A Second *Prionotus birostratus* Richardson, with Notes on the Distribution of *Prionotus* in the Southeastern Pacific Ocean (Pisces, Triglidae)[1]

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ABSTRACT: The second specimen of *Prionotus birostratus* Richardson, 1845, is described and figured; its known range is extended southward approximately 1,000 miles from the Gulf of Fonseca to Ecuador. Significant range extensions for *P. horrens* (southward to Ecuador) and for *P. loxias* and *P. albirostris* (west to the Galapagos Archipelago) are included. These four species are new to the fauna of Ecuador. The distribution of all species of *Prionotus* known in the southeastern Pacific Ocean is summarized.

Prionotus birostratus WAS DESCRIBED from a single specimen by Sir John Richardson in 1845 in *Zoology of the voyage of the H.M.S. Sulphur.* Since that time no additional specimens have been recorded, and the type specimen is apparently lost. Teague (1951) states that Trewavas was unable to find the type, and at my request Dr. P. J. P. Whitehead made another search in 1969 and confirmed Trewavas's opinion that the type is not in the British Museum (Natural History).

Apparently all ensuing descriptions of *P. birostratus* have been extracted from Richardson's description and figure (Jordan and Evermann, 1898; Teague, 1951).

It has been my good fortune to find a second specimen of *P. birostratus* in a collection of Ecuadorian fishes. In view of the rarity of the species and because Richardson's description is based on a single specimen (and in a relatively unavailable text), I feel that it is worthwhile to redescribe the species. In keeping with the International Code of Zoological Nomenclature the specimen is not designated as a neotype (Art. 75,b), but it is available for such designation in the event of revisionary work.

In this paper, the second specimen of *P. birostratus* is described, and the presence of several other triglid species is recorded from mainland Ecuador and the Galapagos Archipelago. The distribution of *Prionotus* in the southeast Pacific Ocean is discussed.

Jordan and Evermann (1898) split *Prionotus* into three subgenera, *Gurnardus, Merulinus,* and *Prionotus;* but later, Jordan, Evermann, and Clark (1930) treated these three as distinct genera. In the present paper, I follow Teague (1951) in head spine terminology (Fig. 1) and in leaving all of these nominate genera in *Prionotus.*

Prionotus birostratus Richardson, 1845
Fig. 2

Rostrum bifurcate, each process finely serrate and with a rostral spine at its base. Preorbital spines prominent, and the pronounced suborbital spine at the center of the cheek with low ridges radiating from it. Preopercle with a large spine and a basal supplementary spine. Opercle ending in a strong spine posteriorly, and the dorsal edge of the operculum with a smaller spine. Between these two spines the operculum is concave in outline. Opercular flap not scaled. Interorbital narrow and deeply concave. Preorbital ridge pronounced and bearing two spines, the larger median preocular spine is single, the lateral preocular spine is smaller, bluntish, and bifurcate at the tip. Supraorbital ridge prominent and bearing a blunt postocular spine posteriorly. There is no postfrontal groove *per se,* but there is a shallow, broad, transverse depression behind the eyes. At the lateral edges of this depression there is a small blunt sphenotic spine. Posterior to the sphenotic spines there are, successively,

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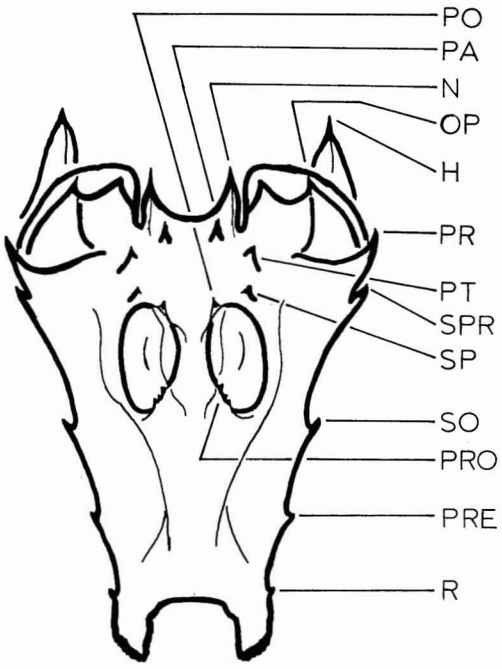

FIG. 1. Schematic dorsal view of the head of *Prionotus birostratus* showing the position of the spines. *PO,* Postocular; *PA,* parietal; *N,* nuchal; *OP,* opercular; *H,* humeral; *PR,* preopercular; *PT,* pterotic; *SPR,* supplementary preopercular; *SP,* sphenotic; *SO,* suborbital; *PRO,* preocular; *PRE,* preorbital; *R,* rostral. Nomenclature after Teague (1951).

three pairs of relatively large blunt spines: pterotic, parietal, and nuchal. These three are not all in line, but vary in lateral position; the parietals are most medial, the pterotics are most lateral, and the nuchals are intermediate in lateral position to the preceding pairs. There is a large sharp humeral spine on the cleithrum.

Dorsal X, 12. There are nine typically movable spines in the first dorsal, but there is an additional short immovable spine just posterior to the first dorsal. The first three spines are granularly serrate on their anterior edges, more so distally. The entire leading edge of the first spine is granular, whereas the second (the longest) spine is serrate on the left side of the membrane, and the third is serrate on the right. The first ray of the second dorsal is granularly serrate on its anterior basal surface. Anal I, 10. Ventrals I, 5; tips of rays reaching to anal origin. Pectorals with 12 rays joined by a membrane plus three free rays ventrally; longest ray reaching posteriorly to fourth anal ray and sixth ray of D_2. Caudal with nine branched median rays.

Vertebrae, 27. The lateral line has 11 very granular, pored plates anteriorly, the first of these lies laterally adjacent to the nuchal spine; the plates are followed by 43 pored scales. On the right side of the specimen there are a total of 52 plates plus pored scales. Breast unscaled, and the forepart of the abdomen, for about one-half the distance between the base of the ventrals and the anus, is naked. Gill membranes united but free from isthmus. Teeth on the dentaries and premaxillaries are granular and in bands; there are gaps in the bands at the symphysis of the dentaries and between the premaxillaries. Basihyal (tongue) is very small and toothless; there are no basibranchial teeth. Vomerine teeth in a narrow band on either side of the midline; they are not continuous with the palatine teeth.

Coloration (in alcohol): Dorsum brownish, lighter on the venter, with the breast almost white. The anterior distal tip of D_1 is dark; the remainder of the fin is lighter but clouded grayish. The entire distal margin of D_2 is dark for a depth equal to one-quarter of the fin. The remainder of D_2 is pale except that three rows of dark splotches angle posteroventrally: that nearest the back traverses rays 1–3; the next, rays 1–6; the most distal, rays 1–7. The pectorals are blackish distally and pale brown proximally, except that the three free rays are all light brown. The ventrals are clouded gray over the distal one-third of the fin. The caudal is crossed by three dark bands: the first at the base of the rays, the second midway, the third at the tips of the rays. The alternate light and dark bands are approximately equal in width, and the intensity of the dark bands increases distally.

The profile of the snout is even to the interorbital and forms an angle of approximately 30° with the ventral surface of the snout region. The mouth is moderate, the maxillary reaches midway between the preorbital and suborbital spines.

Measurements (all length measurements *exclude* the rostral processes; all measurements in millimeters): Total length 160, rostral process 5, standard length 125, head length (including opercular flap) 44.5, snout 22, interorbital 4, body depth (at dorsal) 23 (but nuchal spines

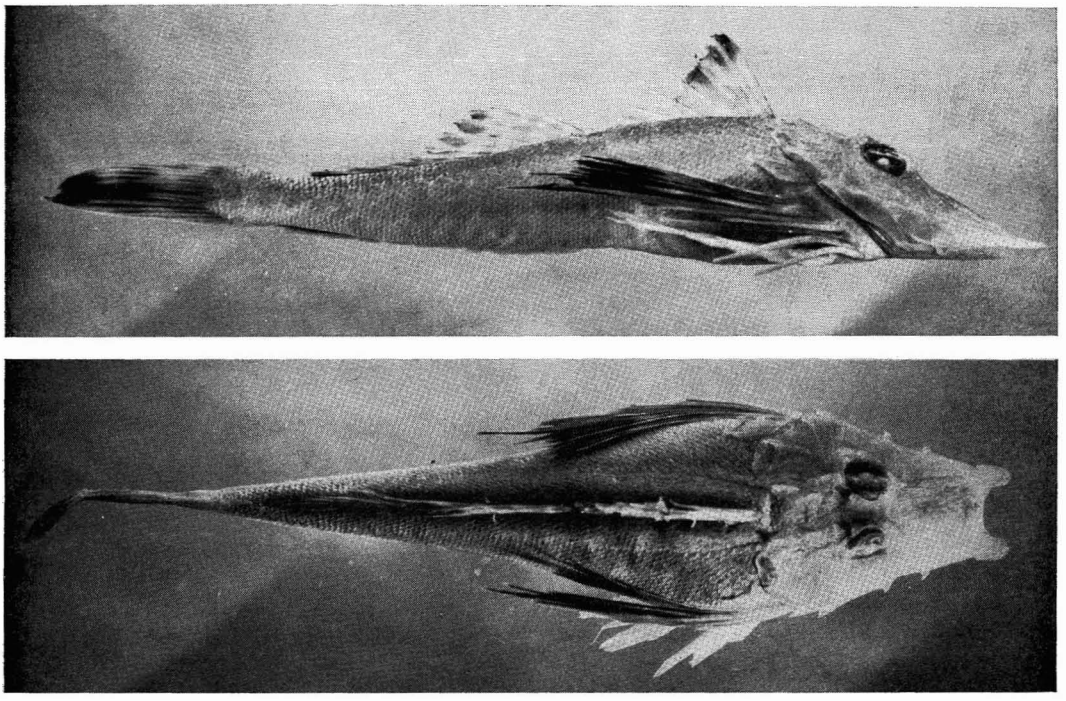

FIG. 2. Lateral and dorsal views of the second specimen of *Prionotus birostratus,* NMC68-1947.

are higher), body width across cleithra 29.5, 1st D spine length 17, 2nd D spine length 19, base D_1 (including fixed spine) 29, base D_2 35.5, base anal 41, upper jaw 16.

The specimen, which does not differ significantly from Richardson's description (1845), was captured off Playas, Ecuador in a shrimp trawl on 4 January 1962. Playas is approximately 1,000 miles from the type locality, Gulf of Fonseca, Honduras. The specimen is cataloged in the ichthyological collections of the National Museum of Natural Sciences, National Museums of Canada: NMC68-1947. Numerous other species were captured in the same haul.

Descriptions of other species of *Prionotus* indicate that only *P. birostratus* has an anal spine. A cursory study reveals that at least four other species, *P. albirostris, P. horrens, P. loxias,* and *P. quiescens,* have the first anal ray spinous. In all of these species, the spine is filamentous distally, but does not appear segmented or bilaterally divided in any part. In future studies on this group of fishes, it would be advisable to study the nature of the anal rays and spines to ascertain their exact status.

The interrelationships of species of *Prionotus* are poorly known. Unfortunately, the revisionary work by Teague (1951) does not cover all available material (Briggs, 1956); furthermore, Teague made little attempt to evaluate relationships in those species covered. Without studying more material than is at hand, only cursory comments can be made on the morphological similarities of *P. birostratus* and other species of *Prionotus.*

P. birostratus is among the most spinous of its eastern Pacific congeners, and is readily distinguished by a combination of three characters: acutely produced rostral plates and the presence of both rostral and preorbital spines. Three species, *P. horrens, P. ruscarius,* and *P. quiescens* have spination similar to *P. birostratus* but lack the acutely produced rostral plates and have scales on the opercular flap. *P. gymnostethus,* which lacks scales on the opercular flap and has acutely produced rostral plates as in *P. birostratus,* lacks both the rostral and preorbital spines. Among the remaining eastern Pacific species of *Prionotus,* no other approaches *P.*

birostratus insofar as spines on the head are concerned.

DISTRIBUTION OF *Prionotus* IN THE SOUTHEASTERN PACIFIC

There is some confusion in the literature about the numbers of species of *Prionotus* in the eastern Pacific Ocean south of the equator. The following section attempts to summarize previous literature, to present new records, and to list the distribution of those *Prionotus* species presently known to occur in the southeastern Pacific Ocean.

Tortonese (1939) recorded *P. aspersus* from Peru, and Fowler (1945) did not question the validity of the record, although previously Fowler (1944) had not included it in his list of eastern Pacific fishes. In that same list no species of *Prionotus* were recorded from the southeastern Pacific. Hildebrand (1946) recorded *P. quiescens* from Peru, and indicated that he felt that Tortonese's specimen was this species. As *P. aspersus* is otherwise known only from the Atlantic Ocean (Meek and Hildebrand, 1928; Teague, 1951) I would concur with Hildebrand (1946). Teague expressed surprise at having found a mounted specimen of sea robin in the Museo de Historia Natural "Javier Prado" in Lima, Peru. Although it was labeled *P. quiescens,* Teague thought that it was probably either *P. ruscarius* or *P. horrens* (however, he was unable to examine it). At that time he was not aware of any *Prionotus* having been taken on the continental shelf of western South America south of the equator (Teague, 1951). Orces (1959) recorded *P. ruscarius* (as *Gurnardus ruscarius*) and *Prionotus quiescens* from mainland Ecuador.

There is at hand a specimen of *P. horrens* (NMC68-1960) from Playas, Ecuador. This species and *P. birostratus* are new to the fauna of Ecuador, and their presence there represents significant extensions of their known ranges. There are also three specimens of *P. quiescens* (NMC69-76) from off Guayaquil, Ecuador.

Apparently only one species of sea robin, *P. miles,* has been recorded from the Galapagos Archipelago (Jordan and Evermann, 1898; Snodgrass and Heller, 1904; Fowler, 1938; Teague, 1951; Orces, 1959). Fowler (1944) did not include this species in his list of Eastern Pacific fishes. Unfortunately, Jordan and Evermann (1898) listed *P. horrens* from the Galapagos, but I suspect this may be an error as there seems to be no other record of it in the Galapagos. Furthermore, Jordan, Evermann, and Clark (1930) did not include the Galapagos in the range of *P. horrens.* Teague (1951) mistakenly listed the type locality of *P. quiescens* as the Galapagos Islands; in fact its type locality was the Gulf of Panama (Jordan and Bollman, 1890).

From the present study, two additional species of *Prionotus* may be added to the Galapagos fauna. *P. loxias* (two specimens, NMC69-78) and *P. albirostris* (two specimens, NMC69-78) were taken in the Galapagos by "Barr *et al.*" on 8 March 1968. These two species were captured in an otter trawl in the mouth of Tagus Cove, Isabella (Albermarle) Island, Sta. 91 of Stanford Oceanographic Expedition 17. The specimens were donated to the National Museum of Natural Sciences by M. Anctil, one of the participants on the cruise. The presence of these two species in the Galapagos represents significant extensions of their known ranges.

All species mentioned above were identified using the key in Teague (1951). The specimens agree well with his descriptions for each species.

SUMMARY OF *Prionotus* DISTRIBUTION IN THE SOUTHEASTERN PACIFIC

P. birostratus Richardson, 1845: Gulf of Fonseca, Honduras (Richardson, 1845) to Playas, Ecuador (this study).

P. horrens Richardson, 1845: Mazatlan, Mexico (Jordan and Evermann, 1898) to Playas, Ecuador (this study).

P. quiescens Jordan and Bollman, 1889: Gulf of California (Jordan and Evermann, 1898) to Canete, Peru (Hildebrand, 1946).

P. ruscarius Gilbert and Starks, 1904: Bahia Magdelena, Baja California (Meek and Hildebrand, 1928) to La Libertad, Ecuador (Orces, 1959).

P. miles Jenyns, 1842: Galapagos Archipelago (Jordan and Evermann, 1898; Orces, 1959).

P. loxias Jordan, 1896: Gulf of California [near Guaymas], Clarion Island (Revilla Gigedo Islands) to Gulf of Panama (Teague, 1951)

and Isabella Island, Galapagos Islands (this study).

P. albirostris Jordan and Bollman, 1898: Gulf of California to Gulf of Panama (Jordan and Evermann, 1898) and Isabella Island, Galapagos Islands (this study).

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