

# THE TERRESTRIAL AMPHIPODS (CRUSTACEA: AMPHIPODA) OF SOUTH AFRICA

By

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(With 7 figures)

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## ABSTRACT

A re-examination of all available terrestrial amphipod material from South Africa has resulted in the recognition of seven valid species. Four of these, *Talitriator calva*, *T. cylindripes*, *T. eastwoodae* and *T. setosa* were previously *formae* of *Talitriator* (formerly *Talitroides*) *eastwoodae* that have been raised to species rank elsewhere, but without being adequately diagnosed or figured. A fifth such species, *Talitriator macronyx*, is considered invalid and is here synonymized with *T. setosa*. *Talitriator africana*, which was first described over a century ago but has subsequently been considered either a synonym of *T. eastwoodae* or a *species inquirenda*, is re-erected. The remaining two taxa, *Talitroides alluaudi* and *T. topitotum* are introduced forms, both of which have been widely dispersed around the world, but are here recorded for the first time from South Africa. A brief diagnosis, illustrations and distribution data are provided for each of the species, and a key to the terrestrial amphipod fauna of the region is presented.

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## INTRODUCTION

Amphipods are a primarily aquatic group, and only one family, the Talitridae, has successfully invaded the terrestrial environment. The talitrids have in fact colonized a broader variety of habitats than any other amphipod family and span both coastal marine and freshwater environments, in addition to terrestrial ones. In the past some confusion has surrounded the use of the term 'terrestrial' as applied to talitrid amphipods and this has prompted the adoption of a more specific terminology by Bousfield (1984) and Friend & Richardson



(1986). These authors recognize four ecological groupings, as follows: (a) sandhoppers—burrowing forms found in the intertidal and supralittoral zones of sandy beaches; (b) beachfleas—non-burrowing species associated with algae on rocky shores or coastal marine habitats; (c) palustrid talitrids—which are semi-aquatic in salt marshes, mangroves and estuarine habitats; and (d) landhoppers—which occur mostly in forest litter and live independent of water bodies. It is only this last, truly terrestrial group that is considered here, the remaining groups having been included in a review of the southern African marine Amphipoda by Griffiths (1976).

Landhoppers are largely nocturnal, cryptic residents of the forest floor in the Southern Hemisphere and tropics, where they feed on angiosperm leaves and detritus. A few have colonized specialized habitats above ground, or live in moist grasslands and caves, and at least one has taken to burrowing in the soil (Friend & Richardson 1986). Most species are local endemics, although a few so-called 'tramp' species have been widely dispersed by man (Bousfield 1984).

The taxonomic history of the South African terrestrial amphipod fauna is a long and confusing one. The first species recorded from the region was *Talorchestia? africana*, described by Bate (1862) from a single female collected in Port Natal (= Durban). Although Stebbing (1910) included this species in his *Catalogue of South African Crustacea*, Methuen (1913) made no mention of Bate's paper when describing a second terrestrial species, *Talitriator eastwoodae*, from the Northern Transvaal. This was possibly because Methuen was under the mistaken impression that his species was aquatic, rather than terrestrial, in its habits. Barnard (1916) expanded on Methuen's description of *Talitriator eastwoodae*, recognized that it is in fact a terrestrial form, and allocated additional material to the species from various sites around South Africa. Shortly thereafter Stebbing (1917) synonymized Methuen's species with Bate's under the earlier name *Talitriator africanus* (Bate).

In a later paper, Barnard (1940) accepted Schellenberg's (1934) recommendation that *Talitriator* should fall into synonymy with *Talitroides*, but rejected Stebbing's synonymy of *Talitroides eastwoodae* with *T. africanus*—largely on the basis of differences in the degree of expansion of article 5 of gnathopod 1, which is distinctly lobed in *eastwoodae*, but distinctly linear in Bate's figure of *africanus*. He also recognized, but only very briefly characterized, five distinct *formae* of *Talitroides eastwoodae*, these being based largely on the relative lengths of antenna 1 and 2, the form of gnathopod 1, and the structure of the pleopods. Finally, Bousfield (1984) elevated each of Barnard's *formae* to full specific status within the genus *Talitriator*, but without providing any additional descriptions or figures. The departure point from which this study develops is thus one in which the recognized terrestrial amphipod fauna of the region consists of five species of *Talitriator*, of which only one, *T. eastwoodae*, has ever been adequately described or illustrated. One additional form, *T. africana*, is of dubious status and is presently a *species inquirenda*.

The principal aims of this paper are to clarify the taxonomic status of each of the terrestrial amphipods previously reported from South Africa, to identify any new or unrecorded forms, to establish the distribution patterns of the species, and to provide diagnoses and illustrations of the key features of each. This information is also used to produce a key to the regional fauna.



## MATERIALS AND METHODS

A written appeal for terrestrial amphipod material was sent to all natural history museums in South Africa and a similar notice circulated via e-mail to members of the Zoological Society of southern Africa. The principal collections eventually examined were those of the South African Museum, the Transvaal Museum and the Natal Museum—these being the main institutions in the region that maintain wet invertebrate collections. Additional material was collected by the author, or contributed by individual researchers who responded to the appeal for specimens. These additional collections have been deposited in the South African Museum, Cape Town. Drawings were done with the aid of a camera lucida attached to a Wild stereo microscope and a Nikon compound microscope.

## TAXONOMY

## KEY TO THE TERRESTRIAL AMPHIPODS OF SOUTH AFRICA

- 1A. Pleopod 3 greatly reduced, less than half as long as pleopods 1 and 2 and either lacking rami, or with the single (inner) ramus reduced to a one-segmented vestige (*Talitroides*) ..... 2
- 1B. Pleopod 3 not greatly reduced, more than half as long as pleopods 1 and 2 and distinctly biramous (*Talitriator*) ..... 3
- 2A. Pleopod 3 a minute unsegmented vestige; antenna 2 about 25 per cent body length, flagellum equal to peduncle (Fig. 1A, E); adult body length not exceeding 7 mm ..... *Talitroides alluaudi*
- 2B. Pleopod 3 a short, slender peduncle with a single, one-segmented inner ramus; antenna 2 about half body length, flagellum 1.5 times length of peduncle (Fig. 1G, K); adult body length up to 13 mm ..... *Talitroides topitotum*
- 3A. Antenna 1 extending beyond mid-point of article 5 of antenna 2; pleopods long and slender (Figs 2, 5); distribution mostly east of 26°E (c. Port Elizabeth) ..... 4
- 3B. Antenna 1 not extending as far as mid-point of article 5 of antenna 2; pleopods short and stout (Figs 3, 4, 6); distribution mostly west of 26°E (c. Port Elizabeth) ..... 5
- 4A. Article 6 of gnathopod 1 with distinct palm; outer margins of peduncles of pleopods setose throughout; rami of pleopods 1 and 2 equal; coxal gills of pereopods 3–5 with branched, three-digitate posterior processes (Fig. 5) .. *Talitriator eastwoodae*
- 4B. Article 6 of gnathopod 1 tapering, without palm; outer margins of peduncles of pleopods normally setose only distally; rami of pleopods unequal, outer 80 per cent length of inner; coxal gills of pereopods 3–5 with simple posterior lobes (Fig. 2) ..... *Talitriator africana*
- 5A. Article 5 of gnathopod 1 not lobed posteriorly; article 6 tapering distally, without distinct palm, antenna 2 about half body length, pereopod 7 extending well beyond tip of uropods (Fig. 4) ..... *Talitriator cylindripes*



- 5B. Article 5 of gnathopod 1 distinctly lobed posteriorly, article 6 rectangular, with distinct palm, antennae usually one-third or less body length, pereopod 7 not extending well beyond tip of uropods (Figs 3, 6) ..... 6
- 6A. Pleopod 1 shorter than 2 or 3, peduncles of pleopods 2 and 3 (and sometimes 1) setose along outer margins, rami subequal in length (Fig. 6) ..... *Talitriator setosa*
- 6B. Pleopod 1 longer than 2 or 3, peduncles of pleopods not setose, rami globular in appearance, the inner in each case considerably the shorter, 50–70 per cent length of outer (Fig. 3) ..... *Talitriator calva*

### *Talitroides* Willem, 1898

This genus currently comprises just two species, *Talitroides alluaudi* and *T. topitotum*. Both are unusual amongst terrestrial amphipods in that they have been widely dispersed by man, undoubtedly along with soil and leaf mould carried with exotic plants. Indeed their dispersal has been so widespread that it has become difficult to determine where the species originated. In Hawaii *Talitroides* spp. have largely displaced native species and may pose a threat to their future survival (Friend & Lam 1985), but as yet neither species has been recorded outside of urban areas in South Africa.

Both *Talitroides* species are easily distinguished from *Talitriator* spp. (below) by the reduced form of their pleopod 3.

### *Talitroides alluaudi* (Chevreux, 1896)

#### Fig. 1A–F

*Talitrus Alluaudi* Chevreux, 1896: 112, figs 1–4. Chevreux & Fage, 1925, figs 280–281.

*Talitroides alluaudi*: Morino & Ortal, 1993: 332–338, figs 1–2. Stock & Biernbaum, 1994: 809.

#### *Distribution*

Recorded only from compost heaps in the nursery of the University of Cape Town and suburban gardens in the nearby suburb of Claremont.

#### *Diagnosis*

At a maximum length of only 5–6 mm *T. alluaudi* is smaller than any other South African landhopper. The species is best recognized by its minute, unsegmented pleopod 3 and the greatly reduced, 1–3 articulate inner rami of pleopods 1–2. Both antennae and pereopod 7 are also unusually short, antenna 1 being only 25 per cent of body length (as compared to 50 per cent in *T. topitotum*).

#### *Remarks*

*Talitroides alluaudi* was originally described from material collected in Paris (where it was certainly introduced), and from the Seychelles. Present distribution records include the Seychelles, Madagascar, Australia, various Atlantic



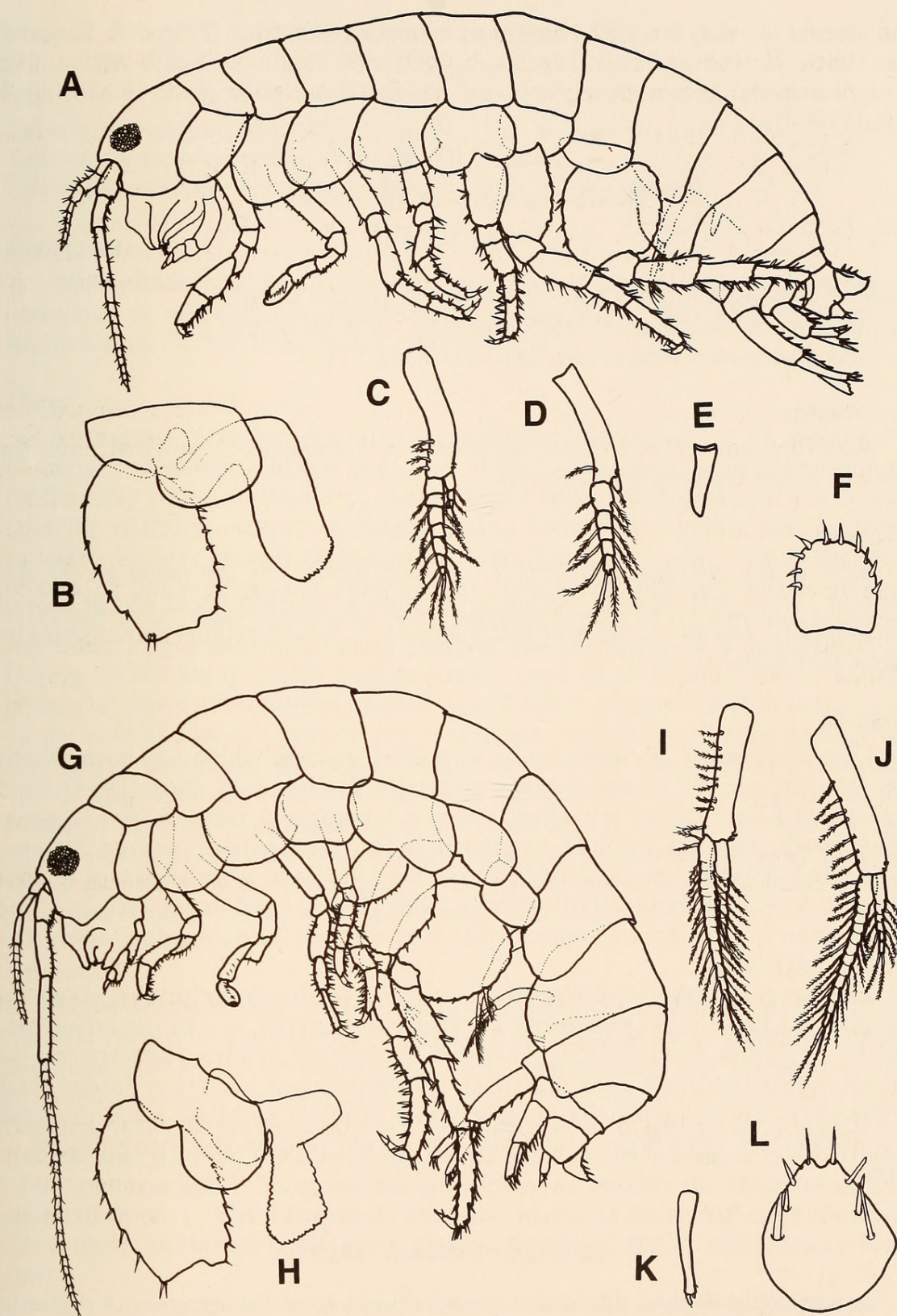


Fig. 1. A-F. *Talitroides alluaudi* (Chevreux, 1896), male, 5 mm, UCT gardens. A. Lateral aspect. B. Base of pereopod 6 showing gill. C-E. Pleopods 1, 2, 3. F. Telson. G-L. *Talitroides topitotum* (Burt, 1934), male, 11 mm, Pinelands, Cape Town. G. Lateral view. H. Base of pereopod 6 showing gill. I-K. Pleopods 1, 2, 3. L. Telson.



and Pacific islands, the USA, and most European countries (Friend & Richardson 1986), as well as Israel (Morina & Ortal 1993) and now South Africa. The present material agrees closely with the detailed description given in Morino & Ortal (1993).

*Talitroides topitotum* (Burt, 1934)

Fig. 1G-L

*Talitrus* (*Talitropsis*) *topitotum* Burt, 1934: 184-190, pls 12-13, text-fig. 1.

*Talitrus sylvaticus* (*non* Haswell, 1880): Shoemaker, 1936: 60-64, figs 1-2.

*Talitroides topitotum*: Friend & Lam, 1985: 27-33, figs 1-2.

*Distribution*

Recorded only from a suburban garden in Pinelands, Cape Town, and the gardens of the University of Pretoria.

*Diagnosis*

Most easily distinguished from *T. alluaudi* (above) by the much larger size of up to 13 mm body length, the longer antenna 2, which is about 45 per cent of body length, and the more elongate pleopod 3, which retains minute single-segmented vestigial rami.

*Remarks*

Like *T. alluaudi*, *T. topitotum* is a 'tramp' species, which has been widely dispersed by man. The species was originally described by Burt (1934) from specimens found under a packing case in a garage in Ceylon (Sri-Lanka). Subsequent records include Southern India, Australia, various Indian, Pacific and Atlantic ocean islands, Brazil, the USA, and glasshouses in Europe (Friend & Richardson 1986). This is the first record from Africa. The distribution is now so widespread that it is difficult to determine where the species originated.

The present material corresponds closely to the descriptions given by Shoemaker (1936), who incorrectly identified his material as *Talitrus sylvaticus*, and by Friend & Lam (1985). Although Shoemaker reported the species as occasionally reaching pest densities in Californian gardens, introduced landhoppers are not normally considered as problem animals, since they are decomposers of dead organic material and do not feed on the living tissues of plants.

*Talitriator* Methuen, 1913

As currently defined this genus is endemic to southern Africa and the only species are those detailed below. The author has received unconfirmed reports of terrestrial amphipods occurring north into Zimbabwe, but has to date not been able to obtain specimens to confirm the identity of the species concerned.



*Talitriator africana* (Bate, 1862)

## Fig. 2

*Talorchestia? Africana* Bate, 1862: 15–16, pl. 2 (fig. 6). Stebbing, 1910: 459.

*Talitriator africanus*: Stebbing, 1917: 330–331 (*partim*).

*Talitroides eastwoodae* forma *typica*: Barnard, 1940: 465–467 (*partim*).

*Distribution*

Widespread from Port Elizabeth along a broad coastal strip northwards and eastwards to northern KwaZulu-Natal and then inland through Swaziland into Mpumalanga (formerly Eastern Transvaal) (Fig. 7).

*Diagnosis*

Antenna 1 relatively elongate, reaching almost to tip of article 5 of antenna 2; antenna 2 about one-third body length. Article 5 of gnathopod 1 moderately lobed posteriorly, length about twice width; article 6 elongate, tapering distally, without a distinct palm; article 6 of gnathopod 2 broadly rounded distally. Pereopods relatively short, tip of pereopod 7 barely extending to end of body. Pleopods slender and elongate; pleopod 2 slightly longer (105 per cent) than 1, pleopod 3 65 per cent length of 1; peduncles slender, 4–6 times longer than wide, outer margins typically setose only along distal half (rarely setose along whole margin); inner rami of pleopods 1 and 2 equal to peduncle; outer rami 80 per cent length of inner; pleopod 3 with outer ramus 75 per cent and inner ramus 60 per cent length of peduncle. Telson usually with four strong lateral and one terminal spine on each lobe (lateral spines reduced to one or absent in some Eastern Cape and Mpumalanga specimens). Coxal gills relatively simple, that of gnathopod 2 smooth-edged, with a long upward-lobed anterior process, of pereopods 3 and 4 smaller and postero-ventrally produced into a pointed lobe, of pereopod 5 the smallest and a simple twisted lobe, of pereopod 6 much larger, with an oval basal lobe and larger flat plate.

*Remarks*

Bate's original (1862) description of this species from Port Natal (Durban) is the first record of a terrestrial amphipod from South Africa. However, neither Methuen (1913), in his description of *T. eastwoodae*, nor Barnard (1916), referred to Bate's species, although it had been listed by Stebbing (1910). Stebbing (1917) subsequently synonymized the two forms—*africana* taking precedence. Barnard (1940) pointed out inconsistencies between the descriptions of *T. africana* and *T. eastwoodae*—principally as regards the shape of article 5 of gnathopod 1, but—unable to examine material from the type locality—nevertheless retained their synonymy under the name *T. eastwoodae* forma *typica*.

Based on examination of a wide range of material, including the co-types of *T. eastwoodae* held by the South African Museum, it is now clear that two distinct species are represented. These are Methuen's *T. eastwoodae*, which is the dominant talitrid in the inland regions of KwaZulu-Natal and the former Transvaal, and Bate's *T. africana*, which is formally re-erected here and is the



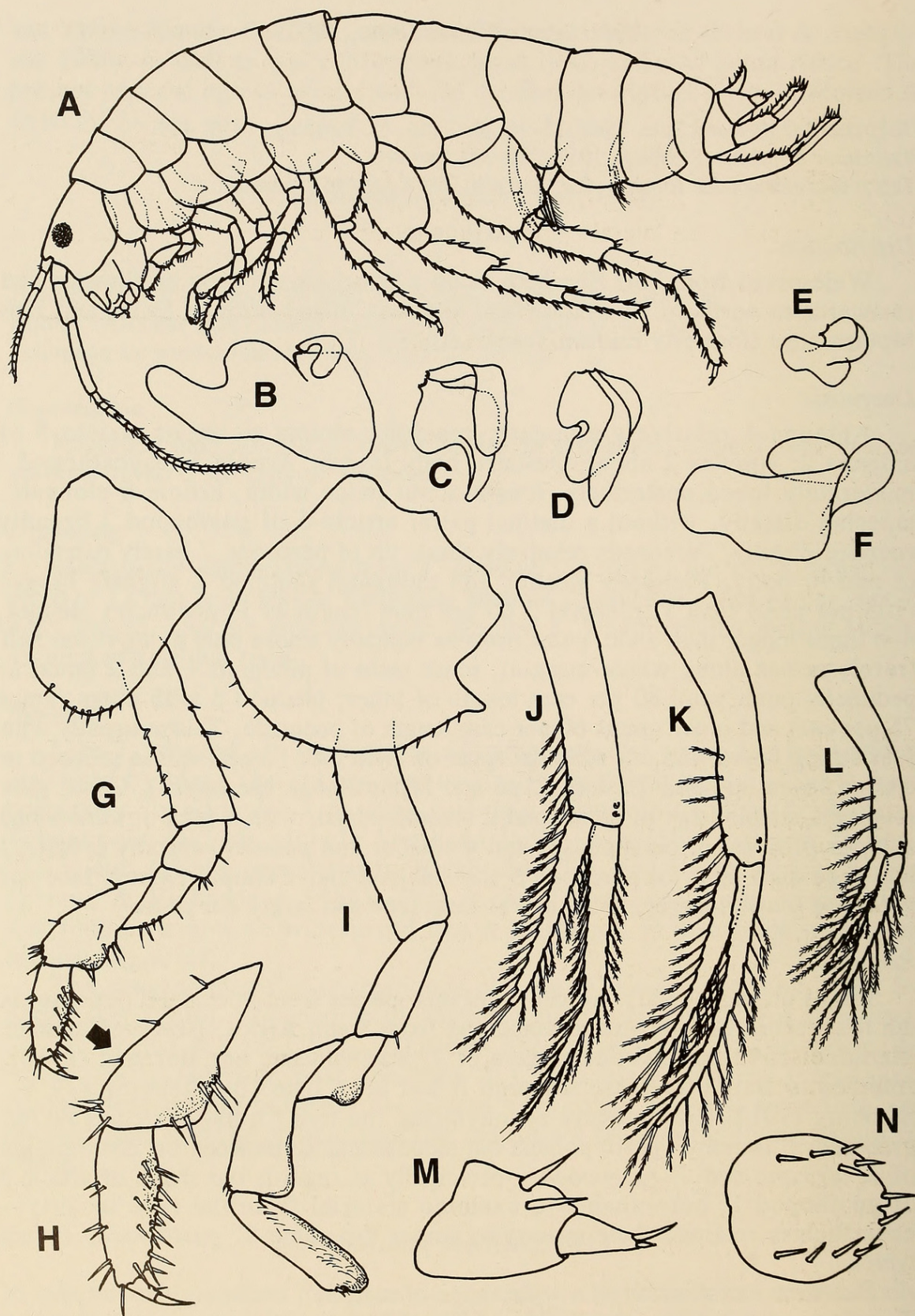


Fig. 2. *Talitriator africana* (Bate, 1862), female, 14 mm, Ngome State Forest. A. Lateral aspect. B-F. Coxal gills of gnathopod 2 and pereopods 3, 4, 5, 6. G. Gnathopod 1 with articles 5-7 enlarged. I. Gnathopod 2. J-L. Pleopods 1, 2, 3. M. Uropod 3. N. Telson.



most common terrestrial amphipod in the coastal areas of KwaZulu-Natal and the Eastern Cape. *Talitriator africana* is most easily distinguished from *T. eastwoodae* by the absence of a palm on article 6 of gnathopod 1 and the unequal rami of pleopods 1–3.

The species shows some local variation, notably in the setation of the peduncles of the pleopods, which is generally restricted to the distal half, but rarely extends over the full length. In some samples towards the fringes of the distribution range the lateral spines on the telson are also absent or reduced to one.

*Talitriator calva* (Barnard, 1940)

Fig. 3

*Talitroides eastwoodae* forma *calva* Barnard, 1940: 468.

*Talitriator calva*: Bousfield, 1984: 206, 209.

*Distribution*

From Cape Town eastwards along a coastal belt to Grahamstown in the Eastern Cape Province (Fig. 7).

*Diagnosis*

Antenna 1 short, article 1 of peduncle wider than long, flagellum not extending more than half way along article 5 of antenna 2. Antenna 2 typically only about one-third body length (longer to the east). Article 5 of gnathopod 1 lobed posteriorly, twice as long as wide, article 6 widest at base and tapering distally, with distinct palm. Pleopods progressively decreasing in length, the second 90 per cent and the third 80 per cent as long as the first. Peduncles of pleopods not setose, rami unjointed, but incisions marking the limits of the segments deep, such that the rami appear as a series of subglobose segments; inner ramus of each pair considerably the shorter, that of pleopod 1 70 per cent, of pleopod 2 60 per cent and of pleopod 3 50 per cent length of outer ramus. Coxal gill on gnathopod 2 a simple forward-directed lobe, of pereopods 3–5 a folded oval plate and of pereopod 6 a complex structure of several elongate lobes. Telson usually with a single apical spine, but one or two lateral spines present in some Eastern Cape samples.

*Remarks*

In his brief description, Barnard (1940) implied, by his comparison with *T. setosa*, that the rami of the pleopods in this form are subequal. This is not the case, although the differences in the relative lengths of the rami in specimens to the east of the range are less marked than depicted here. The absence of setae on the peduncles of all the pleopods and their globular, unsegmented rami are characteristic of the species. Samples from the Eastern Cape have longer antenna 2 (up to 25 flagellar segments) and pereopods and have one or two lateral spines on the telson.



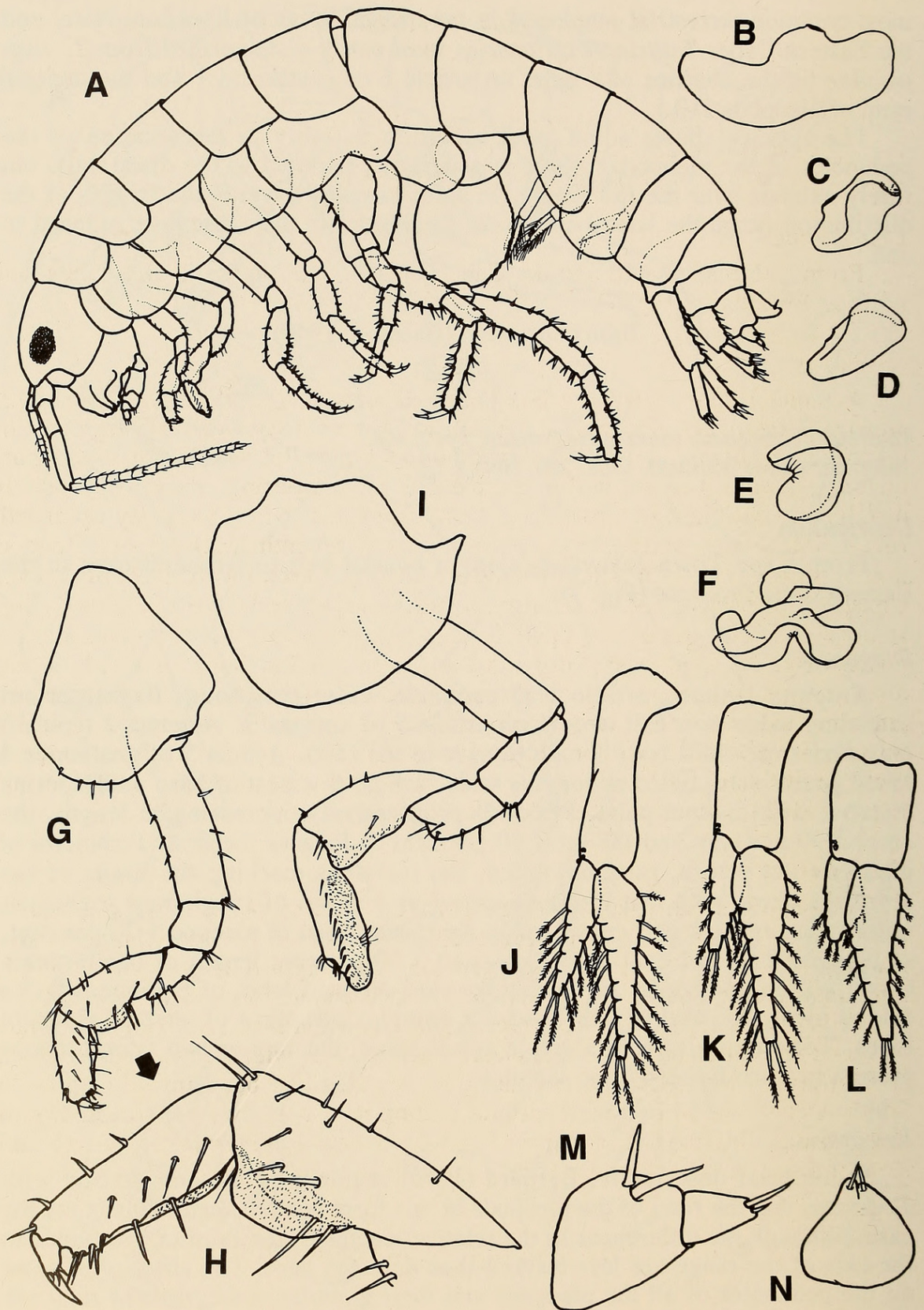


Fig. 3. *Talitriator calva* (Barnard, 1940), male, 9 mm, Onrustriver. A. Lateral aspect. B-F. Coxal gills of gnathopod 2 and pereopods 3, 4, 5, 6. G. Gnathopod 1 with articles 5-7 enlarged. I. Gnathopod 2. J-L. Pleopods 1, 2, 3. M. Uropod 3. N. Telson.



*Talitriator cylindripes* (Barnard, 1940)

Fig. 4

*Talitroides eastwoodae* forma *cylindripes* Barnard, 1940: 467, fig. 27e-h.*Talitriator cylindripes*: Bousfield, 1984: 207, 209.*Talitriator insularis* Stock & Biernbaum, 1994: 800-808, figs 2-6.*Distribution*

From Table Mountain and the Cape Peninsula eastwards to Hermanus and north to Picketberg (Fig. 7).

*Diagnosis*

Antenna 1 short, reaching less than half way along article 5 of antenna 2; antenna 2 relatively elongate, about half as long as body and with flagellum of up to 28 segments. Article 5 of gnathopod 1 parallel-sided, not lobed posteriorly, length 3 times width; article 6 evenly tapering, palm very poorly developed. Article 6 of gnathopod 2 produced into a long, slightly upturned, rugose lobe. Pereopods elongate, the sixth and seventh reaching well beyond tips of uropods. Coxa 4 with a characteristic long, down-turned posterior tooth. Coxal gill of gnathopod 2 with large, forward-projecting lobe, of pereopods 3-5 smaller and bilobed, of pereopod 6 large and complex with crenulate margin posteriorly. Pleopods relatively short and stout, peduncles setose only along distal margin, peduncle of pleopod 1 expanded distally, rami swollen proximally and unequal, the inner two-thirds as long as the outer. Pleopods 2 and 3 progressively shorter, 70 per cent and 60 per cent length of pleopod 1 respectively, inner rami half as long as outer, not visibly segmented. Each lobe of telson with 2-3 dorsal and a single apical spine.

*Remarks*

Although originally described as a form of *T. eastwoodae*, this taxon clearly merits specific status, as recommended by Bousfield (1984). Characteristic features include the linear article 5 and long tapering article 6 of gnathopod 1, long upturned tip to article 6 of gnathopod 2 and unique form of the pleopods.

*Talitriator insularis*, as described from Ascension and Saint Helena islands by Stock & Biernbaum (1994), is clearly synonymous with *T. cylindripes*. Stock & Biernbaum indeed suspected that their species had been introduced from South Africa, but were misled into describing it as new by the poor quality of the original illustrations in Barnard (1940), which exaggerate the length and slenderness of articles 5 and 6 of gnathopod 1 in *T. cylindripes*.

*Talitriator eastwoodae* Methuen, 1913

Fig. 5

*Talitriator eastwoodae* Methuen, 1913: 109-112, pl. 10-22. Barnard, 1916: 223-224 (partim). Bousfield, 1984: 206, 209.*Talitroides eastwoodae* forma *typica* Barnard, 1940: 465-467 (partim), fig. 27a-d.



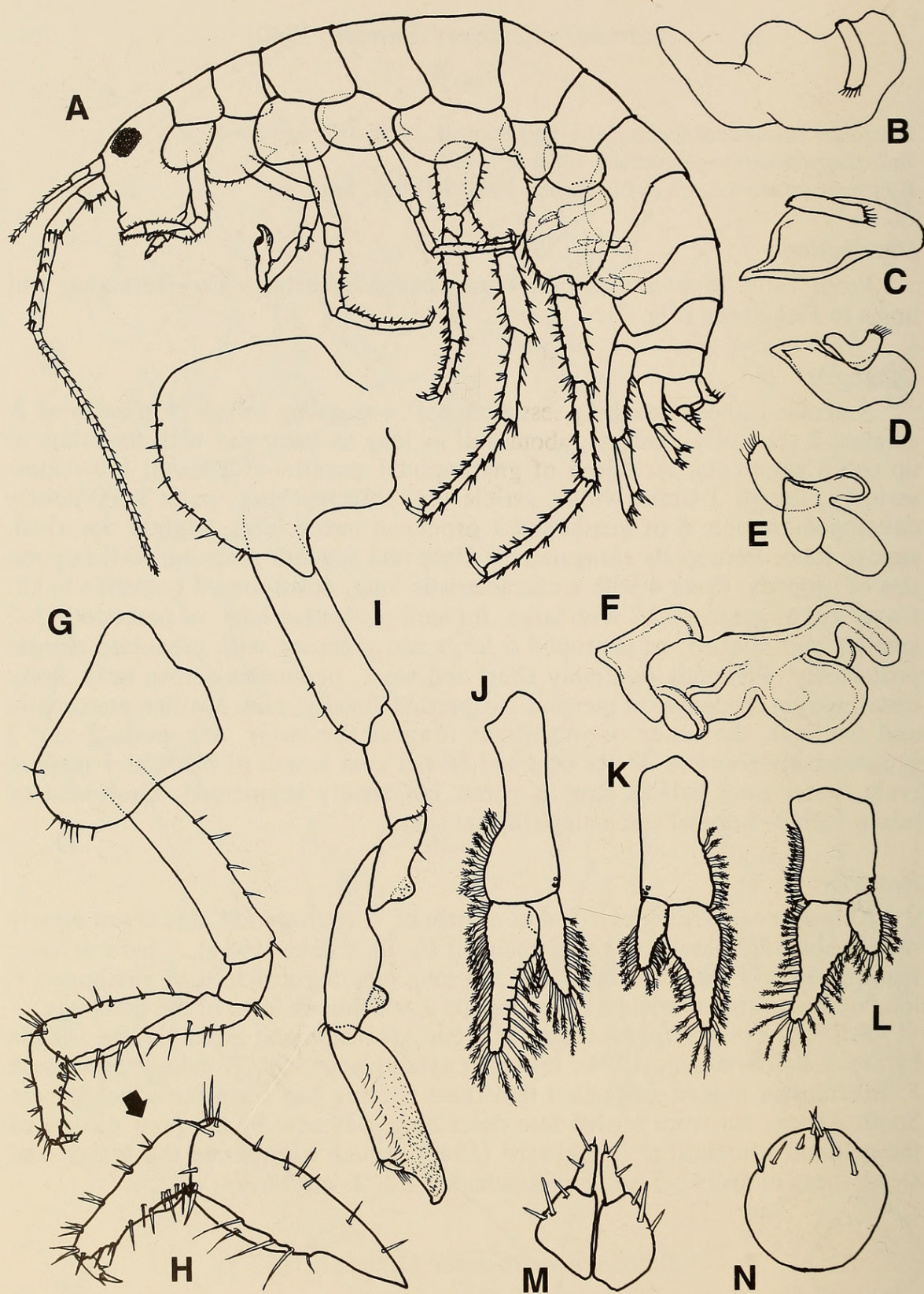


Fig. 4. *Talitriator cylindripes* (Barnard, 1940), male, 12 mm, Constantia, Cape Town. A. Lateral view. B-F. Coxal gills of gnathopod 2 and pereopods 3, 4, 5, 6. G. Gnathopod 1 with articles 5-7 enlarged. I. Gnathopod 2. J-L. Pleopods 1, 2, 3. M. Uropod 3. N. Telson.



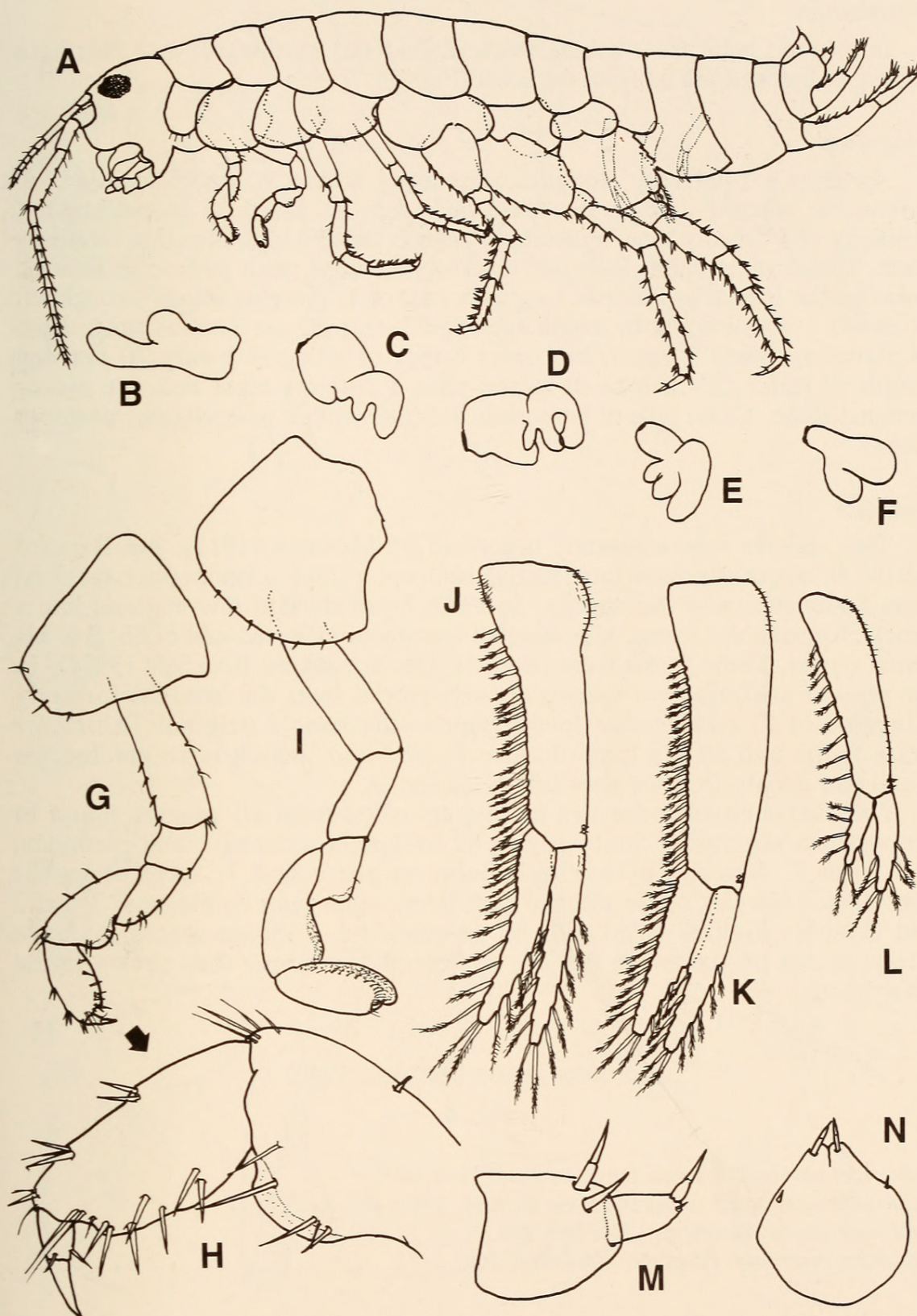


Fig. 5. *Talitriator eastwoodae* Methuen 1913, male, 7 mm, Soutpansberg. A. Lateral view. B-F. Coxal gills of gnathopod 2 and pereopods 3, 4, 5, 6. G. Gnathopod 1 with articles 5-7 enlarged. I. Gnathopod 2. J-L. Pleopods 1, 2, 3. M. Uropod 3. N. Telson.



### *Distribution*

In a broad band from southern KwaZulu-Natal northwards into Northern Province, but well inland from the coast (Fig. 7).

### *Diagnosis*

Antenna 1 relatively elongate, extending almost to tip of article 5 of antenna 2; antenna 2 about one-third body length. Article 5 of gnathopod 2 distinctly and broadly lobed posteriorly, length twice width, article 6 relatively short, with distinct palm. Pleopods relatively elongate, their peduncles slender, linear and at least four times as long as broad, outer margins setose throughout. Pleopods 1 and 2 equal in length, pleopod 3 only 65 per cent as long. Rami of pleopods 1 and 2 equal, but outer ramus of pleopod 3 only 70 per cent length of inner. Each lobe of telson with a single lateral and one strong terminal spine. Coxal gills of pereopods 3–5 each with a three-digitate posterior lobe.

### *Remarks*

This species was accurately described by Methuen (1913), but Barnard (1916) subsequently (and incorrectly) referred all other landhopper material from South Africa to this species. In 1940, he subdivided this material into a series of recognized forms, allocating all specimens collected east of 26°E to his forma *typica*. These forms were raised to species rank by Bousfield (1984). In the present analysis, two species are recognized from the material formerly allocated to *T. eastwoodae* forma *typica*—Methuen's original *Talitriator eastwoodae* and Bate's long-obscure *T. africana*, which is re-erected for specimens mainly from the KwaZulu-Natal region.

*Talitriator eastwoodae* can be distinguished from all species found in the western regions of South Africa by its longer antenna 1 and pleopods, and from *T. africana* by having a palm on gnathopod 1, setae along the entire outer margins of the pleopod peduncles, equal rami on pleopods 1 and 2 and complex digitate coxal gills on pereopods 3–5. Some specimens have lateral spines on the telson that are considerably stronger than shown in the illustration.

### *Talitriator setosa* (Barnard, 1940)

Fig. 6

*Talitroides eastwoodae* forma *setosa* Barnard, 1940: 467.

*Talitroides eastwoodae* forma *macronyx* Barnard, 1940: 468, fig. 27 i, j.

*Talitriator setosa*: Bousfield, 1984: 206, 209.

*Talitriator macronyx*: Bousfield, 1984: 206, 209.

### *Distribution*

In high-lying areas from Table Mountain northwards into the Cederberg and eastwards to the Langeberg Mountains near Heidelberg (Fig. 7).



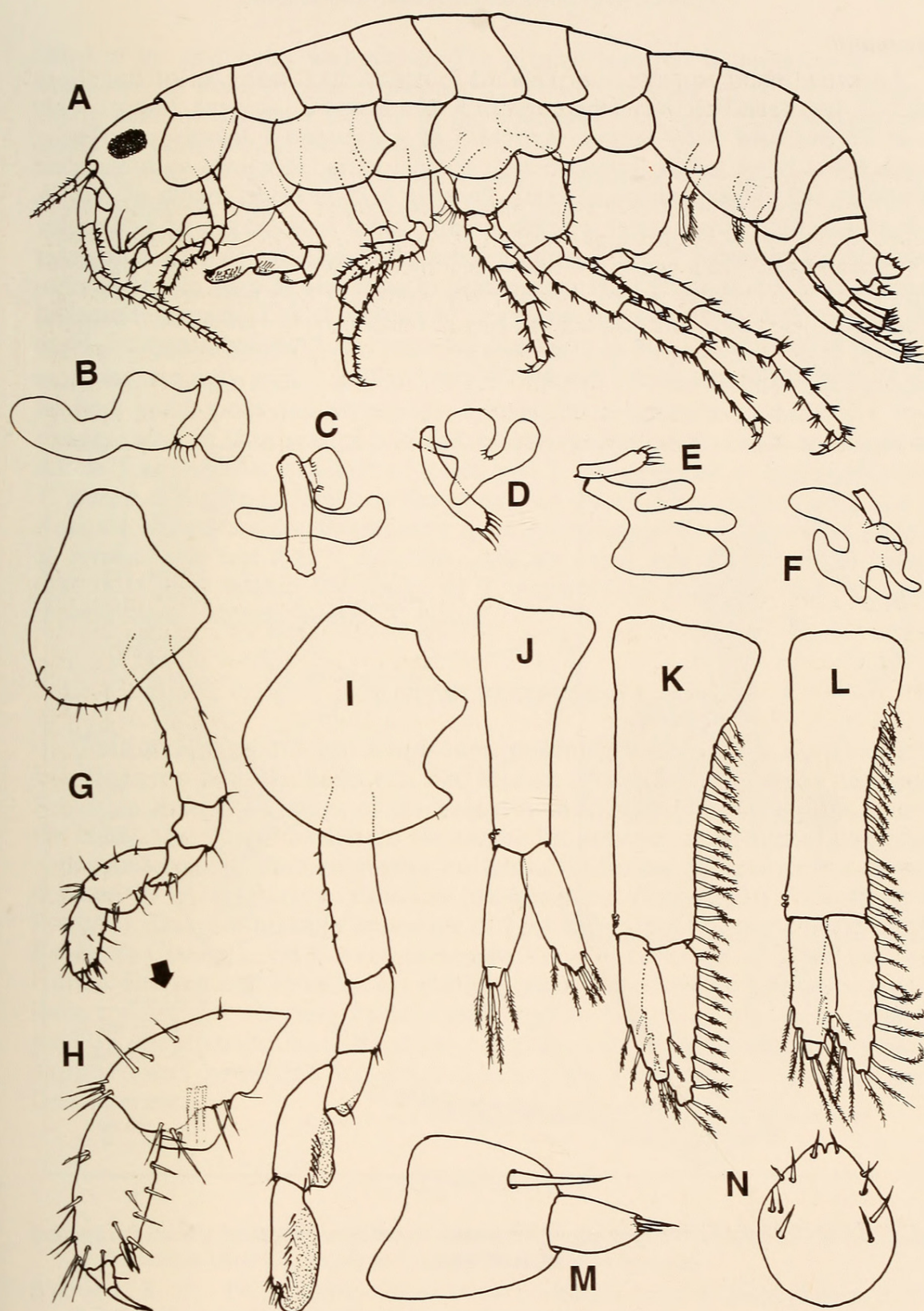


Fig. 6. *Talitriator setosa* (Barnard, 1940), female, 8 mm, Constantiaberg, Cape Peninsula. A. Lateral view. B-F. Coxal gills of gnathopod 2 and pereopods 3, 4, 5, 6. G. Gnathopod 1 with articles 5-7 enlarged. I. Gnathopod 2. J-L. Pleopods 1, 2, 3. M. Uropod 3. N. Telson.



### Diagnosis

Antennae short, article 1 of antenna 1 wider than long, tip of flagellum reaching less than half way along article 5 of antenna 2; antenna 2 short, only about 25 per cent body length. Article 5 of gnathopod 1 lobed posteriorly, length about twice width, article 6 with distinct palm. Pleopods with elongate peduncles and shorter, subequal rami. Pleopod 1 75 per cent length of 2 or 3, peduncle setose along outer margin or not, rami half length of peduncle. Peduncles of pleopods 2 and 3 with close-set plumose setae along whole outer margin, rami equal and 65 per cent length of peduncle. Coxal gill of gnathopod 2 an elongate forward-projecting lobe, of pereopods 3–5 variously branched lobes on narrow stalks, and of pereopod 6 a complex, branched structure. Each lobe of telson with 4–5 dorsal and one terminal spine.

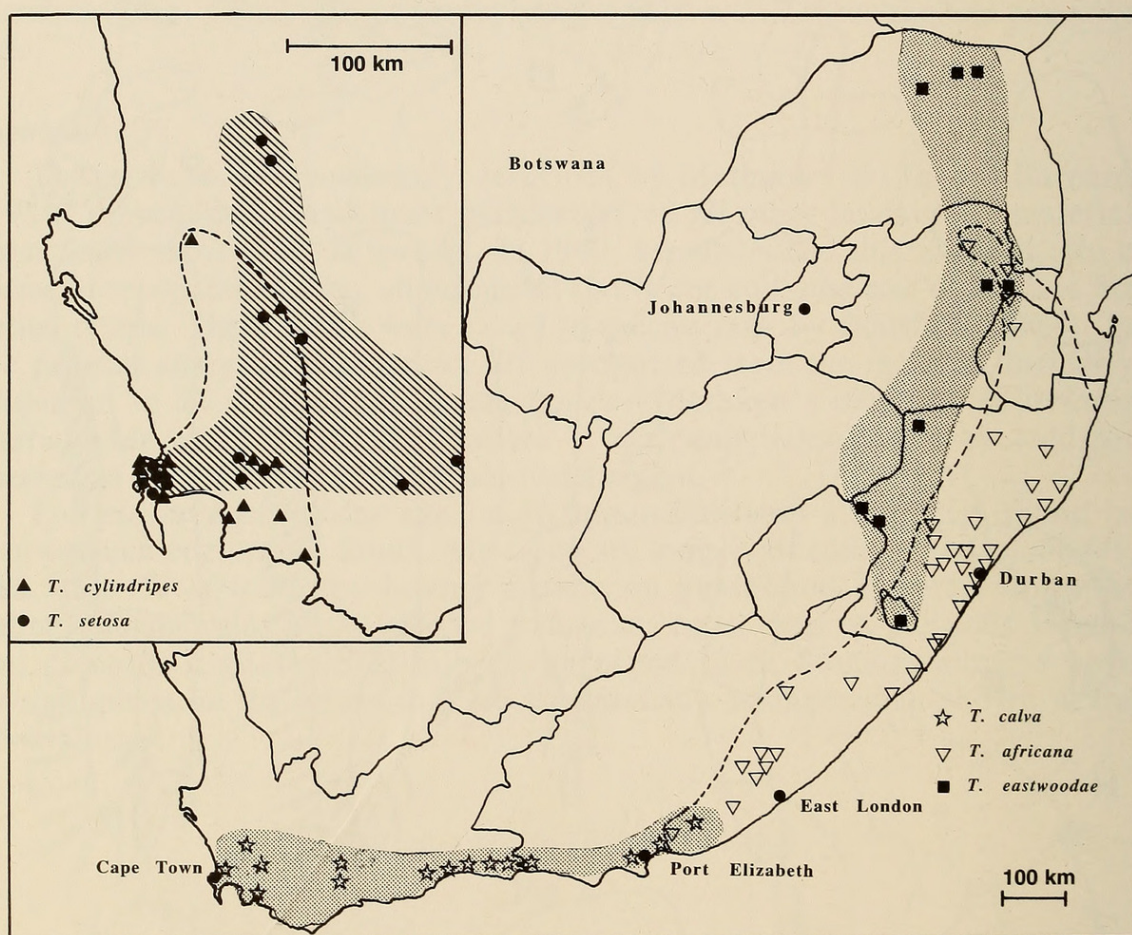


Fig. 7. Map of South Africa showing distributional records and ranges of the known species of *Talitriator*.

### Remarks

In his brief description, Barnard (1940) described the pleopods of this form as having close-set plumose setae along the whole of the sinuous outer margin of the peduncle, although he found some specimens in which only the distal



third of the peduncles was setose. The present material is inconsistent in this character, at least as regards pleopod 1, where the setae range from absent to lining most of the outer margin of the peduncle. The peduncles of pleopods 2 and 3 are uniformly setose throughout.

The unusual shortened pleopod 1 readily identifies this species. It is often found together with *T. cylindripes*, from which it can be distinguished in the field by its much shorter antenna and pereopods. Live specimens collected by the author were bright orange in life, although this faded quickly in alcohol.

*Talitriator macronyx* is hereby synonymized with *T. setosa*. On the basis of Barnard's extremely brief diagnosis, he distinguished his forma *macronyx* from forma *setosa* essentially on two counts—the unlobed form of article 5 and elongate, strongly spined article 6 of gnathopod 1 and the unusually long ingues on both gnathopods and pereopods. I found his diagram of gnathopod 1 to be exaggerated in this regard and the actual specimens to show a broadened article 5 and shorter article 6 of gnathopod 1, very similar to that depicted for *T. setosa* in Figure 6. Similarly the spinule on the dactyl of gnathopod 1 and the elongate ingues are not significantly more pronounced or elongate than those of *T. setosa*. The fact that *T. macronyx* was recorded only from a single sample that falls well within the range of *T. setosa* also suggests that it simply represents an extreme form of *T. setosa*.

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