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Brucerolis gen. n., and *Acutiserolis* Brandt, 1988, deep-water southern genera of isopods (Crustacea, Isopoda, Serolidae)

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Abstract

Acutiserolis Brandt is rediagnosed (coxal dorsal plates 2–5 slot into each other with no aperture between; coxal plate 6 has a blunt process on its anterior margin slotting into a groove on coxa 5 and isolating an oval aperture; with prominent middorsal pereonal and pleonal spines; pleotelson with a sharp middorsal keel, upturned posteriorly; and sharply defined longitudinal sublateral keels ending acutely) and confined to the type species, *Serolis spinosa* Kussakin, 1967, and two species of *Cuspidoserolis* Brandt, 1988 **syn. n.** *Brucerolis* **gen. n.**, (type species *Brucerolis nowra* **sp. n.**) is erected for species previously assigned to *Acutiserolis* but from which it differs in having the coxal dorsal plates 2–6 interacting only by means of key-like lobes, coxal plate 6 exceeding the pleotelson by at least the pleotelson length, middorsal spines being absent or obscure, and the pleotelson lacking ridges and keels. Four other species are included: *Brucerolis bromleyana* (Willemöes-Suhm, 1876); *B. cidaris* (Poore & Brandt, 1997); *B. macdonnellae* (Menzies, 1962); and possibly *B. maryannae* (Menzies, 1962).

Keywords

Crustacea, Isopoda, Serolidae, *Acutiserolis*, *Brucerolis*, *Cuspidoserolis*, new genus, new species, synonymy, Southern Ocean, Australia

Introduction

Brandt (1988) described the new genus *Acutiserolis* Brandt, 1988 and nominated *Serolis spinosa* Kussakin, 1967 as type species. She included *Serolis bromleyana* Willemöes-Suhm, 1876, *S. macdonnellae* Menzies, 1962, *S. maryannae* Menzies, 1962, and *S. neaera* Beddard, 1884a as other members.

During preparation of descriptions of numerous new species of "*Acutiserolis*" with extremely long, attenuating, posteriorly directed coxae and epimera, Niel Bruce suggested to us that substantial differences existed between these and the type species of *Acutiserolis*, *S. spinosa*. Brandt (1988) did not examine the type material of *S. spinosa* during her revision, nor did others who have adopted her revision (e.g., Wägele 1994; Poore and Brandt 1997; Held 2000). Topotypical specimens of *Acutiserolis spinosa* have been recently collected by New Zealand's National Institute of Water and Atmosphere (NIWA) in the Ross Sea, Antarctica. These were made available to us by Niel Bruce and the differences between this and the other species are clearly apparent.

In this contribution, *Acutiserolis* and a new genus and species, *Brucerolis nowra*, are diagnosed. A supplementary description and illustrations of *A. spinosa* are presented. The diagnosis is modelled on the characters used for example by Wägele (1994) and Poore and Brandt (1997). In a subsequent paper we describe five more species of *Brucerolis* (Storey and Poore in press) from southeastern Australia.

The mouthparts, pereopods and pleopods of the two genera are very much alike, differing only slightly in proportions. Salient features that distinguish *Brucerolis* from *Acutiserolis* and from other genera are included in the generic diagnoses. The diagnoses and descriptions were prepared using a DELTA database (Dallwitz et al. 1993). Type material is lodged in Museum Victoria, Melbourne (NMV) and the National Institute of Water and Atmosphere, Wellington, New Zealand (NIWA).

Acutiserolis Brandt, 1988

Acutiserolis Brandt, 1988: 21.– Brandt 1991: 131, 138–139.
Serolis (Acutiserolis).– Wägele 1994: 53, 59.
Not *Acutiserolis*.– Poore and Brandt 1997: 152 (= *Brucerolis* gen. nov.)
Cuspidoserolis Brandt, 1988: 23.– Brandt 1991: 131, 138–139. – Wägele 1994: 52, 59–60 (type species: *Serolis luethjei* Wägele 1986 by original designation). syn. n.

Type species. *Serolis spinosa* Kussakin, 1967 by original designation.

Diagnosis. Body deeply incised between extremely long, attenuating, posteriorly directed coxal and epimeral plates; middorsal line dominated by strong middorsal spine (prominent in lateral view) on posterior margin of head, pereonites 2–4 and pleonites 1–3. Pereonite 6 to pleonite 1 fused middorsally and midventrally. Eyes contiguous with head margin posteriorly, 3 times as long as wide, with concave mesial margin. Coxal dorsal plates 2–4 delimited from tergite by suture; coxal dorsal plates 2–5 with

proximal anterior margins straight, slotting into grooves on preceding coxae, with no aperture between; coxa 6 with blunt process on anterior margin slotting into groove on coxa 5 and isolating an oval aperture. Pleotelson with sharp middorsal keel, upturned posteriorly; dorsal surface with sublateral sharply defined longitudinal keels ending acutely, and obscure irregularities along a submarginal posterolateral ridge. Pereonal sternite 1 with defined blunt medial lobe anteriorly and saddle posteriorly; ventral coxal plates 2–4 meeting in midline, with pair of contiguous teeth on anteromesial corners of sternites 2, smaller pair on sternites 3; pleonal sternites 1–3 with acute posterior ridged margin. Antenna 2 article 5 about 10 times as long as wide. Mandible, incisor smooth, chitinised, hoof-like; left lacinia mobilis expanded, half as wide as mandibular incisor; right lacinia mobilis diverging, with obsolete apical dentition; spine simple; mandibular palp, article 2 with row of setae confined distally along mesial margin. Maxilla 1 inner lobe a simple expanded plate, outer lobe with ~11 robust terminal setae. Maxilla 2 inner lobe broad, distally richly setose, middle and lateral lobes each with 2 apical setae. Maxilliped, endite with 2 strong distal robust setae; maxillipedal palp of 3 articles; palp article 2 distally dilated, distomesially lobed, with shallow indentation on mesial margin separating two clusters of setae; epipod more or less semicircular. Pereopod 1, palm of propodus with alternating flagellate cylindrical setae and flagellate plate-like setae. Pereopod 2 of male subchelate; palm of propodus with robust setae surrounding an oval palm; dactylus with small terminal unguis. Pereopod 7 of male sexually differentiated, propodus broader than in female, with felt of fine scale setae, dactylus simple, curved. Pleopod 4 endopod simply triangular, not bilobed. Uropod biramous, inserting sublaterally at about midpoint of pleotelson. Oostegites of female present on pereopods 1–4.

Included species (all originally described in *Serolis*).

Acutiserolis spinosa (Kussakin 1967) – Ross Sea, Antarctica, 500–900 m

A. gerlachei (Monod, 1925) comb. n. – Bellingshausen Sea, Antarctica, 400 m (Monod 1926).

A. johnsoni (Hale 1952) comb. n. – Eastern Antarctica, 540–2267 m (Kussakin 1967).

A. luethjei (Wägele 1986) new combination – Weddell Sea, 189–481 m.

Remarks. The most significant features of *Acutiserolis* are: coxal dorsal plates 2–5 slot into each other with no aperture between; coxal plate 6 has a blunt process on its anterior margin slotting into a groove on coxa 5 and isolating an oval aperture; prominent middorsal pereonal and pleonal spines; pleotelson with a sharp middorsal keel, upturned posteriorly; and sharply defined longitudinal sublateral pleotelson keels ending acutely.

Brandt (1988) relied on the extreme length of the coxal plates and pleonal epimera to characterise *Acutiserolis* but in our opinion this was unwarranted. Coxal plate 6 of *Acutiserolis spinosa* exceeds the pleotelson by one-third its length whereas in the remaining species included, the overlap of coxa 6 is at least as great as the pleotelson length and usually much greater. *Acutiserolis spinosa* is more similar to species of *Cuspidoserolis* Brandt, 1988 in this and other features than to the other species in-

cluded by Brandt (1988) and Wägele (1994) in *Acutiserolis*. Brandt (1988) agreed that the two genera were similar in having long coxal dorsal plates and pleonal epimera although none overlap the pleotelson in *Cuspidoserolis*. The distinguishing feature of *Cuspidoserolis*, according to Brandt, is the elongate spine on the posterior margin of the head but this is found also in *A. spinosa* (fig. 1). She treated the two genera as sister taxa sharing a middorsal spine on the head in a phylogenetic analysis (Brandt, 1991) but this is not true of the species we remove to *Brucerolis*. The type species of *Cuspidoserolis*, *Serolis luethjei* Wägele, 1986, differs from *A. spinosa* only in having a more rugose surface and more compact coxal plates and epimera. It shares prominent middorsal spines, ridges on pereonite 1, medial and sublateral keels on the pleotelson, and similar male pereopods 2 and 7. Brandt (1988) also included in *Cuspidoserolis*, *Serolis gerlachei* Monod, 1925 (illustrated by Monod 1926) and *S. johnsoni* Hale, 1952. They too have a long middorsal posterior spine on head, coxal plates contiguous proximally, middorsal pleotelson keel and similar sublateral keels on the pleotelson. All three differ from *A. spinosa* only in having coxal plate 6 not reaching beyond the end of the pleotelson. Other authors have remarked on these similarities: Hale (1952) remarked on similarities between his *S. johnsoni* and *S. gerlachei*; Kussakin (1967) likened *S. spinosa* to *S. johnsoni*. Brandt remarked on the extreme length of the pleotelson of *Cuspidoserolis*, being about as long as wide, but this is true too of all species of *Acutiserolis* and *Brucerolis.*

In his phylogenetic analysis of the family, Wägele (1994) placed *Cuspidoserolis* and what he called *Serolis* (*Acutiserolis*) in sister-clades. The clade containing *Cuspidoserolis* was characterised by a sexually dimorphic pereopod 7, the male having broader and finely setose articles than the female. However, this is true too of *Acutiserolis* and *Brucerolis*. The apomorphies of the sister clade (dealing with male pereopod 2, pleopod 4 and coxal plates) are equally unconvincing. Held's molecular analysis placed two species of *Cuspidoserolis* (*C. luethjei* and *C. johnsoni*) close together and close to "*Acutiserolis bromleyana*".

We conclude that *Cuspidoserolis* is a junior synonym of *Acutiserolis* which now includes its type species plus the three species of *Cuspidoserolis*. We assign other species previously included in *Acutiserolis* to *Brucerolis*.

Acutiserolis spinosa (Kussakin, 1967)

Figs 1a-f; 2–4

Serolis spinosa Kussakin 1967(1968): 247–249, figs 15, 16.
Acutiserolis spinosa.– Brandt 1988: 21.
Serolis (Acutiserolis) spinosa.– Wägele 1994: 53.

Material examined. Ross Sea, Antarctica (65.4755°S, 161.0480°E–65.4828°S, 161.0458°E), 760–750 m, 7 Mar 2004, (NIWA stn TAN0402/269), NIWA 23526 (figured male, 34 mm; ovigerous female, 30 mm; 2 juvenile males, 25 and 29 mm;

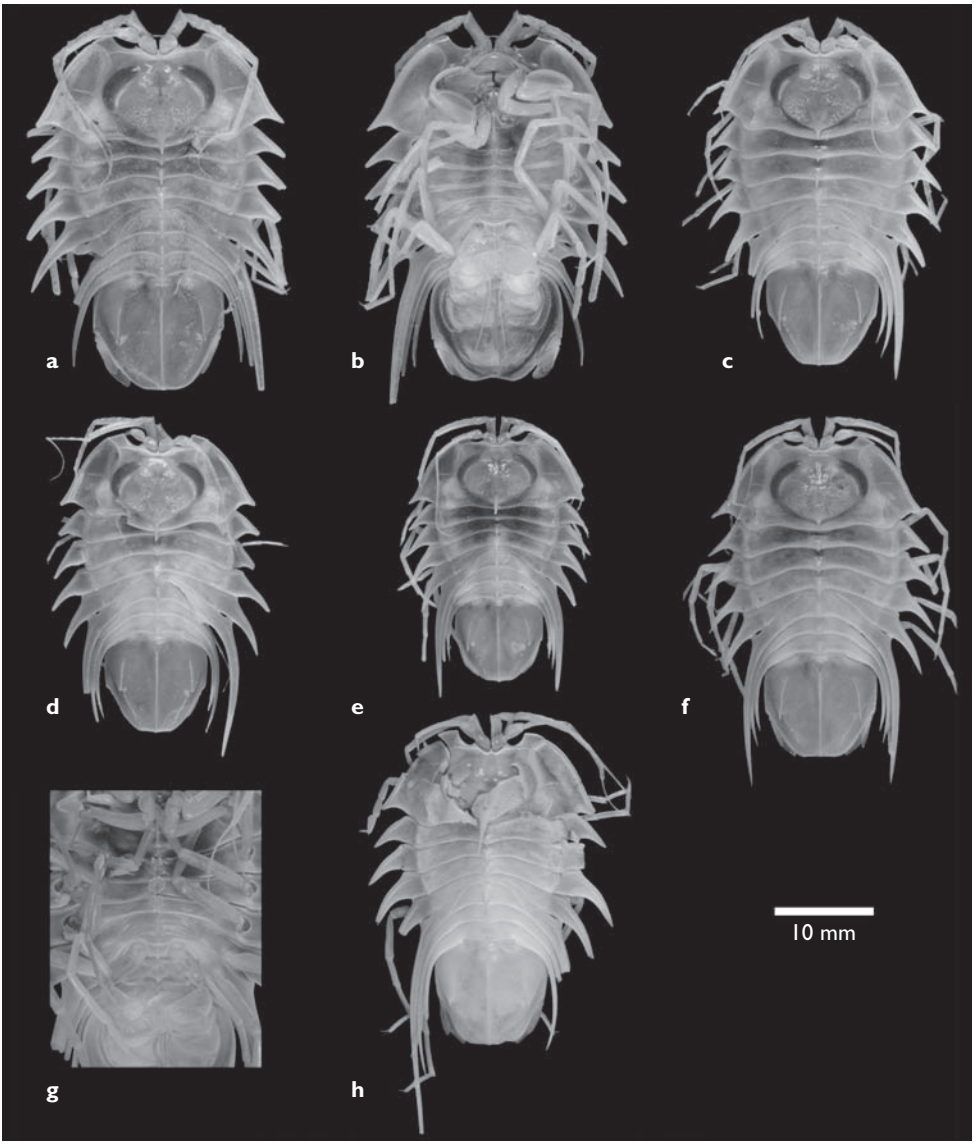

Figure 1. Photographs of preserved material. *Acutiserolis spinosa* (Kussakin, 1967). **a**, **b** figured male (34 mm) **c** ovigerous female (32 mm) **d** ovigerous female (30 mm) **e** juvenile male (29 mm) **f** ovigerous female (31 mm). **a**, **b**, **d**, **e** from NIWA 23526 **c** from NMV J58091 **f** from NIWA 24311. *Acutiserolis* sp. **g**, **h** male (31 mm), NIWA 31205. Scale bar referable to all except **g**.

juvenile female, 28 mm), NIWA 24311 (ovigerous female, 31 mm), NMV J58091 (ovigerous female, 32 mm).

Type material. Region of Scott Island, East Antarctica, 500–900 m (*Ob* stn 377), Zoological Institute, St Petersburg, Russia, 1/46416 (holotype, male, 32 mm), plus 2 female paratypes (none examined).

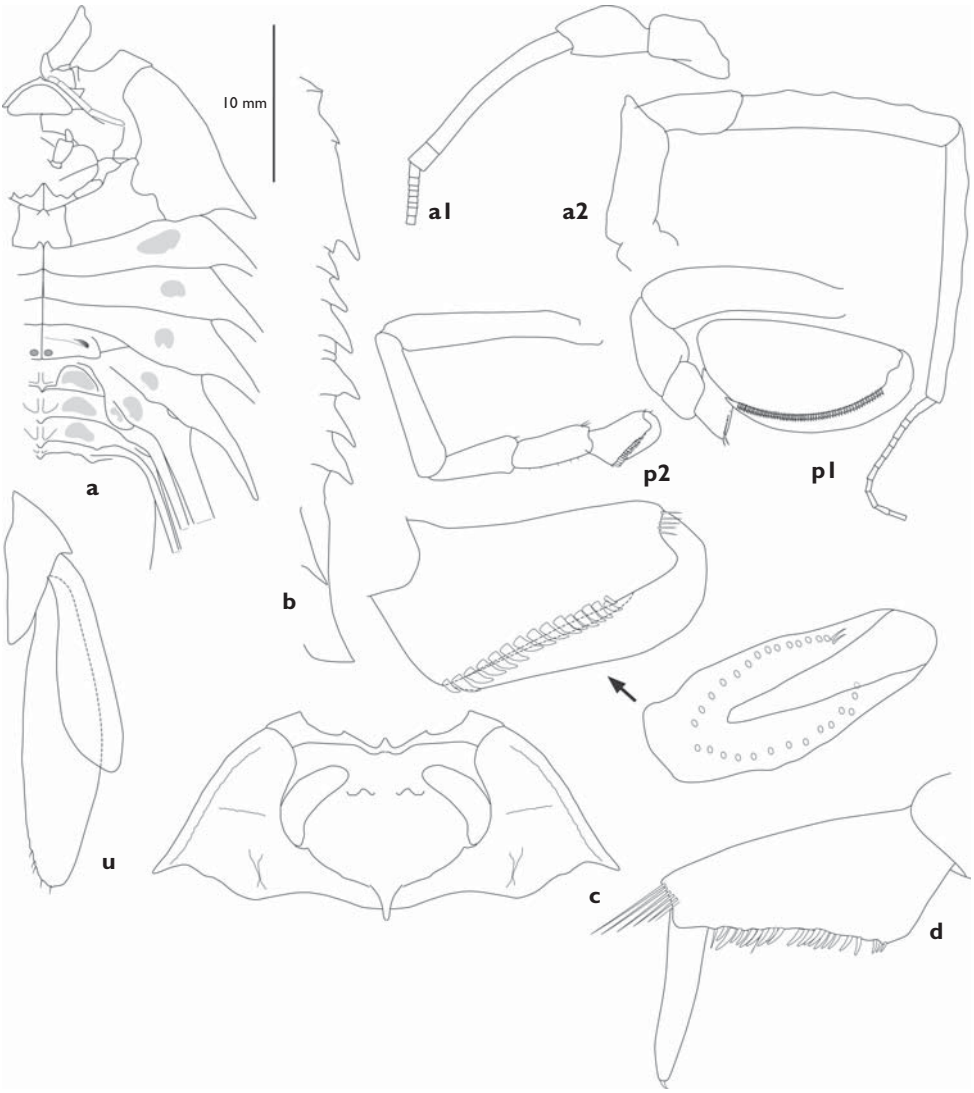

Figure 2. *Acutiserolis spinosa* (Kussakin, 1967), male (34 mm) from NIWA 23526. **a** ventral view **b** lateral profile **c** head **a1, a2** antennae 1, 2 **p1, p2** pereopods 1, 2 with detail of propodus and dactylus in lateral and face views; u, uropod. *Acutiserolis* sp., male (31 mm), NIWA 31205 **d** propodus and dactylus of pereopod 2.

Description. Body length of figured male 34 mm. Body 1.2 times as long as greatest width (at coxae 3). Dorsal surface smooth. Head, anterolateral margins convex and continuous with anterior margin of pereonite 1; maximum width between anterolateral corners 1.1 times as wide as span between lateral margins of eyes; head without paired processes on transverse ridge at bases of antennae 1, with pair of bilobed tubercles between anterior part of eyes, with acute median posterior tubercle extending past pereonite 1, with obscure lobes lateral to median posterior tubercle. Pereonite 1

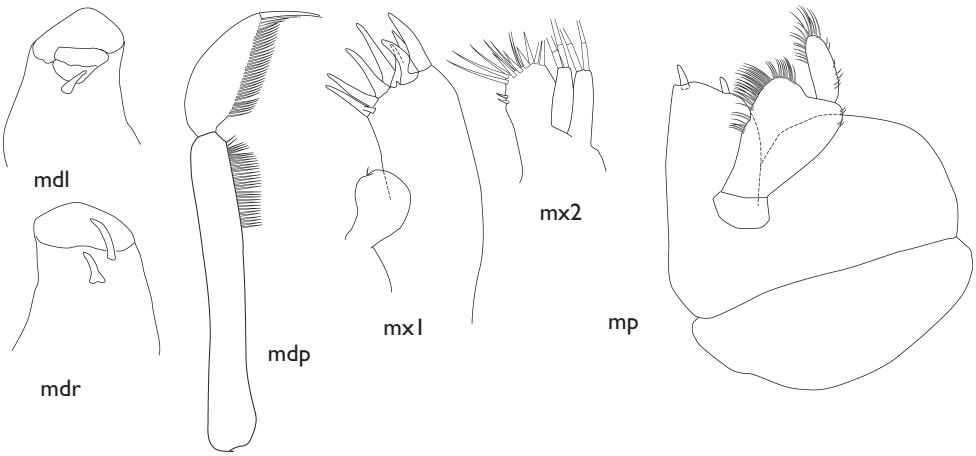

Figure 3. *Acutiserolis spinosa* (Kussakin, 1967), male (34 mm) from NIWA 23526. **mdl, mdr** mandible incisor, lacinia mobilis and spine, left and right **mdp** mandibular palp, distal articles **mx1, mx2** maxillae 1, 2 **mp** maxilliped.

of male, lateral margin gently sinuous, 1, lateral margin upturned over anterior half, with sharply-crested submarginal ridge parallel to margin, dorsal surface with oblique transverse ridge reaching near margin. Coxal dorsal plate 2 of male 0.5 times as long as half pereonal tergite 2 width (following plates increasing in length); plate 4 of male as long as half pereonal tergite 4 width; plate 6 of male extending beyond tip of pleotelson by 0.3 times middorsal length of pleotelson; pleonal epimeron 2 of male 0.9 times length of pleotelson; pleonal epimeron 3 of male 0.8 times length of pleotelson; pleonal epimera 2 and 3 with acute apices.

Antenna 1 peduncle articles 3+4 as long as article 2 (anterior margin); flagellum with about 54 articles, at least 3 times as long as peduncle article 3+4 (in male), reaching anterior margin on pereonite 4. Antenna 2 peduncle article 5 1.25 times as long as article 4; flagellum of 18 articles, at least 1.2 times as long as peduncle article 5.

Pereopod 1 propodus 2.2 times as long as greatest width. Pereopod 2 palm dorsal length 2.2 times greatest width, straight, sharply angled at free proximal margin, with 28 spiniform setae surrounding an oval palm. Pereopod 5 of male basis 5 times as long as greatest width, with a keel on the extensor margin, more prominent proximally; merus without setae; carpus 5.5 times as long as greatest width; propodus 6.5 times as long as greatest width; dactylus curved, 0.3 times as long as propodus. Pereopod 6 of male merus sparsely setose, carpus 7 times as long as greatest width; propodus 10 times as long as greatest width; dactylus curved, 0.25 times as long as propodus. Pereopod 7 of male carpus 4 times as long as greatest width (at distal end); propodus 4.5 times as long as greatest width, propodus tapering from base, lower margin gently convex; dactylus curved, 0.15 times as long as propodus.

Pleopod 2 endopod with evenly tapering distal angle bearing appendix masculina; appendix masculina 3.8 times as long as straight margin of endopod. Uropodal rami with rounded apices; exopod 0.7 length of endopod.

Female. Pereonite 1, lateral margin of female as in male. Coxal dorsal plate 2 of female 0.5 times as long as half pereonal tergite 2 width; plate 4 of female 0.7 times as long as half pereonal tergite 4 width (following plates increasing in length); plate 6 of female extending beyond tip of pleotelson by 0.3 times middorsal length of pleotelson.

Distribution. Ross Sea, Antarctica; 500–900 m.

Remarks. The new material is clearly referable to Kussakin's species but illustrates some variability, mostly attributed to differences between sexes. Males, in different

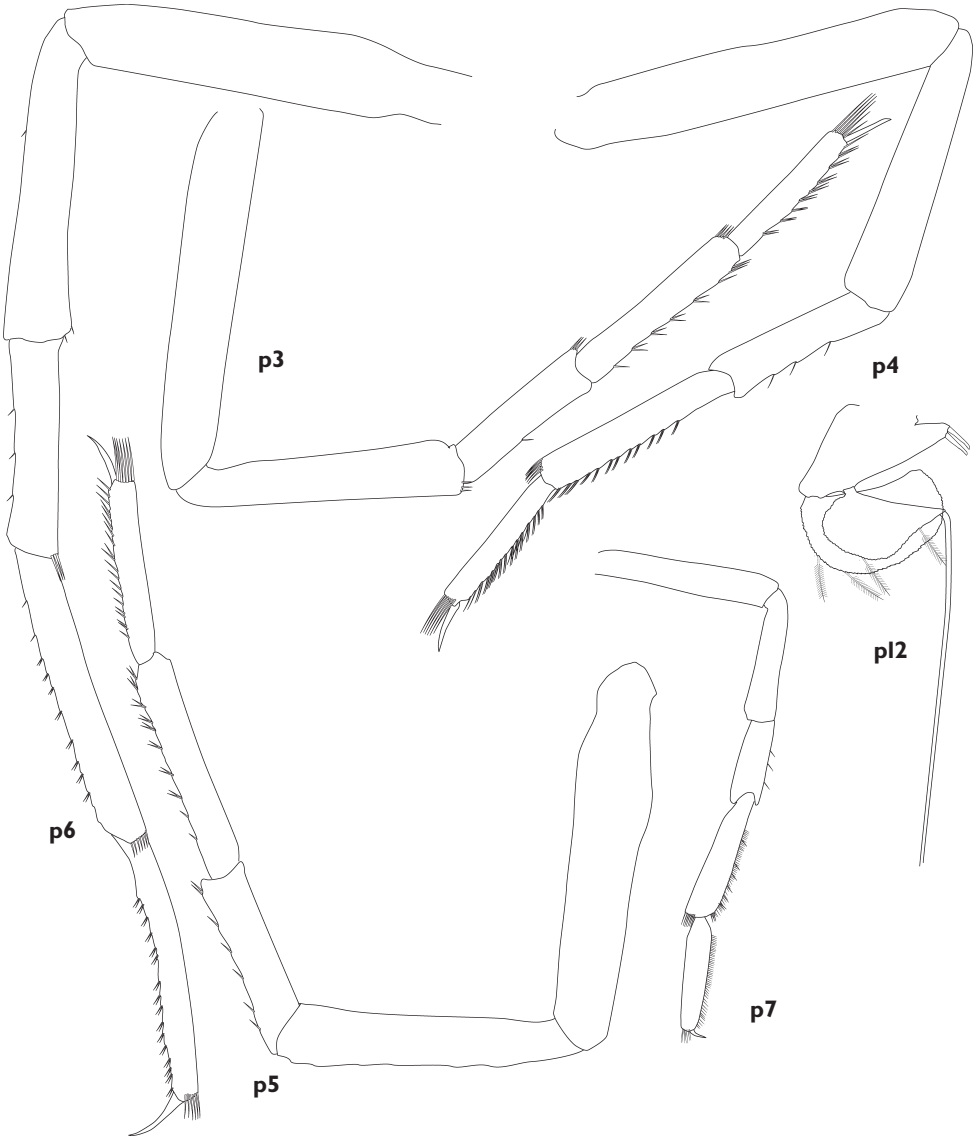

Figure 4. *Acutiserolis spinosa* (Kussakin, 1967), male (34 mm) from NIWA 23526. **p3-p7** pereopods 3–7 **pl2** pleopod 2.

stages of development, range in size from 25 to 34 mm long (figs 1a, b, e). All possess differentiated pereopods 2 and 7 and the smallest lacks an appendix masculina. In the 29-mm specimen, the appendix masculina is only half the length of that in the 34-mm specimen. In all males, the posterolateral oblique rugosity on the pleotelson is poorly developed. The head spine of males reaches about half the length of pereonite 2. The 28-mm female has oostegite buds whereas the others, 30–32 mm, are ovigerous. Dorsal coxal plates are slightly shorter in females. In females, the posterolateral oblique rugosity on the pleotelson is a more well-defined ridge than in the male. In two of the females (figs 1c, d), the posterior spine on the head barely reaches the posterior margin of pereonite 1 whereas in the other (fig. 1d) it reaches the posterior margin of pereonite 2.

Kussakin's illustration (1968: fig. 15) of the male holotype shows a slightly longer coxal plate 6 than in the male figured here.

Acutiserolis sp.

Figs 1g, h; 2d

Material examined. E of South Island, New Zealand (45.0170°S, 177.4617°E to 45.0095°S, 177.4532°E), 2039–1995 m, 6 May 2003 (NIWA stn TAN0307/98), NIWA 31205 (male, 31 mm).

Remarks. A single male collected at a much lower latitude than *A. spinosa* is similar to the Ross Sea specimens. Key features of the coxal plates, middorsal and pleotelson sculpture, and armature of coxal ventral plates 2 and 3 and pleonal sternites are for all practical purposes indistinguishable. However, the spine on the head is considerably longer than in *A. spinosa*, reaching to the posterior margin of pereonite 3. Coxal plate 6 exceeds the pleotelson by slightly more than its length, further than in *A. spinosa*. Pleonal epimera 2 and 3 are similarly longer. While the male pereopod 2 propodus of the two species has similar numbers of robust palmar setae, the propodus of the New Zealand specimen is more elongated than in *A. spinosa* (fig. 2d). In the absence of a larger sample and specimens from intermediate localities we are reluctant to describe this as a new species.

Brucerolis gen. n.

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Type species. *Brucerolis nowra*, sp. n. here designated.

Diagnosis. Body deeply incised between extremely long, attenuating, posteriorly directed coxal and epimeral plates; middorsal line without midposterior processes, not elevated in lateral view, or with short triangular middorsal processes on posterior margin of head, pereonites 2–4 and pleonites 1–3, evident in lateral view. Pereonite 6 to pleonite 1 fused middorsally and midventrally. Eyes contiguous with head margin posteriorly, twice as long as wide, reniform. Coxal dorsal plates 2–4 delimited from tergite

by suture; coxal dorsal plates 2–6 with anterior blunt process slotting into groove on preceding coxae, isolating an oval aperture between coxae; coxal plate 5 with an intermediate anterior process meeting a similar posterior process on coxal plate 4, so subdividing intercoxal aperture. Pleotelson with horizontal obscure middorsal keel; dorsal surface with flattened plate-like ridges laterally, with rounded ends. Pereonal sternite 1 with sharp medial ridge anteriorly and saddle posteriorly; ventral coxal plates 2–4 meeting in midline, without pair of contiguous teeth on anteromesial corners of sternites 2, smaller pair on sternites 3; pleonal sternites 1–3 with acute posterior ridged margin. Antenna 2 article 5 about 10 times as long as wide. Mandible, incisor smooth, chitinised, hoof-like; left lacinia mobilis expanded, half as wide as mandibular incisor; right lacinia mobilis diverging, with obsolete apical dentition; spine simple; mandibular palp, article 2 with row of setae confined distally along mesial margin. Maxilla 1 inner lobe a simple expanded plate, outer lobe with ~11 robust terminal setae. Maxilla 2 inner lobe broad, distally richly setose, middle and lateral lobes each with 2 apical setae. Maxilliped, endite with 2 strong distal robust setae; maxillipedal palp of 3 articles; palp article 2 distally dilated, distomesially lobed, with shallow indentation on mesial margin separating two clusters of setae; epipod more or less semicircular. Pereopod 1, palm of propodus with alternating flagellate cylindrical setae and flagellate plate-like setae. Pereopod 2 of male subchelate; palm of propodus with U-shaped row of robust setae; dactylus with small terminal unguis. Pereopod 7 of male sexually differentiated, propodus broader than in female, with felt of fine scale setae, dactylus simple, curved. Pleopod 4 endopod simply triangular, not bilobed. Uropod biramous, inserting sublaterally at about midpoint of pleotelson. Oostegites of female present on pereopods 1–4.

Included species (see too Remarks below).

Brucerolis bromleyana (Willemöes-Suhm, 1876) (ex. *Serolis*) comb. n. – Southern Ocean (Indian Ocean sector), 3614 m depth.

B. cidaris (Poore & Brandt, 1997) (ex. *Acutiserolis*) comb. n. – Coral Sea, 891–1491 m depth.

B. macdonnellae (Menzies, 1962) (ex. *Serolis* (*Serolis*)) comb. n. – South Atlantic, 2741 m depth.

?*B. maryannae* (Menzies, 1962 (ex. *Serolis* (*Serolis*)) comb. n. – South Atlantic, 3839 m depth.

B. nowra sp. n. – south-eastern Tasman Sea, 450–1750 m depth.

Etymology. Named for Niel Bruce, Museum of Tropical Queensland, Townsville, formerly of National Institute of Water and Atmosphere, Wellington, in recognition of his extensive contribution to isopod taxonomy and his friendship.

Remarks. *Acutiserolis* is diagnosed above and *Cuspidoserolis* is placed in synonymy. *Brucerolis* differs from *Acutiserolis* in having the coxal dorsal plates 2–6 interacting only by means of key-like lobes, coxal plate 6 exceeding the pleotelson by at least the pleotelson length, middorsal spines absent or obscure, and the pleotelson lacking ridges and keels. All are clearly distinctive autapomorphies different from *Acutiserolis* and *Cuspidoserolis.*

Brandt (1988) listed five species and Wägele (1994) seven in *Acutiserolis*; another has been described since (Poore and Brandt 1997). All except the type species

are excluded from *Acutiserolis* above and are candidates for inclusion in the new genus, *Brucerolis*.

Serolis bromleyana Willemöes-Suhm, 1876 and *Acutiserolis cidaris* Poore and Brandt, 1997, both illustrated in detail by Poore and Brandt (1997), conform well to the generic definition of *Brucerolis* and are here transferred to join the type species. The illustrations of *Serolis* (*Serolis*) *macdonnellae* Menzies, 1962 show the coxal keys, pereonite 1 and pleotelson in sufficient detail to be confident that this too belongs to *Brucerolis*. *Serolis* (*Serolis*) *maryannae* Menzies, 1962 has the general habitus, pleotelson sculpture, elongate bifid pleonal epimera, and acute coxal dorsal plates of *Brucerolis* and pereonite 1 like *B. bromleyana*, but coxal keys were not shown in the illustration. If this is an oversight by Menzies or a juvenile feature, the 18.8-mm female would be the smallest individual of the genus known. The species is a possible member of *Brucerolis*. All others listed previously in *Acutiserolis* are not.

Serolis gracilis Beddard, 1884 and *S. neaera* Beddard, 1884 are similar to each other (Beddard, 1884b) and superficially to species of *Brucerolis*, sharing acute tapering coxae, elongate coxa 6, prominent interacting coxal keys and notched article 2 of the maxillipedal palp, but there are several important differences. The anterolateral margin of the head is concave in species of *Brucerolis*, but in *Serolis gracilis* and *S. neaera* the anterior margin of the head is strongly convex and the anterolateral corners of the head extend much further laterally than the eyes. The pleotelson of *S. gracilis* and *S. neaera* are as in *Acanthoserolis* Brandt, 1988 (type species: *Serolis polaris* Richardson, 1911) with a proximal, acute spine middorsally and a median transverse ridge produced into acute spines middorsally and midlaterally, and uropods that insert on the pleotelson terminally and point mesially. We examined *S. schythei* Lütken, 1858 (included in *Acanthoserolis* by Brandt and Wägele and similar to *S. polaris*) from the collections of Museum Victoria. Both species lack elongate coxal plates and share a bilobed endopod on pleopod 4. Beddard's (1884b) descriptions and figures and our own examination of material of *Serolis gracilis* and *S. neaera* demonstrate many differences from *Acutiserolis*, *Brucerolis* and *Acanthoserolis*. *Serolis neaera* and *S. gracilis* have a dense mat of plumose setae on the male pereopod 2 whereas the three genera are scarcely setose. The endopod of pleopod 4 is bilobed in *Serolis paradoxa* Fabricius, 1775, *Acanthoserolis schythei*, *A. polaris*, *Serolis neaera* (Nordenstam, 1933) and *S. gracilis* (Beddard, 1884b), earlier observations confirmed by us. The endopod of pleopod 4 is not bilobed in *Acutiserolis* or *Brucerolis*.

Moreira (1977) discussed the resemblance of his species, *S. insignis*, included in *Acanthoserolis* by Wägele (1994), to *Serolis gracilis*. These two and *S. neaera* are clearly related but their generic placement remains problematic.

Serolis margaretae Menzies, 1962 was included in *Acutiserolis* by Brandt (1991) and Wägele (1994). We agree with Poore and Brandt's (1997) conclusion that the very small (8.4 mm and smaller) type specimens without elongate coxal plates and epimera could not be assigned to *Acutiserolis*. Nor do they conform to *Brucerolis*.

Held's (Held 2000; Held and Wägele 2000; Held 2001) observations on the relationships of *Acutiserolis* derived from molecular analyses (using the species *A. bromleyana*) refer to *Brucerolis*.

***Brucerolis nowra* sp. n.**
urn:lsid:zoobank.org:act:08D13D62-2FEA-4806-91FF-D3E40CB76E11
Figs 5–8

Material examined. Holotype. Australia, NSW, off Nowra (34°58.24′S-34°56.24′S, 151°23.12′E- 151°29.06′E), 1750 m, Museum Victoria party on RV *Franklin*, 16 Jul 1986, epibenthic sled (stn SLOPE 15), NMV J58261 (male, 31 mm).

Paratypes. Type locality, NMV J55674 (male, 26 mm; ovigerous female, 27 mm), NMV J19213 (15 males, 25–29 mm, 11 juveniles, 15–22 mm), NIWA 49331 (2 males, 2 juveniles). Off Nowra (34°57.36′S-34°52.48′ S, 151°16.12′E-51°18.36′E), 1402 m, Museum Victoria party on RV *Franklin*, 16 July 1986, epibenthic sled (stn SLOPE 11), NMV J15723 (male, 27 mm; ovigerous female, 25 mm; juvenile female,

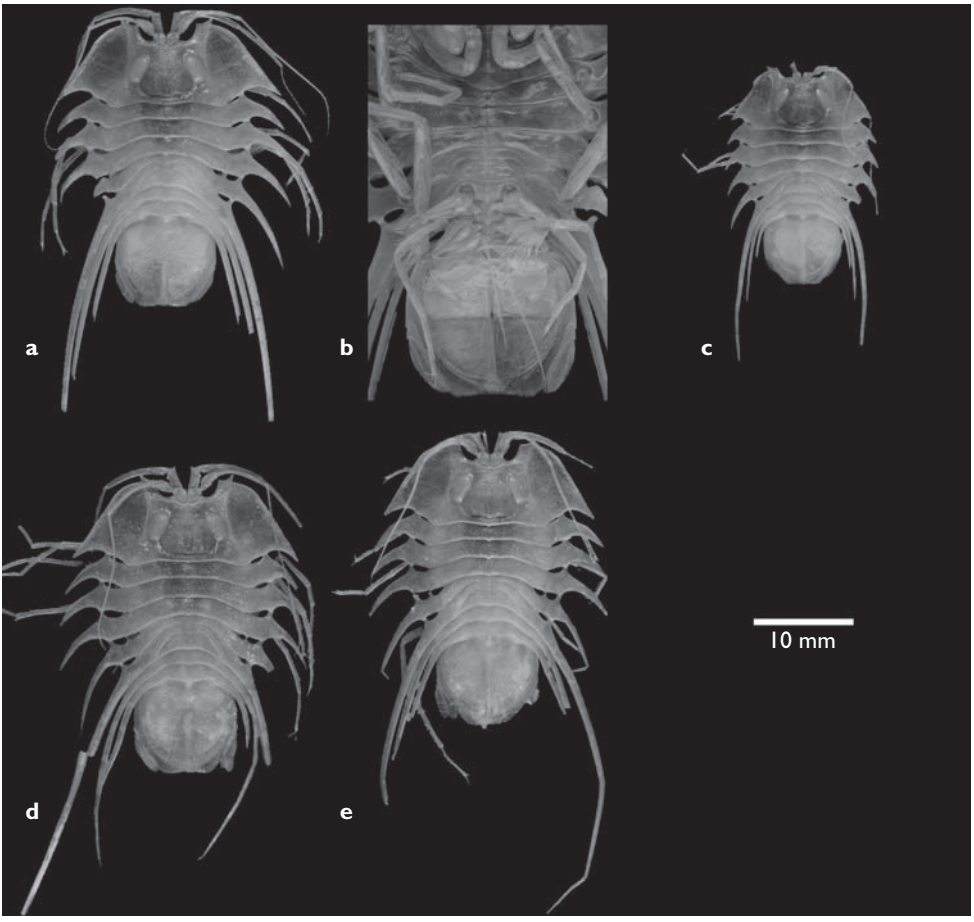

Figure 5. Photographs of preserved material. *Brucerolis nowra*, sp. n. **a, b** male (26 mm) NMV J15723 **c** paratype juvenile female (20 mm) NMV J15723 **d** holotype male (31 mm) NMV J58261 **e** paratype male (26 mm) NMV J55674. Scale bar referable to all except b.

20 mm). 52 km ENE of Nowra (34°43.33′S-34°43.44′S, 151°13.10′E-151°12.13′E), 450 m, Museum Victoria party on RV *Franklin*, 22 Oct 1988, epibenthic sled (stn SLOPE 57), NMV J19210 (damaged ovigerous female, 24 mm).

Description. Body length 31 mm (holotype). Body as long as greatest width (at coxae 3). Middorsal line with short triangular middorsal processes on posterior mar-

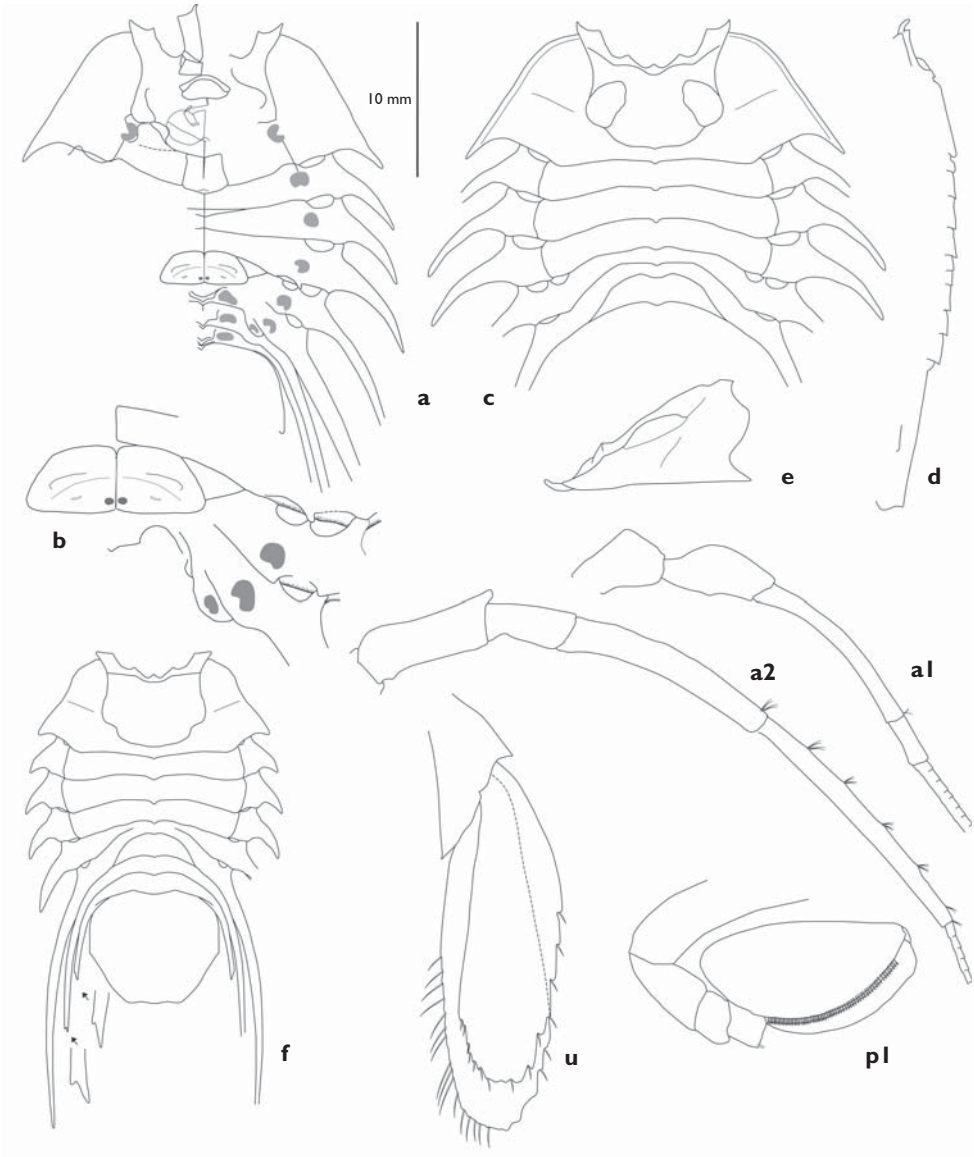

Figure 6. *Brucerolis nowra*, sp. n., holotype male (31 mm) NMV J58261. **a**, **b** ventral views **c** dorsal view **d** lateral profile **e** lateral view of head **a1, a2** antennae 1, 2 **p1** pereopods 1 **u** uropod. Paratype juvenile female (20 mm) NMV J15723. **f**, dorsal view (partial reconstruction from two sides).

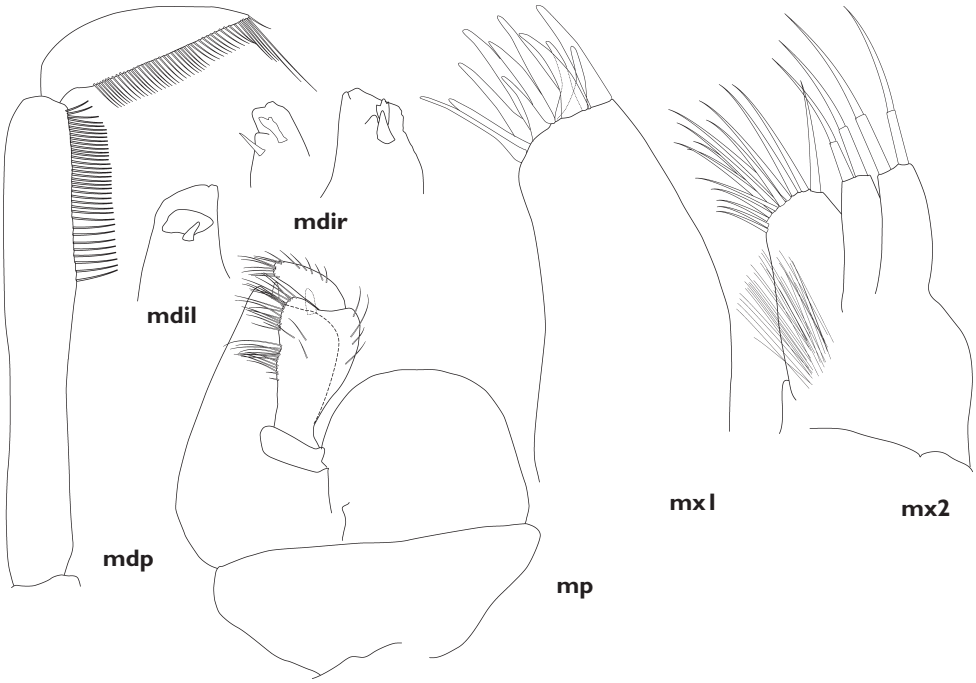

Figure 7. *Brucerolis nowra*, sp. n., holotype male (31 mm) NMV J58261. **mdl, mdr** mandible incisor, lacinia mobilis and spine, left and right **mdp** mandibular palp, distal articles **mx1, mx2** maxillae 1, 2 **mp** maxilliped.

gin of head, pereonites 2–4 and pleonites 1–3, evident in lateral view; dorsal surface punctate. Head, anterolateral margins concave, lateral corners acute and strongly projecting anteriorly and dorsally; maximum width between anterolateral corners 1.1 times as wide as span between lateral margins of eyes; head without paired processes on transverse ridge at bases of antennae 1, with obsolete paired tubercles between eyes, without median posterior tubercle, with obscure lobes lateral to median posterior tubercle. Pereonite 1 of male, lateral margin convex anteriorly, straight over most of length, lateral margin upturned over anterior half, with sharply-crested submarginal ridge parallel to margin, dorsal surface with oblique-transverse ridge reaching near margin, otherwise unornamented. Coxal dorsal plate 2 of male 0.8 times as long as half pereonal tergite 2 width (following plates increasing in length); plate 4 of male as long as half pereonal tergite 4 width; plate 6 of male extending beyond tip of pleotelson by 2.3 times middorsal length of pleotelson, the pair diverging over entire length, curving evenly; pleonal epimeron 2 of male 1.5 times length of pleotelson; pleonal epimeron 3 of male length of pleotelson; pleonal epimera 2 and 3 with assymetrically emarginate apices. Ventral coxal plates 2–4 with transverse ridges on mesial, anterior and posterior margins outlining a transverse depression.

Antenna 1 peduncle articles 3+4 2.1 times as long as article 2 (anterior margin); flagellum with about 45 articles, 3.5 times as long as articles 3+4, reaching back to

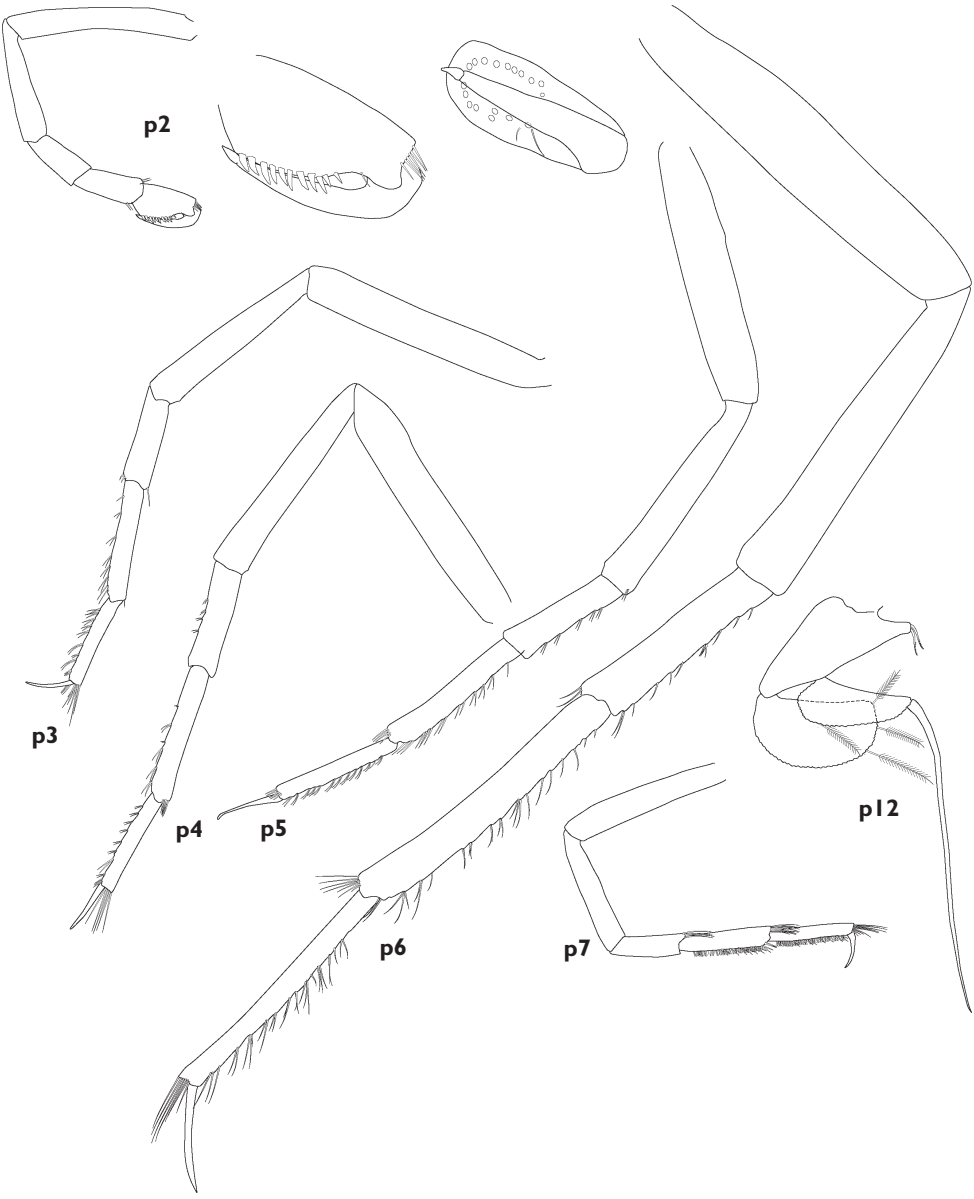

Figure 8. *Brucerolis nowra*, sp. n., holotype male (31 mm) NMV J58261. **p2–p7** pereopods 2–7 (pereopod 2 palm in lateral and face detail) **pl2** pleopod 2.

pleonite 2. Antenna 2 peduncle article 5 1.3 times as long as article 4; flagellum of 14 articles, 1.3 times as long as peduncle article 5.

Pereopod 1 propodus 2.1 times as long as greatest width. Pereopod 2 palm dorsal length 1.8 times greatest width, gently continuous, with free proximal margin, with 18 spiniform setae arranged in an oval over the proximal two-thirds of the palm. Pere-

opod 5 of male basis 5.2 times as long as greatest width, of even width; merus with marginal setae; carpus 6 times as long as greatest width; propodus 7 times as long as greatest width; dactylus curved, half as long as propodus. Pereopod 6 of male merus setose, carpus 8 times as long as greatest width; propodus 11 times as long as greatest width; dactylus curved, 0.4 times as long as propodus. Pereopod 7 of male carpus 4.4 times as long as greatest width (near distal end); propodus 6.5 times as long as greatest width, propodus tapering from near base, lower margin straight; dactylus curved, 0.45 times as long as propodus.

Pleopod 2 endopod with convex distal margin, sharply tapering to base of appendix masculina; appendix masculina 3.6 times as long as straight margin of endopod. Uropodal rami with rounded apices; exopod 0.8 length of endopod.

Female. Pereonite 1, lateral margin of female sinuous anteriorly, straight posteriorly. Coxal dorsal plate 2 of female 0.5 times as long as half pereonal tergite 2 width; plate 4 of female 0.8 times as long as half pereonal tergite 4 width (following plates increasing in length); plate 6 of female extending beyond tip of pleotelson by 1.1 times middorsal length of pleotelson (in juvenile female), the pair diverging and then converging slightly apically, curving evenly.

Etymology. Nowra, a coastal town near the type locality; noun in apposition.

Distribution. Off southern NSW, Australia, south-eastern Tasman Sea; 450–1750 m.

Remarks. Coxal plates and epimera tend to become relatively longer in larger animals. Females are distinguished from males by the absence of modified pereopods 2 and 7 and in the sinuous lateral margin of pereonite 1. *Brucerolis nowra* is distinguished by the strongly upturned and produced anterolateral lobes on the head (fig. 6e) from others in the genus (already described and yet to be described by us in another work) where these lobes are obsolete or not upturned.

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We thank Niel Bruce, Museum of Tropical Queensland, Queensland Museum, formerly of National Institute of Water and Atmosphere, Wellington, for comments on our early work on these animals and for the loan of material. The Australian material was collected during exploratory cruises on RV *Franklin* supported by the former Marine Sciences and Technologies Scheme and the Australian Research Council.

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