

Scyllarides obtusus spec. nov., the scyllarid lobster of Saint
Helena, Central South Atlantic
(Crustacea: Decapoda Reptantia: Scyllaridae)

L.B. Holthuis

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Key words: Scyllaridae; *Scyllarides obtusus* spec. nov.; Saint Helena; Slipper lobsters; Stump; fishery.

A new species of slipper lobster is described from Saint Helena, where the species seems to be endemic. Known under the vernacular name Stump, the species forms the subject of a local fishery, carried out since early times. Previously the species has been identified with various *Scyllarides* species from the Atlantic and East Africa.

L.B. Holthuis, National Museum of Natural History, P.O. Box 9517, 2300 RA Leiden, The Netherlands.

Introduction

The existence at Saint Helena of a large scyllarid lobster, named "Stump" by the local population, was probably known as long as fishing was carried out at the island. Because of the presence of game, fish and fresh water, Saint Helena served as a revictualing station to many early voyages to the East Indies. In narratives of such voyages the abundance of fish is often reported, as well as the ease with which these could be caught. The oldest reference to lobsters at Saint Helena is the one made in P.W. Verhoeven's (1646) narrative of a voyage to the East Indies, the Philippines and China, which on the outward voyage visited Saint Helena from 14 May to 9 June 1608. On p. 11-12 of this narrative is mentioned: "De Zee is daer geheel Vis rijk / die dicht onder 't lant met groote ende kley- [p.12:] ne hoecken (doch niet met zeegen wegens de vuyle gronden ende barninge der zee) moeten gevangen werden / die daer meenich der handen zijn / als Makreelen.... oock Crabben / Kreeften..." (The sea there is rich in fish, which can be caught close inshore with large and small hooks (not with seines because of the rough bottom and the surf), they are plentiful, like mackerel... also crabs and lobsters). "Lobsters" are also mentioned by Peter Mundy (see Temple, 1914: 331, who first published Mundy's manuscript; and Edwards, 1990: 4). Mundy visited the island in June 1634. Whether the lobsters mentioned in both cases were the present species or *Panulirus echinatus* S.I. Smith, 1869, or both, cannot be made out. The first published definite account of the present species that I could find is in T.H. Brooke's (1808) "A History of the Island of St. Helena". Brooke, who was "secretary to the government of St. Helena", in his "Introductory Chapter", in which he gave general information of the island, on p. 20 stated "Of fish it has been computed that seventy-six species frequent the coast. Those most commonly taken and used, are mackarel ...; and of shell-fish, long-legs and stumps. The two last resemble the lobster in taste and colour, and have the same kind of tail." On p. 23 he

gave the prices that the fish fetched in the year 1805: "Stumps and soldiers [= the fish *Holocentrus ascencionis* (Osbeck, 1765)], 2d. each". The spiny lobsters, "Long-legs" (= *Panulirus echinatus* S. I. Smith, 1869), were more expensive, namely 6d. each. In the second edition of Brooke's book, published in 1824, in which much attention was paid to Napoleon's stay on the island, the carcinological information (on p. 25 and 29) was the same, except for the additional remark that the prices were according to season.

The first scientific publication concerning this species was by Melliss (1875), who in his account of the island had a chapter devoted to the Crustacea. His marine Crustacea were studied and identified by C. Spence Bate, who assigned "The Stump" to the eastern Atlantic species *Scyllarides latus* (Latreille, 1802). This identification was accepted by most later authors, except for Stebbing (1914), who identified the species with the South African *Scyllarides elisabethae* (Ortmann, 1894), and Chace (1966), who in his account of the Decapod Crustacea of Saint Helena thought it more likely that the Stump belongs to the West African *Scyllarides herklotsii* (Herklots, 1851).

When as a result of a combined Anglo-Dutch Expedition to St. Helena in 1983, several large specimens of the Stump were placed at my disposal, while I also had the possibility to compare these with other species of the genus like the eastern Atlantic *S. latus* and *S. herklotsii*, I decided to undertake a new study of the species, the results of which are presented here.

The abbreviations cl. and cb. are used here for carapace length and carapace breadth, respectively. The abbreviations BM, RMNH, and UZM, indicate the depositories of the examined material, namely The Natural History Museum, London, the National Museum of Natural History, Leiden, and the Universitetets Zoologiske Museum, Copenhagen, respectively.

Scyllarides obtusus spec. nov.

(figs. 1, 2)

Stumps Brooke, 1808: 20, 23; Barnes, 1817: 114; Brooke, 1824: 25, 29; Temple, 1914: 331 (footnote).

Scyllarus latus; Melliss, 1875: 203; Cunningham, 1910: 119, 120; Colman, 1946: 275, 277 (not *Scyllarus latus* Latreille, 1802).

Scyllarides latus; Rathbun, 1900: 309 (p.p.); Barnard, 1950: 562 (not *Scyllarus latus* Latreille, 1802).

Scyllarides elisabethae; Stebbing, 1914: 255, 282; Barnard, 1950: 561 (not *Scyllarus elisabethae* Ortmann, 1894).

Scyllarides herklotsii; Chace, 1966: 630, fig. 5; Edwards, 1990: 4, 27, 29, 40 (not fig. 4.9, which is the true *S. herklotsii*) (not *Scyllarus herklotsii* Herklots, 1851).

Material examined.— Saint Helena, 1909, J.T. Cunningham, 2 dry specimens, 2 males, 1 female (BM).

Off the north coast of Saint Helena (exact site and depth unknown), v.1983, J.C. den Hartog don., 2 ovigerous females (RMNH no. D 42655), 1 non-ovigerous female (RMNH no. D 42653).

Off Lemon Valley, about 15°56'10"S 5°44'45"W, ca. 25 fathoms (= 46 m), broken shells, Sigsbee trawl, 17.ii.1930, Th. Mortensen, 1 juvenile (UZM).

James Bay, ca. 20 fathoms (= 37 m), rocks and shells, dredge, 29.i.1930, Th. Mortensen, 1 juvenile (UZM).— bought in fishmarket, xii.1960, A. Loveridge, 1 female (USNM no. 112536).

Off Jamestown, James Bay, 5 fathoms (= 9 m), rocky ground, in fish trap, 20.ii.1930, Th. Mortensen, 1 female (UZM).— 20-30 fathoms (= 37-55 m), shell bottom, dredge, ii.1930, Th. Mortensen, 1 female (UZM).— about 30 fathoms (= 55 m), shell bottom, dredge, 3.ii.1930, Th. Mortensen, 1 female (UZM).— 40 fathoms (= 73 m), sandy bottom, 1929, Th. Mortensen, 1 *Pseudibacus* stage (UZM).

Jamestown, jetty, 1.ii.1962, A. Loveridge, 2 males (dry) (USNM).

Near Barn Point, 15°55'08"S 5°39'12.5"W, 24 m deep, 17.ii.1983, leg. W.E. Lawrence, don. P.M. Duncan, 1 male (holotype) (RMNH no. D 42652), 1 ovigerous female (allotype) (RMNH no. D 42654).

Prosperous Bay, about 15° 56'S 5° 39'W, 50 m, soft sand, Sigsbee trawl, 22.ii.1930, Th. Mortensen, 1 *Pseudibacus* stage (UZM).

Vernacular name.— Stump (Brooke, 1808, 1824; Barnes, 1817; Melliss, 1875; Cunningham, 1910; Temple, 1914; Colman, 1946; Chace, 1966; Edwards, 1990).

Etymology.— The name *obtusus* (Latin for blunt) is inspired on the vernacular name of the species.

Types.— The male from near Barn Point, 15°55'08"S 5°39'12.5"W is the holotype (RMNH no. D 42652), the female from the same locality is the allotype (RMNH no. D 42654). All other specimens are paratypes.

Description.— The carapace is somewhat (1.04 to 1.11 times) longer than broad. The rostrum is constricted at the base and is T-shaped or inverted triangular; the anterior margin is crenulate, it is straight or slightly concave. The inner margin of the orbit bears three distinct triangular teeth, the middle being only slightly smaller than the two outer. The lobe at the inner orbital angle is short with an indistinctly crenulate margin. It touches the intercalated plate, which is rather low. The pregastric and gastric elevations are distinct but low, the two teeth of the former are clearly visible, that of the latter is blunt. The cardiac elevation shows a median depression, at either side of which there is a tubercle just behind the cervical groove. Over the branchial region extends a longitudinal or slightly curved row of about four quite distinct tubercles; more towards the median line and slightly anterior of this row there is a single tubercle placed behind the cervical groove. Another row of tubercles, about 5 in number, starts in the middle of the lateral part of the branchial region, runs posteriorly and curves up in front of the posterior marginal groove of the carapace. All these tubercles are blunt and have no dark or horn-coloured top. The posterior marginal groove is distinct and sharp, not very deep, and rather wide. The cervical, branchial and postcervical grooves are distinct; they are rather wide and deep. In the middle line of the carapace, just before the cervical groove, there is a very short and deep transverse groove, which in the old specimens shows up as a single or double pit. The carapace is distinctly less vaulted than in *S. delfosi* Holthuis, 1960. The anterolateral angle is sharply triangular and directed forward and outward. There are about six small but distinct teeth on the lateral margin before the cervical incision. The incision is distinct; the carapace is constricted there. Behind the incision the lateral margin of the carapace is irregularly serrate. The tubercles on the upper surface of the carapace are distinct, while many short brown hairs among these tubercles give the carapace a rather scabrous appearance.

The first abdominal somite bears three large, well-defined, round, red spots, one median and two laterals, which are of about the same size. They are placed rather close together, the distance between them being distinctly smaller than the width of the spots themselves; the extreme anterior part the spots may even be connected. The pleura of the first abdominal somite end in two lobes, the anterior is broadly rounded, the posterior is small and triangular, it reaches farther down than the anterior and its posterior margin shows one or two teeth or lobes. The following abdominal somites show a dorsal tuberculation and pubescence similar to that of the carapace.

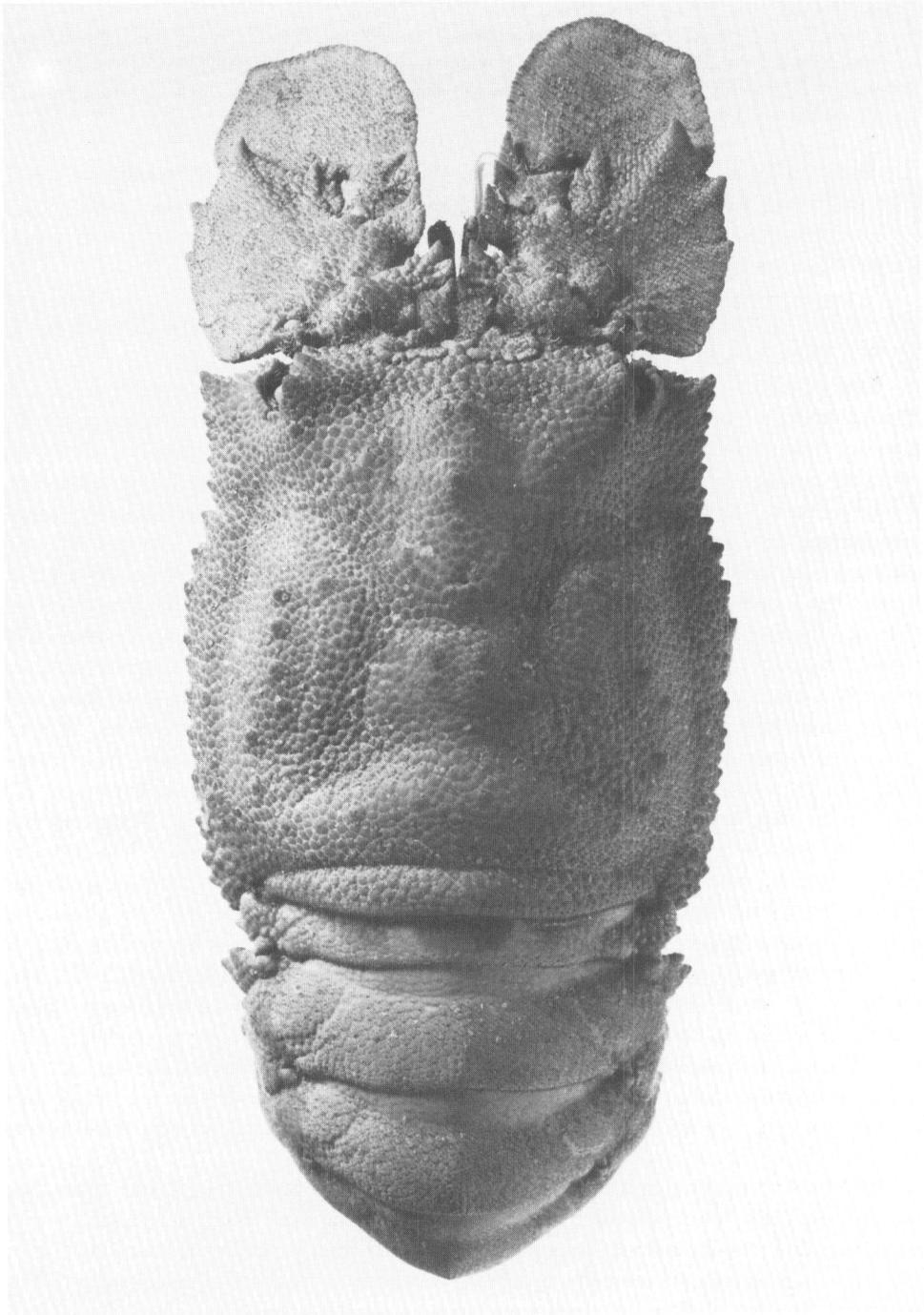


Fig. 1. *Scyllarides obtusus* spec. nov., paratype male in dorsal view. Saint Helena, 1909, J.T. Cunningham (B.M.).



Fig. 2. *Scyllarides obtusus* spec. nov., paratype male in lateral view. Saint Helena, 1909, J.T. Cunningham (B.M.).

Somites II and III, and usually also IV show a median longitudinal row of tubercles which are slightly higher than the other tubercles, and give the impression of a median ridge, which is more distinct in the posterior than in the anterior part of each somite. The anterior margin of the pleuron of the second abdominal somite bears 5 or 6 strong teeth, of which the two upper are especially large and broad. The tip of the pleuron is pointed and directed backward. The posterior margin of this pleuron bears a large tooth in the basal part and between it and the tip, the margin is distinctly concave. The pleuron of abdominal somite III ends in three, those of somites IV and V in two blunt teeth; the posterior margins of these pleura are minutely crenulate.

The last (sixth) antennal segment is rounded and shows a blunt and wide anterolateral angle. The inner margin of the fifth segment bears two large teeth; the posterior of these is somewhat smaller and lower than the anterior. The anterior margin of the fourth segment bears one large and one small tooth at the inner angle; the anterolateral angle is sharp and somewhat inward curved; the outer margin bears two large and three smaller teeth, the smaller being most distinct in young specimens; the inner margin shows two large triangular teeth.

The lateral teeth of the epistome are bifid; the outer tooth is about as wide as, but slightly shorter than the inner.

The propodus of the first leg shows a sharp dorsal carina, the lower surface is rounded. The carpus is smooth and swollen in the basal part and shows a faint longitudinal dorsal groove. The anterior margin of the carpus bears a distinct anterolateral tooth, often flanked by two smaller teeth. The merus shows a high, winged carina that ends in a conspicuous triangular tooth. At either side of this tooth there is a blunt lobe on the anterior margin. The propodi of the third and fourth legs have a distinct dorsal carina, which at its inner side shows a groove, often flanked by a much weaker carina. In the propodus of the second and fifth legs the dorsal carina is indistinct or absent. In legs 1 to 3 and 5, the lower margin of the propodus has no carina, in leg 4 a weak carina may be visible there. In legs 4 and 5 the outer surface of the propodus may show a longitudinal carina in the lower half. The carpus of legs 2 to 5 bears a dorsal carina, which is high and sharp in legs 3 to 5, low in leg 2; in all legs this carina ends in a distal triangular tooth. In legs 4 and 5 the dorsal margin of this carina is somewhat sunken in the middle, so that basally and distally it shows a broad lobe or tooth. The outer surface of the carpus of legs 3 and 4 shows a distinct longitudinal ridge, which in legs 2 and 5 is indistinct or absent. The meri of all legs have a wing-like, high dorsal carina, which ends distally in a sharp tooth. The outer surface of the merus of legs 4 and 5 bears a longitudinal carina in the lower part; this carina shows a blunt tooth in the anterior part in leg 4; in leg 5 this tooth is placed in about the middle of the carina. The coxal process of leg 5 is strong; of leg 4 it is smaller and narrower. The ischium of leg 5 bears a strong spur-like process.

The sternite of the second abdominal somite is serrate. The median incision is hardly at all deeper than the others in the large specimens, in the small it is distinctly the deepest.

The pleopod of the second abdominal somite of the male has both branches well developed and leaf-shaped; they are of about equal size. In the following pleopods of the male the endopod is rudimental, the exopod of the pleopod on the third somite is still leaf-shaped, although smaller than that of the second somite; in somites IV and

V the pleopodal exopods are strongly reduced in the male.

Juveniles.— In a male of cl. 20 mm the sculpturing of the body is more pronounced than in the adults, while the fourth abdominal somite is slightly hump-shapedly produced.

Pseudibacus.— The Pseudibacus stage of the present species has been well illustrated by Chace (1966: 633, fig. 5). The Pseudibacus specimens examined by me have a short longitudinal row of three tubercles in the gastric region. The cardiac region is distinctly elevated with two submedian ridges bearing tubercles, and a short low median carina just before the posterior marginal groove. The branchial tubercles are well developed. The three tubercles on the anterior branchial ridge are distinct, one in the middle being small. The lateral margin of the carapace shows 8 or 9 teeth before and 13 to 17 behind the cervical incision. The second to fifth abdominal somites have a median carina. On somites II and III these carinae bear a row of tubercles, the last of which is the largest; in the fourth and fifth somites the carinae end in a very large and sharp spine. The sixth somite shows a posteromedian tooth. The pleuron of the first somite is truncated with the posterolateral tooth more acute than the anterolateral. The pleuron of the second somite has three or four teeth on the anterior margin; its apex is sharp and turned backward; the posterior margin is smooth except for a large tooth in the basal part. The pleuron of the third somite ends in three teeth with a few denticles on the posterior margin. The pleura of the fourth and fifth somites end in two teeth. The fifth pleuron shows a large tooth on the posterior margin; such a tooth lacks in the fourth. Tubercles are present on the bases of the pleura (except those of the first somite); of these tubercles usually one is larger than the rest. In the sixth somite both the pleuron and the posterolateral angle are sharply pointed.

The margin of the sixth segment of the antenna is crenulated and shows a distinct anterolateral angle. The fourth segment has a sharp distal tooth, and three or four teeth on the outer margin; the anterior margin shows one tooth.

A distinct spur is present in the basal part of the last pereopod.

Colour.— Preserved specimens are rather uniformly pale brownish with an orange or purplish hue. Just behind the cervical groove, at the junction with the branchiocardiac groove, there is a red spot on either side; this spot sometimes continues backward along the inside of the branchiocardiac groove and along the anterior side of the post-cervical groove, forming in this way a red U- or W-shaped spot. The pattern of the three red spots on the first abdominal somite described above often is repeated, be it on a smaller and less distinct scale on the smooth anterior half of the dorsal surface of abdominal somite II, while in somites III to V this smooth anterior part shows a small median red spot and some less distinct lateral ones. The eyestalk shows dark longitudinal stripes. In one of the younger paratypes the colour of the body is more purplish with the anterolateral angles of the carapace reddish.

Size and weight.— The largest specimen examined by me is the male holotype from near Barn Point, which has cl. 104 mm, cb. 93 mm; the smallest male had cl. 20 mm. The non-ovigerous females had cl. 38 to 106 mm, while the three ovigerous females had cl. 94, 99, and 99 mm. Chace (1966) reported upon males with cl. 77 and 94 mm and a female with cl. 100 mm. The Pseudibacus stages examined by me had the same size as the one described by Chace (1966), viz., cl. 15 mm. Edwards (1990)

basing himself on a large material and fishery data, found that the maximum size of full grown specimens is cl. 125 mm for males and 135 mm for females. The average live weight being 0.45 kg.

Distribution.— The species so far is only known from Saint Helena. The specimens examined here all came from the north coast (the leeward side of the island), namely from off Lemon Valley in the West to Prosperous Bay in the East. This is the area where most commercial fishing for the species is carried out; experimental fishing, however, proved the existence of the species all around Saint Helena (Edwards, 1990). The records in the literature are: Saint Helena (Brooke, 1808, 1824; Barnes, 1817; Melliss, 1875; Cunningham, 1910; Stebbing, 1914; Colman, 1946; Barnard, 1950; Edwards, 1990), James Bay (Colman, 1946; Chace, 1966; Stebbing's (1914) record "off St. Helena harbour" presumably belongs here), Rupert Bay (Chace, 1966), off Sugar-Loaf Point (Cunningham, 1910).

Habitat.— The known depth at which the examined adult material was taken, ranges from 9 to 55 m. The *Pseudibacus* from between 50 and 73 m. The depth records in the literature are: about 15 fathoms (= about 27 m) (Cunningham, 1910), 15-20 fathoms (= 27-37 m) (Melliss, 1875), 38 fathoms (= 69 m) (Colman, 1946), 45-55 fathoms (= 82-101 m) (Stebbing, 1914). Edwards (1990) suggested that the species mostly stays at depths of 15 to 75 m, but that in September-October it migrates to deeper water for moulting. The species lives on "firm bottom" (Colman, 1946), rocky ground (present paper), rocks and shells (present paper), shell bottom (present paper), broken shells (present paper); the *Pseudibacus* were taken over a sandy bottom (present paper), and over soft sand (present paper).

Biology.— Melliss (1875: 203) remarked that the species is caught "in considerably large quantities during the months of November to January". Colman (1946: 275) also noted that the fishery for the species was carried out "in the winter months". Cunningham (1910) who was in Saint Helena from 22 February to the end of March or beginning of April, collected in this period several specimens. Stebbing's (1914) specimen, however, was collected in June. The specimens reported upon by Chace (1966) were taken in December and February. Those collected by Th. Mortensen, now in the Copenhagen Museum, were all taken between 29 January and 22 February. The adult specimens in RMNH were caught on 19 February and in May. Edwards (1990: 40) makes clear that fishing for *Scyllarides* in Saint Helena is seasonal and is carried out mostly between November and March, in these months it seems "most active and most readily caught". It is assumed that in September-October the species moves to deeper water for moulting.

Economics.— Practically all reports stress the importance of this species for fishery. Brooke (1808, 1824) indicated that the species sold in St. Helena for two pence each. Barnes (1817) reported it as "edible". In Melliss' (1875) time the price had already risen to "3d. or 4d. a piece". He indicated that the species was caught with traps "made of four hoops and split bamboo, somewhat after the plan of a gigantic mouse-trap, several feet in length, and 18 inches in diameter, and baited with albicore [probably *Thunnus alalunga* (Bonaterre, 1788)] heads". Cunningham (1910: 119) described these traps as elongated cylindrical shape..., each end ...being fitted with a reentrant cone open at the apex. The traps, called locally stump-nets, are weighted with iron bars and put down in 15 fms (= about 27 m). "Each trap was sunk separately and the line attached to it was buoyed first with a bamboo spar and at the end of the line with an

empty cubical paraffin can" (Cunningham, 1910: 119, 120). Cunningham also indicated that the traps were set at night and retrieved the next morning, catching four or five stumps per trap; he mentioned that the price at that time was 3 pence apiece. The species was used as food by the inhabitants, but also served as bait for inshore fishing. The most up to date survey of the Stump-fishery is given by Edwards (1990: 40, 41), from which the following data are taken. The above described type of lobster-pot was used until about 1960, when new types of pots were introduced. "The pots used nowadays tend to be the top-opening metal framed type with slats made of split bamboo. Like the traditional pots these ones are baited with the heads of tuna (*Thunnus* spp.) and Skipjack (*Katsuwonus pelamis*)". The catches averaged in 1985-1987 1.3 kg per pot per day in the exploited area, the yield being 2.2 kg in the less accessible parts of the coast. Between 1966 and 1989 the annual yield of these lobsters varied between 50 and 4650 kg annually, with an average of 1150 kg live weight.

Remarks.— Melliss (1875) was the first to give a scientific name to the present species. His material was identified by C.S. Bate, who assigned it to *Scyllarus latus* Latr. (= *Scyllarides latus*). Rathbun (1900) in her account of the Decapoda of West Africa, under *Scyllarides latus* cited "St. Helena (Bate)", evidently referring to Melliss's record, as Bate himself never published on the species. Rathbun saw no material of the present species, but Cunningham (1910) and Colman (1946) did, and likewise assigned the species to *S. latus*. Stebbing (1914) reported upon the species as *Scyllarides elisabethae* from "off St. Helena harbour, between 45 and 55 fathoms; June 2, 1904", meaning St. James Bay, as the "Scotia" collected material from there on that day (cf. Chace, 1966: 632). In view of the fact that in 1914 the status of various *Scyllarides* species was far from clear, and that it seems unlikely that more than one species should occur in such a restricted area as James Bay, it is practically certain that also Stebbing's material belongs here. *Scyllarides elisabethae* (Ortmann, 1894) is only known from the east coast of southern Africa. Barnard (1950) accepted Stebbing's identification (however, without having seen Stebbing's material), but at the same time reported from Saint Helena a specimen that he thought to be *S. latus*. Chace (1966) identified the Saint Helena species with the West African *Scyllarides herklotsii* (Herklots, 1851) to which it indeed has a closer resemblance than to *S. latus*. It was evidently lack of enough material for comparison that prevented previous authors from recognizing the Saint Helena *Scyllarides* as a new species.

In 1985 a 50 p. stamp was issued in Saint Helena, depicting the present species, it carried the legend "Stump *Scyllarides herklotsii*".

Affinities.— The new species is closest to the West African *S. herklotsii* and the South American *S. delfosi* Holthuis, 1960. From *S. herklotsii* it differs in (1) the swollen base of the carpus of the first pereopod, in *S. herklotsii* the carpus shows a deep groove, (2) the wider and flatter carapace, in which the postcervical groove is deeper and more distinct, the tubercles on the region behind the cervical groove are more pronounced, and the lateral marginal teeth are larger, (3) the spots on the dorsal surface of the first abdominal somite are placed closer together, their distance being half or less than half their width in the new species, that distance in *S. herklotsii* being about as large as the width of each spot, (4) the median of the three teeth on the orbital margin is hardly noticeable in *S. herklotsii*, but is about as large as the two other teeth in *S. obtusus*, (5) the teeth of the fourth antennal segment and the gastric

and pregastric teeth of the carapace have horny tips in *S. herklotsii*, which are lacking in *S. obtusus*, (6) the ridges on the pereopods are far more strongly pronounced in *S. obtusus* than in *S. herklotsii*.

From *S. delfosi* the new species differs in the following points: (1) the carapace is flatter with the postcervical groove more distinct, it is rougher, with the tubercles sharper and the pubescence more pronounced, (2) the lateral marginal teeth of the carapace are larger and more distinct, (3) the three red spots on the first abdominal somite are placed much closer together, in *S. delfosi* these spots are separated by distances that are larger than the width of the outer spots, (4) in *S. obtusus* the three spots are of about equal size, in *S. delfosi* the outer are distinctly smaller than the median spot.

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