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THREE NEW SPECIES OF SCORPIONFISHES (FAMILY SCORPAENIDAE) FROM EASTER ISLAND

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ABSTRACT: Three new species of the fish family Scorpaenidae, *Scorpaena orgila, S. pascuensis*, and *Scorpaenodes englerti*, are described from Easter Island in the southeastern Pacific Ocean. These species are known only from Easter Island, and are the only scorpaenids occurring there.

INTRODUCTION

Easter Island (Rapa Nui or Isla de Pascua) was discovered by the Dutch admiral Jacob Roggeveen on Easter Sunday in 1722. Since that time the world has marveled at the mysterious stone giants which rise above the island's barren slopes. Although this isolated outpost of Polynesia has been the focus of much archeological study, only a token amount of natural history research has taken place. The Canadian Medical Expedition to Easter Island in 1964–65 made the first comprehensive biological collections. Prior to the Canadian collections, only 40 species of fishes had been recorded from Easter Island (Kendall and Radcliffe, 1912; Regan, 1913; Fuentes, 1914; Rendahl, 1921; Wilhelm and Hulot, 1957; de Buen, 1963); no scorpaenids had been recorded from the island. The Canadians collected about 70 species, many of them new. An earlier collection was made at Easter Island by Ramsey Parks and the crew of the ketch *Chiriqui* in 1958. John E. Randall and the junior author, using SCUBA gear

to depths of 40 meters, collected fishes at Easter Island for one month in 1969, adding additional new species.

Easter Island is of volcanic origin and is characterized by an extremely rugged and rocky coastline. In many places the cliffs rise almost vertically from the edge of the sea. There is only one beach of any consequence, that of Anakena, which is a mere 200 meters in length. Occasional surge pools are encountered, with several in the vicinity of Hanga Roa, the only village on the island. The typical underwater habitat is that of rocky boulders usually covered with brown algae. Coral growth is sparse, but two species, representing the genera *Porites* and *Pocillopora*, are commonly observed in some localities. Strangely enough there is often abundant coral growth (*Porites*) in the shallow surge pools, sometimes covering more than 25 percent of the bottom. The abundance of rocky substrate provides an ideal habitat for scorpionfishes.

The fish fauna at Easter Island is very restricted and shows a relationship to both the eastern Pacific and Indo-west-Pacific faunas. As one might expect, the high degree of isolation results in a correspondingly high rate of endemism. Preliminary investigations reveal that the rate for fishes may be as high as 40 percent. The three species of scorpionfishes occurring at Easter Island are endemics.

ACKNOWLEDGMENTS

Ian E. Efford, University of British Columbia, provided the scorpionfishes which he and Jack A. Mathias collected during the Canadian Medical Expedition. John E. Randall, Bernice P. Bishop Museum, made available specimens collected by him and the junior author in 1969. Specimens collected by the ketch *Chiriqui* in 1958 were sent to us by Robert J. Lavenberg, Los Angeles County Museum of Natural History. Part of the junior author's expenses for a trip to San Francisco to work on Easter Island scorpionfishes was paid by the California Academy of Sciences. The junior author acknowledges the financial assistance of the National Geographic Society for his collecting trip to Easter Island. The senior author received financial support from National Science Foundation grant GB-15811, which permitted him to examine scorpionfishes, particularly types, in most major museums. Special thanks are due Dr. Randall for permission to reproduce his photographs, for providing color slides of specimens, and for his comments on the manuscript. We thank Lillian Dempster for her help with the manuscript. The drawings of head spination were made by Katherine Smith. Pearl Sonoda and Terry Arambula aided in curatorial ways.

METHODS

Measurements, counts, and terminology of head spines are as used by Eschmeyer (1969). Abbreviations are as follows: BC—University of British Columbia; BPBM—Bernice P. Bishop Museum; CAS—California Academy of

TABLE 1. *Counts and measurements for type specimens of* Scorpaena orgila *from Easter Island. (Measurements are in millimeters; numbers in parentheses are percentages of standard length.)*

	CAS 24809	*BPBM 6772*	*CAS 24810*	*CAS 24810*	*USNM 205209*	*BPBM 6771*	*BPBM 6776*
Standard length	248	78.7	109	60.0	212	67.4	48.3
Dorsal fin rays	12+9	12+9	12+9	12+9	12+9	12+9	11+9
Anal fin rays	3+5	3+5	3+5	3+5	3+5	3+5	3+5
Pectoral fin rays	17+17	17+17	17+17	17+17	17+17	17+17	17+17
Head length	111 (45)	33.4 (42)	46.4 (43)	25.1 (42)	100 (47)	29.0 (43)	21.0 (43)
Body depth	82.6 (33)	25.2 (32)	34.1 (31)	19.3 (32)	74.2 (35)	19.7 (29)	17.2 (36)
Orbit diameter	20.5 (08)	7.7 (10)	10.1 (09)	6.5 (11)	20.7 (10)	7.1 (11)	5.3 (11)
Snout length	33.2 (13)	10.3 (13)	14.8 (14)	7.4 (12)	28.9 (14)	8.3 (12)	5.7 (12)
Interorbital width	13.7 (06)	3.8 (05)	5.6(05)	2.8 (05)	12.1 (06)	3.0 (04)	2.7 (06)
Jaw length	54.5 (22)	16.5 (21)	22.8 (21)	12.5 (21)	48.7 (23)	13.8 (20)	10.8 (22)
Predorsal-fin length	95.6 (39)	30.3 (38)	39.5 (36)	21.8 (36)	86.1 (41)	24.7 (37)	19.4 (40)
Pectoral fin length	68.8 (28)	24.1 (31)	32.7 (30)	16.7 (28)	61.7 (29)	20.0 (30)	14.5 (30)
Pelvic fin length	62.7 (25)	21.8 (28)	30.2 (28)	16.5 (28)	56.1 (26)	19.2 (28)	14.1 (29)
Caudal fin length	59.5 (24)	23.4 (30)	32.5 (30)	17.4 (29)	57.6 (27)	19.5 (29)	14.2 (29)

	BPBM 6777	*CAS 24811*	*BPBM 6774*	*LACM 31198–1*	*BC 65–438*	*BC 65–439*	*BC 65–457*
Standard length	202	76.5	127	214	113	194	145
Dorsal fin rays	12+9	12+9	12+9	12+9	12+9	12+9	12+9
Anal fin rays	3+5	3+5	3+5	3+5	3+5	3+5	3+5
Pectoral fin rays	17+17	17+17	17+17	17+17	17+17	16+17	17+17
Head length	92.1 (43)	32.4 (42)	56.5 (44)	101 (47)	48.2 (43)	93.2 (48)	61.7 (43)
Body depth	71.0 (33)	23.1 (30)	43.0 (34)	73.4 (34)	37.6 (33)	64.7 (33)	50.0 (34)
Orbit diameter	18.9 (09)	7.8 (10)	11.6 (09)	21.9 (10)	10.0 (09)	19.9 (10)	12.5 (09)
Snout length	28.5 (13)	9.2 (12)	17.1 (13)	28.4 (13)	14.2 (13)	26.7 (14)	19.0 (13)
Interorbital width	11.0 (05)	3.4 (04)	6.7 (05)	12.2 (06)	5.0 (04)	10.5 (05)	6.7 (05)
Jaw length	46.8 (22)	16.1 (21)	27.2 (21)	48.8 (23)	23.0 (20)	46.7 (24)	29.9 (21)
Predorsal-fin length	77.2 (36)	28.6 (37)	48.6 (38)	86.7 (40)	40.6 (36)	80.2 (41)	54.1 (37)
Pectoral fin length	60.0 (28)	23.0 (30)	36.6 (29)	60.8 (28)	34.5 (31)	59.1 (30)	41.4 (29)
Pelvic fin length	52.8 (25)	21.8 (28)	36.1 (28)	54.8 (26)	29.3 (26)	51.6 (27)	41.0 (28)
Caudal fin length	53.4 (25)	23.5 (31)	37.8 (30)	56.7 (27)	29.7 (26)	50.8 (26)	39.5 (27)

Sciences; LACM—Los Angeles County Museum of Natural History; USNM—United States National Museum.

SPECIES ACCOUNTS

Scorpaena orgila Eschmeyer and Allen, new species.

(Figures 1a, 2; table 1.)

MATERIAL EXAMINED. *Holotype*: CAS 24809, formerly BPBM 6770, a specimen 248 mm. in standard length, collected offshore of Ahu Akapu in 70

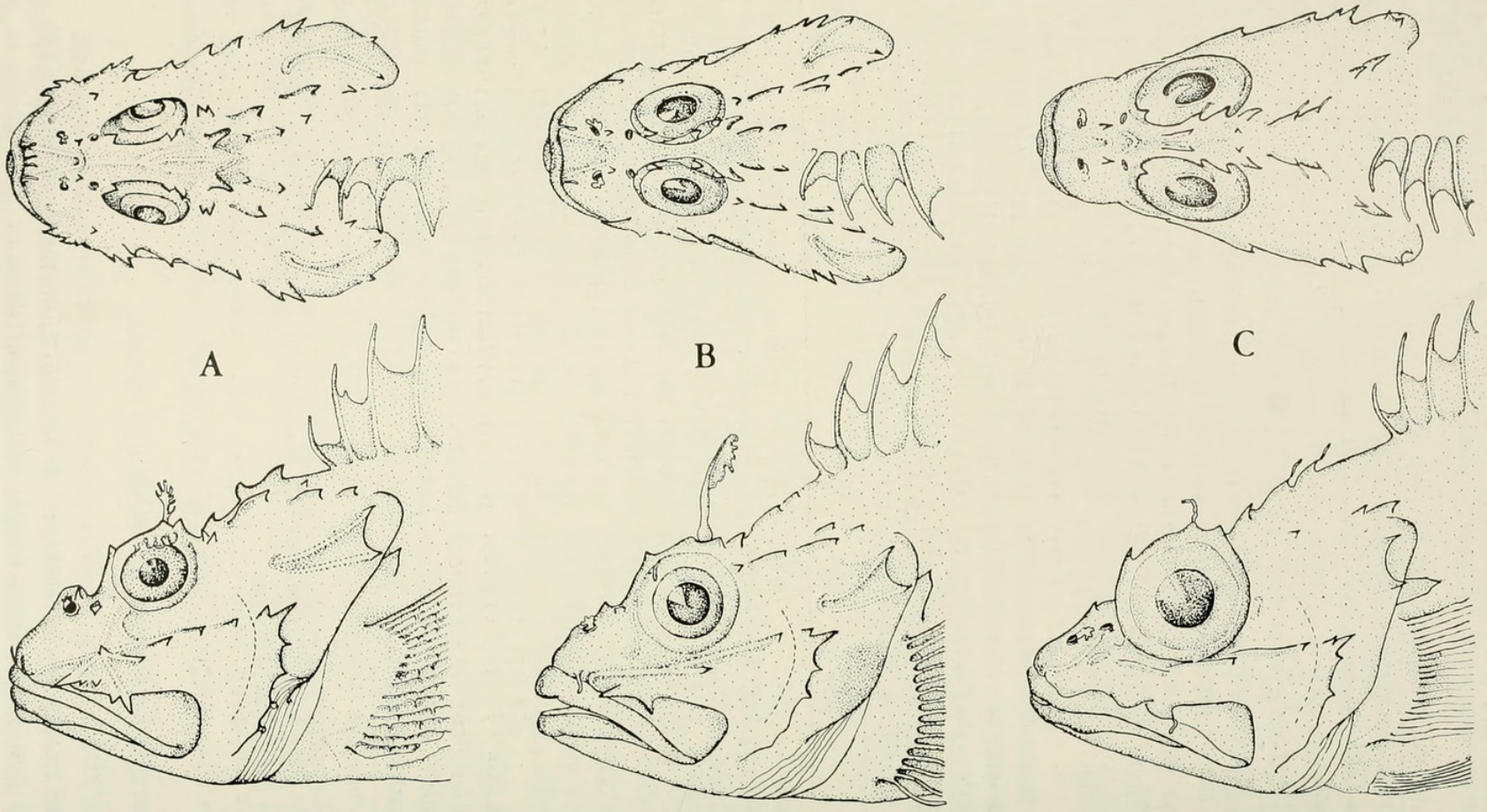

FIGURE 1. Semidiagrammatic representation of head spines in new Easter Island scorpionfishes. A. *Scorpaena orgila*, based mostly on BPBM 6777, adult, 202 mm. S.L. B. *Scorpaena pascuensis*, based mostly on BPBM 6782, adult, 32 mm. S.L. C. *Scorpaenodes englerti*, based mostly on BPBM 6778, adult, 67 mm. S.L.

feet, by J. E. Randall on 3 February 1969. *Paratypes*: BPBM 6772 (1 specimen, 79 mm. in standard length), between Hanga Roa and Hanga Piko in 1–3 feet, J. E. Randall, G. R. Allen, B. A. Baker and E. Edwards, 25–26 January 1969. CAS 24810, formerly BPBM 6773 (2, 60–109), offshore from south end of Hanga Roa in 40 feet, J. E. Randall and G. R. Allen, 10 February 1969. USNM 205209, formerly BPBM 6769 (1, 212), off Motu Tautara in 60 feet, J. E. Randall, 7 February 1969. BPBM 6771 (1, 67), Hanga Piko in 1–3 feet, tidepools, J. E. Randall and G. R. Allen, 29 January 1969. BPBM 6776 (1, 48), offshore of Ahu Akapu in 80 feet, J. E. Randall and G. R. Allen, 5 February 1969. BPBM 6777 (1, 202), Motu Iti in 40 feet, J. E. Randall, 4 February 1969. BPBM 6774 (1, 127), boat channel at Hanga Piko in 6 feet, J. E. Randall, 18 January 1969. CAS 24811, formerly BPBM 6775 (1, 76), wreck about 20 meters offshore between Hanga Roa and Hanga Piko in 10–15 feet, J. E. Randall and G. R. Allen, 27 January 1969. LACM 31198–1, formerly BC 65–421 (1, 214), Hanga Piko in 180 feet, lobster trap, local fisherman, 3 January 1965. BC 65–438 (1, 113), Hanga Piko in 23 feet, I. E. Efford and J. A. Mathias, 14 January 1965. BC 65–439 (1, 194), caught by islanders, no other data, [1965]. BC 65–457 (1, 145), Hanga Roa, subtidal, I. E. Efford and J. A. Mathias, no date [1965].

DESCRIPTION. A large species, with slightly ctenoid scales on the sides, very shallow occipital pit, and chest and pectoral-fin base scaled. Dorsal fin with 12 spines and 9 soft rays (last double). Anal fin with 3 spines and 5 soft rays (last double). Pectoral fin short, not reaching level of anal fin; pectoral rays usually 17 (table 1), rays 2 through 6 or 7 branched in larger specimens, branching probably begins at about 45 mm. standard length. Gill rakers 17–19 (including rudiments), 5 on upper arch, 12–14 on lower arch. Spines as in figure 1a. Preorbital bone usually with 3 or 4 spinous points over the maxillary; first directed forward, with 1 or 2 tiny spines at its base, followed by large spine (sometimes as 2 close-set spines) which points down; small specimens with only anterior and posterior spines (not unusual for juveniles). Suborbital ridge usually with 5 spinous points, 2 on lateral face of preorbital bone and 3 on the suborbital bones; first spine on preorbital bone small and pointing up, second long and directed posteriorly and slightly below level of first spine on suborbital. Other spines present include nasal, pre-, supra-, and postocular, nuchal, parietal, tympanic, supplemental and 5 preopercular, upper and lower posttemporal, opercular, pterotic, sphenotic, and cleithral. Scales on sides slightly ctenoid; scales on belly and chest mostly without ctenii; head mostly naked, a few buried scales below suborbital ridge, behind eye, and on opercular bone. Vertical scale rows about 50–55. Vertebrae 24 (5 specimens) or 25 (1 specimen). Swimbladder absent. Palatine teeth present. Head and body with numerous filaments and tentacles; supraocular tentacle frilly, its length about equal to orbit diameter, but sometimes reduced or absent. Orbit smaller than snout, orbit diameter into snout length

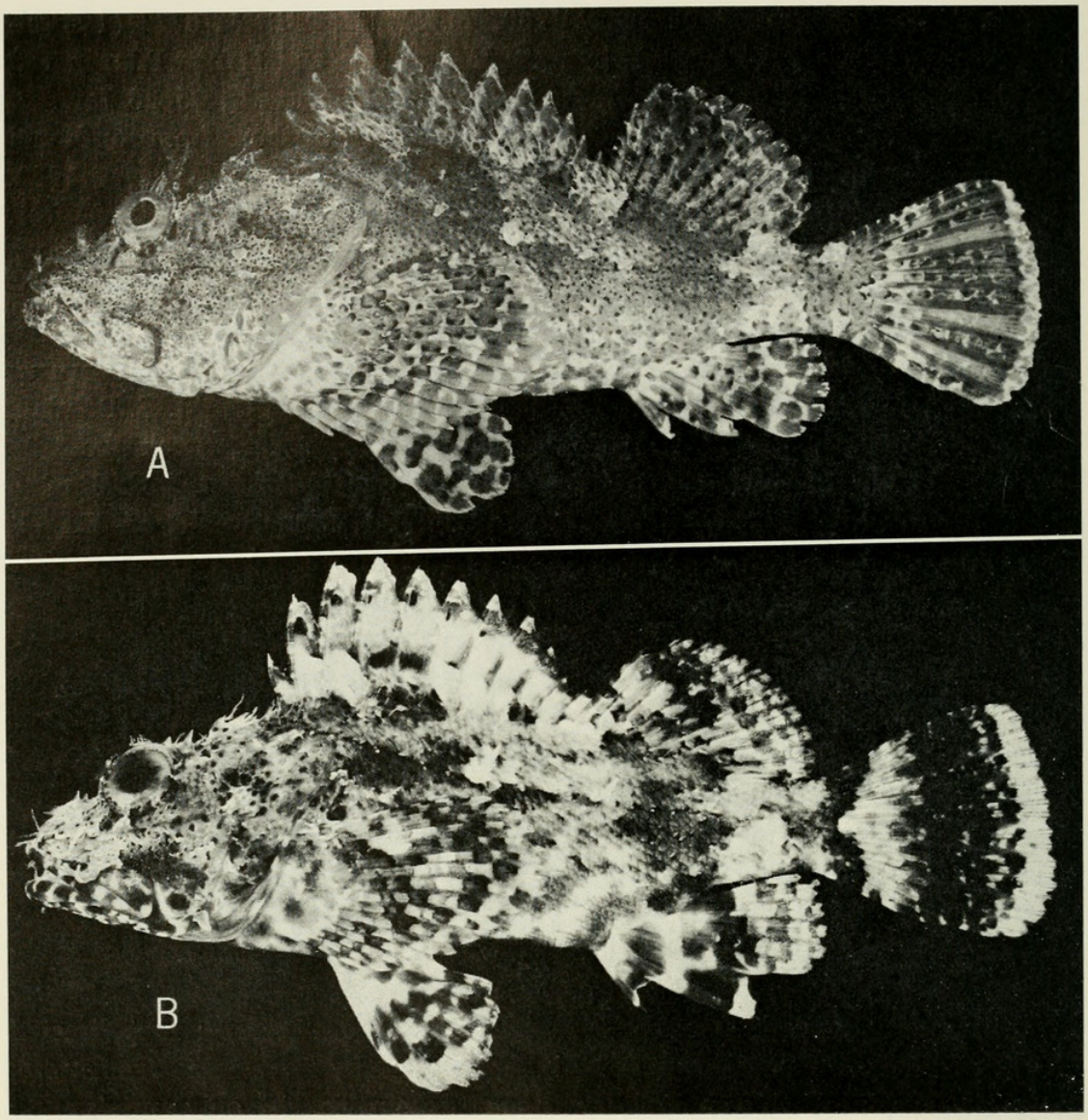

FIGURE 2. *Scorpaena orgila*. A. Holotype, CAS 24809, adult, 248 mm. S.L. B. Paratype, BPBM 6772, juvenile, 79 mm. S.L.

1.1–1.6 times (lower values usually in smaller specimens); orbit diameter into head length 3.9–5.4 (lower values usually in smaller specimens). Color pattern in alcohol about as in figure 2 (taken from fresh specimens). Largest specimens tend to have less intense dark coloration. In life coloration may depend on depth of capture; juvenile specimens (shallower stations) everywhere mottled with gray, white, black, and brown, with dark pigmentation concentrated as in figure 2b. Individuals from deeper water (20 meters or more) mostly red with numerous small brown spots on head and body; areas appearing pallid in figure 2 white or translucent in life.

COMPARISONS. *Scorpaena orgila* seems to be more closely related to eastern

TABLE 2. *Counts and measurements for some type specimens of* Scorpaena pascuensis. *(Measurements are in millimeters; numbers in parentheses are percentages of standard length.)*

	CAS 24812	*CAS 24813*	*CAS 24813*	*USNM 205210*	*USNM 205210*	*BPBM 6784*	*BC 65–451*
Standard length	44.6	53.6	35.6	50.9	39.2	54.7	36.7
Dorsal fin rays*	12 + 9	12 + 9	12 + 9	12 + 9	12 + 9	12 + 9	12 + 9
Anal fin ray*	3 + 5	3 + 5	3 + 5	3 + 5	3 + 5	3 + 5	3 + 5
Pectoral fin ray*	16 + 16	16 + 16	16 + 16	15 + 16	16 + 16	17 + 16	16 + 16
Head length	18.9 (42)	23.2 (43)	15.4 (43)	21.5 (42)	16.4 (42)	22.2 (40)	15.0 (41)
Body depth	16.3 (37)	20.5 (38)	12.7 (36)	19.2 (38)	13.6 (35)	19.6 (36)	13.1 (35)
Orbit diameter	5.3 (12)	6.0 (11)	4.6 (13)	5.9 (12)	4.7 (12)	6.2 (11)	4.5 (12)
Snout length	5.3 (12)	6.3 (12)	4.0 (11)	5.9 (12)	3.8 (10)	5.8 (11)	3.8 (10)
Interorbital width	2.2 (05)	2.5 (05)	1.5 (04)	2.3 (05)	1.8 (05)	2.5 (05)	1.9 (05)
Jaw length	9.4 (21)	11.4 (21)	7.0 (20)	11.8 (23)	7.8 (20)	10.5 (19)	7.6 (21)
Predorsal-fin length	15.4 (34)	19.0 (35)	12.7 (36)	19.5 (38)	12.7 (32)	18.2 (33)	12.3 (34)
Pectoral fin length	15.1 (34)	17.9 (33)	12.6 (35)	16.2 (32)	13.7 (35)	18.3 (33)	12.4 (34)
Pelvic fin length	11.4 (26)	13.8 (26)	9.9 (28)	14.0 (27)	10.4 (27)	14.5 (26)	10.3 (28)
Caudal fin length	13.5 (30)	18.1 (34)	10.9 (31)	15.1 (30)	12.2 (31)	15.7 (29)	11.0 (30)

*Counts of 23 additional specimens: Dorsal rays 12 + 9 (22 specimens) or 12 + 8 (1); anal rays 3 + 5 (23); pectoral rays 16 + 16 (19), 15 + 16 (2), 16 + 15 (1), and one with 12 on left and 16 on right.

and southern Pacific species than to those occurring in the central Pacific to east Africa. As now recognized, the genera *Parascorpaena* and *Sebastapistes* are included in the synonymy of *Scorpaena*, but the limits of the genus are poorly understood. *Parascorpaena* includes Indo-Pacific species which have cycloid, or at least feebly crenulate, scales on the body and have the posterior preorbital spine hooked forward; *S. orgila* does not possess these characters. *Sebastapistes*, also an Indo-Pacific group, contains species which have mostly ctenoid scales, partially scaled head, and the posterior preorbital spine pointing to the rear; the preorbital spination is different in *S. orgila* (fig. 1a). The genus *Scorpaena* contains eastern Atlantic species and a few Indo-Pacific species which have a naked chest. The chest in *S. orgila* is mostly scaled. Western Atlantic and most eastern Pacific species of *Scorpaena* have cycloid scales on the body, but they do not appear to be particularly closely related to the Indo-Pacific subgroup *Parascorpaena*. *Scorpaena orgila* seems to be most closely related to *S. cookii* Günther, 1873, from Norfolk Island and the Kermadec Islands, *S. uncinata* de Buen, 1961, from San Ambrosio and *S. thomsoni* Günther, 1880, from Juan Fernández Island, at least in squamation, body shape, and preorbital spination. *Scorpaena cookii* has more pectoral rays (probably 18 normally) and smaller scales (about 70 vertical scale rows) than does *S. orgila*. *Scorpaena orgila* is distinguished from *S. uncinata* by the presence in *S. uncinata* of a black patch on the distal third of the dorsal fin at the posterior dorsal spines. *Scorpaena orgila* also differs from *S. thomsoni* in coloration; the body is brownish with white spots in *S. thomsoni*, while *S. orgila* lacks the white spots and tends to have dark brown spots on a pale background. In any event, these four species, three from the offshore

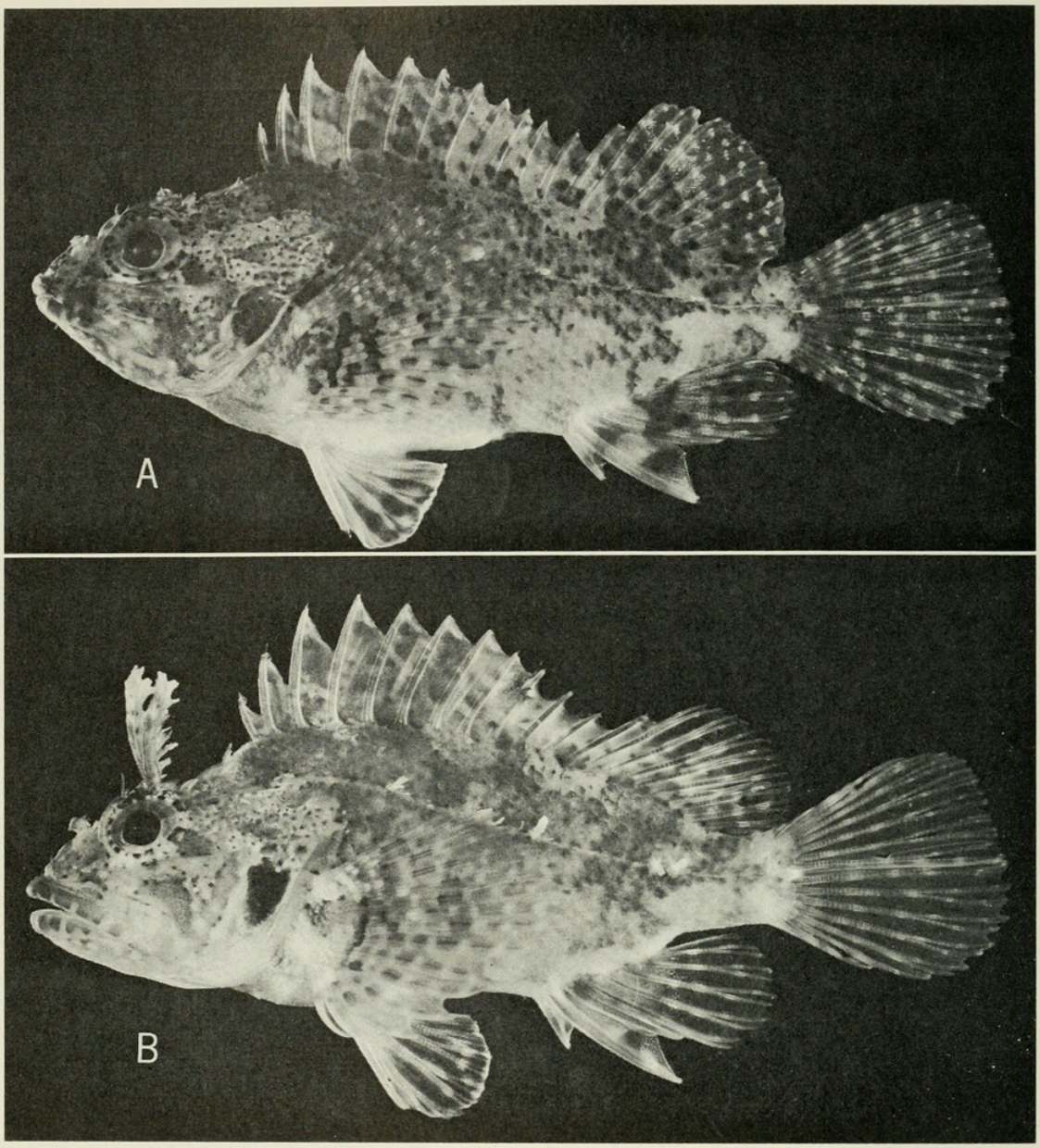

FIGURE 3. *Scorpaena pascuensis*. A. Holotype, CAS 24812, adult, 45 mm. S.L. B. Paratype, CAS 24813, adult, 53 mm. S.L.

islands of western South America and one from islands north of New Zealand, appear to be more closely related to each other than to other species. *Scorpaena pascuensis*, the other species of *Scorpaena* at Easter Island, is easily separated from *S. orgila* by having cycloid scales on the body, and it does not appear to be closely related on other features.

ECOLOGY. *Scorpaena orgila* was collected in tidepools and in depths to 60 meters. The large adults were taken at the deeper stations. This species is the largest and most colorful of the Easter Island scorpaenids, and is also the most

aggressive towards the diver. Large specimens of approximately 250 mm. in standard length were frequently observed resting under ledges or seemingly guarding the entrances to caverns. On one occasion a specimen lunged out towards John Randall, actually striking the spear which he held in his hand. The natives refer to this species as the "nohu," a name often associated with members of the genera *Scorpaenopsis* and *Synanceia* throughout the rest of Polynesia.

ETYMOLOGY. The specific name is based on the Greek adjective *orgilos*, prone to anger.

Scorpaena pascuensis Eschmeyer and Allen, new species.
(Figures 1b, 3, table 2.)

MATERIAL EXAMINED. *Holotype*: CAS 24812, formerly BPBM 6783, 45 mm. in standard length, wreck about 20 meters offshore between Hanga Roa and Hanga Piko, depth 10–15 feet, J. E. Randall and G. R. Allen, 27 January 1969. *Paratypes*: BPBM 6782 (3 specimens, 26–32 mm. in standard length); CAS 24813 (3, 22–53), CAS 24814 (1, 40, cleared and stained), and USNM 205210 (2, 39–51), all formerly BPBM 6782; off Tahai, small rock ledge adjacent to sand patch in 35 feet, J. E. Randall and G. R. Allen, 7 February 1969. BPBM 6784 (5, 23–56), west shore, between Hanga Piko and Hanga Roa, depth 1–3 feet, tidepools, J. E. Randall, G. R. Allen, B. A. Baker and E. Edwards, 25–26 January 1969. CAS 24815, formerly BPBM 6785 (1, 26), Hanga Piko in 1–3 feet, tidepools, J. E. Randall and G. R. Allen, 29 January 1969. CAS 24816, formerly BPBM 6786 (3, 21–25), tidepools between Hanga Piko and Hanga Roa in 1–3 feet, J. E. Randall and G. R. Allen, 6 February 1969. BC 65–451 (4, 20–36), Hanga Roa in 1–5 meters, I. E. Efford and J. A. Mathias, 2 February 1965. BC 65–417 (1, 21), Hanga Piko in 1 meter, I. E. Efford and J. A. Mathias, 31 December 1964. LACM 6560–14 (6, 33–45), east side of Anakena Cove, 100 yards NE. of sand beach, ketch *Chiriqui*, 0–15 feet, 1 October 1958.

DESCRIPTION. A small species, with cycloid scales, no well defined occipital pit, and chest and pectoral-fin base scaled. Dorsal fin usually with 12 spines and 9 soft rays (last double). Anal fin with 3 spines and 5 soft rays (last double). Pectoral fin reaching to or slightly beyond level of first anal spine; pectoral rays 15–16, usually 16, rays 2 or 3 through 5 or 6 branched in specimens greater than 39 mm. standard length, no branched rays in smaller specimens. Gill rakers 14–16 (including rudiments), 4 on upper arch, 10–12 on lower arch. Location of head spines as in figure 1b. Preorbital bone with 2 spines over maxillary, first directed forward, second directed down and to rear. Suborbital ridge with 2 spines, first under eye, second at end of suborbital ridge. Other spines present include nasal, pre-, supra-, and postocular, nuchal, parietal, tympanic, supplemental and 5 preopercular, upper and lower posttemporal, opercular, pterotic, sphenotic, and cleithral. Scales on body cycloid; vertical scale rows about 45; lateral line scales 23–24 plus 1 on caudal fin; most of head scaled. Vertebrae

TABLE 3. *Counts and measurements for some type specimens of* Scorpaenodes englerti *from Easter Island. (Measurements are in millimeters; numbers in parentheses are percentages of standard length.)*

	CAS 24806	*BPBM 6778*	*BPBM 6778*	*CAS 24807*	*CAS 24807*	*CAS 24807*	*USNM 205211*
Standard length	67.9	66.7	53.3	50.0	43.0	34.8	72.4
Dorsal fin rays*	13 + 10	13 + 10	13 + 10	13 + 10	13 + 10	13 + 9	13 + 10
Anal fin rays*	3 + 5	3 + 5	3 + 5	3 + 5	3 + 5	3 + 5	3 + 5
Pectoral fin rays*	19 + 19	19 + 19	19 + 19	20 + 20	19 + 19	19 + 19	19 + 19
Head length	29.2 (43)	28.4 (43)	23.7 (43)	21.8 (44)	18.8 (44)	15.2 (44)	31.7 (44)
Body depth	24.3 (36)	24.0 (36)	16.6 (31)	16.4 (33)	14.9 (35)	11.9 (34)	21.3 (29)
Orbit diameter	8.8 (13)	8.7 (13)	7.3 (14)	6.5 (13)	5.7 (13)	4.4 (13)	9.5 (13)
Snout length	6.7 (10)	6.5 (10)	5.4 (10)	4.9 (10)	4.4 (10)	3.6 (10)	7.5 (10)
Interorbital width	3.1 (05)	3.1 (05)	2.2 (04)	2.0 (04)	1.9 (04)	1.5 (04)	4.3 (06)
Jaw length	14.0 (21)	15.0 (22)	11.5 (22)	11.0 (22)	9.7 (23)	7.7 (22)	16.0 (22)
Predorsal-fin length	27.3 (40)	27.5 (41)	21.2 (40)	20.7 (41)	16.7 (39)	13.8 (40)	28.3 (39)
Pectoral fin length	24.2 (36)	25.4 (38)	19.0 (36)	18.7 (37)	15.6 (36)	13.3 (38)	27.1 (37)
Pelvic fin length	17.1 (25)	19.2 (29)	15.1 (28)	14.9 (30)	12.0 (28)	9.7 (28)	19.3 (27)
Caudal fin length	18.3 (27)	20.1 (30)	15.8 (30)	15.1 (30)	12.4 (29)	10.3 (31)	21.7 (30)

*Counts of 5 additional specimens: Dorsal rays 13 + 10 (3 specimens), 13 + 9 (1) and 14 + 9 (1); anal rays 3 + 5 (5); pectoral rays 19 + 19 (4) and 18 + 18 (1).

24 (6 specimens). Swimbladder absent. Palatine teeth present. Dermal flaps and tentacles inconspicuous except for supraocular tentacles; length supraocular tentacles about equal to orbit diameter, sometimes reduced. Orbit diameter slightly greater than snout length in smaller specimens or about equal to snout length in larger specimens, orbit diameter into snout length .7–1.0; orbit diameter into head length 3.3–3.9 (smaller specimens tend to have lower ratio). Color pattern in alcohol about as in figure 3 (taken from fresh specimen); most conspicuous feature a black spot on the opercle just posterior to first 3 preopercular spines (this feature also in *Scorpaenodes englerti*); body mostly light brown to gray on a pallid background, with a few small dark spots on fins usually present, but many specimens with fins mostly clear; a black spot on the dorsal fin between about spines 7–10, more restricted or absent in some specimens. Small specimens tend to have large pale areas between soft dorsal and anal fin and on caudal peduncle. In life, body mostly brown to greenish brown, mottled with light and dark areas; head brownish with small black dots, the dots extending onto the body; supraocular tentacles and other skin flaps on head and body pallid; spot behind preopercular spines brown to black; rays of soft dorsal fin, caudal fin, and anal fin alternately banded with brown and white; membranous portions of fins mostly unpigmented, except where body coloration extends onto bases of fins; base of pectoral fin strongly mottled with brown; belly and chest whitish.

COMPARISONS. *Scorpaena pascuensis* may be separated from the other species of *Scorpaena* from Easter Island quite easily on the basis of coloration, but it also differs in spination (fig. 1) and other features as discussed in the text, *e.g.*,

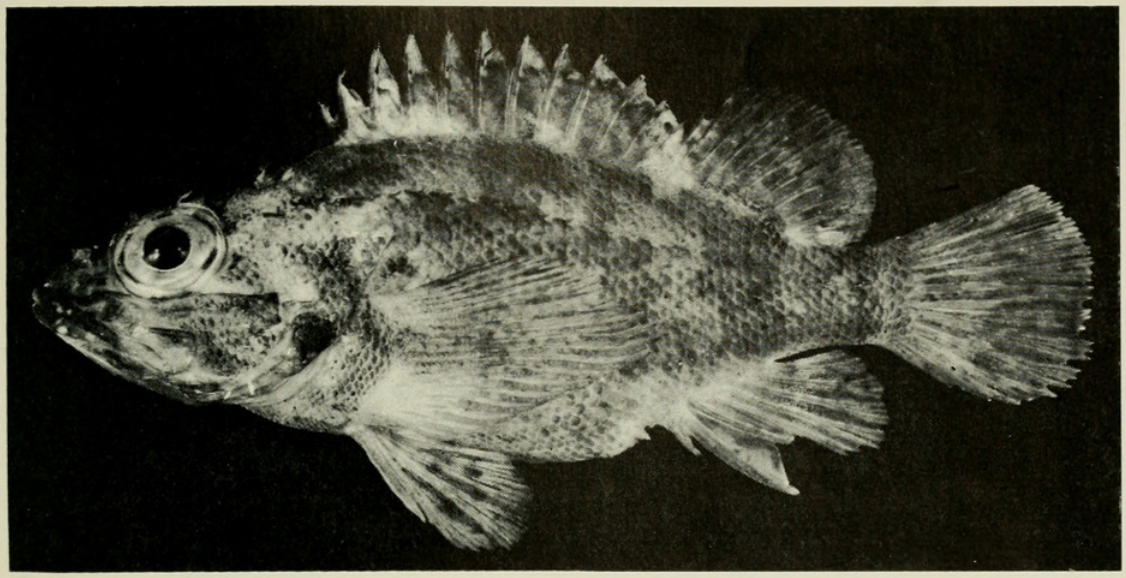

FIGURE 4. *Scorpaenodes englerti*, holotype, CAS 24806, adult, 68 mm. S.L.

ctenoid scales on the body in *S. orgila* and cycloid scales in *S. pascuensis*. *Scorpaena pascuensis* does not seem to have a particularly close relative in the Indo-Pacific, and the species does not fall into either the subgroup *Parascorpaena* or *Sebastapistes*. No eastern Pacific species appears closely related either.

ECOLOGY. *Scorpaena pascuensis* appears to be confined primarily to the rocky pools of the intertidal zone, where both adults and juveniles were collected. Several specimens were taken or observed in depths to about 15 meters, but none was collected or observed at the deeper depths sampled by Randall and Allen.

ETYMOLOGY. This specific name is based on the Spanish name for Easter Island, Isla de Pascua.

Scorpaenodes englerti Eschmeyer and Allen, new species.

(Figures 1c, 4; table 3.)

MATERIAL EXAMINED. *Holotype*: CAS 24806, formerly BPBM 6780, 68 mm. in standard length, west shore of Easter Island, between Hanga Roa and Hanga Piko, in tidepools, J. E. Randall and G. R. Allen, 25 January 1969. *Paratypes*: BPBM 6778 (2, 54–67), offshore from Ahu Akapu in 70 feet, J. E. Randall and B. A. Baker, 3 February 1969. CAS 24807 (3, 34–50), CAS 24808 (1, 70, cleared and stained), and USNM 205211 (2, 52–71), all formerly BPBM 6781, off Motu Tautara in 125 feet, over sand bottom near ledge, J. E. Randall and B. A. Baker, 12 February 1969. BPBM 6779 (1, 60), Mataveri o Tai, depth 20 feet, boulder and sand bottom, J. E. Randall and G. R. Allen, 2 February 1969. BC 65–455 (1, 47), Hanga Roa, subtidal, I. E. Efford and J. A. Mathias, 5 February 1965. LACM 6560–44 (1, 74), east side of Anakena Cove, 100 yards NE. of sand beach, 0–15 feet, ketch *Chiriqui*, 1 October 1958.

DESCRIPTION. Measurements and counts in table 3; location of head spines in figure 1c; body shape and coloration in figure 4.

Dorsal fin with 13 spines and normally 9 soft rays (last ray double). Anal fin with 3 spines and 5 soft rays (last double). Pectoral fin with 18–19 rays, some rays branched. Gill rakers 18–20 (including rudiments), usually 6 on upper arch and 12–14 on lower arch. Vertebrae 24 (7 specimens). Preorbital bone with 2 broad lumps over maxillary. Suborbital ridge usually with 2 spinous points, first under eye, second at end of suborbital ridge; no secondary row of spines below the suborbital ridge. Preopercular bone with small supplemental spine and first three preopercular spines, fourth and fifth preopercular spines virtually absent. Upper posttemporal spine absent. Interorbital spines usually present; two spines on frontal bones near midline usually present. Other spines present include nasal, pre-, supra-, and postocular, anterior and posterior parietal, lower posttemporal, opercular, tympanic, pterotic, sphenotic, cleithral, and a small spine between tympanic and pterotic spines. Scales weakly ctenoid; vertical scale rows about 45–55; pectoral fin base, chest, and head scaled. Skin appendages inconspicuous; usually small simple tentacles associated with most head spines. Color pattern in alcohol as in figure 4 (taken from fresh specimen); body and head with brown pigment on a pallid background, pigment mostly in large patches with paler areas between; a dark spot on opercle just behind upper preopercular spines usually well marked (as in *Scorpaena pascuensis*); brown patches on body concentrated in five or six saddle-shaped areas along the back, one across nape, three under spinous dorsal fin, one or two under soft dorsal fin, and one at base of caudal fin; dorsal fin with dusky or brown pigment as extension from brown saddle-shaped areas; pectoral fin usually with brown pigment at base; other fins mostly clear, sometimes dusky distally. In life body light brown to reddish brown, mottled with tan areas; opercular spot brown; dorsal, anal, and pelvic fins with distal fourth red or reddish brown; pectoral fin mostly pale with distal third of fin rays reddish; caudal fin rays banded with red, with pale areas between.

COMPARISONS. *Scorpaenodes englerti* belongs with the group of species of the genus *Scorpaenodes* which lack an additional spine or spines below the main suborbital ridge, and with those species which tend to lack the interorbital spines. The species is closely related to *S. xyris* from the eastern Pacific, to *S. littoralis* from Japan, and to *S. littoralis*-like specimens recently collected by John E. Randall at Hawaii and by the Australian Museum staff on the Barrier Reef off Australia. These species agree in body shape and spination, and they are quite similar in coloration, especially in having the dark spot on the opercle behind the upper preopercular spines. *Scorpaenodes englerti* appears to average lower in pectoral ray counts. A thorough study of the *S. littoralis*-like species is needed, however.

ECOLOGY. *Scorpaenodes englerti* exhibits a wide range of vertical distribution, specimens being collected at all sampled depths (surge pools to 40 meters).

ETYMOLOGY. This species is named in honor of Father Sebastian Englert, who lived on Easter Island for over 30 years and was an avid student of the archaeology and natural history of the island. He died in New Orleans, Louisiana, while on a tour of the United States to raise funds for the restoration of archaeological sites on Easter Island. He was buried in the courtyard of his small church on January 18, 1969, the same day that Randall and Allen arrived on the island.

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