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PTEROPSARON HEEMSTRAI AND *OSOPSARON NATALENSIS* (PERCIFORMES: PERCOPHIDAE), NEW FISH SPECIES FROM SOUTH AFRICA, WITH COMMENTS ON *SQUAMICREEDIA OBTUSA* FROM AUSTRALIA AND ON THE CLASSIFICATION OF THE SUBFAMILY HEMEROCOETINAE

by

Joseph S. Nelson

GRAHAMSTOWN, SOUTH AFRICA

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ABSTRACT

Two new species of percophid fishes are described from off Natal, South Africa, *Pteropsaron heemstrai* from two specimens dredged at 143 m and *Osopsaron natalensis* from three specimens dredged at 100 m . This is the first record of a member of the subfamily Hemerocoetinae from the western Indian Ocean. The two new species belong to the lineage of closely related genera *Acanthaphrites* Günther, *Pteropsaron* Jordan and Snyder, *Osopsaron* Jordan and Starks, *Spinapsaron* Okamura and Kishida, and *Branchiopsaron* McKay.

A specimen of *Squamicreedia obtusa* Rendahl, previously known only from the damaged holotype, is described from Western Australia. It is postulated that the genera *Squamicreedia* Rendahl, *Enigmapercis* Whitley (whose range is extended to Western Australia), and *Matsubaraea* Taki form a closely related group in Hemerocoetinae.

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PTEROPSARON HEEMSTRAI AND *OSOPSARON NATALENSIS* (PERCIFORMES: PERCOPHIDAE), NEW FISH SPECIES FROM SOUTH AFRICA, WITH COMMENTS ON *SQUAMICREEDIA OBTUSA* FROM AUSTRALIA AND ON THE CLASSIFICATION OF THE SUBFAMILY HEMEROCOETINAE

by

Joseph S. Nelson[1]

The Percophidae (=Percophididae), as recognized by Ginsburg (1955), comprises 12 genera of marine trachinoid fishes placed in three subfamilies. The 15 or so previously recognized species of the subfamily Hemerocoetinae, placed in nine genera, are known from the eastern Indian Ocean and western Pacific Ocean (east to Hawaii). Five small specimens dredged from the western Indian Ocean off Natal represent two undescribed species that belong to the lineage of poorly known species placed in the genera *Acanthaphrites* Günther, *Pteropsaron* Jordan and Snyder, *Osopsaron* Jordan and Starks, *Spinapsaron* Okamura and Kishida, and *Branchiopsaron* McKay. These five genera are poorly differentiated, and future changes in their taxonomy may be expected; the arrangement that I recognize here differs slightly from that proposed in McKay (1971) and Nelson (1979a). The two new species are provisionally assigned to the genera *Pteropsaron* and *Osopsaron*. This paper also describes a specimen of *Squamicreedia obtusa* Rendahl, previously known only from the holotype, from Western Australia and allies that species with the hemerocoetine genera *Enigmapercis* Whitley and *Matsubaraea* Taki.

METHODS

Measurements were made with needle-point dial calipers. Interpelvic distance was measured at the base of the median fin rays. The procedures for making other measurements and counts follow the recommendation of Hubbs and Lagler (1958) or should be evident from the character name in Table 1.

The two specimens of *P. heemstrai* are in good condition. However, the three *O. natalensis* are variously damaged; the pectoral, dorsal, and caudal fin rays are especially damaged and all scales are missing except for a few on the smallest specimen (their presence along the lateral line could be estimated from the outlined pockets). Vertebral counts were made from radiographs except that an approximate count was made from the stained paratype of *O. natalensis*. Drawings were made with the aid of a camera lucida.

Abbreviations for museums are as follows: AMS, Australian Museum, Sydney; CAS, California Academy of Sciences, San Francisco; NMV, National Museum of Victoria, Melbourne; NR, Naturhistoriska Riksmuseet, Stockholm; RUSI, Rhodes University, J. L. B. Smith Institute of Ichthyology, Grahamstown, South Africa; WAM, Western Australian Museum, Perth.

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Pteropsaron heemstrai, sp. n.

Figures 1, 2

HOLOTYPE: RUSI 15926, probably male, 44.7 mm SL, collected 19 Aug. 1981 in dredge at 143 m off Park Rynie, 30°20'S, 30°44'E, southern Natal by Allan D. Connell.

PARATYPE: RUSI 15927, ripe female, 38.3 mm SL, collected with holotype.

DIAGNOSIS: First dorsal fin comprising 6 spines with bases very closely set and membrane, except for elongate portion, black. Dorsal-fin soft-rays 21 or 22; anal-fin rays 25. Tip of pelvic fin not reaching origin of anal fin. Lower jaw distinctly shorter than upper jaw. Dorsal operculum of eye absent.

DESCRIPTION: Morphometric data are given in Table 1.

Embedded scales present on left opercle of holotype, but no evidence of scales elsewhere on head. Anterior tip of maxilla with spine directed forward, protruding through transverse skin fold. Eye lacking dorsal operculum (= dorsal iris flap of Nelson, 1979a; also termed the iris lappet or pupillary operculum). Anterior nostril in raised tube; posterior nostril a simple pore; no evidence of flaps or cirri extending over nostril openings. Lateral line above pectoral-fin base and running straight along midside of body. Lateral-line scales 32 or 33, those behind tip of pectoral fin with two prongs on posterior margin.

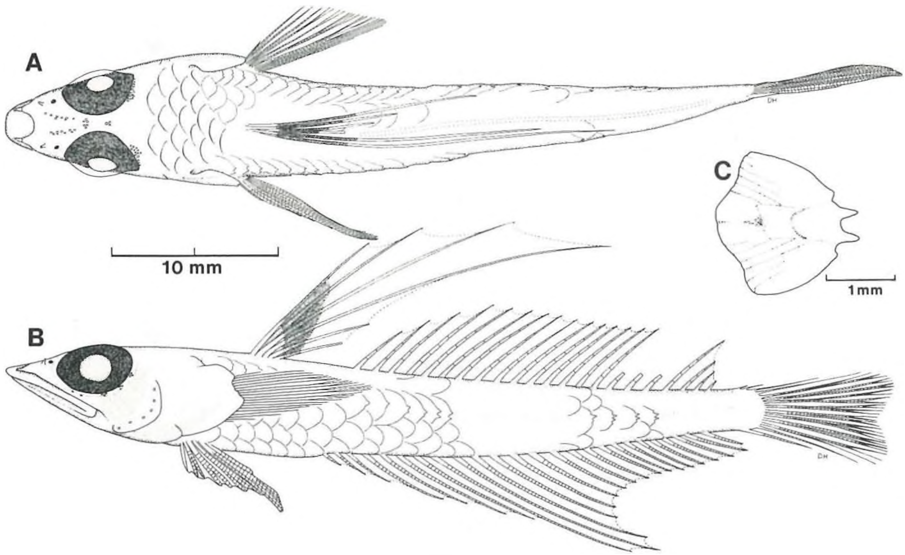

Figure 1. *Pteropsaron heemstrai*, holotype, RUSI 15926, 44.7 mm SL. Only intact scales shown. A, dorsal view; B, lateral view; C, enlarged view of posterior lateral-line scale.

Two dorsal fins with bases well separated, first with 6 spines and second with 21 or 22 soft-rays (last 2 very small). Dorsal-fin spines thin and flexible, their bases virtually contiguous and slightly offset from midline; spines very elongate in holotype; fourth spine longest, reaching past middle of second dorsal fin when depressed; longest spines of paratype reaching origin of second dorsal fin. Soft-rays of dorsal and anal fins unbranched. All but last few dorsal rays of nearly uniform length. Anal-fin rays 25; some rays elongate only in holotype, with ninth ray longest and seventh to twelfth distinctly longer than others. Pectoral fin with 19 rays, most branched. Pelvic fin with one spine and 5 soft-rays, the first 4

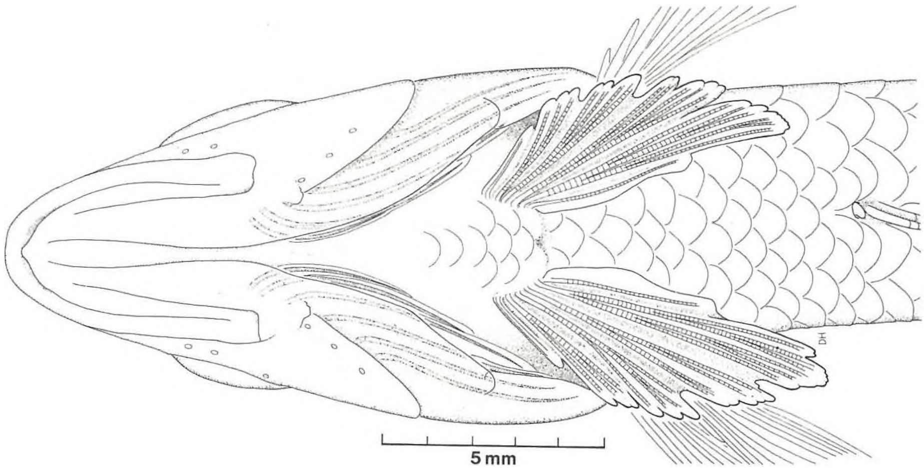

Figure 2. *Pteropsaron heemstrai,* holotype, ventral view of head and pelvic fin region.

branched; first through fifth elements increasing in length and, in the soft-rays, increasing in degree of branching; fourth soft-ray longest, tip of fin not reaching origin of anal fin; fifth soft-ray about equal in length to second. Pelvic fins well separated at base and base well before pectoral fin. Caudal fin with 8 branched rays.

Branchiostegal membranes separate, extending far forward; 7 branchiostegal rays. Opercular membrane enlarged, overlapping branchiostegal membrane and pectoral-fin base. Spine along dorsal margin of opercle. Short teeth on upper and lower jaws, teeth on anterior portion of lower jaw sloping posteriorly; vomerine teeth in two isolated groups, no evidence of palatine teeth. Lower jaw distinctly shorter than upper, with a minute median projection. Maxilla reaching to about centre of eye; posterior tip blunt, very slightly indented in paratype. Pseudobranch present. Cirri well developed on ceratohyal opposite lower limb of first gill arch. Gill-rakers short and broad with prickles at tip; 10 or 11 gill-rakers on lower limb of first arch. Vertebrae 34 (including the hypural plate).

Colour in alcohol: six faint broad dark dorsal bands on body (first band on nape, second beneath spinous dorsal fin, and the rest uniformly spaced, with the last band on the caudal peduncle). Black band on first dorsal fin of holotype as shown in Figure 1; paratype with almost the entire, but relatively short, spinous dorsal fin jet black.

REMARKS: The two specimens of *P. heemstrai* differ in many characters from the three specimens representing the other new species, *O. natalensis*. Some morphometric differences in Table 1 (*e.g.*, length of pelvic fin, head width, snout length, postorbital length, and interorbital width) might be attributable to allometry (the *P. heemstrai* specimens are larger than those of *O. natalensis).* Differences between specimens in length of the median fin rays probably represent sexual dimorphism. Meristic differences (*e.g.* in dorsal spine and vertebral number) could be due to the small sample size. However, there are enough differences in all between the two forms (including the presence or absence of the eye operculum) and with descriptions of other nominal species to conclude that both represent new species.

P. heemstrai has similarities to *Pteropsaron evolans* Jordan and Snyder and to species placed in *Osopsaron*. Until a thorough study can be made of all taxa involved I place this species provisionally in *Pteropsaron* (see Discussion for further consideration of relationships).

It is a pleasure to name this species after Dr. Phillip C. Heemstra for his valuable contributions to ichthyology.

Osopsaron natalensis, sp. n.

Figures 3, 4

HOLOTYPE: RUSI 11779, 29.6 mm SL, collected 13 Nov. 1979 in bucket dredge at 100 m off Kosi Bay, northernmost Natal by Allan D. Connell.

PARATYPES: RUSI 15062, two specimens 26.8 and 21.4 mm SL, collected with holotype. The 26.8 mm SL specimen has been stained with alizarin red S.

DIAGNOSIS: First dorsal fin comprising 4 or 5 feeble spines with bases very closely set and membrane black. Dorsal-fin soft-rays 19 or 20 and anal-fin rays 23-25. Tip of pelvic fin extending past origin of anal fin. Lower jaw only very slightly shorter than upper jaw. Length of orbit about twice snout length.

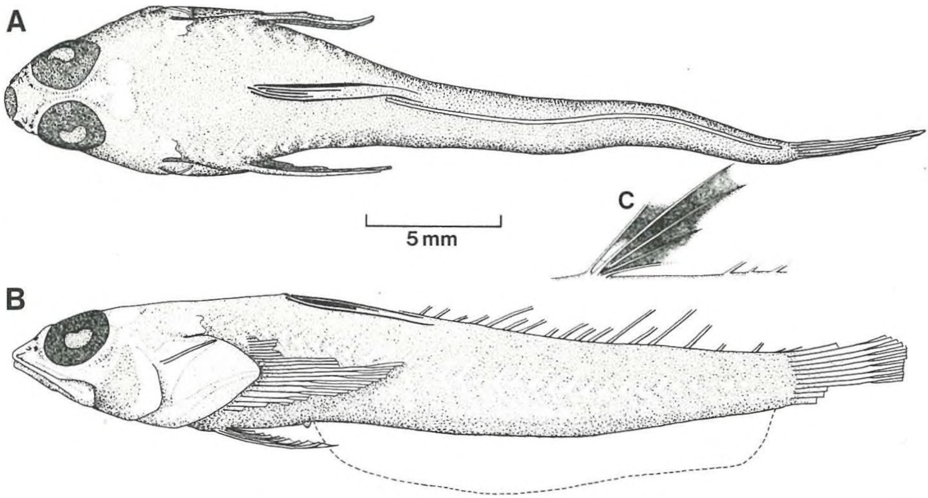

Figure 3. *Osopsaron natalensis*, holotype, RUSI 11779, 29.6 mm SL. A, dorsal view; B, lateral view; C, lateral view of spinous dorsal fin erected.

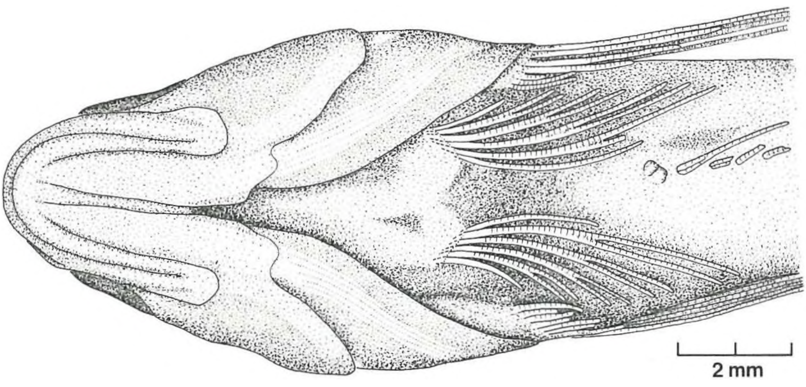

Figure 4. *Osopsaron natalensis*, holotype, ventral view of head and pelvic fin region.

DESCRIPTION: Morphometric data are given in Table 1.

No evidence of scales on cheeks, snout, or on any part of head. Anterior tip of maxilla with spine directed forward, protruding through transverse skin fold. Eye with dorsal operculum. Anterior nostril in raised tube; posterior nostril a simple pore; no evidence of flaps or cirri extending over nostril openings. Lateral line above pectoral-fin base and running straight along midside of body; lateral-line scales about 31-33.

Two dorsal fins with bases well separated, first with 4 or 5 spines and second with 19 or 20 soft-rays (total of 24 spines and rays in each of the three specimens). Dorsal-fin spines thin and flexible; bases of spines virtually contiguous and some very slightly offset from midline; first two spines subequal, third slightly shorter, and fourth much shorter and very thin (described from the stained paratype where the first dorsal fin appears to be intact but to have only 4 spines, not 5 as in the other two specimens); longest dorsal spines reaching second or third soft dorsal ray (except in shortest specimen where spines are relatively short and appear to be undamaged). Soft-rays of dorsal fin probably simple (very few appear to be intact). Anal fin with 23 (two specimens) or 25 soft-rays; intact rays branched and thickened; anal-fin origin midway between origins of first and second dorsal fins. Pectoral fin with 18 (two specimens) or 19 rays, most probably branched (fin damaged in all specimens). Pelvic fin with one spine and 5 soft-rays, first 4 soft-rays branched, first through fifth elements increasing in length; fourth soft-ray longest, reaching to third or fourth anal ray; fifth soft-ray about equal in length to second. Pelvic fins well separated at base and base well before pectoral fin. Caudal fin with 8 branched rays in holotype (fin severely damaged in others).

Branchiostegal membranes separate, extending far forward; 7 branchiostegal rays in stained paratype. Opercular membrane enlarged, overlapping branchiostegal membrane and pectoral-fin base. Spine along dorsal margin of opercle. Short teeth on upper and lower jaws; a few vomerine teeth appear to be present in smallest specimen, but no evidence of palatine teeth. Mouth terminal with lower jaw slightly shorter than upper. Maxilla extending well past centre of eye but not reaching posterior edge of orbit in holotype, reaching only centre of eye in two smaller specimens; posterior tip of maxilla blunt, not notched. Pseudobranch present. Cirri on ceratohyal opposite lower limb of first gill arch. Gill-rakers short and broad with prickles at tip; about 9 gill-rakers on lower limb of first arch. Vertebrae 35 (including hypural plate); the stained paratype appears to have 7 precaudal and 26 caudal vertebrae.

Colour virtually gone except jet black membrane on first dorsal fin in all three specimens.

REMARKS: Comments on the differences between this and other new species are given under Remarks for *P. heemstrai*. A discussion of generic placement is given below.

DISCUSSION: Although clearly related to species of the Subfamily Hemerocoetinae, the generic placement of the two new species is open to question. The genera *Squamicreedia* Rendahl, 1921, *Enigmapercis* Whitley, 1936, and *Matsubaraea* Taki, 1953 differ in several basic characters (see listing of their diagnostic characters in next section) and can be excluded from consideration.

The two new species resemble species in the nominal genera *Acanthaphrites* Günther, 1880, *Pteropsaron* Jordan and Snyder, 1902, *Osopsaron* Jordan and Starks, 1904, *Spinapsaron* Okamura and Kishida, 1963, and *Branchiopsaron* McKay, 1971 in having a maxillary spine and lacking flaps (cirri) in the anterior nostril opening. All the species of these genera for which I have information on the nature of the scales have a serrated (not trilobed) posterior border on, at least, the lateral-line scales. The lateral-line scales of *P. heemstrai* with two posterior processes appear to be a modification of the serrated type. The few scales remaining along the lateral line above the pectoral fin in the smallest specimen of *O. natalensis* are indented, but I am uncertain if they are of the serrated or trilobed type. The species of these five genera have 4-6 slender spines in the first dorsal fin, 17-26 soft dorsal rays, 22-31 anal rays, and 30-43 lateral-line scales.

Hemerocoetes Valenciennes, in Cuvier and Valenciennes, 1837, of New Zealand is probably related to this group because of the possession of maxillary spines and serrated lateral-line scales and absence of flaps in the anterior nostril. However, its species lack a spinous dorsal fin and differ in other ways from the new species (Nelson, 1979a).

The new South African species are sufficiently different from the species of the monotypic genera *Branchiopsaron* and *Spinapsaron* to preclude placing them with either one. *Branchiopsaron ozawai* McKay, known from off northwestern Australia, has more lateral-line scales and soft dorsal and anal-fin rays than the species of the other four genera (also, *B. ozawai* has 7 branched caudal-fin rays while the new species have 8). *Spinapsaron barbatus* Okamura and Kishida, of Japan and Taiwan Strait, has a barbel at the tip of the upper jaw (two specimens, CAS 28334, examined), as do mature males of four of the five species of *Hemerocoetes,* and lacks cirri on the ceratohyal (there is a small bony process at the posterior end similar to that described for *Branchiopsaron ozawai* by McKay, 1971). As with *O. natalensis, S. barbatus* possesses a dorsal operculum in the eye (Fig. 5B). All body scales of *S. barbatus* are serrate (rather than only those of the lateral line), although the ventral ones, as noted by Okamura and Kishida (1963), are only weakly serrated, and there is a row of specialized scales, elongated

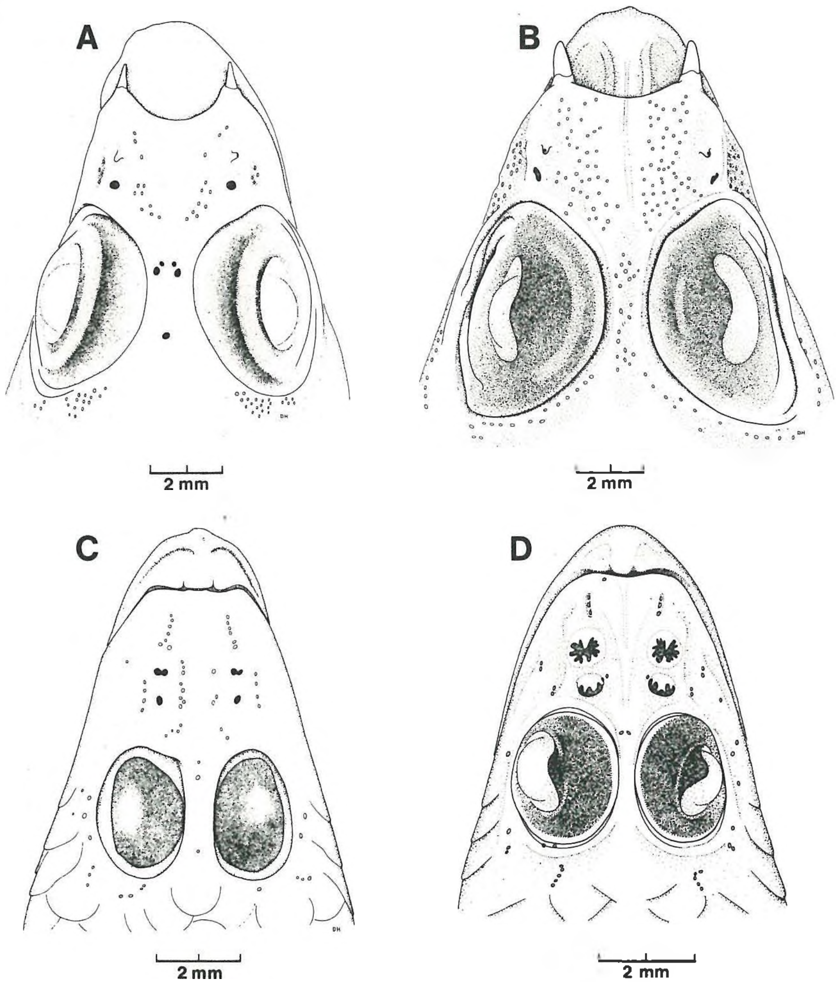

Figure 5. Dorsal view of heads. A, *Pteropsaron evolans,* CAS-SU 7158, 85.5 mm SL; B, *Spinapsaron barbatus,* CAS 28334, 85.5 mm SL; C, *Enigmapercis reducta,* NMV A2217, 67.1 mm SL; D, *Matsubaraea setouchiensis,* CAS 34695, 63 mm SL.

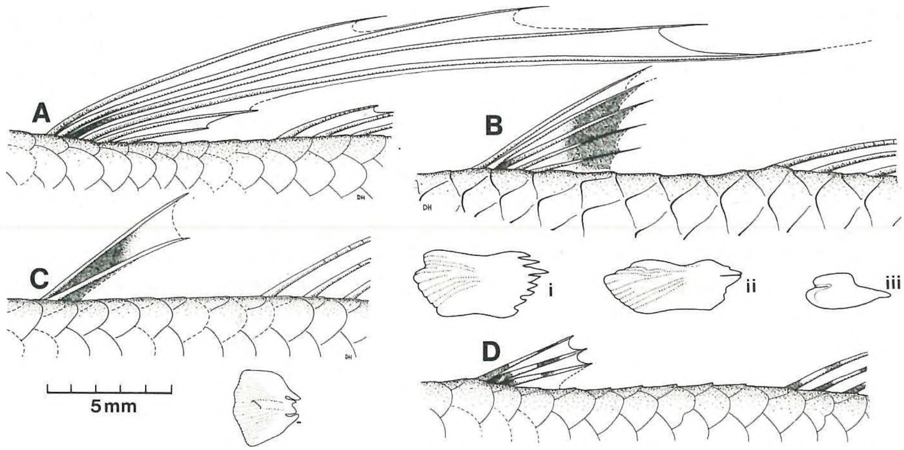

Figure 6. Lateral view of spinous dorsal fin to origin of second dorsal fin showing arrangement of spines (specimens same as those given in Figure 5). A, *Pteropsaron evolans;* B, *Spinapsaron barbatus,* (i) typical serrated body scale; (ii) scale from posterior base of second dorsal fin; (iii) scale typical of those confined to row adjacent to fin base and mixed with scales of first two types; C, *Enigmapercis reducta* with lateral-line scale from behind pectoral fin area; D, *Matsubaraea setouchiensis.*

horizontally with a posterior projection, at the base of the dorsal fins (Fig. 6B, iii). *Branchiopsaron ozawai* also has all scales on the body serrate (McKay, 1971).

The genera *Acanthaphrites, Pteropsaron,* and *Osopsaron* are poorly diagnosed, but they appear to be closely related and some authors recognize the latter two as junior synonyms of *Acanthaphrites. A. grandisquamis* Günther, 1880 of the Arafura Sea off northern Australia has short dorsal-fin spines which do not appear to be as crowded at the base (plate 18A of Günther, 1880) as in the species of *Pteropsaron* and *Osopsaron* and the two new South African species. Otherwise, in all species of Hemerocoetinae examined with a spinous dorsal fin the space between the dorsal-fin spines at the fin base is highly reduced and the spines are not aligned along the midline (Fig. 6). Species known to me in genera of the percophid Subfamily Bembropsinae, *Bembrops* Steindachner and *Chrionema* Gilbert, have the posterior 4 of their 6 dorsal-fin spines relatively widely spaced at their base.

The genus *Pteropsaron* was erected for two species from Japan: *P. evolans* Jordan and Snyder, 1902, the type-species, and *P. verecundum* Jordan and Snyder, 1902. Later, Jordan and Starks (1904) placed *P. verecundum* in a new monotypic genus, *Osopsaron,* because it was thought to differ from *P. evolans* in having shorter rays in the spinous dorsal and anal fins and in having scales on the cheeks. Pending a systematic study of the *Acanthaphrites — Pteropsaron — Osopsaron* complex, I recognize the genus *Osopsaron* although the elongate fins may be a sexually dimorphic character and I know of no shared derived characters for *Osopsaron.* I recognize *O. incisum* (Gilbert, 1905) of Hawaii in *Osopsaron* rather than in *Pteropsaron* because it apparently also has low fins (although it is described as lacking cheek scales). Material of *O. verecundum* or *O. incisum* was not examined in this study.

P. heemstrai is placed in the same genus as *P. evolans* because of the similarity of both, relative to that of *O. verecundum,* in number of spines and soft-rays in the dorsal fin, rays in the anal fin, and scales in the lateral line, and in the relative size of the snout. *P. evolans* and *P. heemstrai* are also similar to one another in the following characters: soft-rays of dorsal and anal fins unbranched, dorsal operculum in the eye absent (Figs. 1A and 5A), some dorsal-fin spines elongate (Figs. 1B and 6A) with the fourth being longest and extending past the midpoint of the second dorsal fin, and some anal-fin rays prolonged. *O. natalensis* differs in the first two characters. Unfortunately, the dorsal and anal fins in *O. natalensis* are damaged, precluding determination of its state, but the dorsal-fin spines appear to have been elongated in the holotype; I do not know the first two character states for *O. verecundum* or *O.*

incisum. Both *P. heemstrai* and *O. natalensis* differ from *P. evolans* (CAS-SU 7158) in having very feeble spines in the first dorsal fin and a black membrane on at least part of this fin (although Jordan and Snyder, 1902, note the presence of a dusky spot) and fewer rays in the anal fin (25 or fewer vs 27). All three species possess well-developed cirri on the ceratohyal.

The two new species differ from *O. verecundum* and *O. incisum* in having more soft dorsal-fin rays (19-22 vs 17 or 18), anal-fin rays (23-25 vs 22), and lateral-line scales (about 31-33 vs 30). *O. natalensis* is provisionally placed in *Osopsaron* because of a closer similarity in known characters to *O. verecundum* than to *P. evolans (e.g.,* in relative size of the snout).

A detailed systematic study of the entire subfamily is needed before a sound classification of the group can be proposed. The dorsal operculum of the eye, while of seemingly limited systematic importance, is of interest. Of the 13 species of Hemerocoetinae that I have examined (including one undescribed *Enigmapercis),* it is present in eight, being absent only in three of the five species of *Hemerocoetes* and in *Pteropsaron evolans* and *P. heemstrai.* This character, subject to convergent evolution, is found in several other groups of benthic fishes. There is some variation in its shape or position in other species also currently considered to be trachinoids. In the trichonotid *Trichonotus setiger* Bloch and Schneider (AMS IA.6238) there are numerous strands radiating ventrally from the otherwise semicircular structure while one species of champsodontid, tentatively identified as *Champsodon capensis* Regan, in the Scripps Institution of Oceanography (SIO 61-704) has a ventral eye operculum.

Squamicreedia obtusa Rendahl, 1921

Figure 7

Rendahl (1921) described a new genus and species of fish, *Squamicreedia obtusa,* from northwestern Australia (near 19°12'S, 120°56'E), and regarded it as being closest to the genus *Creedia* Ogilby, 1898 (although he did note significant differences). As mentioned in Nelson (1979a,b) it is apparent from an examination of the damaged holotype (NR PI. 10283) that *S. obtusa* is not a creediid but is rather a percophid. *S. obtusa* is excluded from the Creediidae, as recognized by Nelson (1978, 1979b), because it lacks a splintered operculum (as revealed by using transmitted light through the opercle), lacks the creediid-type eye (which protrudes slightly as does the lens, and has a deep infolding of the cornea at the

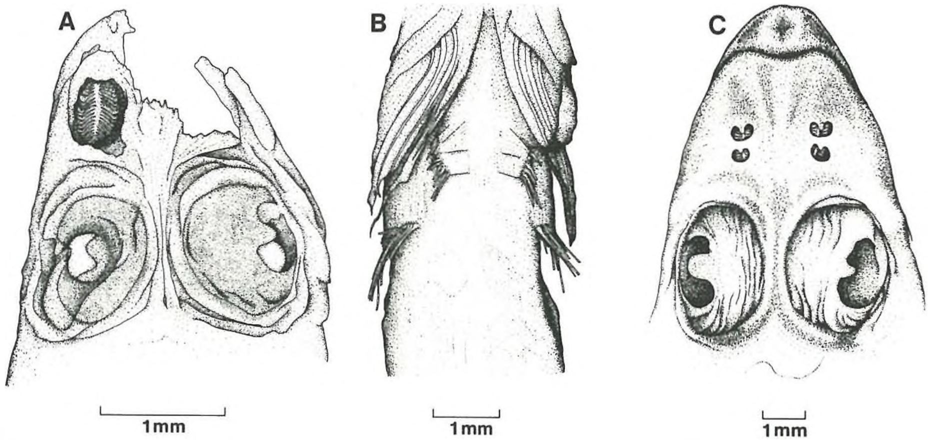

Figure 7. *Squamicreedia obtusa.* A, Dorsal view of head of holotype, NR PI.10283; B, Ventral view of pelvic fin region of holotype; C, Dorsal view of head of second specimen of *S. obtusa,* WAM P26660-001.

cornea-skin junction allowing chameleon-like eye movement), has widely separated pelvic fins (interpelvic distance 1.2 mm or about 41°/₀₀ SL), has the lateral line along the midside and not descending to near ventral profile, and has two short, closely set dorsal rays situated 11.0 mm behind the snout, followed after a distinct gap by about 15 damaged soft-rays. I believe the anterior two rays of the dorsal fin are spines, and I see no evidence of intervening soft-rays. Rendahl probably included the spines in his count and thought the dorsal fin was continuous; he states that the origin of the dorsal fin precedes the anal-fin origin (true only for the two anterior rays) and that 18 rays are present but the fin is damaged such that a complete count could not be obtained.

Percophids are poorly diagnosed, but the characters of the holotype of *S. obtusa* agree with the characters held in common with the species placed in the Subfamily Hemerocoetinae. The holotype is about 29.2 mm SL (the snout area is heavily damaged precluding an accurate measurement; Rendahl gives a length of 30.5 mm without the caudal fin) and has the following characters in addition to those already given: body depth 3.2 mm; length of orbit 1.15 mm; head width 2.85 mm; least bony interorbital width 0.15 mm; least fleshy interorbital width 0.25 mm; anal fin with about 23 rays (some are missing but Rendahl also noted 23), many rays branched; pelvic fins heavily damaged but there appear to be one spine and 5 soft rays (Fig. 7B); branchiostegal rays appear to be 7; evidence of an embedded spine along dorsal margin of opercle; tip of maxilla broad with slight identation on posterior margin; eye with dorsal operculum (Fig. 7A) (probably what Rendahl referred to as fat eyelids, "Fett-Augenlider"); lateral-line scales on main part of body trilobed, shown in Rendahl's figure 6c,d (Rendahl gives a scale count of 30 and also notes the top of the head and gill cover are scaled). Unfortunately, the nostril area is destroyed so that the presence or absence of flaps over the nostril opening cannot be determined; however, in Rendahl's figure 5b a projection is shown extending across the anterior nostril and originating on the anterior margin.

A 79.6 mm SL specimen (WAM P26660-001) dredged in 1979 off Dirk Hartog Island, Western Australia (26°09'S, 113°12'E) identified by its collector Mr Barry Hutchins as *S. obtusa,* is in good condition and represents the second known specimen of this species. Specimens previously identified as *S. obtusa* (and incorrectly accepted as such in Nelson, 1978) were either misidentified (Nelson, 1979b) or cannot be located (AMS IB. 3546). Measurements of the Western Australian specimen in °/₀₀ SL are as follows: body depth 126, predorsal length (first) 373, predorsal length (second) 543, length of pectoral fin 203, length of pelvic fin 96, interpelvic distance 38, head width 111, snout length 63, length of orbit 38, least fleshy interorbital width about 5, length of upper jaw 90. Dorsal fin with 3 spines and 17 unbranched soft-rays; anal fin 24 branched rays; pectoral fin with about 15 rays; pelvic fin with 1 spine and 5 soft-rays; lateral-line scales 34 (those on main part of body trilobed with slight indentation in central lobe somewhat similar to the marked indentation found in *Enigmapercis reducta* Whitley, 1936), opercle spine not apparent (but I am not certain that this differs from the state in the holotype); gill cover flap extending over base of pectoral fin; tip of maxilla broad with slight identation in posterior margin; eye with dorsal operculum; rays of second dorsal fin with three dark bands and irregular spots along side. The configuration of the nostrils is of considerable interest. There are distinct skin flaps on the anterior margin of both the anterior and posterior nostrils (Fig. 7C). As far as I know, this character (one flap in each nostril) is distinctive for *S. obtusa*.

The species most closely related to *Squamicreedia* are probably *Enigmapercis reducta, Enigmapercis* sp. (a new species brought to my attention by Dr Doug Hoese), and the two species of *Matsubaraea* (as recognized by Iwamoto, 1980). Both species of *Enigmapercis* have an anterior and posterior flap extending into the anterior nostril (e.g., Fig. 5C). Two specimens that are probably *E. reducta,* each with two dorsal spines, extend the range of the genus into Western Australia (WAM P26617-012 from 32°00'S, 115°30'E). In the specimens of *Matsubaraea setouchiensis* Taki, 1953 that have been examined (CAS 32846 and 34695) the entire border of the anterior nostril and the anterior margin of the posterior nostril are crenulate (Fig. 5D). The lateral-line scales behind the pectoral fin area are trilobed on the posterior margin in both *Enigmapercis* and *Matsubaraea*. The central lobe is incised in *E. reducta* (AMS I.16151, IB.1329, and NMV A2216, A2217 — Fig. 6C) but is smooth in *Enigmapercis* sp. (AMS I.17358-004 and I.17363-006). Both patterns are apparent in the specimens of *M. setouchiensis* examined, but the rounded one is figured in Taki (1953).

Within the Subfamily Hemerocoetinae the genera *Sqamicreedia, Enigmapercis,* and *Matsubaraea* appear to form a closely related group characterized by lacking protruding maxillary spines and having one or more flaps in the anterior nostril, lateral-line scales (except those in pectoral fin area) trilobed on posterior margin, a first dorsal fin with 2-4 spines and a pale, not jet black, membrane (however, black bands, at least, can be present in *E. reducta* and Whitley (1944) shows a black membrane), and tip of maxilla distinctly indented. *Squamicreedia* and *Matsubaraea* share some characters to the exclusion of *Enigmapercis* (e.g., soft-rays of both dorsal and anal fins branched vs. only anal-fin rays branched) while *Squamicreedia* and *Enigmapercis* have a more similar nostril configuration. It would be premature to speculate on the interrelationships of these three genera at present.

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TABLE 1. Measurements (in °/₀₀ SL) for *Pteropsaron heemstrai* and *Osopsaron natalensis.*

*Indicates fin damaged and true length probably longer.

	P. heemstrai		*O. natalensis*		
	Holotype	Paratype	Holotype	Paratype	
Standard length (mm)	44.7	38.3	29.6	26.8	21.4
Body depth	132	132	159	134	140
Caudal peduncle depth	55	52	59	63	62
Predorsal length (1st)	329	325	334	325	343
Predorsal length (2nd)	477	467	507	478	542
Preanal length	457	466	385	410	458
Longest dorsal spine	492	134	225*	208	120
Longest dorsal ray	257	115	121*	93*	126
Longest anal ray	349	107	105	97	96
Longest pectoral ray	208	191	196*	—	219*
Length of pelvic fin	170	151	189	194	196
Interpelvic distance	29	31	37	39	54
Head length	340	326	328	328	360
Head width	164	178	209	190	189
Snout length	85	78	52	56	56
Postorbital length	159	157	193	177	192
Length of orbit	103	102	101	100	114
Length of eye	100	99	91	99	105
Least bony interorbital width	15	15	5	6	5
Least fleshy interorbital width	20	19	10	11	10
Length of upper jaw	152	140	138	130	130
Width of gape	69	81	77	80	73

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