

**DESCRIPTIONS OF TWO SPECIES OF FISHES COLLECTED BY PROF.  
A. DUGÈS IN CENTRAL MEXICO.**

**By TARLETON H. BEAN.**

The larger portion of the fishes presented to the United States National Museum by Professor Dugès in June, 1879, have been reported upon by Prof. D. S. Jordan in a previous paper of these Proceedings.\* In all 8 species were transmitted by Professor Dugès, 4 of them being described in the article just mentioned and 2 in the present paper as new to science.

The discovery of *Myxostoma* and *Amiurus* in streams which flow into the Pacific is singular and interesting, and, at the same time, the occurrence of additional genera, *Zophendum* and *Hudsonius*, characteristic of the Eastern United States, makes it desirable to know more of the climatic and statigraphic conditions existing in Guanajuato and adjoining provinces. *Goodea* and two of the *Chirostomas* are from a salt lake in the middle of a little volcanic plain in *Valle de Santiago*, Guanajuato.

*Myxostoma austrina* Bean, sp. nov.

The type specimens were collected at Piedad, in Morelia (Michoacán), Mexico. They are numbered 23120 and 23121 in the United States National Museum catalogue. The species may belong to *Minytrema* rather than *Myxostoma*; but in the absence of all the abdominal viscera this point cannot now be settled. It has a remarkably small fontanelle.

**DESCRIPTION.**—Body not elongate, rather stout. Lips plicate, truncate or slightly rounded behind.

The greatest height of the body equals about  $\frac{1}{4}$ , and the least height of the tail  $\frac{1}{10}$  of the length of body.†

The length of the head (.23–.24) is contained  $4\frac{1}{3}$  times in length of body. Its width (.15) equals the length of the base of the dorsal. The interorbital distance (.095) equals the length of the snout. The length of the operculum (.07–.075) equals  $\frac{1}{2}$  the length of the ventral. The long diameter of the eye (.04) is contained 6 times in the length of the side of the head.

The distance of the dorsal from the snout (.45) equals 3 times the length of its base; the beginning of the dorsal is equally distant from the tip of the snout and the end of the anal. The longest dorsal ray (.16) is twice as long as the last (.08), and its length is contained 5 times in the distance of the anal from the snout.

The length of the base of the anal (.085–.09) is contained twice in the distance from the snout to the nape. The longest anal ray (.22) equals in length the external caudal rays, measuring these from the origin of the middle caudal rays. The last ray of the anal is as long as the snout.

The length of the middle caudal rays (.13) equals about  $\frac{1}{2}$  the height of the body.

The distance of the pectoral from the snout (.25) is contained 4 times

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† Length of body is to be understood as length without the caudal.



in length of body, and the length of the pectoral, 5 times. When extended, the pectoral reaches the 11th or 12th scale of the lateral line.

The distance of the ventral from the snout equals  $3\frac{1}{2}$  times the length of the ventral.

*Radial formula*: D. II, 11; A. II, 6; C. 18 (developed rays); P. I, 16-17; V. I, 8. Scales  $6\frac{1}{2}$ -44- $6\frac{1}{2}$ .

*Colors*: Upper portion light brown (in the alcoholic specimens), lower parts yellowish; some scales on the sides of the body are light brown at the base, in which respect the species resembles one of the varieties of *M. macrolepidota*. The ventrals and the right pectoral of specimen 23120 have dark blotches on their lower surfaces, the ventral of the right side being almost banded. The right pectoral and the left ventral of specimen 23121 bear fewer similar blotches. The bellies of both specimens have several markings of the same kind.

*Table of measurements.*

Species: *Myxostoma austrinum* Bean.

Current number of specimen.....	23120.		23121.	
Collector's number.....	1.		1.	
	Milli- meters.	100ths of length without caudal.	Milli- meters.	100ths of length without caudal.
Length to origin of middle caudal rays.....	303	-----	285	-----
Body:				
Greatest height.....	-----	27	-----	24
Greatest width.....	-----	15.5	-----	16.5
Height at ventrals.....	-----	24.5	-----	21.5
Least height of tail.....	-----	9.5	-----	10
Length of caudal peduncle.....	-----	15.5	-----	13
Head:				
Greatest length.....	-----	23	-----	24.3
Distance from snout to nape.....	-----	18	-----	17
Greatest width.....	-----	15	-----	15
Width of interorbital area.....	-----	9.5	-----	9.6
Length of snout.....	-----	9.5	-----	9
Length of operculum.....	-----	7	-----	7.5
Distance from snout to orbit.....	-----	9.5	-----	9.5
Diameter of orbit.....	-----	4	-----	4
Dorsal:				
Distance from snout.....	-----	45.5	-----	45
Length of base.....	-----	15.5	-----	15
Length of longest ray.....	-----	16	-----	16
Length of last ray.....	-----	8	-----	8
Anal:				
Distance from snout.....	-----	80	-----	81
Length of base.....	-----	9	-----	8.5
Length of longest ray.....	-----	22	-----	22
Length of last ray.....	-----	9.5	-----	10
Caudal:				
Length of middle rays.....	-----	13	-----	13
Length of external rays.....	-----	22	-----	22.5
Pectoral:				
Distance from snout.....	-----	25	-----	25.5
Length.....	-----	21	-----	19
Ventral:				
Distance from snout.....	-----	52	-----	54
Length.....	-----	15	-----	15½
Branchiostegals.....	-----	-----	-----	-----
Dorsal.....	II, 11	-----	III	-----
Anal.....	II, 6	-----	II, 11	-----
Caudal.....	+ 18 +	-----	II, 6	-----
Pectoral.....	I, 17	-----	+ 18 +	-----
Ventral.....	I, 8	-----	I, 16	-----
Number of scales in lateral line.....	44	-----	I, 8	-----
Number of transverse rows above lateral line.....	6½	-----	44	-----
Number of transverse rows below lateral line.....	6½	-----	6½	-----



*Amiurus Dugèsi* Bean, sp. nov.

This species is allied to *A. albidus* (Le Sueur) Gill, but has a much narrower head as is shown in comparing the width (greatest extent) of the intermaxillary band of teeth in the two species. The head of *A. Dugèsi* is also longer in proportion to the length of the fish without caudal, and the humeral process is slightly furrowed, and not strongly rugose as in *A. albidus*. The pectoral spine is not serrate. *Amiurus Dugèsi* has the supraoccipital well separated from the second inter-spinal buckler.

The typical specimens are numbered 23122 and 23123 in the Fish Catalogue of the Museum. They were received from Prof. A. Dugès in June, 1879, and were marked in his invoice as coming from the Rio Turbio in the province of Guanajuato, Mexico.

DESCRIPTION.—The height of the body is contained  $4\frac{1}{2}$  to 5 times in its length without caudal. The distance from the end of the anal to the origin of the middle caudal rays is a little more than half the length of the head.

The length of the head (.29) exceeds its greatest width (.21-.23) by one-third. The maxillary barbel can be made to reach the pectoral spine, and is contained 5 times in the length of the body. The distance between the eyes (.125) equals 4 times their long diameter (.03). The length of the snout is about  $\frac{1}{3}$  of that of the head (in the smaller example somewhat less). The width (greatest extent) of the intermaxillary band of teeth (.095) is less than  $\frac{1}{3}$  of the length of the head (nearly  $\frac{1}{2}$  in *A. albidus*). The length of the maxillary (.04-.045) is about  $\frac{1}{3}$  of the inter-orbital distance. The posterior nasal barbel is a little less than  $\frac{1}{3}$  as long as the maxillary barbel.

The first dorsal begins midway between the end of the snout and the beginning of the adipose dorsal. The length of its spine is about equal to the length of the base of the adipose dorsal. Its longest ray is contained 6 to 7 times in the length of the body.

The distance of the anal from the snout equals 3 times the length of its base. The longest anal ray is as long as the ventral.

The middle caudal rays are one-half as long as the external, measuring from the origin of the former.

The distance of the pectoral from the snout (.26-.27) equals one-half that of the ventral from the snout. The length of the pectoral spine is contained  $2\frac{1}{2}$  times in that of the head. The longest pectoral ray (.15-.16) is a little more than  $\frac{1}{2}$  as long as the head.

*Radial formula*: B. VIII; D. I, 6; A. 21-22; C. 17 (developed rays); P. I, 8; V. I, 7.

The lateral line is almost complete.

*Colors*: Plumbeous above, silvery white beneath and on the sides.



Table of measurements.

Species: *Amiurus Dugèsi* Bean.

Current number of specimen .....	23123.		23122.	
Collector's number.....	13.		13.	
	Milli- meters.	100ths of length without caudal.	Milli- meters.	100ths of length without caudal.
Extreme length.....	385	-----	356	-----
Length to origin of middle caudal rays .....	324	-----	300	-----
Body:				
Greatest height.....	66	20.5	67	22.3
Greatest width.....	55	17	53	17.5
Height at ventrals.....	60	18.5	64	21.5
Length of caudal peduncle*.....	56	17.3	47	15.5
Head:				
Greatest length.....	94	29	88	29
Length of maxillary barbel.....	61	19	61	20.5
Greatest width.....	69	21	68	23
Width of interorbital area.....	40	12.5	37	12.3
Length of snout.....	32	10	26	8.66
Extent of intermaxillary band of teeth .....	30	9.5	28	9.5
Length of maxillary .....	14	4.5	13	4
Length of posterior nasal barbel.....	20	6	20	6.66
Distance from snout to orbit.....	37	11	33	11
Diameter of orbit.....	10	3.25	9	3
Dorsal (first):				
Distance from snout.....	124	38.5	116	38.5
Length of base .....	27	8.5	27	9
Length of first spine.....	31	9.5	34	11.5
Length of longest ray.....	47	14.5	47	16
Length of last ray.....	20	6	21	7
Dorsal (adipose):				
Length of base.....	29	9	32	11
Length .....	25	7.66	24	8
Anal:				
Distance from snout.....	206	64	195	65
Length of base .....	71	22	68	23
Length of longest ray.....	37	11.5	39	13
Length of last ray .....	16	5	15	5
Caudal:				
Length of middle rays .....	32	10	30	10
Length of external rays.....	64	20	65	22
Pectoral:				
Distance from snout.....	84	26	80	27
Length of pectoral spine.....	38	12	34	11.33½
Length of pectoral.....	48	15	48	16
Ventral:				
Distance from snout .....	164	51	155	52
Length .....	37	11.5	35	12
Branchiostegals .....	VIII	-----	VIII	-----
Dorsal .....	I, 6	-----	I, 6	-----
Anal .....	22	-----	21	-----
Caudal .....	+ 17 +	-----	+ 17 +	-----
Pectoral .....	I, 8	-----	I, 8	-----
Ventral.....	I, 7	-----	I, 7	-----

\* From end of anal to origin of middle caudal rays.



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