

***Rhododrilus* Beddard, 1889**

Rhododrilus Beddard, 1889: 380.

Type-species: *Rhododrilus minutus* Beddard, 1889.

Microscolex (part.); Beddard 1895b: 459.

Rhododrilus + *Microscolex* (part.); Michaelsen 1900b: 143.

Rhododrilus + *Leptodrilus*: Pickford 1937: 89.

Rhododrilus; Lee 1959: 130; Jamieson 1971b: 103–105.

Diagnosis

Setae 8 per segment. A pair of prostatic pores on XVII, combined with or separate from the male pores. Prostates tubular. Gizzard usually strongly developed. Holonephric, with or without bladders. Genital setae absent.

Description (after Beddard 1889; Jamieson 1971b)

Small earthworms with less than 200 segments. Prostomium pro-epilobous to epilobous. Setae 8 per segment, closely paired. Clitellum occasionally not distinguishable; when present developed over 3 to 7 segments between XII and XVIII. Nephropores in a single series on each side of the body, from shortly below c to d. Prostatic pores 1 pair, on XVII (in one species on XVI) usually on papillae; male pores, if not combined with prostatic pores, 1 pair, usually on XVII close to prostatic pores, sometimes on anterior portion of XVIII, occasionally associated with posterior end of seminal grooves. Female pores 1 pair, on XIV, ventrolateral. Genital setae absent. Spermathecal pores 1–5 pairs, the last pair anterior to 9/10, ventrolateral.

Gizzard single, extending through 1 or 2 segments in the region of V–VIII, usually strongly developed, occasionally small. Calciferous glands present or absent. Dorsal blood vessel usually unpaired, occasionally paired for all or most of its length; 3 or 4 pairs of hearts, the last in XII or XIII. Holandric; testis-sacs absent. Penial setae usually present. Spermathecae usually each with 1 diverticulum, occasionally more than 1, diverticula sometimes projecting through the anterior septum into the next segment. Holonephric or

exceptionally (*R. disparatus*) with anterior meronephridia. Nephridial vesicles usually present, of various forms, sometimes absent.

Distribution

New Zealand, Three-King Islands, Kermadec Is., Campbell Is., Auckland Is., Snares Is.; Tasmania.

Australian species (Peregrine)

Rhododrilus kermadecensis Benham, 1905 (Tasmania and Kermadec Island).

Remarks

Delineation of *Rhododrilus* from some other acanthodrilid genera is unsatisfactory and it is clearly a congeries. Of the 31 species, 29 are described by Lee (1959) from which source the generic definition, above, is largely derived. Lee (1962) validated *R. monticola* (Beddard) which in the earlier work he had considered *incertae sedis*. Lee has included in the genus *Leptodrilus* Benham, 1909, with male and prostatic pores in XVI. *Rhododrilus* is distinguished from the closely similar *Microscolex* principally in having a better-developed gizzard and in the closely paired setae, with no contraction of *ab* in the male genital region. It shows a wider variation of morphological characters than is common in other earthworm genera. The dendrogram of phenetic affinities of New Zealand genera given by Lee (1970) suggests that *Rhododrilus* is polyphyletic, the bulk of the species clustering with the type-species of *Microscolex*. Jamieson (1971b) found that attempted subdivision of *Rhododrilus* on the basis of discreteness of the male pores or their union with the prostatic pores, or on the numbers of pairs of spermathecae, bore little relationship to the geographical distribution of species.

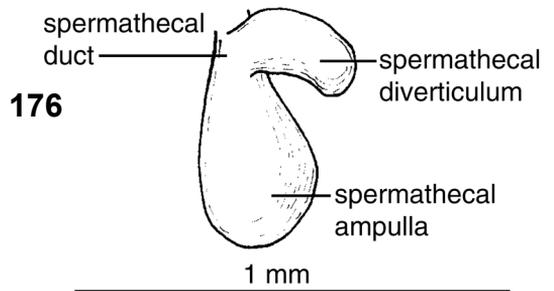
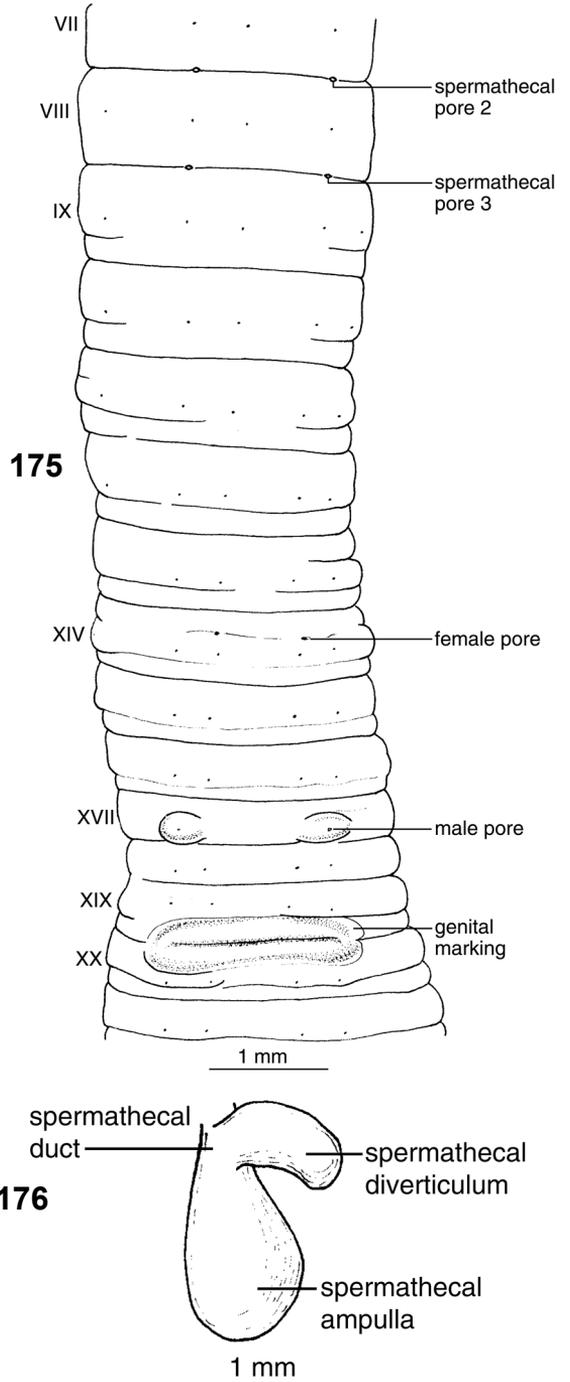
Dyne (1980) described a further species, *R. sexpapillatus*, from New Zealand. *R. queenslandicus* Michaelsen, 1916, was assigned to *Kayarmacia* by Jamieson (1997) and two additional species, *K. bursatus* and *K. cochlearis* are here transferred to *Kayarmacia*. Their anatomical affinities with the New Zealand *Rhododrilus* are minimal and it is here considered they represent an independent local derivation.

***Rhododrilus kermadecensis* Benham, 1905**

(Figs 175, 176)

Rhododrilus kermadecensis Benham, 1905: 299–300.*Rhododrilus kermadecensis*; Michaelsen 1907:142; Pickford 1937: 89; Lee 1952: 539; 1953: 49; 1959: 161–162, fig. 133–134; Blakemore 2000: 557.*Rhododrilus littoralis* Jamieson, 1974a: 213–216, fig. 4, 26C, 32E; pl. 60, table 1.**TYPE LOCALITY:** Kermadec Islands.**HOLOTYPE** of *R. kermadecensis*: Lost.**TYPE LOCALITY** of *R. littoralis*: Tas, ca 43°01'23"S 147 55'E Eagle Hawk Neck.**PARATYPE LOCALITIES** of *R. littoralis*: (1) As above. (2) Tas, Hobart and 'Straham' [possibly Strahan, west coast of Tasmania?], 42°50'S 147°20'E.**HOLOTYPE** of *R. littoralis*: (1) TM K396.**PARATYPES** of *R. littoralis*: (1) BMNH 1973.2.53–54. TM K397–400. (2) AM W5339–5343; QM G213966.**Description (after Benham 1905; Jamieson 1974)**

Length 65–74 mm. Width 1.75–2.0 mm. Segments 103–108. Pinkish with transparent body wall. Prostomium epilobous, 1/2–2/3 peristomium, open, margins posteriorly convergent. Dorsal pores weakly developed behind the clitellum, possibly present as rudiments in the immediate preclitellar segments. Setal annuli strongly protuberant, excepting the anterior preclitellar and extreme caudal regions. Setae 8 per segment, commencing on II, in regular longitudinal rows throughout; setae a and b absent (replaced by penial setae) in XVII; in XII aa: ab: bc: cd: dd = 10.6: 6.2: 13.2: 12.2: 26.7; dd = 0.27 u (mean of two). Clitellum XIII, $\frac{1}{3}$ XIII– $\frac{1}{2}$ XVIII, XVIII, saddle-shaped. Nephropores in c lines. A pair of rounded papillae on XVII, bears a pair of combined male and prostatic pores in b (Lee 1959, states that there are in posteriad order, the male pores, the prostatic pores and the pores of the penial setae, slightly median of setal lines b). Genital marking: a transverse pad in 19/20, extending laterally shortly beyond b lines, and longitudinally abutting on these setal annuli of XIX and XX; strongly tumid and may be transversely bisected by a furrow corresponding with but not peripherally continuous with furrow 19/20. Female pores on XIV, anteromedian of setae b or slightly lateral of a lines. Spermathecal pores minute, and may be visible with difficulty, 3 pairs, in 6/7, 7/8 and 8/9, in b or ab.



Figs 175, 176. *Rhododrilus kermadecensis* Benham, 1905 (Holotype of junior synonym, *R. littoralis* Jamieson, 1974, Dyne, 1984, unpublished). **175**, genital field; **176**, right spermatheca of IX. [After Jamieson 1974a]

Dorsal vessel single. Last hearts in XIII; those in X-XIII latero-oesophageal. Supra-oesophageal vessel in VIII?-XIV. Gizzard in V, small and easily compressible though muscular, or rudimentary. Oesophagus lacking calciferous glands but especially vascularised and with low internal rugae in VIII-XVI; and may be dilated in XIII and XIV. Intestine commencing in XVIII (Benham), dilating in XIX but possibly intestinal in XVII or XVIII? (Jamieson). Testes and funnels free in X and XI. Seminal vesicles in IX, XI and XII, racemose, increasing in size posteriad. Ovaries, with many egg-strings, in XIII. Ovisacs in XIV. Prostates one pair, in XVII-XXII, XXIII, long, very slenderly tubular, almost straight. Penisetal follicles very conspicuous, almost as wide as the prostates, and almost as extensive, extending through XVII-XXI, XXII; penial setae long, delicate, sinuous, curved distally, with shallowly spoon-shaped tip which may be recurved; length 2.8=3.7 mm, general width of shaft 11 μ m. Spermathecae 3 pairs, in VII, VIII and IX; ampulla ovoid with short, muscular duct about half the width of the ampulla; long, cylindrical diverticulum curved in S-shape, dilated near its junction with the duct or (Jamieson 1974a) or diverticulum (when uninseminated, at least) digitiform, and the spermatheca almost sessile on the body wall .

Remarks

As proposed by Dyne (1984, unpublished) and confirmed by Blakemore (2000), *Rhododrilus littoralis* Jamieson, 1974, appears to be a junior synonym of *R. kermadecensis* Benham, 1905, previously known from a single specimen collected in the Kermadec Is. The type of *kermadecensis* is apparently lost, but Benham's original description and illustrations are adequate for reasonably confident identification; the broad genital pad in 19/20 is diagnostic. *R. littoralis* is in many respects close to *R. cockaynei* Benham, 1905, a species which is very widespread in the subantarctic islands, where it is often encountered in the intertidal zone. Its euryhaline propensities make it an excellent candidate for trans-oceanic dispersal. *R. littoralis* Jamieson, 1974b, differs from *R. cockaynei* in having the last hearts in XIII, and in lacking 'oesophageal glands' in XIII, thus conforming in this and many details to the description of *R. kermadecensis*. Although *R. kermadecensis* is found in Tasmania, it is doubtfully to be considered an Australian native. The above account is taken from the summary of Lee (1959) and that of the junior synonym, *R. littoralis*, by Jamieson (1974a).