

***Sepia trygonina* (Rochebrune, 1884)**

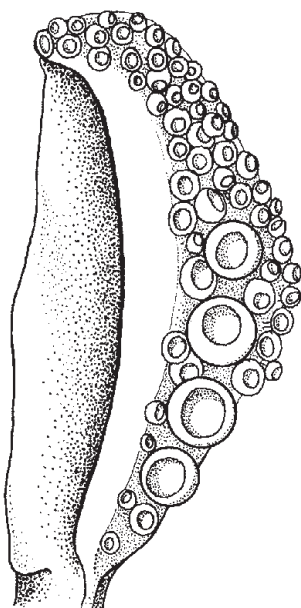
Fig. 192

Doratosepiion trygoninum Rochebrune, 1884, *Bulletin des Sciences par la Societe Philomatique de Paris*, 7(8): 97 [type locality: Red Sea].

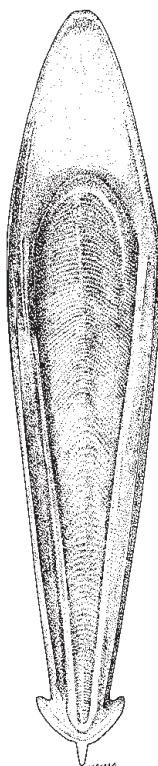
Frequent Synonyms: None.

Misidentifications: None.

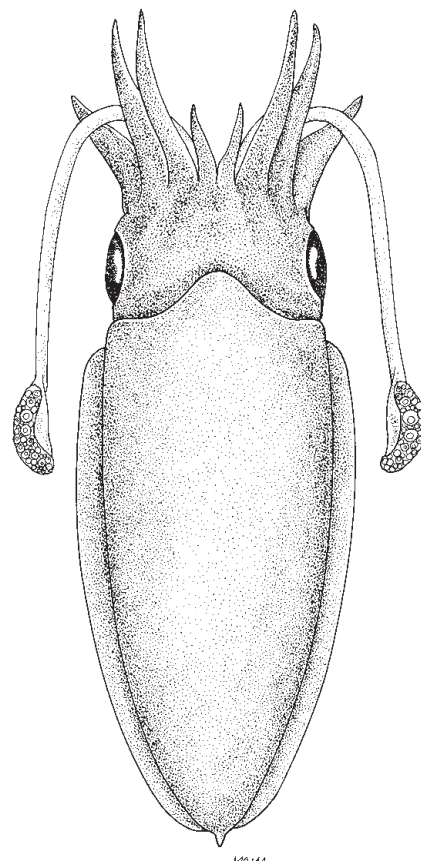
FAO Names: En – Trident cuttlefish;
Fr – Seiche trident; Sp – Sepia tridente.



tentacular club



ventral view
cuttlebone



dorsal view, male

Fig. 192 *Sepia trygonina*

Diagnostic Features: Mantle oblong, acuminate posteriorly. Male and female arms differ in relative lengths: male arms **shorter than rest**, female arm lengths **subequal**. Arm sucker arrangement differs between sexes: in males, arm suckers **tetraserial**; in females, suckers on arms I and IV **tetraserial**, suckers arms II and III **tetraserial proximally, biserial on distal third** of arms; **suckers displaced laterally, with gap between, on distal ends of female arms II and III**. Hectocotylus present on left ventral arm: 6 rows normal size suckers proximally, **suckers absent medially**, then normal size suckers to arm tip. Oral surface of modified region of hectocotylus **concave and covered by large transversely grooved protective membranes; ventral membrane wider than dorsal membrane**, thick and curved inwards (similar to *S. elongata*). Club short, oval; with 5 suckers in transverse rows; suckers differ markedly in size: **4 or 5 greatly enlarged suckers** in longitudinal series towards posterior end of club. Dorsal and ventral protective membranes not joined at base of club. Swimming keel of club extends proximally slightly beyond carpus. Buccal membrane in females without spermathecae. Cuttlebone outline **lanceolate**; strongly recurved ventrally; **dorsal surface pinkish**; calcified medially, thickest posteriorly, slightly granulose with irregular longitudinal ridges; dorsal median rib indistinct. Chitin present as wide bands bordering lateral margins of cuttlebone. Spine curves dorsally, **keel(s) absent**. Sulcus **shallow, wide**, extends entire length of cuttlebone; **sulcus flanked by rounded ribs**. Anterior striae are inverted U-shape; inner cone lateral limbs overlies calcareous striated zone, anteriorly bordered and separated from outer cone by striated zone. Inner cone limbs are uniform width, narrow, **U-shape posteriorly**; slightly raised into rounded posterior ridge; outer cone limbs are expanded into 2 short 'wings', directed ventrally, to form a recurved cup-like structure. **Colour:** Purplish brown. Base of fins in males with **dark purple band**; adjacent to band (or partially on it) is a series of small oval or circular cream-coloured patches, often raised as low tubercles.

Size: Up to 140 mm mantle length.

Geographical Distribution: Indian Ocean: from Saya-de-Malha Bank, 15°35'N–11°30'S, region of Mascarene Ridge and Zanzibar to Red Sea, Persian Gulf and southern India (Fig. 193).

Habitat and Biology: Depth from 20 to 410 m.

Interest to Fisheries: The fishery potential of the species is presently undetermined. However, the size and distribution of *S. trygonina* suggest that it probably occurs in the local fisheries catches.

Remarks: The female of this species is very similar to *Sepia sokotriensis* Khromov, 1988. The cuttlebone is very similar to *S. burnupi* Hoyle 1904, but differs in having a less well-defined dorsomedial rib. There is sexual dimorphism in the relative lengths and armament of the arms. In *S. trygonina*, the arms of males are not as modified as in *S. burnupi*, and females differ in having widely spaced suckers on the distal ends of the lateral arms. The club and hectocotylus resemble that of *S. elongata* d'Orbigny, 1839-1842, but the cuttlebone of *S. elongata* is thicker and the inner cone and the striae differ.

Literature: Adam and Rees (1966), Filippova and Khromov (1991), Filippova *et al.* (1995).

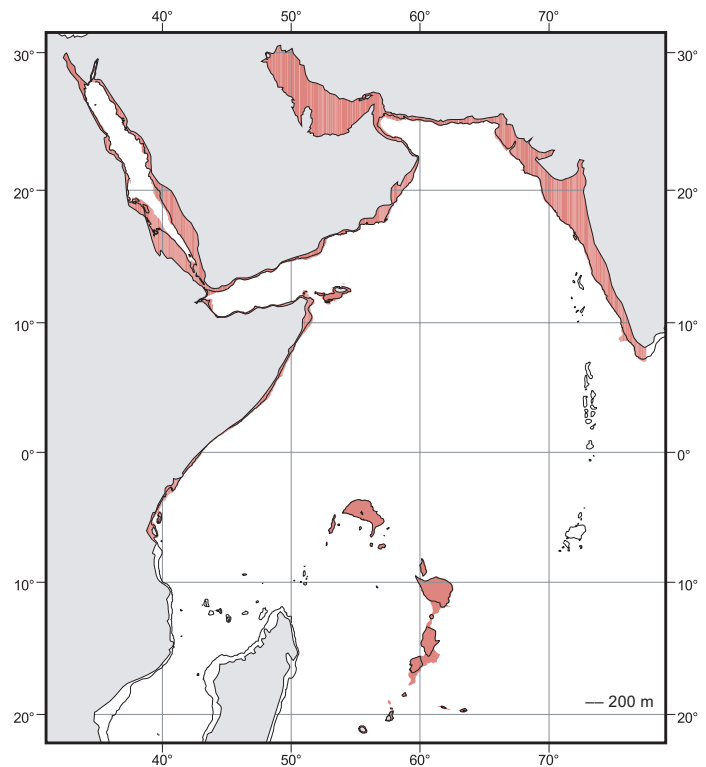


Fig. 193 *Sepia trygonina*

■ Known distribution

Sepia vermiculata Quoy and Gaimard, 1832 **Fig. 194**

Sepia vermiculata Quoy and Gaimard, 1832, *Voyage de decouvertes de l'Astrolabe pendant les annees 1826–1827–1828–1829*, *Zoologie*, 2(1): 64 [type locality: Africa: South Africa, Cape of Good Hope].

Frequent Synonyms: None.

Misidentifications: None.

FAO Names: En – Patchwork cuttlefish; Fr – Seiche réticulée;

Sp – *Sepia reticulada*.

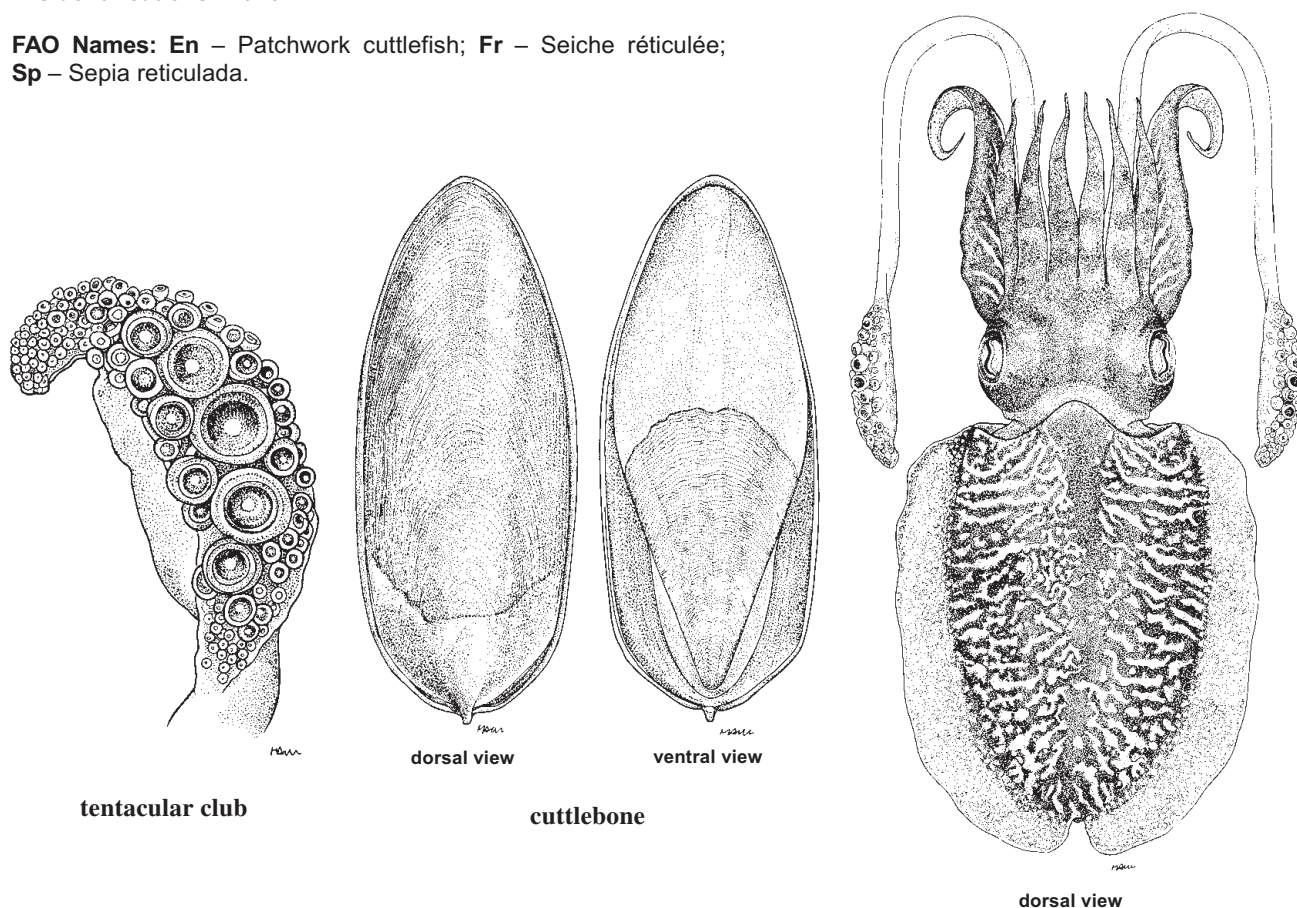


Fig. 194 *Sepia vermiculata*

Diagnostic Features: Mantle broadly oval, anterior margin somewhat produced dorsally. Fins broad and rounded, well separated posteriorly. Head short and broad. Arms joined by a shallow web, ventral arms longer than dorsal arms. Arms III and IV keeled, arms II sometimes keeled, arms I usually not keeled; arm tips somewhat attenuated. Arm suckers tetraserial; all suckers with finely toothed rings, distal teeth longer than proximal ones. Protective membranes well developed. Hectocotylus present on left ventral arm: approximately **6 normal suckers basally, followed by 8 to 13 rows of modified suckers**, modified suckers much smaller and separated by transverse ridges on arm; distal portion of arm normal. Tentacular club length approximately 1/3 of mantle length, **with 3 or 4 suckers in** transverse rows, small distally; **median suckers** of proximal part **variously enlarged**, 1 1/2 to 3 times as large as marginal suckers. Rings of large club suckers smooth. Swimming keel slightly shorter than club. Cuttlebone broadly oval, tapering slightly anteriorly and posteriorly; spine present, surrounded by chitinous covering; dorsal surface tuberculate, with fairly broad chitinous margins; no marked dorsal ridge. Striated zone about half of total cuttlebone length, with shallow sulcus; **anterior border of striated zone convex on either side of median ridge**.

Size: Up to 287 mm mantle length.

Geographical Distribution: Southwestern Indian Ocean: South Africa, 30°42'S 15°59'E, to central Mozambique, 19°S; Saya-de-Malha Bank and region of Mascarene Ridge (Fig. 195).

Habitat and Biology: Little information is available at present, but the species deserves investigation, due to its potential to fisheries and aquaculture. This is the only *Sepia* in southern Africa that enters lagoons and river mouths (e.g. Langebaan and Kysna lagoons, Kowie River), and it is found from very shallow waters (few metres) to 290 m.

Interest to Fisheries: No separate information is available at present, but the species is believed to have potential to fisheries, due to its size and distribution.

Literature: Adam and Rees (1966), Roeleveld (1972), Sanchez (1998), Filippova and Khromov (1991), Filippova *et al.* (1995).

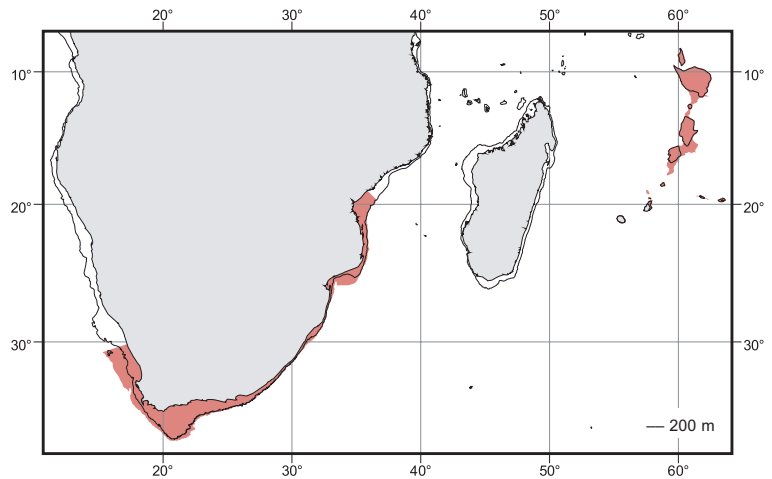


Fig. 195 *Sepia vermiculata*
■ Known distribution

Sepia vietnamica Khromov, 1987

Fig. 196

Sepia vietnamica Khromov, 1987, *Asian Marine Biology*, 4: 35 [type locality: South China Sea, Gulf of Tonkin, 18°00'N 107°08'E].

Frequent Synonyms: None.

Misidentifications: None.

FAO Names: En – Viet Nam cuttlefish; Fr – Seiche du Viet Nam; Sp – Sepia de Viet Nam.

Diagnostic Features: Mantle broad, oval, dorsoventrally compressed. Fins wide, anterior origin almost at mantle margin, rounded posteriorly. Male and female arms subequal in length; ventral arms slightly longer than rest. Arm suckers **tetraserial proximally, biserial at extreme distal tips**, medial suckers larger than lateral suckers on ventral arms. Hectocotylus present on left ventral arm: sucker size **normal proximally for 8 to 11 rows, followed by 2 or 3 rows reduced suckers**, suckers of normal size medially, then distal third with reduced suckers to tip. Suckers of hectocotylus in **2 dorsal series are smaller than those in 2 ventral series**; dorsal suckers partially covered by wide protective membrane; reduced suckers much smaller than normal arm suckers; arm with deep median furrow; suckers in 2 dorsal and 2 ventral series displaced laterally, with gap between them. Club crescent-shaped, small; sucker-bearing surface flattened, with **5 suckers in transverse rows**; suckers differ slightly in size: 4 or 5 suckers enlarged in second ventral row, with suckers decreasing in size from this row to margins. Swimming keel of club extends proximally slightly beyond carpus; dorsal and ventral protective membranes **not joined at base of club**. Buccal membrane without suckers. Cuttlebone outline lanceolate, widest in anterior 1/3; bone bluntly rounded anteriorly; acuminate, acute, posteriorly; dorsal surface creamy white; dorsal surface evenly convex; dorsal median rib indistinct;

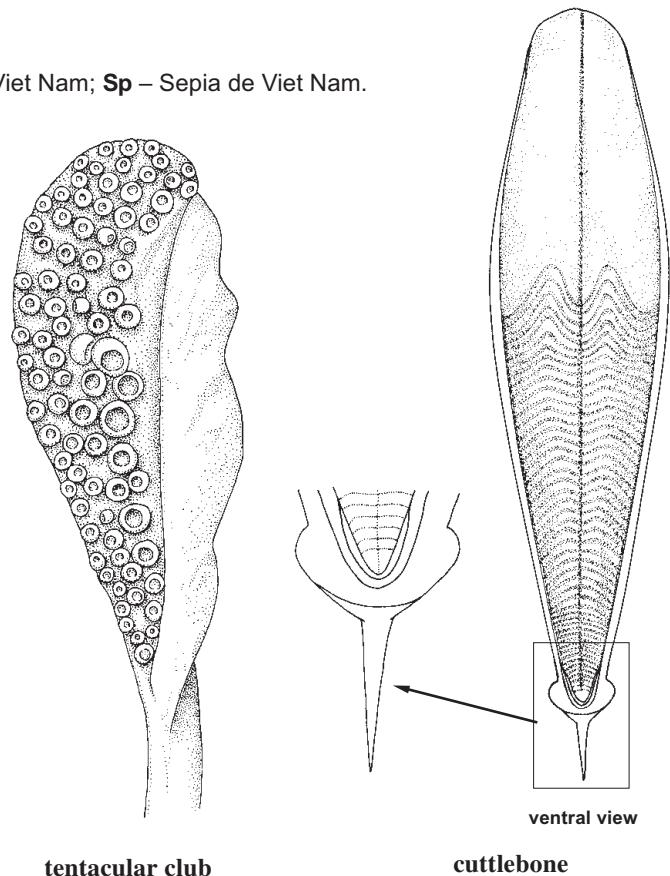


Fig. 196 *Sepia vietnamica*

(after Khromov, 1987)

lateral ribs absent. Chitin (trace only) borders lateral margins of cuttlebone. Spine long, pointed, straight, keel(s) absent. Striated zone and last loculus convex; sulcus **deep, narrow, extends** entire length of cuttlebone. Anterior striae **M-, or m-shape**; limbs of inner cone are very short. Inner cone limbs are uniform width, narrow V-shape posteriorly, thickened; **slightly raised into rounded posterior ridge**; outer cone narrow throughout; outer **cone limbs are expanded posteriorly into 2 short 'wings', directed ventrally, to form a recurved cup-like structure**. Dorsal mantle with longitudinal row of ridge-like papillae along each side, adjacent to base of each fin (males only?); up to 6 fin papillae (approximately) in each row; papillae present on aboral surfaces of arms I to III. **Colour:** Dark brown. Head with **2 small, crescent-shaped orange spots near dorsal projection of mantle margin and above eyes**. Arms I to III have spots on aboral surface as for mantle. Fins pale with rows of large wine-coloured spots (in males and only at certain times).

Size: Up to 70 mm mantle length.

Geographical Distribution: Indo-Pacific: northwestern South China Sea, off Viet Nam and Taiwan Province of China. From original description, type specimens were collected off Viet Nam between 11°34'N and 20°00'N. The northern and southern extents of the range of this species have yet to be determined (Fig. 197).

Habitat and Biology: Depth range from 23 to 104 m. Type specimens were collected between 33 and 70 m.

Interest to Fisheries: No separate information is available at present, but the species is likely to occur in the catches within its distributional range.

Remarks: This species differs from *Sepia lorigera*, Wülker 1910 in having subequal arms, while the 2 dorsal arms of *S. lorigera* are long in males. The posterior region of the inner cone of the cuttlebone is expanded in *S. lorigera*, and is an unexpanded furrow in this species. There is no hectocotylus in *S. lorigera*.

Literature: Lu (1998b).

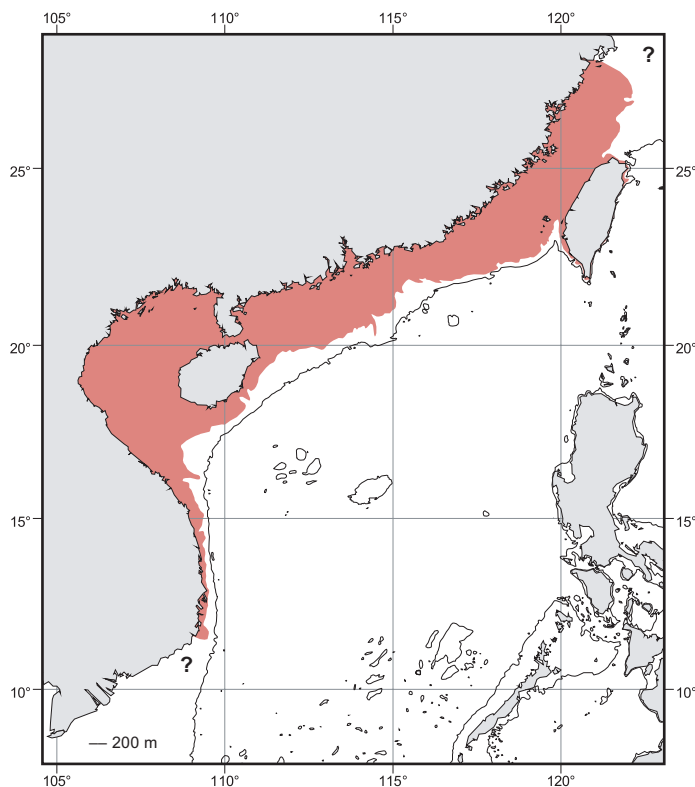


Fig. 197 *Sepia vietnamica*
■ Known distribution

Sepia vossi* Khromov, 1996*Fig. 198**

Sepia vossi Khromov, 1996, *Ruthenica*, 5(2): 143 [type locality: east coast of Viet Nam].

Frequent Synonyms: None.

Misidentifications: None.

FAO Names: **En** – Voss' cuttlefish; **Fr** – Seiche de Voss; **Sp** – Sepia de Voss.

Diagnostic Features: Arms short, subequal in length; arm suckers tetraserial. Hectocotylus present on left arm IV: 3 rows of normal size suckers proximally, followed by greatly reduced suckers, then rest normal to arm tip. Suckers in **2 dorsal and 2 ventral series displaced laterally, with gap between, widely spaced, crowded together**; oral surface wide, fleshy with transversely grooved ridges. Club short, broad with **3 to 5 suckers in transverse rows**; suckers differ markedly in size: **3 to 5 suckers in middle of third longitudinal row extremely large**. Swimming keel extends slightly beyond club sucker-bearing surface. Dorsal and ventral protective membranes **not joined at base of club**. Cuttlebone pinkish, blunt-pointed anteriorly and posteriorly; median rib distinct, lateral ribs indistinct. Spine with dorsal and ventral keels. Sulcus shallow, narrow, extends entire length of cuttlebone; sulcus flanked by shallow furrows. Anterior striae are inverted U-shape. Inner cone limbs are uniform width, narrow, rounded, into V-shape posterior ledge; outer cone recurved, cup-like. **Colour:** Dorsal mantle light brown with dark brown transverse stripes.

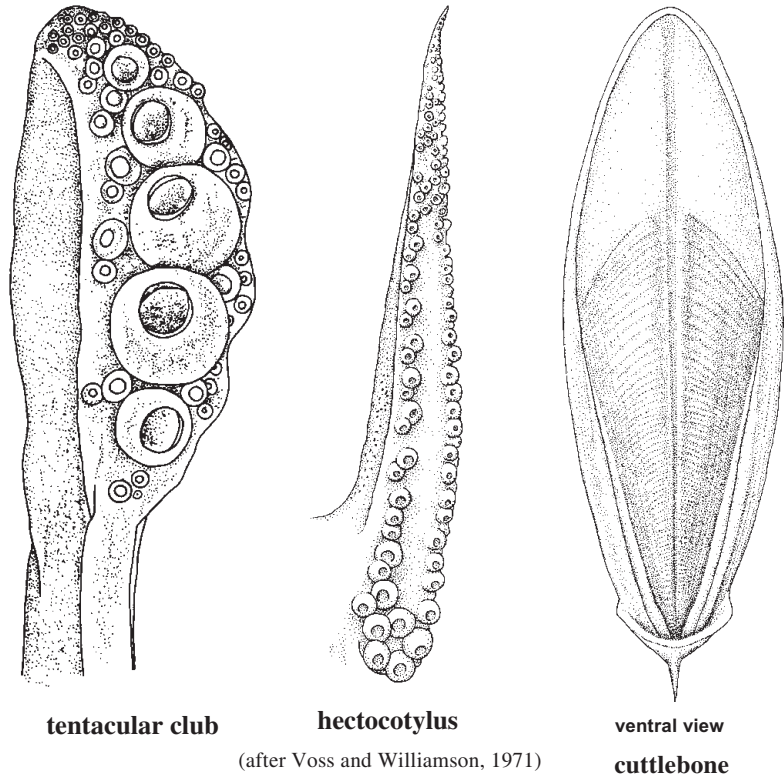


Fig. 198 *Sepia vossi*

Size: Up to 100 mm mantle length.

Geographical Distribution: Indo-Pacific: Hong Kong to southern Viet Nam. Depth range from 2 to 140 m. Neritic demersal species (Fig. 199).

Interest to Fisheries: Separate statistics are not available, but the species is probably captured along with other demersal species.

Remarks: Treated under *Sepia omani* Adam and Rees, 1966, in Voss and Williamson (1971) and *S. rex* (a synonym of *S. hedleyi* Berry, 1918) in Khromov (1988).

Literature: Khromov, 1996.

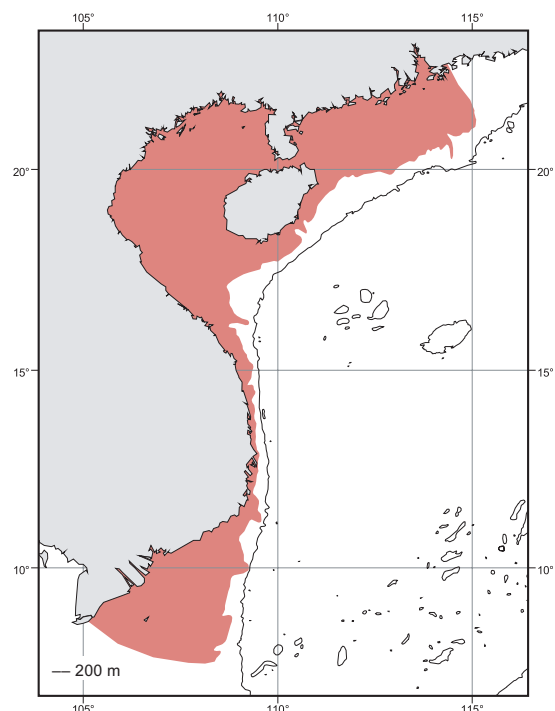


Fig. 199 *Sepia vossi*
■ Known distribution

Sepia whitleyana* (Iredale, 1926)*Fig. 200**

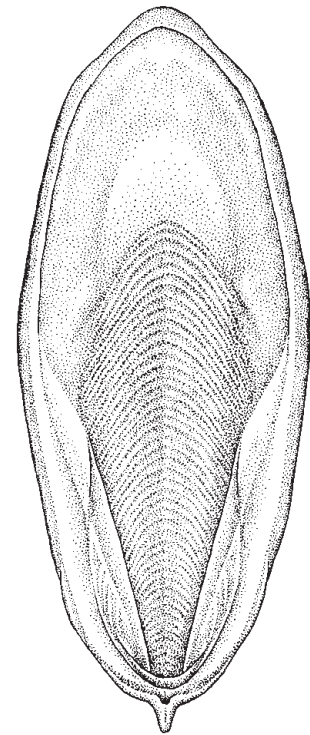
Acanthosepion whitleyana Iredale, 1926, *The Australian Zoologist*, 4(3): 195 [type locality: New South Wales, Port Macquarie, 31°27'S 152°55'E].

Frequent Synonyms: None.

Misidentifications: *Sepia smithi* Hoyle, 1885.

FAO Names: En – Whitley's cuttlefish; Fr – Seiche de Whitley; Sp – Sepia de Whitley.

Diagnostic Features: Mantle broad, oval. Fins rounded posteriorly, with narrow gap between them. Male and female arms subequal in length. Arm suckers tetraserial. Hectocotylus present; **both ventral arms modified**. Male left ventral arm: **6 to 8 rows of normal size suckers proximally, 5 or 6 rows of reduced suckers medially**, then normal size suckers to arm tip. Suckers of hectocotylus in **2 dorsal series are much smaller than those in 2 ventral series**; oral surface of modified region wide, slightly fleshy (but not to same extent as right ventral arm). Male right ventral arm: **5 to 7 rows normal size suckers proximally, 5 or 6 rows reduced suckers medially**, then normal size suckers to arm tip; oral surface of modified region **wide, fleshy, sponge-like in texture with distinct median furrow**; suckers in **2 dorsal and 2 ventral series displaced laterally, with wide gap between them**; reduced suckers all approximately same size or dorsal and ventralmost rows may be smaller than median 2 rows on proximal end of modified region. Club long; sucker-bearing surface flattened, with **12 to 21 small suckers in transverse rows**. Swimming keel of club terminates at proximal end of carpus. Dorsal and ventral protective membranes not joined at base of club but fused to tentacular stalk. Dorsal and ventral membranes same length, terminate at proximal end of carpus; approximately equal width; dorsal membrane forms shallow cleft at junction with stalk. Buccal membrane without suckers; females have single, median spermathecae in ventral part. Cuttlebone outline oblong; **acuminate, acute, anteriorly**; bluntly rounded posteriorly; dorsal surface creamy white; dorsal surface convex medially, flat laterally; granulose, or calcified medially. Spine and posterior tip of bone covered with **smooth glaze-like substance**. Dorsal median rib and lateral ribs absent or indistinct; sides of median rib approximately parallel. Chitin surrounds entire margin of cuttlebone. Spine short, pointed, straight, directed dorsally. Spine **keel(s) absent**. Striated zone deeply concave; last loculus convex; sulcus deep, wide, extends along striated zone only; sulcus flanked by rounded ribs. Anterior striae are inverted U-shape; limbs of inner cone short, extend anteriorly to approximately one-third the length of the striated zone. Inner cone limbs are narrow anteriorly, broad U-shape posteriorly; **slightly raised into flat, very narrow, posterior ledge; ledge not thickened, dull, not shiny**; outer cone calcified, narrow anteriorly, broadens posteriorly. Dorsal mantle with longitudinal row of up to 9 ridge-like papillae along each side, adjacent to base of each fin. **Colour:** Bluish grey. Head with a few



ventral view
cuttlebone

Fig. 200 *Sepia whitleyana*

Size: Up to 174 mm mantle length (both sexes).

Geographical Distribution: Southwestern Pacific: eastern Australia from the Gulf of Carpentaria, 16°51'S 139°51'E, southward to off Port Stephens, 32°37'S 152°25'E. Western extent of range unknown (Fig. 201).

Habitat and Biology: Depth range from 0 to 128 m.

Interest to Fisheries: Species taken as bycatch of prawn and mixed species trawl fisheries.

Remarks: *Sepia whitleyana* is often confused with *S. smithi* Hoyle, 1885. See *S. smithi* Remarks for differences.

Literature: Lu (1998a).

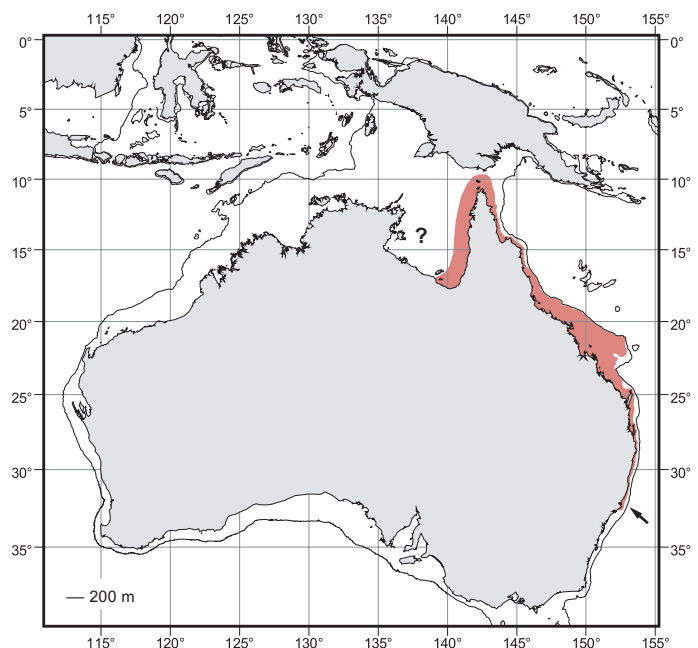


Fig. 201 *Sepia whitleyana*

Known distribution

Sepia zanzibarica* Pfeffer, 1884*Fig. 202**

Sepia zanzibarica Pfeffer, 1884, *Abhandlungen aus dem Gebiete der Naturwissenschaften, Hamburg*, 8(1): 9 [type locality: east Africa, Zanzibar].

Frequent Synonyms: None.

Misidentifications: None.

FAO Names: **En** – Zanzibar cuttlefish; **Fr** – Seiche de Zanzibar; **Sp** – Sepia de Zanzibar.

Diagnostic Features: Arm suckers tetraserial. Hectocotylus present on left ventral arm: **6 rows of reduced suckers medially**, then normal size suckers distally to arm tip; reduced suckers much smaller than normal arm suckers; oral surface of modified region wide, swollen, fleshy, with transversely grooved ridges; suckers in 2 dorsal and 2 ventral series displaced laterally, with gap between; **2 ventral series close together, rows alternate**. Club short, oval; with **6 suckers in transverse rows**; suckers differ slightly in size; several suckers of inner 2 or 3 rows slightly larger than rest. Swimming keel of club extends proximally slightly beyond carpus; dorsal and ventral protective membranes **not joined at base of club**. Buccal membrane with a few, minute suckers. Cuttlebone outline oblong; bone bluntly rounded anteriorly and posteriorly; strongly recurved ventrally; dorsal surface evenly convex; entire surface calcified, granulose, sculpture reticulate on posterolateral half of bone; dorsal median rib indistinct; rib broadens anteriorly; lateral ribs indistinct. Chitin borders lateral and anterior margins of cuttlebone. Spine short, pointed, curves dorsally, keel(s) absent. Striated zone concave; last loculus convex; sulcus **deep, wide**, extends along striated zone only. Anterior striae are **inverted V-shape**; limbs of inner cone extend anteriorly to approximately halfway along striated zone; inner cone lateral limbs are separated from outer cone by smooth zones. Inner cone limbs are narrow anteriorly, broaden slightly posteriorly; **raised into rounded posteriorly thickened ledge**; outer cone calcified; narrow anteriorly, broadens posteriorly.

Size: Up to 250 mm mantle length.

Geographical Distribution: Western Indian Ocean: from the Gulf of Aden to South Africa, Port Elizabeth. Common in open regions of the Indian Ocean, near islands including Madagascar, Saya-de-Malha Bank, region of Mascarene Ridge and Socotra (Fig. 203).

Habitat and Biology: Depth range from 20 to 125 m.

Interest to Fisheries: This species is commercially important in the Gulf of Aden and is likely to constitute a sizeable component of mixed species fisheries along the eastern African coastal and open oceanic waters.

Literature: Adam and Rees (1966), Roeleveld (1972), Filippova and Khromov (1991), Filippova *et al.* (1995).

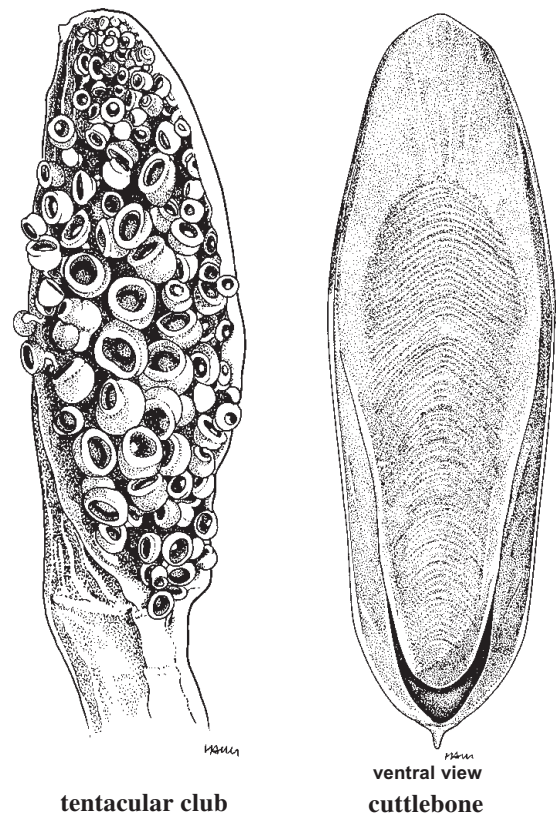


Fig. 202 *Sepia zanzibarica*

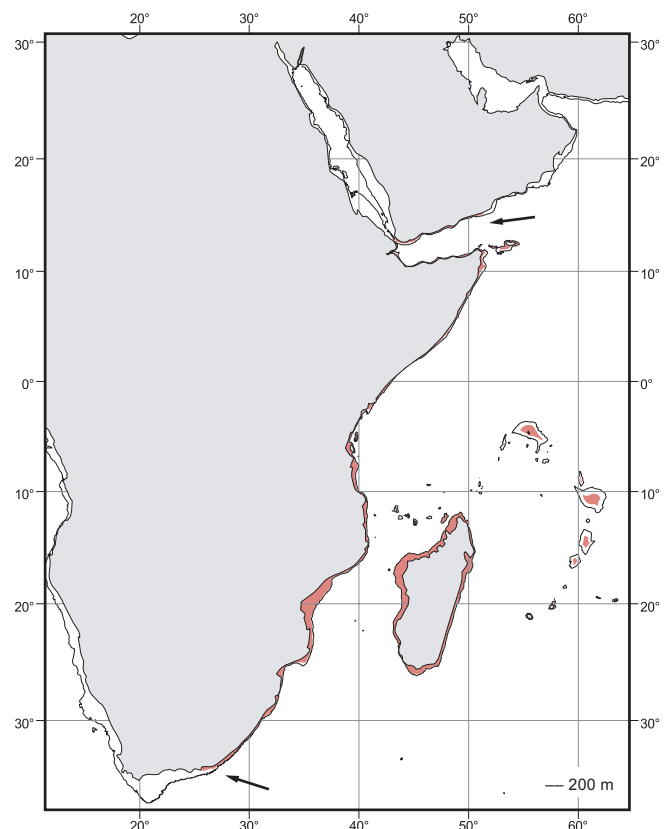


Fig. 203 *Sepia zanzibarica*
■ Known distribution