellow; a single row of black spots is generally present. The length seldom exceeds fifteen inches.

Ring-
Necked
Snake.

These little snakes may be occasionally found in damp woods, under stones or burrowing under the bark of decaying trees. The species is quite rare within the limits under

consideration, but in some portions of the Hudson Highlands and in the Catskill Mountains it is rather abundant. In the southern states it is very common, the writer having taken several hundred specimens within a few days' time by stripping the bark from old, fallen trees. The Ring-necked Snake feeds largely upon earthworms and the smaller species of salamanders. It is oviparous.

Range: The United States east of the Rocky Mountains; Canada.



FIG. 6. RING-NECKED SNAKE

Local distribution: General.

Dainty and inoffensive both in looks and habits, the little Green Snake, *Cyclophis vernalis* (Fig. 7), may be easily known by its color which makes it quite distinct from other local species. The color above is a uniform pale green and beneath is light yellow or white. The scales are smooth and possess a satiny luster.

The Green Snake differs from the majority of serpents in being insectivorous. It feeds largely upon hairless caterpillars, although it also consumes crickets, grasshoppers and spiders. The usual length of the animal is about two feet. This species is oviparous.

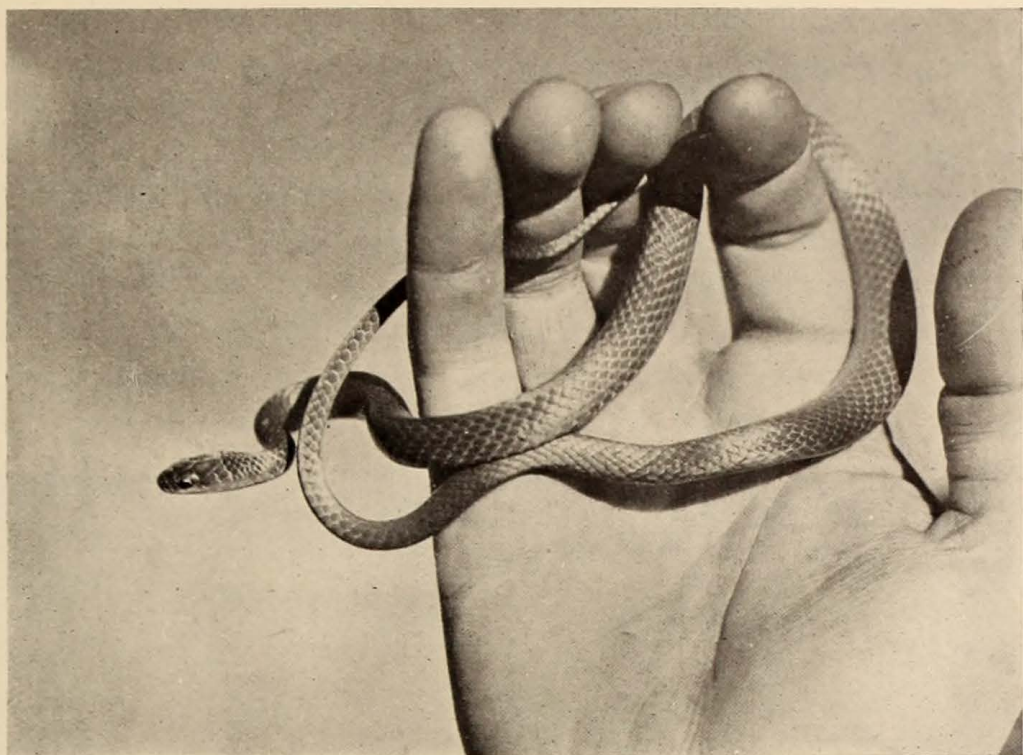


FIG. 7. GREEN SNAKE

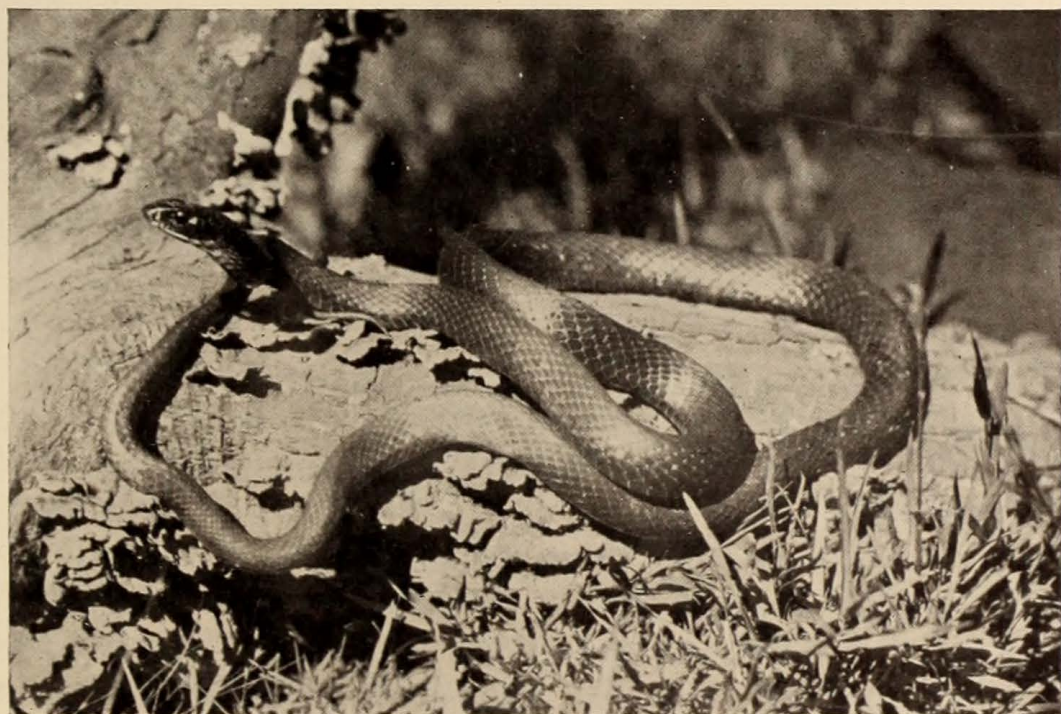


FIG. 8. BLACK SNAKE

Range: The United States east of the Rocky Mountains; Canada.

Local distribution: Common in Rockland, Dutchess and adjoining counties.

With the exception of one other species, the Black Snake, *Bascanion constrictor* (Fig. 8), attains the largest dimensions of any of the local serpents. Above and beneath, with the exception of the chin and throat, this reptile is a uniform black, the smooth scales imparting to the creature's back a luster similar to that of a gun-barrel. The chin and throat are milky white.

Young specimens show a remarkable variation from the adult snake. Like all the snakes described thus far, the Black Snake is an egg-laying species (oviparous). As is the case with the majority of the oviparous snakes, the eggs are left by the parent to be hatched by the heat of the sun or of decomposing vegetation. At the time of hatching, the young Black Snake belies its name. The body is pale gray with a series of brownish blotches down the back; the head and sides are irregularly spotted with black. At this stage it closely resembles the Milk Snake, but may be distinguished therefrom by the tendency of the blotches on the back to become very narrow as they approach the tail and to disappear almost altogether on that appendage. When a year old, the body color has become very dark, but close inspection will reveal the dorsal blotches. As age progresses the body color becomes darker until it assumes the intense black of the adult.

Extremely agile and feeding upon small rodents, birds, frogs and other snakes, the Black Snake is not a constrictor as its technical name implies, nor is it nearly so courageous as is generally supposed. When surprised, this reptile will invariably take to flight if this be possible, and few serpents can show the speed of this black meteor as it darts away, to stop only when apparent safety is attained. When cornered and escape is cut off, this snake will fight bravely, but the slightest opening is instantly taken advantage of by a dash for cover. The needle-like teeth can produce nothing but the most superficial wounds, yet this serpent is quite generally dreaded. Without doubt the

Black Snake is of value in the woods and fields, since its appetite craves the smaller mammals which are a menace to the agriculturist. The average length of adult specimens is between five and six feet.

Range: The entire United States and southern portions of Canada.¹

Local distribution: General, in rocky localities.

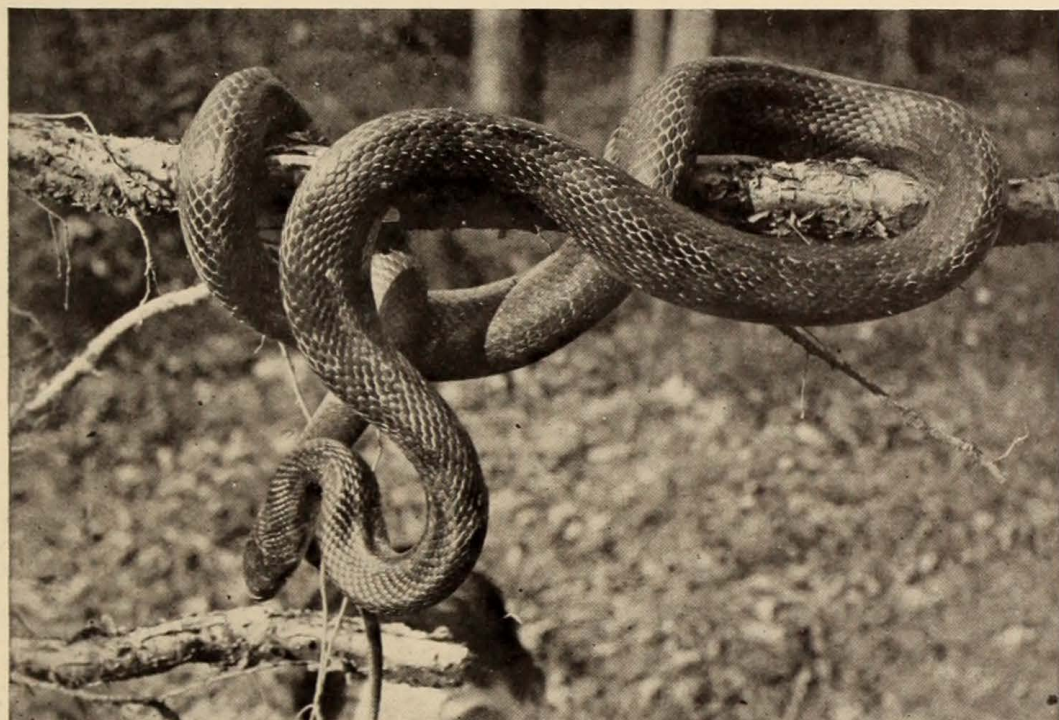


FIG. 9. PILOT BLACKSNAKE

The Pilot Blacksnake; Mountain Blacksnake, *Coluber obsoletus* (Fig. 9), attains the greatest length of any of the snakes embraced in the present list. This species is a powerful constrictor, and is the northern representative of the large and brilliantly-colored Rat Snakes of the South.

To the novice this serpent might appear similar to the preceding species. This similarity, however, applies only to color. Unlike the Black Snake or Racer, the scales are polished and the body presents a metallic, shining appearance instead of a satiny luster.

¹ The typical (black) form inhabits the Eastern States; a variety of lighter color frequents the Middle States; in the Western States is the variety called the Green Racer (*B. constrictor flaviventris*).

The general color above is black, the scales of the sides showing white edges when the body is distended. Beneath, the color is white, blotched with gray on the forward portion; posteriorly the gray becomes suffused over the entire surface; the chin and throat are white and immaculate. Close examination will reveal the scales of the back to be faintly keeled, which characteristic at once separates the species from the Black Snake. The head is broad and rather flat; the under surface of the body is so abruptly flattened as to form right angles with the sides.

This species is built rather for climbing than for speed, and generally frequents low bushes, where it lies in wait for birds and small mammals. The species attains a length of more than six feet. It is oviparous.

Range: Eastern United States from Maine to Florida; the Central States; in the South the species extends westward to Texas.

Local distribution: Highlands of the Hudson; not common.

The Hog-nosed Snake, *Heterodon platyrhinus* (Figs. 10 and 11), may be recognized by its sharp, upturned snout, which shovel-like appendage is employed to assist the reptile in burrowing in the sandy soil in which it lives. The markings of this peculiar snake are extremely variable, but the color is generally yellowish brown, with dark brown or black irregular cross-bands. Some specimens show brilliant shades of yellow and red; others are entirely black. The latter constitute the variety *niger*.

The species is stout in body, and the scales are keeled. When annoyed, it assumes a threatening attitude by flattening the head and neck and hissing loudly. In spite of its hostile demeanor, it seldom attempts to bite, but contents itself by endeavoring to frighten the object of its annoyance by its eccentric antics. In different localities the species has been given appellations that have placed this harmless reptile in bad repute. Such names as "Flat-headed Adder," "Blowing Viper" and "Spreading Adder" are energetically used by the farmer who usually refuses to be convinced that this snake is not akin in poisonous faculties to the Copperhead, to which it bears some resemblance in proportions and markings.



FIG. 10. HOG-NOSED SNAKE



FIG. 11. HOG-NOSED SNAKE (VAR. NIGER)

When repeatedly annoyed, this snake will feign death and may then be roughly handled without its displaying signs of life. Its food consists principally of toads. The species is oviparous, depositing about two dozen eggs. A large specimen will measure three feet in length and one and a half inches in diameter.

Range: The United States east of the Rocky Mountains.

Local distribution: Found in nearly all the sandy localities adjacent to New York City. Common on Long Island and the Bayonne peninsula, New Jersey.

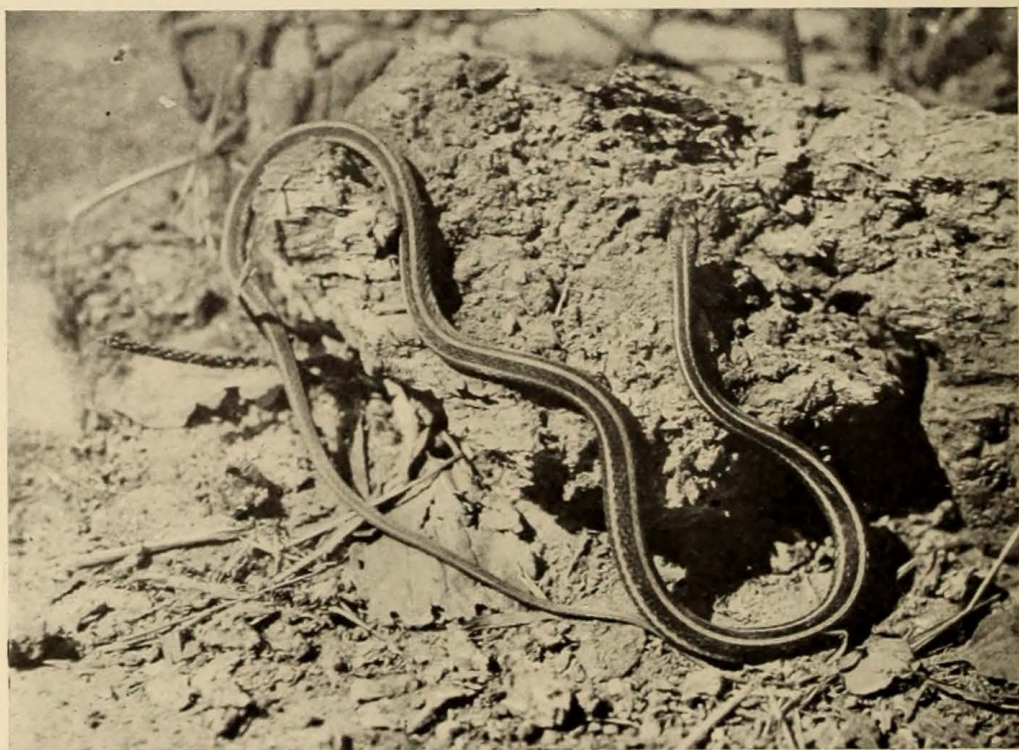


FIG. 12. RIBBON SNAKE

The Ribbon Snake, *Thamnophis saurita* (Fig. 12), is a species which might be easily confounded with the Garter Snake, owing to the similarity of markings. The body color is dark brown or black, with a bright and very clearly-defined stripe of yellow down the back and a similar stripe on each side. The body is very slender and the scales are distinctly keeled. When the skin is distended the sides of the body show small, white spots.

The chief differences between this species and the Garter

Snake are the following: 1. The stripes on the sides are situated on the third and fourth rows of scales from the plates of the crawling surface; with the Garter Snake the lateral stripe is situated on the second and third rows of scales. 2. The under-side is immaculate, while the abdomen of the Garter Snake shows a row of small black spots on each side. 3. The Ribbon Snake is, in proportion, considerably more slender than the other species.

The active little Ribbon Snake frequents damp meadows and woods. It seldom exceeds three feet in length. Its food consists

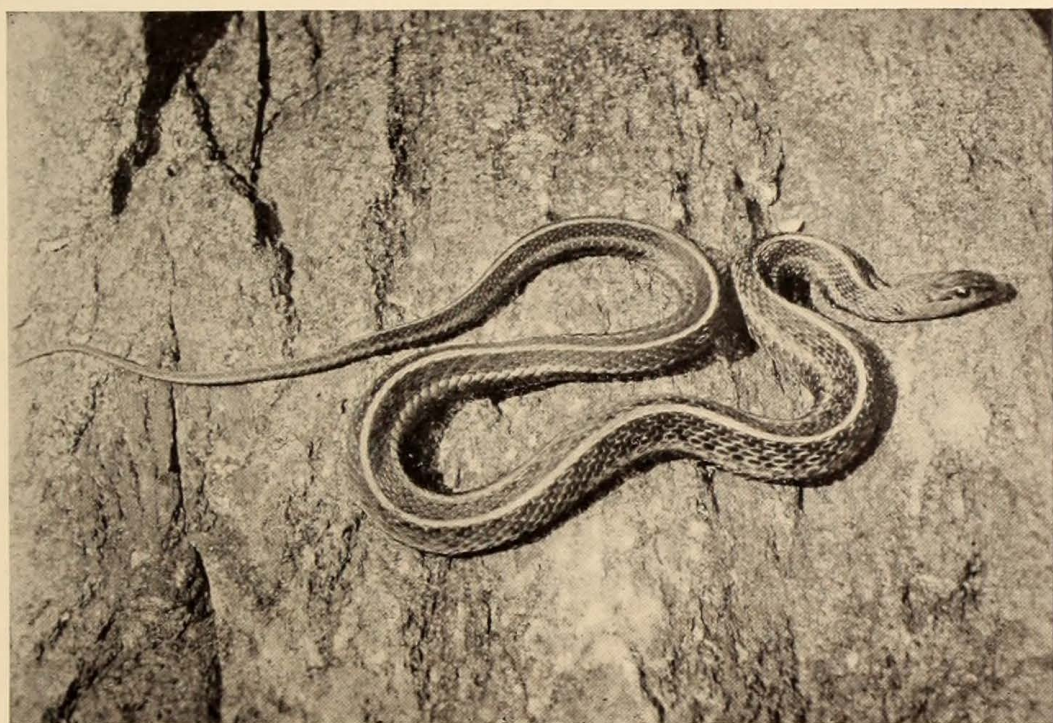


FIG. 13. GARTER SNAKE

of small fishes, tadpoles and frogs. The species is viviparous, but the number of young is small, seldom amounting to a dozen.

Range: Southeastern Canada and the United States east of the Rocky Mountains.

Local distribution: General, but not common.

The Garter Snake, *Thamnophis sirtalis* (Fig. 13), is the most common of our local serpents. The general color above is dark-brown or black, with three yellowish stripes running lengthwise; beneath, the color is greenish yellow. The skin along the sides when distended shows numerous white

**Garter
Snake.**

or greenish spots. The scales are strongly keeled. The species varies in color; specimens are occasionally found upon which the stripe on the back is indistinct or entirely wanting; others present a spotted appearance between the stripes.

Abundant under various conditions of swamp, woods and rocky localities, the Garter Snake will continue to exist within our local borders long after many of the other species of serpents have been exterminated by the ruthless slaughter that unjust prejudice inspires. The species is viviparous, bringing forth as many as thirty or more living young at a brood. The young reptiles feed upon earthworms and grow rapidly. While immature, these snakes are secretive, and the character of their food enables them to obtain a livelihood without prowling forth into danger. Far different is the case of the active young Blacksnake in search of mice, as it crosses roads and clearings into the danger zone of stones and clubs.

The adult Garter Snake feeds mostly upon frogs and toads; birds and small mammals are never devoured by this species. The length of a large specimen is about a yard.

Range: North America, southward to Guatemala.

Local distribution: General and common; is found in the large parks of New York City.

Our common Water Snake, *Natrix fasciata sipedon* (Fig. 14), is a variety of a species abundant in the southern states. The **Water Snake.** body is rather stout, with strongly keeled scales; the color is brown with broad irregular cross-bands of reddish brown which show more distinctly on the sides. The underside is yellowish white, brightly marked with red spots and blotches. The young of this species are quite different from the adult in coloration, the body color being gray with the cross-bands black and very distinct. The adult attains a length of four feet and a diameter of two inches. From two and a half to three feet long, however, is the usual size.

Always frequenting the vicinity of water, this snake may be seen in numbers along slow-running streams, either sunning itself on the banks or stretched upon the branches of bushes that overhang the water. It feeds upon fishes, frogs and toads. The Water Snake is viviparous, bringing forth as many as forty

or more young at a litter. The young are born during the latter part of August and early in September.

Range: The eastern United States from Maine to North Carolina.

Local distribution: Common near ponds, streams and salt-water marshes.

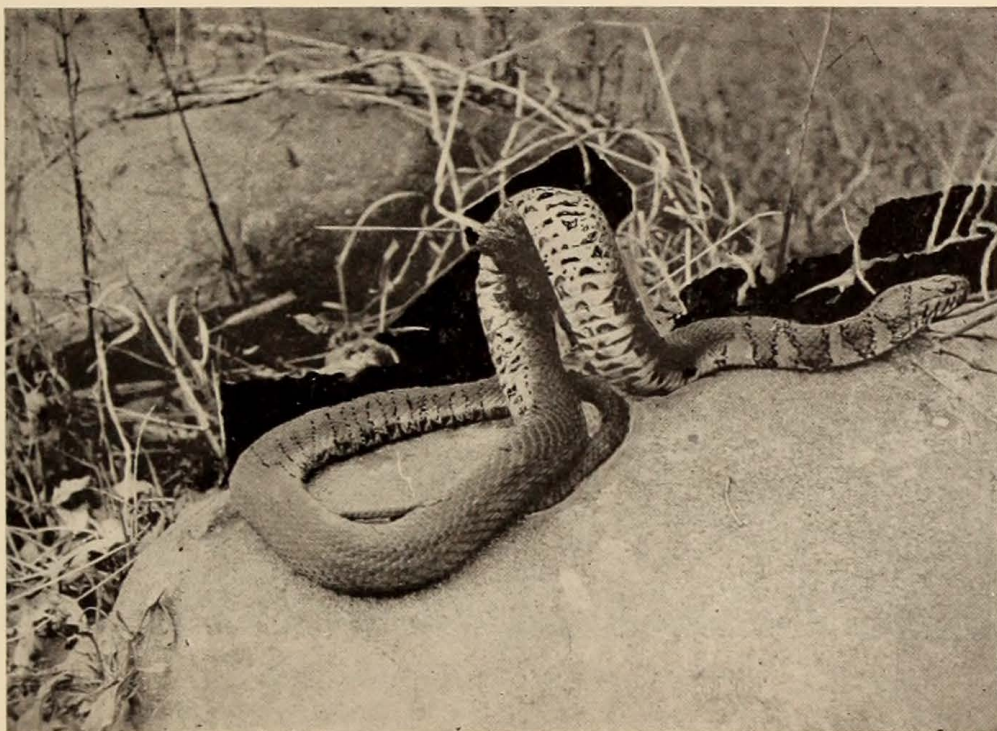


FIG. 14. WATER SNAKE

Among the local snakes, DeKay's Snake, or Brown Snake, *Storeria dekayi* (Fig. 15), is unique in surviving in localities where the other serpents have long since been ex-
terminated. It is common in many portions of the
large city parks, where its secretive habits, diminutive size and
quiet colors aid in its protection.

**Brown
Snake.**

In color this reptile is brown or brownish gray above, with a minute series of black spots in pairs usually present down the back; the space between these spots is sometimes of a lighter tint than the body color, producing the appearance of an indistinct stripe in some specimens; beneath, the color is pinkish white. The scales are keeled. The average length of adult specimens is twelve inches.

This snake is most frequently found hiding under flat stones, and in such places the reptile searches for its favorite food, which consists of earthworms.

The Brown Snake is viviparous, producing from fifteen to eighteen young during August. During the first year the young snakes are very dark with a whitish ring around the neck. At this stage they resemble the young of the Ring-Necked Snake,

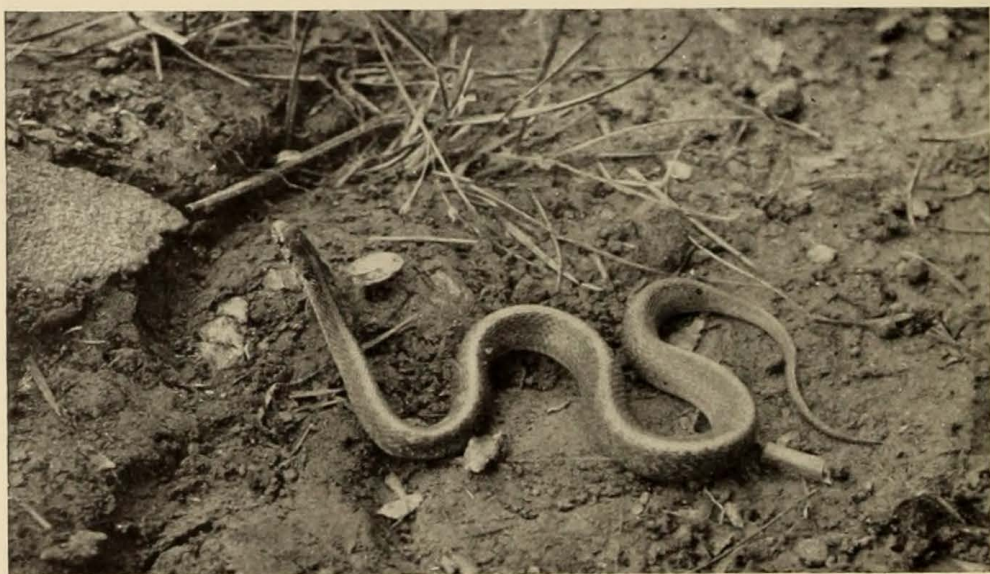


FIG. 15. DEKAY'S, OR BROWN SNAKE

but they may be distinguished therefrom by their keeled scales. When adult, the average length of the Brown Snake is about fourteen inches.

Range: Canada and the eastern United States from the Atlantic coast westward to Kansas and southward to Mexico.

Local distribution: Common in rocky localities.

The Storer's Snake, or Red-Bellied Snake, *Storeria occipitomaculata* (Fig. 16), closely resembles the Brown Snake, but may

be distinguished therefrom by its bright vermilion underside. Down the back of Storer's Snake there is

usually a well-defined stripe of a lighter shade than the body color, which is brown or dark gray; occasionally specimens are slaty gray with a light stripe down the back bordered with rows of minute black spots. On such specimens the bright red of the underside is especially intense. It is a smaller species

Red-Bellied
Snake.

than the preceding, seldom attaining a length of more than eleven inches. The young are produced alive, and are black with a whitish ring around the neck.

Range: The same as the preceding species, but may extend farther north in Canada.



FIG. 16. STORER'S, OR RED-BELLIED SNAKE

Local distribution: Not found within the immediate vicinity of New York City, but is common northward; occurs abundantly in Orange, Rockland and Putnam Counties.

POISONOUS SPECIES.

The Copperhead Snake, *Ancistrodon contortrix* (Fig. 17), is a strongly marked species and easily determined. The body color is light chestnut brown, sometimes assuming a Copper-tinge of pink, crossed with dark, reddish-brown bands, head Snake. which are narrow on the back and wide on the sides, resembling from above the outlines of a dumb-bell; these bands are darkest at their edges, particularly on the sides of the body. The head is somewhat lighter than the body, usually exhibiting a coppery tinge or a bright hazel brown; the sides of the head are of a still

paler hue. The line of intersection of the lighter color with the coppery tints of the top begins behind the eye and runs to the angle of the mouth. Beneath, the body is pinkish white, with two rows of reddish-brown blotches; the scales are keeled; the pupil of the eye is elliptical.¹

Although the head of this serpent is triangular and distinct from the neck, the general appearance of the reptile would not immediately lead the uninitiated to class it as a poisonous snake. Several of our local serpents are quite as heavy in body as the

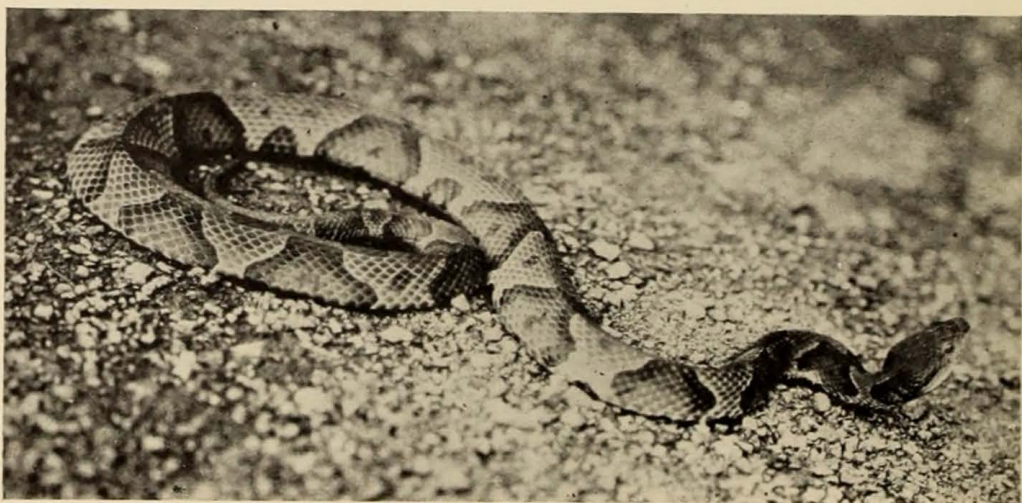


FIG. 17. COPPERHEAD SNAKE

formidable Copperhead. The Milk Snake, the Hog-nosed Snake and the Water Snake are sometimes confounded with the Copperhead, partly on account of a similarity of pattern, and partly on account of the stout bodies of the last two species. From the Milk Snake the Copperhead may be at once distinguished by its keeled scales; from the Hog-nosed Snake and the Water Snake by the arrangement of the plates under the tail.² Beginning from the vent, these broad plates in the harmless reptiles are in two rows; in the Copperhead they are arranged in one row, extending across the underside of the tail like the plates of the belly, with the exception (in some specimens) of a few scattered, divided plates near the tip of the tail. From all the harmless snakes the Copperhead may be distinguished by the presence of a

¹ The eyes of all of our harmless snakes have round pupils.

² The sub-caudal plates of all the harmless snakes are in two rows.

pit between the eye and the nostril, a characteristic of the crotaline snakes that has led to their popular title, "the Pit Vipers."

The upper jaw of the Copperhead is provided with two long fangs which fold against the roof of the mouth when the latter is closed. These teeth are hollow and are provided with an opening at the tip for the ejection of poison. They are precisely the same in their formation as the needle of a hypodermic syringe. The poison is secreted in glands behind the reptile's eyes, and is forced through the fangs by muscular contraction during the act of biting.

The Copperhead is the most beautiful of our local snakes, its delicate colors so closely resembling the falling leaves of autumn that it is with difficulty to be distinguished from its surroundings at that time of the year. When annoyed, it imparts a rapid, vibratory movement to the tail, which when among dried leaves produces a distinct rattling, audible for several feet. Its bite is very dangerous, but the snake is not habitually hostile and it prefers flight to combat. When cornered, however, it will fight bravely, striking from a partly coiled position. The food of this snake consists of small mammals, birds and frogs. From six to nine young are produced alive during August or early in September. The tails of the young snakes are bright sulphur-yellow, which tint gradually fades as the reptile matures. A large adult specimen will measure three feet in length.

Range: Massachusetts to Florida, westward to Texas.

Local distribution: Palisades of the Hudson River, northern Westchester, Rockland, Putnam and Orange Counties, N. Y. Prefers thick, damp woods and in some districts (Orange and Rockland Counties) is moderately abundant.

With the rattle as an unvarying characteristic, the dangerous Banded Rattlesnake, *Crotalus horridus* (Figs. 1 and 18), may be instantly recognized. Female specimens are generally sulphur-yellow or brown, with black, or dark-brown transverse bands; the males are usually very dark brown or black with little trace of the bands, except yellow markings that show the location of the borders of the transverse blotches. The scales are roughly keeled. The head is triangular and covered with small, irregular scales.

**Banded
Rattle-
snake.**

The young are produced during the latter part of August to the number of about a dozen. They grow rapidly and acquire, on an average, three joints of the rattle every year; the young snakes are born with a single "button" on the tail. The average length of a mature snake of this species is from three and a half to four feet.

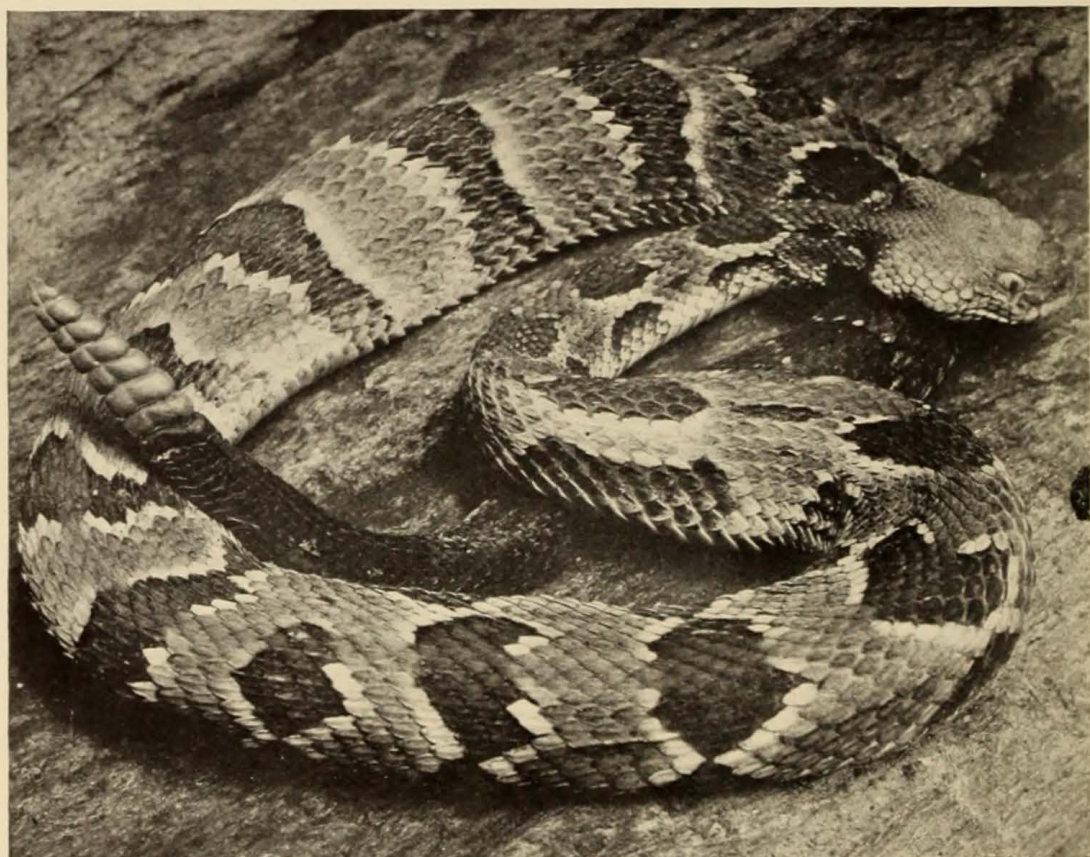


FIG. 18. BANDED RATTLESNAKE

Subsisting upon larger prey, such as squirrels, rats, young rabbits and birds, the Rattlesnake is a bolder reptile than the Copperhead. Provided with proportionately longer fangs and a more virulent poison, the bite of this species is more dangerous than the former. It generally frequents rocky localities and has a wide range of distribution.

Range: Massachusetts to northern Florida, and westward to Texas.

Local distribution: Within fifty miles of New York City, the Rattlesnake is now very scarce. Occasional specimens are reported from Putnam County.

LIZARDS.

Order *Lacertilia*.

The local Lizards, which number two species, are so different in general aspect that immediate identification is possible even to the novice. The smooth, shining Blue-tailed Lizard and the rough, somber-tinted Fence Swift are the examples. The occurrence of the latter species is rare within the limits embraced by this list. Both species are very active, and are insectivorous in habits.

Key to the Lizards.

a. BODY SMOOTH AND SHINING:

Two phases—

aa. Body black, with five yellow stripes; tail blue.....Young.

ab. Body brown; stripes indistinct or wanting; head reddish.....Mature.

aa and ab.....Blue-tailed Lizard

(*Eumeces quinquelineatus*).

b. BODY ROUGH; THE SCALES KEELED:

Gray or brown with lighter blotches..

Fence Swift (*Sceloporus undulatus*).

DESCRIPTIVE LIST OF THE LIZARDS.

The Blue-tailed Lizard, *Eumeces quinquelineatus* (Fig. 19), is an active species, generally distributed. It may be readily recognized by its smooth, shining scales and bright colors. There are two phases of coloring, one representing young individuals and the other the fully matured animals. Young specimens are black, with five bright

Blue-tailed
Lizard.

yellow stripes running lengthwise on the body; the tail of such specimens is usually a brilliant blue,—hence the name. Upon approaching maturity the body assumes a brownish tinge, the stripes become less distinct, and upon the males disappear altogether, while the head takes on a tinge of red. The females retain the stripes, although they are less distinct against the brown body-color than in young specimens; the head of the female is much narrower than the male, while the red tinge upon the same is never so brilliant as in the other sex. The complete color transformation takes about four years.

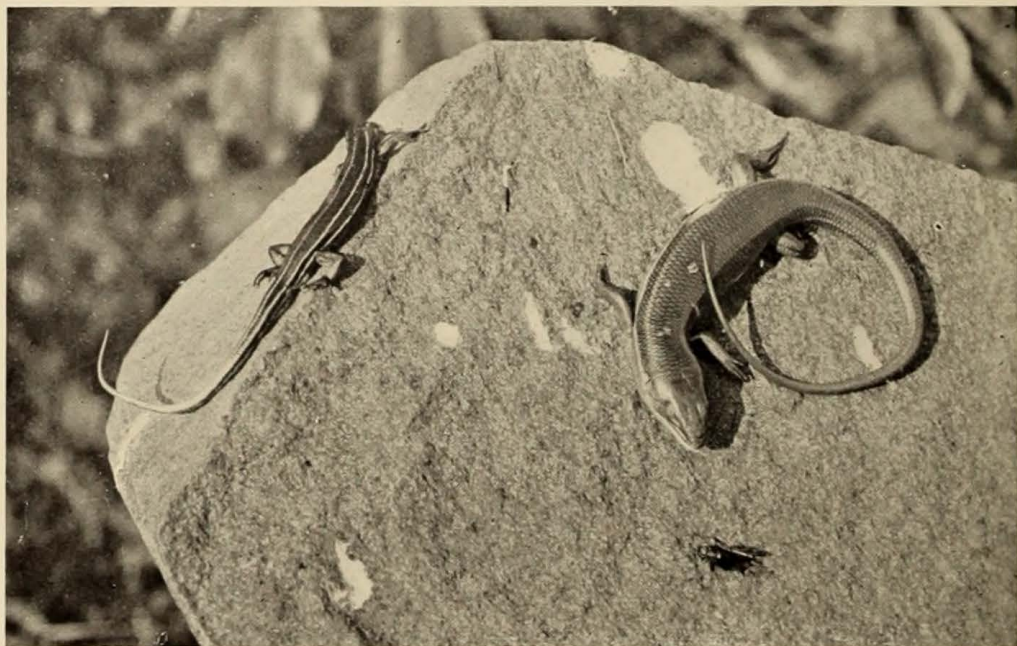


FIG. 19. BLUE-TAILED LIZARD, YOUNG AND ADULT

The female of this species deposits her eggs, to the number of about a dozen, under the bark of a decaying tree, and coils about the edge of the cluster in serpentine fashion until they hatch. Large specimens of the red-headed form measure eight inches in length. In the South the species grows much larger and is very abundant. The adult males are called "Scorpions."

Range: Southern Massachusetts to Florida; westward to Texas.

Local distribution: General in sunny openings of woods, but not common.

The Fence Swift, *Sceloporus undulatus* (Fig. 20), common everywhere in the southern United States, is very rare within a radius of fifty miles of New York City. In the pine forests of southern New Jersey this agile creature is particularly abundant, and may be seen darting with bewildering speed along fences and fallen trees.

Fence
Swift.

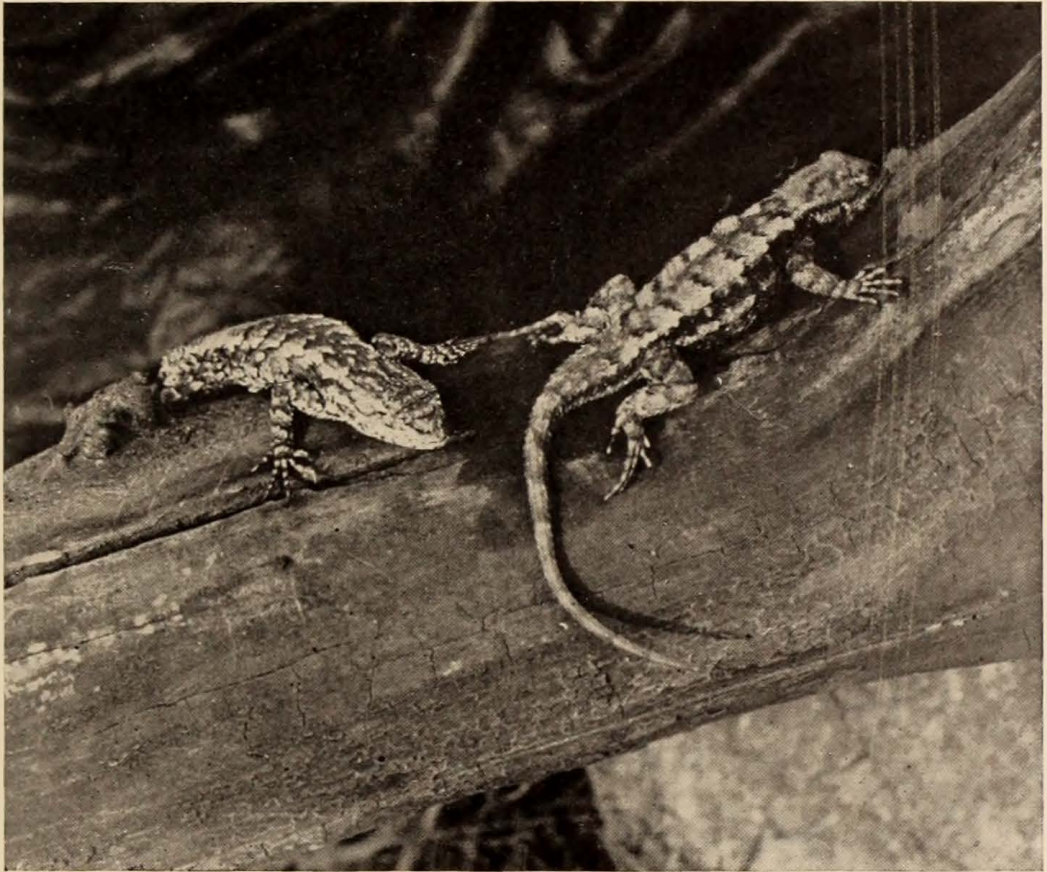


FIG. 20. FENCE SWIFT

Unlike the Blue-tailed Lizard, so conspicuous on account of its shining scales, the Fence Swift presents a rough, lusterless surface. The scales are keeled and terminate in sharp, spine-like fashion. The body is rather broad, the head wide. In color this lizard is gray or brown with a series of V-shaped blotches on each side of the body; the underside is dark-gray or black with several large patches of blue. The latter patches vary in intensity according to conditions of temperature and the

activity of the reptile. Six inches is the average length of fully mature specimens.

Range: New Jersey to Florida.

Local distribution: Recorded from the Palisades of the Hudson River and Monmouth County, N. J.

TURTLES.

Order *Chelonia*.

Of the twelve species of turtles, or chelonians, found locally, three are marine wanderers from warmer climes and of rare occurrence. The marine turtles may be immediately recognized by their peculiar paddle-like limbs which are frequently termed "flippers." The use of these members in the progress of a sea turtle through the water has been appropriately compared to the flight of a hawk or an eagle. Of the other species of chelonians, one is strictly terrestrial in habits, while eight species are semi-aquatic and frequent the neighborhood of ponds and marshes.

The upper shell of a turtle is technically known as the "carapace," the lower shell as the "plastron." These terms have been employed throughout the description of the species with a view of abbreviation.

Key to the Turtles.

- a. LIMBS LONG AND PADDLE-LIKE (FLIPPERS) **SEA TURTLES.**
 - aa. Carapace with seven heavy keels, running lengthwise.
 - Uniform dark brown. **Leather - back Turtle**
(*Dermochelys coriacea*).
 - ab. Carapace smooth.
 - Olive - brown; head very large; usually two nails on each flipper. **Loggerhead Turtle**
(*Thalassochelys caretta*).
 - Olive or brown, marbled with yellow; head of moderate size; usually one nail on each flipper. **Green Turtle** (*Chelonia mydas*).

b. LIMBS AND FEET WELL DEVELOPED; FEET
WEBBED.....**POND AND MARSH
TURTLES.**

ba. Carapace smooth.

1. Plastron hinged to close against
the carapace.

Dark brown; a yellow stripe
on each side of the head....**Musk Turtle** (*Aromochelys odoratus*).

Dark brown; head speckled.**Mud Turtle** (*Kinosternon pennsylvanicum*).

2. Plastron rigid.

Black or olive above; lower
edge of carapace brightly
marked with red; plastron
yellow.....**Painted Turtle** (*Chrysemys picta*).

Carapace black with numer-
ous yellow spots; plastron
black, blotched with yel-
low.....**Spotted Turtle** (*Chelopus guttatus*).

Carapace black or brown, the
shields showing lighter
borders; head black; a
brilliant yellow patch on
each side behind the eye..**Muhlenberg's Turtle**
(*Chelopus muhlenbergii*).

bb. Carapace showing raised, angular
lobes.

Plates of carapace concen-
trically ringed; light brown
above, limbs, neck and
fleshy parts salmon red...**Wood Turtle** (*Chelopus insculptus*).

Plates of carapace with nu-
merous concentric rings;
color, olive above, head

and limbs gray, profusely
spotted with black.....**Diamond-Back Terra-**
pin (*Malacoclemmys*
palustris).

Tail long, partly covered
with plates; head very
large; color brown or
olive.....**Snapping Turtle** (*Che-*
lydra serpentina).

c. FEET CLUB-SHAPED, NOT WEBBED.....**TORTOISES.**

Carapace high; plastron
hinged; color brown, ir-
regularly marked with yel-
low.....**Box Tortoise** (*Cistudo*
carolina).

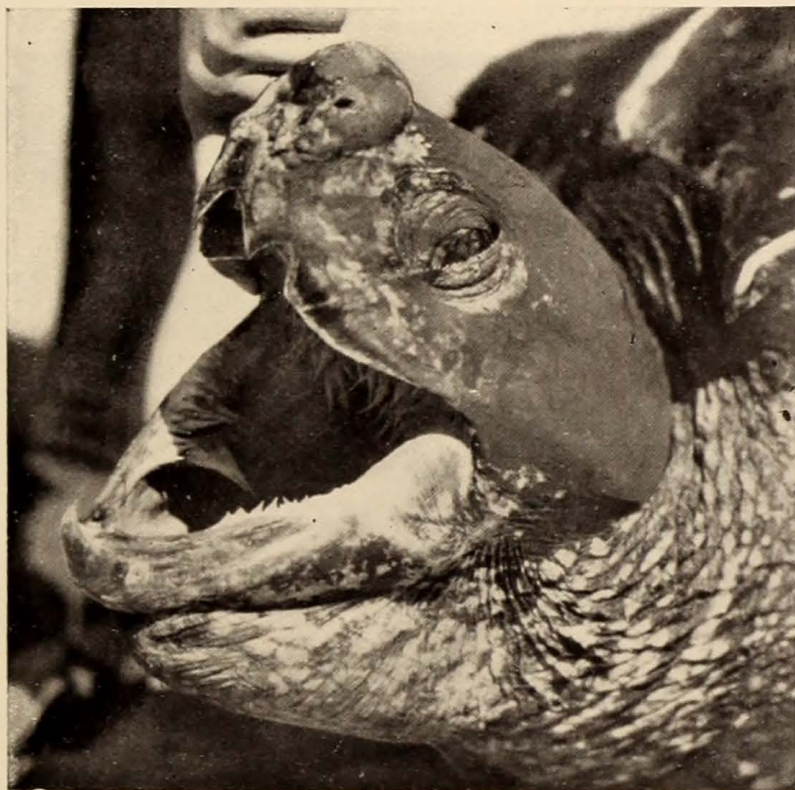


FIG. 21. HEAD OF LEATHER-BACK TURTLE

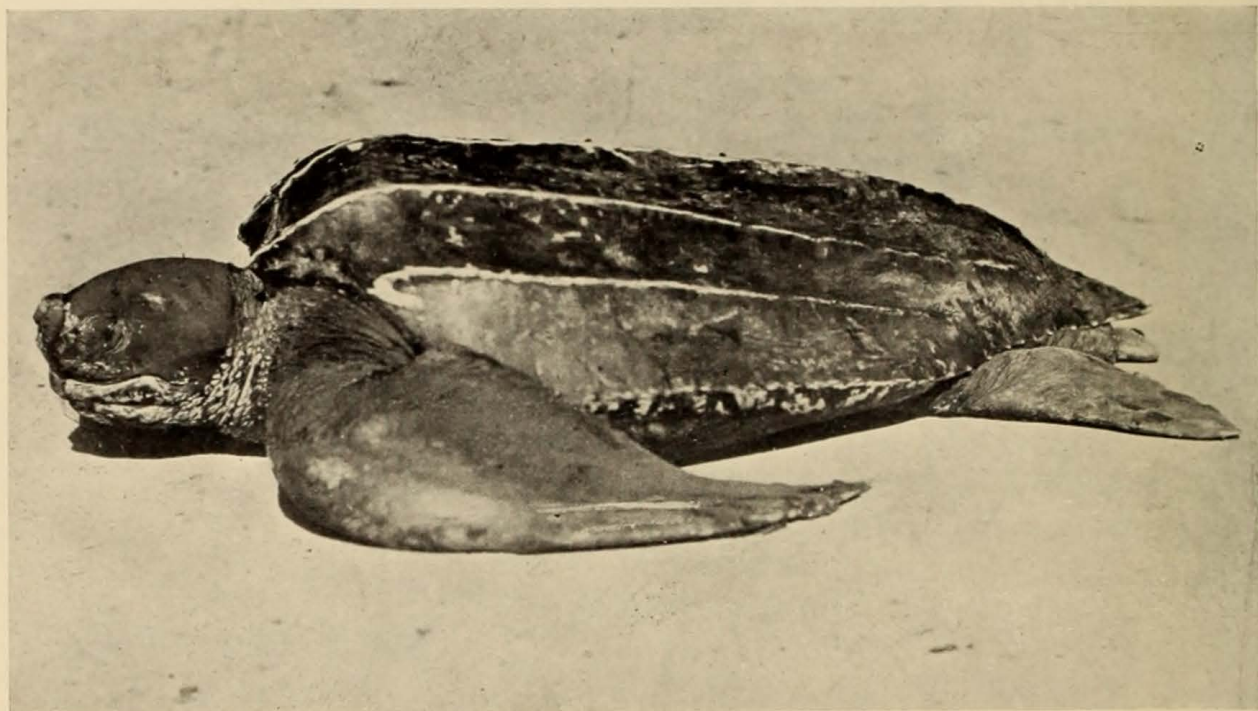


FIG. 22. LEATHER-BACK TURTLE

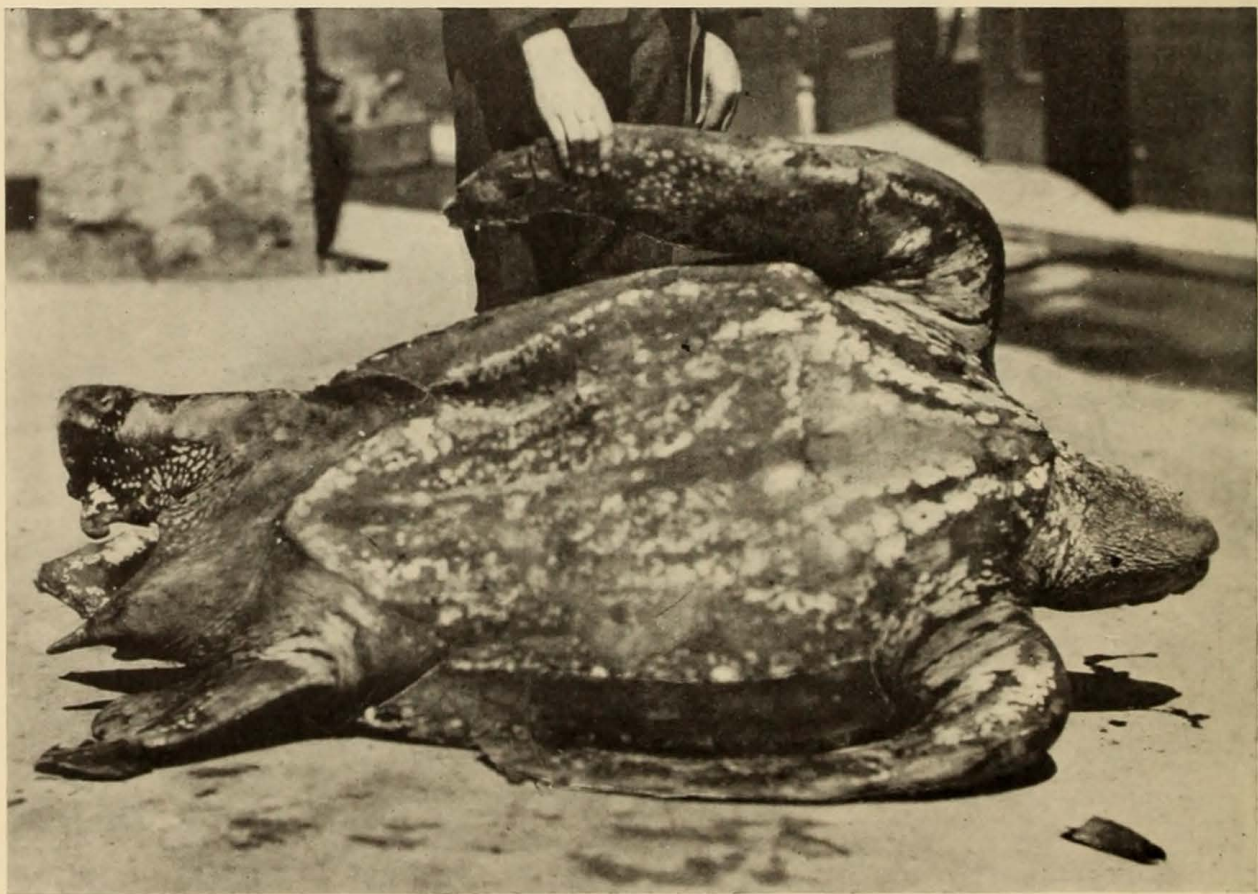


FIG. 23. LEATHER-BACK TURTLE; ON ITS BACK

DESCRIPTIVE LIST OF THE TURTLES.

The Leather-back Turtle, or Trunk Turtle, *Dermochelys coriacea* (Figs. 21, 22 and 23), is easily distinguished from the two other species of sea turtles occasionally taken off our coasts, by the heavy, ridge-like processes, seven in number, running lengthwise on the carapace. Instead of the horny plates usually present on turtles, the carapace and plastron of this species are covered with a leathery integument. The Leather-back Turtle attains a large size. In warmer waters specimens are occasionally captured which exceed seven feet in length. The general color is dark brown, although there is sometimes a sprinkling of yellow. Like the other sea turtles this species never comes to the shore, except for the purpose of depositing eggs. Its flesh is of no value for food purposes. The reptile feeds upon fishes, crustacea, mollusks and seaweeds.

Range: Tropical seas.

Local distribution: Occasionally off the Atlantic coast of the Middle Atlantic and New England States, where its presence is accidental.

The Loggerhead Turtle, *Thalassochelys caretta* (Figs. 24 and 25), might possibly be confounded with the Green Turtle, owing to a similarity of the shells of these species. Certain characters, however, make determination comparatively simple. The head of the Loggerhead is very large in proportion to the reptile's size; the flippers are generally provided with two nails, while the shell is dark brown, sometimes marked with a lighter brown. The colors of the Green Turtle are much lighter; the head of medium size; there is generally one nail on each flipper. Both of these species have shells covered with smooth shields. The flesh of the Loggerhead is little cared for. It does not deposit eggs in temperate regions. This species attains a length of six feet.

Range: Tropical and semi-tropical seas.

Local distribution: An accidental visitor off the Atlantic coast.

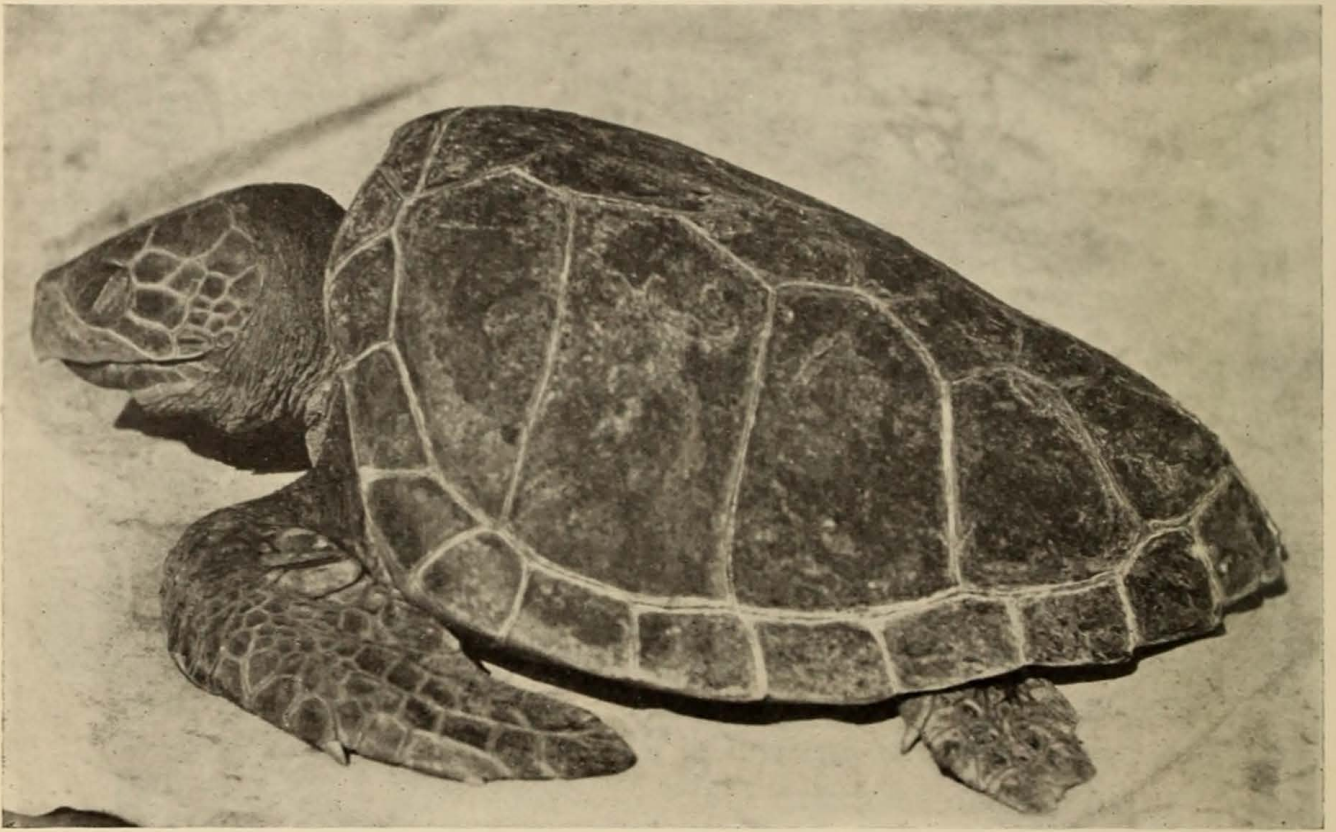


FIG. 24. LOGGERHEAD TURTLE

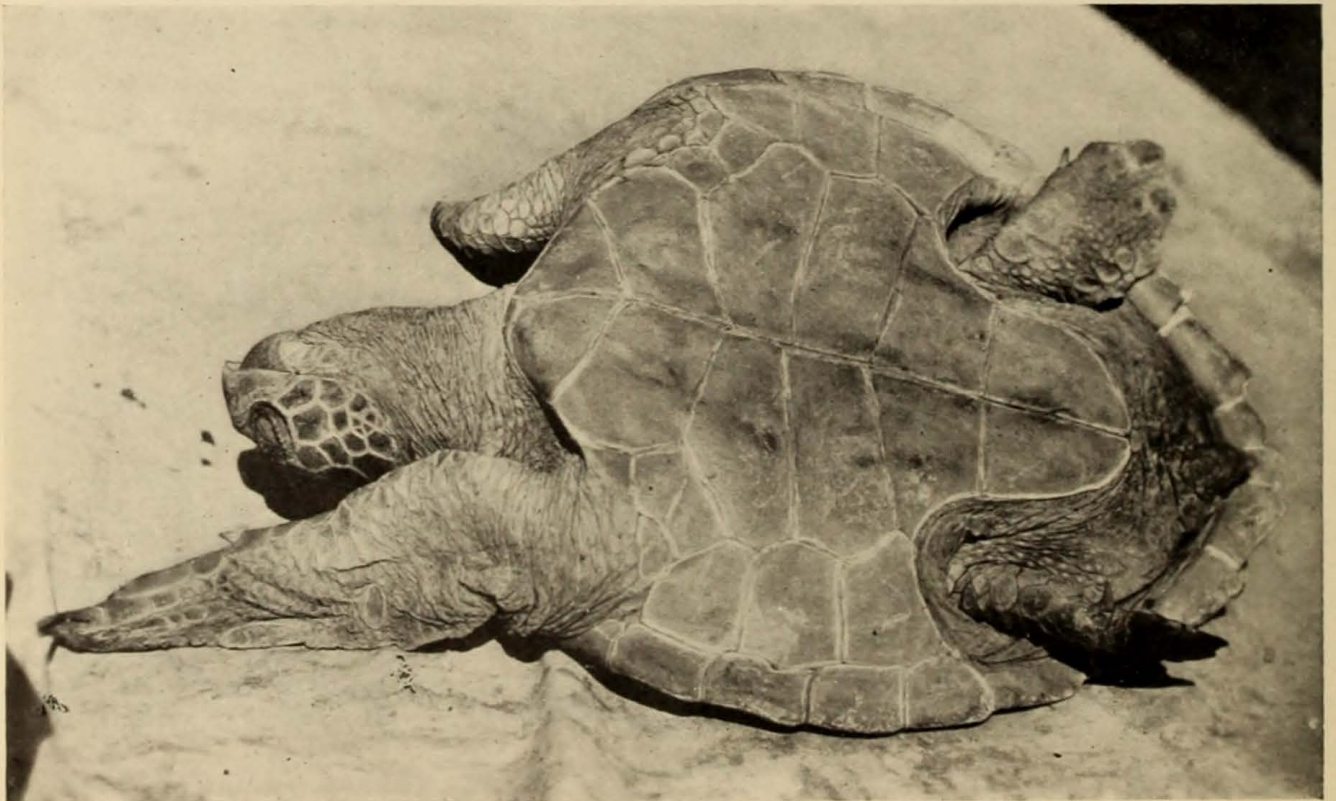


FIG. 25. LOGGERHEAD TURTLE; ON ITS BACK

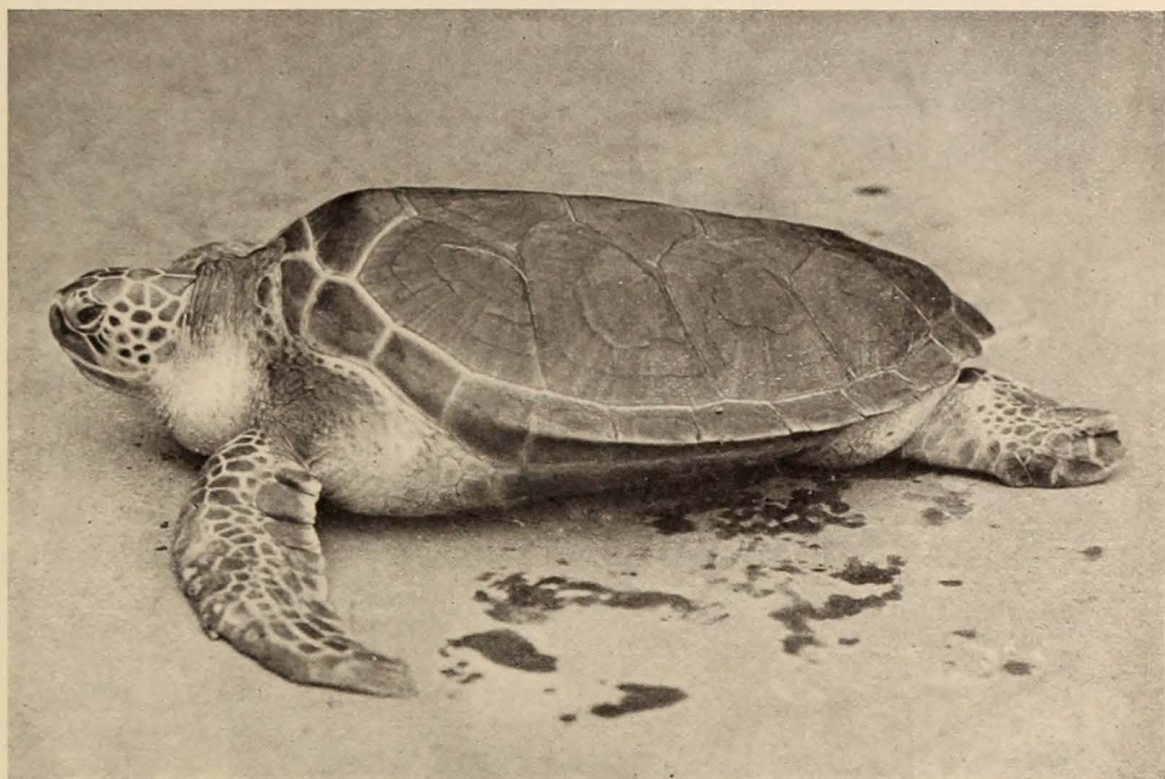


FIG. 26. GREEN TURTLE

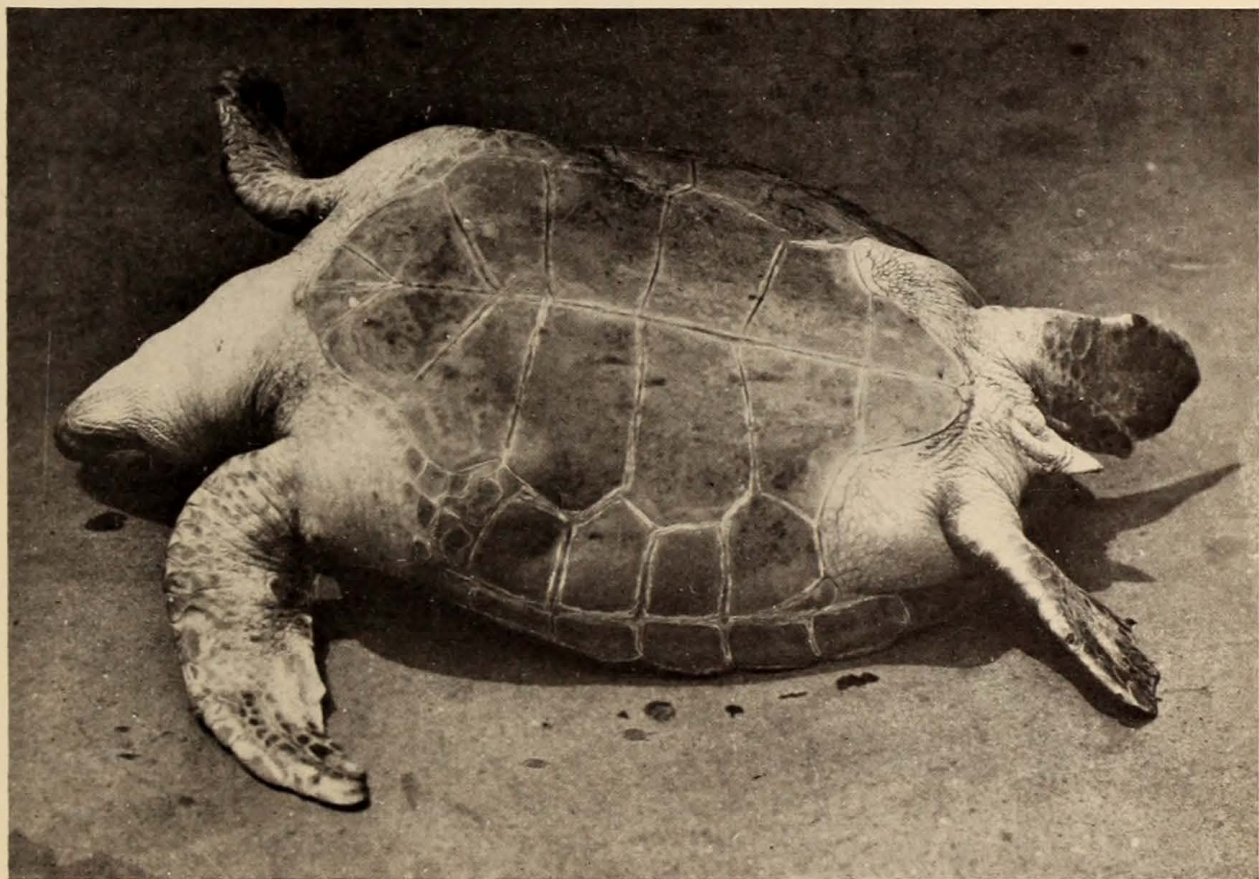


FIG. 27. GREEN TURTLE; ON ITS BACK

The Green Turtle, *Chelonia mydas* (Figs. 26, 27 and 28), is an attractive species, the coloration of the shell being a pale olive, marbled with yellow. The Green Turtle obtains its name from the distinctly green hue of its fat. Highly esteemed as an article of food, these turtles are commonly seen in the markets lying upon their backs, in which position they are helpless.¹ In tropical waters this species is alleged to attain a weight of a thousand pounds.

Green
Turtle.

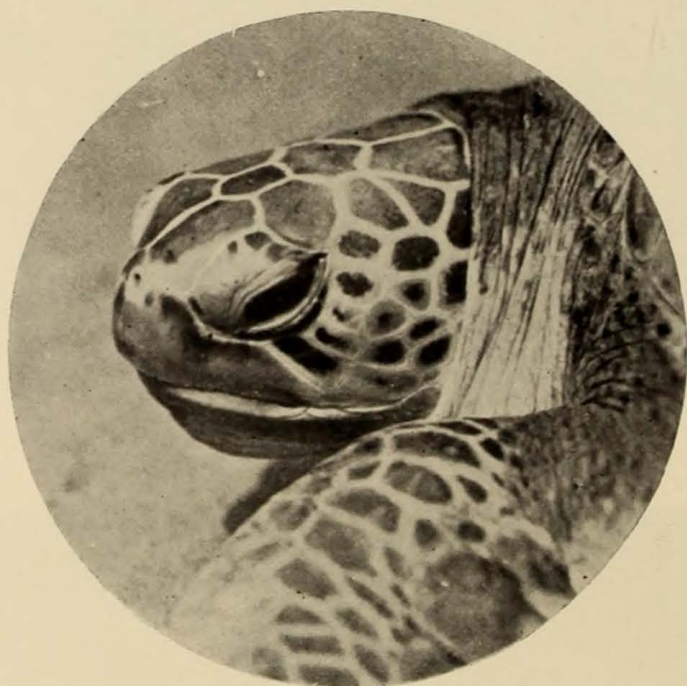


FIG. 28. GREEN TURTLE; HEAD

Range: Tropical and semi-tropical seas.

Local distribution: An accidental visitor off our northern seacoasts.

The Snapping Turtle, *Chelydra serpentina* (Figs. 29 and 30), represents the largest species of our local turtles, excepting the three already described. Its rough carapace of somber brown, with its keels and serrations, and the proportionately huge, sinister head combine to make this creature unique among our turtles. The tail is long and possesses a series of plates which form an alligator-like crest; the carapace is deeply serrated posteriorly. In proportion to

Snapping
Turtle.

¹ The majority of the fresh-water turtles, however, when so placed, can readily roll over through the combined assistance of the head and limbs.

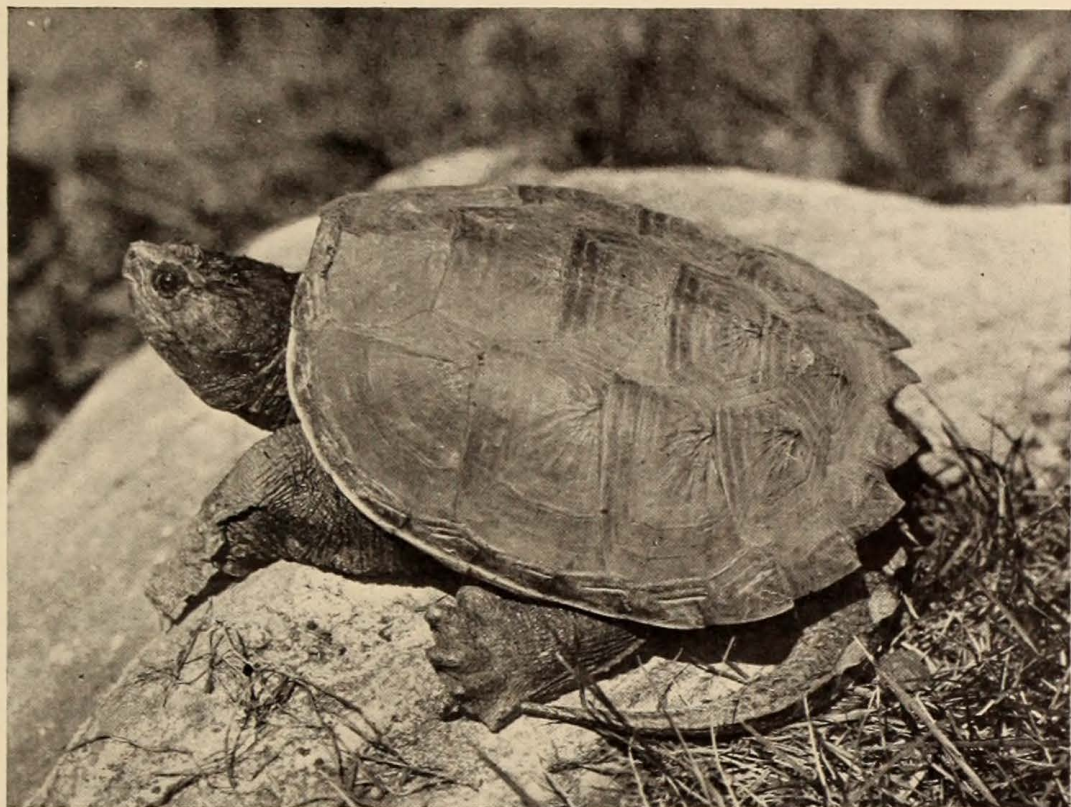


FIG. 29. SNAPPING TURTLE

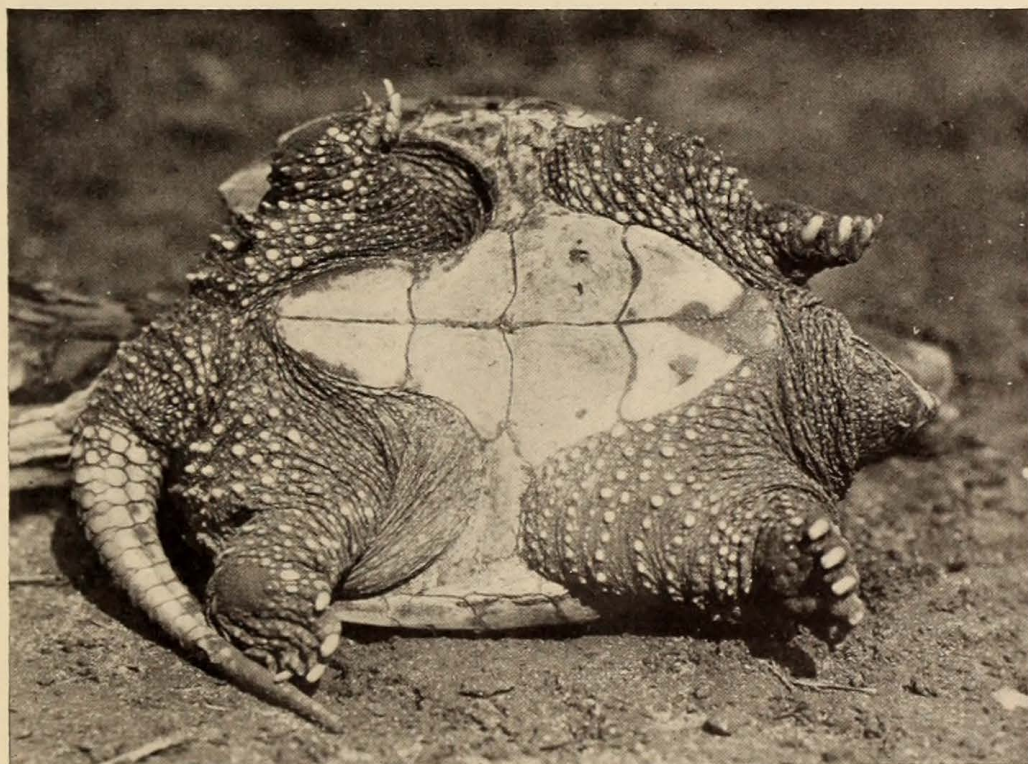


FIG. 30. SNAPPING TURTLE ; ON ITS BACK

the reptile's size the plastron is very small and provides little or no protection for the limbs in time of danger. In color the Snapping Turtle is dark brown, with no markings. Adult specimens attain a length of two feet and a weight of from thirty-five to forty pounds. The carapace of old specimens is often covered with moss.

Slow-running muddy streams and large ponds are the lurking places of these reptiles, which are exceedingly voracious. Lying partly hidden in the mud, they await the approach of fish or even young water fowl. Possessed of a pugnacious disposition, a large specimen might well be rated as dangerous. The hooked jaws are capable of inflicting deep wounds, and are, moreover, employed with energy when the reptile is annoyed. When of medium size, the species is said to be edible. The eggs are deposited in June, to the number of from two to four dozen; they are perfectly spherical and possess a hard shell.

Range: Canada and the United States east of the Rocky Mountains; southward to Ecuador.

Local distribution: General and abundant.

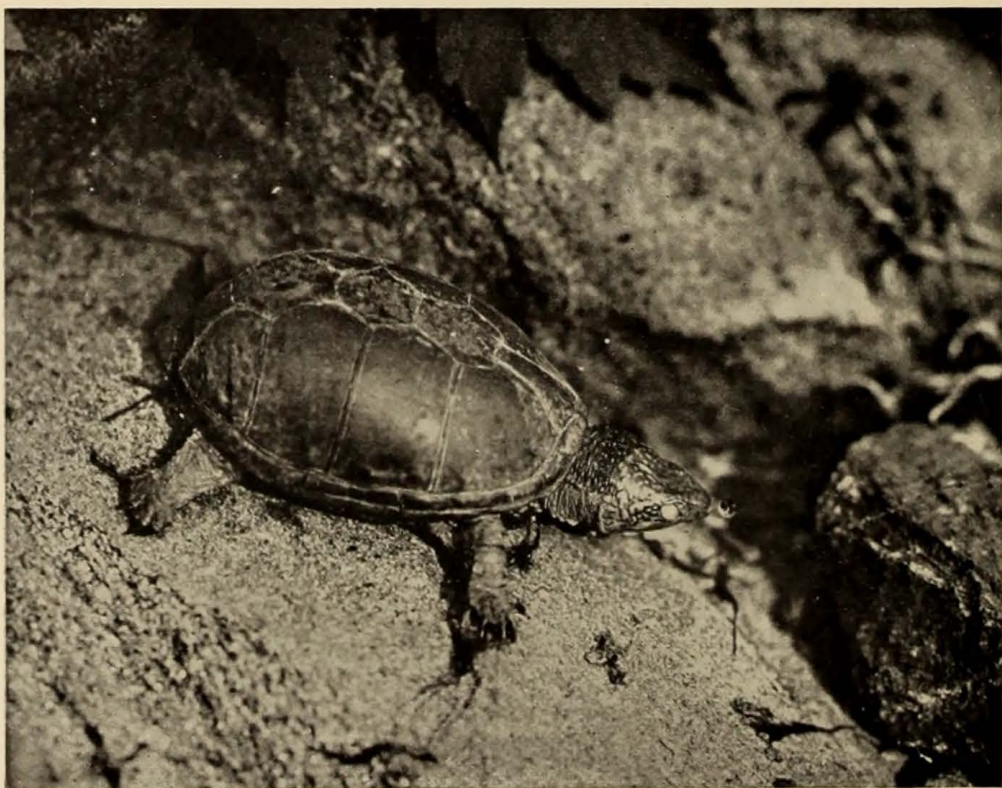


FIG. 31. MUD TURTLE

The Mud Turtle, *Kinosternon pennsylvanicum* (Figs. 31 and 32), is often confounded with the Musk Turtle (*Aromochelys odoratus*), which it resembles in shape and size. The principal differences between the two species are in the markings of the head and the width of the plastron.

Mud
Turtle.

The head of the Musk Turtle shows on each side two distinct, yellowish stripes, beginning at the tip of the snout and running to the neck, and the plastron is very narrow and is much shorter than the carapace, affording little protection. The Mud Turtle, on the other hand, shows no stripes upon the head and neck; the head is irregularly speckled with green or yellow; the plastron is wide, is but a trifle shorter than the carapace, and can be closed to afford substantial protection. The average length of the Mud Turtle in this vicinity is about three and one-half inches when adult. It is not as common as the Musk Turtle.

Range: The eastern United States from New York to the Gulf of Mexico.

Local distribution: General in slow-running, muddy streams and ponds.

The Musk Turtle, *Aromochelys odoratus* (Figs. 33, 34 and 35), may be distinguished from the Mud Turtle, which it closely resembles, by the points given under the preceding caption.

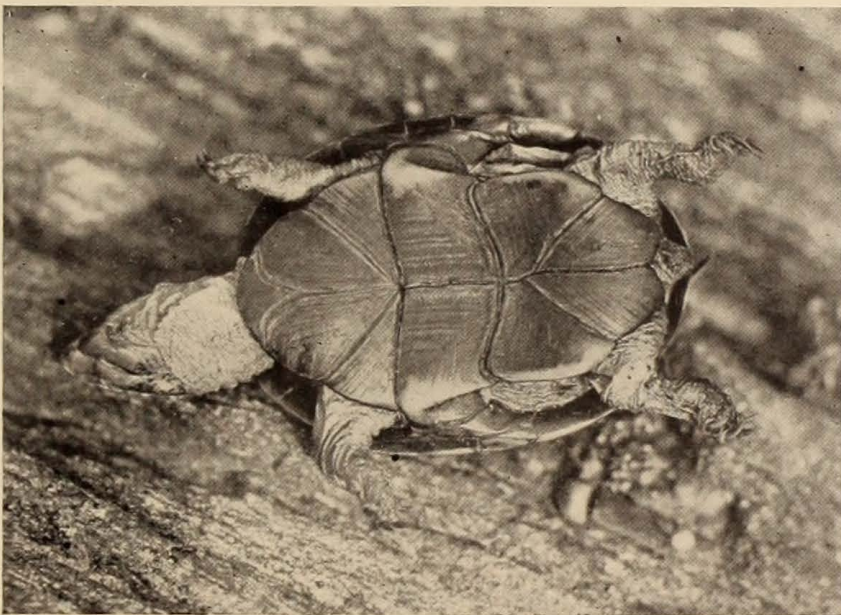


FIG. 32. MUD TURTLE ; ON ITS BACK

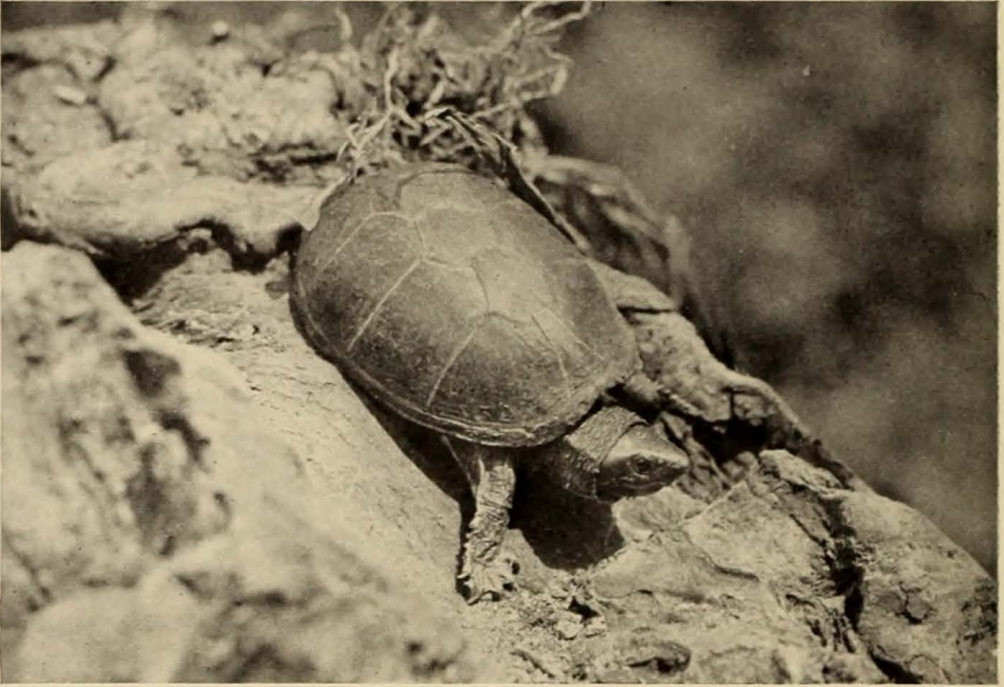


FIG. 33. MUSK TURTLE

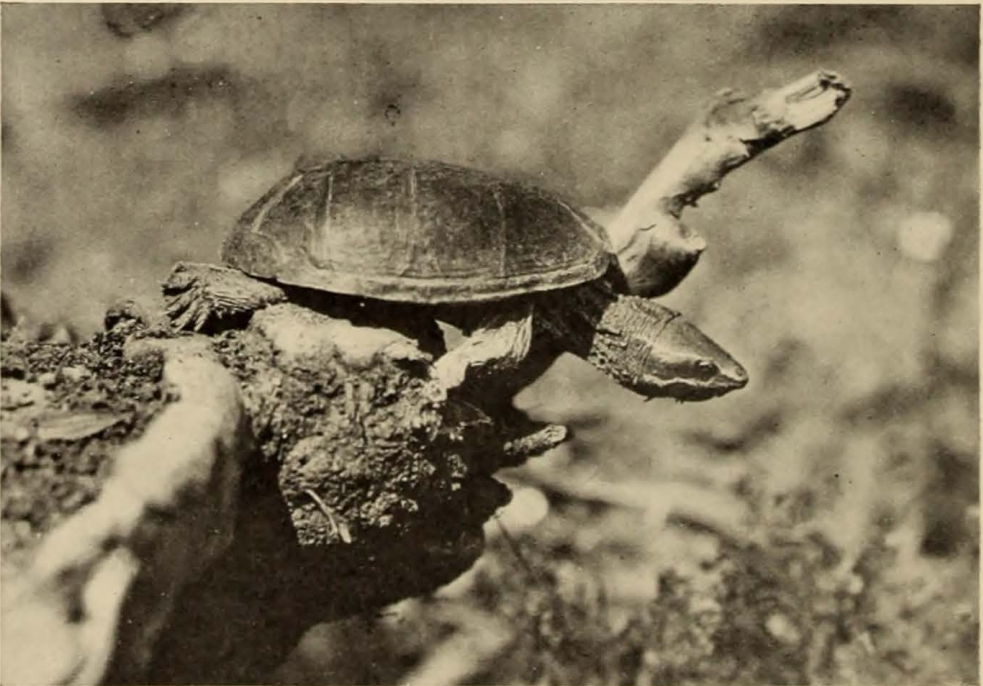


FIG. 34. MUSK TURTLE

In some localities the Musk Turtle is very common, particularly in slow-running rivers with soft, muddy beds. When annoyed, it gives off a musky odor which is strong enough to be offensive. The carapace of an old specimen is usually so overgrown with moss as to be seen with difficulty when the animal is lying in the mud in shallow water, as is its habit. This species is frequently hooked in freshwater fishing. In many ways the species resembles, in miniature, the Snapping Turtle. From three to four inches is the maximum size.

Musk
Turtle.

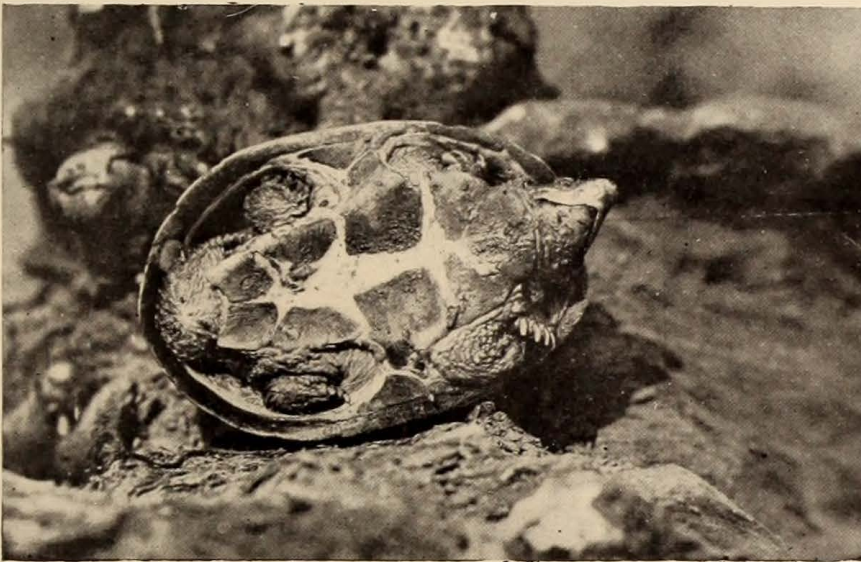


FIG. 35. MUSK TURTLE; ON ITS BACK

Range: Eastern North America from Canada to the Gulf of Mexico.

Local distribution: General in slow-running streams and ponds. Occurs within the limits of New York City, and is very common in the Bronx River.

None among our turtles is better known, although possibly only by name, than the Diamond-back Turtle, or Terrapin, *Malacoclemmys palustris* (Figs. 36 and 37). The shields of the carapace rise from the surface of the shell in a series of rough, concentric rings; the row of shields down the back shows a broken keel which rises rather sharply in the center of each plate: this condition is especially

Diamond-
back
Terrapin.

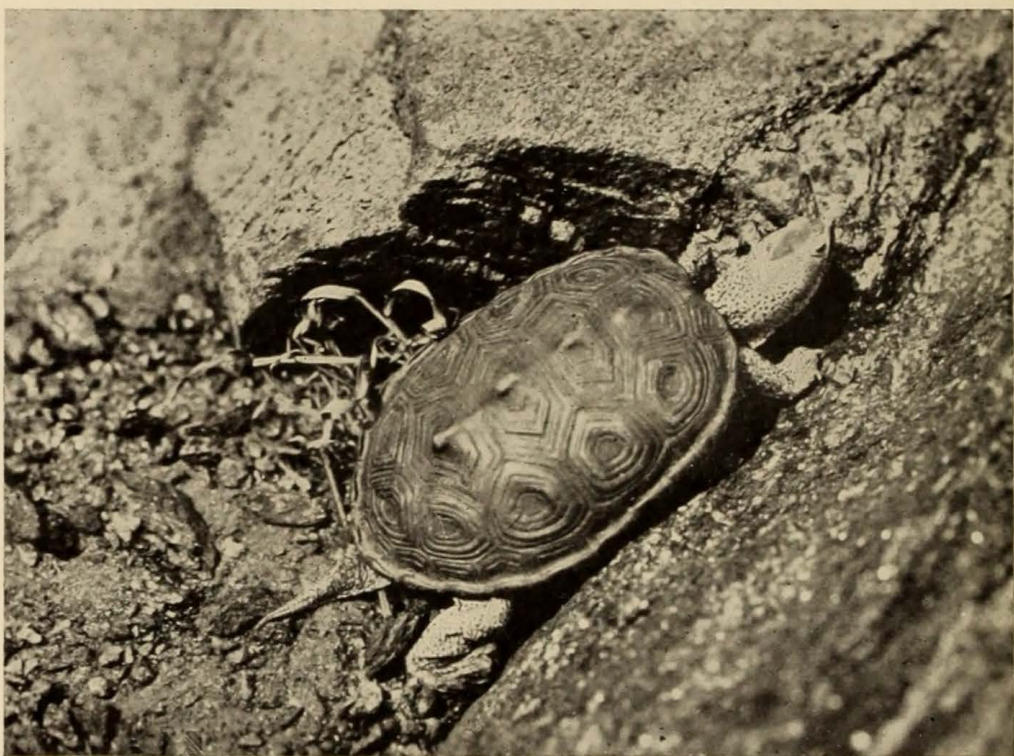


FIG. 36. DIAMOND-BACK TURTLE (TERRAPIN)

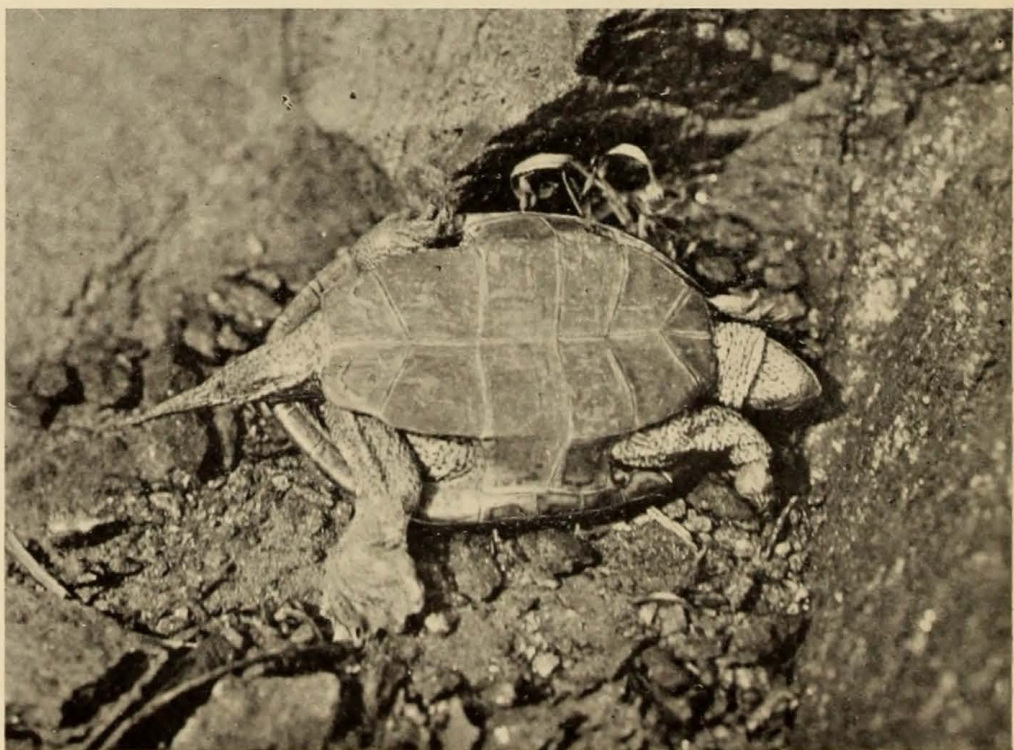


FIG. 37. DIAMOND-BACK TURTLE; ON ITS BACK

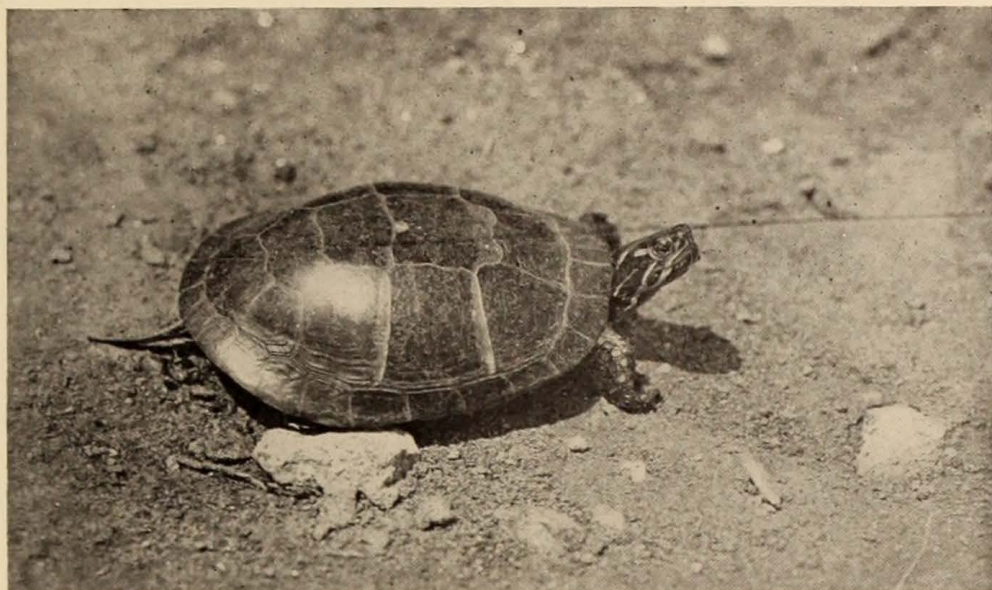


FIG. 38. PAINTED TURTLE

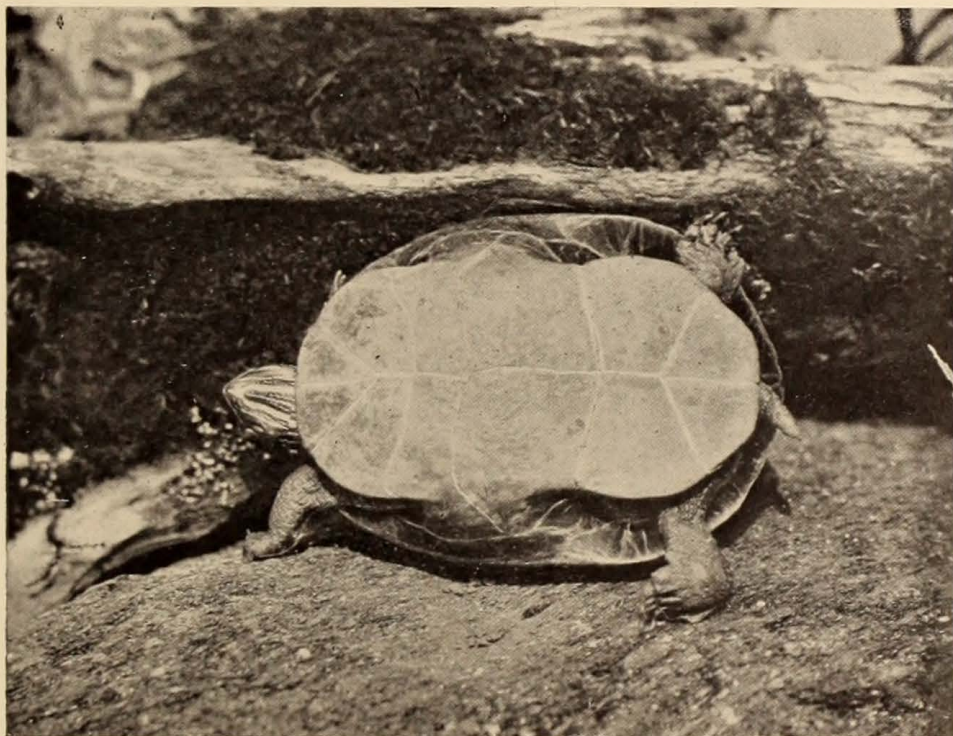


FIG. 39. PAINTED TURTLE; ON ITS BACK

prominent in young specimens and decreases with age and consequent wear of the shell. The color of the carapace is uniform green or olive, although the edges of the plates are sometimes of a slightly different shade. The general color of the limbs, head, neck and tail is pale gray, profusely spotted with black; the plastron is yellow, lined and spotted with gray.

The Diamond-back is the familiar market terrapin, and at certain times of the year sells as high as \$70 per dozen. It is becoming rare in the north. Large specimens will measure ten inches in length. This is the only species of local turtle (with the exception of the Sea Turtles) that frequents salt water.

Range: The Atlantic coast from New York to Florida.

Local distribution: Salt marshes in the vicinity of Long Island Sound, Staten Island and New Jersey.

The Painted Turtle, *Chrysemys picta* (Figs. 38 and 39), is one of the most common of the local species and is easily recognized.

Painted Turtle. The general color above is dark olive or black, with the margins of the shields of a paler shade. The margin of the under side of the carapace is black, with bright red markings; the plastron is yellow. Limbs, tail and neck, black, lined with red; head, lined with yellow. The shell of this species is flat and smooth; about five inches is the normal length.

Abundant in the vicinity of ponds, streams and marshes, these turtles may be often seen on floating logs or the like, from which they plunge quickly if alarmed. The food consists principally of small fishes and insects. Captive specimens thrive on raw chopped meat or fish.

Range: North America from New Brunswick to Georgia.

Local distribution: General and abundant.

Muhlenberg's Turtle, *Chelopus muhlenbergii* (Figs. 40 and 41), which somewhat resembles the Spotted Turtle (*Chelopus guttatus*),

Muhlenberg's Turtle. may be easily distinguished from the latter species by the brilliant orange spot on each side of the head. The carapace is dark brown or black, sometimes marbled with light brown; the shields often show lighter margins. The shell is black beneath, blotched with yellow. The spot on each side of the head is quite characteristic. It is

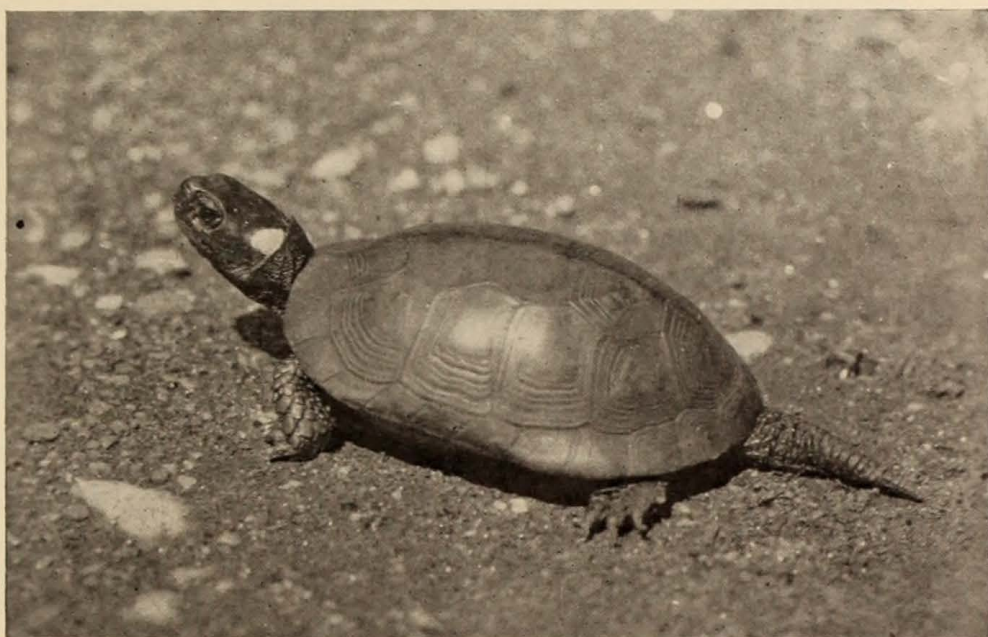


FIG. 40. MUHLENBERG'S TURTLE

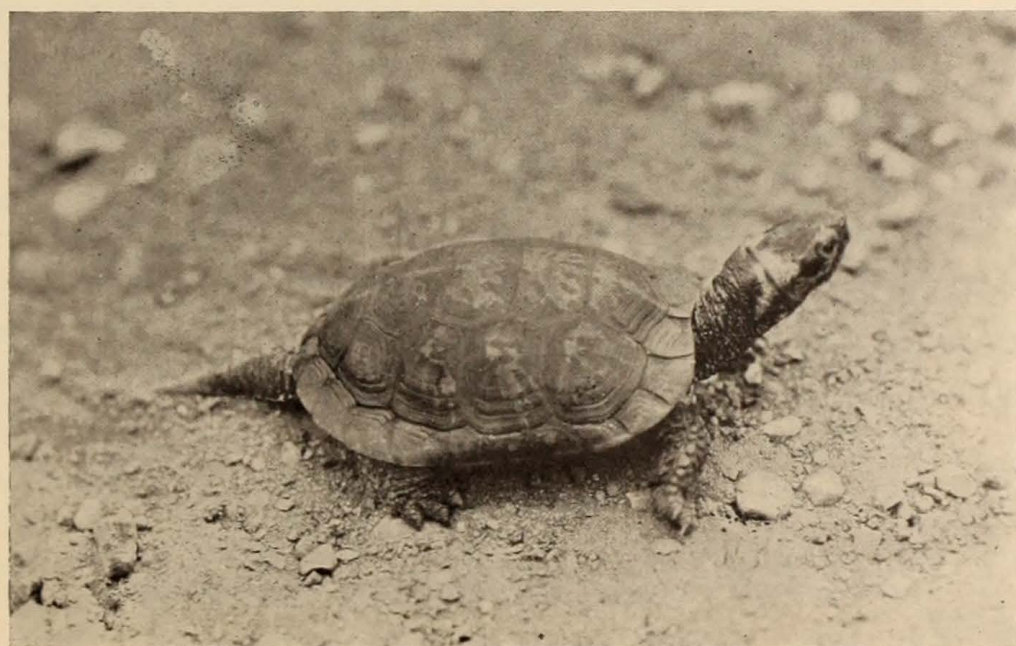


FIG. 41. MUHLENBERG'S TURTLE

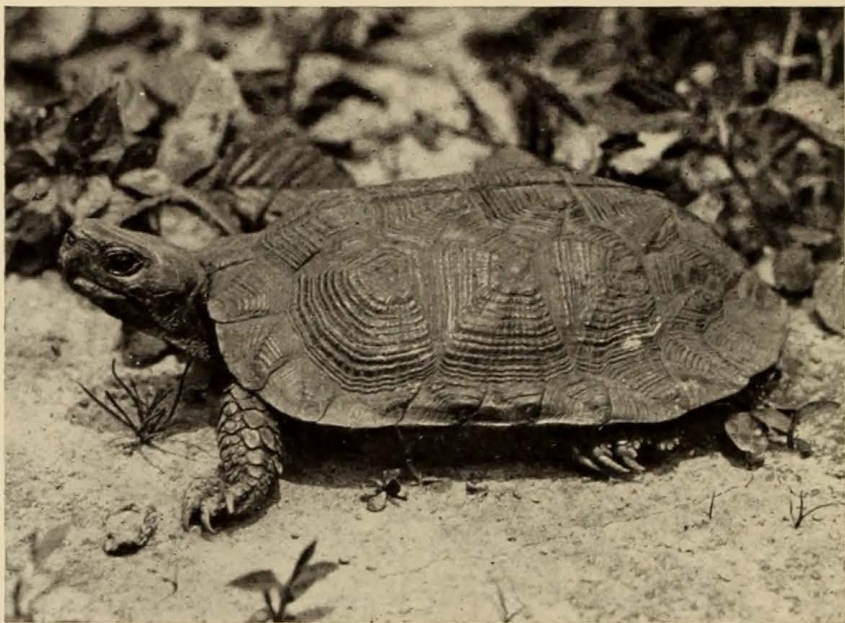


FIG. 42. WOOD TURTLE

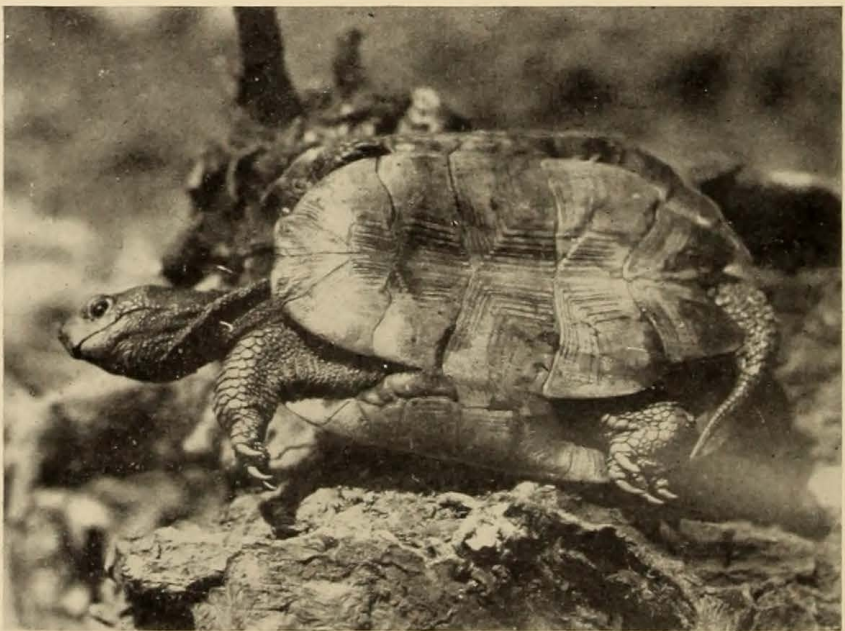


FIG. 43. WOOD TURTLE ; ON ITS BACK

situated a little behind the eye and slightly above the region of the ear. The species is very rare in this vicinity. An adult specimen will measure four inches in length.

Range: Southern New York, New Jersey and eastern Pennsylvania.

Local distribution: Recorded from Staten Island and the Palisades of the Hudson River. Frequents shallow streams and swamps.

The Wood Turtle, *Chelopus insculptus* (Figs. 42 and 43), sometimes called the Wood Tortoise, is a species quite terrestrial in habits. The general aspect of the carapace is rough, the plates being raised in concentric rings, and there is a distinct keel down the back. The color is brownish above, irregularly and rather indistinctly marked with yellow or light brown; the plastron is reddish yellow with a blotch of black on each plate; limbs, neck and fleshy parts tinged with salmon red. The head is uniform brown.

Wood
Turtle.

Although never found far from the vicinity of water, this species is not a water turtle, but prefers to roam about on swampy ground. In habits it resembles the Box Tortoise (*Cistudo carolina*), feeding largely upon vegetable matter. The Wood Turtle attains fairly large dimensions, the length of an adult specimen being eight inches.

Range: The northeastern United States.

Local distribution: General in swampy districts, but not common.

The Spotted Turtle, *Chelopus guttatus* (Fig. 44), rivals the Painted Turtle in being the most common of the local chelonians. The shell is smooth and black above with numerous round, yellow spots which vary in number on different individuals. The plastron is yellow, blotched with black. The average length of an adult specimen is four inches.

Spotted
Turtle.

Range: Maine to South Carolina; westward to Ohio.

Local distribution: General and abundant.

The Box Tortoise, *Cistudo carolina* (Figs. 45, 46 and 47), is a strictly terrestrial species. The plastron is provided with a remarkable, practical double hinge, which is employed for pro-

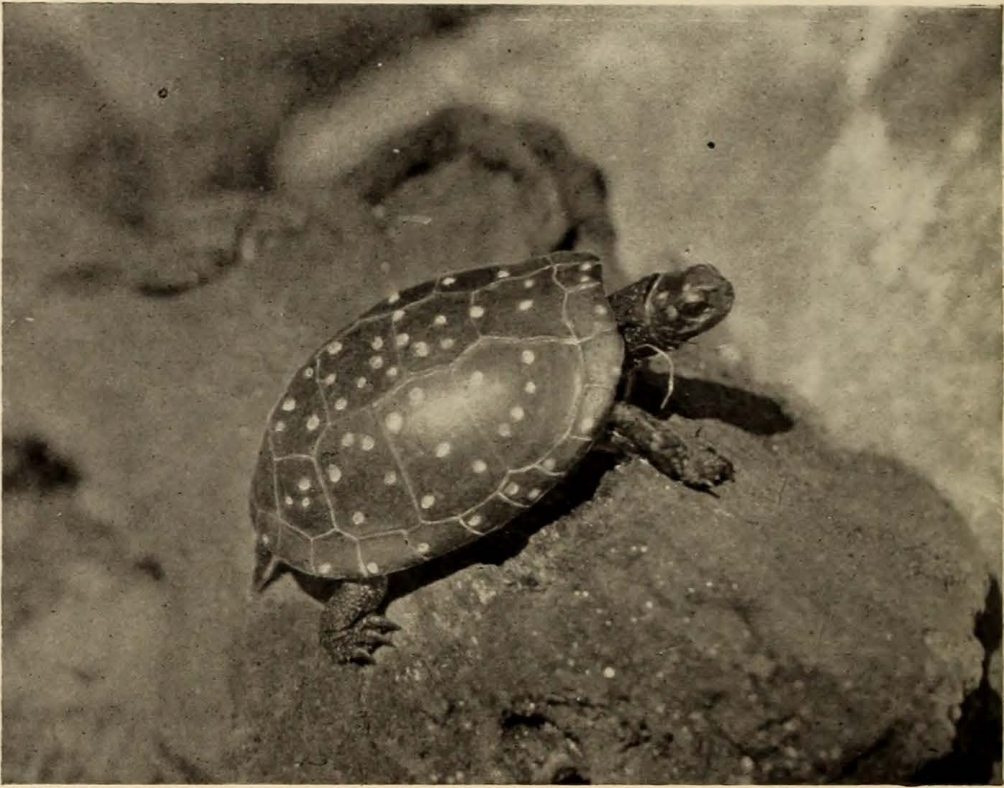


FIG. 44. SPOTTED TURTLE

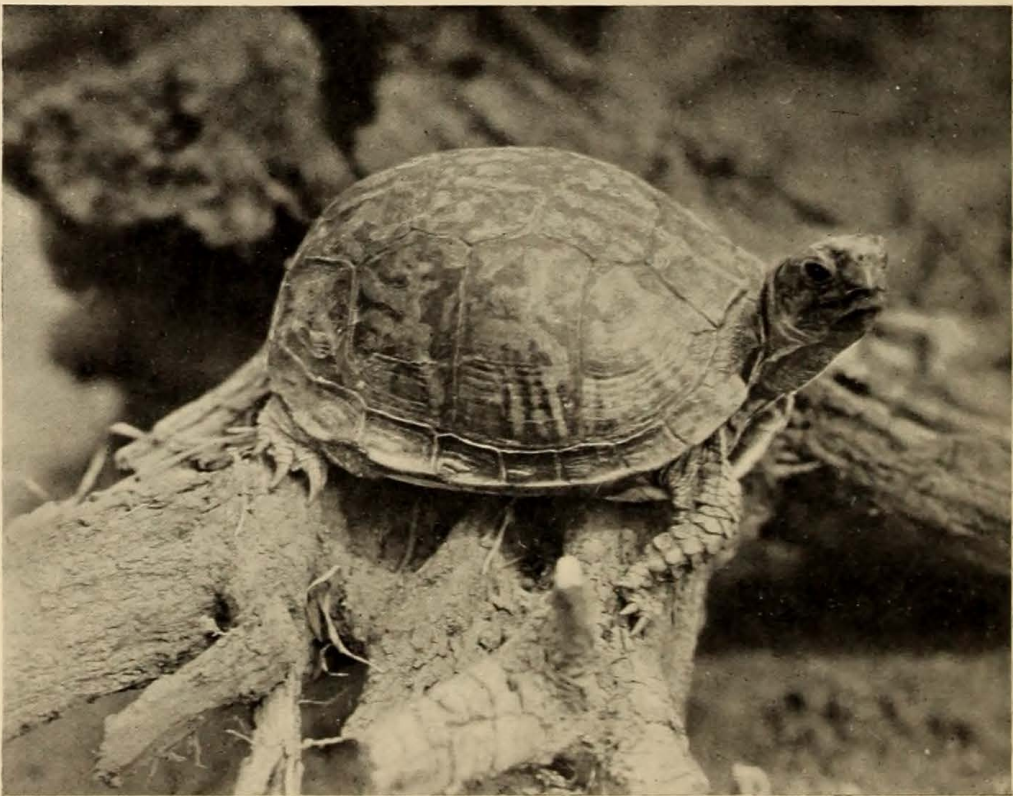


FIG. 45. BOX TORTOISE

tection in time of danger. When the reptile is annoyed, the front and rear sections of the plastron are pulled upwards towards the carapace, and so closely do the two shells come together that it is difficult to insert even a fine wisp of straw at any point between them.

Box
Tortoise.

The Box Tortoise lives to great age, as is shown by the fact that specimens have been found upon the shells of which were names and dates that had been carved there sixty and seventy years before. Such tortoises were found near the fields in which

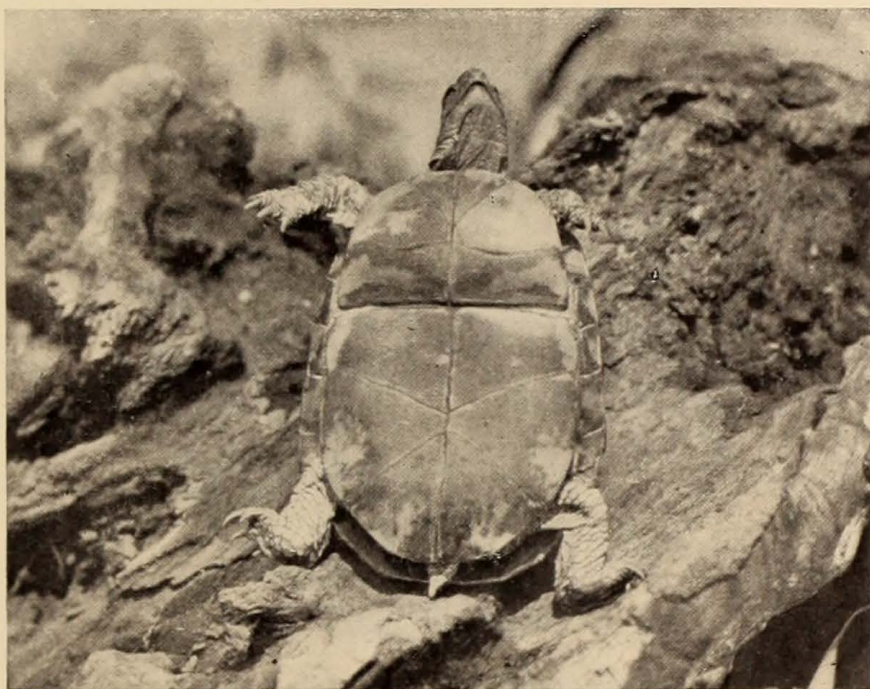


FIG. 46. BOX TORTOISE ; ON ITS BACK

they lived when marked, hence the probability is that the animal is not a great traveler. During very dry seasons the Box Tortoise has been known to abandon the surface of the ground and burrow deeply into moist earth or mud.

Extremely variable in coloration, although the general colors are brown or black, irregularly marked with yellow, the species is more readily recognized by its form. The carapace is arched and high; the limbs are club-shaped and fitted for a terrestrial existence. Male specimens may be recognized by a distinct concave area on the rear section of the plastron and by their

red eyes. The Box Tortoise is largely herbivorous. It is very fond of berries. The length of an adult specimen is about six inches.

Range: The eastern United States.

Local distribution: General and common.

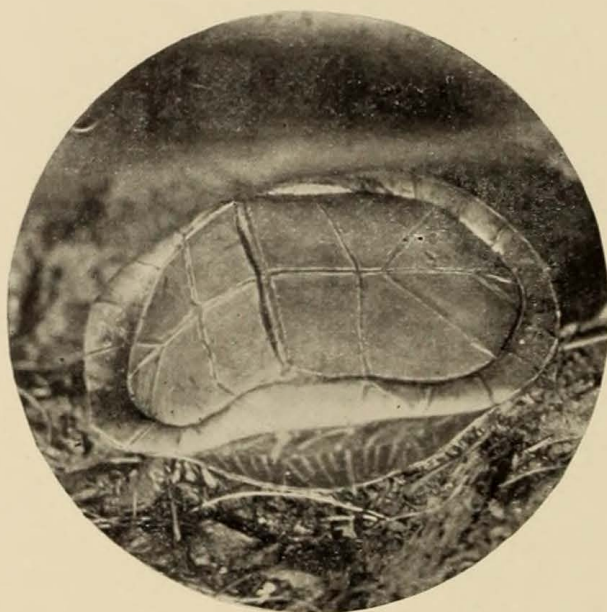


FIG. 47. BOX TORTOISE WITH CLOSED PLASTRON

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