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A NOTE ON THE GENERA COLUBER AND MASTI-
COPHIS, AND A DESCRIPTION OF A NEW
SPECIES OF MASTICOPHIS

BY ARTHUR I. ORTENBURGER

A study of the new world snakes, commonly called racers or whip snakes, has made it evident that the American species of the genus recently known as *Coluber* (L.) form two natural groups sufficiently distinct to be called genera, as will be shown in detail in a forthcoming monograph. *Masticophis* and *Coluber* are the names to be applied to these genera. Since the new form described in this paper must be included in the genus *Masticophis* it is advisable to point out the principal characters of the two genera, which involve differences in the dentition, in the method of reducing the scale rows, and in the structure of the penis.

Genus MASTICOPHIS

Diagnosis: Maxillary teeth solid, 16-23 in number, longer and stouter posteriorly, diastema present or absent; dentary

teeth in general longer anteriorly, scaphiodont, but occasionally the last few smaller, hence sometimes kumatodont; head distinct; cephalic plates normal; eye large, pupil round; scales smooth, in 17 or 15 rows, when 17, reduced to 13 or 12 by the loss of both lateral *and* dorsal scale rows, when 15, usually reduced to 12 or 11 by the same method, if reduced only to 13, fifth lateral row lost; anal plate divided; form elongate; tail very long; caudals in two series; penis bilobed, sulcus simple, spines 30-75, and in 2-5 longitudinal rows, calyces in 9-14 rows.

Genus COLUBER

Diagnosis: Maxillary teeth solid, 13-16 in number, increasing in size posteriorly, diastema usually present; dentary teeth strong and stout, subequal in general, longer anteriorly, but last few at each end of series smaller; head distinct; cephalic plates normal; eye large, pupil round; scales smooth, in 17 or 15 rows, when 17, always reduced to 15 by the loss of a lateral row on each side of the body, when 15, no reduction; anal plate divided; form elongate; caudals in two series; penis bilobed, sulcus simple, spines 90-135, and in 6-9 longitudinal rows, calyces in 6-8 rows.

AMERICAN SPECIES OF COLUBER AND MASTICOPHIS

Masticophis (B. & G.)	ruthveni Ortenburger
anthonyi (Stej.)	schotti B. & G.
aurigulus (Cope)	semilineatus (Cope)
barbouri (Van Denburgh)	taeniatus girardi (Stej. & Barb.)
flagellum flagellum (Shaw)	taeniatus taeniatus (Hallow.)
flagellum flavigularis (Hallow.)	
flagellum frenatus (Stej.)	Coluber (L.)
lateralis (Hallow.)	constrictor constrictor (L.)
lineatus (Bocourt)	constrictor flaviventris (Say)
mentovarius (Dumeril & Bibron)	constrictor mormon (B. & G.)
piceus (Cope)	oaxaca (Jan)

Masticophis ruthveni, new species

Diagnosis: Characters very similar to those of *Masticophis schotti* (B. & G.) from which it differs primarily in possessing no dark lateral stripes.

Range: Known only from Tamaulipas, Mexico, and extreme southeastern Texas.

Type Specimen: Cat. no. 57681, Museum of Zoology, University of Michigan. Brownsville, Texas.

Description of Type Specimen: Scales in 15 rows anteriorly, reduced to 13, then to 12, and finally on the posterior portion of the body to 11; reductions as follows: 15-13 by loss of fifth row on each side of the body between scutes 111-113; 13-12 by loss of dorsal row above scute 131; 12-11 by loss of dorsal row above scute 142. Ventrals 193, anal divided; caudals 138 pairs; supralabials 8, the fifth extending up behind the eye; infralabials 9; oculars 2-2; temporals, right, 2 + 3 + 4, left, 2 + 3 + 3; anterior chin shields in contact, shorter and wider than posterior, the latter separated by 4 small scales; loreal long and narrow; nasals 2, nearly equal in size, the nostrils between them; cephalic plates very similar to those of *M. schotti*.

Body slender and elongate, total length 168 cms.; tail length 52 cms.; proportionate tail length 0.310; sex male; head long and narrow, length 42 mm., width 19 mm., proportionate width 0.45.

The color and pattern are included in the general description of the form, which follows.

Remarks: This new species is very rare in collections, but it has been possible to study the coloration in a good series of

living specimens. In the following description the nomenclature is capitalized when it is that of Ridgway.

The general dorsal color is olive gray anteriorly, gradually changing to a reddish brown posteriorly. The actual variation in the series is from Olivaceous Black to Grayish Olive. The sides of the body vary from Deep Slate Olive to Grayish Olive. A distinct and very constant character of the species is the yellow anterior edges of the dorsal scales; this is very evident if the skin is slightly stretched (Pl. I). These yellow marks do not extend more than three or four scale rows from the mid-dorsal scale row.

The general color below is a bright yellow, anteriorly varying from light Chalcedony Yellow to Shaw Yellow. This yellow changes to a light Blue Gray on the middle third of the body; on the posterior third, to pinkish; and, finally, near the tail in most specimens to a bright true Old Rose—rarely to a Light Coral Red.

The throat below is dotted with dark orange; the belly has very numerous minute gray dots. There is a concentration of the gray dots on the ventral surface toward the lateral one-fifth or fourth of the scutes, making this portion of the scutes a general gray color. The tail is immaculate. On some few specimens there is also a light yellowish lateral stripe occupying the angle of the scutes and a small portion of row 1; the gray dotting may also break up so as to leave an undotted yellow stripe in a mid-ventral position on the scutes.

The sides of the neck may have one or more light cream stripes. In one specimen, not fully grown, (M. C. Z. 13951) a light lateral stripe is present and continues the length of the body. Another specimen (U. S. N. M. 1974), very young,

shows this light lateral stripe also, and except for the fact that the typical yellow marks on the dorsal scales are lacking it is quite similar to *schotti*. A few specimens after some years' preservation in alcohol show faint lateral stripes anteriorly in positions comparable to those of *schotti* and other species of the *taeniatus* group; none show evidence of the distinct dark stripes found in *schotti*.

The lateral scales, from a point just posterior to the angle of the mouth to about scute 10, are blotched with brilliant Brazil Red. The top of the head is Dark Grayish Olive to Grayish Olive; labials and chin shields pearl white to Chalcodony Yellow; supralabials cream with dark upper edge of the same color as top of head, sometimes with a narrow lower border of gray blue; the iris is red-gold to gold-brown, always with a bright gold inner edge; upper and sometimes lower preocular with Straw Yellow spot; posterior nasal with a bright cream spot on anterior edge; chin shields usually faintly blotched or spotted with dark gray along sides.

The dorsal scale formula is 15-13, 15-13-12, or 15-13-12-11. Occasionally the last dorsal scale row lost is regained by the splitting of the row resulting from the fusion of the two dorsal rows just anterior. In such cases, the scale formula becomes 15-13-12-11-12. The first reduction is always the result of the loss of lateral rows, the fifth at points about opposite on the body. The other reductions are due to the loss of one or more mid-dorsal scale rows. The place of lateral reduction averages 117 scutes posterior; the first decrease in the dorsal series takes place 148 scutes posterior, the second, 161 scutes posterior.

The ventrals vary from 188-197, average male, 193.4, average female 194.2; the caudals from 131-149, (extremes, male

131-149, female, 131-137), average male, 141.9, average female, 134. The proportionate tail-lengths are, male, 0.326, female, 0.290. The supralabials are 8, the fourth and fifth entering orbit, the fifth being prolonged up and behind the eye. The infralabials are usually 9, often 10; the oculars 2-2; the temporals usually $2 + 2 + 2$ (Pl. II, Fig. 1), except that there are often 3 in either the first, second, or third series, and sometimes 4 in the second or third series. The posterior chin shields are longer than the anterior, the former being separated by 3-5 small scales; the loreal is longer than high. (Pl. II, Fig. 2.)

The head is long and narrow, the width (just posterior to the eye) divided by the length averages 0.43.

The largest specimen examined is 168 cms. in total length, of which the tail comprises 52 cms.

The penis exhibits the following structure: Strongly bifurcate, the length of the forks being about one-seventh the total length of the organ; sulcus simple, extending to the tip of the penis on the side of the larger lobe; distal surface smooth, surrounded by rather deep, strongly-fringed calyces, which extend proximally in about 9-10 rows, calyces covering between a third and a half of the entire organ; the fringe of the calyces at a point about halfway to the base, rapidly changing to distinct, small spines, which become larger toward the base of the organ; spines 43-46, in 3-4 (sometimes 5) rows; three large basal spines proximad of general spined portion; region along the sulcus, through the spined area, thickly covered with spinules (Pl. III).

The dentition, as shown by several specimens, is as follows: maxillary teeth 16-17, coryphodont, dicranterian, the last

three teeth separated by a diastema; dentary teeth 21-23 in number, usually 21, scaphiodont, uniformly increasing in size anteriorly, the first few being nearly twice as long as the last; palatines 13-16, usually 13 or 14, only slightly longer anteriorly; pterygoids 18-25, usually 22-23, scaphiodont.

It should be pointed out here that it is entirely possible that this new form, here given the status of a species, may later be found to be a subspecies of *schotti*. It is impossible to determine this, however, until specimens from critical localities are available.

Museum	No.	Locality	Sex	Scale Rows	Ventrals	Caudals	Supralabials	Infralabials	Oculars	Temporals	Total Length	Tail Length
A. M. N. H.	8896	Male	15-13	192	...	8	10	2-2	145	48
"	17072	Brownsville, Tex.	Male	15-13	195	...	8	9	2-2	2+2 & 2+3	133	30
"	17073	"	Male	15-13-12	193	144	8	9 & 10	2-2	1+2+2	138	46
"	17074	"	Female	15-13-12	190	...	8	9	2-2	2+3+2 & 2+2+3	126	40
"	17076	"	Male	15-13-12	193	...	8	9 & 10	2-2	1+2+2 & 2+1+2	149	40
"	17077	"	Male	15-13	194	...	8 & 9	10 & 9	2-2	2+2+3	148	45
Calif. Acad.	a	"	Male	15-13-12	197	149	8	9	2-2	2+2+2 & 2+2+3	145	48
"	b	"	Female	15-13-12-II	197	...	8	9	2-2	3+2 & 3+3	141	42
M. C. Z.	13951	"	Female	15-13	191	...	8	10	2-2	3+2	123	41
Univ. of Michigan	57681	"	Male	15-13-12-II	193	138	8	9	2-2	2+3+4 & 2+3+3	168	52
"	57682	"	Male	15-13	188	144	8	9	2-2	2+2+2	149	49
"	57683	"	Male	15-13	196	...	8	9	2-2	3+3	160	45
"	57684	"	Male	15-13-12-II-12	190	131	8	10 & 9	2-2	3+2 & 2+2+2	154	46
"	57685	"	Male	15-13-12	192	...	8	10 & 9	2-2	2+3+2	164	52
"	57686	"	Female	15-13	191	...	8	9	2-2	2+3+2 & 2+1+3	142	32
"	57687	"	Male	15-13	195	...	8	9	2-3 & 2-2	3+2+2	131	32
"	57688	"	Male	15-13	198	...	8	10 & 11	2-2	2+2 & 3+2	133	45
"	57689	"	Male	15-13-12	190	144	8	9	2-2	2+2+3 & 1+2+2	162	53
"	57690	"	Male	15-13-12	195	138	8	9	3-3 & 2-2	2+2+4 & 2+2+3	160	52
"	57691	"	Female	15-13	194	131	7	9 & 10	2-2	3+2	143	45
"	57692	"	Male	15-13-12	195	...	8	9	2-2	2+3 & 1+2+2	136	38
"	57693	"	Male	15-13-12-II	190	...	8	10	2-2	2+2+3 & 2+2+2	140	44
"	57694	"	Female	15-13	192	134	8	9	2-2	3+2+2 & 3+4	138	44
"	57695	"	Female	15-13	195	137	8	10	2-2	2+2+2	155	50
U. S. N. M.	1974	Metamoros, Mex.	Male	15-13	190	140	8	10	2-2	3+3 & 2+2+2	48.5	15.5
"	37546	Soto la Marina, Mex.	Male	15-13	197	...	8 & 7	10	2-2	2+1+2 & 3+2+2	150	47
"	64681	50 mi. s. Brownsville	Male	15-13	195	...	8	10	3-2 & 2-2	3+2+2	136	39

PLATE I

Masticophis ruthveni Ortenburger. Cat. No. 57682,
Museum of Zoology, University of Michigan. (7/16x).

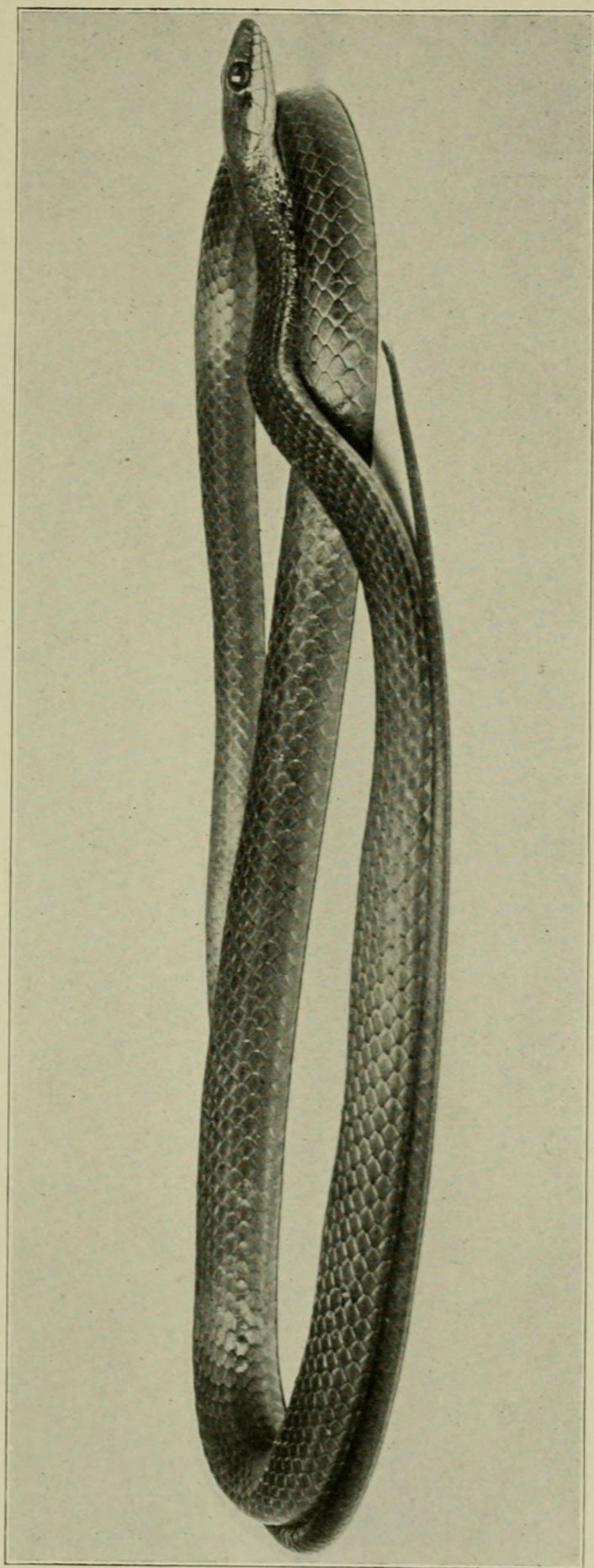


PLATE II

Masticophis ruthveni Ortenburger. Cat. No. 57687,
Museum of Zoology, University of Michigan.

Fig. 1. Top view of head (2x).

Fig. 2. Side view of head (2x).



Ortenburger, A I. 1923. "A note on the genera Coluber and Masticophis and a description of a new species of Masticophis." *Occasional papers of the Museum of Zoology, University of Michigan* 139, 1–14.

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