# THE ARANEAE AND OPILIONES OF THE SUB-ANTARCTIC ISLANDS OF NEW ZEALAND

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Abstract: This paper covers the spiders and opiliones from all the subantarctic islands of New Zealand. Forty-three species are enumerated, of which 21 are new (7 n. spp. from Campbell I.). Three genera are described as new.

This paper is based on large collections which have become available over the last few years from both the Auckland and Campbell Islands. Other collections from the Snares and Chatham Islands have also been referred to in the preparation of this paper in an attempt to elucidate some of the taxonomic problems involved. In an earlier paper (Forster, 1955) I listed 19 species of spiders from the Auckland Islands and 9 from Campbell I. This paper increases these totals to 24 species recorded from the Auckland Is. and 16 from Campbell I., besides Opiliones. Nine species are found in both Auckland and Campbell Is. but only 4 of these, Gohia wenhami, Hina delli, Icona alba and Clynotis barresi are considered to be endemic. Mynoglenes insolens, M. marrineri and Amaurobioides maritima are recorded from a number of other Subantarctic islands and also from the extremities of some of the Southern Continents and New Zealand and undoubtedly possess the ability to cross easily the wide stretches of ocean between the areas in which they occur. Araneus pustulosus has probably been introduced by man to these islands from New Zealand and the occurrence of Oramia charybdis on Campbell I. may be explained in the same way. In general the fauna is a characteristic extension of the New Zealand fauna and is related directly to the elements typical for the southern portion of the South Island. The facies of the fauna is not characteristic of an oceanic island fauna but appears to be an attenuated relict fauna from an earlier period when these islands were part of the New Zealand land area or when the extension of land greatly reduced the sea barriers present today. It is of interest to note that of the 31 species recorded from these islands 25 are endemic although in each case closely related species occur in New Zealand. Clear evidence of divergence between the populations of Campbell and Auckland Is. is shown in Oramia crucifera and O. hoggi and also within the Auckland Is. themselves by the species groups Gohia falxiata, G. enderbyensis, G. wenhami and Huara antarctica, H. sorenseni, H. grossa. The high degree of endemism shown in this fauna would seem to indicate that it is not to be explained by post-Pleistocene colonization but is in fact a fauna of considerable age.

Acknowledgments: I am deeply indebted to Dr. J. L. Gressitt for the opportunity to study the material collected for the Bishop Museum in recent years, and also to Mr. Ian Mannering and Mr. Peter Johns who arranged for supplementary material collected from the Snares and Auckland Islands to be made available.

# Order ARANEAE

## Family DICTYNIDAE

## Genus Oramia Forster, n. gen.

Large dictynid spiders with thickset carapace, usually reddish brown darkening anteriorly. Cribellum divided, calamistrum uniserial. Chelicerae with 2 teeth on retromargin, 3 on promargin. Epigynum usually with a pair of stout spinous projections near the epigastric furrow. Internal genitalia simple, with 1 pair of seminal receptacles.  $\mathcal{J}$  palp with a simple bifid or trifid process on tibia and a distal plate. Median apophysis of bulb well developed and free.

Type species: Ixeuticus rubrioides Hogg 1909.

The dictynid spiders of the N. Z. area have recently been revised by Marples (1959), who studied the genus *Ixeuticus* Dalmas in New Zealand, increasing the number of New Zealand and Subantarctic I. species to 12, and at the same time suggesting that these could be separated into 4 species-groups. In the course of a revision of the spider fauna of New Zealand by the present author, all the specimens which were available to Marples have been re-examined, and much additional material, collected subsequently, has been examined. It would appear that the genus *Ixeuticus* is somewhat heterogeneous. The type species of the genus *Ixeuticus* is *I. martius* which is probably of Australian origin and has perhaps been introduced into New Zealand in the same way as the species had been introduced into North America, where it is recorded as *Hesperauximus sternitzii* Gertsch.

The species found on the subantarctic islands are closely related to each other and to N. Z. species of the *charybdis* group. These I have grouped together under a new generic name *Oramia* which is equivalent to group 2 as suggested by Marples.

The opportunity has also been taken in this paper to clarify the status of the New Zealand, Chatham, and Snares Is. species, in relation to those found on the Auckland and The unavailability of specimens from Snares I. in the past has resulted in Campbell Is. considerable confusion. It has been assumed by all previous authors that the Snares I. species was identical with a single species found on the Auckland and Campbell Is. An eranmanmizotizmanfmaretarie<sup>1</sup> azamanerileble stares zneze sharmaketathes frezeelos recies is more closely related to that from the Chatham Is., and is also restricted to Snares. Furthermore, a detailed study of the material now available from the Aucklands and Campbell Is, shows that there is yet another species on the Auckland Is, related to Oramia mckerrowi (Marples) and that the Auckland and Campbell I. populations previously known under the name rubrioides are in fact quite distinct and represent 2 species. The present collections also show the presence of a population of the New Zealand O. charybdis at Tucker Cove on Campbell I., where it was most probably introduced during the period of early settlement.

Oramia rubrioides (Hogg) Fig. 11–12.

Amaurobius rubriodes Hogg, 1909, Subantarct. Is. of N. Zeal. 1: 159.

#### Forster: Araneae and Opiliones

from Senecio, 2. II. 1961, Knox; nr. Station Pt., beaten from Carex, 2. II. 1961, Knox; nr. Station Pt., beaten from Polystichum vestitum, 7.II.1961, Mannering.

## Order OPILIONES

Harvestmen belonging to the genus Neonuncia (Suborder Laniatores), have been recorded previously from both Auckland and Campbell Is. The 2 species known from the Auckland Is., N. enderbyi (Hogg) and N. eastoni Forster are represented in the present collections but N. campbelli Forster, from Campbell I. has not been rediscovered. Extensive series of long-legged harvestmen of the suborder Palpatores have been collected for the first time from both areas and 4 species, 1 from Campbell I. and 3 from the Auckland Is, are described below. A further species from Snares is also described as this species is related to P. rennelli n. sp. from Campbell I. These species are all closely related to New Zealand forms, most of which are as yet undescribed. The taxonomy of this group of harvestmen is at present not very soundly based. A number of apparently polymorphic characters have not been recognised by earlier workers. The most obvious is the striking difference in the form of the chelicerae and the color and sclerotisation of the body between  $\partial \partial$  and  $\varphi \varphi$  of many species. In addition to sexual dimorphism there also appear to be present dimorphic  $\mathcal{J}$  forms in much the same way as I have demonstrated (Forster, 1954) for many New Zealand Laniatores. The Palpatores with 2 forms of  $\mathcal{J}$  seem to possess the body color pattern typical for the Q in the 1 form, while the carapace of the other form is usually heavily pigmented and sclerotised. Of the 4 species described below P. mila n. sp. is represented by 2 forms of  $\mathcal{J}$ .

#### Suborder PALPATORES

## Family PHALANGIIDAE

## Genus Pantopsalis Simon, 1879

# Pantopsalis johnsi Forster, n. sp. Figs. 150-151, 159-160, 166-168.

 $\vec{\sigma}$ : Measurements in mm. Length of body 4.40; width of body 3.16. Leg 1, 29; leg 2, 52; leg 3, 27; leg 4, 37. Chelicerae. Basal segment 6.1. Segment 2, 8.3. Palp-femur 1.8, patella 0.9, tibia 1.0, tarsus 2.2, total 5.0. The legs, body and chelicerae are dark brown, heavily shaded with sooty black. There are numerous small, irregularly shaped, black spots on the carapace arranged in segmental rows across the abdomen. The palp is also dark but there are pale areas on the patella and tibia. The carapace is sclerotised and there are numerous small denticles surrounding the eyemound, and with a few on the eyemound itself. *Pedipalp* slender without swellings or processes, slightly shorter than the basal segment of the chelicerae. There are no denticles on the femur and the claw is smooth. *Chelicerae* large, total length slightly more than  $3 \times$  length of body, both segments strongly and uniformly denticulate, segments 2,  $2 \times$  as wide as the basal. Arrangement of teeth and denticles on both fixed and movable fingers is shown in fig. 160. Legs long and slender, 2.4.1.3. Femur denticulate, other segments smooth. Form of penis as shown in figs. 166, 167.

♀: Measurements in mm. Length of body 4.48; width of body 3.52. Leg 1, 20; leg

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Figs. 147-154. Pantopsalis spp. 147, P. mila n. sp., dorsal surface of body of  $\Im$  (form); 148, same, dorsal surface of body of  $\Im$  (typical); 149, same, dorsal surface of body of  $\Im$ ; 150, P. johnsi n. sp., dorsal surface of body of  $\Im$ ; 151, same, dorsal surface of body of  $\Im$ ; 152, P. distincta n. sp., dorsal surface of body of  $\Im$ ; 153, same, dorsal surface of body of  $\Im$ ; 154, P. snaresensis n. sp., dorsal surface of body of  $\Im$ .

#### Forster: Araneae and Opiliones

2, 35; leg 3, 21; leg 4, 25. Chelicerae. Basal segment 1.1. Segment 2, 2.1. Palp-femur 1.55, patella 1.04, tibia 0.96, tarsus 2.20, total 5.75. Pattern on dorsal surface of body is shown in fig. 151. Lateral and ventral surfaces mottled with white. Eyemound and surface immediately surrounding eyemound is reddish. Palp white with reddish shading. Legs dark brown with numerous patches. Dorsal surface of basal segment of chelicerae white and ventral surface brown. Proximal 1/2 of segment 2 brown. Distal 1/2 pale yellow. Scute not heavily sclerotised and is smooth. Chelicerae short and smooth. Total length less than length of body. Legs. 2.4.3.1. Relatively shorter than in  $\partial$ . Femora not denticulate. Palp slender, slightly longer than length of body. Prolateral surfaces of patellae and tibiae distended but not forming processes. Claw smooth. The receptaculum seminis of ovipositor is shown in fig. 168.

*Types*: Holotype  $\mathcal{J}$ , allotype  $\mathcal{Q}$ , Deas Head, Auckland Is., under rata bark, 18. I. 1963, Johns, Canterbury Museum.

*Records*: AUCKLAND IS. Deas Head, under logs, 18.I.1963, Johns; Lindley Pt., under logs in rata forest, 18.I.1963, Johns; same locality, 30.XII. 1962, Johns; Lindley Pt., under rata bark, 30.XII. 1962, Johns.

# Pantopsalis mila Forster, n. sp. Figs. 147-149, 155-156, 163-165.

 $3^{\circ}$ : Measurements in mm. Length of body 5.28; width of body 3.08. Leg 1, 29; leg 2, 53; leg 3, 31; leg 4, 37. Palp-femur 1.76, patella 0.88, tibia 0.88, tarsus 2.44, total 5.96. Chelicera. Basal segment 11.4. Segment 2, 13.2. The typical form is dark sooty black. There is a rather indistinct segmental pattern of darker shading on the abdomen as shown in fig. 148, and a few black patches on the carapace. The body of a secondary form is illustrated in fig. 147. In this form the legs and chelicerae are pale brown and the carapace is not as heavily sclerotised.

In both forms there are numerous small denticles on the carapace and also on the eyemound. Chelicerae relatively longer than in *johnsi*, equal in length to  $4.5 \times$  length of body. Segment 2 is also more slender than *johnsi*. Both segments closely covered with strong denticles. Teeth and denticles on the fingers are shown in fig. 156. Palp smooth and slender, without processes. Claw smooth. Penis as in figs. 163, 164. Legs 2.4.3.1, long and slender, femora of all legs covered with small denticles.

 $\mathcal{Q}$  (immature): Measurements in mm. Length of body 4.41; width of body 3.08. Leg 1, 16; leg 2, 26; leg 3, 14; leg 4, 22. Palp-femur 1.32, patella 0.88, tibia 0.84, tarsus 1.56, total 4.60. Chelicera. Basal segment 0.88. Segment 2, 1.76. The color pattern of body shown in fig. 149. Pale central area flushed with pink. Body and eyemound without denticles. Chelicera smooth and short, total length much less than length of the body. Palp as in *johnsi* without denticles but with swellings on prolateral surfaces of patellae and tibiae. Receptaculum seminis of ovipositor illustrated in fig. 165.

*Types*: Holotype  $\mathcal{F}$ , Terror Cove, Port Ross, Auckland Is., on rata trunk with cock-roaches, 10. I. 1963, Wise. Allotype  $\mathcal{P}$ , Terror Cove, Port Ross, on seashore cliff, 10. I. 1963, Wise, Dominion Museum, Wellington.

Records: ALICKLAND IS Deas Head under rate bark 18 L1963 Johns: Lindley Pt.

7



Figs. 155-162. Pantopsalis spp. 155, P. mila n. sp., prolateral view of  $\mathcal{F}$  chelicera (denticles not drawn); 156, same, fingers of chelicera, ventral; 157, P. snaresensis n. sp., prolateral view of  $\mathcal{F}$  chelicera (denticles not drawn); 158, same, fingers of chelicera, ventral view; 159, P. johnsi n. sp. prolateral view of  $\mathcal{F}$  chelicera; 160, same, fingers of chelicera, ventral view; 161, P. distincta n. sp., prolateral view of  $\mathcal{F}$  chelicera; 162, same, fingers of chelicera, ventral view.

living together. Apart from genitalic characters, the 2 species are easily separated by the form of the chelicerae in the  $\mathcal{J}$  and the body pattern of the  $\mathcal{P}$ .

Pantopsalis distincta Forster, n. sp. Figs. 152-153, 161-162, 171-173.

 $3^{\circ}$ : Measurements in mm. Length of body 4.84; width of body 3.21. Leg 1, 27; leg 2, 45; leg 3, 26; leg 4, 32. Palp-femur 2.64, patella 1.12, tibia 114, tarsus 3.76, total 8.66. Chelicera. Basal segment 7.04. Segment 2, 9.68.

Dorsal surface of body shown in fig. 152. Pale areas on each side of eyemound extending to anterior margin of carapace and the rectangular dark patch on anterior median surface of abdomen are distinctive. Chelicerae are a uniform reddish brown, palp are

## Forster: Araneae and Opiliones

white and legs dark brown with pale bands. The carapace is smooth apart from a group of denticles placed on a projection at each anterolateral margin (fig. 152). Eyemound is smooth. Chelicerae large, almost  $3.5 \times$  as long as body, closely denticulate on both segments. Segment 2 is swollen,  $2 \times$  as wide as basal segment. Processes and denticles on fingers shown in fig. 162. Legs long and slender, 2.4.1.3, all femora covered with denticles. Palp slender without processes but with a slight swelling on prodistal surface of patella and numerous denticles on femur. Penis as in figs. 171, 172.

 $\mathfrak{P}$ : Measurements in mm. Length of body 5.28; width of body 3.52. Leg 1, 18; leg 2, 32; leg 3, 15; leg 4, 25. Palp-femur 1.56, patella 0.91, tibia 1.06, tarsus 2.03, total 5.56. Chelicera. Basal segment 1.11. Segment 2, 1.61. The color pattern of the abdomen is somewhat similar to the  $\mathfrak{F}$  (fig. 153). The pale areas on each side of the eyemound



Figs. 163-173. Pantopsalis spp. 163, P. mila n. sp., penis; 164, same, distal portion of penis; 165, same, receptaculum seminis; 166, P. johnsi n. sp., penis; 167, same, distal portion of penis; 168, same, receptaculum seminis; 169, P. snaresensis n. sp., penis; 170, same, distal portion of penis; 171, P. distincta n. sp., penis; 172, same, distal portion of penis; 173, same, receptaculum seminis.



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are pink whereas in the  $3^{\circ}$  they are white. The dark rectangle on the abdomen is more pronounced and the paler areas on the abdomen are more numerous. Chelicerae small and smooth, less than 1/2 length of body. There is a well developed process on the prodistal surface of the patella of the palp. Claw smooth. Legs 2.4.1.3, smooth. Receptaculum seminis of ovipositor shown in fig. 173.

Types: Holotype  $\mathcal{J}$ , allotype  $\mathcal{Q}$ , Lindley Pt., Auckland Is., under logs in rata forest, 18. I. 1963, Johns, Canterbury Museum.

Records: AUCKLAND IS. Deas Head, under rata logs, 18. I. 1963, Johns.

P. distincta is quite distinct from the 2 previously described species. The presence of a patella process in the  $\mathcal{P}$  should, under the present taxonomic situation, place the species in *Megalopsalis* Roewer, which is separated from *Pantopsalis* by only this character. However an unpublished study of the N. Z. species indicates that these processes are often secondary sexual characters present only in the  $\mathcal{P}$  (as in this species) and are also extraordinarily well developed in the earlier stages of development, but become progressively smaller as the animal passes through successive instars. There seems little virtue in placing these species in separate genera.

# Pantopsalis snaresensis Forster, n. sp. Figs. 154, 157-158, 169-170.

 $\vec{\sigma}$ : Measurements in mm. Length of body 4.24; width of body 2.64. Leg 1, 19; leg 2, 36; leg 3, 23; leg 4, 27. Palp-femur 1.43, patella 0.93, tibia 0.88, metatarsus 2.43, total 5.67. Chelicerae. Basal segment 1.91. Segment 2, 3.31. Color pattern of dorsal surface of body shown in fig. 154. The dark areas range from reddish to dark brown. Area in front of eyemound is pink. Eyemound is white. Proximal 1/2 of the pedipalp femur blackish brown but remainder of palp is pale. Legs reddish with paler bands. Chelicerae pale yellow but there is dark brown shading on the retrolateral surface of the basal seg-Body lightly sclerotised and without denticles. Eyemound also smooth. Pedipalp ment. slender, almost  $1.5 \times$  length of body. Pedipalp without processes, but distal prolateral surfaces of patella and tibia swollen. Chelicerae relatively short, slightly shorter than Segment 2 is distended and  $2 \times$  as wide as basal segment. **Basal** segment pedipalps. provided with very few small scattered denticles, while segment 2 closely covered with denticles on dorsal surface and a few scattered denticles on the ventral surface, arrangement of teeth and denticles on fingers is shown in fig. 158. Legs 2.4.3.1, smooth, without denticles. Form of penis as shown in figs. 169-170.

*Type*: Holotype  $\mathcal{J}$ , Snares Is., vicinity of Station Pt., 30. I. 1961, Mannering, Canterbury Museum.

*Records*: A number of immature specimens with the following data: SNARES IS. sweeping *Polystichum vestitum*, 7. II. 1961, Mannering; Snares I., Hoho Bay and East Coast, beating *Olearia*, 3. I. 1961, Mannering.

## Pantopsalis rennelli Forster, n. sp. Figs. 174-180.

 $\vec{\sigma}$ : Measurements in mm. Length of body 3.61; width of body 2.20. Leg 1, 17.6; leg 2, 29.1; leg 3, 16.8; leg 4, 22.0. Palp-femur 0.88, patella 0.65, tibia 0.65, tarsus 1.53, total 3.71. Chelicera. Basal segment 3.08. Segment 2, 3.52. Color pattern of dorsal surface of body shown in fig. 174. Median band, eyemound and area around eyemound flushed with pink. Legs dark brown flecked with white. Chelicerae pale yellow with darker shading on the retrolateral surfaces of the basal segment. Palps pink with white patches.

Body and eyemound are smooth, without denticles, and lightly sclerotised. Femora of all legs with few minute denticles but otherwise legs smooth. Palp also smooth, without processes. Claw has 2-3 minute teeth (fig. 180). Chelicerae relatively slender, segment 2 slightly wider than basal segment. Both segments closely denticulate and their total length is equal to  $2\times$  the length of body. Teeth and denticles on inner surface of fingers shown in fig. 175. Penis is typical, as shown in figs. 178, 179.



Figs. 174-180. *Pantopsalis rennelli* n. sp. 174, dorsal view of 3; 175, fingers of 3 chelicera; 176, ovipositor; 177, receptaculum seminis; 178, penis; 179, distal portion of penis; 180, claw of 3 palp.

without an apophysis. Legs smooth. Ovipositor as in fig. 176. The receptaculum seminis is long and tubiform (fig. 177).

*Types*: Holotype  $\mathcal{F}$ , allotype  $\mathcal{P}$ , Venus Cove, Campbell I., ex tussock, 0–2 m, 2. II. 1963, Rennell, Dominion Museum, Wellington.

Records: CAMPBELL I. Beeman Hill, ex Coprosma, 2. XII. 1961, Gressitt; Beeman Camp, 2-50 m, ex Chrysobactron, 26-30. XI. 1961, Gressitt; Beeman Camp, 2-30 m, ex Coprosma, 26-30. XI. 1961, Gressitt; Beeman Camp, 30 m, 27.XI.1961, Gressitt; Beeman Camp, 25 m, 27. II. 1961, Gressitt; Beeman Camp, 250 m, ex Pleurophyllum criniferum, 6-11. XII. 1961, Gressitt; Beeman Camp, ex Poa, 13. XII. 1961, Gressitt; Beeman Station, under timber on ground, 14. II. 1963, Wise; Beeman, sweeping Coprosma, 27. VII. 1962, Rennell; same data 15. VIII. 1962; Beeman Hill, 30-100 m, ex Poa roots and moss, 1-6. XII. 1961, Gressitt; Beeman Hill, 2. II. 1963, Wise; Beeman Point, beaten from Pittosporum, 28. II. 1963, Wise; Beeman to Tucker Cove, ex Pleurophyllum criniferum, 8. XII. 1961, Gressitt; Tucker, ex Poa and sedge, 5. XII. 1961, Gressitt; Tucker Cove, 1-50 m, ex Colobanthus and Poa, 21-25. XI. 1961, Gressitt; Tucker Cove, ex Dracophyllum 25. XI. 1961, Gressitt; Tucker Cove, 1-50m, ex Coprosma, 1-5. XII. 1961, Gressitt; Tucker Cove, 1. II. 1963, Wise; Tucker Cove, beaten from Pittosporum, 26. II. 1963, Wise; Beeman Hill, 25 m, 21. XI. 1961, Gressitt; Lookout Bay Beach, 2-50 m, ex Coprosma, 3. XII. 1961, Gressitt; Lookout Bay Beach, ex dead fern, 16-19. XII. 1961, Gressitt; Lookout Bay Beach, 3 m, ex Stilbocarpa polaris, 30. XII. 1961, Rennell; Lookout Bay Beach, ex Poa, 19. XII. 1961, Gressitt; Northwest Bay, ex Tussock, 30. XII. 1962, Rennell; Shoal Pt., 0-10 m, sweeping Tussock, 27. VII. 1962, Rennell; Venus Cove, ex Tussock, 2. II. 1963, A. Wright; Venus Bay, ex Tussock, 2. II. 1963, Wright; Middle Cove, Northwest Bay, 5. II. 1963, Wise; summit of Mt. Dumas, 400 m, under stones, 6. II. 1963, Wise; Monument Harbor, ex Tussock, 9. II. 1963, Wise.

## Suborder LANIATORES

#### Family TRIAENONYCHIDAE

Genus Neonuncia Forster, 1954

## Neonuncia enderbyi (Hogg) 1909

*Records*: AUCKLAND IS. Ranui Cove, under logs, 1. I. 1963, Johns; Ranui Cove, under logs in rata forest, 14. I. 1963, Wise; Terror Cove, Port Ross, 10. I. 1963, Wise; Deas Head, under rata logs, 18. I. 1962, Johns; Enderby Is., under logs in rata forest, 31. XII. 1962, 19. I. 1963, Johns; Ocean I. under logs and *Stilbocarpa*, 28. XII. 1962, Johns.

#### Neonuncia eastoni Forster

## Neonuncia eastoni Forster, 1954, Cant. Mus. Bull. 2: 129.

This species was previously known only from Stony Peak on Auckland I. It is apparently much rarer that N. *enderbyi* and would seem to live at higher altitudes. The present material extends the distribution of the species to Enderby I.

*Records*: AUCKLAND IS. Bivouac, 420 m, 6.I.1963, Wise; Bivouac Peak, 450 m, under stones, 6. I. 1963, Johns; Bivouac Hill, nr. rocky stream, 10. I. 1963, Gressitt; Bivouac, ex tussock, 16. I. 1963, Gressitt; Meggs Hill, Mt. Eden, 120–1150 m, 5. I. 1963, Wise; Enderby I., rata forest under logs, 17. I. 1963, Wise.

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