

## LIST OF FISHES COLLECTED BY ALPHONSE FORRER ABOUT MAZATLAN, WITH DESCRIPTIONS OF TWO NEW SPECIES—HEROS BEANI AND PÆCILIA BUTLERI.

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In the year 1885 a considerable collection of Mexican fishes was sent to the U. S. National Museum by Alphonse Forrer, a collector then stationed at Mazatlan. I am indebted to the courtesy of Dr. G. Brown Goode, Director of the National Museum, and to that of Dr. Tarleton H. Bean for the opportunity to study this interesting collection. The marine species are from Mazatlan or the Tres Marias Islands; the fresh-water forms from the Rio Presidio, near Mazatlan. The following is a list of the species:

1. *Sphyrna zygaena* (L.) 37162, a fetus. Mazatlan.
2. *Galeus lunulatus* (Jordan & Gilbert.) 37163. Mazatlan.
3. *Tachysurus jordani* Eigenmann & Eigenmann. 39905. Rio Presidio. One specimen.

This specimen belongs to the species which we at first wrongly called *assimilis*, later identified by me as the *seemani* of Günther. Eigenmann\* has given it a new name, *jordani*, regarding it as distinct from Günther's species. In this specimen the head is 4 in length; the groove of the fontanelle extends just to the base of the occipital keel.

4. *Tachysurus guatemalensis* (Günther.) 37144. Rio Presidio.

A young specimen, agreeing with the account given by Jordan & Gilbert, except that the head is 4 in length.

5. *Tachysurus cœrulescens* (Günther.) 39906. Rio Presidio. Two young specimens.

Space between eyes smooth and flat; fontanelle with a very slight groove, which does not reach nearly to the occipital process; the process

\* In a letter to me Mr. Eigenmann thus compares the two species, *seemani* and *jordani*.

From specimens about the same size (both ♂ and ♀ of *seemani*) we made the following comparison:

*T. seemani.*

Head flat, depressed in front; snout scarcely decurved; occipital keel bluntish; eye 7 in head,  $3\frac{3}{4}$  in interocular; granulations about the head coarse, conspicuous.

*T. jordani.*

Head scarcely depressed, the snout strongly decurved; occipital keel sharper than in any other species; eye 5-5½ in head,  $2\frac{3}{4}$ -3 in interocular; granulations about the head less distinct than in *seemani*; palatine patches of teeth much smaller.

with a moderate keel. Band of palatine teeth quite short and small. Barbels very long, the maxillary barbel reaching middle of pectoral. Pectoral spine  $1\frac{1}{3}$  in head.

6. *Pœcilia butleri*, sp. nov. 37158. Rio Presidio. Six specimens.

Allied to *Pœcilia dorii* Günther, but with deeper body and larger scales. Head  $3\frac{1}{5}$  to  $3\frac{2}{3}$  in length to base of caudal; depth  $2\frac{3}{4}$  (adult) to  $3\frac{1}{5}$  (young). D. 9, A. 8. Scales 23 to 25. Length of adult 2 inches. Origin of dorsal midway between base of caudal and front of eye and over tenth scale of lateral line; fins moderate, longest ray of dorsal about as long as head without snout; caudal scaly at base; caudal peduncle compressed and deep; color uniform olive, the young with faint dark cross-shades; caudal with a few black spots; dorsal with numerous round black spots in both sexes.

This species is described from five male and one young female specimens taken in the Rio Presidio, near Mazatlan. It is named for my friend Mr. Amos W. Butler, Secretary of the Indiana Academy of Sciences.

7. *Mugil curema* Cuv. & Val. 37161. Mazatlan.

8. *Centropomus robalito* Jordan & Gilbert. 37148 (3). Rio Presidio.

9. *Holocentrus suborbitalis* Gill. 37153-(6). Young specimens, the largest 4 inches long. Tres Marias Islands.

10. *Bairdiella icistia* (Jordan & Gilbert). 37147. Rio Presidio.

11. *Gerres peruvianus* Cuv. & Val. 37146 (2). Rio Presidio.

12. *Gerres lineatus* (Humboldt). Rio Presidio.

Pectoral one-sixth longer than head, not reaching front of anal; depth 2 in length. Anal dusky. This species is scarcely different from *Gerres brasiliannus* (= *Gerres patao* Poey) of the Atlantic.

13. *Upeneus dentatus* Gill. 37157. Tres Marias Islands.

A large specimen, much the largest known. Length  $10\frac{3}{4}$  inches; eye large,  $3\frac{1}{5}$  in head; scales 37; teeth all small.

14. *Hæmulon sexfasciatum* Gill. 37151. Tres Marias Islands.

15. *Pomadasis macracanthus* (Günther). 37160. Mazatlan.

16. *Lutjanus viridis* (Valenciennes). 37150. (*Diacope viridis* Valenciennes. Voyage de la Vénus, Zool. 303, Pl. I, Fig. 2, very bad.) Tres Marias Islands.

The rediscovery of this lost species is a very interesting addition to our knowledge of the fishes of tropical America.

Head  $2\frac{2}{3}$  in length ( $3\frac{1}{3}$  with caudal); depth, 3 ( $3\frac{2}{3}$ ). D. x, 14, A. III, 8. Scales (7) 9-54-17. Length, 8 inches. Body comparatively elongate, the back not strongly compressed and little elevated; profile from snout to nape almost straight, thence gently and regularly curved to end of dorsal. Snout pointed,  $3\frac{1}{4}$  in head; supraoccipital keel little

prominent; preorbital moderate, its least width  $6\frac{2}{3}$  in head. Mouth moderate; jaws subequal; maxillary reaching front of pupil,  $2\frac{2}{3}$  in head; upper jaw with a narrow band of villiform teeth, outside of which are a few stronger teeth or canines; anterior canines moderate, about one-fifth eye. Lower jaw with a band of villiform teeth, outside which is a series of canines, six on each side, the lateral canines largest, but smaller than upper front teeth. Tongue toothless. Vomer with a  $\Lambda$ -shaped band, without backward prolongation on median line. Gill-rakers rather short and slender, ten of them developed, not quite one-third of eye. Eye large, 4 in head; nostrils small, well separated, the anterior circular, the posterior oblong. Preopercle strongly serrate below, finely serrate above; above the angle a sharp deep narrow notch, into which a knob of the interopercle fits, as in other species of the group called *Genyoroge* or *Diacope*.

Scales rather small, the rows below the lateral line in nearly horizontal series, those above in very oblique series, nowhere parallel with the lateral line; seven or eight rows of scales on cheeks; those of anterior row largest; one row on interopercle; none on suborbital or preorbital; some scales close to posterior margin of eye. Top of head covered with small scales as far forward as a point opposite front of pupil; about ten rows of scales, large and small, between eye and suprascapula. Soft dorsal and anal scaly. Tubes of lateral line finely branched. Dorsal spines low, moderately strong, the general outline of the fin rounded, a little depressed over last spine. Fourth spine longest, 3 in head. Soft dorsal evenly rounded, quite low, the longest ray  $4\frac{1}{5}$  in head. Caudal lunate, the lobes subequal,  $1\frac{3}{5}$  times length of middle rays, and  $1\frac{3}{5}$  in head. Anal moderate, the free edge of the soft part nearly straight. Second spine longest and strongest,  $2\frac{2}{3}$  in head; soft rays  $3\frac{1}{4}$  in head. Pectoral long, pointed,  $1\frac{1}{5}$  in head, reaching just past vent. Ventrals  $1\frac{4}{5}$  in head.

Color in spirits brown, apparently golden in life, with five sky-blue longitudinal stripes on side, each of these broadly and sharply margined with dark blue. The whole band is about as broad anteriorly as the interspaces; posteriorly  $\frac{2}{3}$  interspace; the dark blue border is nearly as wide on each side as the median pale blue band. These bands are arranged precisely as in *Lutjanus kasmira (bengalensis)* Bloch, but on the head they are better defined in *L. viridis*, and in *L. kasmira*, the lower band is absent, leaving but four. In *L. viridis* there is a faint median blue streak from occiput on dorsal line to front of dorsal; then a band (of 3 blue streaks as above stated) from occiput above eye to base of 9th dorsal spine; second band from upper edge of eye to middle of soft dorsal; third, from middle of eye to last ray of dorsal; fourth, from canine of upper jaw along lower edge of eye to middle of base of caudal peduncle where it disappears abruptly; fifth, from end of maxillary across lower base of pectoral to above last ray of anal. Fins all

pale; the last spines and first soft rays of dorsal edged with black. No trace of black lateral spot.

This species is closely related to *Lutjanus kasmira* Forskål = *Lutjanus bengalensis* (Bloch) Bleeker, a common species of the East Indian seas. A specimen of the latter, 10 inches long (from Swatow, China Adèle M. Fiede, collector) differs in the following respects: Body deeper (depth  $2\frac{2}{3}$ ); scales smaller (8) 12-62-22; the back more elevated and the profile steeper; snout, 3 in head; preorbital 6; maxillary,  $2\frac{3}{5}$ . Second anal spine  $3\frac{1}{5}$ .

In *L. kasmira* the lower lateral band is wanting, and there is a vague, dark lateral blotch larger than eye on the side. The bands in *L. kasmira* are less sharply defined, the blue center of each is more than twice as wide as the dark border, and the whole band is narrower, its width one-third to one-fourth that of the golden-brown interspaces. There is no blue median dorsal streak. In other respects the two species agree closely.

17. *Heros beani*, sp. nov. 37145 (5), 37165 (2). From Rio Presidio, Mazatlan.

Head, 3 in length; depth,  $2\frac{1}{7}$ ; D XVI, 11, A. V, 8. Scales,  $4\frac{1}{2}$ -30-12. Length of largest specimen,  $5\frac{1}{2}$  inches. Body oblong, compressed, the back moderately elevated; profile gibbous at the nape, depressed and concave above eyes, thence straight to tip of snout, which is short and rather sharp; snout, 3 in head; eye small,  $4\frac{1}{2}$  in head,  $1\frac{1}{3}$  in the slightly concave interorbital space. Lower lip moderate, its fold continuous, without frenum. Teeth moderate, maxillary short,  $3\frac{1}{3}$  in head; lower jaw slightly projecting; preorbital,  $4\frac{1}{2}$  in head; 6 rows of scales on cheeks; edge of preopercle oblique, straight, entire; gill-rakers very short, thickish. Dorsal spines low, the longest a little shorter than snout, soft dorsal and anal elevated, pointed, their tips reaching a little past base of caudal, the longest ray about  $1\frac{1}{3}$  in head; bases of soft dorsal and anal somewhat scaly; caudal subtruncate. Ventrals reaching beyond pectorals,  $1\frac{1}{3}$  in head; pectorals,  $1\frac{1}{3}$ . Color olive, the centers of many scales on sides of body and head paler in some specimens (♀?), and darker in others (♂?); sides with traces of about 8 obscure dark cross bars, which are about as wide as the interspaces. A faint pale streak from below eye to maxillary; an obscure black spot, most distinct in young and rather larger than eye, on lateral line and below 11th and 12th dorsal spines; a similar spot at base of caudal, just above lateral line. Fins olivaceous, the dorsals, caudal, and anal with roundish spots of dark olive. Lower fins dusky.

This species is named for my friend, Dr. Tarleton H. Bean, Ichthyologist, U. S. Fish Commission, in recognition of his researches in American ichthyology.

It seems well separated from all other Mexican species of which I find descriptions. A specimen from Lake Nicaragua, which I suppose to be *H. basilaris* Gill, much resembles *H. beani* in form and in colora-

tion. It has, however, the bands and spots more strongly marked; the snout longer, the scales a little smaller, and, moreover, there are 7 anal spines.

18. *Thalassoma lucasanum* (Gill). 37151 (3). From Tres Marias Islands. These specimens are larger than Gill's types,  $3\frac{1}{2}$  inches long.

A broad black band along side, its lower edge passing along lower edge of eye and upper edge of pectoral; then along middle of body curving upward to base of upper lobe of caudal; belly below this abruptly paler, brownish posteriorly; a faint brown streak along sides from behind pectoral to middle of caudal base. Dark lateral band fading insensibly above into the brown hue of the back; upper part of back again black; head all dark, black above, the color gradually fading below to brown. Two pale bluish streaks from lower part of eye downward and backward; a black spot at upper base of pectoral. Dorsal black, with a narrow pale margin on the soft part; caudal pale, its upper and lower rays abruptly black, and narrowly edged with pale. Anal brown at base, pale at tip. Pectoral brown, with a blackish area toward the tip.

Depth of body equal to length of head, four times in length of body to base of caudal. Head rather pointed; dorsal spines pungent; ventrals not filamentous. Scales before dorsal small, 6 in number. Caudal lunate in adult, truncate in the young, the black outer rays produced somewhat beyond the others.

19. *Gobius soporator* Cuv. & Val. 37155 (10). Tres Marias Islands.

20. *Eleotris æquidens* (Jordan & Gilbert). 37142. From Rio Presidio.

21. *Philypnus lateralis* Gill. 27149. (3). From Rio Presidio.

22. *Dormitator maculatus* (Bloch). 37143. From Rio Presidio.

This specimen agrees as well with the description of *D. maculatus* (Atlantic form) as with that of *D. latifrons* (Pacific form) as these are given by Eigenmann & Fordice (Proc. Acad. Nat. Sci. Phila., 1885, 71.) It also agrees with the description of Rio Grande specimens given by Eigenmann & Eigenmann (Proc. Cal. Acad. Sci. 1887, 53.) If more than one species of *Dormitator* exists in tropical North America, the boundaries of the different forms are yet to be shown.

23. *Labrisomus delalandi* (Cuv. & Val.). 37159. From Tres Marias. (*Clinus zonifer* Jordan & Gilbert, 1881.)

This species agrees very well with the published description of *L. delalandi*. I therefore regard *L. zonifer* as a synonym of the latter, which is a Brazilian species. D. IV, XVI, 11. A. II, 18. Scales 55. Head  $3\frac{1}{2}$  in length; depth  $3\frac{1}{2}$ .

24. *Rupiscartes atlanticus* (Cuv. & Val.). 37152 (2). From Tres Marias.

Some specimens apparently males, with the anterior profile vertical and very high; fins high; caudal lanceolate, the black median rays much

exceeding the outer pale ones. Female specimens with the anterior profile a nearly even curve, the caudal lunate, its median black rays shorter than the outer pale ones. Color dark brown, with usually 5 or 6 darker cross-bars extending on the dorsal; a black spot behind eye in all. Dorsal, anal, lower part of pectoral, and middle of caudal black in all.

25. *Balistes capistratus* Shaw. 37156. Tres Marias Islands.

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