Tanzartemon gen. nov., a new land snail genus (Gastropoda, Pulmonata, Streptaxidae) from Morogoro District, Tanzania

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Tanzartemon is described as a new genus in the Streptaxidae. Two species, *T. seddonae* and *T. mkungwensis,* are described from sub-montane forest habitat in the Uluguru Mountains and from the outlying peak of Mount Mkungwe, Morogoro District, Tanzania. The genus is characterised by its globose or depressed globose shell morphology, the presence in the shell aperture of one or more parietal denticles and of several strong, peg like denticles that sit immediately inside the peristome on the basal, palatal or columellar margins. The genitalia are characterised by the presence of a penial sheath that encloses the penis, but does not incorporate a loop of the vas deferens.

The specimens do not resemble any known genus in the East African fauna because of the combination of their globose shell and strong apertural dentition. Possible relationships with other morphologically similar streptaxids known from tropical West Africa, particularly *Lamelliger* Ancey, 1884, are discussed, but, based on shell morphology and genital anatomy we conclude that *Tanzartemon* is likely to be an East African endemic genus that is not closely related to West African forms. We consider it likely that *Tanzartemon* has either evolved *in situ* from another morphologically dissimilar African lineage or from lineages found otherwise only in Asia or South America, and, as such, it is of biogeographical interest.

Key words: Gastropoda, Streptaxidae, *Tanzartemon* gen. nov., taxonomy, Eastern Arc mountains, Uluguru Mountains, Mount Mkungwe, forest, Tanzania.

Introduction

Small, axially-deviated streptaxids with apertural dentition occur in tropical West Africa, South America, and Asia; they are not known in Madagascar. According to Gude (1902), there is no fossil record for the group, which have variously been assigned to *Streptaxis* J. Gray, 1837, or to various other genera or subgenera. Richardson (1988) listed a total of 102 species in the genera most relevant to this study, i.e. *Haploptychius* Möllendorff, 1905, *Indoartemon* Forcart, 1946, *Odontartemon* Pfeiffer, 1856 (of which *Lamelliger*, Ancey, 1884, was considered a synonym), *Oophana* Ancey, 1884, *Perrottetia* Kobelt, 1905, and *Streptartemon* Kobelt, 1905. Disagreement over the type species of each taxon (alternatives being from different continents in some cases), wide variation in morphology, and a lack of knowledge of evolutionary relationships among Streptaxidae have resulted in rapidly changing classifications of this group (e.g. Pfeiffer, 1856; Ancey, 1884; Tryon, 1885; Thiele, 1935 [1992 translation]; Bequaert & Clench, 1936; Van Benthem Jutting, 1954; Zilch, 1960, Richardson, 1988; Schileyko, 2000). Works providing relevant anatomical data are few. Each genus' relationship to *Streptaxis* (whose type species is the Brazilian *Helix contusa* Férussac, 1820) is open to question. *Streptaxis contusus* is large, only moderately deviated and edentate, while the other (sub)genera are founded on smaller, dentate species that range from moderately to very strongly deviated.

The only African taxon among these is *Lamelliger*. There is some disagreement over the circumscription of this genus and its relationship with *Odontartemon* Pfeiffer (non Kobelt, 1880). We choose to adopt the view of Bequaert & Clench (1936), Degner (1934), Thiele (1935) and Adam (1962b) in which *Lamelliger* is considered a valid genus, rather than that of Schileyko (2000), Baker (1928) and Zilch (1961) who considered *Lamelliger* an objective junior synonym of *Odontartemon* Pfeiffer. This dispute is nomenclatural rather than systematic, so, thus recognised, *Lamelliger* contains the same four species: *L. troberti* (Petit, 1841) (type species), *L. distorta* (Jonas, in Philippi, 1843), *L. maassi* Degner, 1934, and, provisionally, an unnamed species described in Schileyko (2000) as *Odontartemon* "sp. B". Although Adam (1962b) concluded that *L. distorta* was not a *Lamelliger*, he did not assign it to another genus, so here we discuss it along with the other three taxa. All four are strictly West African, occurring in Angola, Guinea, Guinea-Bissau, Liberia and Sierra Leone (Bequaert & Clench, 1936), with *L. distorta* also occurring in Ghana and Ivory Coast (Adam, 1962b). The remaining axially-deviated streptaxids of Africa are assigned to the genus *Gonaxis* Taylor, 1877, and to various other genera often considered subgenera of it. All are either edentate or have a single parietal tooth (Bequaert & Clench, 1936).

The following abbreviations are used, for shells: d, aperture diameter (mm); Dmax, shell diameter - major axis (mm); Dmin, shell diameter - minor axis (mm); h, aperture height (mm); H, shell height (mm). For collections: BMNH, Natural History Museum, London, UK; MRAC, Musée Royal de l'Afrique Central, Tervuren, Belgium NMT, National Museum of Tanzania, Dar es Salaam, Tanzania; NMW, National Museum of Wales, Cardiff, UK; .

The number of shell whorls are counted using the method described in Kerney & Cameron (1979)

SYSTEMATIC DESCRIPTIONS

Family Streptaxidae

Tanzartemon gen. nov.

Tanzartemon is characterised by its globose or depressed globose shell and the presence of strong apertural dentition including at least one parietal lamella and several strong denticles on the palatal, columellar or basal margins. The shell may be slightly axially distorted or undistorted. The genitalia are characterised by the presence of a penial sheath that encloses the penis, but does not incorporate a loop of the vas deferens.

Etymology: from the country Tanzania and the Greek masculine noun 'artemon', a principal pulley or foresail, used as a component of several other streptaxid names. Gender: masculine.

Type species: *T. seddonae* spec. nov.

Other species: *T. mkungwensis* spec. nov.

Tanzartemon seddonae spec. nov. (Figs 1-4, 6, 8, 11-15)

Type material: Holotype plus 2 paratypes collected by P. Tattersfield, Z. Habibu, C. Michael and local Tanzanian assistants from Tegetero village in January 1996 by direct searching (Table 1). The holotype (NMW.Z.1996.148.00027) is a dead shell. Paratypes 1 (NMW.Z.1996.148.00028) and 2 (NMT) were collected alive; paratype 2 is juvenile.

Type locality: Uluguru North Forest Reserve, Uluguru Mountains, Morogoro District, Morogoro Region, Tanzania. Location: 6.94°S 37.69°E. All specimens were collected from leaf litter in tall, largely intact sub-montane forest lying on steep and strongly undulating topography, on the east side of the Uluguru Mountains, above Tegetero Mission, at an altitude of about 1500m above sea level. Annual rainfall in the area is estimated as 2900-4000 mm/year and there is no marked dry season. Further details of the collecting locality are provided in Tattersfield (1999) and in Lovett & Pócs (1993).

Shell. − Adult shell depressed globular (Figs 1-2) with 5¾ whorls (holotype). Slightly distorted along columellar axis (by about 10°) and apparently asymmetrically compressed between upper and basal surfaces. This asymmetry results in an oval outline when viewed from above (Figs 1-2), with the aperture projecting further from the columellar axis than the opposite side of the shell. The body whorl and penultimate whorls are both widest near the aperture and the major axis of the shell extends through the apertural region (Figs 1-2). When viewed from below, the preceding whorls are entirely obscured by the body whorl, with no overlap evident.

The base of the shell is smooth and glossy with very faint and rather irregular spiral striae that are visible under high magnification only. The upper surface of the shell is also glossy and whorls 1, 2 and 3 are smooth; extremely faint spiral scratches remain on very fresh shells (paratypes 1 and 2). Whorls 4-5¾ have regularly spaced radial ribs that are strongest near the suture and fade on the lower parts of the whorl. The ribs on whorl 4 are locally beaded at intervals approximately equal to the gaps between the ribs; these combine to introduce a spiral element into the sculpture. The widths of the ribs are approximately equal to the gap between them. The ribbing gradually becomes weaker after whorl 5¾ and the body whorl (whorl 6 of paratype) is smooth and glossy.

Specimen	Accession No.	H	Dmax	Dmin	h	d	Whorls
Holotype	NMW.Z.1996. 148.00027	5.4	8.6	6.8	2.7	4.6	5 ¾
Paratype 1	NMW.Z.1996. 148.00028	5.7	8.7	7.1	2.9	4.8	6
Paratype 2 (juvenile)	NMT	3.4	6.2	5.7	2.7	3.0	4 ¾

Table **1**. Accession numbers, shell dimensions and number of whorls of *Tanzartemon seddonae* gen. & spec. nov.

The peristome is discontinuous across the parietal region although the parietal area is slightly thickened and marked by a ridge in the shell that develops into an elongated parietal lamella further into the aperture (see below). The peristome is strongly reflected to form a broad lip that extends around all sections of the aperture apart from near the junction of the parietal and palatal areas where the peristome is sharp and not reflected. The umbilicus is sealed, remaining only as a shallow depression. The aperture is crescent-shaped with sub-equal palatal and basal sections and a shorter columellar section. The four-fold apertural dentition in the adult specimens consists of three denticles that sit immediately inside the peristome plus a deeper, single, spiral, elongated parietal lamella. There are two large, rounded, peg-like denticles on the basal section and one on the palatal margin, which all sit just inside lip; these denticles are about 0.3-0.5mm long. The inner end of the parietal lamella starts approximately opposite the palatal denticle and extends for a length of about 1.7mm, with the outer end finishing just outside the plane of the aperture. There is a further short, linear swelling on the parietal surface deeper within the aperture. The only known juvenile (Fig. 3) is edentate and without the reflected lip, and has an open, symmetrical umbilicus.

Shell measurements: See Table 1.

Body colour**.** − Live-preserved adult specimen mainly pale cream, with a pale cream-yellow digestive gland, and a very slight orange tinge to the optic tentacle retractor muscles. The live-preserved juvenile specimen is similarly coloured, but the digestive gland is light brown.

Genitalia (Figs 9-14). − Penis notably long (9.0 mm in a withdrawn state or 0.7 whorls), tubular, without appendices. The penis is substantially swollen basally and slightly swollen apically, entirely enclosed in a thin sheath. The sheath is contiguous with the penial retractor apically and penial wall basally, being crumpled or creased around the apical fifth of the penis, and with a second small retractor muscle arising near the atrium, attached to the body wall. Vas deferens flattened, free, and relatively straight, arising

Figs **1-4**. *Tanzartemon seddonae* gen. & spec. nov. **1**, holotype (NMW.Z.1996.148.00027); **2**, Paratype 1 (NMW.Z.1996.148.00028); **3**, Paratype 2, juvenile (NMT); **4**, do, apex and sculpture.

rather basally from the prostate, tapering towards the penis and entering the penial sheath subapically. The vas deferens is apparently contiguous with the apical part of penis and not clearly demarcated. The penial retractor is short, attached to the columellar muscle, and the entering penial sheath to attach to an apical bend of the vas deferens. The walls of the penis are thicker than those of the sheath. Interior surface of penis has three distinct types of surface grading into one another as follows. Apical part of penis (or vas deferens): indistinct, reticulate elastic sculpture of incomplete transverse septae and low scattered, scale-like sub-rectangular pads. Middle part of penis: low, indistinct, longitudinal pilasters occasionally anastomosing. Basal part of penis: regular, shallow rhombic depressions, each containing a low central longitudinal pad bearing a single chitinous hook; sculpture becoming less regular and grading into indistinct, irregular pilasters towards atrium. Hooks small (0.04mm long), orange-brown, simple in form, little recurved, with sub-circular bases. Total number of hooks in penis: about 82 (counted). Albumen gland short, wedge-shaped and with a uniform structure of very small, indistinct vesicles or acini. Hermaphrodictic duct diverticulum (talon) enlarged, but compact and convoluted, not hidden within albumen gland. Bursa copulatrix (=gametolytic sac or spermatheca) small, oval, apparently empty, and attending albumen gland. Bursa copulatrix duct very slender apically, but substantially wider basally and exiting vagina only just below the point at which the vas deferens leaves the prostate. Oviductal gland flattened, broad, with acini of oviductal gland perhaps large but almost indiscernible, the surface appearing uniform. No eggs or embryos in oviduct. Vagina broad and muscular, with rather thick walls and with a short rounded pouch basally. Interior surface of vagina consisting of elastic, anastomosing longitudinal pilasters, with a single lobe-like longitudinal pilaster partly occluding lumen near exit of bursa copulatrix duct. Interior surface of basal pouch reticulate, consisting of shallow sub-rhombic depressions.

Salivary gland (Fig. 15). − Single, 5.1 mm long, occupying about half a whorl in length, tapering posteriorly, concave and overlying the oesophagus on the columellar side, the anterior part curved slightly towards the columella. Surface smooth, white, with small indistinct vesicles visible throughout, and with a few scattered thin anchoring muscle strands. Anterior duct exiting gland subapically and bending over anterior part of gland; posterior gland exiting just posterior to midpoint of gland. Both ducts rounded nearest the gland, becoming flattened and stretched nearer the buccal mass, but evenly thick throughout their length.

Radula (Fig. 8). − Buccal mass long (11.0mm), slender (1.25mm). Radula of approximately 65 steeply v-shaped rows (angle up to 45° centrally), with 23-28 teeth in each half-row. No evidence of a central tooth. Lateral teeth slender, aculeate, flattened, decreasing in size gradually laterally without a sharp transition to marginals. Inner laterals with long basal plates, the end of which gives the impression of a slight swelling about two-thirds of the way along the length of the tooth when teeth are displaced or transparent.

Etymology. − the species is named in honour of Dr Mary B. Seddon, in recognition of her contribution to the development of malacological research capacity in Tanzania.

Tanzartemon mkungwensis spec. nov. (Figs 5, 7)

Type material: Holotype (NMW.Z.2003.001.00003) plus two paratypes (NMW.Z. 2003.001.00004; NMT) collected by B. Rowson and C. Ngereza by direct searching (Table 2). All material was collected as dead shells.

Type locality: Mkungwe Catchment Forest Reserve, Morogoro District, Tanzania. Mkungwe is an isolated outlier of the Uluguru Mountains, which lies about 20km to the east of the main Uluguru massif. Location: 6.90°E 37.91°S. All specimens were collected from sub-montane forest at an altitude of about 900m above sea level. Lovett & Pócs (1993) provide further details about the forest habitat in Mkungwe Catchment Forest and estimate rainfall on the wetter eastern and upper slopes of the Reserve as 1700-2900 mm/year with mist effect on the summit and without a marked dry season.

Shell. − Shell globose and symmetrical with whorls expanding uniformly without axial distortion; whorls 7 (holotype). All specimens are worn and retain little periostracum but the small fragments that remain are glossy and retain evidence of fine spiral microsculture on the base of the shell; a coarser, radial, ribbed sculpture is present on the upper surface.

Fig. **5**. *Tanzartemon mkungwensis* gen. & spec. nov., holotype (NMW.Z.2003.001.00003).

Aperture crescent shaped with sub-equal columellar, basal and palatal sections that are rather poorly defined because of the curvature of the peristome. The shells are calcified and the peristome appears to be continuous across the parietal zone, which is thickened and ridged. The peristome is strongly reflected to form a lip that extends around all sections of the aperture apart from across the parietal zone and around the junction of the parietal and palatal areas where it is sharp and not reflected. The umbilicus is sealed, remaining only as a shallow depression.

The six-fold apertural dentition consists of four denticles that sit immediately inside the peristome along the basal and columellar margins, and two elongated parietal lamellae. The four basal/columellar processes comprise three strong (c. 0.4-0.5mm long) denticles – one each at the palatal/basal and columellar/basal junctions, and the third in the centre of the basal zone. The fourth denticle is located on the columella and is much weaker. The outermost parietal lamella extends beyond the plane of the peristome and it sits opposite the denticle at the basal/palatal junction; it is about 2.8mm in length and extends around the spiral into the aperture. The deeper parietal lamella is shorter (about 0.8mm long) and peg shaped, and it sits at right angles to the longer lamella.

Shell measurements: See Table 2.

Differentiation. − The strong apertural dentition and generally globose shell shape indicate a strong affinity with *T. seddonae*. However, *T. mkungwensis* may be distinguished by its symmetrical, uniformly expanding spire and absence of significant axial distortion, the presence of a second more deeply set parietal denticle and the occurrence of a third, weak denticle on the columellar margin of the peristome.

Anatomy. − Not known.

Etymology. − from the type locality, Mount Mkungwe.

COMPARISONS

Shell morphology. − Neither species of *Tanzartemon* is identical with any Asian or South American species or genus known to us, so we restrict our shell comparisons to African taxa. Anatomical information on Streptaxidae is more fragmentary and homoplasy in shell shape common, so we make anatomical comparisons with both African and non-African taxa.

The distorted shell of *T. seddonae* suggests an affinity with the streptaxid genus *Gonaxis* Taylor, 1877, which is widespread in the East African fauna. However, all the species attributed by Verdcourt (2006) to *Gonaxis* and its subgenera in the East African fauna are edentate or have at most a single weak parietal tooth, so the presence of the strong apertural dentition in *Tanzartemon* serves to differentiate it from *Gonaxis.* Likewise, none of the other species currently assigned to *Gonaxis* from elsewhere in Africa (e.g. by Bequaert & Clench, 1936; Adam, 1962a, b) have dentition beyond a single parietal tooth. All African streptaxids with undistorted, globose or depressed globose shells (e.g. *Tayloria* Bourguignat, 1889) are edentate, with the exception of the East African *Juventigulella* Tattersfield, 1998. However, shells of *Juventigulella* are otherwise quite unlike that of *Tanzartemon*, being minute, strongly sculptured and with different dentition (Tattersfield, 1998).

In being both strongly dentate and distorted, *Tanzartemon* bears a resemblance only to the West African *Lamelliger* (including *L. distorta* and *Odontartemon* "sp. B" of Schileyko; see Introduction). *Lamelliger* is characterised by a strong continuous parietal lamella, which runs to varying degrees on the parietal surface into the shell. In *L. maassi* (paratype in MRAC 97344-97346, from Tammasadou, Guinee Francaise) the lamella extends for about one quarter of a whorl from the aperture. This continuous parietal lamella may be homologous with the short lamella and slight area of deeper thickening present in *T. seddonae*, and the double parietal dentition in *T. mkungwensis*. However, in contrast to *T. seddonae*, the apertures of juvenile *L. maassi* (MRAC) are furnished with a parietal lamella.

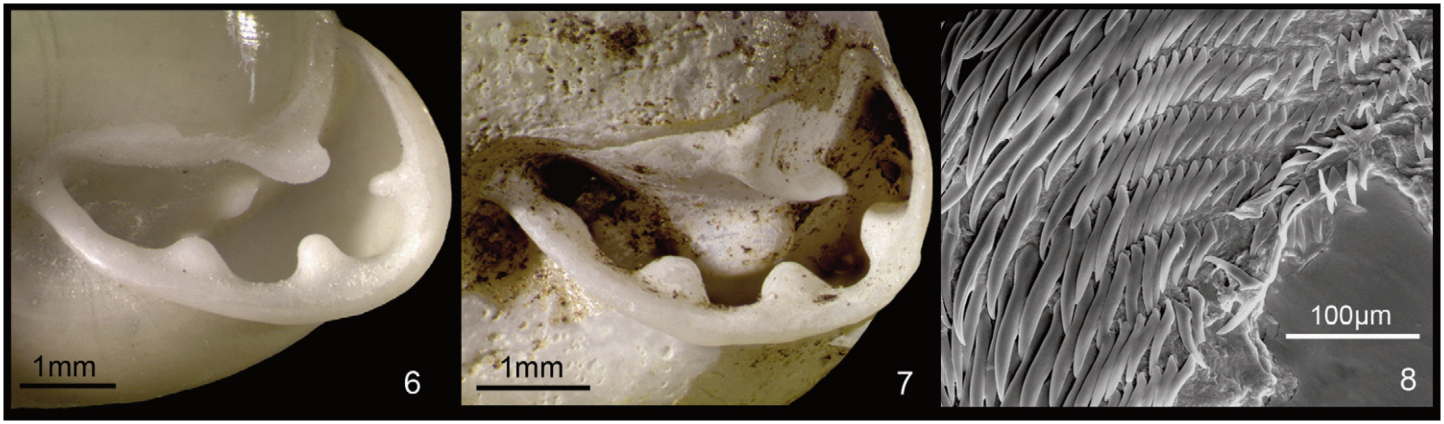
Specimen	Accession No.	H	Dmax	Dmin	h	d	Whorls
Holotype	NMW.Z.2003.001.00003	6.0	7.8	7.1	2.4	4.0	7
Paratype 1	NMW.Z.2003.001.00004	6.1	8.4	7.5	2.3	4.1	7
Paratype 2	NMT	6.0	8.3	7.3	2.3	4.3	7

Table **2**. Accession numbers, shell dimensions and number of whorls of *Tanzartemon mkungwensis* gen. & spec. nov.

There are also similarities with *Lamelliger* in respect of the basal and palatal denticles. *Lamelliger troberti* (MRAC 97349-97350 det. Degner from Bolahun, Liberia) has two denticles, which are almost fused in some specimens, at the base of the apertural lip on the columella or on the basal section of the aperture (the aperture is rounded so these sections are not well differentiated). In *L. maassi* (specimens as above) there are two similar denticles which lie on the columellar section, and there is also a further (sometimes elongated) denticle lying deeper within the aperture on the palatal surface; this denticle is associated with a depression at the same position on the outside of the shell. Sometimes there is a further small denticle at the same position, slightly closer to the aperture. The umbilicus of *L. maassi* is closed, but it is a chink in *L. troberti* and open in the third species *L. distortus* (material in BMNH). From the figures and description given by Schileyko (2000), *Odontartemon* "sp. B" closely resembles *L. maassi*.

The shells of all the above species are more distorted along the columellar axis than *Tanzartemon*, to the extent that the preceding whorl projects beyond the body whorl when viewed from below. In *Tanzartemon*, the preceding whorl is entirely obscured by the body whorl. In terms of shell surface sculpture, the shell base and apical whorls of both *maassi* and *troberti* are smooth but the other whorls are ribbed (weakly in *troberti*).

Genital anatomy**.** − Data on genital anatomy were consulted for the following species and sources (genera follow Richardson, 1988, except where noted): *Discartemon stenostomus* van Benthem Jutting, 1954 (Malaysia; Berry, 1965); *Haploptychius sinensis* (Gould, 1856) (Vietnam; Schileyko, 2000);

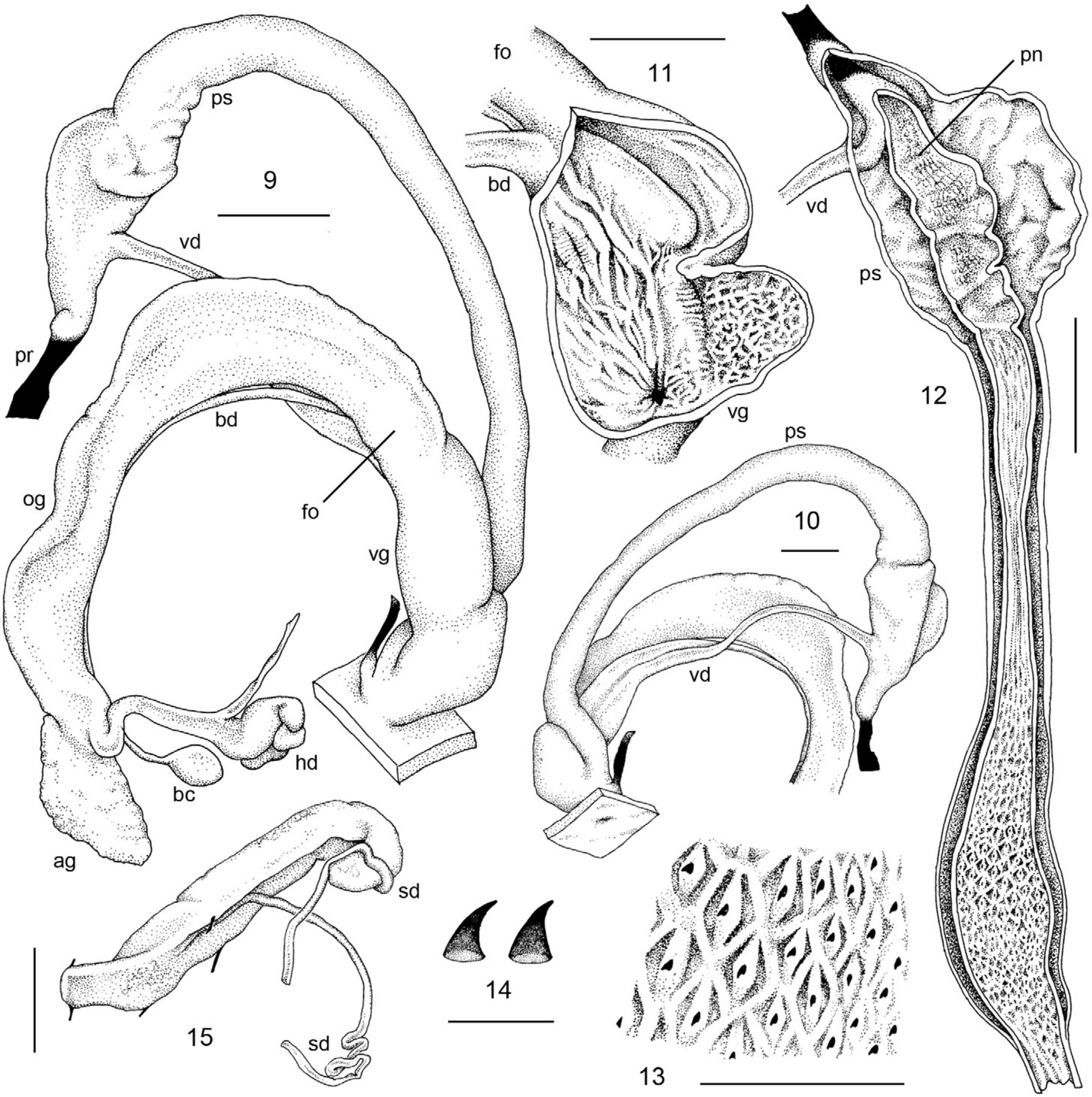


Figs **6-8**. *Tanzartemon* gen. nov. **6**, *T. seddonae* spec. nov., paratype 1 (NMW.Z.1996.148.00028), aperture; **7**, *T. mkungwensis* spec. nov., holotype (NMW.Z. 2003.001.00003), aperture; **8**, *T. seddonae* spec. nov., paratype 1 (NMW.Z.1996.148.00028), half-rows from median part of radula.

Hypselartemon contusulus (Férussac, 1827) (Brazil; Barbosa et al., 2002); *Lamelliger maassi* (Degner, 1934) (Guinea; Degner, 1934); *Lamelliger troberti* (Petit, 1841) (Guinea/Liberia; Degner, 1934); *Odontartemon* (i.e., *Lamelliger*) "sp. B" (Sierra Leone; Schileyko, 2000); *Oophana diaphanopeplea* Van Benthem Jutting, 1954 (Malaysia; Berry, 1963); *Oophana obtusa* (Stoliczka, 1871) (Burma/Myanmar; Blanford & Godwin-Austen, 1908); *Perrottetia gudei* (Fulton, 1915) (Vietnam; Schileyko, 2000 [treated in *Streptaxis* by Richardson, 1988]); *Streptartemon glaber* (Pfeiffer, 1849) (Guyana; Schileyko, 2000); and *Streptartemon glaber normalis* (Jousseaume, 1889) (Venezuela; Baker, 1925; 1926). Data on other, more dissimilar, streptaxid genera are also given by Degner, 1934 and Schileyko, 2000 in particular. In addition, one of us (BR) has dissected many additional Streptaxidae from Africa, Asia, South America and the Indian Ocean (Rowson, 2010).

There are three main differences between the genitalia of *Tanzartemon* and the three anatomically known species of *Lamelliger*. Firstly, *T. seddonae* has a long penial sheath, unlike the three anatomically known species of *Lamelliger*, in which a sheath is absent (Degner, 1934; Schileyko, 2000). A variously-developed penial sheath occurs in all the other streptaxids cited above, as well as many others, the sheath having been used as a character in defining subfamilies and recommending the splitting of genera (Schileyko, 2000; Rowson, 2010); this is evidently an important difference. In a large number of African and other genera, the penial sheath encloses a loop of the vas deferens (see Schileyko, 2000) but this is not the case in *T. seddonae*. Secondly, penial hooks in *T. seddonae* occur strictly in the basal part of the penis, unlike the three *Lamelliger* species where hooks are scattered throughout. Thirdly, the penial retractor joins the columellar muscle in *T. seddonae*, as it does in the majority of streptaxids. In this it recalls *L. troberti* and *L. maassi*, but not *L.* sp. B., where it is said to join the body wall (Schileyko, 2000). The remaining anatomically known taxa cited above have a penial sheath covering some or all of the penis (the excep-

Figs **9-15**. *Tanzartemon seddonae* gen. & spec. nov., paratype 1 (NMW.Z.1996.148.00028). **9**, genitalia, dorsal view; **10**, penis and vagina, ventral view; **11**, inside of vagina; **12**, inside of penis and sheath; **13**, hooks and rhombic pads from atrial part of penis; **14**, hooks from atrial part of penis; **15**, salivary gland. Scale bars 1mm (9-13, 15); 0.1mm (14). Abbreviations: ag, albumen gland; bc, bursa copulatrix; bd, bursa duct; fo, free oviduct; hd, hermaphroditic gland diverticulum; og, oviductal gland; pn, penis; pr, penial retractor; ps, penial sheath; sd, salivary gland duct; vd, vas deferens; vg, vagina.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tion being *Oo. obtusa*, whose description in Blanford & Godwin-Austen (1908) is not detailed enough to be sure). Except in *S. glaber normalis*, the penial retractor joins the columellar muscle. All have penial hooks throughout the interior, except for *Oo. obtusa* (again no data) and for *D. stenostomus*, which lacks hooks and has "cornified ridges" and a single "stylet" apically (Berry, 1965). Although there are shell similarities between this species and *T. seddonae*, the penis of *D. stenostomus* is quite different. Each of the remaining species has other apparently more minor unique features (see Schileyko, 2000), as does *T. seddonae*, but Asian, South American and African species all share the same plan. In summary, anatomical features do little to suggest an especially close relationship between *T. seddonae* and any one genus, while a close relationship with the African *Lamelliger* appears particularly unlikely.

The same pattern is suggested by radular characters. Radular data are available from *H. contusulus*, *L. maassi*, *L. troberti*, *Oo. obtusa*, and *S. glaber normalis*, plus other streptaxids in the literature and recently examined by BR. The two *Lamelliger* species have an unusual radula with a central tooth and relatively few enlarged inner laterals that rapidly change in size towards the marginal teeth. A similar pattern is shown by the South American *S. glaber normalis*. In contrast, the shape, number, gradual change in size, and apparent absence of a central tooth in *T. seddonae* is closer to the other axially deviated taxa studied by Thiele (1933) and Degner (1934) than to either of the *Lamelliger* species. As with genital anatomy, the type of radula seen in *T. seddonae* appears to be a rather general one, occurring in the Burmese *Oo. obtusa* and the South American *H. contusulus*, as well as many African species of *Gonaxis* (*s.s.* and *s.l.*). Again, a close relationship with *Lamelliger* is not supported.

Nothing closely resembling *Lamelliger*, or any of the other genera listed above, has previously been recorded from central, East or southern Africa, Madagascar or the Indian Ocean islands (two records for "Rodriguez" based on the Cuming collection having been dismissed as erroneous [Germain, 1921; Griffiths & Florens, 2006]). Here we propose that shell and anatomical features suggest *Tanzartemon* is an East African endemic genus not closely related to *Lamelliger*. As such it is of some biogeographical interest, having either evolved *in situ* from another morphologically dissimilar African lineage or from lineages found otherwise only in Asia or South America. The Eastern Arc Mountain forests, of which the type localities of both *Tanzartemon* species form a part, are now famous for their high levels of endemism, including both recent, speciose radiations and ancient relicts with distant affinities (Burgess et al., 2007). In the absence of genetic data, the morphological distinctness that leads us to propose a new genus suggests *Tanzartemon* is an example of the latter.

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