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SYNOPSIS OF THE GRENADIER GENUS *KURONEZUMIA*
(PISCES: GADIFORMES: MACROURIDAE), WITH
DESCRIPTION OF A NEW SPECIES

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ABSTRACT: *Kuronezumia paepkei* n. sp. is described from a specimen collected by the *Valdivia* in 1899 off the coast of Kenya in 748 m. The specimen, originally recorded by Brauer (1906) as *Coryphaenoides rudis*, differs from other members of the genus in having larger body scales (8 below second dorsal origin vs. 10-15) and more gill rakers (12 on the inner series of first arch vs. 8-12, and 11 on outer series of second arch vs. 7-10). A key is provided for the seven species in the genus. New distribution records include *K. leonis* (Barnard) from southern Australia and New Zealand, and *K. bubonis* from the South China Sea.

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INTRODUCTION

While studying Russian collections of Indian Ocean *Coryphaenoides* (see Iwamoto and Shcherbachev 1991), we examined the specimen that Brauer (1906) reported as “?*Macrurus* (*Macrurus*) *rudis* Günther,” collected during the *Valdivia* expedition of 1898-99 off the eastern coast of Africa. We were surprised to discover that the specimen is not *Coryphaenoides rudis* (Günther, 1878) or even a member of that genus, which is characterized by a count of six branchiostegal

rays and the anus situated immediately before the anal fin origin. Instead, it represents a member of the group of genera with seven branchiostegal rays and the anus about midway between the pelvic and anal fins. The relatively vertical suborbital region and the numerous small scales on the suborbital shelf identify the specimen as an undescribed species of the genus *Kuronezumia*, although including the new species necessitated redefining the genus, which has been done (Sazonov and Iwamoto 1992).

The purpose of the present paper is to describe

the new species, provide a key to the species of *Kuronezumia*, and report additional distributional and descriptive information.

METHODS

Methods for taking counts and making measurements follow Iwamoto (1970) and Iwamoto and Sazonov (1988). Abbreviations for institutions follow Leviton et al. (1985) and Leviton and Gibbs (1988).

Kuronezumia Iwamoto, 1974

Kuronezumia Iwamoto, 1974:509 (as subgenus of *Nezumia*).

Type species by monotypy, *Nezumia (Kuronezumia) bubonis* Iwamoto, 1974.

For a diagnosis of the genus, see Sazonov and Iwamoto (1992).

REMARKS.—We recognize seven species of *Kuronezumia*: *K. bubonis* Iwamoto, 1974; *K. dara* (Gilbert and Hubbs, 1916), *K. leonis* (Barnard, 1925), *K. macronema* (Smith and Radcliffe, 1912), *K. paepkei* (here described), *K. pallida* Sazonov and Iwamoto, 1992, and an undescribed species from the South China Sea (see Iwamoto 1974). The limits of the genus have had to be expanded to accommodate *K. leonis* and *K. paepkei* because of the enlarged terminal snout scute in the former and the large body scales of the latter. Nonetheless, based on a number of shared characters, the seven species form a distinctive group, whose relationships are, however, still unclear. The phylogeny of grenadiers with seven branchiostegal rays have yet to be adequately determined. Until that is done, the many genera described within the past two decades must await critical evaluation as to their validity as monophyletic units.

KEY TO THE SPECIES OF *Kuronezumia*

- 1a. A large scaly tubercular swelling anterior to anus, between pelvic fins 2
 1b. Area anterior to anus not swollen nor with scaly tubercle 3
 2a. V. 11–12 *K. bubonis*
 2b. V. 8
 *K. sp.* (of Iwamoto 1974; S. China Sea)
 (not further considered in this paper)
 3a. A large spiny scute at tip of snout; V. 8 or 9 (rarely 10) *K. leonis*
 3b. No scute at snout tip; V. 11–13 4

- 4a. Scales below 2D. 8; gill rakers on inner side of first arch 12 *K. paepkei*
 4b. Scales below 2D. 10 or more; gill rakers on inner side of first arch fewer than 11 5
 5a. 1D. II, 11–13; 1P. i24–i27; upper jaw 40–42% HL *K. pallida*
 5b. 1D. II, 8–10; 1P. i16–i25; upper jaw 33–36% HL 6
 6a. 1D. black overall *K. dara*
 6b. 1D. dark basally, paler distally
 *K. macronema*

SPECIES ACCOUNTS

Kuronezumia bubonis Iwamoto, 1974

(Figs. 1, 2)

Nezumia (Kuronezumia) bubonis Iwamoto, 1974:509–515, Figs. 1–3 (Caribbean Sea, Gulf of Mexico, Hawaii).

Nezumia bubonis: Iwamoto 1979:163 (listed). Arai in Uyeno et al. 1983:220, fig. (1 spec., 551 mm TL; Suriname/French Guiana). Iwamoto in Cohen et al. 1990:251, fig. 570 (in key). Okamura in Amaoka et al. 1990:189 (1 spec., 348 mm TL; New Zealand).

Kuronezumia bubonis: Shcherbachev 1987:41 (9 spec., Madagascar and West Australian ranges, Indian Ocean; 841–1,200 m). Sazonov and Iwamoto 1992:67, fig. 25b, (scales illus.).

COUNTS AND MEASUREMENTS (see Table 1).

DISTRIBUTION (Fig. 9).—This widely distributed species, originally described from the tropical western North Atlantic and the Hawaiian Islands, has subsequently been recorded from New Zealand (Okamura in Amaoka et al. 1990) and the Indian Ocean (Shcherbachev 1987). The species is newly recorded from the Andaman Sea from one specimen recently found in ZMMGU.

REMARKS.—Two small specimens (CAS 77315) from Hawaii appear to be this species, but they lack the prominent tubercular swelling of the light organ of the species and appear to have a more extensive naked region on the underside of the snout. The tubercular light organ may represent a size-related characteristic (if these are in fact *K. bubonis*, they are the smallest specimens known). The relatively poor condition of the two may account for the nakedness on the underside of snout—the scales may have been sloughed off.

SPECIMENS EXAMINED.—PACIFIC OCEAN. **Hawaiian Islands:** CAS 77315 (22.3–23.8 HL, 90+–147 TL); off Kaiwi, 21°08.8'N, 157°42.2'W; 585–640 m; 41-ft otter trawl; Townsend Cromwell cr. 36. sta. 31; 6.V.1968. **South China Sea:**

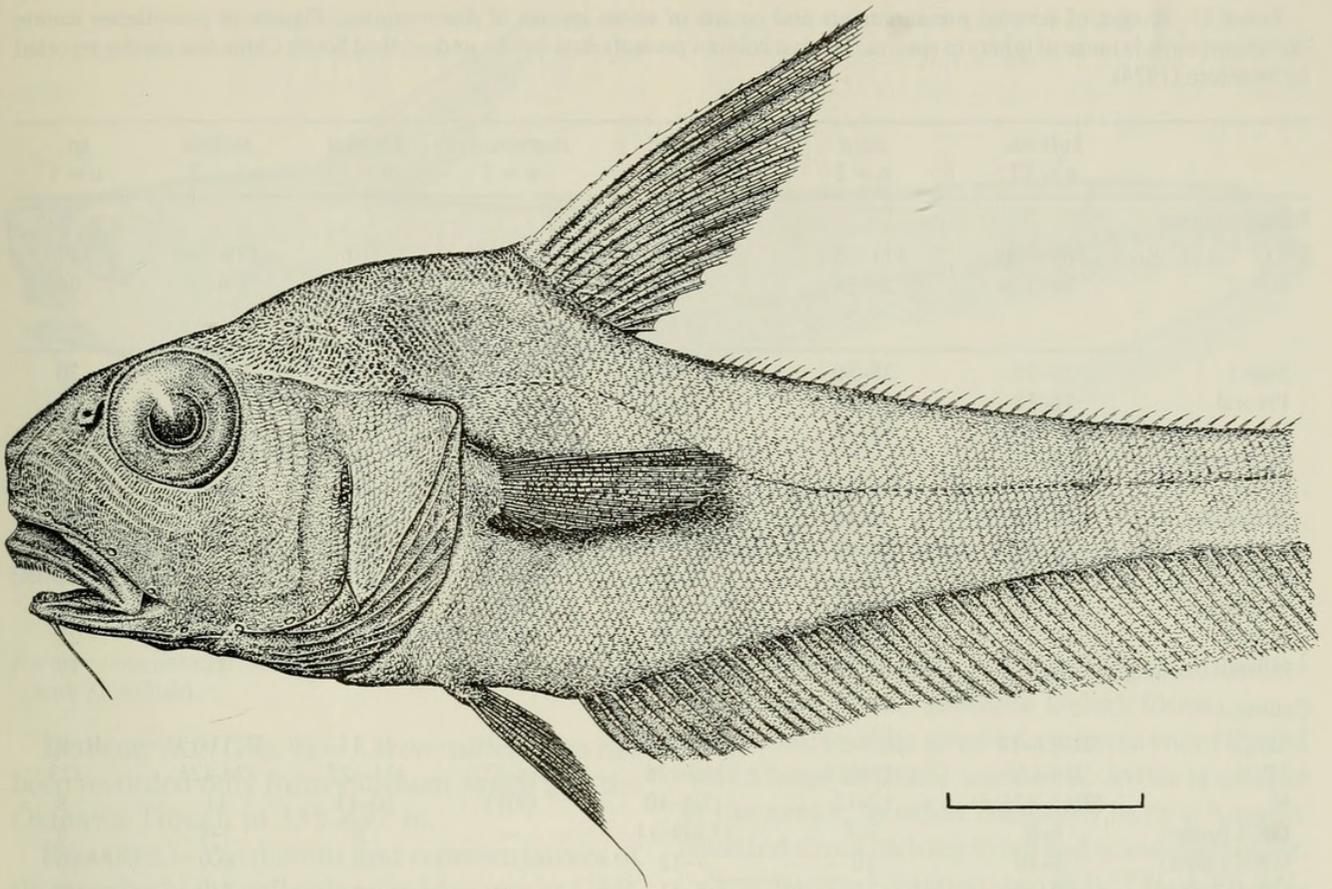


FIGURE 1. *Kuronezumia bubonis*, from off Hawaii. Scale bar equals 25 mm. (After Iwamoto 1974.)

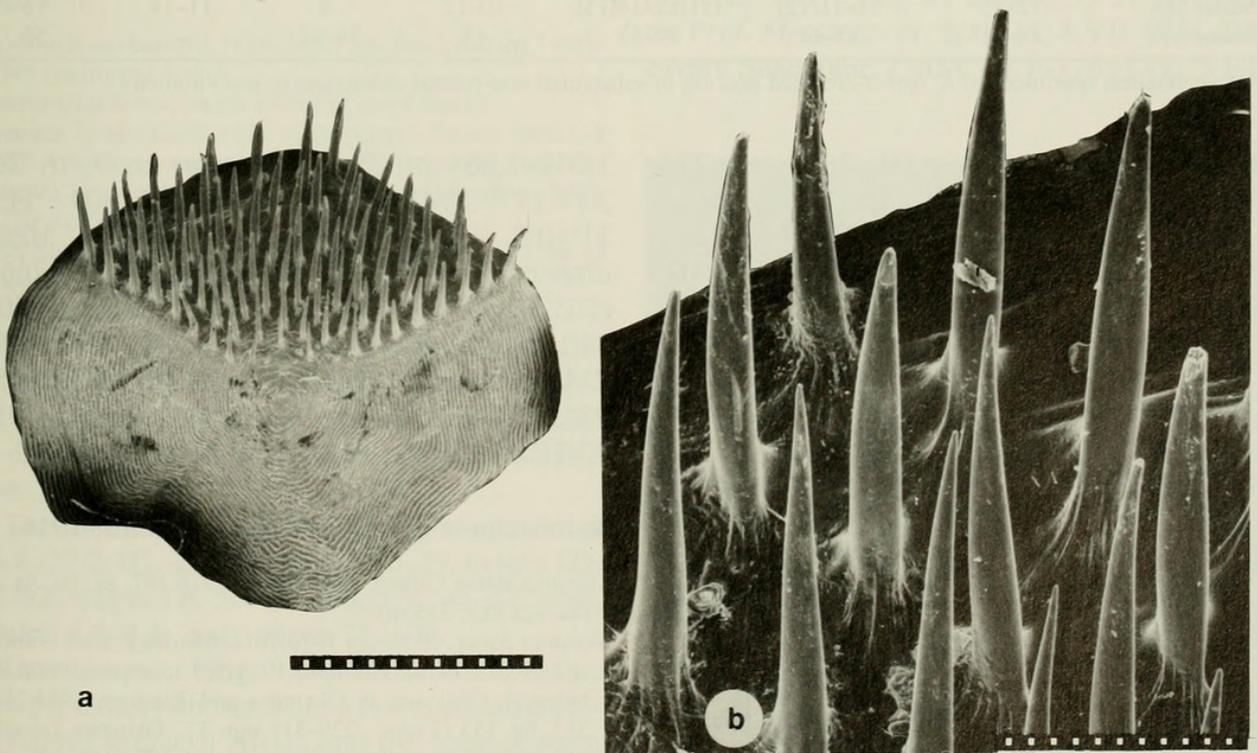


FIGURE 2. Scanning electron micrographs of body scale of *Kuronezumia bubonis*: (a) from dorsum below interspace between first and second dorsal fins; (b) enlargement of spinules of same scale. Scale bar in (a) equals 1.5 mm; in (b) equals 0.25 mm.

TABLE 1. Ranges of selected measurements and counts of seven species of *Kuronezumia*. Figures in parentheses denote exceptions outside range of others in species. The last column presents data for the undescribed South China Sea species reported by Iwamoto (1974).

	<i>bubonis</i> n = 12	<i>dara</i> n = 2	<i>leonis</i> * n = 20	<i>macronema</i> n = 3	<i>paepkei</i> n = 1	<i>pallida</i> n = 2	sp. n = 1
Measurements:							
TL	360-730	111-253	195-495	208-343	270	379-548	347
HL	54-124	20-51	43-84	33-51	59	79-99	64
in percent of head length							
Snout	26-32	28-30	27-34	27-28	28	28-29	30
Preoral	14-18	15-16	18-24	20	19	16-17	16
Internasal	17-20	18-19	18-24	—	21	—	—
Interorbital	23-26	25	22-30	23-25	24	24-27	29
Orbit	23-31	26-36	27-35	27-30	29	24-25	25
Suborbital	18-20	18-19	16-18	18	18	20	18
Postorbital	49-51	36-43	(36)40-44	—	50	—	48
Orbit-preop.	40-41	38-40	31-39	37-40	37	42-46	41
Upper jaw	35-44	30-35	29-35	34-36	34	40-42	41
Barbel	20-29	20-25	18-26	20-23	18	23-26	22
Gill slit	18-20	16-18	12-16(19)	13-17	14	18	19
Counts:							
1D.	II, 11-12	II, 9-10	II, 19-10(8)	II, 8-10	II, 11	II, 11(13)	II, 10
1P.	i21-i24	i21-i23	i19-i26	i16-i22	i21-i22	i24-i25	i23
V.	(9)11-13(14)	10-12	(7)8-10	(9)11	10-11	11	8
GR-I (outer)	6-8	7-8	(7,8)9-11	—	8	7-8	8
GR-I (inner)	8-10	10	7-12	—	12	8-9	10
GR-II (outer)	9-10	9	8-11	10	11	7-9	9
GR-II (inner)	9-10	10-11	9-12	—	9	9	—
Scales 1D.	19-21	12-15	17-20	11-14	13	11-14	17-18
Scales mid-1D.	12-16	9-10	9-12(14, 15)	—	7	—	—
Scales 2D.	12-15	10-11(12)	(11)12-14(15)	10-12	8	11-14	16
Scales lat.l.	44-61	42-44	44-53	47	34-37	—	50

* Two smallest specimens of *K. leonis* excluded because of substantial size-related differences in morphometry.

ZMMGU P-17658 (65 mm HL, 360+ mm TL); off Viet Nam, 11°38'N, 109°48'E; 900-1,300 m; *Odissey* tr. 50; 20.IX.1984. INDIAN OCEAN. **Madagascar Ridge:** ZMMGU P-17659 (57.5 HL, 234+ TL); 33°30'S, 44°00'E; 940-1,110 m; *Zvezda Kryma* cr. 6, tr. 20; 7.VII.1976. ZMMGU P-17660 (94 HL, 446+ TL); 32°44.3'S, 45°02.6'E; 1,240 m; *Zvezda Kryma* cr. 6, tr. 56; 23.VII.1976. CAS 66502 (47.1 HL, 235+ TL); Walters Shoals, 33°25'18"S, 43°37'30"E; 1,000-1,030 m; 29-m otter trawl; *Vityaz'* cr. 17, sta. 2721; 17.XII.1988. ZMMGU uncat. (255+ TL); 33°21'S, 44°29'E; 928-940 m; *Fiolent* cr. 11, tr. 15; 3.IV.1979. **West Australian Ridge (Broken Ridge):** ZMMGU P-17662 (60 HL, 256+ TL); 31°30'S, 95°04.3'E; 1,080-1,150 m; *Zvezda Kryma* cr. 6, tr. 131. 18.IX. 1976. ZMMGU P-17663 (124 HL, 745+ TL); 30°54'S, 93°49.0'E; 1,060-1,200 m; *Zvezda Kryma* cr. 6, tr. 187; 3.X.1976. ZMMGU P-17667 (54.5 HL, 334+ TL); 31°03'S, 93°08.3'E;

1,049-1,064 m; *Prof. Mesiatzev* cr. 7, tr. 26; 3.IV.1979. ZMMGU P-17664 (49 HL, 304+ TL); 31°10'S, 93°57'E; 1,047-1,080 m; *Prof. Mesiatzev* cr. 7, tr. 27; 3.IV.1979. ZMMGU P-17665 (103 HL, 600+ TL); 31°40.7'S, 95°30'E; 1,050-840 m; *Prof. Mesiatzev* cr. 7, tr. 33; 4.IV.1979. ZMMGU P-17666 (49.3 HL, 280+ TL); 30°59'S, 93°35'E; 1,050 m; *Fiolent* cr. 7/9, tr. 43; 4.VIII.1977.

***Kuronezumia dara* (Gilbert and Hubbs, 1916)**

Lionurus darus Gilbert and Hubbs, 1916:197, pl. 10, fig. 1 (Suruga Bay; 355 m).

Nezumia darus: Okamura 1970:101-103 (descr. after Gilbert and Hubbs 1916). Iwamoto 1974:507 (compared with *K. bubonis*). Okamura in Okamura and Kitajima 1984:217, 363, fig. 153 (2 spec., 220-318 mm TL; Okinawa Trough; 560-692 m). Okamura in Okamura et al. 1982:161, 349, fig. 95 (2 spec., 130-144 mm TL; Tosa Bay, 605 m).

Nezumia dara: Iwamoto 1979:158 (compared with *N. liolepis*). Iwamoto in Cohen et al. 1990:251, fig. 571 (in key).

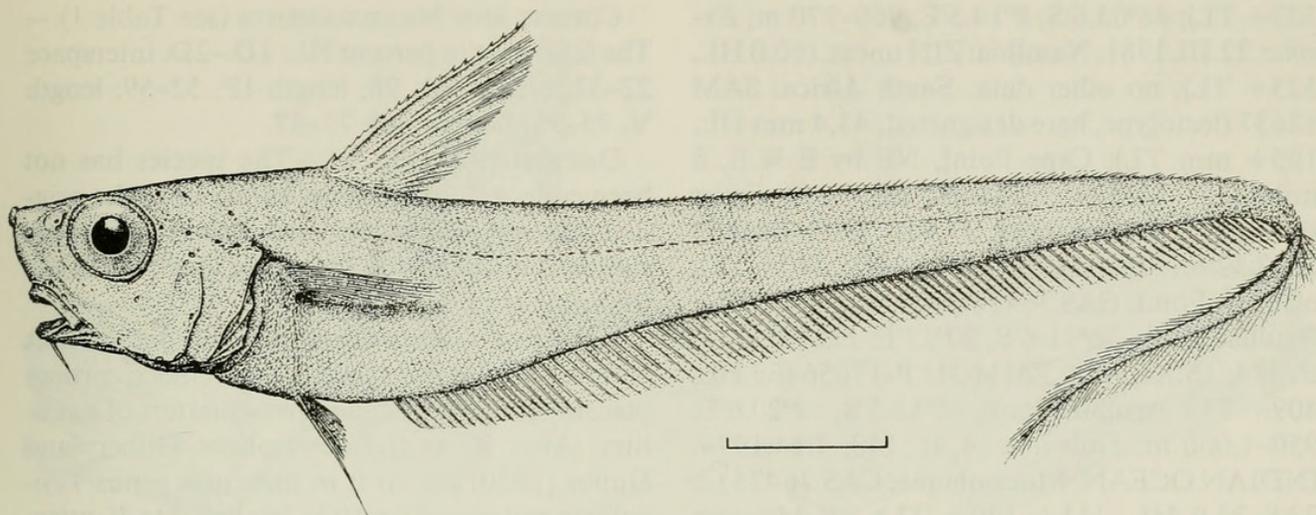


FIGURE 3.—*Kuronezumia leonis*, syntype from off Cape Point, South Africa. Scale bar equals 25 mm. (From Iwamoto in Smith and Heemstra 1986.)

Kuronezumia dara: Sazonov and Iwamoto 1992:65 (compared with *K. pallida*).

DISTRIBUTION (Fig. 9).—*Kuronezumia dara* has been recorded only from southern Japan and the Okinawa Trough in 355–692 m.

REMARKS.—We did not find representatives of this species in the collections in Moscow or CAS.

Kuronezumia leonis (Barnard, 1925)

(Figs. 3, 4)

Lionurus leonis Barnard, 1925a:503 (Cape Point; 640 m); 1925b:349 (additional descr.).

Macruroplus leonis: Smith 1949:134 (brief descr.).

Nezumia leonis: Krefft 1968:36 (Uruguay). Karrer 1973:219 (SE Atlantic). Iwamoto in Smith and Heemstra 1986:338, fig. 93.21 (brief descr.; illus.). Iwamoto in Cohen et al. 1990:250, fig. 567 (in key).

Nezumia sp. A: Okamura in Amaoka et al. 1990:191, fig. (2 spec., New Zealand).

COUNTS AND MEASUREMENTS (see also Table 1).—GR-I (outer/inner series) 7–11/(1–3)+(6–9)(7–12 total); GR-II (1–2)+(6–10)(8–11 total)/(1–2)+(7–11)(9–12 total); pyloric caeca 14–18 (3 spec.).

The following in percent of head length: rictus 21.8–27.2; ID.–2D. interspace 36–79; height 1D. 72–92; length 1P. 50–65; length V. 41–47; post. nostril 4.3–8.6; body depth 75–109.

DISTRIBUTION (Fig. 9).—*Kuronezumia leonis* was previously known from a few specimens collected off southern Africa and the southwestern Atlantic. The species has in fact a surprisingly broad distribution in the southern hemisphere, with collections now known from southern Aus-

tralia, New Zealand, and the Kerguelen underwater ridge in the southern Indian Ocean.

REMARKS.—The relatively pointed snout tipped with a large terminal scute in *K. leonis* is unique in the genus, as other members have a broadly rounded snout lacking modified scute-like scales.

SPECIMENS EXAMINED.—SOUTH ATLANTIC. **Argentina**: ISH uncat. (47.6 HL, 313+ TL); Argentina (slope); *Walther Herwig* sta. 927; 28.IX.78. **Rio Grande Rise**: ZMMGU P-13707 (52 HL, 326+ TL); 31°20.2'S, 35°31.2'W; 810 m; *Prof. Mesiatzev* cr. 2, tr. 15; 8.VII.1974. **Discovery Seamount**: ZMMGU P-17657 (52.5 HL,

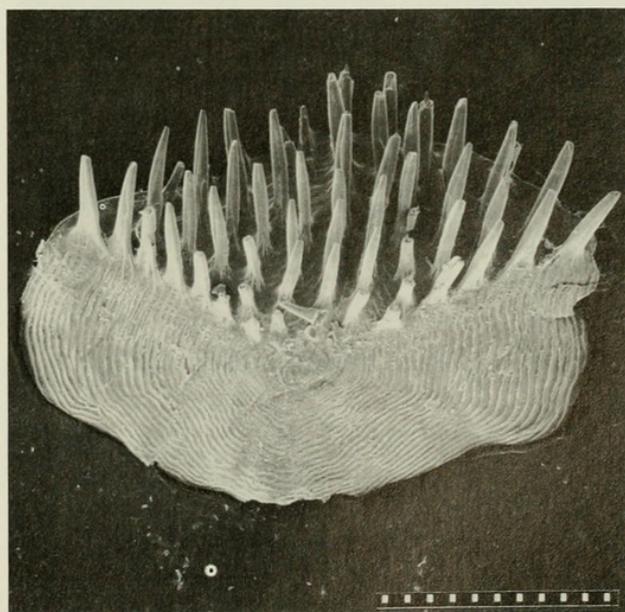


FIGURE 4. Scanning electron micrographs of body scale of *Kuronezumia leonis* from dorsum below interspace between first and second dorsal fins. Scale bar equals 1.0 mm.

323+ TL); 48°03.6'S, 8°14.5'E; 960–970 m; *Evrika*; 22.III.1981. **Namibia**: ZIN uncat. (60.0 HL, 325+ TL); no other data. **South Africa**: SAM 12637 (lectotype, here designated, 43.4 mm HL, 195+ mm TL); Cape Point, NE by E $\frac{3}{4}$ E, 8 miles [13.1 km], 91 fm [166.4 m]; *Pieter Faure* sta. 17555; shrimp trawl; 27.VIII.1903. BMNH 1927.12.6.19 (paralectotype, 45.6 HL, 240+ TL); off Cape Point. CAS 76476 (64.3 HL, 433+ TL); Agulhas Bank, 36°41.6'S, 20°17'E; *Fiolent* cr. 5, tr. 114; 15.XI.1974. ZMMGU P-17656 (69 HL, 409+ TL); Agulhas Bank, 35°53.5'S, 19°20.6'E; 950–1,000 m; *Fiolent* cr. 4, tr. 140; 4.14.1974. **INDIAN OCEAN. Mozambique**: CAS 76475 (2: 22.8–23.9 HL, 111+–130+ TL); off Maputo; 25°26'30"S, 35°12'00"E; 715–700 m; *Vityaz'* cr. 17, sta. 2630; 23.XI.1988. **Kerguelen Ridge**: ZMMGU P-16013 (25.0 HL, 120+ TL); 56°51.8'S, 70°50.5'E; 945–955 m; *Fiolent* cr. 10; 6.I.1978. **PACIFIC OCEAN. Australia**: AMS I.20068-011 (4:57.4–77.0 HL, 335–490+ TL); N.S.W., E of Broken Bay; 33°27'S, 152°09'E; 886–895 m; *F.R.V. Kapala* sta. K77-23-13; bottom trawl; 8.XII.1977. AMS I.24462-004 (49.0 HL); N.S.W., off Cape Hawke; 32°06'S, 153°08'E; 461 m; *F.R.V. Kapala* sta. K83-25-02; bottom trawl; 2.XI.1983. AMS I.24157-007 (84.2 HL, 495+ TL); Victoria, off Cape Everard; 149°47'E, 38°19'S; 997–1,015 m; *F.R.V. Kapala*; 27.IX.1983. AMS I.20098-005 (4:65.1–69.1 HL, 355+–410+ TL); N.S.W., E of Broken Bay; 33°34'S, 152°01'E; 904 m; *F.R.V. Kapala*; 6.XII.1977. **New Zealand**: LACM 11447-3 (55.8 HL, 320+ TL); 47°21'S, 147°52'E; 915 m; *El-tanin* sta. 1981; 24.II.1967.

Other specimens not examined in detail: NMV A.5885 (480 TL); Australia, S.A., W of Robe; 37°11.7'S, 138°05.5'E; 1,030–1,070 m. NMV A.3404 (383+ TL); Australia, Vic., off Portland; 38°38'S, 141°04'E; 990–1,100 m. ZIN uncat. (400 TL); Agulhas [South Africa].

Kuronezumia macronema (Smith and Radcliffe, 1912)

(Figs. 5, 6)

Macrourus macronemus Smith and Radcliffe, in Radcliffe 1912: 115, pl. 24, fig. 3 (Jolo Sea, near Cagayan Is., 340 fm).

Lionurus (Nezumia) macronemus: Gilbert and Hubbs 1916: 145 (list).

Ventrifossa (Ventrifossa) macronemus: Gilbert and Hubbs 1920: 545–546.

Ventrifossa macronema: Herre 1953:174 (list). Makushok 1967: 218 (distr.). Marshall 1973:654 (list).

Nezumia macronema: Iwamoto in Cohen et al. 1990:251, fig. 573 (in key).

COUNTS AND MEASUREMENTS (see Table 1).—The following in percent HL: 1D.–2D. interspace 22–32; height 1D. 98; length 1P. 52–59; length V. 75–95; body depth 77–87.

DISTRIBUTION (Fig. 9).—The species has not been collected, so far as we know, since the original material, which consisted of three specimens captured in beam trawls at three localities in the Philippines in 622–803 m.

REMARKS.—*Kuronezumia macronema* has been a perplexing species that eluded proper placement for more than three-quarters of a century. After its initial description, Gilbert and Hubbs (1920) placed it in their new genus *Ventrifossa* and considered it to be closest to *V. misakia* (Jordan and Gilbert, 1904). Marshall (1973) followed Gilbert and Hubbs. Iwamoto (1974:513) included the species in *Nezumia*, and considered it, along with *Nezumia burragei* (Gilbert, 1905) and *N. hebetata* (Gilbert, 1905), to “fall in a loose group near *N. darus* in their resemblance to the species of subgenus *Kuronezumia*.” He continued this idea in 1979 in discussing relationships of *Nezumia liolepis* and again in 1990 (in Cohen et al. 1990), where he placed the species in his *Nezumia* “Group C” along with *K. bubonis* and *K. dara*. It was not until we realized that *Macrourus leonis* belonged in *Kuronezumia* that we also considered transferring *Macrourus macronemus* to that genus. Doing so forced comparison with other members of *Kuronezumia* and quickly established how similar *K. macronema* was to the others, especially *K. dara*, which it closely resembles in counts and proportional measurements.

The original illustration of the species (Radcliffe 1912: pl. 24, fig. 3) erroneously depicts a fish with a relatively large mouth, the upper jaw extending to below the hind third of the orbit. In fact, however, the upper jaw fails to reach a vertical through the middle of the orbit. The correct position is shown in our illustration of a paratype (Fig. 5).

Iwamoto (1974) reported that *K. macronema* has lanceolate scale spinules, but closer examination of scales from CAS-SU 25233 using scanning electron micrographs has shown the spinules to be long, slender, and needlelike, and not flattened into lanceolate shapes.

SPECIMENS EXAMINED (all PHILIPPINES).—Holotype: USNM 72931 (51 mm HL, 343 mm TL), Jolo Sea near Cagayan Is., 9°37'05"N, 121°12'37"E; 622 m; *Albatross* sta. 5424. Paratypes: USNM 135346 (48.5 HL, 257 TL); be-

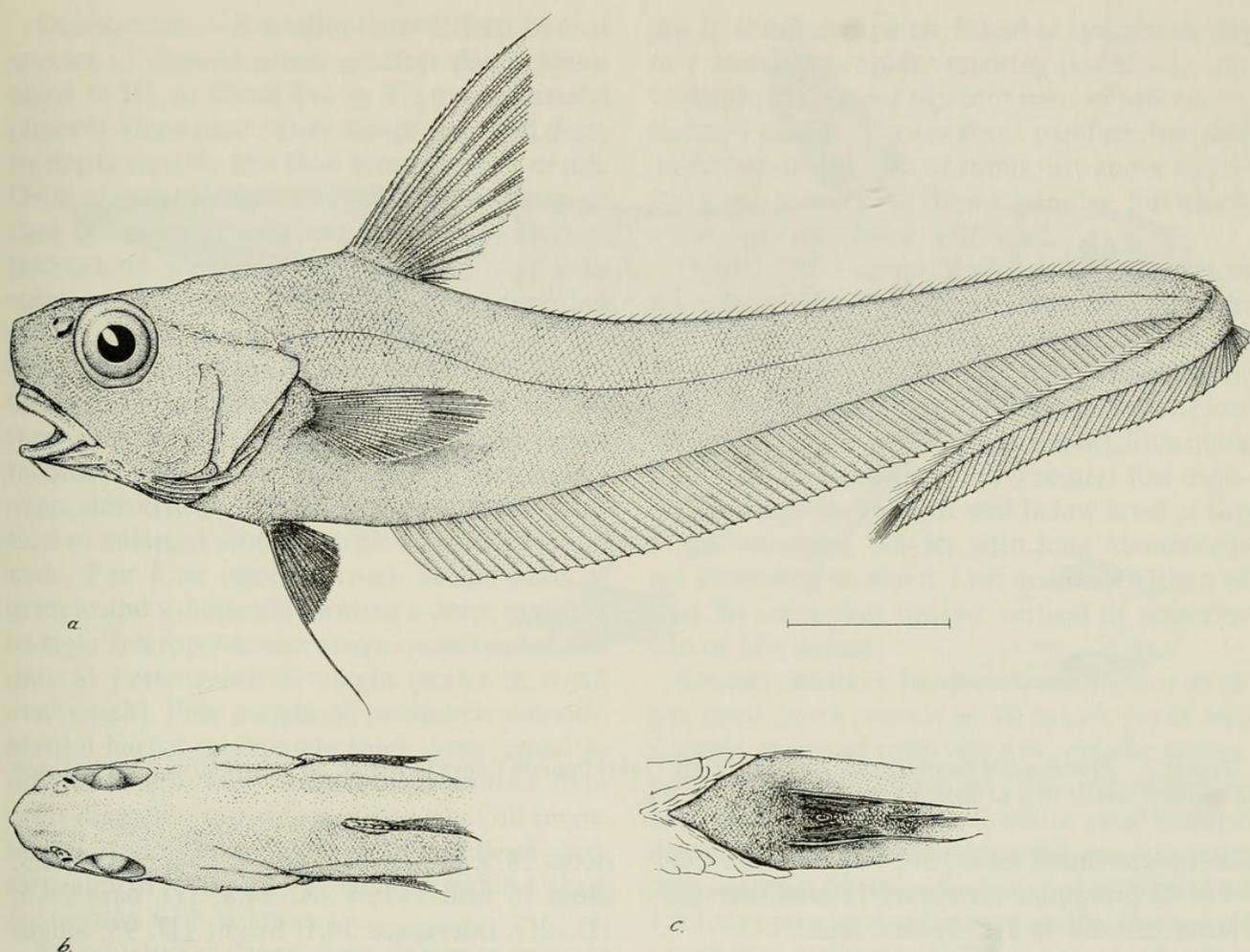


FIGURE 5. *Kuronezumia macronema*, USNM 135346, from Philippines, between Siquijor and Bohol islands. (a) Lateral view; (b) dorsal view of head; (c) ventral view of abdomen. Scale bar equals 2.5 mm.

tween Siquijor and Bohol islands; 803 m; *Albatross* sta. 5528; CAS-SU 25233 (32.5 HL, 208 TL); off SW Luzon; 622 m; *Albatross* sta. 5114.

Kuronezumia paepkei n. sp.

(Figs. 7, 8)

?*Macrurus* (*Macrurus*) *rudis* (non Günther, 1878): Brauer 1906: 264.

MATERIAL.—Holotype: ZMB 17641 (58.5 mm HL, about 27 cm TL, with large pseudocaudal); Indian Ocean off Kenya; 03°07'S, 40°45'E; 748 m; *Valdivia* sta. 249.

DIAGNOSIS.—A species of *Kuronezumia* with 12 mesial gill rakers on first arch; eight scales below origin of second dorsal fin; no bulblike swelling of light organ, anterior dermal window represented by a small scaleless area between midbases of pelvic fins; pores of sensory canals on head small but present; color gray-brown, fins dark.

COUNTS AND MEASUREMENTS (see Table 1).—

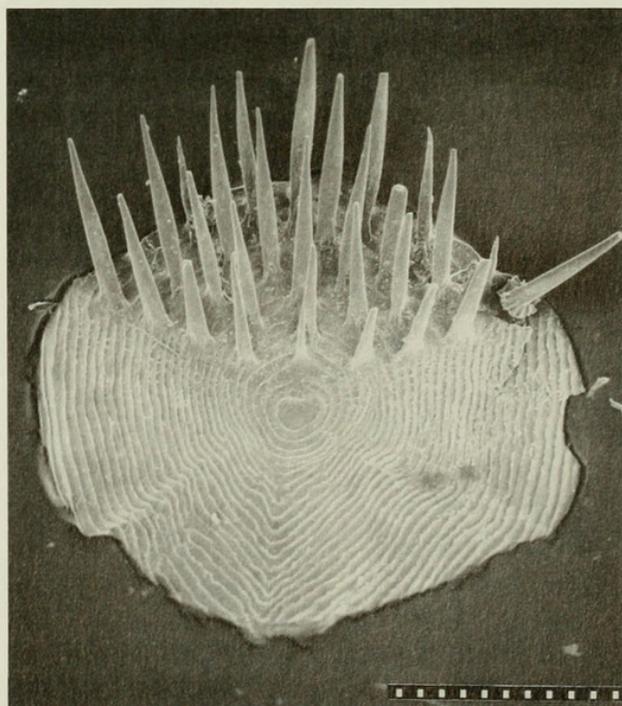


FIGURE 6. Scanning electron micrographs of body scale of *Kuronezumia macronema* (CAS-SU 25233, 32.5 mm HL) from dorsum below interspace between first and second dorsal fins. Scale bar equals 0.6 mm.

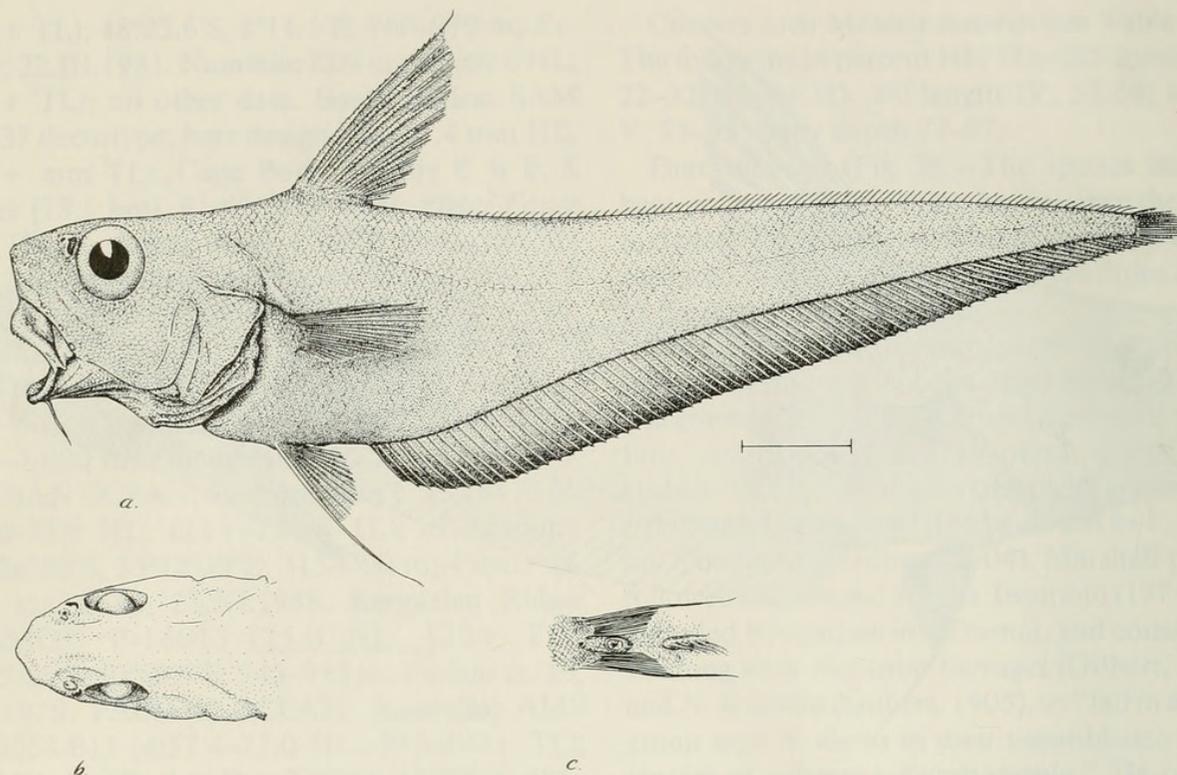


FIGURE 7. *Kuronezumia paepkei* n. sp. Holotype (ZMB 17641) from off Kenya in 748 m. (a) Lateral view; (b) dorsal view of head; (c) ventral view of abdomen. Scale bar equals 25 mm.

GR-I (outer/inner series) 8/2+10, GR-II 1+10/1+8; 13 precaudal vertebrae; 11 anal pterygiophores anterior to first haemal arch.

riectus 28.3; pre-D. 112; pre-A. 154; pre-V. 123; snout to vent 141; V.-A. 34.8; 1D. base 29.3; 1D.-2D. interspace 34.1; height 1D. 95; length 1P. 63; length V. 79; body depth 96.

The following in percent of HL: postrostral 75;

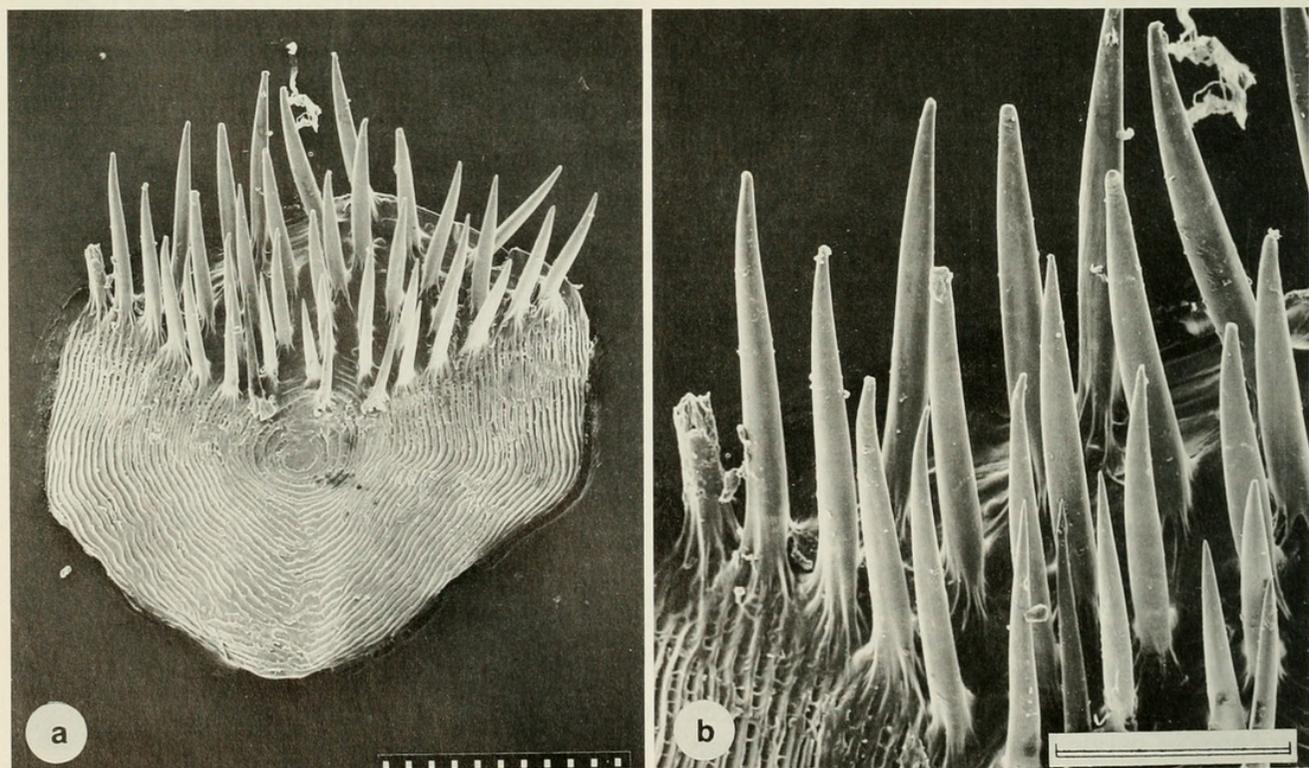


FIGURE 8. Scanning electron micrographs of body scale of *Kuronezumia paepkei* (holotype, ZMB 17641): (a) from dorsum below interspace between first and second dorsal fins; (b) enlargement of spinules of same scale. Scale bar in (a) equals 0.75 mm, in (b) equals 0.3 mm.

DESCRIPTION.—A medium-sized, deep-bodied species of *Kuronezumia*, greatest depth about equal to HL or about five in TL (pseudocaudal present). Head moderately compressed and deep, its depth notably less than greatest body depth. Orbit almost circular, its diameter a little more than snout length or about one-fifth more than interorbital width. Snout relatively high with subvertical anterior profile, its tip rounded but not truncated, triangular in shape in dorsal view (Fig. 7b). Mouth small, jaws subterminal; posterior end of maxillary extends to about vertical through anterior margin of pupil. Head ridges inconspicuous; infraorbital region moderately deep, subvertical, slightly convex, without modified or enlarged scutelike scales, about 10 scales wide, 5 or 6 on upper portion. Scaled parts of opercle and subopercle forming a deep, inverted triangle. Interopercle narrowly exposed and scaled only at posteroventral margin (scales in small oval patch). Free margin of preopercle smooth. Mental barbel moderately thick, long, equal to preoral length, but conspicuously shorter than orbit diameter, tapering to a fine tip. Gill membranes broadly united (at level of middle of opercle), almost without free margin behind their connection with isthmus.

No scutelike scales at snout tip nor at anterior end of nasal bones; scales around tip of snout slightly stouter than those surrounding, but not raised into tubercles. Scales bordering orbit without crests and indistinct from adjacent scales. Head almost completely scaled except over gular and branchiostegal membranes, anterior part of mandibles, and a median swath on lower surface of snout below tip. A narrow, barely perceptible strip of naked skin (bearing sensory pores) along lower margin of infraorbital bones above upper jaw.

Body scales (Fig. 8) large (as reflected in the 7 scale rows below the midbase of the first dorsal and 8 below the origin of the second dorsal fin) for the genus, densely covered with long, somewhat curved, retrorse, needlelike spinules in irregularly quincunx order. Posteriormost spinules extend well beyond margin of scale. Transverse ridges on anterior field in a limited region along anterior edge of spinule field. Scales cover proximal part of pelvics between rays. One row of scales just below lowermost rays of pectoral fin with few, low, radiating crests without spinules.

Premaxillary teeth short, stout, conical, in broad band (6–7 rows of teeth over most of band) gradually tapering posteriorly. Teeth of outer row scarcely but distinctly enlarged. Teeth on lower

jaw in semilunar patch, broad at symphysis (up to 7 rows) but rapidly tapering posteriorly. Interdental spaces and adjacent parts of oral cavity covered with numerous short papillae; lips and anteriormost portion of snout just above upper jaw also covered with similar papillae, but which are shorter and more widely set.

Origin of first dorsal fin slightly behind vertical through origin of pelvics, and aligned with origin of lowermost pectoral rays. Spinous second ray of first dorsal slightly less than length of head; serrations on leading edge numerous, with 22 low but acute teeth. Interdorsal space short, little more than base of first dorsal fin. Pectoral fins moderately long; their origin well below level of top of gill openings. Pelvics with long filamentous ray extending to about 13th anal ray. Origin of anal fin somewhat behind vertical of posterior end of first dorsal.

Sensory canals on head not broadened or swollen; open pores present in all canals, small and situated at tips of relatively low, tubular projections. Free neuromasts on head indistinguishable. Olfactory cavity small, about equal to pupil diameter, anterior nostril rounded, much smaller than posterior nostril, which is semi-elliptical and 1.8 times into least suborbital width. Internarial membrane narrow, with flap length equal to half diameter of anterior nostril.

Light organ represented by a black scaleless anterior dermal window situated between midbases of pelvic fins and separated from periproct by convex, scale-covered area (Fig. 7c). Periproct very narrow. Most internal organs lost (probably a result of earlier dissection).

Coloration in alcohol: body gray-brown, rather light, branchiostegal membranes light brown; oral and branchial cavities light with yellowish tinge, outlines of the latter brown; all fins (including posterior part of second dorsal) dark brown (anal fin rather pale basally, but black distally). Brauer (1906) reported coloration of specimen as light brownish; fins, vertical surfaces, and opercles blackish.

ETYMOLOGY.—Named for Dr. Hans-Joachim Paepke, Curator of Fishes at the Museum für Naturkunde der Humboldt-universität zu Berlin.

DISTRIBUTION (Fig. 9).—Known only from the type locality on the continental slope of east Africa off Kenya in 748 m.

REMARKS AND COMPARISONS.—*Kuronezumia paepkei* has larger body scales and more gill rakers (medially on the outer arch) than do other members of the genus (see Table 1), but the spe-

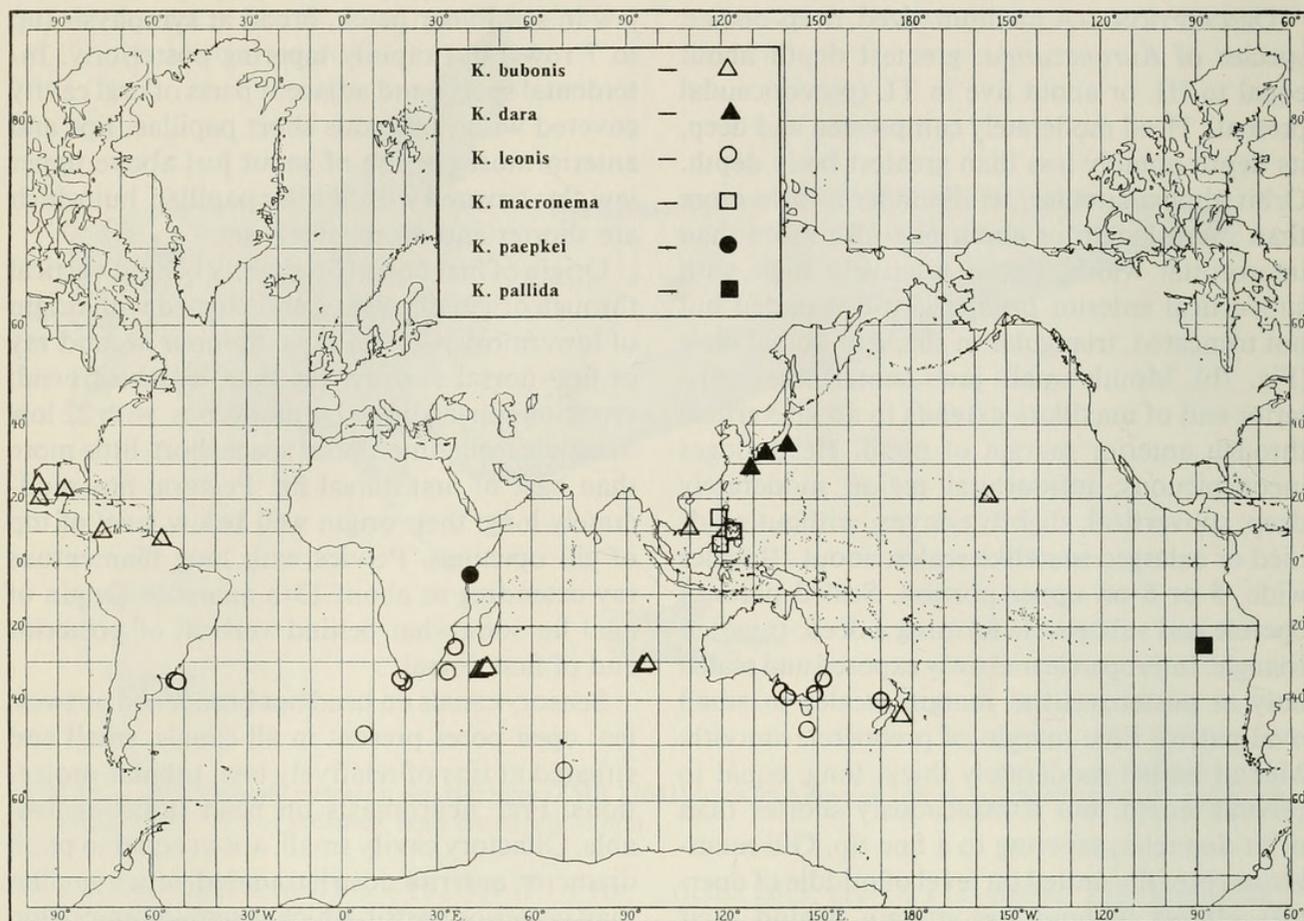


FIGURE 9. Distributions of six species of *Kuronezumia*.

cies agrees with the generic concept of Sazonov and Iwamoto (1992) in having a rounded snout profile, a smoothly rounded suborbital region covered with uniformly small scales and lacking a stout, angular, longitudinal ridge formed of enlarged scutelike scales, and in having broad, short teeth bands in both jaws.

In addition to its high gill-raker count and large scales (and commensurate lower scale row counts), the new species differs from: *K. bubonis* and the undescribed South China Sea species in lacking a bulbous swelling of the luminous organ and in having many different proportions (e.g., shorter upper jaw, shorter barbel, longer pelvic fin, narrower outer gill slit); *K. pallida* and *K. dara* in having fewer pectoral fin rays (22–23 total vs. 24–26); and different proportions (larger orbits, narrower suborbital, shorter barbel, narrower outer gill slit); *K. leonis* in lacking a prominently enlarged terminal snout scute, having smaller teeth, and having more extensive median naked area on underside of snout, the nakedness extending dorsally to the base of terminal snout scute; and *K. macronema* in having more extensive naked areas on underside of snout.

Kuronezumia pallida Sazonov and Iwamoto, 1992

Nezumia sp.: Parin et al. 1981:12 (brief descr., spec. from Sala y Gomez ridge).

Kuronezumia sp.: Parin 1990:16 (listed from Sala y Gomez ridge).

Kuronezumia pallida Sazonov and Iwamoto, 1992:65–67, fig. 24, 25a (2 spec., Sala y Gomez Ridge, 540–800 m).

COUNTS AND MEASUREMENTS (see Table 1).

DISTRIBUTION.—Sala y Gomez Ridge in southeastern Pacific, 540–800 m.

REMARKS.—We have no additional specimens to report. The species is very similar to *K. dara*, and juveniles of the two species were indistinguishable. Adults, however, can be differentiated by characters given in the key and by their smaller orbit diameter (24–25% HL vs. 26–36%).

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