

Serranus socorroensis, a New Species of Serranid Fish from the Tropical Eastern Pacific Ocean

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Fig. 1. - Underwater photo of *Serranus socorroensis*, Isla Socorro.
Photographie sous-marine de *Serranus socorroensis*, Ile Socorro.

Abstract

A new species of serranid, *Serranus socorroensis* is described from five specimens collected at Isla Socorro, Revillagigedo Islands, Mexico. It is distinguished from other eastern Pacific *Serranus* by a combination of characters that includes the presence of an isolated patch of scales in the interorbital region, a relatively high gill raker count, and a distinctive colour pattern consisting of red on the upper half of the head and body and white below, 4-5 white patches on the back, 6-7 reddish bar-like extensions on the lower sides, four brownish spots on the dorsal fin and adjacent part of the back, and two smaller brown spots on the upper surface of the caudal peduncle.

Introduction

The genus *Serranus* contains small, colourful, predatory fishes that are frequently associated with sand and rubble bottoms from shallow depths to at least 400 m. Robins and Starck (1961) provided diagnostic characters for

the genus and reviewed the Western Atlantic and Mediterranean species. Although a comprehensive review of the genus is lacking, the group contains about 26 species, including seven from the eastern Pacific, 13 from the western and central Atlantic, five from the eastern Atlantic (and Mediterranean Sea), and a single species from the western Indian Ocean. The present paper describes a new species recently collected by D. R. Robertson at Isla Socorro in the Revillagigedo Islands, about 600 km off the central west coast of Mexico. It belongs to the nominal subgenus *Serranus* as defined by Robins and Starck, but differs from other members of this group in having a small isolated patch of scales in the interorbital region. *S. psittacinus* Valenciennes (*S. fasciatus* of most authors) is the most common member of the genus in the tropical eastern Pacific, occurring on sand and rubble bottoms near

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inshore reefs from the Gulf of California to Peru. Four other species from this region, *S. aequidens* Gilbert, *S. huascarii* Steindachner, *S. lamprurus* Jordan and Gilbert, and *S. stilbostigma* Jordan and Bollman, are known from only a few specimens mainly dredged from deeper offshore waters. In addition, another undescribed species inhabits Isla del Coco, Costa Rica. Its description is currently being prepared by William Bussing of the University of Costa Rica.

Type specimens of the new species are deposited at U.S. National Museum of Natural History, Washington, D.C. (USNM); and Western Australian Museum, Perth (WAM). Counts and morphometric proportions in parentheses refer to the range for paratypes.

Serranus socorroensis, new species

Fig. 1

Holotype: USNM 321179, 56.5 mm SL, Isla Socorro, Islas Revillagigedos (approximately 18° 48' N, 111° 02' W), quinaldine and spear, 8 m, **D.R. Robertson**, 20-21 February 1991.

Paratypes (collected with holotype): USNM 321180, 2 specimens, 43.3-48.7 mm SL; WAM 30390-001, 2 specimens, 36.8-40.5 mm SL.

Diagnosis

Dorsal rays X,12; anal rays III,7-8 ; pectoral rays 15-17; principal caudal rays 17; lateral-line scales 49-51; scales above lateral line to origin of dorsal fin 5-6; scales below lateral line to origin of anal fin 13; circumpeduncular scales 27; gill rakers including rudiments 8-9+18-19=27-28; scales on top of head extending to level of preopercle margin or slightly anterior (nearly to rear of orbits in two paratypes); a small patch of isolated scales on middle or anterior half of interorbital; colour in life mainly red on upper half of head and body and white below; 4-5 pearl-white patches on back and 6-7 reddish bar-like extensions on lower sides; four brownish spots on dorsal fin and adjacent part of back and two smaller brown spots on upper surface of caudal peduncle.

Description

Dorsal rays X,12; anal rays III,7-8 ; pectoral rays 15-17; pelvic rays I,5; principal caudal rays 17, the upper and lower unbranched; procurrent caudal rays 10; lateral-line scales 49-51; scales above lateral line to origin of dorsal fin 5-6; scales below lateral line to origin of anal fin 13; circumpeduncular scales 27; gill rakers including rudiments 8-9+18-19=27-28; branchiostegal rays 7.

Body relatively elongate, the depth 3.8 (3.6-3.8) in SL, and compressed, the width 1.8 (1.7-2.2) in depth; head length 2.8 (2.7-2.9) in SL; eye diameter 3.6 (3.3-3.6) in head; snout 4.2 (4.3-4.7) in head; interorbital space flat, the least bony width 6.0 (6.8-9.1) in head; caudal peduncle depth 3.3 (3.0-3.4) in head; caudal peduncle length 1.6 (1.5-1.7).

Mouth moderately large, slightly oblique, the maxilla reaching to level of rear edge of pupil, the upper jaw length 2.4 (2.4-2.5) in head; teeth in each jaw in a band, some of the outer ones enlarged and caninelike, including a pair on each side of anterior part of upper jaw and a single one at front and 2-3 laterally on each side of lower jaw; also an enlarged backward projecting canine on each side of symphysis on posterior part of tooth band at front of upper jaw; bands of villiform teeth on vomer and palatines, those

on vomer forming a V. Tongue moderately slender, the tip rounded. Longest gill raker on first gill arch at angle, its length about equal to pupil width. Nostrils in front of centre of eye, and close together; anterior nostril tubular with a well-developed membranous flap on its rear margin which just reaches to front edge of posterior nostril; posterior nostril opening about twice diameter of anterior nostril.

Opercle with three flattened spines, the middle one more than twice as large as the others; vertical limb of preopercular margin with about 25 or more tiny serrae; ventral edge of preopercle finely serrate to crenulate, but appears more or less smooth due to covering of skin; margins of subopercle and interopercle smooth; opercular membrane bluntly rounded.



Fig. 2.- Underwater photo of *Serranus psittacinus*, Gulf of Chiriquí, Panama.
Photographie sous-marine de *Serranus psittacinus*, Golfe de Chiriquí, Panama.

Lateral line slightly arched over pectoral region, then paralleling contour of back to straight peduncular part; scales ctenoid; no auxiliary scales on body; no scales on maxilla; very small embedded scales on basal half of dorsal and anal fins; pectoral fins with small scales at base; scales on top of head extending to level of preopercle margin or slightly anterior (nearly to rear of orbits in two paratypes); a small patch of isolated scales on middle or anterior half of interorbital.

Origin of dorsal fin over fifth or sixth lateral-line scales; membranes of spinous portion of dorsal fin moderately incised; first dorsal spine about half length of second spine; spines 2-4 gradually increasing in length, remaining spines subequal, the longest 2.4 (2.3-2.6) in head; all dorsal and anal rays branched, the last to base; tips of posterior dorsal soft rays not reaching a vertical through caudal-fin base; tips of posterior anal soft rays distinctly short of caudal-fin base; fourth to eighth dorsal soft rays longest, 2.3 (2.2-2.6) in head. Origin of anal fin below base of about first dorsal soft ray; first anal spine 1.5 (1.6-1.8) in second spine; second anal spine slightly longer than third spine, 2.2 (2.3-2.7) in head; third or fourth anal soft ray longest, 2.4 (2.0-2.2) in head. Caudal fin truncate or very slightly emarginate, 1.6 (1.6-1.7) in head. Pectoral fins extending to about level of anus, the rays branched except uppermost and lowermost; ninth or tenth pectoral rays longest, 1.3 (1.3-1.4) in head. Origin of pelvic fins below lower pectoral-fin base; pelvic fins extending to anus, 1.5 (1.4-1.5) in head; pelvic spine about half length of longest pelvic ray.

Table 1

Proportional measurements of type specimens of *Serranus socorroensis* expressed as percentages of the standard length.
Dimensions relatives des spécimens types de *Serranus socorroensis* exprimées en pourcentages de la longueur standard.

Character	Holotype		Paratypes		
	USNM 321179	USNM 321180	WAM P. 30390-001		
Standard length (mm)	56.5	48.7	43.3	40.5	36.8
Body depth	26.0	27.3	26.6	27.7	26.6
Body width	14.3	16.0	15.5	15.6	11.7
Head length	35.2	37.6	34.6	37.3	37.0
Snout length	8.3	8.4	8.1	8.4	7.9
Orbit diameter	9.9	10.9	10.6	10.6	10.3
Interorbital width	5.8	4.7	5.1	4.9	4.1
Upper jaw length	14.9	15.2	14.5	15.1	14.9
Caudal peduncle depth	10.6	11.1	11.5	11.6	11.4
Caudal peduncle length	21.4	22.6	22.2	22.2	23.9
Predorsal length	35.8	36.3	34.6	37.0	35.9
Preanal length	61.1	59.3	59.8	60.7	61.1
Prepelvic length	32.7	32.9	31.2	31.6	33.7
Length of dorsal fin base	52.7	50.7	50.6	50.6	46.7
Length of first dorsal spine	6.2	6.8	60.0	5.4	5.4
Length of fifth dorsal spine	14.5	14.4	13.9	14.3	15.8
Length of last dorsal spine	6.7	10.9	11.1	11.9	13.3
Length of longest dorsal ray	15.2	14.4	15.7	15.8	17.1
Length of anal fin base	19.8	18.3	17.3	17.3	16.3
Length of first anal spine	10.6	8.4	9.2	8.6	9.0
Length of second anal spine	16.3	14.4	14.5	13.6	15.8
Length of third anal spine	12.7	11.7	11.5	10.4	12.2
Length of longest anal ray	14.7	17.5	17.3	17.3	18.5
Caudal fin length	21.9	23.6	21.9	22.2	23.6
Pectoral fin length	26.5	26.3	25.9	28.4	29.1
Pelvic fin length	24.2	26.1	24.2	25.2	25.5
Pelvic spine length	12.4	12.9	12.0	12.8	12.5

Colour of holotype in alcohol: head dusky except jaws and ventral surface very pale tan, also preopercle tan and only lightly pigmented; body pale yellowish tan with four brown saddles below dorsal-fin base, first below middle of spinous dorsal, second below end of spinous dorsal, third below anterior soft rays, and fourth below end of dorsal fin; these saddles taper in width to level of lateral line, then widen into bars that extend to the lower side, the second one branches into a pair of bars, resulting in a total of five bars; the four saddles have a blotch-like extension on the basal portion of the dorsal fin (the two posterior ones distinctly dark brown); a pair of small brown spots on dorsal midline and a single brown spot on ventral midline of caudal peduncle; also a small dark brown spot at base of anal fin origin and a thin, short dark brown dash or line just anterior to base of each pelvic fin; fins mainly pale yellowish except basal half of dorsal dusky brownish; a faint brown spot on inside (axil) of pectoral-fin base. The paratypes have the same general coloration except the dorsal saddles and ventral bars are joined in the middle portion of the sides by a broad brown band and there are 3-4 large, somewhat rectangular pale yellowish tan spots between each saddle on the upper side.

Remarks

S. socorroensis is generally similar to *S. psittacinus* and an undescribed species from Isla del Coco. However, the three are clearly separable on the basis of colour pattern (compare Figs. 1-3). In addition, *S. socorroensis* differs in having a small isolated patch of scales in the middle or anterior portion of the interorbital region. Moreover, *S. socorroensis* has a higher gill raker count than the other species (8-9+18-19 versus 5-7+11-13). This is evidently a small species as the holotype and largest paratype are mature females with developing ova.

The type specimens were collected from a depth of 8 m on a sandy bottom with scattered rocks and corals that were utilised for shelter.

REFERENCE

Robins (C.R.) and W.A. Starck, II, 1961.- Materials for a revision of *Serranus* and related fish genera. Proc. Acad. Nat. Sci. Philadelphia, 113 (11): 259-314.



Fig. 3.- Undescribed species of *Serranus*, 55 mm SL, Isla del Coco, Costa Rica.
Especie non décrite de *Serranus*, 55 mm LS, Ile Coco, Costa Rica.

RÉSUMÉ

Serranus socorroensis, une nouvelle espèce de Serranidé de l'Océan Pacifique oriental tropical

Le genre *Serranus* renferme de petits prédateurs très colorés qui sont souvent associés à des fonds de sable et de blocaille à des profondeurs comprises entre quelques mètres et 400 mètres au moins. Bien qu'une révision d'ensemble n'existe pas encore, le genre renferme environ 26 espèces dont 7 dans le Pacifique oriental, 13 dans l'Atlantique occidental et central, 5 dans l'Atlantique oriental (et la Méditerranée) et une seule dans l'Océan indien occidental.

La nouvelle espèce décrite ici a été récoltée récemment à l'île Socorro, dans le groupe des Revillagigedos, à 600 km environ de la côte occidentale du Mexique.

S. psittacinus Valenciennes (= *fasciatus* de la plupart des auteurs) est l'espèce la plus commune dans le Pacifique tropical oriental, du Golfe de Californie au Pérou, au voisinage des récifs côtiers ; quatre autres espèces de la même région,

S. aequidens Gilbert, *S. huascarii* Steindachner, *S. lamprurus* Jordan et Gilbert et *S. stilostigma* Jordan et Bollman, ne sont connues que par quelques spécimens obtenus principalement des eaux profondes du large. Une espèce en cours de description habite l'île Coco, Costa Rica.

S. socorroensis est semblable, dans l'ensemble, à *S. psittacinus* et à l'espèce non encore décrite, mais les trois formes sont facilement reconnaissables par l'examen de leur patron de coloration (figs 1-3). C'est une petite espèce, l'holotype (56,5 mm LS) et le plus grand des paratypes (48,7 mm LS) sont des femelles mûres.

Les types ont été récoltés à une profondeur de 8 m sur un fond sableux avec des pierres et des coraux utilisés comme refuges.