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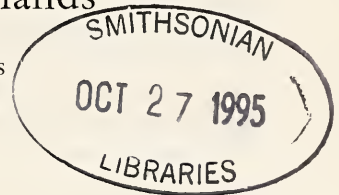
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## New Species of Terrestrial Isopods (Oniscidea) from the Central Aegean Islands

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With 60 figures



### Summary

Eight new species of terrestrial isopods (Oniscidea) from the islands of the central Aegean (Greece) are described in the present paper. One belongs to the family Trichoniscidae (*Trichoniscus oedipus* n. sp.), one to the Trachelipodidae (*Protracheoniscus kalymnius* n. sp.) and the other six to the Armadillidiidae (*Schizidium tinum* n. sp., *Paraschizidium aegaeum* n. sp., *P. album* n. sp., *P. falkoneræ* n. sp., *P. levithæ* n. sp. and *P. polyvotisi* n. sp.). The phylogenetic systematics of the epigeal Greek species of *Schizidium* and *Paraschizidium* are discussed.

### Zusammenfassung

Acht neue Landisopoden-Arten (Oniscidea) werden von den Inseln der zentralen Ägäis (Griechenland) beschrieben. Eine Art gehört zur Familie Trichoniscidae (*Trichoniscus oedipus* n. sp.), eine zu den Trachelipodidae (*Protracheoniscus kalymnius* n. sp.) und die übrigen sechs zu den Armadillidiidae (*Schizidium tinum* n. sp., *Paraschizidium aegaeum* n. sp., *P. album* n. sp., *P. falkoneræ* n. sp., *P. levithæ* n. sp. und *P. polyvotisi* n. sp.). Die phylogenetische Systematik der epigäischen griechischen *Schizidium*-Arten und der griechischen *Paraschizidium*-Arten wird diskutiert.

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## 1. Introduction

The terrestrial isopod fauna of the central Aegean islands was hitherto insufficiently known. After the publication of STROUHAL (1937) there has been no paper dealing with it besides a few descriptions of new species. In the check-list of SCHMALFUSS (1979) 35 species from central Aegean islands are recorded while, at that time, 5 more species of the genus *Armadillidium* (not included in the list) were known to be present on some of the islands. Until today 9 more species have been described from this area.

During the past five years I have been collecting nontroglobitic Oniscidea on 43 central Aegean islands and islets lying to the north of the volcanic arc. The total number of species found is 69. Nine of them are new for science, four are of uncertain identity and fourteen are new records for the area. The purpose of the present paper is to give the descriptions of the new species collected. One of them (*Echinarmadillidium cycladicum*) has been described by SCHMALFUSS & SFENTHOURAKIS (1995). The other eight belong to four genera, one to *Trichoniscus* Brandt, 1833, one to *Protracheoniscus* Verhoeff, 1917 (sensu lato), one to *Schizidium* Verhoeff, 1901 and five to *Paraschizidium* Verhoeff, 1917 (sensu SCHMALFUSS 1981).

The distribution of the species is mapped in figs. 59–60.

All type material is located at the Zoological Museum of the University of Athens, Greece, except for the specimens deposited in the Staatliches Museum für Naturkunde, Stuttgart, Germany (indicated by: SMNS).

Abbreviations: j = juvenile; isl. = island.

## 2. Trichoniscidae

### 2.1. *Trichoniscus oedipus* n. sp.

Holotype: 1 ♂, 3.5 mm long, Andros isl., Aipathia, 13. IV. 1989.

Paratypes: 1 ♂, 9 ♀♀ (1 with marsupium), same collecting data; – 1 ♂, 1 ♀, Andros isl., Chora, 14. IV. 1989; – 1 ♂, 4 ♀♀, Andros isl., Vourkoti, 14. IV. 1989; – 2 ♀♀, Andros isl., Apikia, 14. IV. 1989; – 3 ♂♂, 4 ♀♀ (1 with marsupium), 1 j, Andros isl., Arni, 17. IV. 1989 (SMNS); – 1 ♀, Andros isl., Batsi, 17. IV. 1989; – 1 ♂, 5 ♀♀ (2 with marsupium), Andros isl., Vitali, 26. II. 1991; – 3 ♂♂, 8 ♀♀ (2 with marsupium, 3 with larvae), Andros isl., Varidi, 27. II. 1991; – 5 ♂♂, 12 ♀♀, Ateni, Andros isl., 28. II. 1991; – 1 ♀, Andros isl., Allantino, 1. III. 1991; – 3 ♂♂, 4 ♀♀, Samos isl., Zervou, 24. XI. 1989; – 1 ♀, Samos isl., Valmari, 25. XI. 1989; – 4 ♂♂, 3 ♀♀, Samos isl., Rema Tourkomyлона, 27. XI. 1989; – 1 ♂, Samos isl., Mytilinioi, 24. XI. 1989; – 1 ♀, Samos isl., Psili Ammos, 25. XI. 1989; – 3 ♀♀ (1 with marsupium), Samos isl., Mesonisi, 14. IV. 1991; – 1 ♀, Samos isl., Kastania, 15. IV. 1991; – 3 ♀♀, Ikaria isl., Perdiki, 5. XII. 1990; – 1 ♀, Ikaria isl., Velanidies, 6. XII. 1990; – 1 ♂, Ikaria isl., Karavostamo, 7. XII. 1990; – 1 ♀, Ikaria isl., Kosikia, 8. XII. 1990; – 1 ♂, 3 ♀♀, Ikaria isl., Pezi, 10. XII. 1990; – 20 ♀♀ (15 with marsupium), Astypalea isl., Agios Konstantinos, 12. I. 1991; – 3 ♂♂, 9 ♀♀ (4 with marsupium), Astypalea isl., Ai-Giannis, 13. I. 1991; – 1 ♂, 6 ♀♀ (2 with marsupium), Astypalea isl., Agios Eleftherios, 13. I. 1991; – 4 ♂♂, 11 ♀♀, 2 j, Levitha isl., 16. I. 1990; – 1 ♂, 1 ♀ (with marsupium), 1 j, Mykonos isl., Ftelia, 27. III. 1989; – 1 ♂, Mykonos isl., Mavra Vouna, 28. III. 1989; – 3 ♂♂, Sifnos isl., Kastro, 10. II. 1990; – 1 ♂, Serifos isl., Koparia, 17. II. 1990; – 1 ♂, Evvoia isl., Lala, 7. XI. 1989; – 1 ♂, 2 f, Evvoia isl., Marmari, 7. XI. 1989.

### Description

Dimensions: Maximal length of both sexes 4 mm.

Coloration: Larger individuals with intense reddish coloration. In some populations coloration is slightly reduced. First two pleonites are yellowish in most individuals, a trait that is more apparent in live specimens.

Cephalon: As in the other species of the genus. Eyes with 3 large ommatidia.

Antenna: Flagellum usually with 3 articles (fig. 1). In some individuals a fourth article is present but not easily discerned.

Antennula: Relatively large, consisting of 3 articles with long aesthetascs at the apex.

Pereon: Pereonites smooth, covered with short setae.

Telson and uropods as in other species of the genus.

Male sexual characters: Pereopod VII with enlarged carpus, possessing a marginal ridge at its dorsal side, and ischium ventrally concave (fig. 2). Sometimes the ridge is not discernible, especially in small individuals. Pleopod-exopodite I (fig. 3) with a tooth-like projection at its external side that is more conspicuous in larger males. Pleopod-endopodite I as in fig. 4. The thin elongated apex (figured with dotted lines) is broken in most males. Pleopod II as in figs. 5–6.

Derivatio nominis: The species is named after the well-known ancient Greek king Oedipus, whose name literally means „swollen leg“.

#### Ecological data

The species lives at the banks of streams in the litter layer of hygrophilic plants. Sometimes it can be found also in the humid litter layer of maquis vegetation.

#### Remarks

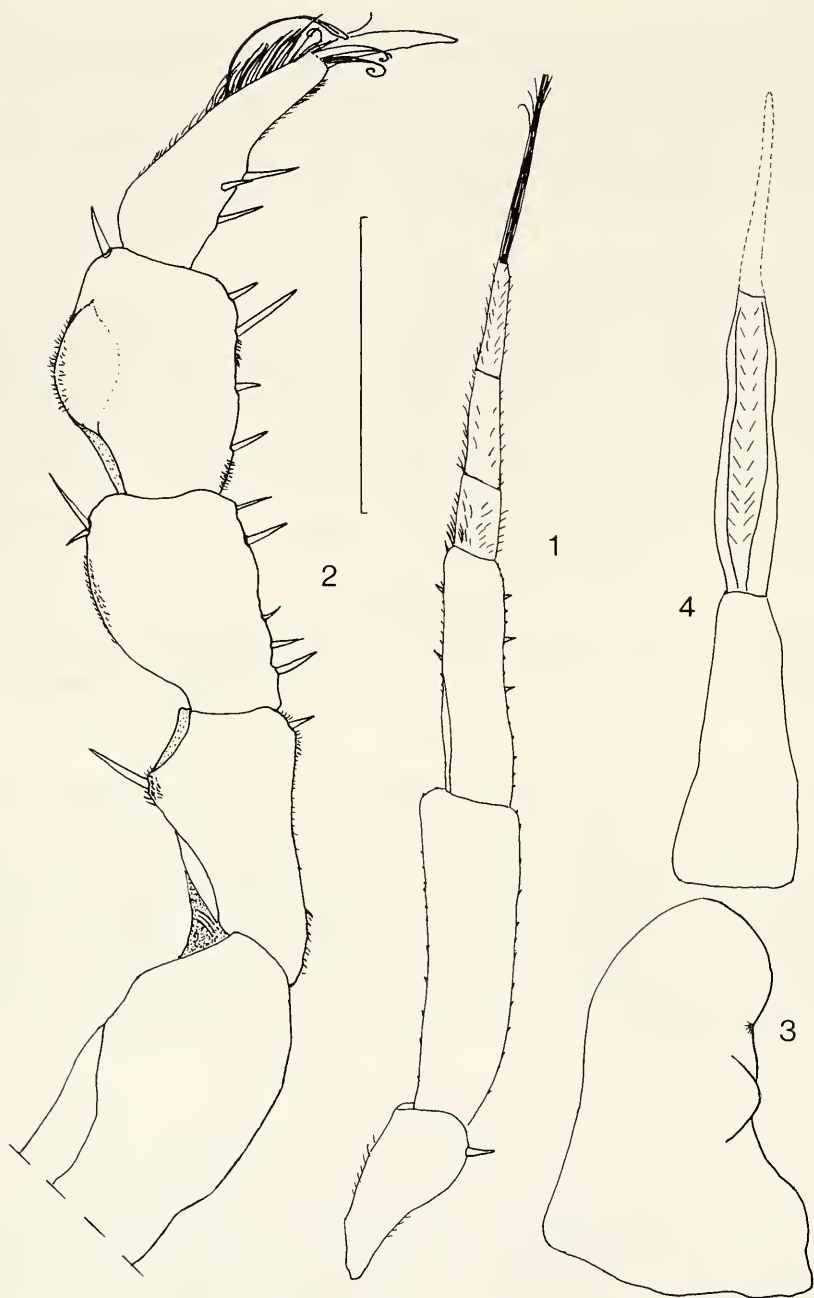
*T. oedipus* n. sp. is not related to any other known Greek species of the genus, as far as we can judge from its sexual characters. A similar male pereopod VII with dorsally enlarged carpus is also present in *T. pancici* Pljakic, 1977 from the former Yugoslavia. The two species are similar in general morphology but they differ in the structure of male pleopod-exopodite I. Unfortunately the taxonomy of *Trichoniscus* spp. is still problematic and it is not possible to evaluate such resemblances in a phylogenetic perspective. Individuals that have the above mentioned characters in a reduced state (due to smaller size or intraspecific variation) can be misidentified as *Trichoniscus pusillus* Brandt, 1833.

### 3. Trachelipodidae

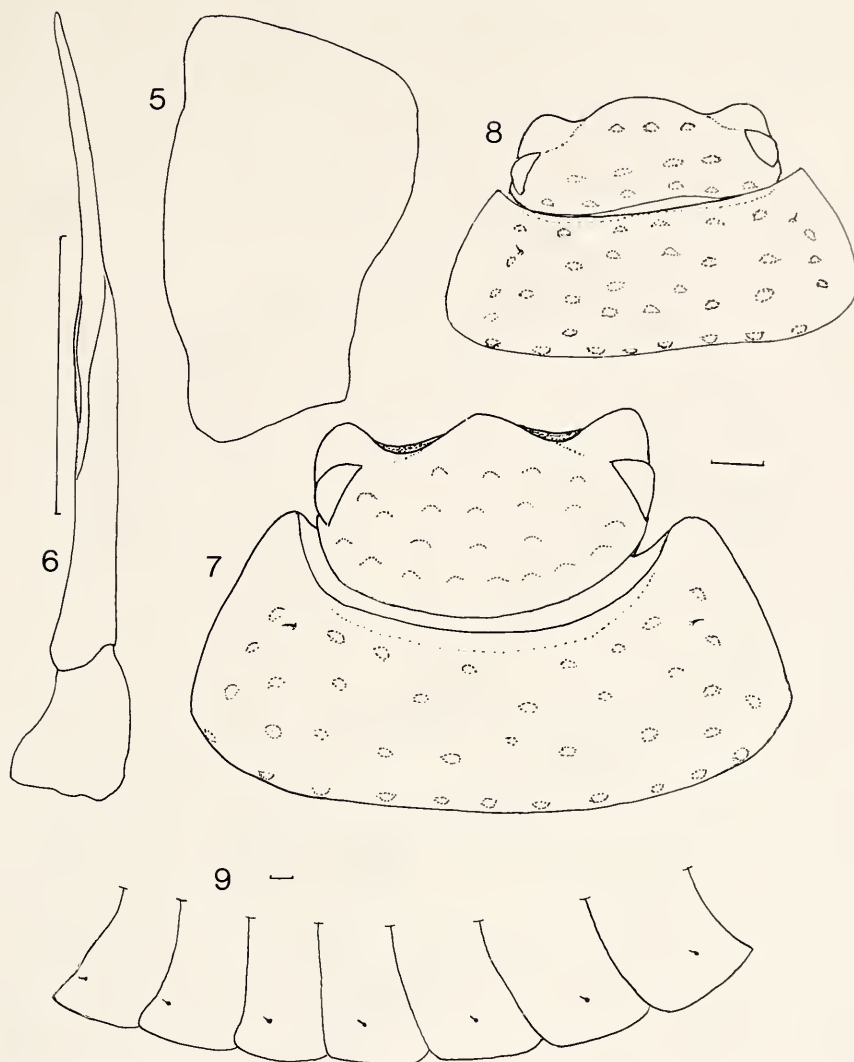
#### 3.1. *Protracheoniscus kalymnius* n. sp.

Holotype: 1 ♂, 4 mm long, Kalymnos isl., Arginonta, 11. III. 1991.

Paratypes: 1 ♀ (with marsupium), same collecting data; – 4 ♀♀ (2 with marsupium), Kalymnos isl., Agia Aikaterini, 10. III. 1991; – 3 ♀♀ (2 with marsupium), Kalymnos isl., Vathy, 12. III. 1991; – 2 ♀♀ (1 with marsupium), Kalymnos isl., Pothia, 12. III. 1991; – 1 ♂, 1 ♀, Samos isl., Vathy, 24. XI. 1989; – 3 ♀♀, Samos isl., Mytilinioi, 25. XI. 1989; – 3 ♂♂, 2 ♀♀, Ikaria isl., Agios Kyrikos, 4. XII. 1990; – 1 ♂, Ikaria isl., Perdiki, 5. XII. 1990; – 4 ♂♂, 2 ♀♀, Ikaria isl., Xylosyrtis, 6. XII. 1990; – 2 ♀♀, Ikaria isl., Karavostamo, 7. XII. 1990; – 1 ♂, Ikaria isl., Evdilos, 7. XII. 1990; – 1 ♂, 1 ♀, Ikaria isl., Stavri, 8. XII. 1990; – 8 ♂♂, 2 ♀♀, Ikaria isl., Kosikia, 8. XII. 1990 (SMNS); – 1 ♂, 2 ♀♀, Ikaria isl., Kampos, 8. XII. 1990; – 1 ♂, 2 ♀♀, Ikaria isl., Lagada, 10. XII. 1990; – 1 ♂, Ikaria isl., Pezi, 10. XII. 1990; – 2 ♂♂, 4 ♀♀, Ikaria isl., Therma, 11. XII. 1990; – 23 ♀♀ (with marsupium), Patmos isl., Chora, 29. IV. 1992; – 5 ♀♀ (with marsupium), Patmos isl., Kouvari, 1. V. 1992; – 7 ♀♀



Figs. 1-4. *Trichoniscus oedipus* n. sp.; male (holotype) (scale: 0.1 mm). - 1. Antenna; - 2. Pereopod VII; - 3. Pleopod-exopodite I; - 4. Pleopod-endopodite I.



Figs. 5–6. *Trichoniscus oedipus* n. sp.; male (holotype) (scale: 0.1 mm). – 5. Pleopod-exopodite II; – 6. Pleopod-endopodite II.  
Figs. 7–9. *Protracheoniscus kalymnius* n. sp. (scale: 0.1 mm). – 7. Cephalon of female; – 8. Cephalon of male; – 9. Position of noduli laterales.

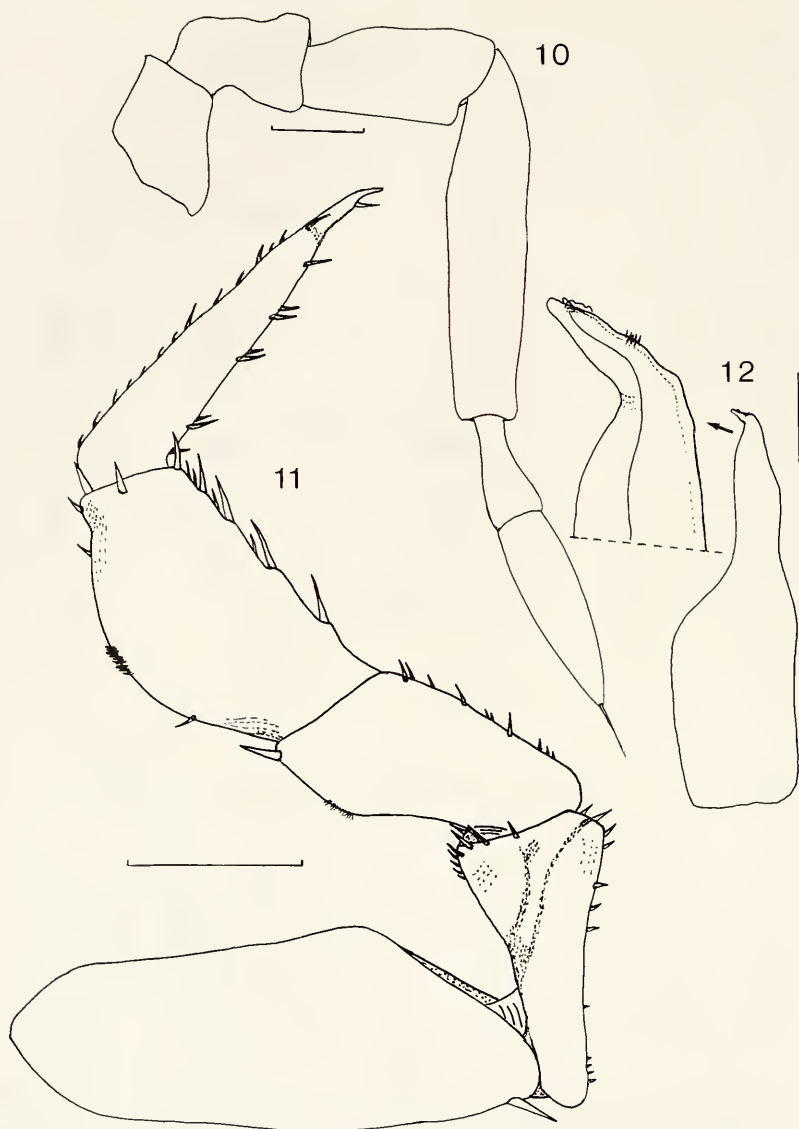
(with marsupium), Leros isl., Xirokampos, 3. V. 1992; – 2 ♀♀ (with marsupium), Leros isl., Plefouti, 4. V. 1992; – 3 ♀♀ (with marsupium), Leros isl., Platanos, 5. V. 1992.

#### Description

Dimensions: Maximal length of males 4.5 mm, of females 7 mm.

Coloration: Pale yellow with brownish longitudinal lines that reach the telson, as in most species of *Orthometopon* Verhoeff, 1917.



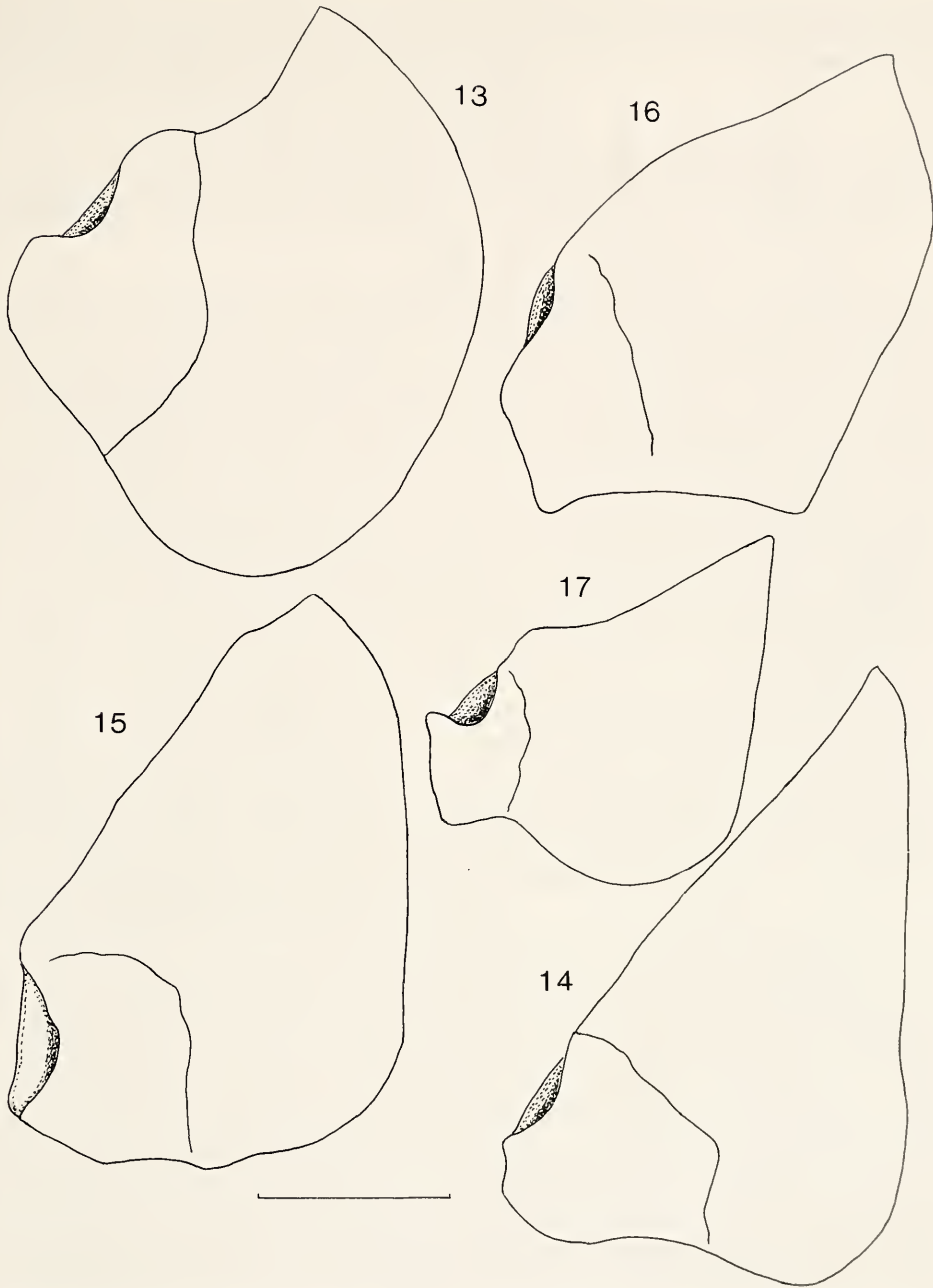


Figs. 10–12. *Protracheoniscus kalymnius* n. sp.; male (holotype) (scale: 0.1 mm). – 10. Antenna; – 11. Pereopod VII; – 12. Pleopod-endopodite I.

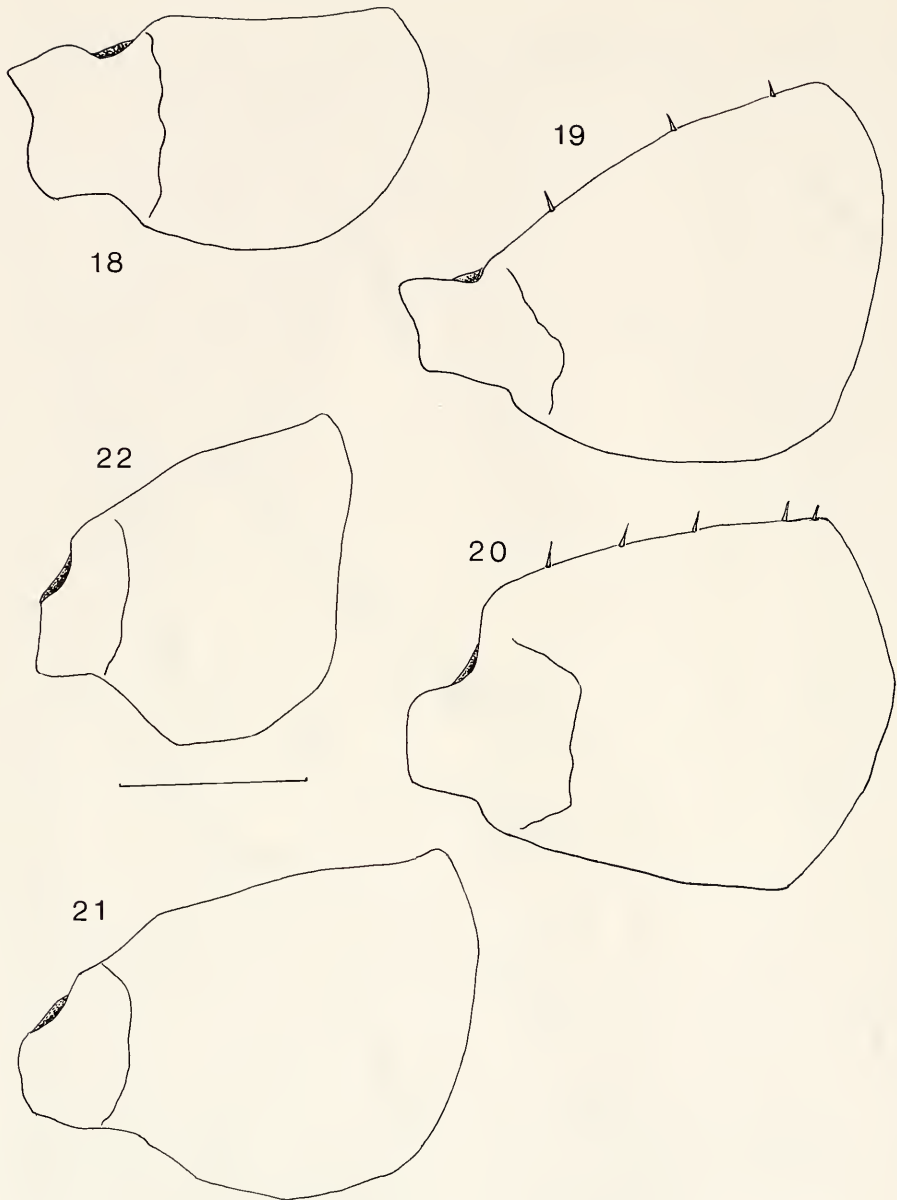
Cephalon: With *Orthometopon*-type, rounded, equally protruding frontal lobes (fig. 7). Median lobe wider and varying from completely rounded (mainly in males, fig. 8) to pointed (in larger females). Eyes consisting of ca. 11 ommatidia.

Antennae: Distal article of flagellum 1.5 times longer than proximal (fig. 10).

Pereon: Noduli laterales as in fig. 9. Epimeron I with convex, arched hind margin (fig. 7). Tergal surface slightly granulated. Granulation is more apparent in the specimens from Kalymnos, Patmos and Leros, while it is almost missing in those from Ikaria and Samos.



Figs. 13–17. *Protracheoniscus kalymnius* n. sp.; male (holotype). (scale: 0.1 mm). – Pleopod-exopodite I–V, respectively.



Figs. 18–22. *Protracheoniscus kalymnius* n. sp.; female. (scale: 0.1 mm). – Pleopod-exopodites I–V, respectively.

Pleon: All five pairs of pleopods with lungs.

Telson: Triangular, pointed, with concave sides that in some specimens may be partially hidden (in dorsal view) by pleonite V (fig. 23).

Male sexual characters: Ischium VII with slightly sinuated ventral margin. Carpus VII with dorsal ridge (fig. 11). This ridge is not present in the males from Ikaria and



Samos. Pleopod-exopodite I with triangular inner lobe (fig. 13). Pleopod-endopodite I as in fig. 12. Pleopod-exopodites II–V as in figs. 14–17.

Female pleopod-exopodites as in figs. 18–22.

#### Ecological data

I found this species mostly under stones in maquis vegetation and anthropogenous habitats but also at forested and humid sites.

#### Remarks

This new species has certain characters, such as cephalic lobes and tergal granulation, that do not conform to the generic definition of *Protracheoniscus* as given by SCHMALFUSS (1983). It seems to be closer to *Orthometopon* Verhoeff, 1917 as recently defined by SCHMALFUSS (1993). However I included it in *Protracheoniscus* (sensu lato) because of the presence of five pairs of lungs plus the form of male pleopod-exopodite I that is not of the *Orthometopon*-type. Certainly the definitions of these two genera do not prove them to be monophyletic taxa and are in need of rigorous revision (see also SCHMALFUSS 1986). I keep here the generic name *Protracheoniscus* despite the fact that it has been found to be a synonym of *Agnara* Budde-Lund, 1908 (FERRARA & ARGANO 1989). It is almost certain that the group of species included in „*Protracheoniscus*“ is paraphyletic and it remains unclear which part corresponds to the *Agnara* group. Therefore „*Protracheoniscus*“ is used as a name for a species group wider than *Agnara* until their taxonomy becomes disentangled.

There is a certain variation in several characters of the species which is partly geographic (see description). But this could be also attributed to different developmental stages, since the material of Ikaria and Samos has been collected in November–December (no ovigerous females) while that of all other islands, during spring (most females with marsupium). Since all populations are composed of similar sized individuals it is very probable that the specimens from Ikaria and Samos are at a different stage of the reproductive cycle (immature?).

*P. kalymnus* n. sp. does not belong to the group of the other *Protracheoniscus* or *Orthometopon* species reported from Greece (SCHMALFUSS 1983, 1993). From the species of the former genus (*P. babori* Frankenberger, 1938 and *P. kühneli* nomen provisorium) it differs in the cephalic structure (without lobes in the two other *Protracheoniscus* species) and in the granulated tergites, as already mentioned. From the species of the latter genus [*O. phaleronense* (Verhoeff, 1901), *O. dalmatinum* (Verhoeff, 1901), *O. ferrarai* (Schmalfuss, 1983), *O. kerkinianum* Schmalfuss, 1993, *O. scheuerni* Schmalfuss, 1993, *O. turcicum* Verhoeff, 1941 and *O. hydrense* Schmalfuss, 1993] it differs in the general structure of male pleopod-exopodites which have a truncated or rounded caudal part and a notched external margin of tracheal-field in all *Orthometopon* sensu stricto species. The pleopodal morphology of *P. kalymnus* is closer to that of the *P. asiaticus* Uljanin, 1875 group (sensu RADU 1985).

### 4. Armadillidiidae

#### 4.1. *Schizidium tinum* n. sp.

Holotype: 1 ♂, 6.5 mm long, Tinos isl., Faneromeni, 18. XI. 1991.

Paratypes: 1 ♂, 7 ♀♀, same collecting data; – 1 ♂, 1 ♀, Tinos isl., Exompourgo, 18. XI. 1991 (SMNS); – 6 ♀♀, Tinos isl., Panormos, 20. XI. 1991; – 1 ♀, Tinos isl., Marlas, 20. XI. 1991.

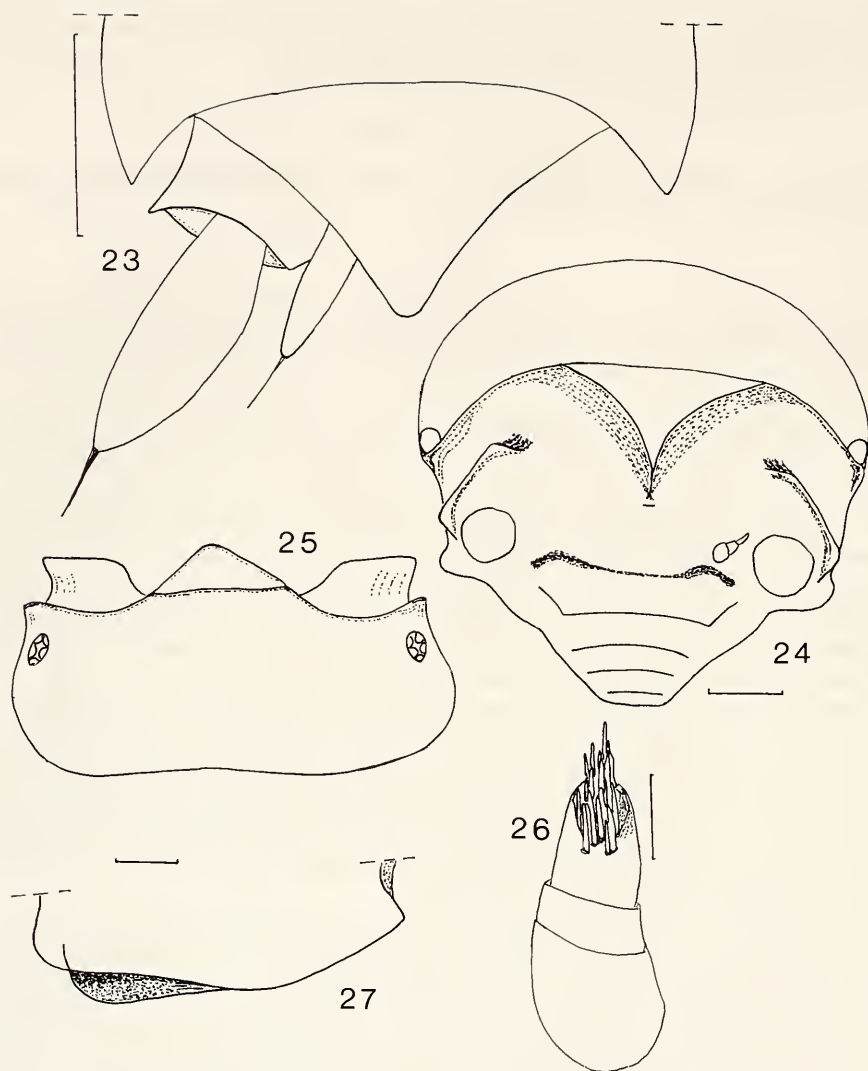


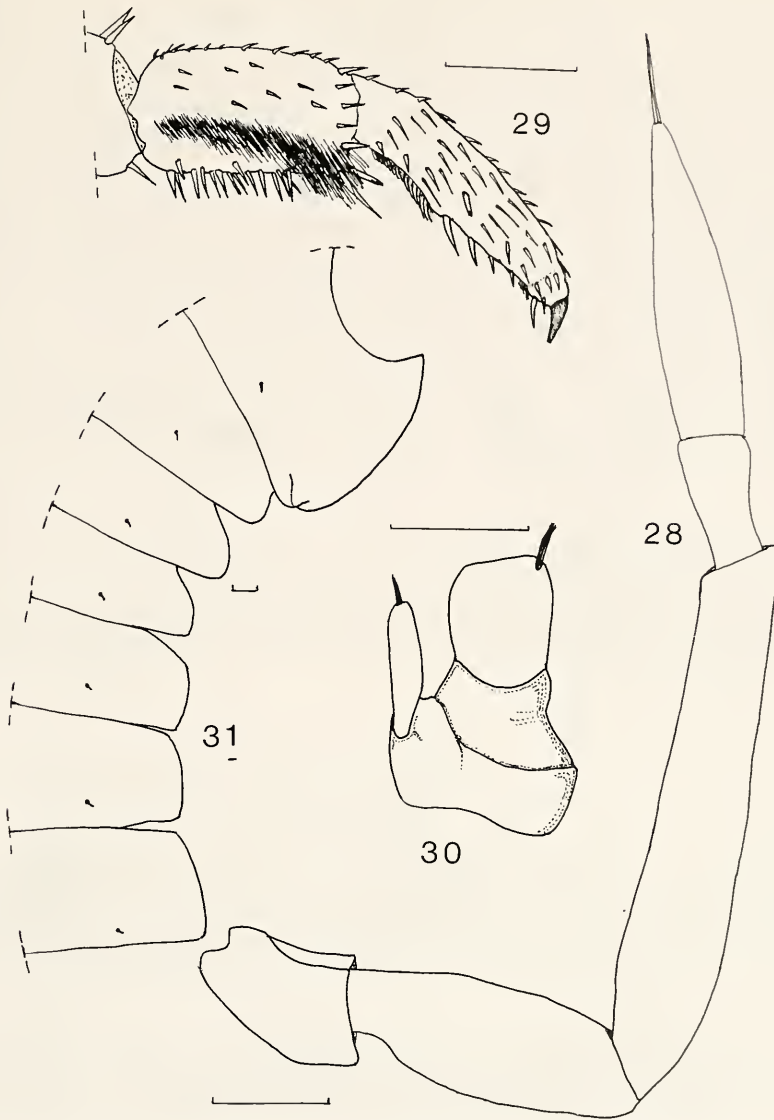
Fig. 23. *Protracheoniscus kalymnius* n. sp., female (scale: 0.1 mm); telson from dorsal.  
 Figs. 24–27. *Schizidium tinum* n. sp.; female. – 24. Cephalon, frontal view (scale: 0.1 mm); –  
 25. Cephalon, dorsal view; – 26. Antennula (scale: 0.01 mm); – 27. First epi-  
 meron with schisma (scale: 0.1 mm).

### Description

Dimensions: Maximal length of males 6.5 mm, of females 8 mm.

Coloration: Reduced light brown coloration that is visible only in magnification and mostly on larger individuals. Live animals look almost white.

Cephalon: Eyes with 5–6 ommatidia. Single frontal ridge. Frontal triangle well developed with continuous posterior margin (figs. 24, 25). Antennal lobes large and oblique.

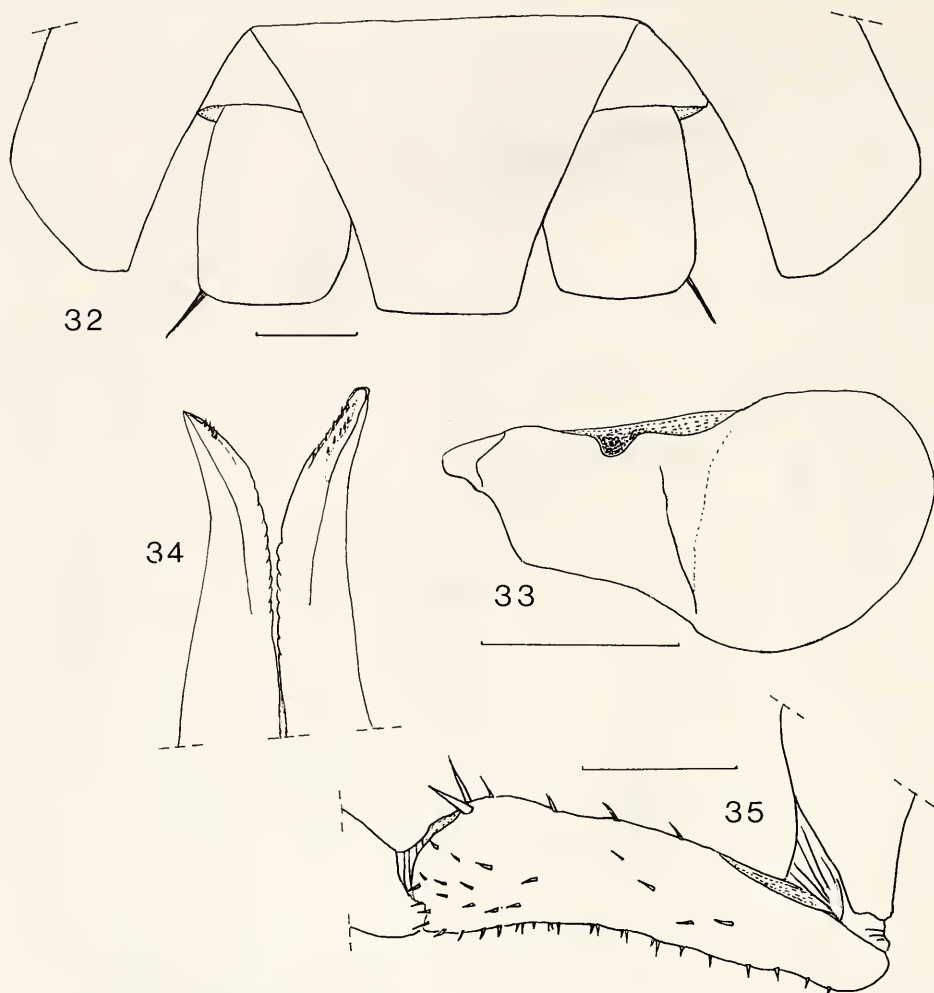


Figs. 28–31. *Schizidium tinum* n. sp.; female (scales: 0.1 mm). – 28. Antenna; – 29. Carpus of pereopod I, ventral view; – 30. Uröpod, ventral view; – 31. Position of noduli laterales.

Antenna: Distal flagellar article 2.5 times longer than proximal (fig. 28).

Antennula: Three-jointed (fig. 26).

Pereon: Caudal schisma in pereon-epimeron I well developed, with outer lobe longer than inner lobe (fig. 27). Noduli laterales as in fig. 31. Tergites covered with setae of intermediate length. Carpus I possesses a conspicuous antennae-cleaning brush at the internal side, in both sexes (fig. 29). Ventral margin of carpus I, II and III in both sexes has denser setation than that of the posterior pereopods.



Figs. 32–35. *Schizidium tinum* n. sp.; male (holotype) (scale: 0.1 mm). – 32. Telson and uropods (dorsal view); – 33. Pleopod-exopodite I; – 34. Apex of pleopod-endopodite I; – 35. Ischium of pereopod VII, ventral view.

Telson: Truncated, longer than wide (fig. 32). Uropod-exopodite longer than wide (fig. 30).

Male sexual characters. Pleopod exo- and endopodite I as in figs. 33–34. Pleopod-exopodite II as in fig. 36. Ischium VII not sexually dimorphic (fig. 35).

Female pleopod-exopodites I and II as in figs. 37–38.

#### Ecological data

This species lives on the banks of small streams, inside the litter-layer of *Nerium oleander* and other hydrophilic plants or under stones buried in the wet humus of the banks.

### Remarks

The reduction of coloration and ommatidia in this remarkable species is related to its habitat that can be considered as intermediate between epigeal and endogean. This view is reinforced by the finding of a purely endogean form of the same (or some closely related) species which is totally blind and unpigmented, on the small islet of Velopoula (see below). This late form is very similar to the known species of *Alloschizidium* (Verhoeff, 1917) from which it differs only in the single frontal ridge, a character of ambiguous taxonomic value. In addition, after the examination of the new material it becomes obvious that there is no character justifying the generic distinction of *Schizidium* and *Paraschizidium* Verhoeff, 1917 except for the length of telson and uropods (longer than wide in „*Schizidium*“). All other „generic“ characters are present in various combinations in the continuum from epigeal to endogean schisma-bearing species. However, because the taxonomy of Schizidiinae needs a sound revision, that is not possible in the context of this paper, I keep the current nomenclature.

Even though it is probably true that the schisma-bearing genera, as they are currently defined, are no monophyletic taxa (SCHMALFUSS 1988), it seems that the Aegean species *S. oertzeni* (Budde-Lund, 1896), *S. hybridum* (Budde-Lund, 1896), *S. schmalfussi* Sfenthourakis, 1992, *S. tinum* n. sp. and the form from Velopoula constitute a distinct group that is characterised by the truncated telson and the schisma with a longer outer lobe.

### 4.2. *Schizidium* sp.

Material examined: 2 ♀♀, Velopoula isl., 20. I. 1993.

### Description

All somatic characters are identical to those of *S. tinum* n.sp. described above except for the absence of coloration and ommatidia that is related to the endogean habits of this form. Unfortunately only females were found and therefore it is not possible to decide whether it is a new species or a variant of *S. tinum*.

### Ecological data

I found the specimens under stones deeply buried in the ground in a maquis-phrygana biotope that is characteristic of small Aegean islets.

### *Paraschizidium* Verhoeff, 1917

In the Greek fauna only two species of this genus were known until now: *P. graecum* Schmalfuss, 1981 from the Northern Sporades and *P. atticum* Sfenthourakis, 1992 from Attiki. Both species have a well-formed frontal triangle with continuous posterior margin, large and oblique antennal lobes and a trapezoidal, wide telson. These characters are also present in all the new specimens of the genus that I collected on the islands of central Aegean. The construction of the cephalon, particularly, is very similar in all Greek species (fig. 39) and may differ only in the number of ommatidia and the articles of antennula. The telson is slightly more variable, being narrower in some species, but is always trapezoidal (figs. 42–43). The uropods are identical, being quadrangular with rounded angles (fig. 41). The antennal flagellum



always has its distal article 2.5–3.0 times longer than the proximal one (fig. 40). Finally, the schisma at the posterior margin of the first epimeron always has a larger outer lobe (fig. 46).

On the other hand, the number of the antennula's articles varies between two (fig. 45) and three (fig. 44), the ommatidia may be absent or reach the number of seven, and coloration varies from absent to brown with yellowish patches. As it has been previously stated (SCHMALFUSS 1981, SFENTHOURAKIS 1992), these characters are not useful for generic diagnoses in this group („Schizidiinae“), but it seems that at least the number of ommatidia is also useless at the species level as it varies among individuals of the same population.

Even though I found *Paraschizidium* material on many islands, I consider valid species only those whose sexual characters were available for investigation and found to be distinct. The institution of new species is based mainly on their genitalia autapomorphies which seems to be the only dependable diagnostic character for *Paraschizidium* species.

#### 4.3. *Paraschizidium aegaeum* n. sp.

Holotype: 1 ♂, 2 mm long, Amorgos isl., Agia Anna, 29. III. 1992.

Paratypes: 2 ♂♂, 2 ♀♀, Tinos isl., Exompourgo, 18. XI. 1991 (SMNS); – 2 ♀♀ (with marsupium), Mykonos isl., Ftelia, 27. III. 1989; – 1 ♂, 1 ♀, Christiani isl., 19. III. 1993; – 1 ♀, Antimilos isl., 22. I. 1993.

##### Description

Dimensions: Maximal length of males 2 mm, of females 3 mm.

Coloration: Moderately pigmented in a pale brownish patchy pattern.

Cephalon: As in fig. 39. Ommatidia from 7 (holotype) to 4.

Antennula: 2-jointed.

Antenna, schisma, uropods, as in figs. 40–41, 46 respectively.

Telson: Trapezoidal, of the wide form (fig. 42).

Male sexual characters. Pleopod exo- and endopodite I as in figs. 47–48.

##### Ecological data

Endogean. I found it under deeply-buried stones at humid sites near streams or in phrygana vegetation.

#### 4.4. *Paraschizidium album* n. sp.

Holotype: 1 ♂, 2 mm long, Amorgos isl., Profitis Ilias, 29. III. 1993.

Paratypes: 1 ♀, Amorgos isl., Kamari, 26. III. 1993; – 1 ♀, Amorgos isl., Roudas, 30. III. 1993 (SMNS); – 1 ♂, Ikaria isl., Nas, 9. XII. 1990 (SMNS); – 1 ♂, Naxos isl., Melanes, 30. I. 1991; – 2 ♂♂, Ananes isl., 14. III. 1992.

##### Description

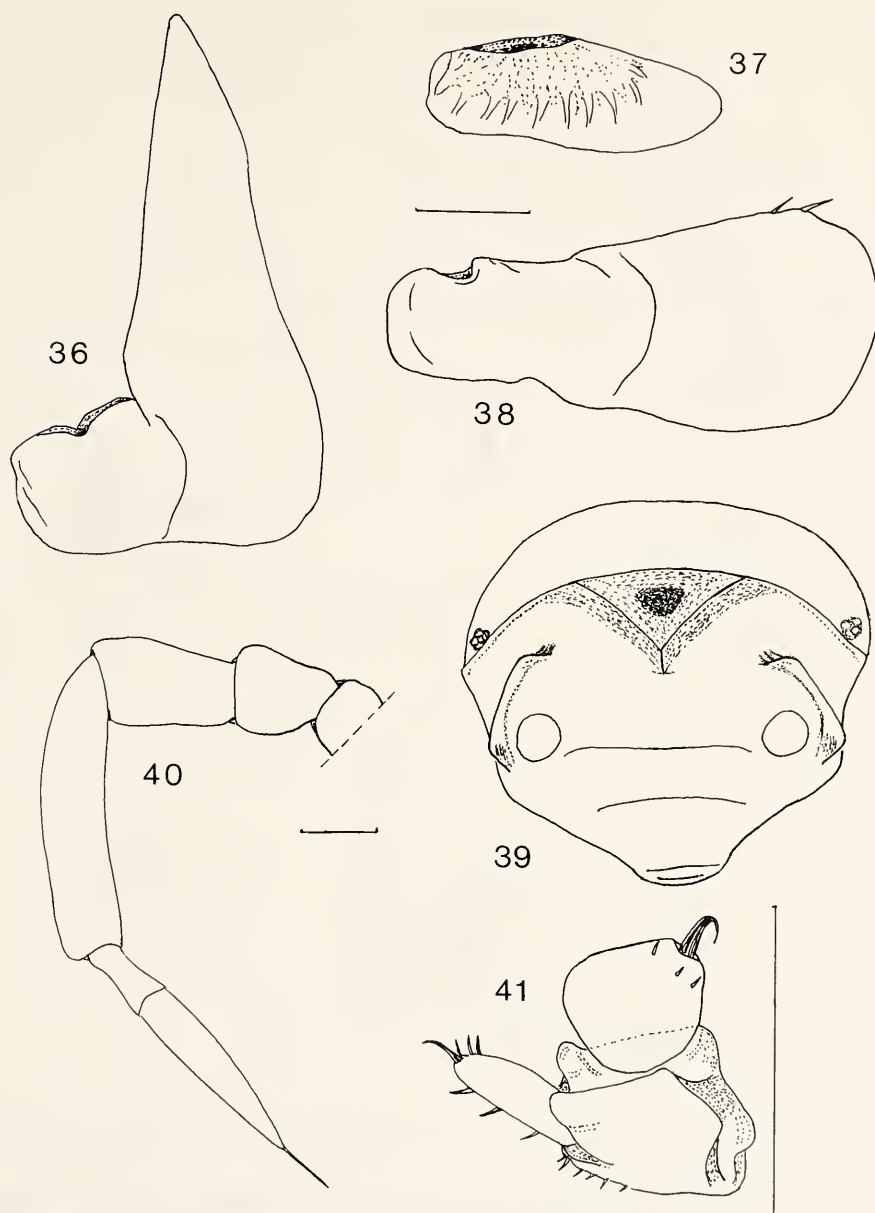
Dimensions: Maximal length of males 2 mm, of females 3 mm.

Coloration: White, unpigmented.

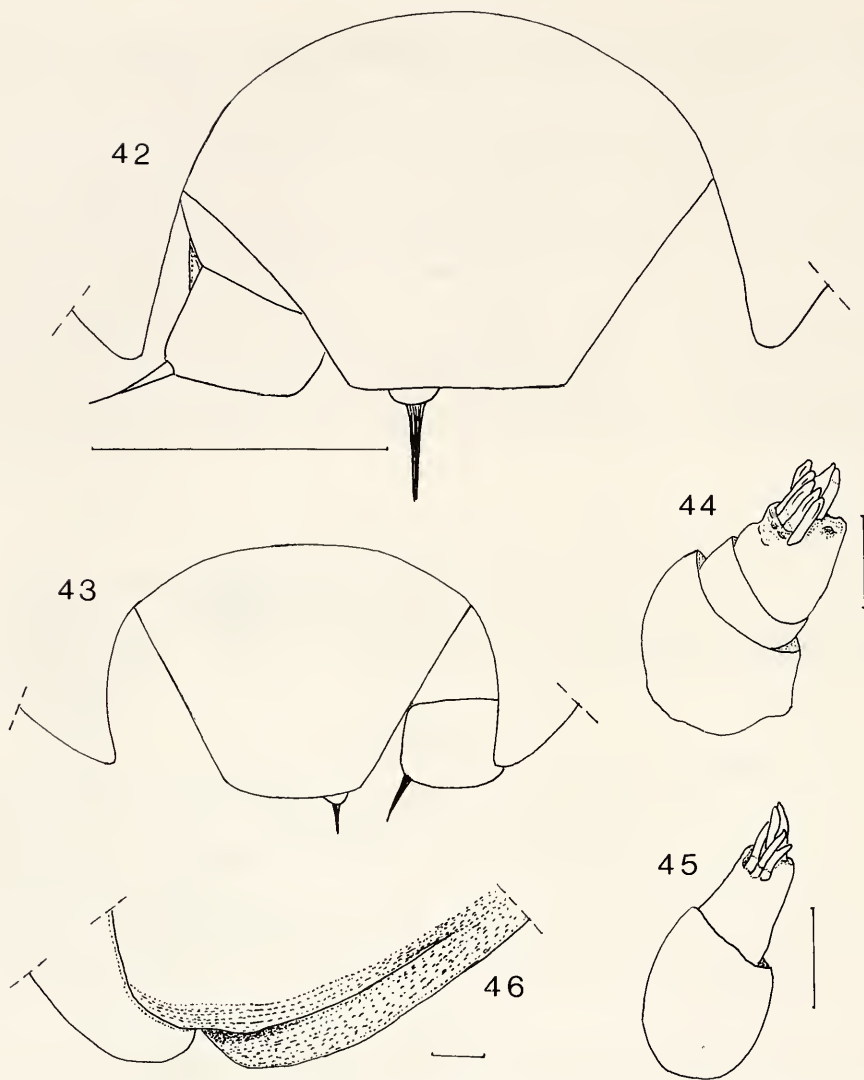
Cephalon: As in all the other Aegean species. 3 ommatidia.

Antennula: 2-jointed.





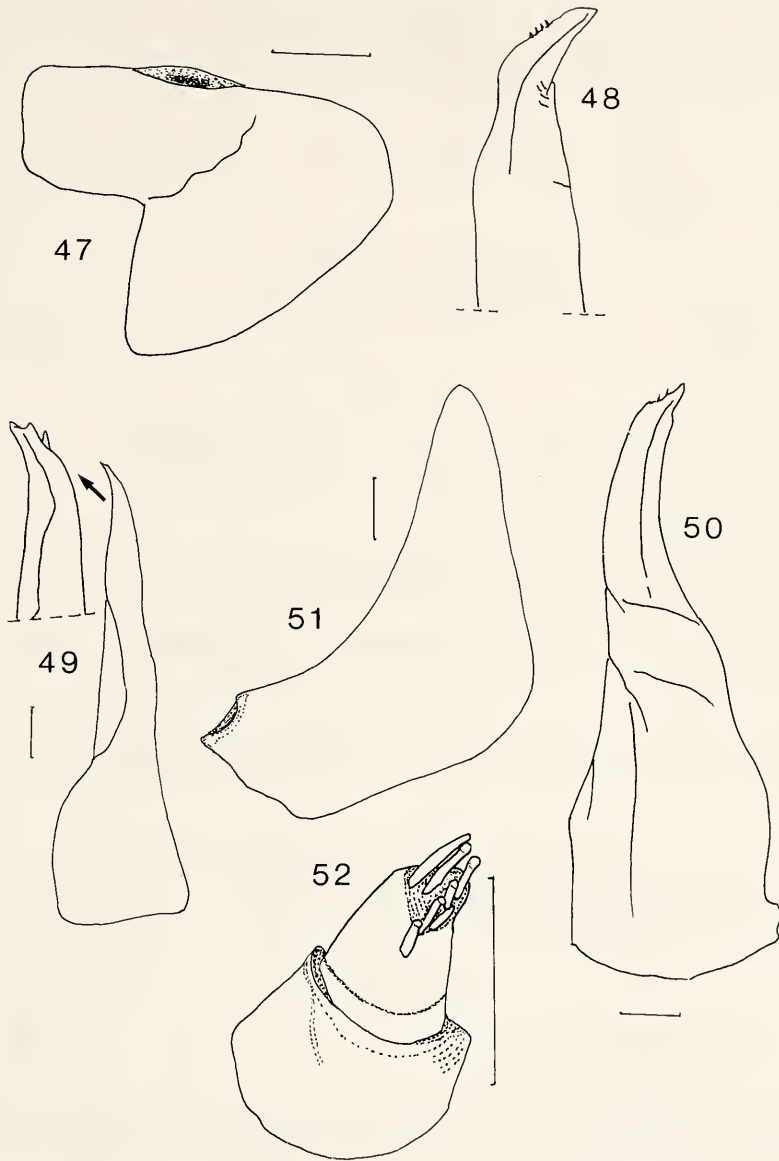
Figs. 36–38. *Schizidium tinum* n. sp. (scale: 0.1 mm). – 36. Male pleopod-exopodite II (holotype); – 37. Female pleopod-exopodite I; – 38. Female pleopod-exopodite II.  
Figs. 39–41. *Paraschizidium aegaeum* n. sp. (scales: 0.1 mm). – 39. Cephalon; – 40. Antenna; – 41. Uropod. (The morphology of these body-parts is the same in all Aegean species of the genus.)



Figs. 42–46. The form(s) of antennula, telson and schisma present in all Aegean *Paraschizidium* spp. –

42, 44. *Paraschizidium aegaeum* n. sp. – 42. Telson (wide form) (scale: 0.1 mm); – 44. Three-jointed antennula (scale: 0.01 mm); –

43, 45–46. *Paraschizidium album* n. sp. – 43. Telson (narrow form) (scale: 0.1 mm); – 45. Two-jointed antennula (scale: 0.01 mm); – 46. Schisma (scale: 0.01 mm).



- Figs. 47–48. *Paraschizidium aegaeum* n. sp.; male (holotype) (scale: 0.02 mm). – 47. Pleopod-exopodite I; – 48. Apex of pleopod-endopodite I.
- Fig. 49. *Paraschizidium album* n. sp., male (holotype) (scale: 0.02 mm); pleopod-endopodite I (apex enlarged).
- Figs. 50–51. *Paraschizidium falkoneriae* n. sp.; male (holotype) (scale: 0.02 mm). – 50. Pleopod-endopodite I; – 51. Pleopod-exopodite II.
- Fig. 52. *Paraschizidium levithae* n. sp., female (scale: 0.02 mm); antennula.

Antenna, pereon, uropods, as in the other Aegean species.

Telson: Trapezoidal, of the narrow form (fig. 43).

Male sexual characters: Pleopod-endopodite I as in fig. 49.

#### Ecological data

As in the latter species.

#### 4.5. *Paraschizidium falkonerae* n. sp.

Holotype: 1 ♂, 2.5 mm long, Falkonera isl., 21. I. 1993.

Paratypes: 1 ♂, 1 ♀, same collecting data (SMNS); – 4 ♀♀ same collecting data.

#### Description

Dimensions: Maximal length of males 2.5 mm, of females 3 mm.

Coloration: Well-pigmented, brown with yellowish patches.

Cephalon: As in the preceding species. 5–7 ommatidia.

Antennula: 3-jointed.

Antenna, pereon, uropods, as in the preceding species.

Telson: Trapezoidal, of the wide form. The length of the telson varies among individuals.

Male sexual characters: Pleopod-endopodite I and exopodite II as in figs. 50–51.

#### Ecological data

Endogean. I found all specimens under stones in phrygana vegetation.

#### 4.6. *Paraschizidium levithae* n. sp.

Holotype: 1 ♂, 2 mm long, Levitha isl., 18. I. 1990.

Paratypes: 1 ♀, same collecting data (SMNS); – 2 ♀♀, same collecting data; – 1 ♂, Kos isl., Kastro, 18. III. 1991 (SMNS).

#### Description

Dimensions: Maximal length 2 mm.

Coloration: White, unpigmented.

Cephalon: As in the preceding species. Blind.

Antennula: 2-jointed, but with a narrow groove at the lower part of second joint (fig. 52) that could be the residual of a 3-jointed state.

Antenna, pereon, uropods, as in the preceding species.

Telson: Trapezoidal, of the narrow form.

Male sexual characters: Pleopod I and pleopod-exopodite II as in figs. 53–55.

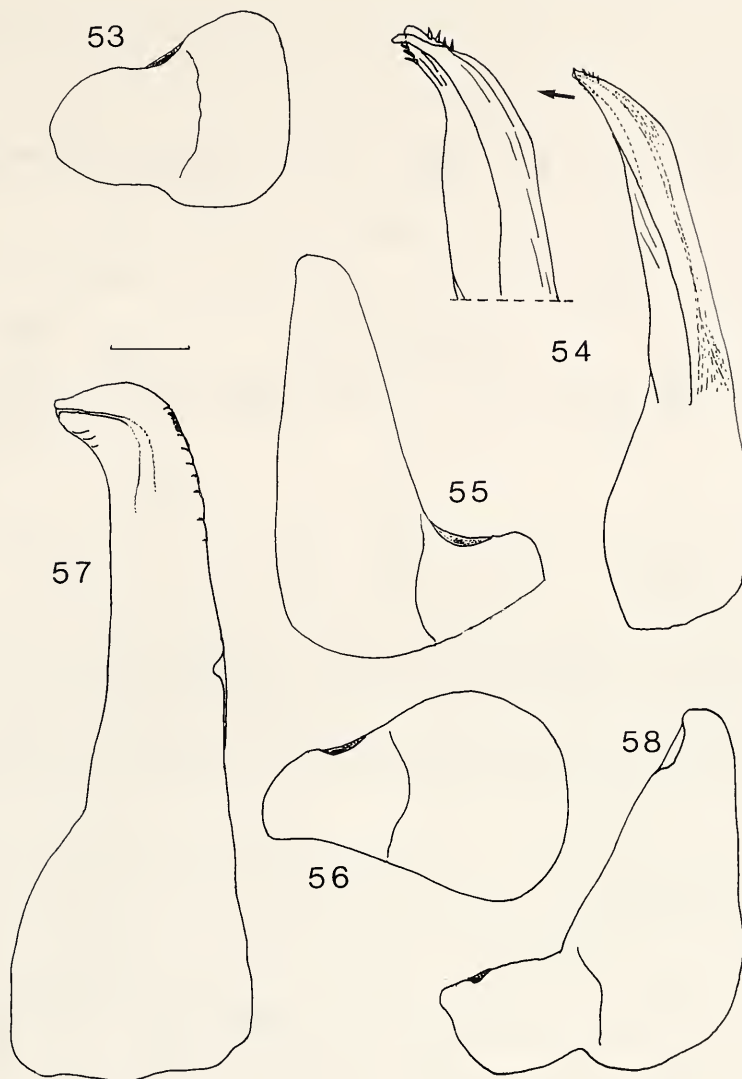
#### Ecological data

Endogean. I found all specimens under stones at humid sites in maquis vegetation.

#### 4.7. *Paraschizidium polyvotisi* n. sp.

Holotype: 1 ♂, 2.5 mm long, Nisyros isl., Emporio, 16. II. 1991.

Paratypes: 1 ♀, Kandelioussa isl., 29. I. 1993 (SMNS); – 2 ♀♀, same collecting data.



Figs. 53–55. *Paraschizidium levithae* n. sp.; male (holotype) (scale: 0.02 mm). – 53. Pleopod-exopodite I; – 54. Pleopod-endopodite I (apex enlarged); – 55. Pleopod-exopodite II.

Figs. 56–58. *Paraschizidium polyvotisi* n. sp.; male (holotype) (same scale). – 56. Pleopod-exopodite I; – 57. Pleopod-endopodite I; – 58. Pleopod-exopodite II.

### Description

Dimensions: Maximal length 3 mm.

Coloration: Brownish with yellow patches. The coloration is intermediate between *P. falkoneræ* n. sp. and *P. aegaeum* n. sp.

Cephalon: As in the other Aegean species. 5–6 ommatidia.

Antennula: 2-jointed.

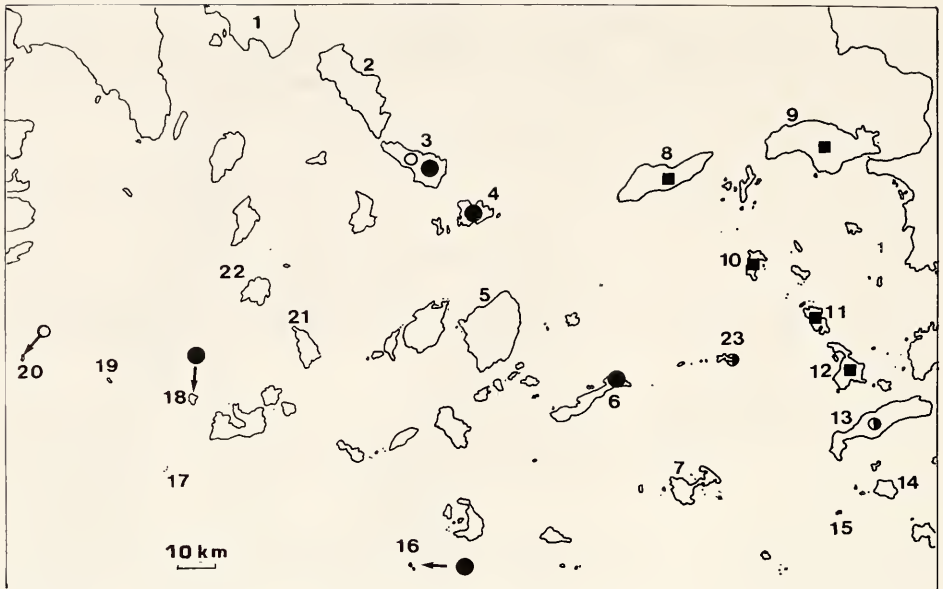


Fig. 59. Map of study area showing the islands referred to in the text (numbered) and the distribution of the species *Protracheoniscus kalymnius* (■), *Schizidium tinum* (○), *Paraschizidium aegaeum* (●) and *P. levithae* (◐). — 1. Evvoia, — 2. Andros, — 3. Tinos, — 4. Mykonos, — 5. Naxos, — 6. Amorgos, — 7. Astypalea, — 8. Icaria, — 9. Samos, — 10. Patmos, — 11. Leros, — 12. Kalymnos, — 13. Kos, — 14. Nisyros, — 15. Kandelioussa, — 16. Christiani, — 17. Ananes, — 18. Antimilos, — 19. Falkonera, — 20. Velopoula, — 21. Sifnos, — 22. Serifos, — 23. Levitha.

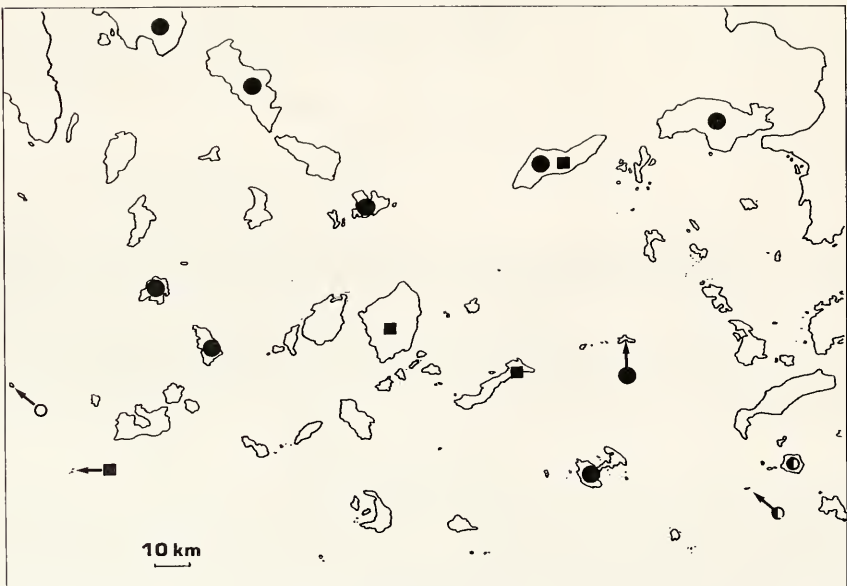


Fig. 60. The distribution of *Trichoniscus oedipus* (●), *Paraschizidium album* (■), *P. falkonerae* (○) and *P. polyvotisi* (◐).



Antenna, pereon, uropods as in the preceding species.

Telson: Trapezoidal, of the wide form.

Male sexual characters: Pleopod I and pleopod-exopodite II as in figs. 56–68.

Derivatio nominis: The name comes from the giant Polyvotis that, according to ancient Greek mythology, was buried by Poseidon underneath Nisyros and whose groans are causing the volcanic bursts on this island.

#### Ecological data

Endogean but on Nisyros also living in the humid litter-layer of oak trees.

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