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NOTES ON THE ATHERINE FISHES OF COLOMBIA

BY CARL L. HUBBS

Dr. Carl H. Eigenmann has kindly submitted to the writer several series of atherine fishes from Colombia. Two of the species represented in this collection are marine, well-known as tropical Atlantic forms, but never before recorded from the Pacific; in fact, neither of the two genera nor the subfamily (Atherininae) which they represent¹ have been noted heretofore in the eastern Pacific. The third form, *Thyrina colombiensis*, a new species, inhabits the basins of the Rio San Juan and the Rio Patia. No other atherine fish is known to occur in Colombia, but *Thyrina pachylepis* has been recorded from both Panama and Ecuador.

Hepsetia stipes (Müller and Troschel).²—An adult and several young specimens (Cat. No. 15306, Indiana University) of this species were collected by Arthur Henn and Charles Wilson at Tumaco, a port in southern Colombia. Comparison with Atlantic material discloses no constant differences.

¹ Cf. Jordan and Hubbs, *A Monographic Review of the Family of Atherinidae or Silversides* (Stanford Univ. Publ., 1919), pp. 29, 31, 35.

² Cf. Jordan and Hubbs, *ibid.*, p. 34.

Atherina harringtonensis araea Jordan and Gilbert.³—A large series (Cat. No. 15307, Indiana University) characteristic of this subspecies was collected by Henn and Wilson at Tumaco, Colombia. Neither this form nor the preceding species has been recorded from the Pacific Ocean, and neither was mentioned by Mr. Wilson in his report⁴ upon the collection of which this marine material comprises a part.

GENUS THYRINA JORDAN AND CULVER

Especially in view of the characters of the new species described below, *Atherinichthys pachylepis* can scarcely be regarded as typical of a genus (*Thyrinops*)⁵ distinct from *Thyrina*.

Although probably not an unnatural unit, this genus comprises several sections, well distinguished by technical characters, and possibly worthy of subgeneric distinction.

DIAGNOSTIC ANALYSIS OF THE SPECIES OF THYRINA⁶

a¹. Belly less shortened, the origin of the anal fin about midway between head and caudal base in adult: *Atlantic slope from Venezuela to Brazil; Pacific slope from Costa Rica to Ecuador.*

b¹. Anal base decidedly longer than head; anal soft rays usually more than 20; pectoral fin more elongate, extending to or even beyond vertical from tips of pelvic fins; scales thicker, with numerous fine subparallel radii; scale margins strongly but rather finely laciniate; rami of mandibles rather strongly elevated posteriorly; air-bladder showing through the translucent flesh, and broadly extended backward a short distance into urosome: *salt and fresh waters from Costa Rica to Ecuador.*

Thyrina pachylepis (Günther).

b². Anal base about as long as head; anal rays usually fewer than 20 (16 to 21); pectoral fins less elongate (about as long as head), extending about to vertical from middle of pelvic fins; scales thinner, their margins

³ *Op. cit.*, p. 39.

⁴ *Ann. Carn. Mus.*, 10, 1916, pp. 57-70.

⁵ Hubbs, *Proc. Acad. Nat. Sci. Phila.*, 1917 (1918), p. 306; Jordan and Hubbs, *op. cit.* pp. 17, 61.

⁶ For synonymies cf. Jordan and Hubbs, *op. cit.*, pp. 58-61.

entire or weakly laciniate; rami of mandibles little elevated posteriorly:
Colombia to Brazil.

c¹. Scales mostly marked with numerous though faint radial apical radii; scale margins usually weakly but finely laciniate; air-bladder not showing through the opaque flesh, scarcely extended backward into urosome; dorsal rays II or III, 6 or 7; spinous dorsal when depressed usually reaching less than halfway to origin of second dorsal: *salt and brackish waters from Lake Maracaibo, Venezuela, to Rio de Janeiro, Brazil.*

Thyrina brasiliensis (Quoy and Gaimard).

c². Scales mostly without, occasionally with a few widely spaced faint apical radii; scale margins either entire or slightly uneven, or weakly and coarsely laciniate; air-bladder showing rather faintly through the semitranslucent flesh, extended backward as a well-defined conical diverticulum in the urosome; dorsal rays III or IV, 7 to 9; spinous dorsal when depressed usually reaching more than halfway to origin of second dorsal: *San Juan and Patia rivers, Colombia.*

Thyrina colombiensis Hubbs.

a². Belly shortened, the origin of the anal fin much nearer head than caudal base; anal base decidedly longer than head; air-bladder showing through the translucent flesh, extended backward as a broad diverticulum in the urosome; anal rays 18 to 25: *lakes, rivers, and estuaries of Middle America.*

d¹. Mouth strongly oblique; rami of mandibles strongly elevated posteriorly; body only moderately elongate: *Great Lakes of Nicaragua. Thyrina sardina* (Meek).

d². Mouth little oblique anteriorly, but strongly curved downward posteriorly; rami of mandibles slender, little elevated within the mouth.

e¹. Snout decidedly longer than eye: *basin of the Motagua, Atlantic slope of Guatemala. Thyrina meeki* Miller.

e². Snout about equal in length to eye.

f¹. Depth of body less than one-sixth the standard length:
Atlantic coast streams of Costa Rica and Panama.

Thyrina chagresi (Meek and Hildebrand).

f². Depth of body more than one-sixth the standard length:
Pacific coast slope of Mexico and Guatemala.

Thyrina guatemalensis (Günther), *balsana* (Meek),
crystallina Jordan and Culver, and *evermanni*
Jordan and Culver.⁷

⁷ These species have lately been compared by Jordan and Hubbs, *op. cit.*, pp. 60, 61.

Thyrina colombiensis, new species

Holotype: Cat. No. 13871, Museum of Indiana University, a specimen 101 mm. long (without caudal) collected by Arthur Henn and Charles Wilson "from Barbacoas to 8 miles above," in the Rio Telembi, a tributary of the Rio Patia, on the Pacific slope of southern Colombia. The paratypes, varying in standard length from 19 to 104 mm., comprise series from the type locality; from Condoto, on the Rio Condoto, a tributary of the San Juan (13870, I. U.); from the Rio San Juan at Istmina (13868, I. U.), and at Tado, Colombia (13869, I. U.). A set of paratypes from the Rio Telembi is deposited in the Museum of Zoology of the University of Michigan (Cat. No. 55006). Three lots of specimens of this new form are deposited in the Carnegie Museum (7485, from Istmina; 7486, from Condoto; 7487, from the Rio Telembi).

Body with the form characteristic of *Thyrina*, a little more compressed than in *T. brasiliensis*; greatest depth, 4.9 (4.6 to 4.9)⁸ in standard length; least depth of caudal peduncle about equal to postorbital length of head, or to the interorbital width. Length of head to angle of opercle, 4.4 (4.0 to 4.6); length of orbit, 3.5 (3.1 to 3.6). Snout a little longer than the orbit (orbit longer than snout in young), its rather sharply pointed and projecting tip on the horizontal passing through upper edge of pupil. Lower outer edge of mandible slightly concave, forming an angle of 45° with the horizontal; upper edge of mandible horizontal anteriorly and oblique but moderately elevated posteriorly (within the mouth); maxillary extended backward to vertically below front of posterior nostril. Teeth in rather narrow bands on the jaws; the outer series of the premaxillary, projecting downward from the edge of the lip, moderately enlarged; palate edentulous.

⁸ The measurements and counts in parentheses are those of twenty paratypes from the Rio Telembi, from Istmina and from Tado.

Gill-rakers slender, shorter than the pupil, 17 on lower limb of outer arch. Air-bladder rather faintly showing through the semi-translucent flesh, extended backward as a well-defined and bluntly pointed diverticulum into the urosome over the anal base.

Scales in 41 (38 to 41) rows from gill-opening to end of hypural; mostly without, but occasionally with a few widely spaced and rather indistinct apical radii; scale margin either entire or slightly uneven, or coarsely yet weakly laciniate.

VARIATION IN THE NUMBER OF ANAL RAYS IN FOUR SERIES OF
Thyrina colombiensis

Locality	Anal soft-rays					
	16	17	18	19	20	21
Rio Telembi (Patia basin).....	3	18	5	.....	.....	1
Condoto (San Juan basin).....	2	3	.....	.....	.....	.....
Tado (San Juan basin).....	1	4	1	.....	.....	.....
Istmína (San Juan basin).....	3	7	3	3	.....	.....
Totals.....	3	13	28	9	.....	1

Dorsal rays III (or IV), 8 (7 to 9); anal rays, I, 19 (16 to 21: see table). Spinous dorsal located a little behind vertical from front of anal fin, when depressed extending nearly two-thirds (to about one-half) the distance to the origin of the second dorsal; second dorsal with a short base (about equal to postorbital length of head), extended backward about to vertical from end of anal base. Anal base shorter than in other species of *Thyrina* excepting *T. brasiliensis*, only about as long as head; anal edge falcate. Origin of anal fin about midway between head and base of caudal, considerably more anterior in relative position in young. Pectoral fin about as long as head (usually slightly longer than head in the Telembi series, slightly shorter than the head in the lots from the San Juan basin); length of pectoral contained 4.2 (3.9 to 4.3)

times in standard length in the Telembi series, 4.0 to 4.5 times in the Istmina and Tado series.

Like the other species of the genus, *T. colombiensis* is a silvery fish, the color darkening on the back and on the front of the jaws to a purplish brown (in alcohol); regions over orbits, premaxillaries and occiput blackish. Dorsal and caudal fins, the base of the anal, and the upper edge of the pectoral fin darkened.

