

UCBB/9.11/1
C.2

COLORADO STATE PUBLICATIONS LIBRARY



3 1799 00138 4155

UNIVERSITY OF COLORADO MUSEUM
Boulder, Colorado

Leaflet No. 1

February, 1939

GUIDE TO THE SNAKES OF COLORADO

W. Harry Jones-Burdick, B.A.

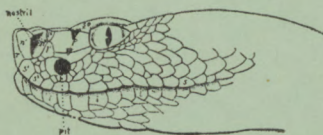


Fig. 1. Head of Rattlesnake showing the facial pit of Crotalidae (Poisonous)

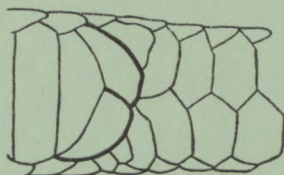


Fig. 4. Illustrating a divided anal plate

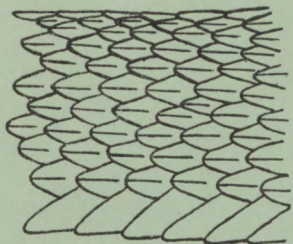


Fig. 2. Showing keeled scales

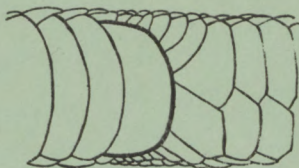


Fig. 5. Illustrating an undivided anal plate

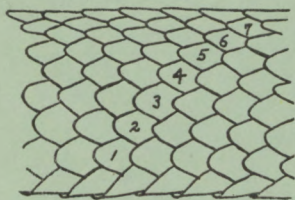


Fig. 3. Showing smooth scales and the method of counting scale rows

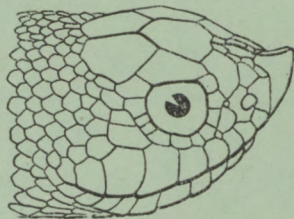


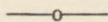
Fig. 6. Head of Hognosed Snake (Harmless)

ACKNOWLEDGEMENT

For the use of Figures 2, 3, 4, 5, and 6 we are indebted to the University of Michigan Press and Dr. Frieda Cobb Blanchard; and for Figure 1, to Dr. Leonard Stejneger as well.

GUIDE TO THE SNAKES OF COLORADO

W. Harry Jones-Burdick, B.A.



The value and usefulness of this guide depend upon its careful and intelligent use. By following a few simple rules, all snakes now known to be in Colorado can be identified with this key.

Never attempt to identify a specimen from memory; always have the specimen before you and carefully check each character as you come to it in the key. Always start at the beginning of the key; never omit a step in the procedure. Each choice in the key has an alternative and the pairs are numbered. All known Colorado snakes will fit in one alternative or the other of the first pair. Decide which alternative fits the specimen at hand, then proceed to the key number indicated at the end of that line. Choose an alternative from this pair and proceed to the next number. Repeat this until your selection is followed by the name of a snake. Check your identification with the description given under the name of the snake in the following section of this guide.

Some snakes will undoubtedly be found which do not seem to fit in the key or in the descriptions. These may possibly represent species which have never before been recorded from Colorado. There will be others which require very careful identification. These are indicated by an asterisk (*) opposite their name in the descriptions. They should be sent for identification to the Museum, which will pay the shipping charges for the privilege of adding to its collections.

Specimens of reptiles are best shipped alive, and the Museum prefers them that way. To send specimens, place them in a tightly tied, stout cloth bag and enclose in a wooden box. Mark plainly on the outside of the box just what kind of a snake you think it is. Ship by express collect; NOT parcel post.

In case the specimen has been killed, it may be preserved in a 5 per cent solution of formalin, obtainable from any druggist at low cost. For shipment, the excess fluid should be poured off, and the snake wrapped in a cloth wet with the solution and enclosed in a moisture-proof container. Specimens preserved in fluid should be opened along the under side by three or four cuts to allow the penetration of the liquid.

Key to the Snakes of Colorado

1. No pit between eye and nostril; no rattle on end of tail (Colubridae) ----- 2
 Deep pit between eye and nostril (Fig. 1); tail ending in a rattle or horny button (Crotalidae, Rattlesnakes)----- 24
2. Scales on the back with a ridge down their center, keeled (Fig. 2) ----- 3
 All scales on back and tail smooth, not keeled (Fig. 3)-- 12
3. Anal plate divided (Fig. 4)----- 4
 Anal plate not divided (Fig. 5)----- 6
4. Plate on end of nose (rostral) turned up in front, ridged above, (Fig. 6) ----- **Western Hognosed Snake**
 Rostral not turned up, not ridged above----- 5
5. Single stripe on back, four scales wide; no stripes on sides ----- **DeKay's Snake**
 Pattern on back composed of a series of cross-bands ----- **Water Snake**
6. Pattern composed of a middle and two side stripes (Garter Snakes) ----- 8
 Back pattern composed of a series of blotches (Bull Snakes) ----- 7
7. Rostral (nose) plate prominent, very narrow above, separates plates between nostrils for two-thirds or more of their length ----- **Common Bull Snake**
 Rostral extending but little beyond surface of snout, bluntly triangular, does not separate plates between nostrils ----- **Arizona Bull Snake**
8. Tail* more than one-fourth of the total length; side stripes greenish-white or yellow, middle stripe orange yellow or reddish----- **Western Ribbon Snake**
 Tail one-fourth or less of total length; side stripes approximately the same color as the middle stripe----- 9
9. Middle stripe much invaded, sometimes broken, by two rows of small black spots; abdomen usually mottled or dotted centrally with black----- **Gray Garter Snake**
 Middle stripe clear-cut, entire; abdomen unmarked centrally ----- 10

*The tail is the part of the snake behind the anal plate.

10. Side stripes on second and third rows of scales (see Fig. 3); ground color interrupted by a series of brick-red bars at the sides ----- **Red-barred Garter Snake**
 Side stripes on third and fourth rows of scales; upper lip scales margined with black ----- 11
11. Middle stripe rich yellow or orange; ground color dark with two rows of large black spots usually involving one or more whole scales, in a checker-board pattern ----- **Western Garter Snake**
 Middle stripe yellowish or greenish-white; ground color grayish-brown or yellow brown with small black spots not producing an obvious checkerboard pattern and never involving whole scales ----- **Arizona Garter Snake**
12. Anal plate divided (Fig. 4) ----- 13
 Anal plate not divided (Fig. 5); pattern on back a series of alternating bands—red bordered with black separated by yellow, the black forming rings which encircle the body ----- **Ringed King Snake**
13. Pupil of eye a vertical slit, cat-like (Fig. 1); back pattern a series of small blotches ----- **Rock Snake**
 Pupil of eye round; pattern, if present, not blotched (except in very young racers, Coluber and Masticophis) ----- 14
14. Color above uniformly amber to brownish yellow; top of head black ----- **Black-headed Snake**
 Color above not uniformly amber; top of head not a distinctly different color from body ----- 15
15. Nostril in center of single plate ----- 16
 Nostril between two plates ----- 18
16. Color above brilliant grass green; abdomen plain yellowish-white ----- **Smooth Green Snake**
 Color above not green; abdomen crossed by numerous black bands, or unmarked ----- 17
17. Pattern of black rings which toward tail completely encircle the body, including tail; color between bands milk-white, pink, or yellow ----- **Ringed Ground Snake**
 Pattern of black bands which do not encircle body but do encircle the tail; color between bands red or orange ----- **Banded Ground Snake**

18. Black spots on upper and lower jaws, on a light background; sometimes a yellow ring, which may or may not be complete, around the neck.....**Sonoran Ring-necked Snake**
 Jaws never spotted; neck never ringed..... 19
19. Scales in 15 rows on body just in front of tail (see Fig. 3) 20
 Scales in 13 or 11 rows just in front of tail..... 21
20. Color above blue-gray, blue, or olive green; upper lip plates 7 on a side.....**Blue or Green Racer**
 Color above usually dark green or blue-gray; upper lip plates usually 8 on a side.....**Salt Lake Racer**
21. Scales near middle of body in 15 rows.....
 -----**Western Striped Whip Snake**
 Scales near middle of body in 17 rows..... 22
22. Distinct short white stripe bordered by black just in front of the eye.....**Red Racer** (Whip Snake)
 No stripe in front of eye..... 23
23. Head and front part of body a uniform very dark brown fading toward a lighter color toward the tail..**Coach-whip Snake**
 Front part of body not darker than the back part..**Whip Snake**
24. Top of head with nine large plates; rattle comparatively small**Western Massasauga**
 Top of head with small scales, except plates over eyes.... 25
25. Outer border of plate over eye elongated to produce a horn-like projection**Sidewinder**
 Plate over eye not producing a horn..... 26
26. Pattern on back a series of diamonds; tail light with 3 to 6 black rings.....**Western Diamondback**
 Pattern on back a series of rounded blotches or absent; tail not light with black rings..... 27
27. Light stripe behind eye 1 or 1½ scales wide and outlined by a darker color; body blotches dark, usually with a narrow light border; body color dark or medium dark**Prairie Rattlesnake**
 Light stripe behind eye 2 or more scales wide or absent, or not clear; body blotches faintly present or absent; body color very light, appearing faded....**Midget Faded Rattlesnake**

Descriptions of Colorado Snakes

Family COLUBRIDAE

This family contains by far the greatest number of species of all the families of snakes. All Colorado species of this family are *totally harmless*. With few exceptions, all snakes will bite if annoyed or frightened. The bite of snakes belonging to this family, and that means *all* snakes in Colorado except the Rattlesnakes, is no more harmful than a scratch from a bramble bush. Many members of this family are true friends of the farmer, eating for the most part rats, mice, and other rodents. Others live exclusively on insects and insect larvae.

***Sonoran Ring-necked Snake**

Diadophis regalis regalis (Cope)

Adults 20-24 inches in length. Color above, brownish to bluish gray-black. Abdomen yellow or reddish dotted with black. Color of abdomen present on first row of scales. May or may not be trace of reddish or yellowish collar around neck. Scales in 17 rows. Eyes very small.

Southern Colorado near border. Found under bark, stones, and in similar places.

Feeds on insects, smaller snakes, lizards, etc.

Western Hognosed Snake

Heterodon nasicus (Baird and Girard)

Adults usually under two feet in length. Color above light yellowish-gray. Middle of back with a series of close-set brown spots, two smaller alternating series at each side. Two bands of rich brown behind eye from top of head to angle of jaw. Abdomen black, usually with yellow blotches. Scales in 23 rows. Nose plate large and sled-like.

Plains of Colorado east of Rockies.

Feeds on toads and lizards.

Smooth Green Snake

Liopeltis vernalis (Harlan)

Adults usually under 20 inches, average about 15 inches. Color above brilliant leaf or grass green. Abdomen pale yellow or greenish-white. Lips show color of abdomen. Scales in 15 rows. Nostril in center of a single plate.

Found generally among low underbrush and tall grasses in Colorado.

Feeds on insects, especially moth caterpillars.

Blue or Green Racer

Coluber constrictor flaviventris (Say)

Maximum adult length about 4½ feet, average 2 to 3 feet. Color above bluish-green or pale to dark olive. Abdomen pale yellow. Scales in 17 rows. Nostril between two plates. Upper lip plates 7 on a side.

Colorado generally east of Rockies. Found in dry open brushland, usually near streams or ponds.

Feeds on mice and other small rodents, rarely small birds. Valuable to farmers.

***Salt Lake Racer**

Coluber constrictor mormon (Baird and Girard)

Identical with Blue Racer except 8 upper lip plates on a side. Not yet recorded in Colorado but to be expected west of the Rockies.

***Coach-whip Snake**

Masticophis flagellum flagellum (Shaw)

Maximum length about 8 feet. Average between 4 and 5 feet. Form extremely slender. Color above, dark brown toward the head, head almost black, shading to light brown toward the tail. Abdomen white, light yellow, or slightly pink. Scales in 17, rarely 19, rows.

Presence in Colorado doubted by the writer. If present, found only in eastern and southern part of state.

Feeds on mice and other small rodents.

***Whip Snake**

Masticophis flagellum flavigularis (Hallowell)

Maximum length about 6 feet, average 3-4 feet. Color above, light yellow brown or brown, usually indistinctly banded with slightly darker color ten to fifteen scales in width. Abdomen light yellow or orange to dingy brown. Scales in 17 rows.

Range in Colorado from Pueblo east and south in brush and brush-cactus localities.

Feeds on mice, lizards, small snakes, birds, etc.

***Red Racer**

Masticophis flagellum frenatum (Stejneger)

Adult size average 3-4 feet, maximum about five and a half feet. Color above, decidedly reddish. Numerous narrow cross-bands of lighter which may become indistinct toward the head. Short, distinct white stripe just in front of eye. Abdomen light yellow much blotched toward the head. Scales in 17 rows.

Found in extreme southwestern corner of state—rare in Colorado.

Food habits like the Whip Snake.

***Western Striped Racer**

Masticophis taeniatus taeniatus (Hallowell)

Adult size average 3-5 feet. Color above dark brown to black with numerous narrow yellow lines on the sides. Chin and throat spotted with black. Abdomen yellow or cream to pink under tail. Scales in 15 rows. Head plates with light edges.

Found in Colorado west of the Rockies.

Food habits like Whip Snakes.

Common Bull Snake

Pituophis sayi sayi (Schlengel)

Size large, often reaching a length of 7-8 feet, average 4-6 feet. Body rather stout. Color above, rich orange or reddish-brown with a row of large square brown or black blotches on back, two rows of smaller, lighter blotches alternating at each side. Large blotches and small blotches often enclose a lighter ground area to form a chain-like pattern. Scales in 29-35 rows. Nose plate high triangular.

Found generally in Colorado east of the Rockies in practically all habitats. Never found in or near water.

Food almost exclusively rodents. Very beneficial to farmer.

***Arizona Bull Snake**

Pituophis sayi affinis (Hallowell)

Identical with the common Bull Snake except for the nose plate being **bluntly** triangular.

Found in Colorado west of the Rockies only.

Ringed King Snake

Lampropeltis triangulum gentilis (Baird and Girard)

Size range 1-3 feet. Color above, red bands bordered by black, narrow yellow rings separating black. Abdomen yellow mottled with black. Top of head black, snout usually red. Scales in 21 rows, smooth.

Ranges over all of Colorado, especially in foothills and low in the mountains.

Food includes lizards, other snakes, numerous small rodents. A very beneficial species.

Often confused with the poisonous Coral Snake which, however, is not found in Colorado. The Coral Snake is completely **ringed** with yellow, red, and black; the black rings being bordered by yellow. Snout black.

***Ringed Ground Snake**

Sonora occipitalis (Hallowell)

Length under 18 inches. Color above, milk white, pink or yellow with pattern of numerous black bands which encircle the tail. Ab-

domen white. In many cases complete rings may be formed by bands encircling the body. Scales in 15 rows, nostril in center of single plate. Nose very pointed, lower jaw undershot.

Ranges over southwestern Colorado. Record from Boulder doubtful. A desert species, probably nocturnal and burrowing during the day.

Feeds on soft-bodied insects.

***Banded Ground Snake**

Sonora semiannulata (Baird and Girard)

Maximum length about 12 inches. Color above, red, or deep orange with black cross bands. Abdomen white. Bands form rings on tail. Head usually black except snout. Nose blunt to pointed, jaw not extremely undershot.

Ranges over southern Colorado under stones, etc. A burrowing species.

Feeds on soft-bodied insects and larvae.

***Rock Snake**

Hypsiglena ochrorhynchus (Cope)

Length, 12-14 inches. Color above, gray, pale brown or yellow with a series of dark brown blotches on the back, two small alternating series on each side. Abdomen white. A dark band through each eye backward to neck. Pupil of eye slit-like—elliptical. Scales in 21 rows.

Southern Colorado among rocks. Probably nocturnal.

Feeds on lizards and other small animals.

Water Snake

Natrix sipedon sipedon (Linnaeus)

Length, average 2-3 feet, maximum about four feet. Color above, brownish or reddish with wavy dark brown bands broad over back, narrow at sides. Toward the tail bands break into blotches—a series down the back and a series to each side alternating. Abdomen brilliantly spotted with red and black.

Colorado east of the Rockies near ponds and streams.

Food consists of frogs, toads, and fish. **Not** poisonous.

This snake is often erroneously called "water moccasin" and thought to be poisonous. The true poisonous Moccasin, however, is not found in Colorado but may be distinguished from the Water Snakes by the presence of facial pits and a single, instead of a double row of scales under the tail.

***Dekay's Snake**

Storeria dekayi (Holbrook)

Length 12 inches or under. Color above, reddish or grayish brown with a streak of lighter color on the back, bordered by black

dots which form two black lines on tail. Abdomen pinkish or grayish white. Anal plate divided, scales in 17 rows.

Found generally over Colorado east of the Rockies under stones and fallen timber.

Feeds on earthworms, slugs, and insects.

The Garter Snakes

These are commonly called water snakes because of the eagerness with which they take to water at the slightest disturbance.

Five species are found in the state, usually near streams or ponds.

They feed on fish, frogs, earthworms, and other cold-blooded prey.

Western Garter Snake

Thamnophis radix (Baird and Girard)

Length up to three feet. Color above, dark brown, olive or black with a central and two side stripes of a clear-cut yellow or orange. Between middle and side stripes are two rows on each side of large, squarish spots in a checkerboard pattern. Abdomen colored a clean yellow or a greenish yellow.

Distributed over Colorado generally, east of the Rockies.

Red-barred Garter Snake

Thamnophis sirtalis parietalis (Say)

Length up to three feet. Color above, brownish to black with central and side stripes of light yellow or green. Ground color on sides interrupted by brick-red bars just above the side stripes. There is a distinct row of black to each side of the central stripe.

Found in Colorado north of Denver.

***Arizona Garter Snake**

Thamnophis megalops (Kennicott)

Length less than three feet. Color above, grayish brown with the central and side stripes of whitish yellow or greenish white. Abdomen greenish yellow, edges of plates dotted with black. Scales in 21 rows, 8 upper lip plates on a side.

Found in extreme southwestern part of state.

Gray Garter Snake

Thamnophis ordinoides vagrans (Baird and Girard)

Length up to three feet. Color above, greenish gray or darker with an interrupted or irregular central stripe and two indistinct stripes on the sides, all of a dirty yellow. Two rows of small black spots to each side of the central stripe. The two upper rows of spots sometimes fuse and break up or interrupt the central stripe. Abdomen usually mottled or dotted centrally with black.

Found throughout Colorado, especially in the mountains.

***Western Ribbon Snake**

Thamnophis sauritus proximus (Say)

An extremely slender snake up to three feet in length. Color above, greenish or dark brown with a central stripe of red or orange, side stripes pale greenish-white or yellow. Abdomen clean greenish-white. Tail about one-third of total length.

Found in southwestern Colorado.

Black-headed Snake

Tantilla nigriceps (Kennicott)

Size small, length under 18 inches. Color above, brownish yellow or yellow. Top of head black or very dark brown. Abdomen pink or red. Scales in 15 rows. Minute grooved poison fangs in back of upper jaw, but harmless to man.

Found in Colorado generally. A burrowing species, seldom found above ground.

Feeds on earthworms, slugs, and other soft-bodied animals.

Family CROTALIDAE

This family of poisonous snakes makes up the group commonly referred to as the Pit Vipers, so-called because of the presence of a facial pit between and below the eye and nostril. (See Fig. 1). The Pit Vipers are represented in the United States by the rattlesnakes, *Sistrurus* and *Crotalus*; and by the Copperhead and Water Moccasin, both *Agkistrodon*. Neither Copperhead nor Water Moccasin is found in Colorado. There are probably no more than two species of rattlesnakes found in Colorado—the Massasauga and the two subspecies of the Prairie Rattler. The other rattlesnakes given in the key and descriptions are included on the strength of doubtful records.

***Western Massasauga**

Sistrurus catenatus tergeminus (Say)

Length under three feet. Color above, yellowish with a series of rounded blotches down the back. Abdomen light straw yellow dotted irregularly with brown. Scales in 23 rows. Top of head with nine large plates.

Found in extreme southeastern part of state.

Feeds on mice, birds, toads, etc. Small but dangerous to man.

***Western Diamond-back Rattlesnake**

Crotalus cinereus (Le Conte)

Length average about four and a half feet, maximum about six feet. Color above, yellowish brown with a series of diamond-shaped blotches on back. Tail very light with black half-rings.

Only one record from the state, at Trinidad. Probably escaped from captivity.

Feeds exclusively on warm-blooded prey such as rodents and birds.

Prairie Rattlesnake

Crotalus viridis viridis (Rafinesque)

Maximum length not much over four feet in Colorado. Color above greenish yellow, yellow or grayish with a series of large, distinct rounded or oblong blotches down the back with a smaller and less distinct row to each side. Large blotches with a narrow light border.

Common in Colorado east of the Rockies and in extreme southwestern corner.

Food habits like Diamond-back.

***Midget Faded Rattlesnake**

Crotalus viridis concolor (Woodbury)

Length under 30 inches. Color above, straw, cream, or yellow with blotches only faintly defined or absent. Otherwise similar to Prairie Rattler.

Found in Mesa, Delta and Montrose counties.

Habits typical.

***Sidewinder**

Crotalus cerastes (Hallowell)

Length up to 30 inches. Color above, pale brown, yellow, or pinkish with a series of dull blotches separated by white spaces down the middle of back. Plate over eye lengthened to produce a "horn."

Included on a doubtful record; probably not found in state.

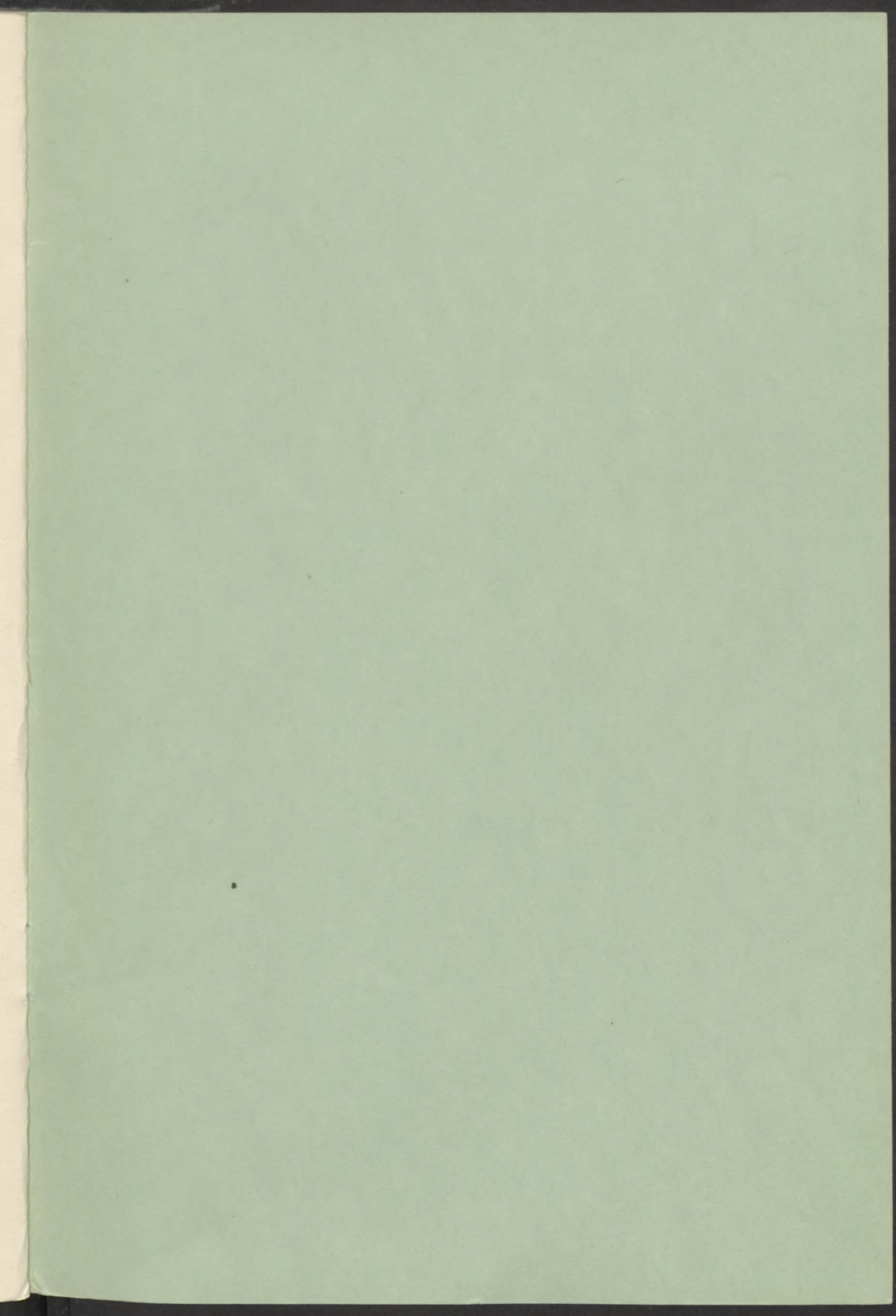
A desert species with a looping, side-winding way of moving when startled or annoyed. Food habits typical.

For further information concerning coloration, habits, etc., see "The Reptile Book" by R. L. Ditmars, in your local library.

Price 15c per copy
Eight copies, \$1.00
(Postage Extra)

Address:

Hugo G. Rodeck, Director
University of Colorado Museum
Boulder, Colorado



RECEIVED

SEP 21 2000

STATE PUBLICATIONS
Colorado State Library