

## Revision of a Deep-Sea Stargazer Genus *Pleuroscopus*

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**Abstract** The monotypic uranoscopid genus *Pleuroscopus* Barnard, 1927, originally based on a description of the subadult holotype, is redescribed to include the adult form, which has been considered by some recent authors to be a separate species. An examination of additional material of *P. pseudodorsalis* from southern Africa and Australasia (242–559 mm SL) has revealed the presence of two distinct post-juvenile growth forms, with a belated transition stage between them at about 270–365 mm SL. Subadults display allometric growth and have greater rugosity and ornamentation of head bones and scales than adults. During the transformation period, growth becomes linear, scales become less obvious and their surfaces less ornamented, and prominent bony ridges of the head exfoliate.

The deepwater uranoscopid, *Pleuroscopus pseudodorsalis* Barnard, 1927, was described from a 300 mm TL specimen (remeasured 255 mm SL, caudal fin broken), trawled at a depth of about 370 m near Table Bay, off the west coast of South Africa. Since then, few additional specimens, all of which have come from the original vicinity of the type locality, have formed the basis in the literature for the known distribution of the species.

Smith (1965) erroneously noted a second member of the genus from Japan, misquoting from Barnard (1927a), "... it resembles *Gnathagnus* Gill from Japanese and ...". More recently, Last and Harris (1981) recorded a large *Pleuroscopus* from the Australian continental slope off Tasmania which they considered to be undescribed. Additional specimens have been collected from the continental slopes off southern Australia and New Zealand (Last et al., 1983). The Australian form differs from the holotype of *P. pseudodorsalis* in the morphology of the head, squamation and morphometry and was initially considered by two of us (Last and Gomon) to be specifically distinct.

In this paper the species is fully redescribed, its range is extended and its pattern of development is discussed.

### Methods and materials

Study methods follow Hubbs and Lagler (1970) and Kishimoto (1984, 1987). Terminology for meristic values follow Hubbs and Lagler (1970) except that only branched rays are included in the caudal fin count and dorsal fin tubercles are sub-

stituted for dorsal fin spines. Because of the obscure nature of some structures or the poor condition of preserved specimens, counts on gill rakers, pyloric caeca and vertebrae were not always taken. Vertebral and caudal fin ray counts were obtained from radiographs. Consistent counts of lateral line scales, which are deeply embedded, and body scales, which are arranged randomly, were not obtainable. Parentheses following registration numbers for materials examined contain standard lengths of specimens.

Materials were examined from the following institutions: AMS: Australian Museum, Sydney; BMNH: British Museum (Natural History), London; CSIRO: Commonwealth Scientific and Industrial Research Organization, Hobart; FSFL: Far Seas Fisheries Research Laboratory, Shimizu; HUMZ: Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University, Hakodate; IIPB; Instituto de Investigaciones Pesqueras, Paseo Nacional, Barcelona; NMNZ: National Museum of New Zealand, Wellington; NMV: Museum of Victoria, Melbourne; NSMT: Department of Zoology, National Science Museum, Tokyo; SAM: South African Museum, Cape Town; SAMA: South Australian Museum, Adelaide.

### Genus *Pleuroscopus* Barnard, 1927

*Pleuroscopus* Barnard, 1927a: 437 (type: *Pleuroscopus pseudodorsalis* Barnard, 1927a).

**Diagnosis.** Differs from all other genera of the

family Uranoscopidae in having the following unique features: dorsal fin spines unconnected, reduced to 8–11 short, stumpy, immovable tubercles; soft dorsal and anal fin bases short, their length about equal to their height; branched caudal rays 6+5–6; scales cycloid, with 3–5 radiating, granular ridges and wholly covering body of immature individuals; adults with scales less ornamented, embedded, absent from belly and all fin bases except caudal base; single scale row on cheek.

**Species.** *Pleuroscopus pseudodorsalis* Barnard, 1927a. Monotypic.

**Remarks.** Although Smith (1965) raised the genus to a new family Pleuroscopidae, all recent authorities have placed the group within the Uranoscopidae. All of the characters given by Smith as being diagnostic for the family are present or are merely simple modifications of features in one or more other uranoscopid genera. Features of squamation of subadults and the form of the spinous dorsal fin are distinctive but the presence of these structures are not unique within the group. The non-overlapping, “small thickened bony scales” are reduced to flattened membranous elements in adult individuals; fine non-overlapping and randomly distributed scales are also found in *Gnathagnus* and *Genyagnus*. Similarly, the “spinous dorsal represented by isolated bony knobs along the back” is possibly an intermediate condition between a well developed spinous dorsal fin as in *Astroscopus* and *Uranoscopus*, and no spinous dorsal fin as in *Genyagnus*, *Gnathagnus* and *Kathetostoma*. In addition, *Pleuroscopus* shares the following characters with other uranoscopid genera: head massive, flattened dorsally with bones exposed; infraorbital bones expanded; interorbital space noticeably broad with wide and deep fossa (interorbital fossa) for receiving the ascending processes of premaxillaries; mouth protractile, large and vertical; jaws, palatines and prevomer with teeth; paired deep cavities between anterior skull and ascending processes of premaxillaries; lateral line complete with tubular scales entirely embedded; six branchiostegal rays; pseudobranchiae present; membranes of anal and paired fins fleshy and thickened; pectoral fin broad; pelvic fins closely positioned, situated on isthmus, with a short feeble spine and five segmented rays. According to Mees’s (1960) generic revision of the family Uranoscopidae, the family

comprises nine genera. But *Excectides* has been synonymized with *Gnathagnus* by Myers (1946), *Nematagnus* with *Uranoscopus* by Brüß and Klausewitz (1984) and *Ariscopus* with *Gnathagnus* by Amaoka et al. (1986), respectively. Because more detailed phylogenetic studies of the family are in progress, we have opted to retain this classification for the present.

*Pleuroscopus pseudodorsalis* Barnard, 1927

(Fig. 1)

*Pleuroscopus pseudodorsalis* Barnard, 1927a: 437, pl. 18, fig. 6 (holotype: BMHN 1937.10.4: 30, 255 mm SL, off Table Bay, western South Africa, ca. 370 m deep); Barnard, 1927b: 67 (copied from orig. des.); Barnard, 1947: 99 (off Cape Town, South Africa); Smith, 1965: 177, fig. 379 (Algoa Bay, eastern South Africa); Lloris, 1984: 22 (listed from Namibia, southwest Africa); Lloris, 1986: 348, fig. 194 (Namibia, southwest Africa); Heemstra, 1986: 735, fig. 230.1 (Algoa Bay, eastern South Africa).

*Pleuroscopus pseudodorsalis?*: Fujii, 1976: 13, 107 (South Australia).

*Pleuroscopus* sp.: Fuji, 1976: 13, 107; Anonymous, 1979: 1 (Great Australian Bight); Last and Harris, 1981: 194 (off Tasmanian coast); Last et al., 1983: 423, fig. 30.93 (Tasmania).

**Material.** Southeastern Atlantic Ocean: BMHN 1937.10.4: 30 (holotype, 255), off Table Bay, ca. 370 m, date unknown; FSFL-EL 734 (448), Walvis Ridge, 26°08’S, 05°31’E, 486 m, 8 Jan. 1980; IIPB 568/1981 (381), off Namibia, 27°34’S, 14°30’E, 410 m, 12 Feb. 1975; SAM 18773 (264), off Cape Town, South Africa, 320 m; SAM 19872 (255), off Cape Town, South Africa, depth unknown; SAM 24415 (248), west of Cape Town, depth unknown.

Southwestern Indian Ocean: FSFL-EG 739 (292) and FSFL-EG 866 (269), Madagascar Ridge, 33°14.7’S, 44°14.2’E, 748 m, 19 June 1977; FSFL-EG 916 (338), Madagascar Ridge, 33°08.0’S, 44°06.6’E, 772 m, 3 Aug. 1977; FSFL-EG 969 (321), Madagascar Ridge, 33°01.0’S, 44°00.0’E, 812 m, 5 Aug. 1977; FSFL-EG 975 (359), Madagascar Ridge, 33°33.8’S, 44°32.4’E, 956 m, 20 June 1977; FSFL-EL 516 (291), Madagascar Ridge, 33°06.6’S, 44°04.8’E, 780 m, 19 June 1977; FSFL-EL 556 (339), Madagascar Ridge, 33°14.7’S, 44°14.2’E, 748 m, 19 June 1977; HUMZ 74181 (272), Madagascar Ridge, 33°21.5’S, 44°16.1’E, 782 m, 20 June 1977; HUMZ 74264 (365), Madagascar Ridge, 33°28’S, 44°09’E, 877 m, 7 Aug. 1977; SAM 25559 (248), off Algoa Bay, eastern South Africa, 360–475 m.

Great Australian Bight: AMS-I 21729-001 (453) and



Fig. 1. Lateral (A) and dorsal (B) views of an adult *Pleuroscopus pseudodorsalis*, FSFL-EA 583, 426 mm SL, printed from color negatives of fresh specimen.

AMS-I 21729-002 (350), 33°26'S, 128°31'E, 400–410 m, 25 Mar. 1979; CSIRO-H 642-01 (308), off Recherche Archipelago, 400 m; FSFL-EA 478 (506) and FSFL-EA 583 (426), 33°22.2'S, 126°18.3'E, 550 m, 27 Nov. 1975; FSFL-EA 855 (342) and FSFL-EA 856 (368), 33°39.4'S, 131°06.6'E, 626 m, 3 Dec. 1975; FSFL-EB 569 (454), 33°22.2'S, 126°18.3'E, 550 m, 27 Nov. 1975; FSFL-EC 370 (268), FSFL-EC 371 (380), FSFL-EC 624 (353), FSFL-EC 681 (419), FSFL-EC 684 (559), and FSFL-EC 689 (359), 33°25.4'S, 128°31.7'E, 735 m, 29 Nov. 1975; FSFL-EC 810 (377) and FSFL-EC 819 (373), 33°23.2'S, 128°40.8'E, 423 m, 29 Nov. 1975; NMV-A 764 (447) and NMV-A 765 (479), 38°50'S, 141°46'E to 38°51'S, 141°55'E, 550 m, 5 Mar. 1980; NMV-A 774 (394), 38°34'S, 141°04'E, 550 m, 4 Mar. 1980; NMV-A 2118 (428) and NMV-A 2130 (484), 37°54'S, 139°48'E to 37°46'S, 139°35'E, 610–680 m, 23 Oct. 1981; NMV-A 3211 (274), south of Beachport, 600–700 m, Oct. 1981; SAMA-F 004 (455), 38°46'S, 141°19'E, 585 m, 14 May 1979.

Eastern Australia: AMS-I 15995-004 (400), south of Jervis Bay, New South Wales, 35°25'S, 150°50'E, 550 m, 2 Aug. 1971; AMS-I 16585-002 (435) and AMS-I 16590-006 (490), off Sydney, New South Wales, 33°20'S, 152°05'E, 550 m, 5 Oct. 1972; AMS-I 18759-002 (530), east of Broken Bay, New South Wales, 33°40'S, 151°53'E, 200–450 m, 23 May 1975; AMS-I 26823-001 (251), off Swansea, New South Wales, 33°05'S, 151°38'E, 660 m, 7 Jan. 1987; AMS-I 26926-003 (242), off Wollongong, New South Wales, 34°23'S, 151°22'E, 442–488 m, 9 Oct. 1986.

Tasmania: CSIRO-T 1376, northeastern Tasmania,

550 m, 1981.

New Zealand: FSFL-ED 010 (305), Norfolk Island Ridge, 33°45.7'S, 167°02.0'E, 12 Jan. 1976; NMNZ-P 11272 (408), northeast of Cavalli Islands, 33°44'S, 174°26'E, 745–750 m, 21 Nov. 1981; NMNZ-P 11573 (258), northeast of Cavalli Islands, 34°56'S, 174°35'E, 550 m, 21 Nov. 1981; NMNZ-P 13427 (397), Lord Howe Rise, 39°58'S, 169°01'E, 738–746 m, 20 Feb. 1983; NSMT-P 41319 (425) and NSMT-P 41320 (266), Norfolk Island Ridge, 30°15'S, 172°56'E, 737 m, 24 Apr. 1985.

**Description.** Morphometric and meristic data are summarized in Table 1. Data for the holotype were obtained from remeasurement.

Head and body broad, slightly depressed anteriorly, tapering and becoming slightly compressed posteriorly. Body scales arranged randomly, not forming rows; cheek with a scale row; tubiform scales embedded along lateral line; lateral line positioned midlaterally (Fig. 2E); lateral line extending over central two caudal rays, almost to fin apex. Dorsal fin spines unconnected, reduced to short, stumpy, immovable tubercles; membranes of anal and paired fins fleshy and thickened; pectoral fin very broad, outer margin truncate, upper angle acute, upper ray longest; soft dorsal and anal fin bases short, their lengths about equal to their height; caudal fin truncate to slightly rounded; pelvic fins close together, situated on isthmus; pelvic spine feeble, closely

Table 1. Morphometric and meristic data for *Pleuroscopus pseudodorsalis*. Measurements are expressed as % of standard length. Numbers of specimens examined are in the brackets.

	African specimens		Australasian specimens
	Holotype	Others	
Measurements			
Standard length (mm)	255	242–448 (15)	258–559 (37)
Total length	broken	120–130.7	124–130.2
Predorsal length	46.3	39.8–44.1	39.7–43.5
Greatest depth of body	27.3	16.7–28.2	17.1–26.3
Body depth at anal fin origin	16.8	12.7–17.3	13.5–17.8
Least depth of caudal peduncle	9.7	7.1–10.2	7.5–10.6
Pelvic fin length	18.8	15.1–21.0	13.7–19.8
Pectoral fin length	21.7	23.1–28.6	23.1–29.4
Caudal fin length	broken	20.8–24.1	20.8–23.6
Longest dorsal soft ray length	16.1	15.0–20.2	13.2–17.8
Longest anal soft ray length	15.4	13.2–20.2	12.3–17.7
Basal 1. of tubercular dorsal	27.0	22.9–28.0	22.2–26.7
Basal 1. of soft dorsal	15.1	15.1–20.9	14.5–20.2
Basal 1. of two dorsals	42.2	41.0–46.9	39.5–45.0
Basal 1. of anal	19.6	18.4–23.3	18.1–26.8
Head length	42.0	35.2–43.2	33.8–42.3
Greatest width of head	36.9	35.3–41.4	33.8–41.4
Snout length	10.3	8.7–10.6	8.4–11.6
Least dep. of infraorbitals	3.7	1.8–2.9	2.1–3.1
Greatest dep. of infraorbitals	7.4	5.8–6.9	5.5–7.2
Orbit diameter	8.3	7.6–8.5	7.2–8.4
Opercular height	16.1	12.5–14.5	11.5–15.1
Opercular width	13.4	9.9–11.6	10.4–12.3
Width of interorbital space	17.7	11.4–18.6	11.7–19.0
Maxillary width	5.6	5.1–6.9	5.4–7.1
Maxillary length	19.0	16.3–20.6	15.0–20.7
Cleithral spine length	5.5	3.3–6.1	1.7–6.8
Counts			
Dorsal fin tubercles		VIII (1)	VIII (2)
	IX	IX (8)	IX (13)
		X (6)	X (15)
Dorsal fin rays		0, 9 (3)	0, 9 (8)
	I, 9	1, 9 (2)	1, 9 (3)
		0, 10 (9)	0, 10 (18)
		1, 10 (1)	
Anal fin rays	10	10 (3)	10 (3)
		11 (11)	11 (17)
		12 (1)	12 (9)
Pectoral fin rays		23 (1)	23 (1)
	24 (L)	24 (5)	24 (6)
	25 (R)	25 (5)	25 (7)
			26 (2)
Branched caudal rays		5+5 (1)	6+5 (3)
		6+5 (7)	6+6 (4)
	6+6	6+6 (3)	6+6 (4)
Gill rakers			4+18 (1)
			5+18 (1)
	6+19		6+19 (2)
		7+17 (1)	7+18 (1)
			7+19 (1)
Vertebrae			28 (4)
	29	29 (12)	29 (13)
Pyloric caeca			8 (1)
			9 (1)
			10 (2)
	11	11 (1)	11 (3)
			12 (2)
			13 (1)
			14 (1)

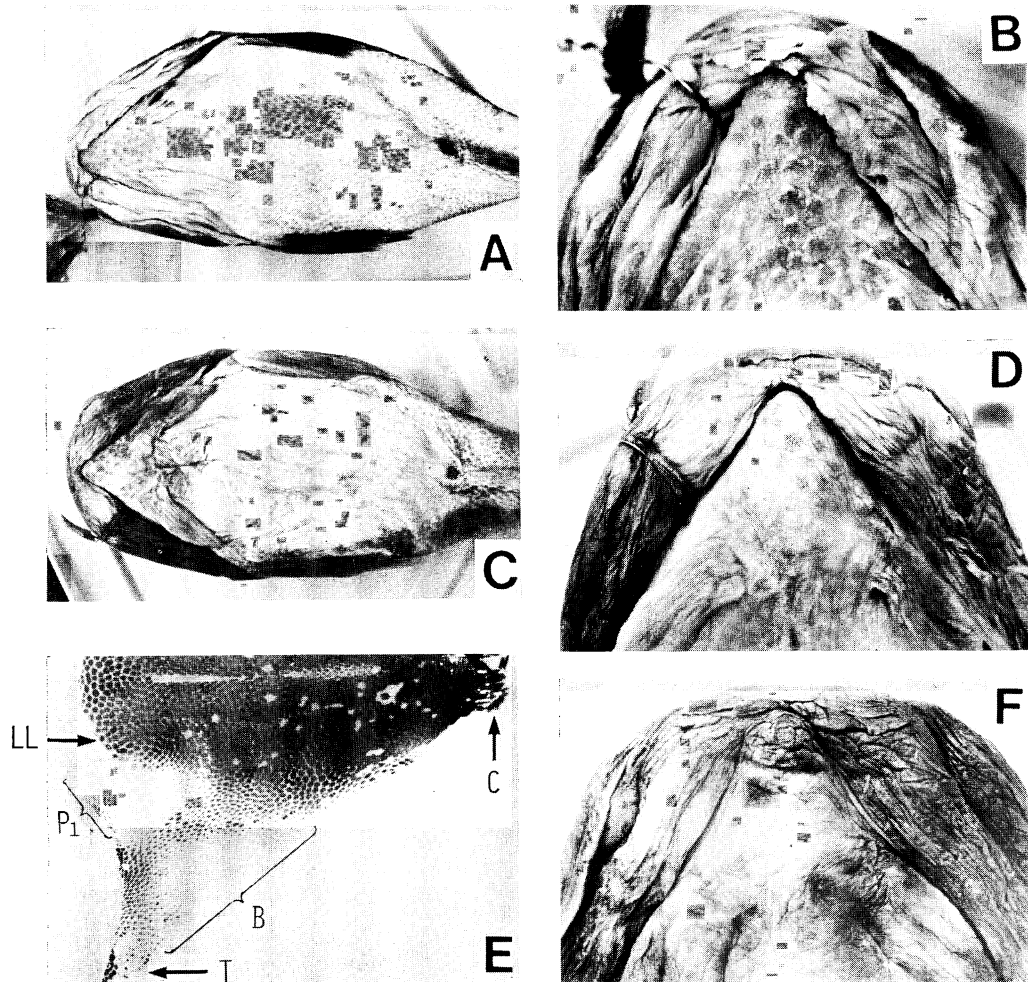


Fig. 2. Progressive loss of body scales in *Pleuroscopus pseudodorsalis*. A and B: FSFL-EC 370, 268 mm SL, belly and throat totally covered with ornamented scales. C and D: FSFL-EA 855, 432 mm SL, belly lacking scales but throat covered with scale prints. E: FSFL-EG 866, 269 mm SL, skin completely removed from left side of body, cleared and stained with Alizarin Red-S; scales have disappeared from the belly and the remaining ventral scales, compared with those dorsally, are smaller and more poorly stained. F: FSFL-EC 684, 559 mm SL, throat lacking scales and scale prints. LL, lateral line scales stained comparatively deeper; P<sub>1</sub>, pectoral fin; T, throat; B, belly; C, basal half of caudal fin.

connected to 1st soft ray by tendon.

Head flattened dorsally, dorsal and lateral surfaces almost entirely encased in minutely sculptured bones. Eye large, positioned dorsolaterally, non-telescopic, without membranous tentacle or grainy row. Interorbital fossa semicircular, broad and short, intraspecifically variable in size, extending into posterior half of interorbital space. Nasal bone rounded, broadly ossified, exposed; both nostrils with short tubiform valve, additional

short branching filament on posterior margin of anterior nasal valve; internal nare absent. Infraorbitals expanded; lacrymal smaller than 1st infraorbital, slightly elongated postero-inferiorly, without spine on anterior edge. No mental barbel (typical of *Genyagnus* and *Ichthyoscopus barbatus*) or pair of prominent converging bony ridges on anterior edge (inferior edge in most teleosts) of dentary (typical of *Gnathagnus*); mouth protractile, large and vertical; lips without distinct fimbriae

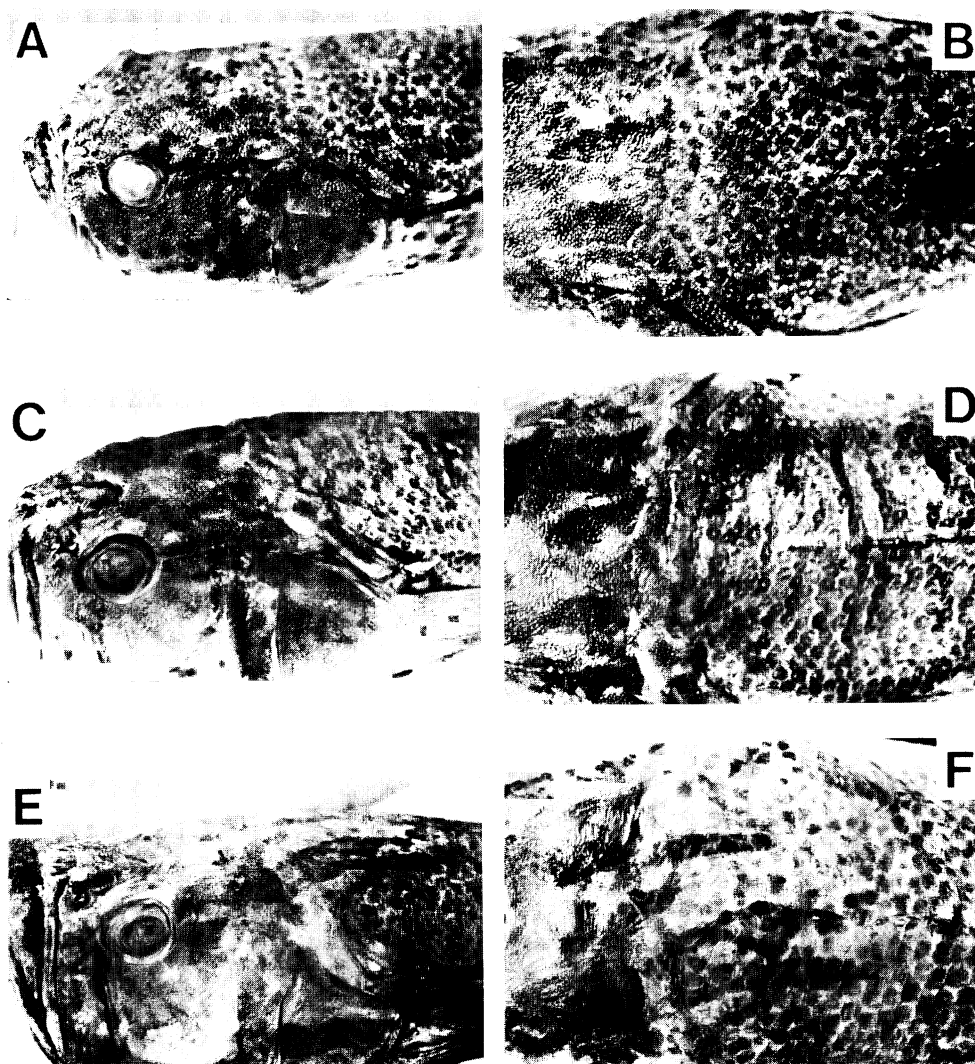


Fig. 3. Exfoliation of bony ridges from head and loss of granular ridges from scale surfaces in *Pleuroscopus pseudodorsalis*. A and B, FSFL-EC 370, 268 mm SL; C and D, FSFL-EA 855, 342 mm SL; E and F, FSFL-EC 684, 559 mm SL. Prominent bony ridges present in subadults (A) exfoliate to reveal a shallow, naked depression (C) which later becomes filled with granular bone in adults (E). The surface of body scales of subadults are covered with radiating granular ridges (B) which are later reduced to a low subcentric knob (D), finally becoming almost smooth in large adults (F).

or fimbrial ridges; central tip of respiratory valve on inside of lower jaw slightly produced. Teeth caniniform in 1–2 rows, with 2–4 pairs of somewhat larger teeth near symphysis of upper jaw; single row of larger teeth on lower jaw; single regular rows of small conical teeth on prevomer and palatines.

Pseudobranchiae present; branchiostegal rays 6; gill opening ending dorsally in advance of pectoral origin; posterior margin of gill flap

lacking dermal fringe; gill membranes united to isthmus, lower surface of connecting fold with several fringed folds; opercular bones ossified, without marginal spines. Cleithral spine short, length 6–7 in head, 1.2–1.5 in orbit in specimens smaller than 270 mm SL; rudimentary, apex slightly exposed and conical, length 8–10 in head, 1.7–2.4 in orbit in specimens exceeding 400 mm SL; ventral tip not projecting; basipterygium hidden, without exposed process. First proximal anal

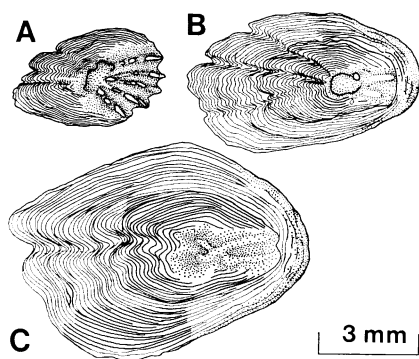


Fig. 4. Body scales of *Pleuroscopus pseudodorsalis* (from right side halfway between the lateral line and soft dorsal fin origin. A, NSMT-P 41320, 266 mm SL; B, NSMT-P 41319, 425 mm SL; C, FSFL-EC 684, 559 mm SL.

pterygiophore supporting two soft rays. No air-bladder.

**Growth changes.** The developmental stages of larvae and subadults are unknown because specimens smaller than 242 mm SL are currently unobtainable. Larger individuals, however, exhibited dramatic ontogenetic changes which are highlighted below.

Three distinct growth phases were identified from our material.

**Late subadult phase:** In specimens smaller than 268 mm SL, the body, including the belly (Figs. 2A, 3B) and all fin bases, is densely covered with cycloid scales ornamented with 3–5 radiating, granular ridges (Figs. 3B, 4A). The frontal and parietal bones are developed into prominent subtriangular ridges, with similar horizontal bony ridges on the opercle (Fig. 3A) and near the preopercular angle. The growth rate of head, including the cleithrum, interorbital space, orbit diameter and operculum, appear to be inversely related to the growth rate of the body.

**Transition phase:** The interphase between subadult and adult forms occurs between about 270 and 365 mm SL. Major ontogenetic changes occur in morphometry, squamation and external morphology of the head, the timing and extent of which vary intraspecifically. Growth of the head with respect to the body changes from allometric to linear. Bony ridges of the head appear to exfoliate at about 300 mm SL, leaving low naked depressions (Fig. 3C, D) that are eventually recovered with granulated bone. Head

ridges are present in all fifteen specimens smaller than 292 mm SL but are rudimentary or absent in all 32 specimens larger than 308 mm SL. At about 270 mm SL, scales of the central belly begin to degenerate, their former presence evidenced as scale-prints (Fig. 2E); scales are progressively lost until they are largely absent from the belly in specimens larger than 290 mm SL and from the throat in specimens larger than 360 mm (Fig. 2C, D). Similarly, scales are absent from the following: the dorsal fin base at 320 mm SL; the anal fin base at 270 mm SL; and usually absent from pectoral fin base by 365 mm SL. Scales become less ornamented and the numbers of ridges and their height gradually decrease with growth. By 342 mm SL (Fig. 3D), only a low subcentric knob is visible exteriorly on the surface of remaining body scales in some specimens.

**Adult phase:** Morphometric development is more or less linear but varies individually. Although our material contained both sexes, it was insufficient to detect the presence of sexually oriented variation. The head lacks prominent bony ridges (Fig. 3E, F), although the extent of sculpturing also varies considerably. The rate of loss of scale surface ornamentation may be slow. Weak scale ridges and a subcentric knob may persist in specimens up to 425 mm SL (Fig. 4B); in the largest specimen of 559 mm SL (Fig. 4C) surface structures are impossible to trace (Fig. 3F). Scale-prints are usually present on the belly in specimens smaller than 420 mm SL, always present on the anal fin base, and are usually absent on the pectoral fin base. Depending on their preserved condition, it is sometimes difficult to detect scale-prints in larger specimens.

**Color in fresh specimens.** Dorsal surface of small specimens, dark blue with numerous black spots that are regular in shape and smaller than the eye; ventral half uniformly white or grey, sharply demarcated from dorsal coloration; pectoral fin dark; vertical fins dark with yellow rays; anal, caudal and pectoral fins scattered with regular black spots, margins of fins yellowish; pelvic fin uniformly pale.

Dorsal surface of adults, greyish pink or purple with darker, indistinct blotches that are larger than eye; ventral half uniformly white or pink, mostly demarcated sharply from darker dorsal coloration; fins pale pink or white, generally darker near margin; outer surface of pectoral fin

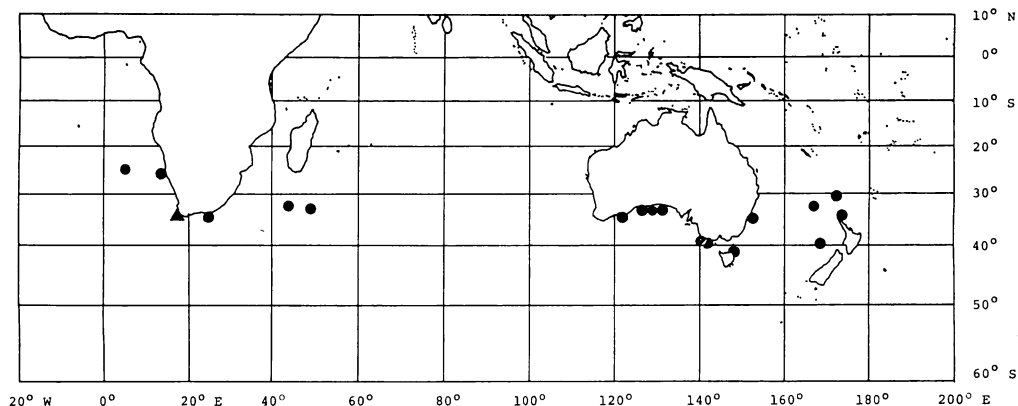


Fig. 5. Distribution of *Pleuroscopus pseudodorsalis*. Type locality is remarked with a triangle.

with greenish blotches.

**Color in preservative.** Dorsal surface, vertical fins, and pectoral fins of small specimens dark with black spots; ventral half of body, pelvic fins, and margins of anal, caudal and pectoral fins, pale. Adults uniformly greyish brown with indistinct darker blotches.

**Range.** Occurs in temperate and subtropical parts of the Southern Hemisphere off southern Africa and Australasia (Fig. 5). Off southern Africa, it is known from the Walvis Ridge and off Namibia in the southeastern Atlantic to the Madagascar Ridge in the southwestern Indian Ocean. It appears to be widespread off southern and southeastern Australia, including Tasmania, and off New Zealand and the Norfolk Island Ridge.

**Habitat.** This species occurs deeper than other uranoscopids, being trawled regularly in depths of 200–800 m on the upper continental slopes of the above regions.

**Remarks.** Although morphological changes occur progressively and at a variable rate throughout the growth of *Pleuroscopus pseudodorsalis*, there is a distinctive period of metamorphosis which we assume in the transition stage is associated with the attainment of maturity. Due to the presence of this belated transformation and a lack of transitional material in collections, the adult form has been documented as a second member of the genus (Fujii, 1976; Last and Harris, 1981; Last et al., 1983). A combination of material held by each of the present authors, covering a broad size range, has now identified a single intraspecifically and ontogenetically variable species. Such changes in ontogeny, so

late in life, are atypical amongst uranoscopids and pose several questions. Is this metamorphosis really related to the onset of maturity, is it paedomorphic and what is its adaptive significance? In the absence of life history data and also the absence of early developmental stages of the species, we are unsure. However, a change in habitat preference of the adult may provide an explanation for the transformation. Small adolescents, which from available information have never been collected from trawls, may occur on hard substrates. The presence of more laterally orientated eyes and protective belly scales would suit this existence. The adult form is more typical of other uranoscopids that bury into soft-bottom substrates. Latent adaptation to this mode may have led to a loss of belly scales, more dorsally orientated eyes and a general flattening of the head through a loss of head ridges.

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深海性ミシマオコセ科魚類 *Pleuroscopus* 属の分類学的再検討

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*Pleuroscopus* 属は未成魚標本 1 個体に基づいて原記載された単一模式種 *P. pseudodorsalis* からなるが、模式標本とは別種と思われるほど形態的に相違する成魚標本を加えて再記載を行った。南アフリカからオーストラリアにかけての海域から得られた体長 242–559 mm の標本検査によると、本種は 270–355 mm を過渡期として晩成する著しい成長変化を遂げるものと考えられる。未成魚の体は太短く、頭骨の各所に骨質隆起があり、腹部と鰭基部にも鱗が密生し、鱗の表面には顆粒突起が放射状の列をなす。過渡期には体は細り、頭骨の骨質隆起は上部が風化したように削れ、腹部と鰭基部の鱗が消失して模様だけが残り、体背部の鱗の表面の顆粒列は低く不明瞭となる。成魚では頭骨と腹部の表面が平坦になり、鱗の表面も厚い皮膚に覆われて滑らかになる。体色も、小黑斑を散りばめた暗青色から不明瞭で大きな染み模様のある灰桃色へ変わる。

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