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THE NEOTROPICAL ANCHOVIES OF THE GENUS  
*AMPLOVA*\*

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The anchovies, particularly those of Tropical America, with their nomenclature, long were a perplexing problem, and few ichthyological papers of recent years have been more welcome than Jordan and Seale's *Review of the Engraulidæ*.<sup>1</sup> Its receipt prompted me to an examination of the Amazonian anchovies in the collection of Indiana University<sup>2</sup>, which the late Dr. Eigenmann had asked me to identify. Aside from numerous *Lycengraulis batesii* (Günther), from Santarém and Lagoa Grande between Santarém and Obidos, these consisted principally of small fishes referable to the group called *Amplova* by Jordan and Seale. Examination of them and search through the literature made it appear best to include references to all the described species of *Amplova*, especially since Jordan and Seale mention but three of the forms in their paper. A formal revision is not attempted, however, due to lack of material of several of the species.

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<sup>1</sup> Bull. Mus. Comp. Zool., lxxvii, 1926, pp. 355-418.

<sup>2</sup> Now in the California Academy of Sciences, San Francisco. I am greatly indebted to Dr. Barton Warren Evermann, Director of the Museum of the Academy, for permission to publish on this material. The present paper was written at Indiana University, at the instigation of the late Dr. Eigenmann, in 1926.

### Amplova Jordan and Seale

GENOTYPE: *Anchovia brevirostra* Meek and Hildebrand = *Amplova balboæ* Jordan and Seale.

This genus is characterized by the compressed, keeled venter, without scutes; the separate gill-membranes; the low number of gill-rakers on the lower limb of the first arch (30 or fewer in the known species); the low number of vertebræ (under 46); the small mouth and short snout; and the short, curved maxillary, broad and rounded terminally.

Jordan and Seale assign three species to the genus, *Anchovia brevirostra* Meek and Hildebrand (*Amplova balboæ*), recently described from Balboa, Panama; *Engraulis brevirostris* Günther, from "Caxoeira", Brazil; and a new species from the Amazon, *Amplova jamesi* Jordan and Seale. Four others are here added. The following synopsis should be used with caution, for we know little of the variation of these forms.

#### Synopsis.

- 1a. Deep, depth contained 4 times or less in standard length.
  - 2a. No silvery lateral band; dorsal origin midway between front of eye and caudal base. (Pacific coast of Panama).
    1. *A. balboæ*.
  - 2b. A silvery lateral band; dorsal origin midway between snout tip and caudal base. (Coast of Guiana).
    2. *A. lepidentostole*.
- 1b. More slender, depth 4.33 or more in standard length.
  - 3a. Head large, 3.57 to almost 4 in standard length; depth 4.33 to 4.80. (Rio São Francisco).
    3. *A. vaillanti*.
  - 3b. Head smaller, 4 to 4.5; depth less, 5.17 to 6 in standard length.
    - 4a. Depth 5.17 to 5.40.
      - 5a. Head 4.5; pectoral terminating at a great distance from pelvics; dorsal origin midway between snout tip and caudal base; anal origin below last part of dorsal. (Coast of Bahia).
        4. *A. brevirostris*.
      - 5b. Head little more than 4; pectorals not reaching pelvics by half eye diameter; dorsal origin midway between caudal base and snout tip; anal origin under tenth dorsal ray; body greatly compressed; size up to 60 mm. (Amazon and Guiana).
        5. *A. guianensis*.
      - 5c. Head 4.5; pectorals not reaching pelvics by half eye diameter; dorsal origin half eye diameter nearer snout tip than caudal base; anal entirely behind dorsal; body not greatly compressed, oval in section; up to 88 mm. (Marañon).
        6. *A. alleni*.
    - 4b. Depth 6; anal 22. (Amazon).
      7. *A. jamesi*.

### 1. *Amplova balboæ* Jordan and Seale

*Anchovia brevirostra* Meek and Hildebrand, Marine Fishes of Panama, Part 1, 1923, p. 198, pl. 12, fig. 1 (Balboa, Pacific Coast of Panama) (not *Engraulis brevirostris* of Günther).

*Stolephorus brevirostris* Hildebrand, Bull. Bur. Fisher., Washington, xli, 1925, p. 284 (Cutuco, Salvador).

*Amplova balboæ* Jordan and Seale, Bull. Mus. Comp. Zool., lxvii, 1926, p. 411 (substitute name).

Head 4.3 to 4.6; depth 3.5 to 4; dorsal 11 to 14; anal 23 to 27; scales 35 to 40 laterally; rakers 25 to 30 on lower limb of first arch; dorsal origin midway between anterior margin of eye and base of caudal; insertion of anal under middle of dorsal; pectorals reaching almost to base of pelvics; color pale silvery, without a lateral band. (*Condensed, after Meek and Hildebrand*).

This species differs from all the others in the absence of the characteristic brilliant silvery lateral band. In other characters it is scarcely to be distinguished from *A. lepidentostole*. The figure given by Meek and Hildebrand, a photograph, shows the pectoral well overlapping the pelvic base, contrary to the description. Probably a mistake was made in cutting out the photograph for mounting, a little of the background having been left at the pectoral tip. The axillary pectoral flap is not nearly as long as that of *lepidentostole*, and the dorsal origin is very slightly further forward. *A. balboæ* is the only known Pacific Coast representative of the genus.

### 2. *Amplova lepidentostole* (Fowler)

*Anchovia lepidentostole* Fowler, Proc. Acad. Nat. Sci. Phila., 1911, p. 214, fig. 3 (Surinam).

Head 4.25; depth 4; dorsal 16; anal 26; scales 35 laterally; rakers 18+25; dorsal origin midway between snout tip and caudal base; anal origin about opposite first third in dorsal length; pectoral .75 to pelvic; a broad silvery lateral band, about equal to eye diameter, becoming a little constricted at shoulder and along side of caudal peduncle; 4 inches. (*Condensed, after Fowler*).

Fowler well figures the characteristic maxillary of *Amplova*, and there is no doubt the species belongs here, close to *balboæ*. These two form a group distinguished from the others by the greater depth and compressed body. Both are probably brackish-water forms.

### 3. *Amplova vaillanti* (Steindachner)

*Engraulis vaillanti* Steindachner, Anz. Akad. Wiss. Wien, xlv, 1908, p. 193 (Joazeiro and Barra on Rio São Francisco; Rio Grande do Norte; Rio Preto).

*Stolephorus vaillanti* Eigenmann, Repts. Princeton Univ. Exped. Patagonia, iii, 1910, p. 451 (name only).

*Anchovia vaillanti* Starks, Fishes Stanford Exped. Brazil, 1913, p. 10. (name only).

Head 3.57 to almost 4; depth 4.33 to 4.80; dorsal 12 or 13; anal 22 to 25; scales 35 to 38 laterally; 18 to 19 rakers on lower limb of first arch; dorsal origin always falling before middle of the body length, without caudal; anal origin on vertical of last dorsal ray; pectoral tip reaching almost or exactly to pelvics; a sharply defined silvery lateral band; a faint dark band or a small spot at the caudal base. (*Translated and condensed, after Steindachner.*)

I have examined a single specimen in Indiana University<sup>3</sup>, collected by J. D. Haseman at Barra, Rio São Francisco, whence came Steindachner's types. It agrees well with the above account; dorsal 12, anal 20. Close to *A. alleni* but well distinguished by the longer head, deeper and more compressed body, longer anal, and the extent of the pectoral fins.

#### 4. *Amplova brevirostris* (Günther)

*Engraulis brevirostris* Günther, Cat. Fish. Brit. Mus., vii, 1868, p. 392 ("Caxoeira" in Prov. Bahia, Brazil); Jordan and Seale, Bull. Mus. Comp. Zool., lxxvii, 1926, p. 411 (name only).

*Stolephorus brevirostris* Eigenmann, Repts. Princeton Univ. Exped. Patagonia, iii, 1910, p. 451 (name only).

Head 4.5; depth 5.33; eye 3.5 in head; dorsal 15; anal 18; scales 41 laterally; dorsal origin midway between end of snout and root of caudal; anal origin below posterior part of dorsal; pectoral terminating at a great distance from pelvics; abdomen slightly compressed; 3.5 inches. (*Condensed, after Günther.*)

Apparently not recognized since described, unless what I call *guianensis* is the same.

#### 5. *Amplova guianensis* (Eigenmann)

*Stolephorus guianensis* Eigenmann, Mem. Carnegie Mus., v, 1912, p. 447, pl. 62, fig. 5 (Bartica Grove; Morawhanna; Demerara Flats).

*Anchovia brevirostris* Pearson, Indiana Univ. Studies, No. 64, 1925, p. 50 (Lake Rogoagua, Bolivia) (not of Günther).

Head slightly more than 4; depth 5.16, eye 3.5; dorsal 14 or 15; anal 17 to 19; scales deciduous, about 38 laterally; rakers 22, longest 1.33 in eye, narrow, pointed, with fine spinules interiorly; dorsal origin midway between caudal base and snout tip, longest ray 1.25 as long as fin base; anal origin under about the tenth dorsal ray; pectorals not reaching pelvics by half eye diameter; pelvics inserted considerably in advance of dorsal, midway between pectoral insertion and anal fin; length of caudal peduncle .8 head; body much compressed; pale straw colored; a more or less diffuse silvery line down the side; occiput dark.

Here described from numerous specimens, up to 60 mm., Lagoa Grande, on lower Amazon near Obidos, Dr. Carl Ternetz. I have compared them with the paratype from Morawhanna, I. U. No.

<sup>3</sup> Now in The California Academy.



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