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## Two New Species of the Gobiid Fish Genus *Gobionellus* from the Western Atlantic

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Two new "coarse-scaled" species of *Gobionellus* are described from the coast of northern South America. One species is known from five specimens—four males and a single female that were collected from or near the mouths of the Surinam River and the Rio Amazonas. This species is characterized by reduced eyes reminiscent of *Gobioides*. The other species is described from 16 specimens taken in estuaries in Surinam, French Guiana and Venezuela. It is similar in appearance to *Gobionellus boleosoma*, but differs in the number of second dorsal and anal rays, and the elongation of the jaws and caudal fins in both sexes.

AMONG specimens of *Gobionellus* examined from the northern coast of South America are some that cannot be assigned to any known species. These individuals represent two distinctive morphological forms. One of these is characterized by very small eyes and large jaws that reach to the posterior margin of the orbit in both sexes; whereas the other is characterized by eyes of normal size, a large shoulder patch of melanophores, and jaws that reach variably to either one-half the diameter of the orbit or to its rear margin. Both forms have an elongate caudal fin. Individuals of the former group most closely resemble certain South American specimens historically identified as *Gobionellus shufeldti*, based on a similar body form, squamation pattern, fin ray counts and pigmentation pattern. Those of the latter group would most likely be confused with *G. boleosoma* or *G. stigmaticus*, because of the mutual presence of a large patch of melanophores on the shoulder. Both forms clearly represent undescribed species, one of which (the small-eyed form) is here called *G. thoropsis*, and the other *G. phenacus*.

Although only five specimens of *G. thoropsis*

and 16 of *G. phenacus* have been discovered in museum collections, the area from which they were collected is the center of considerable commercial fishing activity. Individuals of *G. thoropsis* were taken in water 20-40 m deep in or near the mouths of the Surinam River and the Rio Amazonas. Although the bottom type was not noted, the surrounding area is generally flat and open. Assuming these fish were not strays from deeper water with rougher bottom, it would appear that larger numbers probably have been caught and either lost through the webbing of trawls or subsequently discarded because of their small size. The specimens of *G. phenacus* were taken in shallow estuarine waters more typical of other "coarse-scaled" *Gobionellus* species.

Both forms possess large scales, an incomplete lateral cephalic canal containing only an anterior otic pore and an intertemporal pore (Lachner and McKinney, 1974), have one more ray in the anal fin than in the second dorsal fin, have one triangular raker at the angle of the first gill arch and three triangular rakers on the ceratobranchial parallel to its axis, but lack gill rakers and fleshy processes on the epibranchial

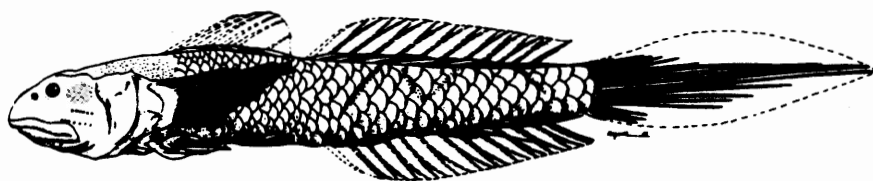


Fig. 1. Holotype of *Gobionellus thoropsis*, FMNH 90554, male, 37 mm SL.

portion. All of these character states are typical of most of the *Gobionellus* species Gilbert and Randall (1979) recognized as the "coarse-scaled" group. The limits of this group and its taxonomic status will be addressed in another work. The purpose of this paper is to describe and discuss these new species. Hopefully, more material will become available as other scientists working in northern South America become aware of their presence.

#### METHODS

Counts and measurements are based partly on methods described by Hubbs and Lagler (1958) and partly on those of Ginsburg (1932). Those following the former included: number of pectoral rays, standard length, upper jaw length, least fleshy interorbital width, eye length, longest pectoral ray and caudal peduncle length. Those done according to Ginsburg (1932) were: number of second dorsal rays, anal rays, lateral scale rows, transverse scale rows from the anal origin rearward to the second dorsal base, head length, predorsal (antedorsal) length, and caudal fin length. Counts done according to Ginsburg were described in his account of *G. stigmaturus*. Transverse scale rows were counted in this work forward from the anal fin origin to the base of the first dorsal fin. Caudal peduncle scale rows were counted from the anal terminus to the dorsal extension of the caudal fin at the base of the procurrent rays on the left side. Other measurements used were: head width, taken as the greatest straight line measure from preopercle to preopercle; longest pelvic ray, length of the innermost pelvic ray; body width, the greatest measure taken immediately posterior to the pectoral base; nape length, from the origin of the first dorsal fin to the median posterior interorbital pore; snout length, from the tip of the snout to the anterior margin of the orbit via a line through the posterior nares; preanal length, measured from the anus to the tip of the snout; postanal length, measured from the anus to the base of the caudal fin; and the

distance between the anal and second dorsal origins. Measurements were made with dial calipers and read to the nearest tenth millimeter. Measurements were expressed as proportions of standard length. Means were computed for arcsin-transformed values.

Terminology for the cephalic lateralis canals follows Lachner and McKinney (1974). Osteological characters were obtained from radiographs made at the Florida State Museum of the University of Florida and at the United States National Museum.

*Gobionellus thoropsis*, n. sp.  
Sperm goby  
Fig. 1

*Diagnosis.*—A "coarse-scaled" species of *Gobionellus* that is distinguished from all other members of the genus in having reduced eyes that do not fill the socket. This species is also characterized by an elongate caudal fin, a jaw extending to the rear margin of the orbit in both sexes, and a high pectoral-fin ray count (usually 18, 17–19).

*Description.*—Snout rounded, slightly overhanging jaw; head large (25% SL) and broad (18% SL, range 16–20% SL vs a body width immediately behind the pectorals of 9% SL); mouth large, with jaws extending to rear margin of the orbit; opercular membrane broadly connected to the isthmus, gill openings restricted; mouth slightly oblique; upper jaw protractile; lower jaw subequal to upper jaw; anterior nares tubular, near edge of snout and slightly lateral to the midline; posterior nares a large pit near anterior edge of orbit; snout, interorbital, cheek and opercle naked.

Tongue truncate; upper buccal membrane heavily papillose near base, a few papillae on either side of midline disjunct from the basal band, half the distance to the inner margin of the membrane; lower buccal membrane with a row of large, closely apposed papillae at its base on the inner edge of the lower jaw; hooklike

TABLE 1. MEASUREMENTS EXPRESSED AS HUNDREDTHS OF STANDARD LENGTH (SL). SL given in mm. Where more than one specimen was measured the mean is given followed by the range and sample size in parentheses.

Character	<i>G. thorpis</i>		<i>G. phnacus</i>	
	Males	Female	Males	Females
Standard length	59.7 (36.4–43.6; 4)	24.8 (1)	22.0 (16.0–29.0; 6)	24.0 (16.3–32.2; 6)
Head length	.25 (.24–.27; 4)	.25 (1)	.27 (.25–.28; 6)	.26 (.24–.28; 6)
Head width	.18 (.15–.20; 4)	.19 (1)	.19 (.18–.20; 6)	.17 (.15–.20; 5)
Jaw length	.16 (.15–.17; 4)	.15 (1)	.14 (.13–.16; 6)	.14 (.13–.14; 6)
Eye length	.04 (.03–.04; 4)	.04 (1)	.07 (.06–.07; 6)	.06 (.06–.08; 5)
Orbit length	.07 (.06–.07; 4)	.07 (1)	.08 (.06–.08; 6)	.07 (.07–.09; 5)
Interorb. width	.04 (.04–.06; 4)	.04 (1)	.03 (.03–.04; 6)	.03 (.02–.03; 5)
Snout length	.08 (.08–.09; 4)	.08 (1)	.07 (.06–.08; 6)	.08 (.07–.08; 5)
Body width	.10 (.09–.10; 4)	.10 (1)	.09 (.08–.10; 6)	.11 (.10–.12; 6)
Anal or./D2 or.	.15 (.14–.16; 4)	.17 (1)	.17 (.16–.18; 6)	.17 (.15–.19; 5)
Caud. ped. length	.12 (.11–.13; 4)	.12 (1)	.13 (.13–.14; 6)	.13 (.12–.13; 5)
Postanal length	.51 (.48–.53; 4)	.52 (1)	.52 (.51–.54; 6)	.53 (.51–.56; 5)
Preanal length	.54 (.53–.57; 4)	.55 (1)	.56 (.54–.60; 5)	.57 (.52–.59; 6)
Caudal length	.69 (.64–.74; 4)	.61 (1)	.46 (.42–.53; 6)	.45 (.39–.49; 6)
Pectoral length	.28 (.23–.31; 4)	.30 (1)	.26 (.24–.27; 6)	.26 (.24–.28; 6)
Pelvic length	.22 (.21–.23; 4)	.23 (1)	.23 (.22–.24; 5)	.21 (.20–.23; 6)

projection from the epibranchial portion of the first gill arch; four or five elongate papillae hanging from the upper region of the throat anterior to the upper pharyngeal toothplates; pharyngeal plates covered with fine, pin-like teeth.

Vomer without teeth; upper jaw with two rows of teeth, weak inner row and an outer row of large, highly recurved canines running between the anterior nares; two rows of canines in the lower jaw, inner row slightly recurved and smaller than outer row; large recurved canines on each side of lower jaw, just posterior to the tubular nares; a strongly recurved canine on either side of dentary symphysis inside of the innermost tooth row. Counts and body proportions are presented in Tables 1 and 2.

Preopercular canal present with three pores; nasal canals present with two pairs of pores, one pair above rear end of posterior nares, anteriormost pair anteromedial to tubular nares; supraorbital canal with a pair of anterior interorbital pores and median posterior interorbital pore; lateral cephalic canal abbreviated with an anterior otic pore and an intertemporal pore.

DI VI; D2 I-11; A I-12; P1 17–19, 18 mode; P2 I-5; second dorsal long with penultimate ray extending beyond procurrent caudal rays; second dorsal origin slightly in advance of anal fin; penultimate anal ray reaching beyond ventral procurrent caudal rays; spinous dorsal origin

behind pectoral and pelvic bases; pectoral base in advance of pelvic base; caudal fin extremely long and lanceolate in both sexes; spinous dorsal rays not produced, not reaching second dorsal; membrane connecting pelvic spines with a fimbriate margin; P1 reaching beyond anal origin; P2 to or shy of anus.

Ctenoid scales over most of body, from caudal fin to a diagonal from upper corner of pectoral base to a point slightly anterolateral to spinous dorsal origin, about four scale rows before fin, remainder of nape naked; base of pectorals and underlying trunk regions naked; chest naked;

TABLE 2. MODAL COUNTS FOR MERISTIC VARIABLES ARE GIVEN FOLLOWED BY THE RANGE AND SAMPLE SIZE IN PARENTHESES.

Character	<i>G. thorpis</i>	<i>G. phnacus</i>
2nd dorsal elements	12 (12–13; 5)	12 (11–12; 16)
Anal elements	13 (13–14; 5)	13 (12–13; 16)
Pectoral rays	18 (17–19; 10)	18 (17–19; 32)
Lateral scales	31 (30–34; 4)	29 (29–34; 12)
Transverse forward scales	12 (12–15; 4)	13 (12–15; 11)
Transverse rearward scales	9 (9–11; 4)	9 (9–11; 12)

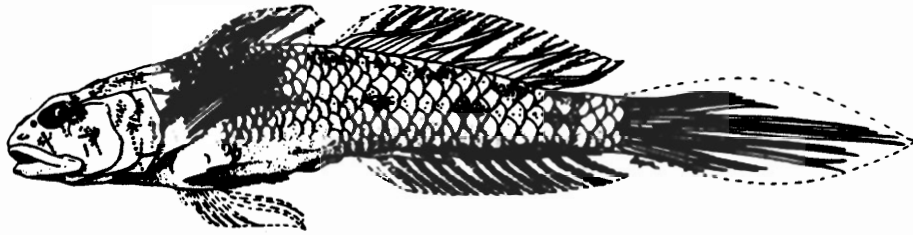


Fig. 2. Female paratype of *Gobionellus phenacus*, MBUCV 14128, 29 mm SL.

belly 3/4 covered with cycloid scales, naked near base of pelvics; four scale rows between the first and second dorsals; lateral scale rows 30–34; transverse rows between the anal origin and first dorsal base 12–14; transverse rows between the anal origin and second dorsal base 9–11; caudal peduncle scales (not circumferential) 9 or 10; head naked.

A large patch of melanophores at upper angle of pectoral base extended slightly posterodorsally; traces of diagonal bar pattern in the holotype; specimens otherwise pallid.

Pterygiophore formula is 3(12210) (Birdsong, 1975); 10 precaudal and 16 caudal vertebrae; incomplete neural arch formation over the caudal vertebrae; two epurals.

**Distribution.**—Known from waters off the coasts of Surinam and northern Brazil, and from the lower Rio Amazonas.

**Etymology.**—The name *thoropsis* is from the Greek *thoros* for “the male seed” and *opsis* for “resembling.” This selection was suggested by the body form as viewed from the dorsal aspect. From that perspective, the species shows a very broad head and a narrow, attenuated body with a long, trailing caudal fin.

**Material examined.**—Holotype: Field Museum of Natural History (FMNH) 90554, male, 37 mm SL: Surinam, N of Surinam River, 1.5 mi offshore, at 10 fathoms, 3 May 1957 (M/V COQUETTE).

Paratypes: FMNH 94890, 2 specimens, 37–41 mm SL: Surinam, N of Surinam River, 1.5 mi offshore, at 10 fathoms, 3 May 1957 (M/V COQUETTE). United States National Museum (USNM) 214066, 1 specimen, 25 mm SL: Mouth of Amazon, 0143'00"N, 04835'00"W, Foz do Rio Amazona (Para), 25 m depth, 13 June 1971 (GEOMAR). USNM 264992, 1 specimen, 44 mm SL: Atlantic Brazil, 0255'N, 04944'W, 14–20 fathoms, 9 May 1975 (OREGON II).

*Gobionellus phenacus*, Pezold and Lasala n. sp.  
Impostor goby

Fig. 2

**Diagnosis.**—Distinguished from other “coarse-scaled” species of *Gobionellus* in having: an elon-

gate caudal fin and a large jaw reaching posteriorly from one-half the diameter of the orbit to the rear margin of the orbit in both sexes; a shoulder patch of melanophores and diagonal bars forming a V pattern on the upper portion of the sides of the trunk; no ocelli on the body and head; unreduced eyes; and 12 second dorsal elements and 13 anal fin elements.

**Description.**—Snout rounded; head large (25–28% SL) and broad (18% SL); eyes not reduced; mouth large, jaws reaching posteriorly from one-half diameter of the orbit to rear margin of orbit; opercular membrane broadly connected to isthmus, gill openings restricted; mouth slightly oblique; upper jaw protractile; anterior nares tubular, posterior nares open pits.

Tongue slightly emarginate to bilobate; upper buccal membrane broad, with band of papillae near base; lower buccal membrane narrow with band of papillae immediately behind teeth; hooklike cartilaginous projection extending into the oral cavity from the end of the epibranchial arm of the first gill arch; large papillae in upper throat between the pharyngeal plates; pharyngeal plates with fine teeth.

Vomer without teeth; two rows of teeth in upper jaw; outermost row much larger, caniniform and fewer than those of inner row (2–3 teeth on either side); males with teeth in 2 or 3 rows in lower jaw and 2 or 3 large partially recurved canines on each side; females with a fine band of teeth in lower jaw and a single tusk-like tooth in outer row on each side in largest specimens; a few heavy teeth on either side of dentary symphysis in inner row. Counts and body proportions are presented in Tables 1 and 2.

Lateralis canals and pores are as described for *G. thoropsis*.

D1 VI; D2 I-11; A I-12; P1 17–19, 18 mode; P2 1–5; second dorsal, anal, pectoral and pelvic fin origins in same relative positions as in *G. thoropsis*; last anal and second dorsal rays reaching to or just past procurrent rays of caudal fin;

pectoral fins reaching beyond anal fin origin; pelvic fins not reaching anus; spines of first dorsal fin not produced; caudal fin elongate; membrane connecting pelvic spines fimbriate.

Ctenoid scales over most of body, but cycloid (reduced ctenoid) before diagonal line from middle of pectoral base to terminus of spinous dorsal and on ventral surface of abdomen; pectoral base, chest and head naked; nape with a few rows immediately before first dorsal origin; lateral scale rows 29–34; transverse scale rows from anal origin to D1 base 12–15; transverse rows from anal origin to D2 base 9–11; caudal peduncle scales (not circumferential) 6 or 7.

A stripe of melanophores across midcheek region from preopercle to corner of jaw; streak on snout from eye to middle of upper jaw, with spot on upper lip; top of head crossed by several bars; opercle with dusky patch; dark patch present at upper angle of opercle on trunk; five midlateral blotches on trunk, with diagonal dorsal arms forming a V pattern in adults; first dorsal with two diagonal bands; second dorsal with submarginal band and sometimes with pigment on bases of rays; pectoral fins dusted; pelvic fins clear in most, but one female with some pigment along part of fourth pelvic ray; anal fin clear; caudal fin lightly sprinkled with melanophores along rays and a suggestion of narrow bars in females.

Pterygiophore formula 3(12210); 10 precaudal and 16 caudal vertebrae; neural arches incomplete over caudal vertebrae; fourth neural spine with a broad base; epurals variably 1 or 2.

*Distribution.*—From near Puerto Cabello, Venezuela, the mouth of the Corantijn River in Surinam and the mouths of the Cayenne and Mahury rivers in French Guiana.

*Etymology.*—The name *phenacus* is from the Greek *phenakos* which means a cheat or impostor. This was chosen because specimens are (and have been) easily mistaken for darter gobies.

*Material examined.*—Holotype: University of Florida (UF) 34132, female, 25 mm SL; French Guiana, Cayenne River estuary near mouth, 23 July 1967 (Greenwood, Pritchard and Fourmanoir).

Paratypes: USNM 244155, 3 specimens, 14–20 mm SL; French Guiana, Mahury River below Le Degrad Des Cannes (new dock) near Cayenne, 0–1 m depth, 4 May 1975 (Collette). USNM 264990, 7 specimens, 11–20 mm SL; French Guiana, Mahury River at Le Degrad Des Cannes (new dock) near Cayenne, 0–1 m depth, 4 May 1975 (Collette). USNM 226247, 2 specimens, 25–28 mm SL; Surinam, Nickerie, mouth of the Corantijn River, close to the airport, 0558'N, 05701'W, 2.5 m depth, 14 May 1980 (Madarie). USNM 226248, 1 specimen, 32 mm SL; Surinam, Nickerie, Corantijn River, 0555'N, 05705'W, 2.5 m depth, 14 May 1980 (Madarie). Museo de Biología, Universidad Central de Ven-

ezuela 14128, 2 specimens, 29 mm SL; Venezuela, Estado Carabobo, Punta Moron, W de Puerto Cabello, 24 June 1982 (Lasala).

## DISCUSSION

Although these species are clearly members of the "coarse-scaled" group of *Gobionellus*, relationships within the group are uncertain at the present time. *G. phenacus* shares a basally flared fourth neural spine with *G. lepturus*, *G. manglicola*, *G. saepepallens*, *G. sagittula* and *G. smaragdus*. The significance of this character state is difficult to assess in the absence of additional characters. The presence of this character state in both of the only two "coarse-scaled" species of *Gobionellus* inhabiting Pacific waters (*G. sagittula* and *G. manglicola*; *G. daguae* is recognized as a member of the other major group in this genus) and in the only species found on the African coast suggests that a broad base for the fourth neural spine is primitive for the "coarse-scaled" group. This would make the presence of that character state uninformative for the interpretation of relationships. An ancillary problem is that the absence or loss of this state would be derived. It is impossible to distinguish the secondary loss of this state in a particular line or species from a condition in a line or species that resulted from the descent from ancestors that had never developed a broad base for that spine. Thus, the fact that *G. thorpopsis* does not have a broad based fourth neural spine also sheds little light on its relationship to other species in this group lacking that character state.

Although these species may be confused with other "coarse-scaled" species in northern South American waters, both present unique combinations of characters that allow their identification. Of the other species found in that area, only *G. smaragdus* exhibits a caudal fin of a length comparable to that found in *G. thorpopsis*. Regarding the difference in the size of the eyes, it is distinguishable from the sperm goby in having a unique pigmentation pattern of ocelli on the head and trunk colored red or orange in life, its 11 second dorsal elements and 12 anal fin elements, and by the scales on its chest. An enlarged jaw of comparable size to that of the sperm goby is found as a secondary sexual characteristic in males of *G. shufeldti* from North American estuaries. There is also a relative decrease in the size of the orbit with increasing body size in males of this species. In the sperm goby, it is the eye itself that is diminished in size

TABLE 3. SELECTED MEASUREMENTS FOR RELATED *Gobionellus* SPECIES. Mean values are given followed by range in parentheses. Values are expressed as hundredths of SL. SL is in mm.

	N	SL	Eye	Jaw	Caudal
<b>Males</b>					
<i>G. fasciatus</i>	20	40.7 (32.6–59.6)	.06 (.05–.07)	.10 (.08–.11)	.38 (.32–.45)
<i>G. shufeldti</i>	30	51.0 (29.0–66.0)	.05 (.05–.06)	.15 (.11–.20)	.35 (.28–.42)
<i>G. cf. shufeldti</i> , Brazil	7	39.2 (23.9–48.5)	.06 (.05–.07)	.10 (.09–.13)	.34 (.27–.40)
<i>G. smaragdus</i>	30	45.4 (22.7–71.8)	.06 (.05–.08)	.11 (.09–.14)	.54 (.42–.69)
<i>G. stigmaticus</i>	7	36.4 (29.8–43.3)	.07 (.06–.07)	.10 (.10–.11)	.48 (.45–.51)
<b>Females</b>					
<i>G. fasciatus</i>	15	41.2 (28.8–61.4)	.06 (.05–.08)	.09 (.08–.11)	.32 (.26–.35)
<i>G. shufeldti</i>	30	43.3 (28.9–58.5)	.06 (.05–.08)	.11 (.10–.13)	.32 (.28–.36)
<i>G. cf. shufeldti</i> , Brazil	9	39.2 (25.8–51.5)	.06 (.06–.08; 8)	.10 (.08–.11; 8)	.28 (.26–.33)
<i>G. smaragdus</i>	35	40.4 (13.9–57.9)	.06 (.05–.08)	.11 (.07–.13)	.45 (.30–.58)
<i>G. stigmaticus</i>	6	35.8 (28.5–40.7)	.07 (.06–.08)	.10 (.09–.11)	.41 (.36–.44)

(Table 1). Specimens from Brazil that are identified as *G. shufeldti* do not show the elongation of the jaw in males (Table 3). Even if males should show the longer jaw at larger sizes than those at hand, they do not show it at the same size that it is found in the sperm goby. These specimens also have a shorter caudal fin than *G. thoropsis*. A relatively long caudal fin is found in *G. stigmaticus* (Table 3), but this species lacks the elongate jaw and is distinctively pigmented on the head and trunk. Another species, *G. fasciatus*, is included for comparison (Table 3) because of the proximity of its range (Trinidad is the type locality). As may be noted from the table, the proportions of the jaw and caudal fin are not comparable to that found in *G. thoropsis*. In addition to the difference in the form of the fourth neural spine, *G. thoropsis* differs from *G. phenacus* in pigmentation and the relative length of the caudal fin. Thus, even if it were to be argued that the reduced eyes were of ecophenotypic origin, other combinations of characters suggest that *G. thoropsis* is distinct from the other nominal "coarse-scaled" species.

*G. phenacus* appears most like *G. boleosoma* superficially, because of its pigmentation pattern. It differs from that species in the number of second dorsal and anal fin elements; the darter goby has 11 second dorsal elements and 12 anal elements. The impostor goby also has a longer jaw and a longer caudal fin (Table 1) (see Ginsburg, 1932 for *G. boleosoma*), a higher number of pectoral rays on the average (Table 2) (see

*soma*. The impostor goby is distinguishable from *G. stigmaticus* on the basis of jaw size (Table (see Ginsburg, 1932 for *G. stigmaticus*), pigmentation of the cheek and trunk, dentition, pectoral ray number and the form of the fourth neural spine, which is simple in *G. stigmaticus*. The dash goby, *G. saepepallens* (Gilbert and Randall, 1979) is distinguished from *G. phenacus* by cheek and trunk pigmentation and pectoral ray number (Table 2). *G. smaragdus* differs from this species in the number of second dorsal and anal elements, the presence of ocelli on the head and trunk and the number of pectoral rays. Specimens assigned to *G. shufeldti* from South America differ in the number of pectoral rays, the length of the jaw and the length of the caudal fin (Tables 1–3). Specimens of *G. phenacus* may be separated from individuals of *fasciatus* and *pseudofasciatus* by differences in cheek pigmentation (Gilbert and Randall, 1979) they also differ in the size of the jaw and caudal fins, and in the form of the fourth neural spine (Tables 1 and 3).

*Comparative materials examined.*—*G. smaragdus*.—Brazil: Gulf Coast search Laboratory (GCRL) 9621 (46); Bahia, Isla Itaparica, S shore inlet at Caixa Pregos. Venezuela: GCRL 15514 (2); N Esparta, Margarita, Laguna La Restinga. United States (Florida): Indian River Coastal Zone Museum (IR) 107-4843 (4); St. Lucie Co., Indian River at Jim Island Flats. IR 107-2560 (5); St. Lucie Co., Indian River at Island Flats. Los Angeles County Museum 1448 (6); Collier Co., tip pool off State Hwy. 29, 1 mi S Everglades City, UF 11602 (14); Miami Co., Jupiter Island, drainage ditch 3 mi N of Jupiter Inlet. University of Michigan Museum of Zoology (UMMZ) 189754 (10); Dade County Biacayne Bay at Radio relay station, Virginia Key. Texas Natural History Collection (TNHC) 10860 (16); Palm Beach Co., W prong of

Poey. Honduras: FMNH 86678 (1); Brus Lagoon in 2.1–2.4 m. United States: TNHC 10703 (1); Florida, St. John's Co., Matanzas River at Hwy. A1A ca. 500 m N Marineland. GCRL 13824 (3); Mississippi, Mississippi Sound inside Dog Keys Pass. Texas Cooperative Wildlife Collection uncat. (4); Texas, Cameron Co., Mexiquita Flats, 1.6 km SE of Port Isabel Post Office off FM 100 on Long Island.

*G. fasciatus*.—Barbados: Royal Ontario Museum 36366 (91); St. Andrews, Green Pond, Morgan Lewis Beach. Panama: GCRL 12777 (9); Colon, Rio Guaniche about 1–1.5 km upstream from mouth. Venezuela: UMMZ 147507 (51); Caripano, El Cabelat, saline lagoon.

*G. cf. shufeldti*.—Brazil: Museu Oceanográfico Fundacao do Universidade do Rio Grande (MOFURG) 80–150 (2); Rio Grande do Sul, Quitéria, Povo Novo. MOFURG 80–111 (3); Rio Grande do Sul. MOFURG 80–34 (6); Rio Grande do Sul, Rio Grande, Porto Rei, Ilha Marinheiro. Academy of Natural Sciences of Philadelphia (ANSP) 121172 (5); Rio de Janeiro, Grussaí. ANSP 121211 (1); Rio de Janeiro, Atafona. UF 19209 (2); Rio de Janeiro, Atafona.

*G. shufeldti*.—United States: Tulane University 266 (18); Louisiana, St. Charles Parish, Bonnet Carre Spillway ponds along Airline Hwy. Freeport Sulphur Company Collection 10872 (47); Louisiana, Plaquemines Parish, Dennis Pass 2.1 mi NE Port Eads. University of New Orleans (UNO) 656 (708); Louisiana, Plaquemines Parish, Dennis Pass 2.75 mi NNE Port Eads lighthouse. UNO 769 (53); Louisiana, Plaquemines Parish, Dennis Pass at mouth, 2.1 mi NE Port Eads lighthouse. UNO 787 (223); Louisiana, Plaquemines Parish, Wright Pass .25 mi above E mouth, 3.6 mi NE Port Eads lighthouse.

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- (FP) DEPARTMENT OF ZOOLOGY AND THE TEXAS MEMORIAL MUSEUM, THE UNIVERSITY OF TEXAS AT AUSTIN, AUSTIN, TEXAS 78712 AND (CRG) THE FLORIDA STATE MUSEUM, UNIVERSITY OF FLORIDA, GAINESVILLE, FLORIDA 32611. PRESENT ADDRESS (FP): DEPARTMENT OF BIOLOGICAL SCIENCES, MISSISSIPPI STATE UNIVERSITY, MISSISSIPPI STATE, MISSISSIPPI 39762. Accepted 24 Feb. 1986.