

**Gurnard Fishes (Scorpaeniformes, Triglidae)  
from off New Caledonia,  
with description of five new species**

*Lluís del CERRO*

&

*Domènec LLORIS*

Institut de Ciències del Mar (C.S.I.C.)  
Passeig Joan de Borbó, s/n  
08039 Barcelona  
Spain

ABSTRACT

Eighteen bathyal species of Triglidae are recorded from the New Caledonian economic zone, of which five are new species (*Lepidotrigla annamarae*, *L. musorstom*, *L. nana*, *L. sereti*, and *Pterygotrigla robertsi*) and one is a new subspecies (*L. alcocki vaubani*). A key to all species is presented.

RÉSUMÉ

**Grondins (Scorpaeniformes, Triglidae) de Nouvelle-Calédonie, avec la description de cinq espèces nouvelles.**

Dix-huit espèces de grondins sont recensées de l'étage bathyal de la Zone Économique de Nouvelle-Calédonie. Cinq espèces (*Lepidotrigla annamarae*, *L. musorstom*, *L. nana*, *L. sereti*, et *Pterygotrigla robertsi*) et une sous-espèce (*L. alcocki vaubani*) sont décrites comme nouvelles. Une clef d'identification des espèces traitées dans cette étude est proposée.

---

DEL CERRO, L. & D. LLORIS, 1997. — Gurnard Fishes (Scorpaeniformes, Triglidae) from off New Caledonia, with description of five new species. In: SÉRET, B. (ed.), Résultats des Campagnes MUSORSTOM, Volume 17. *Mém. Mus. natn. Hist. nat.*, **174** : 91-124, Paris ISBN 2-85653-500-3.

## INTRODUCTION

Despite the environmental diversity of New Caledonia, there are relatively few studies on its ichthyofauna. FOURMANOIR & RIVATON (1979) described one new species of triglids from the area. Recently published checklists (RIVATON, 1989; RIVATON *et al.*, 1990) present an overview of the fish fauna, but very few species of Triglidae are listed.

The MUSORSTOM cruises in the Economic Zone of New Caledonia (see RICHER DE FORGES, 1990 for cruise reports) have carried out extensive sampling and yielded large numbers of specimens and taxa, including fishes of the family Triglidae. This is the first contribution dealing specifically with the representatives of this family in the New Caledonian region.

In modern systematic ichthyology, Triglidae and Peristediidae are treated as separate families or as subfamilies within the family Triglidae. Pending further studies on triglid phylogeny, we follow the opinion of NELSON (1990, pers. comm.) that "as long as we think that Triglinae and Peristediinae form a monophyletic lineage I prefer to combine them".

## METHODS

We present detailed descriptions of the new species but known species now recorded from New Caledonian waters are not redescribed, except when the original description was insufficient. Synonymy and type data of known species are given where appropriate. In the diagnosis and description of new species, data on the holotype are given first, followed in parentheses by those on the paratypes. The list of material examined includes cruise, station, geographical coordinates and depth where the specimens were captured, total length and, in parentheses, standard lengths of specimens.

Total and standard lengths are measured without the rostral processes. The length of the pectoral fin is measured from the upper axil of the fin to the posterior tip of its longest joined ray. The length of the first free pectoral ray (the uppermost) is measured from the upper axil of the ray to its posterior tip. The post-opercular length of the cleithral spine is the horizontal distance measured between the vertical lines at the level of the posterior edge of the opercular flap to that in the posterior tip of the cleithral spine. The height of the head is the vertical distance measured at the posterior edge of the orbit. Notation for the number of gill-rakers (GR) corresponds to the total number in the first left branchial arch (epibranchial plus ceratobranchial). The letter R refers to rudiments before or after the true gill-rakers. Throughout the paper, "rostral processes" are the forward extension of the first infraorbital bone, i.e. the forward directed bony structures of the head usually going beyond the pre-maxillary symphysis. We have mostly used this term as a synonym of "rostral appendages" and "rostral exertions" of other authors.

Abbreviations used: TL: total length; SL: standard length; HL: head length; PO: preorbital length (not including the rostral processes); OL: orbit length; D<sub>1</sub>: first dorsal fin; D<sub>2</sub>: second dorsal fin; P: pectoral fin; A: anal fin; LL: number of scales on the lateral line; GR: gill-rakers on the first left branchial arch.

Institutions and repositories: AMS: Australian Museum, Sydney, Australia; BMNH: The Natural History Museum, London, United Kingdom; IIPB: Institut de Ciències del Mar, Barcelona, Spain; IZUA: Instituto de Zoología, Universidad Austral de Chile, Valdivia, Chile; MNHN: Muséum National d'Histoire Naturelle, Paris, France; NMNZ: Museum of New Zealand, Wellington, New Zealand; NSMT: National Science Museum (Natural History), Tokyo, Japan; USNM: National Museum of Natural History, Washington, DC, USA.

## SYSTEMATIC ACCOUNT

## IDENTIFICATION KEY TO THE TRIGLIDS OF NEW CALEDONIA

Family **TRIGLIDAE**

- 1 Body completely covered by bony plates. Teeth lacking in both jaws or only present on upper jaw. Tongue absent or vestigial. Without cleithral spine. Barbels around mouth conspicuous. Pectoral fins with two free rays .....Subfamily **PERISTEDIINAE** (2)
- 1' Body completely covered by scales (ctenoid and/or cycloid). Teeth present in both jaws and may exist on vomer and palatines. Tongue present. With a cleithral spine which may be apparent, reduced or embedded in skin. No conspicuous barbels around mouth. Pectoral fins with three free rays ..... (3)

Subfamily **PERISTEDIINAE**

- 2 Upper jaw with a band of teeth ..... Tribe **GARGARISCINI** (4)
- 2' Teeth lacking in both jaws ..... Tribe **PERISTEDIINI** (5)

Subfamily **TRIGLINAE**

- 3 With bony plates set in front and at both sides of first dorsal fin base. Scales of body small, cycloid, not imbricated and embedded in skin..... Tribe **PTERYGOTRIGLINI** (8)
- 3' With spiny bucklers erect or not on first dorsal fin base; spiny bucklers always erect on second dorsal fin base. Scales ctenoid and/or cycloid and imbricated ..... Tribe **TRIGLINI** (13)

Tribe **GARGARISCINI**

- 4 A small, weakly developed spine present at lower preopercular angle ..... Genus *Heminodus*  
(no species found in the area)
- 4' A long and well developed spine at lower preopercular angle ..... Genus *Paraheminodus*  
(only one species: *P. murrayi*)

Tribe **PERISTEDIINI**

- 5 Head narrow, sub-rectangular. A vestigial or even absent spine at lower preopercular angle ..... Genus *Peristedion*  
(only one species: *P. picturatum*)
- 5' Head wide, sub-triangular. A well developed spine at lower preopercular angle ..... Genus *Satyrichthys* (6)
- 6 Filamentous barbel very long, reaching vent ..... *S. orientale*
- 6' Filamentous barbel very short, hardly reaching first ventral scute ..... 7
- 7 Rostral processes convergent and expanded at anterior tip ..... *S. moluccense*
- 7' Rostral processes sub-parallel or slightly divergent ..... *S. quadratorostratus*

Tribe **PTERYGOTRIGLINI**

- 8 Rostral processes short, their length lesser than orbit length. Preorbital length (without rostral processes) smaller than half of head length..... Genus *Pterygotrigla* (9)

- 8' Rostral processes long, about twice length of orbit length. Preorbital length (without rostral processes) equal or lesser than half of head length..... Genus *Parapterygotrigla* (12)
- 9 Scales of lateral line enlarged, much higher than long. Posterior tip of pectoral fin not reaching middle of anal fin length ..... *P. macrolepidota*
- 9' Scales of lateral line sub-circular or tubular. Posterior tip of pectoral fin extending beyond middle of ventral fin length ..... 10
- 10 Cleithral spine very short or absent, reduced to a rounded, not very evident, basal plate ..... *P. tagala*
- 10' Cleithral spine is long and sharp, with a wide base ..... 11
- 11 Opercular spine inconspicuous, not extending beyond posterior margin of opercular flap .....  
..... *P. robertsi* sp. nov.
- 11' Opercular spine very long and stout, clearly extending beyond posterior margin of opercular flap ..... *P. picta*
- 12 Pectoral fin very long, reaching to or extending beyond posterior end of anal fin. Rostral processes parallel or slightly convergent, with a small antrose spine, on their outer part base ..... *P. multicellata*
- 12' Pectoral fin short, not extending beyond a vertical line at middle of anal fin. Rostral processes slightly divergent and without spine on their base ..... *P. megalops*

#### Tribe TRIGLINI

- 13 Head with a post-ocular groove complete (from side to side) or incomplete (limited to a furrow behind orbits). Body scales usually large and ctenoid, sometimes cycloid in ventral region. Less than 70 scales in lateral line. Teeth on vomer present or absent  
..... Genus *Lepidotrigla* (14)
- 13' No post-ocular groove in occipital region. Body scales usually small and cycloid. More than 70 scales in lateral line. Teeth always present on vomer..... Genus *Chelidonichthys*  
(no species found in the area)
- 14 Post-ocular groove complete. .... *L. grandis*
- 14' Post-ocular groove incomplete ..... 15
- 15 Length of pectoral fin less than head length . Posterior tip of pectoral fin at same level as that of ventral fin ..... *L. alcocki vaubani* subsp. nov.
- 15' Length of pectoral fin equal to or greater than head length. Posterior tip of pectoral fin reaching beyond ventral fin tip ..... 16
- 16 Spines of first dorsal fin, when depressed, reaching second dorsal fin origin..... *L. nana* sp. nov.
- 16' Spines of first dorsal fin, when depressed, not reaching second dorsal fin origin ..... 17
- 17 A spine present on outer margin of head, half way between orbit and rostral processes. Pectoral fin completely white and without markings on either side ..... *L. sereti* sp. nov.
- 17' No spine on outer margin of head. Pectoral fin blackish, mostly visible on inner side ..... 18
- 18 Uppermost free pectoral ray reaching posterior tip of ventral fin ..... *L.* sp. cf. *abyssalis*
- 18' Uppermost free pectoral ray not reaching posterior tip of ventral fin ..... 19
- 19 Pectoral fin very long, its posterior tip reaching level of base of tenth anal fin ray or extending beyond anterior anal fin origin by a distance of about twice orbit length .....  
..... *L. musorstom* sp. nov.
- 19' Pectoral fin relatively short, its posterior tip reaching level of the base of third anal fin ray or extending beyond anterior anl fin origin by a distance of about one orbit length .....  
..... *L. annamarae* sp. nov.

Family **TRIGLIDAE**  
Subfamily **PERISTEDIINAE**

Genus **PARAHEMINODUS** Kamohara, 1957

*Paraheminodus murrayi* (Günther, 1880)

*Peristethus murrayi* Günther, 1880: 52-53, pl. XXXIIa. Locality: Banda Sea in 200 fathoms (= 366 m).

*Satyrichthys murrayi*: KAMOHARA, 1952: 9-10. — OCHIAI & YATOU in MASUDA *et al.*, 1984: 335-336.

*Paraheminodus murrayi*: MILLER, 1974: 70.

MATERIAL EXAMINED. — 5 specimens.

**Banda Sea.** Holotype (BMNH 1879-5-14-265) 178.2 mm TL (161.2 mm SL), capture data unknown, 360 m depth.

**Chesterfield and Bellona Plateaus.** MUSORSTOM 5: stn CC 365, 19°42.8'S, 158°48.0'E, 710 m depth, otter trawl, R. V. "Coriolis", 19 October 1986: 3 specimens, 265, 230 and 214 mm TL (respectively 234, 202 and 187 mm SL) (MNHN 1995-515). — Stn CC 366, 19°45.4'S, 158°45.6'E, 650 m depth, 19 October 1986: 1 specimen, 234 mm TL (caudal fin broken) (MNHN 1995-486).

DIAGNOSIS. — A band of villiform teeth in the upper mandible. Head broadly expanded laterally. A long and well developed spine in lower preopercular angle. Rostral processes about 3.5 in HL, flattened, nearly parallel and expanded at tip. Seven pairs of barbels including the filamentous one. Posterior tip of pectoral fin reaching level of 6th to 8th anal rays. D<sub>1</sub> VII; D<sub>2</sub> 20-22; A 20-22; P 14-15; GR 12 + R.

DISTRIBUTION. — New Caledonia. Banda Sea (GÜNTHER, 1880), Japan (KAMOHARA, 1952), Tosa Bay (OCHIAI & YATOU in MASUDA *et al.*, 1984).

REMARKS. — The MUSORSTOM specimens differ in several morphometric and meristic characters from the holotype, e.g. the mesethmoidal spine is absent in the latter but present in all New Caledonian specimens.

Genus **PERISTEDION** Lacepède, 1801

*Peristedion picturatum* McCulloch, 1926

*Peristedion picturatum* McCulloch, 1926: 212-214, pl. LVI, figs 1, 2 and 3. Locality: East of Flinders Island, Bass Strait (Australia) in 70-100 fathoms (= 128-183 m).

*Peristedion picturatum*: MCCULLOCH, 1929-1930: 396.

MATERIAL EXAMINED. — 12 specimens.

**New Caledonia** MUSORSTOM 4: stn CC 202, 18°58.0'S, 163°10.5'E, 580 m depth, otter trawl, R. V. "Vauban", 20 September 1985: 7 specimens, 151, 152, 152, 149, 142, 144 and 148 mm TL (respectively 136, 135, 133, 127, 130 and 132 mm SL) (MNHN 1995-492).

**Chesterfield and Bellona Plateaus.** MUSORSTOM 5: stn CC 365, 19°42.8'S, 158°48.0'E, 710 m depth, otter trawl, R. V. "Coriolis", 19 October 1986: 2 specimens, 159 and 158 mm TL (respectively 143 and 141 mm SL) (MNHN 1995-493).

**Loyalty Islands.** MUSORSTOM 6: stn CC 470, 21°04.4'S, 167°33.2'E, 560 m depth, otter trawl, R. V. "Alis", 21 February 1989: 3 specimens, 151, 158 and 148 mm TL (respectively 140, 142 and 132 mm SL) (MNHN 1995-487).

DIAGNOSIS. — Head narrow, sub-rectangular. No spine or a vestigial at lower preopercular angle. Two pairs of ventral scutes before vent. Two pairs of scutes between vent and first anal ray. D<sub>1</sub> VIII; D<sub>2</sub> 20-23; A 20-23; P 12-13; GR 21-26.

DISTRIBUTION. — New Caledonia. East of Flinders Island, Bass Strait (Australia) (McCulloch, 1926).

REMARKS. — All the specimens examined show two plates between the first anal ray and the vent. The specimens have two plates before the vent although some of them have a furrow-like vertical structure in the posterior ventral plate. This structure may have led some authors to count a third ventral plate, but in our specimens it is only present on one side and it does not articulate with the second ventral plate.

Genus *SATYRICHTHYS* Kaup, 1873

*Satyrichthys moluccense* (Bleeker, 1851)

*Peristedion moluccense* Bleeker, 1851: 1: 24. Locality: "Habit. in Banda Neira, in mari (Brandes)".

*Satyrichthys welchi* Herre, 1925: 292, pl. 1.

*Peristethus moluccense*: GÜNTHER, 1880: 42 (citation).

*Satyrichthys welchi*: KAMOHARA, 1936: 436, 440, pl. 30 fig. 5. — KAMOHARA, 1952: 13. — MILLER, 1974: 65. — GLOERFELT-TARP & KAILOLA, 1984: figs page 119 (partim) and 119. — RIVATON *et al.*, 1990: 100.

*Satyrichthys moluccense*: MILLER, 1974: 65 (citation). — GLOERFELT-TARP & KAILOLA, 1984: figs page 119 (partim) and 119. — PAXTON *et al.*, 1989: 457.

(?) *Satyrichthys isokawae*: YATOU & OKAMURA in OKAMURA *et al.*, 1985: 586-589.

MATERIAL EXAMINED. — 2 specimens.

**New Caledonia** MUSORSTOM 4: stn CP 172, 19°52.9'S, 158°38.6'E, 380-390 m depth, beam trawl, R. V. "Vauban", 17 September 1985: 375 mm TL (332 mm SL) (MNHN 1995-514).

**Chersterfield and Bellona Plateaus**. MUSORSTOM 5: stn CP 373, 19°52.9'S, 158° 38.6'E, 380-390 m depth, beam trawl, R. V. "Coriolis", 20 October 1996: 548 mm TL (487 mm SL) (MNHN 1995-513).

DIAGNOSIS. — Species of Group C as defined by MILLER (1974: 64). Dorsal softrays 17-18, anal rays 17. Two lip barbels. Filamentous barbel very short, hardly reaching first ventral scute. Accessory barbels of filamentous barbel lack any membrane at their junction. Superomedian scutes 33. Gill-rakers on first arch 18-19. Rostral processes large, depressed, strongly convergent and somewhat expanded at tip. D<sub>1</sub> VII; D<sub>2</sub> 17-18; A 17; P 14-15; GR 18-19.

DISTRIBUTION. — New Caledonia. Banda Sea (BLEEKER, 1851). Ki Islands (GÜNTHER, 1880). NW shelf, Western Australia (PAXTON *et al.*, 1989). Possibly Philippine Archipelago and adjacent areas (See Remarks).

REMARKS. — Characters given for *S. moluccense* (Bleeker, 1851) or *S. welchi* (Herre, 1925), both included in species Group C of MILLER (1974: 64), apply equally to the other species: dorsal softrays 14 to 18; anal softrays 14 to 18; lip barbels 2 to 3; superomedian scutes 32 to 34.

*Satyrichthys orientale* (Fowler, 1938)

*Nemaperistedion orientale* Fowler, 1938: 127-128, fig. 61. Locality: between Gillolo and Makyan Islands (Philippines), 0°16.5'N, 127°30'E, 272 fathoms (= 497 m).

*Satyrichthys orientale*: MILLER, 1974: 70.

*Nemaperistedion orientale*: YATOU in OKAMURA *et al.*, 1985: 594, 595 and 727.

MATERIAL EXAMINED. — 1 specimen.

**New Caledonia.** MUSORSTOM 4: stn CP 238, 22°13.0'S, 167°14.0'E, 500-510 m depth, beam trawl, R. V. "Vauban", 2 October 1985: 176 mm TL (154 mm SL) (MNHN 1995-495).

**DIAGNOSIS.** — 2 + 1 lip barbels and 2 + 1 + 1 chin barbels in each hemimandible. Filamentous barbel very long and reaching vent. Some accessory barbels of the filamentous barbel with a membrane at their base joining them with the filamentous barbel. A long preopercular spine with its posterior tip extending beyond middle of pectoral fin. Without accessory preopercular spine. Rostral processes clearly triangular with broad base. D<sub>1</sub> VII; D<sub>2</sub> 21; A 22; P 15; GR 21.

**DISTRIBUTION.** — New Caledonia. Tosa Bay, East China Sea, Philippines and Indonesia (YATOU *in* OKAMURA *et al.*, 1985).

**REMARKS.** — As far as we know, only two descriptions of the present species have been published since its original description (MILLER, 1974; YATOU *in* OKAMURA *et al.*, 1985), and these do not agree about its placement in the genus *Nemaperistedion* Fowler, 1938. MILLER (1974: 70) does not recognize it based on the characters used by Fowler, while YATOU (*in* OKAMURA *et al.*, 1985: 595, 727) accepts it without discussion. We agree with MILLER (1974) that the generic characters given by Fowler are not enough to separate *Nemaperistedion* from *Satyrichthys*.

*Satyrichthys quadratorostratus* (Fourmanoir & Rivaton, 1979) comb. nov.

*Peristedion quadratorostratus* Fourmanoir & Rivaton, 1979: 423, fig. 15. Locality: South-west off Ile des Pins (New Caledonia) in 360 m.

*Peristedion quadratorostratus*: RIVATON *et al.*, 1990: 100 (citation).

**MATERIAL EXAMINED.** — 11 specimens.

**New Caledonia.** Two syntypes: 124.9 mm TL (109.8 mm SL) (MNHN 1978-478); 121.2 mm TL (109.3 mm SL) (MNHN 1982-1), 17°30'S, 167.30'E, 360 m depth, bottom trawl, date unknown.

**BIOCAL:** stn CP 42, 22°45.1'S, 167°12.2'E, 380 m depth, beam trawl, R. V. "Jean Charcot", 30 August 1985: 1 specimen, 135.2 mm TL (119.1 mm SL) (MNHN 1995-512). — Stn CP 45, 22°47.3'S, 167°14.8'E, 430-465 m depth, beam trawl, 30 August 1985: 1 specimen, 136 mm TL (122.1 mm SL) (MNHN 1995-496). — Stn CP 109, 22°11.9'S, 167°15.9'E, 495-515 m depth, beam trawl, 9 September 1985: 1 specimen, 159 mm TL (142 mm SL) (MNHN 1995-488).

**MUSORSTOM 4:** stn CP 213, 22°51.3'S, 163°12.0'E, 405-430 m depth, beam trawl, R. V. "Vauban", 28 September 1985: 2 specimens, 103.6 and 103.0 mm TL (respectively 89.3 and 90.6 mm SL) (MNHN 1995-491). — Stn CC 245, 22°07.0'S, 167°11.0'E, 415-435 m depth, otter trawl, 3 October 1985: 1 specimen, 167 mm TL (149 mm SL) with a mandibular teratology (MNHN 1995-485).

**Norfolk Ridge.** CHALCAL 2: stn CP 25, 23°38.6'S, 167°43.1'E, 418 m depth, beam trawl, R. V. "Coriolis", 30 August 1986: 1 specimen, 140 mm TL (123.2 mm SL) (MNHN 1995-489).

**BERYX 2:** stn 31, 23°39.1'S, 167°43.7'E, 430-440 m depth, beam trawl, R. V. "Alis", 18 October 1992: 1 specimen, 151 mm TL (133 mm SL) (NMNZ-P.29389). — Stn 32, 23°37.7'S, 167°43.7'E, 420-460 m depth, beam trawl, 18 October 1992: 1 specimen, 148 mm TL (130 mm SL) (NMNZ-P.29290).

**DIAGNOSIS.** — Head large and spinulous, even in occipital region. Rostral projections long, flat, parallel and slightly divergent anteriorly, being more than 40% of head length (without rostral projections). Filamentous barbel very short and not reaching posterior margin of orbit. Accessory barbels of filamentous barbel without membrane at their junction. Barbels on lower lip 3 (mode) to 4. D<sub>1</sub> VII; D<sub>2</sub> 20-22; A 20-22; P 13-16; GR 21-24.

**DISTRIBUTION.** — Known only from New Caledonia.

REMARKS. — FOURMANOIR & RIVATON (1979: 423) state that the preopercular spine is 1.5 times as long as the eye. This is true when the spine is measured along its outer edge, but in this case, the anterior origin of the spine is rather inaccurate. If the length is taken from the inner axil (at the junction with the opercular flap), the spine is about the same length as that of the orbit.

This species is herein placed in *Satyrichthys*, because it has the diagnostic characters of this genus as defined by KAUP (1873: 82).

### Subfamily TRIGLINAE

Genus *LEPIDOTRIGLA* Günther, 1860

*Lepidotrigla* sp. cf. *abyssalis* Jordan & Starks, 1904

MATERIAL EXAMINED. — 1 specimen.

**New Caledonia.** MUSORSTOM 4: stn CC 248, 22°09'S, 167°13.3'E, 435-460 m depth, otter trawl, R. V. "Vauban", 4 October 1985: 1 specimen, 170 mm TL (134.6 mm SL) (MNHN 1995-508).

DIAGNOSIS. — Post-ocular groove incomplete. Pectoral fin extending beyond posterior tip of ventral fin for a distance about equal to orbit length. Pectoral fin longer than head length. First free pectoral ray reaching posterior tip of ventral fin. First dorsal fin, when depressed, not reaching second dorsal fin. Pectoral fin blackish. No rostral spine [*sensu* TEAGUE (1951)]. D<sub>1</sub> IX; D<sub>2</sub> 15; A 15; P 11 + 3; LL 62; GR 6 + R.

DISTRIBUTION. — New Caledonia. The distribution of *L. abyssalis* is not included because of the provisionnal status of the New Caledonian specimen.

REMARKS. — We have left this New Caledonian specimen as *Lepidotrigla* sp. cf. *abyssalis* because it does not exactly fit with the original description and also because it has been impossible to compare it with the type specimen.

*Lepidotrigla alcocki* Regan, 1908

*Lepidotrigla alcocki* Regan, 1908: 240, pl. 28, fig. 4. Locality: Saya de Malha Bank, in over 123 fathoms (= 225 m).

(?) *Lepidotrigla spiroptera* (typogr. error); MATSUBARA & HIYAMA, 1932: 38-41 (description).

(?) *Lepidotrigla spilopectera*; KURONUMA, 1939: 237.

*Lepidotrigla alcocki*: MATSUBARA & HIYAMA, 1932: 40-41. — RICHARDS & SAKSENA, 1977: 220. — RICHARDS *in* FISCHER & BIANCHI, 1984: TRIGL page 3 and Lepid 4. — RICHARDS, 1992: 46, 52, 54 and 62.

MATERIAL EXAMINED. — 3 specimens.

**Saya de Malha Bank.** Syntypes of *Lepidotrigla alcocki* Regan, 1908, date unknown, coll. Gardiner, 144.6 mm TL (124.1 mm SL) and 126.8 mm TL (109.4 mm SL) (BMNH 1908.3.23.212-213).

**Kai Islands.** Holotype of *Lepidotrigla spilopectera* Günther, 1880, date unknown, coll. "Challenger", 126.8 mm TL (102.7 mm SL) (BMNH 1879.5.14.269).



*Lepidotrigla alcocki vaubani* subsp. nov.

Table 1

MATERIAL EXAMINED. — 1 specimen.

**New Caledonia.** MUSORSTOM 4: stn CP 190, 19°06.3'S, 163°29.5'E, 215 m depth, beam trawl, R. V. "Vauban", 19 September 1985: holotype, 129.6 mm TL (105.5 mm SL) (MNHN 1995-494).

DIAGNOSIS. — Post-ocular groove incomplete. Pectoral fin reaching posterior tip of ventral fin. Pectoral fin smaller than head length. First free pectoral ray not reaching posterior tip of ventral fin. First dorsal fin, when depressed, not reaching second dorsal fin. Snout length equal to horizontal length of eye. Breast and interpelvic area naked. Nape and belly scaled. Pectoral fin blackish. No rostral spine [*sensu* TEAGUE (1951)]. D<sub>1</sub> VIII; D<sub>2</sub> 16; A 16; P 11 + 3; LL 62; GR 7 + R.

DISTRIBUTION. — New Caledonia.

TABLE 1. — Morphometric (in mm) and meristic variables of the holotype of *Lepidotrigla alcocki vaubani* subsp. nov. (MNHN 1995-494)

| MORPHOMETRIC CHARACTERS             |        |
|-------------------------------------|--------|
| Total length                        | 129.6  |
| Standard length                     | 105.5  |
| Head length                         | 34.9   |
| Length of rostral processes         | 2.6    |
| Pre-orbital length                  | 13.2   |
| Orbital length                      | 13.2   |
| Interorbital length                 | 6.1    |
| Post-orbital length                 | 11.8   |
| Maxillary length                    | 11.6   |
| Cheek height                        | 11.3   |
| Pre-D <sub>1</sub> length           | 34.0   |
| D <sub>1</sub> base length          | 19.1   |
| Pre-D <sub>2</sub> length           | 56.2   |
| D <sub>2</sub> base length          | 33.0   |
| Pectoral fin length                 | 32.0   |
| 1st free pectoral ray length        | 27.3   |
| Pre-anal length                     | 58.9   |
| Anal fin base length                | 34.0   |
| Cleithral spine: post-operc. length | 6.4    |
| Head height                         | 24.1   |
| MERISTIC CHARACTERS                 |        |
| D <sub>1</sub> spines               | 8      |
| D <sub>2</sub> rays                 | 16     |
| Anal rays                           | 16     |
| Pectoral rays                       | 11     |
| Gill-rakers                         | 7 + 2R |
| Lateral line scales                 | 62     |

REMARKS. — This specimen shares a number of characters with *L. spiloptera* and *L. alcocki*. Its rostral processes resemble those illustrated by MATSUBARA & HIYAMA (1932: fig. 14) and KURONUMA (1939: fig. 4A) for *L. spiloptera*, but their identifications have been questioned (RICHARDS & SAKSENA, 1977). In the table presented by MATSUBARA & HIYAMA (1932: 41) to differentiate *L. alcocki* from *L. spiloptera*, the New Caledonian specimen fits with point 1 for *L. spiloptera*, points 2, 3 and 4 for *L. alcocki*, and is not in agreement with the values given for any of the two species for point 5. The napes of the type specimens of *L. spiloptera* and *L. alcocki* are scaly, although described as scaleless by RICHARDS & SAKSENA (1977). The nape of the New Caledonian specimen is scaled. In the type specimens of *L. spiloptera* and *L. alcocki*, the preorbital lengths are longer than the orbit length, whereas their lengths are equal in the New Caledonian specimen. Despite a number of characters in common with *L. spiloptera* and *L. alcocki*, the New Caledonian specimen is distinguished by a number of slight differences, and this is why we have chosen to describe it as a new subspecies rather than as a new species.

*Lepidotrigla annamarae* sp. nov.

Fig. 1, Table 2

MATERIAL EXAMINED. — 6 specimens.

**New Caledonia.** MUSORSTOM 4: stn CP 170, 18°57'S, 163°12.6'E, 485 m depth, beam trawl, R. V. "Vauban", 17 September 1985: 2 paratypes, 195 mm TL (157 mm SL) (MNHN 1994-317), 160 mm TL (128.4 mm SL) (IPB-6/1994) — Stn CC 202, 18°58'S, 163° 10.5'E, 580 m depth, otter trawl (shrimps), 20 September 1985: 2 paratypes, 201 mm TL (161 mm SL) (MNHN 1994-318), 183 mm TL (148 mm SL) (IIPB-164/1994). — Stn CC 245, 22°07'S, 167°11'E, 415-435 m depth, otter trawl (shrimps), 3 October 1985: holotype, 207 mm TL (170 mm SL) (MNHN 1994-316) and paratype, 131.3 mm TL (104.7 mm SL) (IIPB-168/1994).

DIAGNOSIS. — Post-ocular groove incomplete. Pectoral fin reaching posterior tip of ventral fin. Pectoral fin long, equal or greater than head length and reaching beyond origin of anal fin for a distance equal to orbit length. First free pectoral ray not reaching posterior tip of ventral fin. First dorsal fin, when depressed, not reaching second dorsal fin. Pelvic fin well developed extending beyond vent and reaching level between bases of second and third anal rays. Pectoral fin blackish. No rostral spine [*sensu* TEAGUE (1951)]. Nape scaled. D<sub>1</sub> IX; D<sub>2</sub> 16; A 16; P 11 + 3; LL 55-64; GR 6-8 + R.

DESCRIPTION. — The body is slender and covered with large but poorly attached scales, ctenoid above the lateral line and cycloid below it. The lateral line has 63 branched scales in the holotype (55-64 in the paratypes), and divided when it enters in the caudal fin. The throat, chest and breast are scaleless but the belly is scaled. The holotype has 24 bucklers (24-25 in the paratypes) along both sides of the dorsal fins, the anteriormost being low and increasing their height posteriorly.

The head is relatively long, 3 times in SL in the holotype (2.8-3.2 in the paratypes), with striated bones and a post-ocular groove behind the eyes, but not meeting in the middle of the head. The nape is scaled. The snout is long, 2.6 in HL in the holotype (2.6-2.9 in the paratypes) and slightly descending in front of the orbit. The rostral projections are short, with 4 spines in the holotype (4 to 5 in the paratypes), the second from the outer edge being the longest. The orbit is large and impinging in the upper profile of the head, its horizontal length being 3.3 times in HL in the holotype (3.1-3.4 in the paratypes), 1.3 in PO in the holotype (1.1-1.3 in the paratypes) and always less than the cheek height. The interorbital space is concave, 4.9 in HL in the holotype (4.3-4.9 in the paratypes) and greater than half the length of the orbit. The maxillary reaches to below the anterior edge of the orbit and is about the same length as the orbit, 3.2 in HL (2.5-2.9 in the paratypes). The teeth on both jaws are villiform, absent on vomer and palatines (only two of the paratypes have teeth on the vomer). The gill-rakers on the first arch are 7 in number plus three rudiments (6-8 plus two or four rudiments in the paratypes) and slender in shape. Pseudobranchials are present. A rudimentary barbel or papilla is present on each side of the mandibular symphysis.

The first dorsal fin has nine spines and, when depressed, the fin reaches the origin of the second dorsal fin. The first three dorsal spines are serrated in the holotype (character shared with all the paratypes except one which has

the third spine smooth), the third being the longest and contained 1.9 times in HL in the holotype (1.7-2 in the paratypes). The second dorsal fin has 16 soft rays. The anal fin has 16 soft rays, its origin is below that of the second dorsal fin. The pectoral fin has 11 joined plus 3 free rays, being long and reaching beyond the origin of the anal fin a distance equal to the orbit length, 2.5 times in SL in the holotype (2.0-2.9 in the paratypes), 0.8 in HL in the holotype (0.5-0.9 in the paratypes). The longer free pectoral ray reaches the tip of the longest ray of the pelvic fin. The pelvic fin is well developed with one spine and five rays, extending beyond the vent and reaching between the bases of the second and third anal rays, 4.3 in SL in the holotype (4.3-4.7 in the paratypes). Caudal fin slightly emarginate.

TABLE 2. — Morphometric (in mm) and meristic variables of the specimens of *Lepidotrigla annamarae* sp. nov.

|  | MNHN<br>1994-316 | MNHN<br>1994-318 | MNHN<br>1994-317 | IIPB<br>164/1994 | IIPB<br>6/1994 | IIPB<br>168/1994 |
|--|------------------|------------------|------------------|------------------|----------------|------------------|
| <b>MORPHOMETRIC CHARACTERS</b>         |                  |                  |                  |                  |                |                  |
| Total length                           | 207.0            | 201.0            | 195.0            | 183.0            | 160.0          | 131.3            |
| Standard length                        | 170.0            | 161.0            | 157.0            | 148.0            | 128.4          | 104.7            |
| Head length                            | 56.7             | 53.1             | 51.6             | 46.1             | 43.5           | 37.1             |
| Length of rostral processes            | 4.5              | 2.7              | 2.9              | 3.9              | 2.6            | 2.1              |
| Pre-orbital length                     | 21.7             | 18.3             | 19.3             | 16.6             | 16.5           | 13.9             |
| Orbital length                         | 17.2             | 17.0             | 15.9             | 13.6             | 13.3           | 10.8             |
| Interorbital length                    | 11.7             | 12.3             | 11.4             | 10.6             | 9.4            | 7.6              |
| Post-orbital length                    | 18.3             | 18.2             | 17.2             | 15.5             | 13.4           | 11.9             |
| Maxillary length                       | 17.9             | 19.4             | 18.0             | 18.7             | 15.6           | 13.6             |
| Cheek height                           | 20.5             | 19.6             | 20.7             | 17.5             | 15.2           | 12.8             |
| Pre-D <sub>1</sub> length              | 55.2             | 54.2             | 53.7             | 46.5             | 43.4           | 35.1             |
| D <sub>1</sub> base length             | 34.2             | 32.5             | 30.9             | 32.1             | 23.1           | 21.7             |
| Pre-D <sub>2</sub> length              | 96.6             | 88.2             | 92.0             | 77.4             | 71.6           | 59.1             |
| D <sub>2</sub> base length             | 55.1             | 50.4             | 50.1             | 48.8             | 39.8           | 32.1             |
| Pectoral fin length                    | 56.0             | 58.5             | 55.0             | 49.6             | 43.4           | 38.1             |
| 1st free pectoral ray length           | 41.7             | 37.3             | 39.4             | 35.0             | 32.3           | 26.9             |
| Pre-anal length                        | 97.1             | 90.5             | 38.8             | 78.9             | 70.1           | 58.3             |
| Anal fin base length                   | 52.4             | 51.9             | 50.7             | 47.8             | 41.2           | 34.3             |
| Cleithral spine: post-opercular length | 14.0             | 16.9             | 14.4             | 14.3             | 11.0           | 9.7              |
| Head height                            | 38.0             | 37.6             | 35.3             | 30.8             | 28.6           | 24.3             |
| <b>MERISTIC CHARACTERS</b>             |                  |                  |                  |                  |                |                  |
| D <sub>1</sub> spines                  | 9                | 9                | 9                | 9                | 9              | 9                |
| D <sub>2</sub> rays                    | 16               | 16               | 16               | 16               | 16             | 16               |
| Anal rays                              | 16               | 16               | 16               | 16               | 16             | 16               |
| Pectoral rays                          | 11               | 11               | 11               | 11               | 11             | 11               |
| Gill-rakers                            | 1R+7+2R          | 2R+6+2R          | 8                | 7+2R             | 7+2R           | 7+2R             |
| Pre-ocular spines                      | 2                | 2                | 2                | 3                | 3              | 2                |
| Post-ocular spines                     | 3                | 1                | 1                | 2                | 3              | 2                |
| Sphenotic spine                        | absent           | absent           | absent           | absent           | absent         | present          |
| Parietal spine                         | absent           | absent           | present          | absent           | absent         | present          |
| Pre-opercular spine                    | absent           | absent           | absent           | present          | absent         | absent           |
| Lateral line scales                    | 63               | 62               | 55               | 63               | 60             | 64               |
| Dorsal bucklers                        | 24               | 24               | 25               | 24               | 24             | 24               |
| Teeth on vomer                         | absent           | absent           | absent           | present          | absent         | present          |

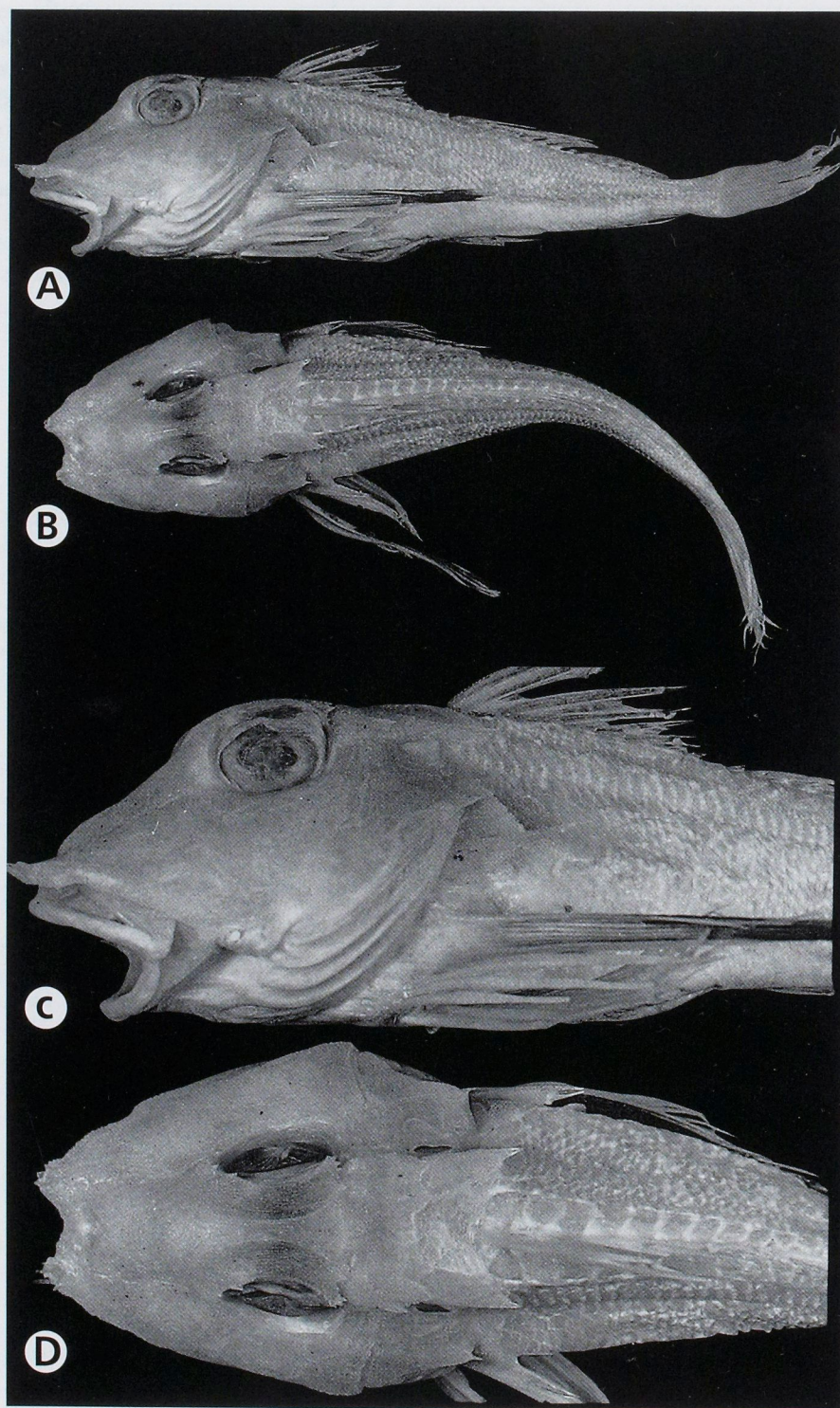


FIG. 1. — Holotype of *Lepidotrigla annamarae* sp. nov. (MNHN 1994-316). — A: Lateral view. — B: Dorsal view. — C: Lateral detail of head. — D: Dorsal detail of head.

*Spinulation.* The cleithral spine is long and stout, reaching to the vertical of the fourth dorsal spine, 4.1 times in HL measured posteriorly to opercle in the holotype (3.0-3.8 in the paratypes). The opercular spine is small but conspicuous, not reaching the posterior tip of the opercular flap. Preopercular spine absent (except for one paratype which is very small), a soft preopercular keel present. Two preocular spines present (2 to 3 in the paratypes), three post-ocular spines present (1 to 3 in the paratypes), sphenotic spine absent (one spine present in one paratype) and one nuchal spine present.

*Coloration* (in alcohol). The general coloration is pale pink above, whitish below. The head has the same coloration as the body. There are no traces of any markings anywhere. The pectoral fin is blackish on the inner side which is also visible on the outer side, with the uppermost and lowermost rays whitish. Free pectoral rays and other fins yellowish pale.

**ETYMOLOGY.** — This species is named for the seventh birthday of Annamar, the older daughter of Lluís del Cerro.

**DISTRIBUTION.** — Known only from New Caledonia.

*Lepidotrigla grandis* Ogilby, 1910

*Lepidotrigla grandis* Ogilby, 1910: 122-123. Locality: off Cape Moreton, Queensland, Australia.

*Lepidotrigla grandis*: MARSHALL, 1964: 438-439 (citation). — GLOEFELT-TARP & KAILOLA, 1984: 117. — PAXTON *et al.*, 1989: 455. — RICHARDS, 1992: 54, 62 (tables).

?*Lepidotrigla spiloptera*: WHITLEY, 1958: 46-47.

**MATERIAL EXAMINED.** — 1 specimen.

**New Caledonia.** BIOCAL: stn CP 105, 21°30.7'S, 166°21.7'E, 330-335 m depth, beam trawl, R. V. "Jean Charcot", 8 September 1985: 1 specimen, 133.2 mm TL (108.9 mm SL) (MNHN 1995-509).

**DIAGNOSIS.** — (Diagnosis based on New Caledonian material and literature data). Post-ocular groove complete. Pectoral fin extending beyond posterior tip of ventral fin. Pectoral fin less than head length. First free pectoral ray extending beyond posterior tip of ventral fin. First dorsal fin, when depressed, not reaching second dorsal fin. Pelvic fin extending beyond vent and reaching second anal ray. Pectoral fin blackish. No rostral spine [*sensu* TEAGUE (1951)]. Nape scaled. D<sub>1</sub> IX; D<sub>2</sub> 15; A 15; P 11 + 3; LL 61; GR 8 + R.

**DISTRIBUTION.** — New Caledonia. Off Cape Moreton, Queensland, Australia (OGILBY, 1910). NE Australia (GLOEFELT-TARP & KAILOLA, 1984). Off Darwin, Northern Territory (130°03'E) and off Brisbane, Queensland (26°30'S) to off Port Stephens, New South Wales (32°S), tropical Australia (PAXTON *et al.*, 1989).

*Lepidotrigla musorstom* sp. nov.

Fig. 2, Table 3

**MATERIAL EXAMINED.** — 23 specimens.

**New Caledonia.** MUSORSTOM 4: stn CC 173, 19°02.5'S, 163°18.8'E, 250-290 m depth, otter trawl (shrimps), R. V. "Vauban", 17 September 1995: 1 paratype, 131.2 mm TL (106.6 mm SL) (USNM 329339).

**Chesterfield and Bellona Plateaus.** MUSORSTOM 5: stn CP 268, 24°44.7'S, 159°39.2'E, 280 m depth, beam trawl, R. V. "Coriolis", 9 October 1986: 1 paratype, 145.9 mm TL (119.0 mm SL) (USNM 329338). — Stn CP 269, 24°47'S, 159°37.3'E, 250-270 m depth, beam trawl, 9 October 1986: 1 paratype, 157.0 mm TL (121.5 mm SL) (MNHN 1995-497). — Stn CP 275, 24°46.6'S, 159°40.3'E, 285 m depth, beam trawl, 9 October 1986: 1 paratype, 147.8 mm TL (118.8 mm SL) (NSMT-P.45842). — Stn CP 309, 22°10.2'S, 159°22.8'E, 340 m depth, beam trawl, 12 October 1986: 2 paratypes, 162 mm TL (125.2 mm SL) (USNM 329337), 144.4 mm TL (115.6 mm SL) (NSMT-P.45840). — Stn CP 312, 22°17.2'S, 159°24.8'E, 315-

TABLE 3. — Morphometric (in mm) and meristic variables of the specimens of *Lepidotrigla musorstom* sp. nov.

|                                  | MNHN<br>1994-26 | AMS<br>I.34571<br>-002 | IIPB<br>3/1994 | NSMT<br>P.45841 | BMNH<br>1994.<br>5.17.1-2 | IIPB<br>2/1994 | USNM<br>329337 | IZUA<br>PM.1739 | BMNH<br>1994.<br>5.17.3 | MNHN<br>1994-27 | BMNH<br>1994.<br>5.17.1-2 |
|----------------------------------|-----------------|------------------------|----------------|-----------------|---------------------------|----------------|----------------|-----------------|-------------------------|-----------------|---------------------------|
| <b>MORPHOMETRIC CHARACTERS</b>   |                 |                        |                |                 |                           |                |                |                 |                         |                 |                           |
| Total length                     | 148.0           | 167.0                  | 166.0          | 155.0           | 161.0                     | 157.0          | 162.0          | 159.0           | 156.0                   | 154.0           | 157.0                     |
| Standard length                  | 116.6           | 131.4                  | 130.7          | 128.3           | 128.1                     | 127.1          | 125.2          | 124.8           | 123.7                   | 123.2           | 121.8                     |
| Head length                      | 36.0            | 40.6                   | 42.0           | 38.4            | 40.5                      | 41.1           | 42.2           | 39.3            | 40.7                    | 37.1            | 38.3                      |
| Length of rostral processes      | 2.0             | 2.3                    | 3.0            | 2.4             | 2.2                       | 3.0            | 2.5            | 2.6             | 3.0                     | 2.3             | 2.6                       |
| Pre-orbital length               | 12.4            | 14.7                   | 15.1           | 11.8            | 13.5                      | 12.8           | 15.6           | 12.8            | 14.9                    | 13.1            | 12.9                      |
| Orbital length                   | 11.1            | 14.8                   | 14.5           | 14.3            | 14.2                      | 14.2           | 13.6           | 13.8            | 13.7                    | 13.3            | 13.5                      |
| Interorbital length              | 6.4             | 7.4                    | 6.9            | 8.1             | 7.7                       | 7.2            | 6.9            | 7.1             | 7.5                     | 7.0             | 6.6                       |
| Post-orbital length              | 11.8            | 13.5                   | 14.7           | 12.0            | 13.1                      | 12.9           | 13.2           | 13.3            | 12.5                    | 11.3            | 12.8                      |
| Maxillary length                 | 12.9            | 14.8                   | 13.1           | 15.2            | 12.2                      | 13.1           | 17.0           | 13.6            | 14.6                    | 13.3            | 12.7                      |
| Cheek height                     | 11.9            | 14.5                   | 14.0           | 12.3            | 12.6                      | 13.9           | 13.4           | 13.4            | 13.4                    | 13.4            | 13.4                      |
| Pre-D <sub>1</sub> length        | 35.8            | 39.9                   | 43.1           | 37.5            | 40.1                      | 40.2           | 40.6           | 41.1            | 39.8                    | 38.3            | 37.7                      |
| D <sub>1</sub> base length       | 25.2            | 28.3                   | 29.7           | 28.1            | 27.4                      | 24.0           | 30.6           | 26.1            | 29.8                    | 26.6            | 25.1                      |
| Pre-D <sub>2</sub> length        | 61.7            | 70.7                   | 71.6           | 67.4            | 69.0                      | 66.5           | 68.1           | 68.2            | 67.3                    | 68.3            | 65.3                      |
| D <sub>2</sub> base length       | 40.0            | 42.5                   | 39.8           | 40.4            | 38.7                      | 38.4           | 42.9           | 38.2            | 37.5                    | 37.4            | 36.8                      |
| Pectoral fin length              | 47.5            | 51.2                   | 49.2           | 51.8            | 51.0                      | 46.7           | 53.8           | 47.3            | 48.3                    | 48.2            | 46.2                      |
| 1st free pectoral ray length     | 25.6            | 29.7                   | 30.0           | 29.1            | 27.8                      | 26.4           | 29.1           | 28.2            | 27.9                    | 25.7            | 30.7                      |
| Pre-anal length                  | 61.8            | 73.6                   | 74.4           | 67.8            | 70.1                      | 71.9           | 65.4           | 72.2            | 66.9                    | 70.6            | 69.9                      |
| Anal fin base length             | 40.4            | 43.3                   | 43.7           | 42.9            | 41.5                      | 40.4           | 43.1           | 40.4            | 40.9                    | 39.7            | 39.7                      |
| Cleithral spine:                 |                 |                        |                |                 |                           |                |                |                 |                         |                 |                           |
| post-opercular length            | 8.0             | 9.3                    | 11.4           | 10.8            | 8.8                       | 8.0            | 9.4            | 10.8            | 12.2                    | 11.6            | 8.5                       |
| Head height                      | 23.9            | 28.9                   | 27.8           | 28.0            | 27.1                      | 28.2           | 28.8           | 26.9            | 26.9                    | 26.6            | 26.5                      |
| <b>MERISTIC CHARACTERS</b>       |                 |                        |                |                 |                           |                |                |                 |                         |                 |                           |
| D <sub>1</sub> spines            | 9               | 9                      | 10             | 9               | 9                         | 9              | 9              | 9               | 9                       | 9               | 9                         |
| D <sub>2</sub> rays              | 16              | 16                     | 16             | 16              | 15                        | 16             | 16             | 15              | 16                      | 16              | 15                        |
| Anal rays                        | 16              | 17                     | 16             | 16              | 16                        | 16             | 16             | 16              | 16                      | 16              | 15                        |
| Pectoral rays                    | 11              | 11                     | 11             | 11              | 11                        | 11             | 11             | 11              | 11                      | 11              | 11                        |
| Gill-rakers                      | 8+2R            | 8+2R                   | 7+1R           | 9+1R            | 1R+7+2R                   | 7+2R           | 8+2R           | 1R+7+2R         | 1R+6+3R                 | 8+1R            | 1R+8+1R                   |
| Pre-ocular spines                | 2               | 2                      | 2              | 3               | 2                         | 2              | 2              | 5               | 1                       | 2               | 2                         |
| Post-ocular spines               | 1               | 2                      | 2              | 2               | 1                         | 2              | 2              | 2               | 1                       | 2               | 2                         |
| Sphenotic spine                  | present         | absent                 | present        | absent          | absent                    | absent         | absent         | present         | present                 | present         | absent                    |
| Pterotic spine                   | absent          | present                | absent         | present         | absent                    | present        | present        | absent          | present                 | absent          | present                   |
| Parietal spine                   | absent          | absent                 | absent         | absent          | absent                    | absent         | absent         | absent          | absent                  | absent          | absent                    |
| Pre-opercular spine              | absent          | absent                 | absent         | absent          | absent                    | absent         | absent         | present         | absent                  | present         | absent                    |
| Lateral line scales              | 64              | 63                     | 63             | 64              | 61                        | 64             | 63             | 63              | 63                      | 63              | 63                        |
| Dorsal bucklers                  | 24              | 25                     | 23             | 24              | 23                        | 24             | 24             | 24              | 24                      | 23              | 23                        |
| Nape scales                      | present         | present                | present        | present         | present                   | present        | present        | present         | present                 | present         | present                   |
| Teeth on vomer                   | absent          | absent                 | absent         | absent          | absent                    | absent         | absent         | present         | absent                  | absent          | present                   |
| Papillae at mandibular symphysis | absent          | present                | absent         | present         | present                   | present        | present        | absent          | present                 | absent          | present                   |

|                                  | MNHN<br>1994-29 | USNM<br>329338 | NSMT<br>P.45842 | MNHN<br>1994-28 | NSMT<br>P.45840 | AMS<br>I.34571<br>-001 | IIPB<br>4/1994 | AMS<br>I.34571<br>-003 | USNM<br>329339 | IZUA<br>PM.1740 | IZUA<br>PM.1741 |
|----------------------------------|-----------------|----------------|-----------------|-----------------|-----------------|------------------------|----------------|------------------------|----------------|-----------------|-----------------|
| <b>MORPHOMETRIC CHARACTERS</b>   |                 |                |                 |                 |                 |                        |                |                        |                |                 |                 |
| Total length                     | 155.0           | 145.9          | 147.8           | 143.3           | 144.4           | 145.0                  | 146.0          | 134.8                  | 131.2          | 130.0           | 104.1           |
| Standard length                  | 121.2           | 119.0          | 118.8           | 115.8           | 115.6           | 114.4                  | 112.8          | 106.9                  | 106.6          | 101.7           | 79.3            |
| Head length                      | 37.9            | 38.0           | 36.9            | 39.3            | 34.9            | 36.4                   | 34.6           | 32.2                   | 34.3           | 31.7            | 26.3            |
| Length of rostral processes      | 1.6             | 1.7            | 2.0             | 2.6             | 2.0             | 2.0                    | 3.0            | 2.7                    | 1.9            | 2.3             | 1.4             |
| Pre-orbital length               | 13.3            | 13.2           | 13.0            | 12.6            | 11.4            | 13.7                   | 10.8           | 12.4                   | 9.9            | 10.9            | 9.4             |
| Orbital length                   | 12.9            | 12.9           | 12.0            | 13.8            | 12.6            | 10.9                   | 13.1           | 10.3                   | 10.8           | 10.3            | 8.6             |
| Interorbital length              | 7.0             | 6.5            | 7.2             | 7.4             | 7.1             | 6.4                    | 6.6            | 5.7                    | 6.4            | 6.3             | 4.1             |
| Post-orbital length              | 12.5            | 10.9           | 11.4            | 11.7            | 12.0            | 11.1                   | 11.2           | 10.5                   | 11.9           | 10.1            | 8.2             |
| Maxillary length                 | 15.0            | 11.1           | 11.2            | 12.8            | 12.9            | 11.9                   | 13.9           | 11.5                   | 14.6           | 10.6            | 9.7             |
| Cheek height                     | 13.3            | 12.6           | 11.7            | 11.8            | 12.3            | 11.7                   | 11.2           | 11.2                   | 12.9           | 10.5            | 8.8             |
| Pre-D <sub>1</sub> length        | 38.5            | 35.9           | 34.3            | 36.2            | 38.6            | 35.4                   | 36.7           | 32.9                   | 31.5           | 31.0            | 27.5            |
| D <sub>1</sub> base length       | 29.9            | 25.7           | 25.5            | 28.4            | 29.7            | 24.6                   | 26.0           | 21.4                   | 23.5           | 22.9            | 17.2            |
| Pre-D <sub>2</sub> length        | 62.1            | 65.8           | 61.1            | 62.4            | 59.1            | 60.8                   | 58.7           | 54.8                   | 57.6           | 53.2            | 46.4            |
| D <sub>2</sub> base length       | 39.5            | 38.4           | 37.6            | 39.0            | 42.0            | 36.4                   | 37.6           | 34.5                   | 35.4           | 34.6            | 23.8            |
| Pectoral fin length              | 47.7            | 42.4           | 47.1            | 47.1            | 49.3            | 49.8                   | 50.8           | 45.9                   | 37.2           | 46.5            | 38.8            |
| 1st free pectoral ray length     | 26.1            | 26.1           | 25.7            | 30.5            | 26.9            | 25.5                   | 25.5           | 22.3                   | 26.6           | 22.5            | 20.3            |
| Pre-anal length                  | 65.0            | 63.5           | 64.6            | 58.9            | 59.6            | 62.1                   | 57.7           | 58.0                   | 57.5           | 54.5            | 44.9            |
| Anal fin base length             | 39.7            | 40.0           | 39.4            | 38.9            | 41.9            | 37.4                   | 37.0           | 36.2                   | 34.5           | 35.1            | 25.2            |
| Cleithral spine:                 |                 |                |                 |                 |                 |                        |                |                        |                |                 |                 |
| post-opercular length            | 8.5             | 11.3           | 9.1             | 11.0            | 8.9             | 7.2                    | 10.1           | 8.9                    | 7.5            | 8.8             | 5.7             |
| Head height                      | 26.5            | 25.6           | 23.3            | 26.4            | 25.5            | 23.4                   | 24.2           | 22.2                   | 23.8           | 21.1            | 16.2            |
| <b>MERISTIC CHARACTERS</b>       |                 |                |                 |                 |                 |                        |                |                        |                |                 |                 |
| D <sub>1</sub> spines            | 9               | 9              | 9               | 9               | 9               | 9                      | 9              | 9                      | 9              | 9               | 9               |
| D <sub>2</sub> rays              | 16              | 16             | 15              | 16              | 16              | 15                     | 15             | 16                     | 16             | 16              | 16              |
| Anal rays                        | 16              | 16             | 16              | 16              | 16              | 16                     | 15             | 16                     | 16             | 16              | 16              |
| Pectoral rays                    | 11              | 10             | 11              | 11              | 11              | 11                     | 11             | 11                     | 11             | 11              | 11              |
| Gill-rakers                      | 7+2R            | 7+2R           | 9+1R            | 7+1R            | 1R+7+2R         | 7+1R                   | 6+2R           | 7+1R                   | 7+2R           | 7+2R            | 7+1R            |
| Pre-ocular spines                | 2               | 2              | 3               | 2               | 2               | 2                      | 2              | 2                      | 2              | 2               | 2               |
| Post-ocular spines               | 2               | 2              | 3               | 1               | 2               | 2                      | 3              | 2                      | 2              | 1               | 1               |
| Sphenotic spine                  | absent          | absent         | absent          | present         | absent          | absent                 | present        | absent                 | absent         | present         | present         |
| Pterotic spine                   | absent          | present        | present         | absent          | present         | present                | absent         | present                | present        | absent          | absent          |
| Parietal spine                   | absent          | absent         | absent          | absent          | absent          | absent                 | absent         | absent                 | absent         | absent          | absent          |
| Pre-opercular spine              | present         | absent         | absent          | absent          | present         | present                | present        | absent                 | absent         | present         | present         |
| Lateral line scales              | 65              | 64             | 63              | 63              | 65              | 61                     | 64             | 66                     | 61             | 64              | 61              |
| Dorsal bucklers                  | 23              | 24             | 23              | 23              | 25              | 23                     | 22             | 23                     | 24             | 24              | 24              |
| Nape scales                      | present         | present        | absent          | present         | present         | present                | present        | present                | present        | present         | present         |
| Teeth on vomer                   | present         | absent         | absent          | absent          | absent          | present                | absent         | absent                 | absent         | absent          | absent          |
| Papillae at mandibular symphysis | present         | absent         | present         | present         | present         | absent                 | present        | present                | present        | absent          | absent          |

320 m depth, beam trawl, 12 October 1986: holotype, 148 mm TL (116.6 mm SL) (MNHN 1994-26) and 5 paratypes, 166 mm TL (130.7 mm SL) (IIPB-3/1994), 155 mm TL (121.2 mm SL) (MNHN 1994.29), 154 mm TL (123.2 mm SL) (MNHN 1994.27), 146 mm TL (112.8 mm SL) (IIPB-4/1994), 143.3 mm TL (115.8 mm SL) (MNHN 1994.28). — Stn CP 316, 22°25.1'S, 159°24.0'E, 330 m depth, beam trawl, 13 October 1986: 2 paratypes, 161 and 157 mm TL (respectively 128.1 and 121.8 mm SL) (BMNH 1994-5-17-1-2). — Stn CP 318, 22°26.5'S, 159°21.3'E, 330 m depth, beam trawl, 13 October 1986: 4 paratypes, 159 mm TL (124.8 mm SL) (IZUA-PM.1739), 156 mm TL (123.7 mm SL) (BMNH 1994-5-17-3), 130 mm TL (101.7 mm SL) (IZUA-PM.1740) and 104.1 mm TL (79.3 mm SL) (IZUA-PM.1741). — Stn CP 319, 22°24.4'S, 159°16.5'E, 320-325 m depth, beam trawl, 13 October 1986: 4 paratypes, 167 mm TL (131.4 mm SL) (AMS I.34571-002), 157 mm TL (127.1 mm SL) (IIPB-2/1994), 145.1 mm TL (114.4 mm SL) (AMS I.34571-001) and 134.8 mm TL (106.9 mm SL) (AMS I.34571-003). — Stn CP 320, 22°25.4'S, 159°12.6'E, 315 m depth, beam trawl, 13 October 1986: 1 paratype, 155 mm TL (128.3 mm SL) (NSMT-P.45841).

**DIAGNOSIS.** — Post-ocular groove incomplete. Pectoral fin extending beyond posterior tip of ventral fin for a distance equal to orbit length. Pectoral fin long, greater than head length and extending beyond origin of anal fin by a distance about twice orbit length. First free pectoral ray not reaching posterior tip of ventral fin. First dorsal fin, when depressed, not reaching second dorsal fin. Pelvic fin well developed with one spine and five rays, extending beyond vent and reaching level between bases of second and third anal rays. Pectoral fin blackish. No rostral spine [*sensu* TEAGUE (1951)]. Nape scaled. D<sub>1</sub> IX-X; D<sub>2</sub> 15-16; A 15-17; P 10-11 + 3; LL 61-66; GR 6-9 + R.

**DESCRIPTION.** — The body is slender and covered with large deciduous scales, ctenoid above the lateral line and cycloid below it. The lateral line has 64 branched scales in the holotype (61-66 in the paratypes), and it is divided on the caudal fin. The throat, chest and breast are scaleless, but the belly is scaled. The holotype has 24 (22-25 in the paratypes) bucklers along both sides of the dorsal fins, the anteriormost being low and increasing in height posteriorly.

The head is relatively long, 3.2 times in SL (2.9-3.3 in the paratypes), with striated bones and a post-ocular groove behind the eyes but not meeting in the middle of the head. The nape is scaled. The snout is long, 2.9 in HL (2.6-3.5 in the paratypes) and slightly descending in front of the orbit. The rostral projections are short, with 4 spines (4 to 5 in the paratypes), the most exterior being the longest and slightly diverging. The orbit is large and impinging in the upper profile of the head, 3.2 in HL (2.6-3.3 in the paratypes), 1.1 in PO (0.8-1.3 in the paratypes) and usually equal or lesser than the cheek height. The interorbital space is concave, 5.6 in HL (4.7-6.4 in the paratypes) and usually somewhat greater than half the length of the orbit. The maxillary reaches to below the anterior edge of the orbit and is about the same length as it, 2.8 in HL (2.3-3.4 in paratypes). Teeth on both jaws are villiform, lacking on the vomer and palatines. Gill-rakers on the first arch are 8 in number plus two rudiments (6 to 9 plus one, two or three rudiments in the paratypes) and slender in shape. Pseudobranchials are present. Without rudimentary barbels or papillae at each side of the mandibular symphysis in the holotype but is absent or present in the paratypes.

The first dorsal fin has nine spines (9-10 in paratypes) and, when depressed, the fin reaches the origin of the second dorsal fin. The first dorsal spine is serrated, the second is granulated and the third is smooth in the holotype, the third being the longest, 1.5 in HL (1.7-2.2 in the paratypes). The second dorsal fin has 16 soft rays (15-16 in the paratypes). The anal fin has 16 soft rays (15-17 in the paratypes) and its origin is below that of the second dorsal fin. The pectoral fin has 11 joined (10-11 in the paratypes) plus 3 free rays, it is long and reaches beyond the origin of the anal fin by a distance about twice the orbit length, 2.5 in SL (2.0-2.9 in paratypes), 0.8 in HL (0.7-0.9 in paratypes). The pelvic fin is well developed with one spine and five rays, reaching between the bases of the second and third anal rays, 4.4 in SL (3.4-5.1 in paratypes). The caudal fin is slightly emarginate.

**Spinulation.** The cleithral spine is long and stout, reaching to the level of the fourth dorsal spine, 4.5 in HL measured posteriorly to opercle (3.2-5.1 in the paratypes). The opercular spine is small but conspicuous, reaching slightly beyond the posterior tip of the opercular flap. A very small preopercular spine is present but preopercular keel is absent. Two preocular spines present, two post-ocular spines present, one sphenotic and one nuchal spines present.



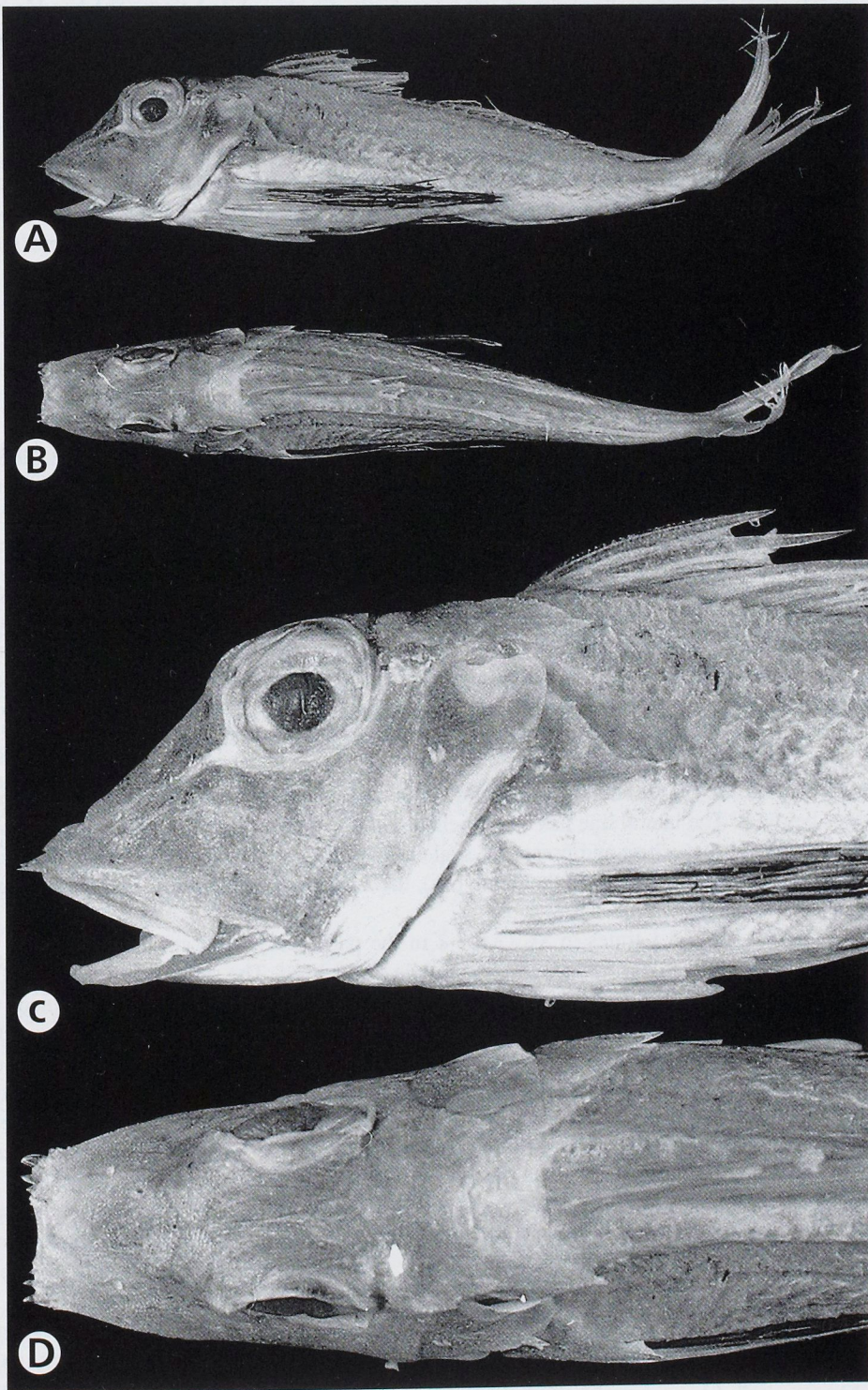


FIG. 2. — Holotype of *Lepidotrigla musorstom* sp. nov. (MNHN 1994-26). — A: Lateral view. — B: Dorsal view. — C: Lateral detail of head. — D: Dorsal detail of head.

*Coloration* (in alcohol). The general coloration is pinky above, silvery white below. The head is brown. There are no traces of any markings anywhere. The pectoral fin is blackish on both sides with the uppermost and lowermost rays whitish. The free pectoral rays and other fins are yellowish pale.

**ETYMOLOGY.** — This species is named after the acronym used for the series of exploration cruises in the waters of New Caledonia during which the present material was obtained.

**DISTRIBUTION.** — Known only from New Caledonia.

*Lepidotrigla nana* sp. nov.

Fig. 3, Table 4

**MATERIAL EXAMINED.** — 6 specimens.

**Chesterfield and Bellona Plateaus.** MUSORSTOM 5: stn CP 351, 19°33.1'S, 158°36.9'E, 290-310 m depth, beam trawl, R. V. "Coriolis", 17 October 1986: holotype, 125.6 mm TL (99.8 mm SL) (MNHN 1994-30) and 5 paratypes, 124.1 mm TL (101.4 mm SL) (AMS I.34755-001), 121.7 mm TL (97.9 mm SL) (USNM 329340), 120.9 mm TL (96.1 mm SL) (IIPB-1/1994), 112.7 mm TL (88.7 mm SL) (BMNH 1994-5-17-4) and 70.3 mm TL (55.8 mm SL) (MNHN 1994-31).

**DIAGNOSIS.** — Post-ocular groove incomplete. Pectoral fin extending beyond posterior tip of ventral fin for a distance equal to orbit length. Pectoral fin smaller than head length, reaching eighth rays of anal and soft dorsal fins. First free pectoral ray not reaching posterior tip of pelvic fin. First dorsal fin, when depressed, reaching second dorsal fin. Pelvic fin well developed, extending to beyond vent, reaching base of fourth anal ray (third-fourth ray in paratypes) and somewhat longer than longest free pectoral ray. Pectoral fin blackish. No rostral spine [*sensu* TEAGUE (1951)]. Nape scaled. D<sub>1</sub> IX; D<sub>2</sub> 16; A 15-17; P 11+3; LL 59-65; GR 6-7 + R.

**DESCRIPTION.** — The body is slender, covered with large and deciduous ctenoid scales above the lateral line and cycloid scales below it. The lateral line has 63 branched scales (59-65 in the paratypes), and is divided when it enters the caudal fin. The throat, chest and breast are scaleless. The nape is scaled. The bucklers along both sides of the dorsal fins are 23 in number (23-24 in the paratypes), the anteriormost being low and increasing their height posteriorly.

The head is relatively long, 3.1 times in SL (2.6-3.2 in the paratypes), with striated bones and with a post-ocular groove behind the eyes but does not meet in the middle of the head. The snout is long, 3.0 in HL (3.2-3.8 in the paratypes) and abruptly descending in front of the orbit. The rostral projections are flattened, triangular in shape, clearly separated by a central notch and with two to three conspicuous spines arising from the base. The outer margins or the rostral processes are finely serrated. The orbit is large and well impinging in the upper profile of the head, 3.0 in HL (2.8-3.5 in the paratypes), 1.0 in PO (1.0-1.1 in the paratypes), and almost of the same size of the cheek height. The interorbital space is concave, 5.2 in HL (5.5-6.2 in the paratypes) and somewhat greater than half the length of the orbit. The maxillary is longer than the length of the snout and thus reaches beyond the anterior border of the orbit, 2.3 in HL (2.2-3.5 in the paratypes). Villiform teeth on both jaws, vomer with teeth in the holotype (present or absent in the paratypes) and absent in the palatines. Gill-rakers on first arch are 7 in number plus two rudiments (6 plus two rudiments to 7 with three rudiments in the paratypes) and slender in shape. Pseudobranchials are present. A small rudimentary barbel or papilla present at each side of the mandibular symphysis.

The first dorsal fin has nine spines which, when depressed, barely extend to the origin of the second dorsal fin. The first two spines are serrated, the second being the longest, 1.6 in HL (1.5-1.6 in paratypes) except for one paratype in which the longest is the third (1.6 in HL). The second dorsal fin has 16 soft rays. The anal fin has 16 soft rays (15-17 in paratypes) and its origin is at the same level as that of the second dorsal fin. The pectoral fin has 11 joined plus 3 free rays, it is long and reaches the eighth rays of the anal and soft dorsal fins, 2.60 in SL (2.6-2.8 in paratypes), 0.8 in HL (0.8-1.0 in the paratypes). The pelvic fin is well developed and has one spine and five

rays, extending beyond the vent and reaching to the base of the fourth anal ray (third-fourth in the paratypes), and somewhat longer than the longest free pectoral ray, 4.1 in SL (3.9-4.2 in the paratypes). The caudal fin is slightly emarginated.

*Spinulation.* The cleithral spine is stout, acute and of moderate size, reaching to the vertical of the fourth dorsal spine, 5.0 in HL measured posteriorly to opercle (3.8-5.0 in the paratypes). The opercular spine is small but conspicuous, reaching slightly beyond the posterior tip of the opercular flap. A very small preopercular spine present (present or absent in the paratypes) but preopercular keel absent. Two preocular, two post-ocular, one sphenotic spine (present or absent in the paratypes), pterotic spine absent (present or absent in the paratypes), parietal spine absent (present or absent in the paratypes) and one nuchal spines.

TABLE 4. — Morphometric (in mm) and meristic variables of the specimens of *Lepidotrigla nana* sp. nov.

|  | MNHN<br>1994-30 | IIPB<br>1/1994 | AMS<br>I.34755-001 | USNM<br>329340 | BMNH<br>1994.5.17.4 | MNHN<br>1994-31 |
|--|-----------------|----------------|--------------------|----------------|---------------------|-----------------|
| <b>MORPHOMETRIC CHARACTERS</b>         |                 |                |                    |                |                     |                 |
| Total length                           | 125.6           | 120.9          | 124.1              | 121.7          | 112.7               | 70.3            |
| Standard length                        | 99.8            | 96.1           | 101.4              | 97.9           | 88.7                | 55.8            |
| Head length                            | 32.0            | 36.7           | 31.4               | 33.0           | 29.7                | 19.1            |
| Length of rostral processes            | 2.9             | 3.5            | 3.9                | 2.9            | 2.4                 | 1.6             |
| Pre-orbital length                     | 10.8            | 9.7            | 9.8                | 11.1           | 9.2                 | 5.9             |
| Orbital length                         | 10.8            | 10.6           | 10.3               | 10.4           | 9.4                 | 6.9             |
| Interorbital length                    | 6.2             | 5.9            | 5.7                | 5.8            | 5.1                 | 3.4             |
| Post-orbital length                    | 10.5            | 10.7           | 10.2               | 10.8           | 9.4                 | 6.4             |
| Maxillary length                       | 13.9            | 10.6           | 10.9               | 15.0           | 11.8                | 7.8             |
| Cheek height                           | 10.5            | 10.5           | 11.3               | 9.7            | 9.4                 | 5.7             |
| Pre-D <sub>1</sub> length              | 30.9            | 31.6           | 30.9               | 31.5           | 28.9                | 19.5            |
| D <sub>1</sub> base length             | 20.6            | 19.4           | 17.1               | 21.0           | 17.7                | 11.5            |
| Pre-D <sub>2</sub> length              | 49.8            | 51.3           | 52.5               | 53.5           | 47.9                | 31.0            |
| D <sub>2</sub> base length             | 35.0            | 31.7           | 34.5               | 32.7           | 28.1                | 18.3            |
| Pectoral fin length                    | 38.3            | 35.0           | 36.7               | 36.8           | 32.7                | 21.3            |
| 1st free pectoral ray length           | 26.3            | 24.6           | 25.2               | 25.3           | 22.2                | 15.9            |
| Pre-anal length                        | 50.5            | 52.6           | 54.6               | 52.6           | 48.5                | 30.0            |
| Anal fin base length                   | 33.5            | 32.7           | 33.7               | 31.3           | 29.2                | 18.5            |
| Cleithral spine: post-opercular length | 6.4             | 7.4            | 7.9                | 7.2            | 7.9                 | 4.2             |
| Head height                            | 21.7            | 21.1           | 20.7               | -              | 19.4                | 13.0            |
| <b>MERISTIC CHARACTERS</b>             |                 |                |                    |                |                     |                 |
| D <sub>1</sub> spines                  | 9               | 9              | 9                  | 9              | 9                   | 9               |
| D <sub>2</sub> rays                    | 16              | 16             | 16                 | 16             | 16                  | 16              |
| Anal rays                              | 16              | 16             | 16                 | 15             | 16                  | 17              |
| Pectoral rays                          | 11              | 11             | 11                 | 11             | 11                  | 11              |
| Gill-rakers                            | 7+2R            | 7+2R           | 7+2R               | 7+2R           | 6+2R                | 7+3R            |
| Sphenotic spine                        | present         | absent         | present            | present        | present             | present         |
| Pterotic spine                         | absent          | present        | absent             | absent         | absent              | absent          |
| Parietal spine                         | absent          | present        | absent             | absent         | absent              | present         |
| Pre-opercular spine                    | present         | absent         | present            | present        | present             | present         |
| Lateral line scales                    | 63              | 64             | 63                 | 59             | 64                  | 65              |
| Dorsal bucklers                        | 23              | 24             | 24                 | 23             | 24                  | 24              |
| Teeth on vomer                         | present         | present        | absent             | absent         | present             | present         |

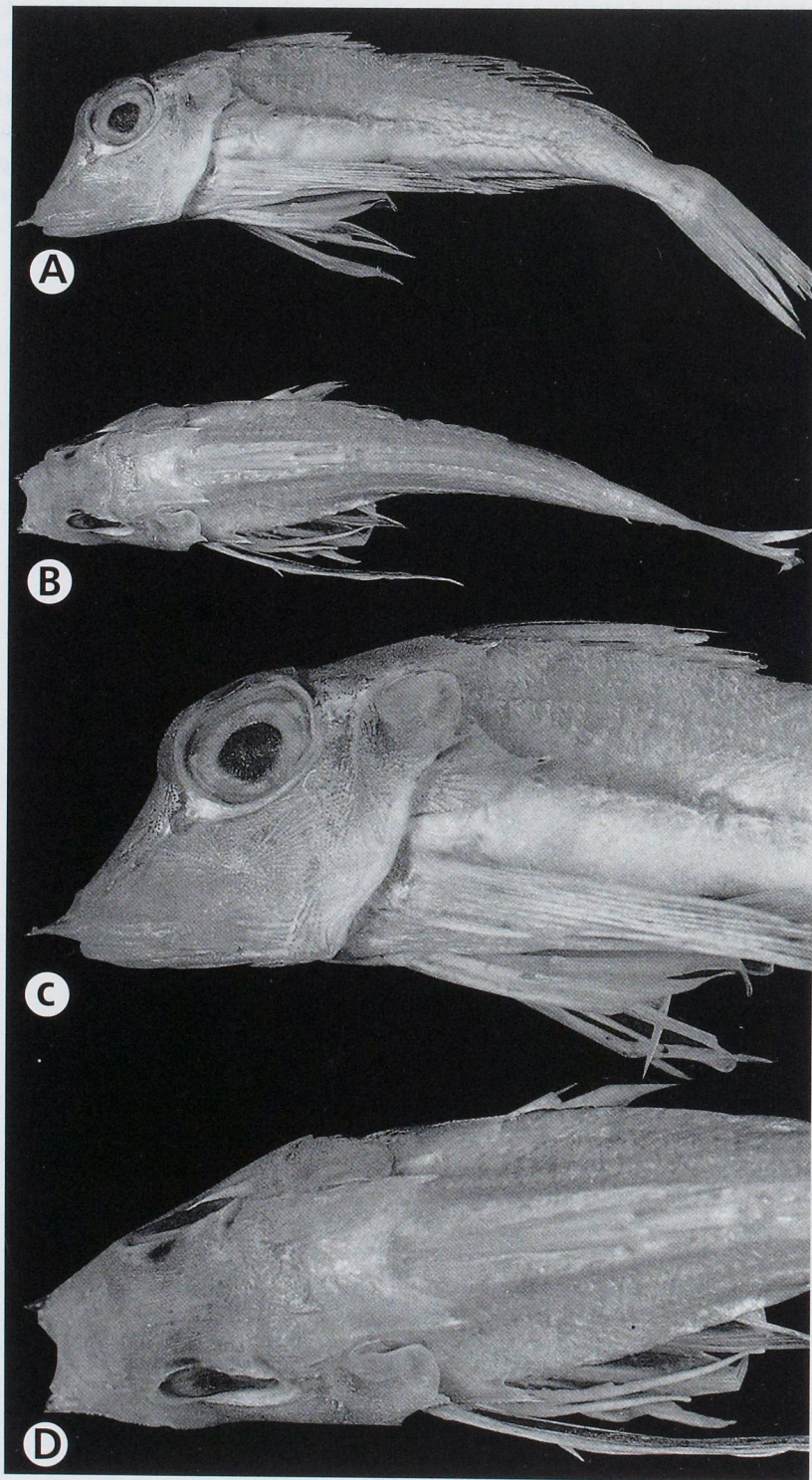


FIG. 3. — Holotype of *Lepidotrigla nana* sp. nov. (MNHN 1994-30). — A: Lateral view. — B: Dorsal view. — C: Lateral detail of head. — D: Dorsal detail of head.

*Coloration* (in alcohol). The general coloration is pale pink-yellowish above, whitish below. The head is somewhat darker than the upper surface of the body. Without traces of any markings anywhere. Upper surface of pectoral fin blackish. Free pectoral rays and other fins pale yellowish.

ETYMOLOGY. — This species is named for its small size, from the Latin *nanus* meaning dwarf.

DISTRIBUTION. — Known only from the type series in the area of New Caledonia.

REMARKS. — This new species is close to *L. argus* Ogilby, 1910, but can be separated from it by the following characters: Pelvic fin 3.5 in SL in *L. argus*, 3.9-4.2 in SL in *L. nana*. Snout 2.25 in HL in *L. argus*, 3.2-3.8 in *L. nana*. Orbit length 3.66 in HL in *L. argus*, 2.8-3.5 in *L. nana*. Interorbital distance 4.65 in HL in *L. argus*, 5.2-6.2 in *L. nana*. Also, the shape of the rostral processes is of type "O" for *L. argus* and of type "L" in *L. nana* (*sensu* RICHARDS, 1992).

*Lepidotrigla sereti* sp. nov.

Fig. 4, Table 5

MATERIAL EXAMINED. — 4 specimens.

**Chesterfield and Bellona Plateaus.** MUSORSTOM 5: stn CH 271, 24°48.2'S, 159°34.6'E, 250-276 m depth, otter trawl (fishes), R. V. "Coriolis", 9 October 1986: 1 paratype, 142.1 mm TL (117.5 mm SL) (BMNH 1994.5.17.5). — Stn CP 276, 24°48.9'S, 159°40.9'E, 258-269 m depth, beam trawl, 9 October 1986: holotype, 135.3 mm TL (110.1 mm SL) (MNHN 1994-32), 2 paratypes, 116.2 mm TL (94.1 mm SL) (IIPB-5/1994) and 113.4 mm TL (88.3 mm SL) (MNHN 1994-33).

DIAGNOSIS. — Post-ocular groove incomplete. Pectoral fin extending beyond posterior tip of ventral fin for a distance equal to orbit length. Pectoral fin long, greater than head length and reaching beyond origin of anal fin by a distance about twice orbit length. First free pectoral ray not reaching posterior tip of ventral fin. First dorsal fin, when depressed, not reaching second dorsal fin. Pelvic fin well developed, extending beyond vent and reaching between bases of second and third anal rays. A conspicuous rostral spine [*sensu* TEAGUE (1951)] present on lateral margin of head, between orbit and rostral processes. Pectoral fin whitish on both sides. Nape scaled. D<sub>1</sub> IX; D<sub>2</sub> 15; A 15; P 11-12 + 3; LL 57-64; GR 5-6 + R.

DESCRIPTION. — The body is slender, covered with large and deciduous ctenoid scales above the lateral line and cycloid scales below it. The lateral line has 59 branched scales (57-64 in the paratypes), and is divided on the caudal fin. The throat, chest and breast are scaleless. With 21 bucklers (22-23 in the paratypes) along both sides of the dorsal fins, the anteriormost being low and increasing their height posteriorly.

The head is relatively long, 3.3 times in SL (3.0-3.1 in the paratypes), with striated bones and with a post-ocular groove behind the eyes but not meeting in the middle of the head. The nape is scaled. The snout is long, 2.8 in HL (3.0-3.3 in the paratypes) and abruptly descending in front of the orbit. The rostral projections are short, with a longer central spine, slightly diverging, two small spines in the outer edge of the rostrum and several minute spines in the inner margin. The orbit is large and impinging in the upper profile of the head, 3.1 in HL (2.9-3.1 in the paratypes), 1.1 in PO (0.9-1.0 in the paratypes) and always less than the cheek height. The interorbital space is concave, 5.3 in HL (5.5-5.9 in the paratypes) and nearly half the length of the orbit. The maxillary reaches the anterior edge of the orbit and is about the same length of it, 3.2 in HL (2.8-3.1 in the paratypes). Teeth on both jaws are villiform, lacking on the vomer and the palatines. Gill-rakers on the first arch are 5 in number plus three rudiments (5-6 plus two or three rudiments in the paratypes) and are tubercle-like in shape. Pseudobranchials are present. A small rudimentary barbel or papilla is present at each side of the mandibular symphysis.

The first dorsal fin has nine spines and, when depressed, the fin reaches the origin of the second dorsal fin. The first three spines are serrated, the third being usually the longest, 1.7 in HL (1.7-2.0 in the paratypes). The second dorsal fin has 15 soft rays. The anal fin has 15 soft rays and commences slightly in advance of the origin of the

second dorsal fin. The pectoral fin has 11 joined (11-12 in the paratypes) plus 3 free rays, it is long and reaches beyond the origin of the anal fin by a distance about twice the orbit length, 2.6 in SL (2.6-2.8 in the paratypes), 0.8 in HL (0.9 in the paratypes). The pelvic fin is well developed and has one spine and five rays, extending beyond the vent and reaching between the bases of the second and third anal rays, 5.1 in SL (4.7-5.5 in the paratypes). The caudal fin is slightly emarginated.

*Spinulation.* The cleithral spine is stout and of moderate size, reaching to the vertical of the fourth dorsal spine, 3.9 in HL measured posteriorly to opercle (5.0-6.4 in the paratypes). The opercular spine is small but conspicuous, reaching slightly beyond the posterior tip of the opercular flap. A very small preopercular spine is present but preopercular keel is absent. One rostral, two preocular (2-3 in the paratypes), two post-ocular, one pterotic and one nuchal spines are present. Parietal spine is absent, except for one paratype.

TABLE 5. — Morphometric (in mm) and meristic variables of the specimens of *Lepidotrigla sereti* sp. nov.

|                                       | MNHN<br>1994-32 | BMNH<br>1994.5.17.5 | IIPB<br>5/1994 | MNHN<br>1994-33 |
|---------------------------------------|-----------------|---------------------|----------------|-----------------|
| MORPHOMETRIC CHARACTERS               |                 |                     |                |                 |
| Total length                          | 135.3           | 142.1               | 116.2          | 113.4           |
| Standard length                       | 110.1           | 117.5               | 94.1           | 88.3            |
| Head length                           | 33.8            | 37.7                | 31.8           | 29.3            |
| Length of rostral processes           | 3.1             | 2.7                 | 3.9            | 1.8             |
| Pre-orbital length                    | 12.1            | 12.5                | 9.7            | 9.6             |
| Orbital length                        | 10.8            | 12.0                | 11.0           | 9.5             |
| Interorbital length                   | 6.4             | 6.4                 | 5.8            | 5.0             |
| Post-orbital length                   | 11.0            | 12.1                | 10.1           | 9.5             |
| Maxillary length                      | 10.5            | 12.5                | 10.4           | 10.3            |
| Cheek height                          | 14.2            | 15.4                | 12.6           | 11.8            |
| Pre-D <sub>1</sub> length             | 32.6            | 37.3                | 31.3           | 29.1            |
| D <sub>1</sub> base length            | 25.1            | 24.3                | 19.5           | 18.2            |
| Pre-D <sub>2</sub> length             | 57.0            | 64.1                | 51.3           | 47.2            |
| D <sub>2</sub> base length            | 38.4            | 40.4                | 31.6           | 28.9            |
| Pectoral fin length                   | 42.3            | 41.5                | 35.7           | 33.7            |
| 1st free pectoral ray length          | 27.6            | 28.5                | 27.7           | 22.6            |
| Pre-anal length                       | 58.2            | 64.8                | 50.9           | 47.3            |
| Anal fin base length                  | 39.2            | 39.6                | 33.1           | 31.6            |
| Cleithral spine post-opercular length | 8.7             | 6.9                 | 6.4            | 4.6             |
| Head height                           | 25.6            | 28.2                | 23.4           | 21.5            |
| MERISTIC CHARACTERS                   |                 |                     |                |                 |
| D <sub>1</sub> spines                 | 9               | 9                   | 9              | 9               |
| D <sub>2</sub> rays                   | 15              | 15                  | 15             | 15              |
| Anal rays                             | 15              | 15                  | 15             | 15              |
| Pectoral rays                         | 11              | 12                  | 11             | 11              |
| Gill-rakers                           | 1R+5+2R         | 6+3R                | 6+2R           | 5+2R            |
| Pre-ocular spines                     | 2               | 3                   | 2              | 2               |
| Parietal spine                        | absent          | absent              | absent         | 1               |
| Lateral line scales                   | 59              | 64                  | 60             | 57              |
| Dorsal bucklers                       | 21              | 23                  | 22             | 22              |

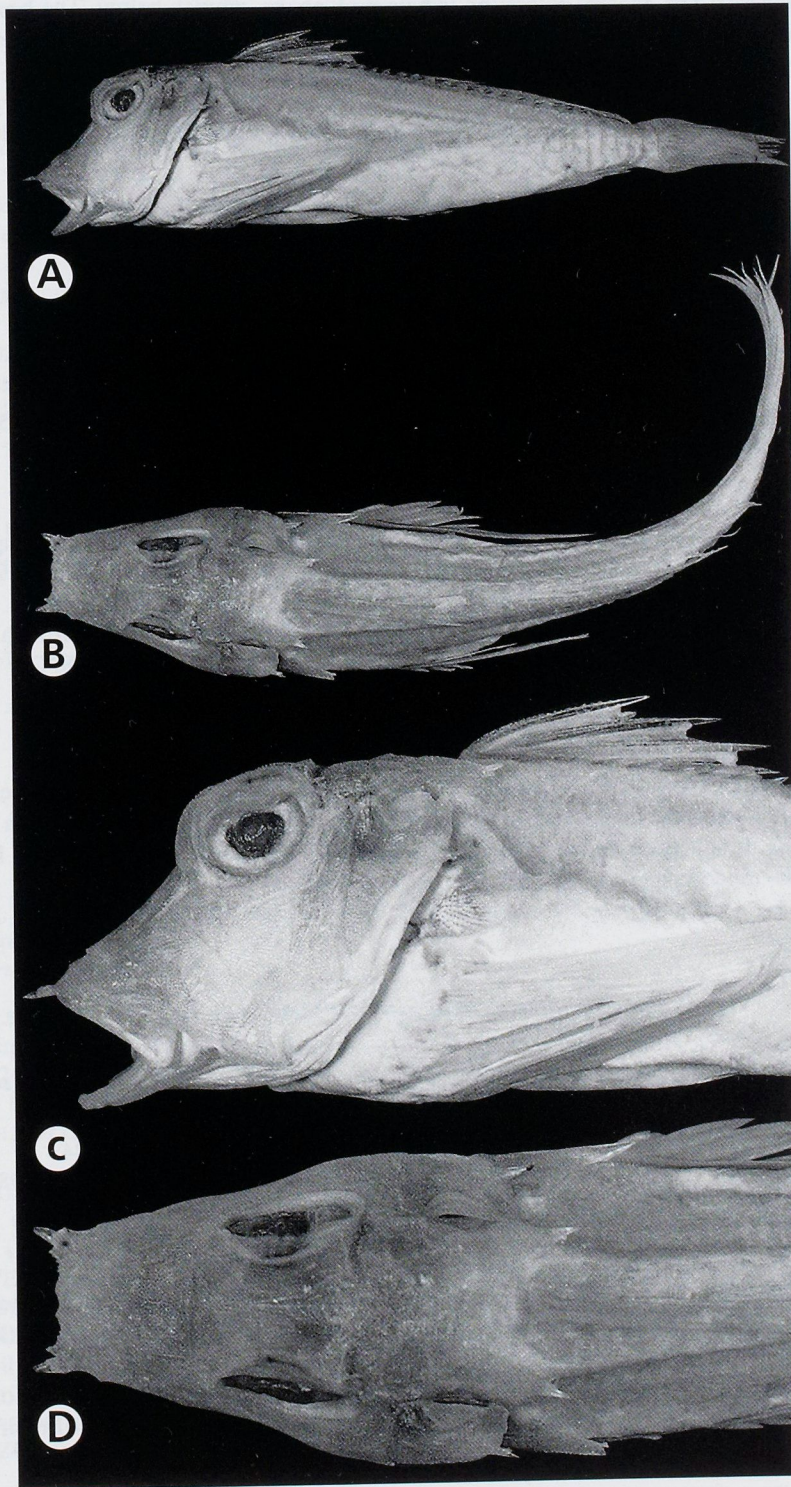


FIG. 4. — Holotype of *Lepidotrigla sereti* sp. nov. (MNHN 1994-32). — A: Lateral view. — B: Dorsal view. — C: Lateral detail of head. — D: Dorsal detail of head.

*Coloration* (in alcohol). The general coloration is pale pink above, whitish below. The head is slightly darker and yellowish. Without traces of any markings anywhere. The pectoral fin is white on both sides. The free pectoral rays and other fins are whitish.

ETYMOLOGY. — This species is named after Dr Bernard SÉRET from ORSTOM (Antenne du Muséum national d'Histoire naturelle, Paris).

Genus *PARAPTERYGOTRIGLA* Matsubara, 1937

*Parapterygotrigla megalops* (Fowler, 1938) comb. nov.

*Dixiphistops megalops* Fowler, 1938: 116-117, fig. 55. Locality: San Fernando Point Light, 16°38'N, 119°57.2'E (west coast of Luzon, Philippines), in 186 fathoms (= 340 m).

MATERIAL EXAMINED. — 2 specimens.

**New Caledonia.** MUSORSTOM 4: stn CC 201, 18°55.8'S, 163°13.8'E, 500 m depth, otter trawl (shrimps), R. V. "Vauban", 20 September 1985: 2 specimens, 116.2 and 110.0 mm TL (respectively 94.2 and 86.8 mm SL) (MNHN 1995-510).

DIAGNOSIS. — Pectoral fin short, not extending beyond level of middle of anal fin. Rostral processes slightly divergent and without spine at their base. D<sub>1</sub> VIII-IX; D<sub>2</sub> 12; A I + 11; P 13 + 3; LL 54-58; GR 13-15 + R.

DISTRIBUTION. — New Caledonia. Philippines (FOWLER, 1938).

REMARKS. — The data given by FOWLER (1938) in the original description of this species fit perfectly with those of the New Caledonian specimens. The species appears to have never been mentioned in the literature since its original description. It is here placed in *Parapterygotrigla* because the characters given by FOWLER (1938) for the erection of his new monotypic genus *Dixiphistops* are inconsistent.

*Parapterygotrigla multiocellata* Matsubara, 1937

*Parapterygotrigla multiocellata* Matsubara, 1937: 266-267, unnumbered figure. Locality: Kumano Nada, south-east to Kii Peninsula (Japan), in about 150 fathoms (= 274 m).

*Pterygotrigla multiocellata*: KAMOHARA, 1938: 52. — OCHIAI & YATOU in MASUDA *et al.*, 1984: 334.

*Parapterygotrigla multiocellata*: KURONUMA, 1939: 254. — YATOU in OKAMURA *et al.*, 1982: 280-281, 398. — SHEN, 1984: 33. — YATOU in OKAMURA *et al.*, 1985: 580-581, 724.

MATERIAL EXAMINED. — 2 specimens.

**New Caledonia.** MUSORSTOM 4: stn CC 173, 19°02.5'S, 163°18.8'E, 250-290 m depth, otter trawl (shrimps), R. V. "Vauban", 17 September 1985: 2 specimens, 290 and 160.0 mm TL (respectively 244 and 128.9 mm SL) (MNHN 1995-518).

DIAGNOSIS. — Pectoral fin very long, reaching to or extending beyond posterior end of anal fin. Rostral processes parallel or slightly convergent with a small antrose spine placed on outer part of their base. D<sub>1</sub> VIII; D<sub>2</sub> 11; A I + 12; P 12 + 3; LL 59; GR 9 + R.

DISTRIBUTION. — New Caledonia. Japan: Kumano Nada (MATSUBARA, 1937); Kôchi (KAMOHARA, 1938); Kyushu-Palau Ridge and East China Sea (YATOU in OKAMURA *et al.*, 1982, 1985); southern Japan to East China Sea (OCHIAI & YATOU in MASUDA *et al.*, 1984). Saigon (W.J. RICHARDS, pers. com. 1994).



Genus *PTERYGOTRIGLA* Waite, 1899*Pterygotrigla macrolepidota* (Kamohara, 1938)

*Uradia macrolepidota* Kamohara, 1938: 53, fig. 28. Locality: Urado Market, near Kôchi City (Japan), depth unknown.

*Uradia macrolepidota*: KURONUMA, 1939: 249 (citation).

*Pterygotrigla macrolepidota*: OCHIAI & YATOU in MASUDA *et al.*, 1984: 334

MATERIAL EXAMINED. — 9 specimens.

**New Caledonia.** BIOCAL: stn CP 42, 22°45.1'S, 167°12.2'E, 380 m depth, beam trawl, R. V. "Jean Charcot", 30 August 1985: 1 specimen, 102.1 mm TL (82.0 mm SL) (MNHN 1995-511).

MUSORSTOM 4: stn CC 173, 19°02.5'S, 163°18.8'E, 250-290 m depth, otter trawl, R. V. "Vauban", 17 September 1985: 8 specimens, 132.4, 114.2, 112.7, 100.4, 100.1, 97.3, 95.7 and 93.6 mm TL (respectively 109.4, 91.3, 92.6, 81.5, 80.0, 80.3, 76.8 and 77.6 mm SL) (MNHN 1995-507).

DIAGNOSIS. — The most distinctive feature of this species is the vertically enlarged scales of the lateral line, much higher than long. Posterior tip of pectoral fin not reaching level of middle of the anal fin base. D<sub>1</sub> VIII; D<sub>2</sub> 11; A I + 11-12; P 12-13 + 3; LL 54-57; GR 7-9 + R.

DISTRIBUTION. — New Caledonia. Japan: Urado and Mimase Market (KAMOHARA, 1938), Tosa Bay (OCHIAI & YATOU in MASUDA *et al.*, 1984).

*Pterygotrigla picta* (Günther, 1880)

## Table 6

*Trigla picta* Günther, 1880: 24-25, plate XIII, fig. A. Locality: Juan Fernández Island (Chile), depth unknown.

*Trigla guttata* Philippi, 1896: 375-376.

?*Pterygotrigla andertoni* Waite, 1910: 26.

*Trigla guttata*: FOWLER, 1945: 113. — DE BUEN, 1959: 48 (citation).

*Chelidonichthys pictus*: FOWLER, 1945: 114. — MANN, 1954: 54, 79, 309. — DE BUEN, 1959: 48 (citation). — KONG & BOLADOS, 1986: 124.

*Pterygotrigla picta*: McCULLOCH, 1929-1930: 393. — HUBBS, 1959: 313-315. — HARDY, 1982: 207-208. — PAXTON *et al.*, 1989: 457. — PAULIN *et al.*, 1989: 170 (key), 259 (citation). — YABE in AMAOKA *et al.*, 1990: 238.

MATERIAL EXAMINED. — 9 specimens.

**Norfolk Ridge.** CHALCAL 2: stn CH 4, 24°44.3'S, 168°09.9'E, 253 m depth, otter trawl (fishes), R. V. "Coriolis", 27 October 1986: 2 specimens, 311 and 237 mm TL (respectively 254 and 199 mm SL) (MNHN 1995-517). — Stn CH 5, 24°44.0'S, 168°08.5'E, 223 m depth, otter trawl (fishes), 27 October 1986: 2 specimens, 365 and 275 mm TL (respectively 303 and 226 mm SL) (MNHN 1995-516).

**Juan Fernandez Archipelago.** Robinson Crusoe Island: 1 specimen, 332 mm TL (274 mm SL) (IZUA PM 1034), 8 February 1985, 40 m depth; 1 specimen, 392 mm TL (320 mm SL) (IZUA PM 1035), 25 April 1985, 100 m depth; 1 specimen, 376 mm TL (308 mm SL) (IZUA PM 1036), 7 February 1985, 60 m depth.

**Chile.** San Ambrosio Island, 35 m depth, 23 December 1991: 2 specimens, 424 and 367 mm TL (respectively 344 and 298 mm SL) (both IZUA PM 1472).

DIAGNOSIS. — Cleithral spine long and sharp with a wide base. Ppercular spine very long and stout, clearly extending beyond posterior tip of opercular flap. D<sub>1</sub> VII-VIII; D<sub>2</sub> 11-12; A I + 11; P 11-12 + 3; LL 61-64; GR 7-8 + R (formula based on specimens from New Caledonia).

DISTRIBUTION. — New Caledonia. Juan Fernández Island, Chile (GÜNTHER, 1880; PHILIPPI, 1896; FOWLER, 1945; MANN, 1954). New Zealand (WAITE, 1910; PAULIN *et al.*, 1989). Great Australian Bight, Bass Strait, New South Wales (MCCULLOCH, 1929-1930).

TABLE 6. — Morphometric (in mm) and meristic variables of the specimens of *Pterygotrigla picta* (Günther, 1880).

|  | MNHN<br>1995-517 | MNHN<br>1995-517 | MNHN<br>1995-516 | MNHN<br>1995-516 |
|--|------------------|------------------|------------------|------------------|
| <b>MORPHOMETRIC CHARACTERS</b>         |                  |                  |                  |                  |
| Total length                           | 311.0            | 237.0            | 365.0            | 275.0            |
| Standard length                        | 254.0            | 199.0            | 303.0            | 226.0            |
| Head length                            | 82.3             | 62.2             | 103.7            | 77.9             |
| Length of rostral processes            | 7.6              | 7.9              | 3.6              | 7.8              |
| Pre-orbital length                     | 23.6             | 22.3             | 36.8             | 25.5             |
| Orbital length                         | 30.0             | 19.7             | 31.4             | 24.5             |
| Interorbital length                    | 29.2             | 20.8             | 29.4             | 24.4             |
| Post-orbital length                    | 30.4             | 21.1             | 36.4             | 25.2             |
| Maxillary length                       | 28.7             | 21.9             | 43.2             | 31.4             |
| Cheek height                           | 30.0             | 21.5             | 39.1             | 27.2             |
| Pre-D <sub>1</sub> length              | 95.2             | 64.6             | 113.7            | 83.5             |
| D <sub>1</sub> base length             | 49.0             | 35.0             | 53.8             | 41.4             |
| Pre-D <sub>2</sub> length              | 161.0            | 112.8            | 187.0            | 140.0            |
| D <sub>2</sub> base length             | 60.1             | 44.5             | 68.8             | 55.7             |
| Pectoral fin length                    | 123.9            | 104.1            | 130.5            | 108.7            |
| 1st free pectoral ray length           | 69.6             | 47.7             | 83.1             | 55.1             |
| Pre-anal length                        | 146.0            | 113.6            | 180.0            | 144.0            |
| Anal fin base length                   | 71.1             | 52.7             | 81.6             | 64.8             |
| Cleithral spine: post-opercular length | 33.9             | 29.5             | 31.6             | 29.6             |
| Head height                            | 59.5             | 39.3             | 69.7             | 49.6             |
| <b>MERISTIC CHARACTERS</b>             |                  |                  |                  |                  |
| D <sub>1</sub> spines                  | 8                | 7                | 7                | 7                |
| D <sub>2</sub> rays                    | 12               | 11               | 12               | 11               |
| Anal rays                              | 1+11             | 1+11             | 1+11             | 1+11             |
| Pectoral rays                          | 12               | 11+3             | 12+3             | 12+3             |
| Gill-rakers                            | 8+6R             | 8+3R             | 1R+7+4R          | 8+3R             |
| Pre-ocular spines                      | present          | present          | absent           | present          |
| Lateral line scales                    | 61               | 64               | 61               | 64               |
| Dorsal plates                          | 1+9              | 1+8              | 1+8              | 1+8              |

REMARKS. — The New Caledonian specimens agree with the original description of *P. picta*. However, they differ from specimens collected in Juan Fernández Island in spot pattern, suborbital bony sutures and lower preopercular spine. These differences are provisionally interpreted as intraspecific variations but, considering the considerable geographical distance between New Caledonia and Chile, further studies might elevate the New Caledonian specimens to subspecific rank.

*Pterygotrigla robertsi* sp. nov.

Fig. 5, Table 7

MATERIAL EXAMINED. — 1 specimen.

**Norfolk Ridge.** BERYX 11: stn CP 32, 23°37.7'S, 167°43.7'E (Stylaster seamount), 420-460 m depth, beam trawl, R. V. "Alis", 18 October 1992: holotype, 183 mm TL (152 mm SL) (MNHN 1994-25).

DIAGNOSIS. — Cleithral spine long and sharp with a wide base. Opercular spine inconspicuous, not extending beyond posterior margin of opercular flap. Pectoral fin extremely long, almost reaching end of last anal fin ray. Snout very long with two nasal spines. D<sub>1</sub> VIII; D<sub>2</sub> 12; A 12; P 11 + 3; LL 59; GR 9 + R.

DESCRIPTION. — The body is slender, covered with firmly attached and small cycloid scales; myotomes visible externally. The lateral line has 59 tubular scales. There are nine large bucklers along spinous dorsal base, the first being single and placed in front of the spinous dorsal and eight at both sides of that fin decreasing in size towards the tail. The base of the second dorsal fin has no bucklers.

The head is very long, 2.7 times in SL, smooth and without any kind of post-temporal groove. The nape is scaled. The snout is long, 2.2 times in HL, and as long as the base of the first dorsal fin, straight in profile and descending towards the rostral processes. The rostral projections are short, shorter than orbit length, 5.1 in HL, 1.4 in OL. The orbit is small, high in the head and only slightly impinging in the upper profile, 3.8 in HL, and almost of the same size of the cheek. The interorbital space is slightly concave (4.1 in HL) and nearly as long as the orbit length. The maxillary falls short of the anterior margin of the orbit, 2.7 in HL, 1.2 in PO. The teeth on both jaws are villiform, but the vomer and the palatines are toothless. Gill-rakers on the first arch are long, numbering 9 plus 2 rudiments. Pseudobranchials are present.

The first dorsal fin has eight spines and, when depressed, reaches the origin of the soft dorsal fin. The first three spines are serrated, the second and third being the longest and almost of the same size. The second dorsal fin has 12 soft rays. The anal fin has 12 soft rays and is inserted slightly in front of the second dorsal origin. The pectoral fin has 11 plus three free rays. It is very long and reaches nearly the posterior end of the anal fin (2.1 in SL; 0.8 in HL). The pelvic fin is well developed with one spine and five rays, and its posterior tip extends to the middle of the vent (4.3 in SL). The caudal fin is slightly emarginated.

*Spinulation.* The cleithral spine is stout and of moderate size, reaching the vertical between the bases of the third and fourth dorsal spines and is slightly shorter than the orbit length (4.1 in HL, measured posteriorly to opercle). The opercular spine is rudimentary, not impinging in the posterior margin of the opercle. The preopercular spine and keel are present and conspicuous, without accessory spines. There is one large nasal spine on each side of the snout behind the nostril, half way to the eye. The nuchal spine is strong, its posterior tip reaching just in front of the first dorsal spine. There are no other spines present on the head.

*Coloration* (in alcohol). The general coloration is yellowish, the head being slightly darker. The lower flanks (below the cleithral spine) and the ventral side anteriorly to the vent are shadowed. There are traces of dark markings in the first dorsal fin between the first and sixth spines. The pectoral fin is blackish except for the uppermost ray and the three lowermost rays which are pale. The three free rays are also pale as well as the other fins.

ETYMOLOGY. — This species is named after Dr Clive D. ROBERTS, Curator of Fishes at the Museum of New Zealand.

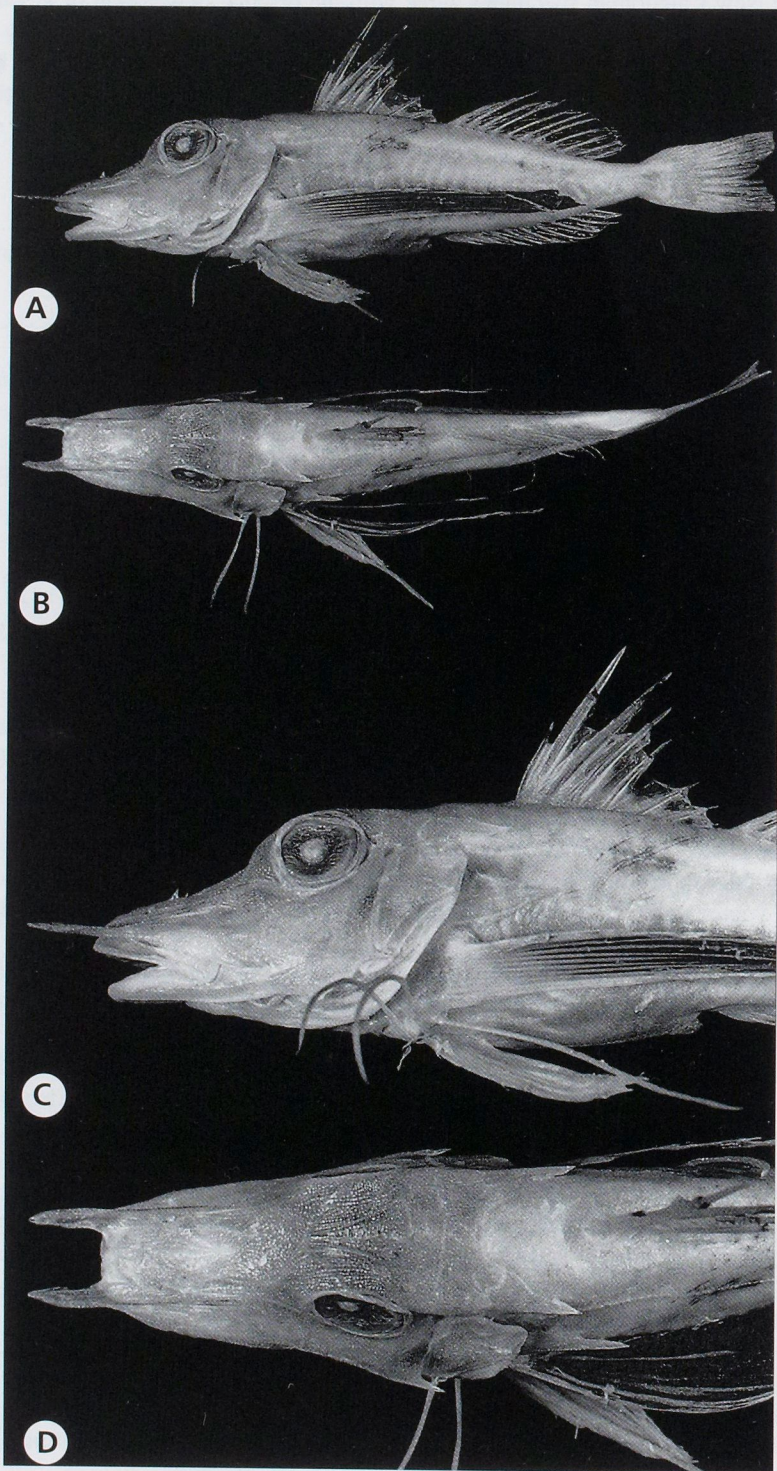


FIG. 5. — Holotype of *Pterygotrigla robertsi* sp. nov. (MNHN 1994-25). — A: Lateral view. — B: Dorsal view. — C: Lateral detail of head. — D: Dorsal detail of head.

TABLE 7. — Morphometric (in mm) and meristic variables of the holotype of *Pterygotrigla robertsi* sp. nov. (MNHN 1994-25).

| MORPHOMETRIC CHARACTERS                |       |
|--|-------|
| Total length                           | 183.0 |
| Standard length                        | 152.0 |
| Head length                            | 55.9  |
| Length of rostral processes            | 10.9  |
| Pre-orbital length                     | 25.1  |
| Orbital length                         | 14.8  |
| Interorbital length                    | 13.8  |
| Post-orbital length                    | 14.2  |
| Maxillary length                       | 20.4  |
| Cheek height                           | 14.5  |
| Pre-D <sub>1</sub> length              | 63.7  |
| D <sub>1</sub> base length             | 25.7  |
| Pre-D <sub>2</sub> length              | 93.0  |
| D <sub>2</sub> base length             | 36.1  |
| Pectoral fin length                    | 71.1  |
| 1st free pectoral ray length           | 50.5  |
| Pre-anal length                        | 93.8  |
| Anal fin base length                   | 38.4  |
| Cleithral spine: post-opercular length | 13.6  |
| Head height                            | 28.8  |
| MERISTIC CHARACTERS                    |       |
| D <sub>1</sub> spines                  | 8     |
| D <sub>2</sub> rays                    | 12    |
| Anal rays                              | 12    |
| Pectoral rays                          | 11    |
| Gill-rakers                            | 9+2R  |
| Lateral line scales                    | 59    |

*Pterygotrigla tagala* (Herre & Kauffman, 1952)

*Otohime tagala* Herre & Kauffman, 1952: 27-28. Locality: outer Manila Bay, in 64 fathoms (= 117 m).

*Pterygotrigla tagala*: YATOU & YAMAKAWA, 1983: 217, 220.

MATERIAL EXAMINED. — 32 specimens.

**Chesterfield and Bellona Plateaus.** CHALCAL 1: stn CH 2, 22°34.4'S, 159°17.4'E, 330 m depth, otter trawl (fishes), R. V. "Coriolis", 28 July 1984: 15 specimens, 134.5 mm TL (108.3 mm SL), 130.8 (106.5), 130.4 (105.9), 128.2 (106.5), 127.7 (105.4), 123.8 (101.5), 123.3 (99.0), 119.0 (96.6), 117.4 (94.3), 115.3 (93.0), 104.3 (85.7), 97.7 (79.09), 96.2 (76.6), 95.0 (78.8) and 90.2 (73.7) (MNHN 1995-505).

MUSORSTOM 5: stn CP 268, 24°44.7'S, 159°39.2'E, 280 m depth, beam trawl, R. V. "Coriolis", 9 October 1986: 2 specimens, 116.8 mm TL (95.8 mm SL) and 114.0 (91.6) (MNHN 1995-500). — Stn CH 271, 24°48.2'S, 159°34.6'E, 250-276 m depth, otter trawl (fishes), 9 October 1986: 1 specimen, 121.3 mm TL (97.5 mm SL) (MNHN 1995-501). — Stn CP 275, 24°46.6'S, 159°40.3'E, 285 m depth, beam trawl, 9 October 1986: 1 specimen, 111.6 mm TL (90.0 mm SL) (MNHN 1995-506). — Stn CP 276, 24°48.9'S, 159°40.9'E, 258-269 m depth, beam trawl, 9 October 1986: 1 specimen, 117.3 mm TL (94.4 mm

SL). — Stn CP 312, 22°17.2'S, 159°24.8'E, 315-320 m depth, beam trawl, 12 October 1986: 5 specimens, 120.8 mm TL (99.8 mm SL), 116.6 (94.3), 116.2 (94.0), 112.5 (92.8) and 114.0 (92.7) (MNHN 1995-499). — Stn CP 316, 22°25.1'S, 159°24.0'E, 330 m depth, beam trawl, 13 October 1986: 2 specimens, 128.7 mm TL (105.0 mm SL) and 112.9 (93.1) (MNHN 1995-502). — Stn CP 319, 22°24.4'S, 159°16.5'E, 320-325 m depth, beam trawl, 13 October 1986: 2 specimens, 124.9 mm TL (102.2 mm SL) and 107.2 (89.4) (MNHN 1995-504). — Stn CP 351, 19°33.1'S, 158°36.9'E, 290-310 m depth, beam trawl, 17 October 1986: 3 specimens, 136.5 mm TL (108.8 mm SL), 136.1 (109.1) and 126.9 (100.6) (MNHN 1995-503).

DIAGNOSIS. — Cleithral spine absent or very short, reduced to a rounded almost inconspicuous basal plate. D<sub>1</sub> VII-VIII; D<sub>2</sub> 12-14; A I + 10-12; P 12-14 + 3; LL 50-62; GR 10-13 + R.

DISTRIBUTION. — New Caledonia. Philippines: outer Manila Bay (HERRE & KAUFFMAN, 1952).

REMARKS. — All New Caledonian specimens have been assigned to *P. tagala* despite slight differences with the original description.

## DISCUSSION

In the waters of New Caledonia, the family Triglidae is represented by 6 genera and 18 species. Only one of them, *Pterygotrigla picta* (Günther, 1880), is also found in the waters of New Zealand. The New Caledonian triglid fauna is most closely related to those of Australia and the Philippines.

In his study on the genus *Lepidotrigla*, RICHARDS (1992) defines a distinctive character for his new species *L. jimjoebob*: the presence of small rudimentary barbels on the mandibular symphysis. This character has been included in our descriptions of the New Caledonian specimens, since it has been found in some of the new species described herein. Furthermore, we also have found this character in some *Lepidotrigla* and *Pterygotrigla* species examined as comparative material. However, this character shows intraspecific variation and this is probably why it has been overlooked by several authors.

In this paper a new subspecies has been described: *Lepidotrigla alcocki vaubani*. Another one has been suspected for the New Caledonian specimens of *Pterygotrigla picta*, but was not defined pending further comparative studies.

The present study of the New Caledonian triglids has highlighted a number of taxonomic problems as exposed below.

*Peristedion picturatum*, which had been synonymized with *Peristedion liorhynchus* (Günther, 1871) by PAXTON *et al.* (1989: 456), can be distinguished by the number of plates between the first anal ray and the vent, 3 in *P. liorhynchus* vs 2 in *P. picturatum*. Furthermore, the ventral surface of the snout of *P. picturatum* is completely smooth and there is a spine on the rostral processes close to the snout; this spine is absent in *P. liorhynchus*. *Peristedion nierstraszi* Weber, 1913, is very similar to *P. liorhynchus* in having three plates and no spine.

Despite its accurate description, *Satyrichthys moluccense* was apparently overlooked by HERRE (1925) when he described the new species *Peristedion welchi*, as well as by GLOERFELT-TARP & KAILOLA (1984). We believe that all records under the name *Satyrichtys welchi* refer to *S. moluccense*, a senior synonym.

In comparing the original descriptions of *Satyrichthys hians* (Gilbert & Cramer, 1897), *Satyrichthys investigatoris* (Alcock, 1898) and *Satyrichthys amiscus* (Jordan & Starks, 1904), we found that these nominal species seem to be closely related, if not synonyms, and also close to *Satyrichthys orientale*. However, pending further investigations of actual specimens and types, we have classified the single New Caledonian specimen as *S. orientale*, because it fits with the original description and that given by YATOU (*in* OKAMURA *et al.*, 1985: 727). MILLER (1974: 7) had already suggested that these nominal species may represent a single one with a broad longitudinal distribution.

*Satyrichthys quadratorostratus* appears very similar to *S. serrulatum* (Alcock, 1898). We have not seen the type specimens of *S. serrulatum* and there are few references dealing with this species. However, judging from the

very complete description given by YATOU (*in* OKAMURA *et al.*, 1982), it seems to belong to the same species group as *S. quadratorostratus*. They can be separated by the length of rostral processes (longer in *S. quadratorostratus*), the width of rostral processes (narrower in *S. quadratorostratus*), the distance between the inner edges of rostral processes at the premaxillary symphysis (longer in *S. quadratorostratus*), the length of the filamentous barbel (which does not reach the posterior edge of the orbit in *S. quadratorostratus*, but surpasses it in *S. serrulatum*), and finally the number of barbels in the lower lip (fewer in *S. quadratorostratus*). A specimen caught at MUSORSTOM 4 stn CC 245 was identified as *S. quadratorostratus* although it showed a band of villiform teeth on the left superior hemimandible which were missing in the right side. The absence or presence of teeth on the upper mandible being a diagnostic character separating the genera *Paraheminodus* and *Satyrichthys*, the initial question was to determine to which genus this specimen should be assigned. We have considered it a teratologic example of *S. quadratorostratus* rather than a different, unknown species of *Paraheminodus*, because all other characters fitted quite well with the description of *S. quadratorostratus*.

Among the valid species of *Lepidotrigla* listed by RICHARDS (1992), only two show close similarity to *Lepidotrigla sereti*: *L. kanagashira* Kamohara, 1936 and *L. kishinouyei* Snyder, 1911. *L. sereti* is distinguished from *L. kanagashira* mainly by the length of the snout, the interorbital width, the depth of the caudal peduncle, the length of the pectoral fin and of the second dorsal spine (always longer in *L. kanagashira* than in *L. sereti*). *L. sereti* is very similar to *L. kishinouyei* in the shape of the rostral processes as figured by KURONUMA (1939: fig. 8), but it is distinguished, among others, by the length of the snout and the interorbital width which is longer in *L. kishinouyei*. Also, the pectoral fin of *L. sereti* extends beyond the origin of the anal fin on a distance equal to about twice eye diameter. All the specimens of *L. sereti* have pectoral fins totally white, without any other marking. It should be noted that in all other species of *Lepidotrigla* collected during the New Caledonian cruises the fins still retain traces of marks even after a long period of preservation. We have therefore considered this to be a specific diagnostic character, despite we are not certain of the colour of pectoral fins on live fishes.

*Trigla guttata* has been recorded by MANN (1954: 79, 309) as "pez mariposa común" (common butterfly fish) but his description agrees neither with the original description, nor with that of *Pterygotrigla picta*, a senior synonym. HUBBS (1959) states that the specimen figured by MANN (1954) might well be *Chelidonichthys kumu* (Lesson & Garnot, 1830). However, based on our study of the syntypes of the latter (MNHN 6926 and MNHN 6931), we suggest that the specimen figured by MANN (1954) is most probably *Trigla lyra* Linnaeus, 1758, of the Mediterranean Sea and Atlantic Ocean. Indeed, it shares with *T. lyra* the shape of rostral processes, the size and shape of the cleithral spine, the truncate caudal fin and the lack of spots.

*Pterygotrigla robertsi*, which is only known from the holotype, uniquely differs from the twelve nominal species currently accepted in the genus *Pterygotrigla* by the presence of large nasal spines and an extremely long pectoral fin. It could also have been assigned to *Parapterygotrigla* on the basis of the presence of rostral processes longer than the orbit diameter. *Parapterygotrigla* is also defined by some authors by the presence of nasal spines. However, we have assigned *P. robertsi* to *Pterygotrigla* because the relative length of the rostral processes to the orbit diameter is usually regarded as the discriminating feature between the two genera, whilst the presence or absence of nasal spines is a disputed generic character.

#### ACKNOWLEDGMENTS

We are very grateful to Dr Bernard SÉRET who entrusted us with the study of the New Caledonian triglids and loaned material. We are indebted to Dr Guy DUHAMEL (MNHN), Dr Germán PEQUEÑO (IZUA), Dr Clive D. ROBERTS (NMNZ), and Ms Anne-Marie WOOLGER (BMNH) for loans of specimens. A visit to Laboratoire d'Ichtyologie, MNHN, was made possible by an ORSTOM grant to the senior author. We would also like to thank Dr William J. RICHARDS for his comments, and Clive ROBERTS and Nigel MERRETT for linguistic polishing. Mr Joan BIOSCA helped with the figures. This paper has been made possible by DGICYT funds through project ZONAP (PB90-0166).

## REFERENCES

- ALCOCK, A., 1898. — Natural history notes from H. M. Indian Marine Survey Ship "Investigator", Commander T. H. Heming, R. N. Commanding. Series II., No. 25. A note on the deep-sea fishes, with descriptions of some new genera and species, including another probably viviparous ophidioid. *Ann. Mag. Nat. Hist.*, ser. 7, 2: 136-153.
- AMAOKA, K., MATSUURA, K., INADA, T., TAKEDA, M., HATANAKA, H. & K. OKADA (eds), 1990. — *Fishes collected by the R. V. "Shinkai Maru" around New Zealand*. Japan Marine Fishery Resource Research Center, 410 pp.
- BLEEKER, P., 1851. — Over eenige nieuwe soorten van Scleroparei van den Indischen Archipel. *Nat. Tijdschr. Ned. Ind.* (1850), 1: 17-27.
- DE BUEN, F., 1959. — Lampreas, tiburones, rayas y peces en la estación de biología marina de Montemar, Chile (primera contribución). *Rev. Biol. Mar.*, 9 (1-3): 1-200.
- FISCHER, W. & G. BIANCHI, (eds.) 1984. — FAO species identification sheets for fishery purposes. Western Indian Ocean (Fishing Area 51). Rome, Food and Agriculture Organization of the United Nations, vol. 5: pages var.
- FOURMANOIR, P. & J. RIVATON, 1979. — Poissons de la pente récifale externe de Nouvelle-Calédonie et des Nouvelles-Hébrides. *Cah. Indo-Pacifique*, 1 (4): 405-443.
- FOWLER, H. W., 1938. — Descriptions of new fishes obtained by the United States Bureau of Fisheries Steamer "Albatross" chiefly in Philippines Seas and adjacent waters. *Proc. U.S. Natl. Mus.*, 85 (3032): 31-135.
- FOWLER, H. W., 1945. — Fishes of Chile. Systematic Catalog. *Apart. Rev. Chil. Hist. Nat.*, años XLV, XLVI, XLVII (1941, 1942, 1943): 1-171.
- GILBERT, C. H. & F. CRAMER, 1897. — Report on the fishes dredged in deep water near the Hawaiian Islands, with descriptions and figures of twenty-three new species. *Proc. U.S. Natl. Mus.*, 19: 403-458.
- GLOERFELT-TARP, T. & P. J. KAILOLA, 1984. — *Trawled fishes of southern Indonesia and North Western Australia*. Aust. Develop. Ass. Bureau, Australia, 406 pp.
- GÜNTHER, A., 1860. — *Catalogue of the Acanthopterygian fishes in the collection of the British Museum. 2. Squamipinnes, Cirrhitidae, Triglidae, Trachinidae, Polynemidae, Sphyraenidae, Trichiuridae, Scombridae, Carangidae, Xiphiidae*. London, xxi + 548 pp.
- GÜNTHER, A., 1871. — Report on several collections of fishes recently obtained for the British Museum. *Proc. Zool. Soc. London* (1871): 652-675.
- GÜNTHER, A., 1880. — Report on the shore fishes procured during the voyage of H. M. S. "Challenger" in the years 1873 - 1876. *Challenger Rep., Zool.*, Ser. 5, 1(6): 1-82.
- HARDY, G. S., 1982. — A new species of *Pterygotrigla* (Pisces: Triglidae) from New Zealand. *N.Z. J. Zool.*, 9(2): 207-210.
- HERRE, A. W., 1925. — A new philippine sea robin, family Peristediidae. *Philipp. J. Sci.*, 27(3): 291-295.
- HERRE, A. W. & D. E. KAUFFMAN, 1952. — New and little known Philippine triglids. *Proc. Biol. Soc. Wash.*, 65: 27-30.
- HUBBS, C. L., 1959. — Initial discoveries of fish faunas on seamounts and offshore banks in the eastern Pacific. *Pacific Sci.*, 13: 311-316.
- JORDAN, D. S., & E. C. STARKS, 1904. — List of fishes dredged by the steamer "Albatross" off the coast of Japan in the summer of 1900, with descriptions of new species and a review of the Japanese Macrouridae. *Bull. U.S. Comm. Fish.* (1902), 22: 577-630.
- KAMOHARA, T., 1936. — A review of the peristedioid fishes found in the waters of Japan. *Annot. Zool. Japon.*, 15(4): 436-445.
- KAMOHARA, T., 1938. — *On the offshore bottom-fishes of Province Tosa, Shikoku, Japan*. Maruzen, Tokyo, 86 pp.
- KAMOHARA, T., 1952. — Studies on the family Peristediidae found in Japan. *Jap. J. Ichthyol.*, 2(1): 1-13.
- KAMOHARA, T., 1957. — Notes on twenty additions to the marine fish fauna of Prov. Tosa, Japan, including one new genus (Family Peristediidae). *Res. Rep. Kochi Univ.*, 6(5): 1-6.
- KAUP, J. J., 1873. — Über die familie Triglidae, nebst einigen Worten über die Classification. *Archiv. Naturg.*: 87-88.
- KONG, I. & A. BOLADOS, 1986. — Peces marinos chilenos: Familia Triglidae. *Biota* (1986): 124.
- KURONUMA, K., 1939. — A study of the Triglidae of Japan. *Bull. Biogeogr. Soc. Japan*, 9(14): 223-259.
- LACEPÈDE, B., 1801. — *Histoire naturelle des Poissons*. Vol. III: 1801, 558 pp. Paris



- LESSON, R.P., 1830. — Poissons. In: Duperrey L.I., *Voyage autour du monde, exécuté par ordre du Roi, sur la corvette de Sa Majesté, "La Coquille", pendant les années 1822, 1823, 1824 et 1825*. Zoologie, **2** (1): pp. 66-238; Atlas (1826-1831), pls 1-38.
- LINNAEUS, C., 1758. — *Systema Naturae*. ed. X, vol. 1, 824 pp.
- MANN, G., 1954. — La vida de los peces en aguas chilenas. *Instituto de Investigaciones Veterinarias y Facultad de Filosofía y Educación*, Univ. Chile, 342 pp.
- MARSHALL, T. C., 1964. — *Fishes of the Great Barrier Reef and coastal waters of Queensland*. Angus & Robertson, xiv+ 566 pp.
- MASUDA, H., AMAOKA, K., ARAGA, C., UYENO, T. & YOSHINO, T. (eds), 1984. — *The Fishes of the Japanese Archipelago*. Tokai Univ. Press, xxii + 437 pp.
- MATSUBARA, K., 1937. — Studies on the deep-sea fishes of Japan. V. Diagnosis of a new mail-cheeked fish, *Parapterygotrigla multiozellata* n.g., n. sp., belonging to Triglidae. *Zool. Mag. Japan*, **49**(7): 266-267.
- MATSUBARA, K. & Y. HIYAMA, 1932. — A review of Triglidae, a family of mail-cheeked fishes, found in the waters around Japan. *J. Imp. Fish. Inst.*, **28**(1): 3-67.
- MCCULLOCH, A. R., 1926. — Report on some fishes obtained by the F. I. S. "Endeavour" on the coasts of Queensland, New South Wales, Victoria, Tasmania, South and south-western Australia. Part 5. *Biological Results "Endeavour"*, Sydney, **5**(4): 157-216.
- MCCULLOCH, A. R., 1929-1930. — A check-list of the fishes recorded from Australia. *Aust. Mus., Mem.*, **5**: 1-533.
- MILLER, G. C., 1974. — Fische des Indischen Ozeans. Ergebnisse der ichthyologischen Untersuchungen während der Expedition des Forschungsschiffes "Meteor" in der Indischen Ozean, Oktober 1964 bis Mai 1965. A. Systematischer Teil, 14. Scorpaeniformes (2) Family Peristediidae. *Meteor Forschung-Ergebnisse*, Reihe D, **18**: 61-72.
- OGLBY, J. D., 1910. — On some new fishes from the Queensland coast. *Proc. Royal Soc. Queensland*, **23**: 85-139.
- OKAMURA, O., AMAOKA, K. & F. MITANI, (eds.), 1982. — *Fishes of the Kyushu Palau Ridge and Tosa Bay*. Japan Fisheries Resource Conservation Association, 435 pp.
- OKAMURA, O., MACHIDA, Y., YAMAKAWA, T. MATSUURA, K. & T. YATOU, 1985. — *Fishes of the Okinawa Trough and the adjacent waters*. Japan Fisheries Resource Conservation Association. Vol. II: 418-781.
- PAULIN, C., STEWART, A., ROBERTS, C. D. & P. MCMILLAN, 1989. — New Zealand Fish. A complete guide. *Natn. Mus. N. Z. Misc. Ser.*, **19**: 1- 279.
- PAXTON, J. R., HOESE, D. F., ALLEN, G. R. & J. E. HANLEY, 1989. — *Zoological Catalogue of Australia. Volume 7. Pisces. Petromyzontidae to Carangidae*. Australian Government Publishing Service, Canberra, i-xii + 1-665.
- PHILIPPI, R. A., 1896. — Peces nuevos de Chile. *Ann. Univ. Chile*, Santiago, **93**: 375-390.
- REGAN, C. T., 1908. — Report on the marine fishes collected by Mr. J. Stanley Gardiner in the Indian Ocean. *Trans. Linn. Soc. London, Zool.*, Ser. 2, **12** (3): 217-255.
- RICHARDS, W. J., 1992. — Comments on the genus *Lepidotrigla* (Pisces, Triglidae) with descriptions of two new species from the Indian and Pacific Oceans. *Bull. Mar. Sci.*, **51**(1): 45-65.
- RICHARDS, W. J., & V. P. SAKSENA, 1977. — Systematics of the gurnards, genus *Lepidotrigla* (Pisces, Triglidae), from the Indian Ocean. *Bull. Mar. Sci.*, **27**(2): 208-222.
- RICHER DE FORGES, B., 1990. — Les campagnes d'exploration de la faune bathyale dans la zone économique de la Nouvelle-Calédonie. Explorations for bathyal fauna in the New Caledonian economic zone. In: CROSNIER, A. (ed.), Résultats des Campagnes MUSORSTOM, Vol. 6. *Mém. Mus. natn. Hist. nat.*, (A), **145**: 9-54.
- RIVATON, J., 1989. — Premières observations sur la faune ichthyologique des îles Chesterfield (Mer du Corail). *Cybium*, **13**(2): 139-164.
- RIVATON, J., FOURMANOIR, P., BOURRET, P. & M. KULBICKI, 1989. — Catalogue des poissons de Nouvelle-Calédonie. Rapport Provisoire. *Catalogue*. ORSTOM Nouméa, Sciences de la mer, Biologie Mar.: 1-170.
- SHEN, S. -C., 1984. — *Coastal Fishes of Taiwan*. Southern Materials Inc., Taipei: 170 pp.
- SMITH, H. M., 1917. — New genera of deep water gurnards (Peristediidae) from the Philippine islands. *Proc. Biol. Soc. Wash.*, **30**: 145-146.
- SNYDER, J. O. 1911. Descriptions of new genera and species of fishes from Japan and the Riu Kiu Islands. *Proc. U.S. Natl. Mus.*, **40**: 525-549.

- TEAGUE, G. W., 1951. — The sea-robins of America. A revision of the triglid fishes of the genus *Prionotus*. *Com. Zool. Mus. Hist. Nat. Montevideo*, **3**(61): 1-59.
- WAITE, E. R., 1899. — Scientific results of the trawling Expedition of H. M. C. C. S. "Thetis". *Fishes. Mem. Austr. Mus.*, **4**: 1-132.
- WAITE, E. R., 1910. — Additions to the fish fauna of New Zealand. *Proc. N.Z. Inst.*, **43**(1): 25-26.
- WEBER, M., 1913. — Die Fische der Siboga Expedition. *Siboga Rept.* Leiden, 57: i-xii + 1-710.
- WHITLEY, G. P., 1933. — Studies in Ichthyology, No. VII. *Rec. Austr. Mus.*, **19**(1): 60-112.
- WHITLEY, G. P., 1958. — Descriptions and records of fishes. *Proc. R. Zool. Soc. N.S.W.* 1956-1957: 28-51.
- YATOU, T. & T. YAMAKAWA, 1983. — A new triglid fish, *Pterygotrigla multipunctata*, from Japan. *Jap. J. Ichthyol.*, **30**(3): 217-220.