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ENTOMOLOGY OF THE AUCKLANDS AND OTHER ISLANDS SOUTH OF NEW ZEALAND: COLEOPTERA: CURCULIONIDAE[1]

By **G. Kuschel**[2]

Abstract: This is a supplementary report to that published on the Curculionidae from Auckland, Campbell, Antipodes, and Snares Islands (no species are known from Bounty or Macquarie) and is based on some 2000 additional specimens collected during further trips to the islands. The native fauna now contains 17 genera and 35 species belonging to 9 subfamilies; 4 genera (23.53%) and 21 species (60.0%) being endemic. All genera and species have their closest relatives in the New Zealand mainland. A significant fact is that none of the true wood borers, flower dwellers, or leaf miners is endemic, and that the larvae of all the endemic species live either in the soil (76.33%) or in decaying plants (23.67%). Further discussions on the composition of the fauna are presented. The fauna is also compared with that of other cold-temperate areas of the southern hemisphere. Apart from a general key to the genera, separate keys to the species are given for the Aucklands, Campbell, and the Snares. A few nomenclatural changes were necessary after an examination of some type material previously not available.

INTRODUCTION

Since the last paper on the subantarctic weevil fauna was published (Kuschel 1964) further parties to several islands have obtained some 2000 additional specimens which included four new species. I had the opportunity of participating in trips to Adams I, South of Auckland I, Campbell I, and Antipodes I. My primary object was to find out a little more about the environmental conditions and feeding habits of each species as well as to gather large amounts of leaf litter, swards, mats, and cushion plants for the extraction of the ground and soil fauna, and some wood samples for rearing the wood borers and their associates. The working conditions on Campbell and Antipodes Islands were excellent, but those on Adams I were far from satisfactory.

Very little material from the southern portion of the New Zealand mainland was previously available for a proper assessment of the subantarctic fauna. Therefore, the Entomology Division, Department of Scientific and Industrial Research, has undertaken several major expeditions to the area, one to Stewart I in February 1968, two to Big South Cape I, to the Southwest of Stewart I, in November 1968 and February 1969, and one to Fiordland from Lake Monowai to Lake Manapouri and Deep Cove in January 1970. It was then found that a number of genera and species previously regarded as endemic to the subantarctic islands also occurred in the southern mainland of New Zealand. Besides, five members of Entomology Division visited the Chathams in February 1967, making a better assessment of the subantarctic fauna possible.

Some type material held in European institutions was not available at the time of the preparation of my first account on the subantarctic weevils. I since had the opportunity to visit the British Museum, London and the Laboratoire d'Entomologie, Paris, where I found all but one remaining types of subantarctic species. The examination of the types revealed that *Gromilus insularis* Blanchard was correctly interpreted and that *Gromilus cockaynei* (Broun, *Hycanus*) was not a junior synonym

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[2]Entomology Division, Department of Scientific and Industrial Research, Nelson, New Zealand.

of *G. insularis* but a senior synonym of *G. frontalis* (Broun). The type of *Oclandius cinereus* Blanchard could not be located in Paris during my short visit to the museum. Fortunately, the original description and figure were good enough for a safe interpretation of the species.

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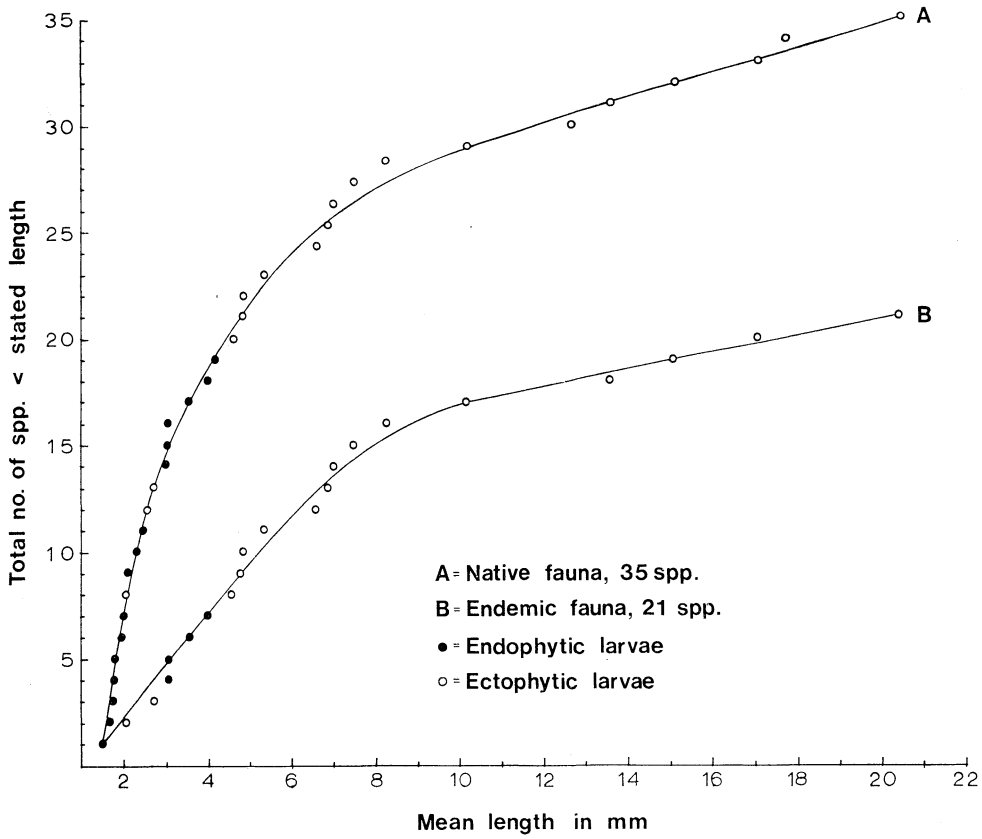

Cumulative frequency curves for mean length of Subantarctic Island Curculionidae.

This graph, which summarizes some characteristics of the weevil fauna, is significantly different from that in Kuschel, 1964. Firstly, the two curves are more divergent because they now have a common origin due to a new endemic species which is the smallest of the entire fauna, and because two other small species had to be removed from curve B as they have been discovered outside the subantarctic area. Secondly, the flexure of both curves, which previously was quite apparent within the *Gromilus* range of species, has now disappeared with the discovery of two new species of *Gromilus* whose size is in the upper range of the genus.

Table 1. Composition of the weevil fauna and distribution of the genera (*=endemic; 4 endemic genera=23.53%)

	Subf.—Genera	Snares	Auckland	Campbell	Elsewhere
	Cossoninae				
1.	*Exeiratus* Broun	+	+	—	South I, Stewart, Chathams, Tasmania
2.	*Pentarthrum* Wollaston	+	+	—	North+South I, Stewart, Chathams, Tasmania, N. Caledonia, J. Fernandez, Chile, Tristan da Cunha, Gough
	Cryptorhynchinae				
3.	*Pachyderris* Broun	—	+	—	North+South I, Stewart, Chathams
4.	*Notacalles* Kuschel	+	+	+	North+South I, Stewart, Chathams
	Hylobiinae				
5.	*Hadramphus* Broun	+	—	—	South I, Stewart, Chathams
	Phrynixinae				
6.	**Notonesius* Kuschel	—	+	—	———
7.	*Phrynixus* Pascoe	+	—	—	North+South I, Stewart, Chathams
	Erirhininae				
8.	*Bryocatus* Broun	—	—	+	North+South I, Stewart, Chathams S.E. Australia
	Eugnominae				
9.	*Pactolotypus* Broun	—	+	+	North+South I, Stewart, Chathams
	Tychiinae				
10.	*Peristoreus* Kirsch	—	+	+	North+South I, Stewart
11.	*Notinus* Kuschel	—	+	—	North+South I, Stewart
	Rhytirhininae				
12.	*Gromilus* Blanchard	+	+	+	Antipodes, North+South I, Stewart, Chathams
13.	*Nestrius* Broun	+	—	—	North+South I, Stewart
	Leptopiinae				
14.	*Catoptes* Schönherr	+	—	—	North+South I, Stewart, Chathams
15.	**Heterexis* Broun	—	+	+	———
16.	**Oclandius* Blanchard	+	+	+	———
17.	**Catodryobiolus* Brookes	—	+	+	———
		9	12	8	

Composition of the weevil fauna and its relationships

The conclusions reached in 1964 in the main hold today. The primitive Curculionoidea of the Orthoceri-families are absent except for two non-endemic Anthribidae, which do not concern me in the present paper. The total fauna of Curculionidae of the subantarctic islands to the South of New Zealand now comprises 35 species belonging to 17 genera and 9 subfamilies. Out of the 17 genera, only 4 (23.53%) are endemic; all the others are shared with the New Zealand mainland. The three endemic genera of Leptopiinae are very closely related to the Zelandic genus *Catoptes* Schönherr, and the phrynixine genus *Notonesius* Kuschel, although morphologically quite unique, has its nearest relatives also in New Zealand. Consequently, all 35 species are more closely related to the New Zealand fauna than to any other in the hemisphere. No unusual or unexpected elements occur on the subantarctic islands.

On the negative side of the faunal composition, only two major groups of Curculionidae well represented in the alpine zone of New Zealand are missing in the Subantarctic. These groups are Aterpinae and the *Brachyolus-Irenimus* genera complex of Leptopiinae.

Table 2. Distribution of species (*=endemics; 21 endemic spp.-60.0%)

	Species	Antip	Campb	Auckl	Snares	Stew	South	North	Chath
1.	*Exeiratus laqueorum	—	—	—	+	—	—	—	—
2.	* turbotti	—	—	+	—	—	—	—	—
3.	Pentarthrum spadiceum	—	—	+	+	+	+	—	+
4.	Pachyderris punctiventris	—	—	+	—	+	+	—	—
5.	Notacalles planidorsis	—	+	+	+	+	+	—	—
6.	piciventris	—	+	+	—	+	+	—	—
7.	kronei	—	+	+	—	+	+	—	—
8.	latitarsis	—	—	+	—	+	+	—	—
9.	* ferrugo	—	—	+	—	—	—	—	—
10.	suillus	—	+	+	—	+	+	—	+
11.	multisetosus	—	+	+	—	+	+	+	—
12.	Hadramphus stilbocarpae	—	—	—	+	+	—	—	—
13.	*Notonesius aucklandicus	—	—	+	—	—	—	—	—
14.	*Phrynixus laqueorum	—	—	—	+	—	—	—	—
15.	*Bryocatus serripes	—	+	—	—	—	—	—	—
16.	Pactolotypus subantarcticus	—	+	+	—	+	+	+	—
17.	depressirostris	—	—	+	—	+	+	—	—
18.	Peristoreus innocens	—	+	+	—	+	+	—	—
19.	Notinus cordipennis	—	—	+	—	+	+	+	—
20.	*Gromilus laqueorum	—	—	—	+	—	—	—	—
21.	* insularis insularis	—	—	+	—	—	—	—	—
	ins. robustus	—	+	—	—	—	—	—	—
	ins. antipodarum	+	—	—	—	—	—	—	—
22.	* exiguus	—	+	—	—	—	—	—	—
23.	* veneris veneris	—	—	+	—	—	—	—	—
	veneris setarius	—	+	—	—	—	—	—	—
24.	* aucklandicus	—	—	+	—	—	—	—	—
25.	* cockaynei	—	—	+	—	—	—	—	—
26.	* narinosus	—	—	+	—	—	—	—	—
27.	* fallai	—	—	+	—	—	—	—	—
28.	*Nestrius laqueorum	—	—	—	+	—	—	—	—
29.	Catoptes brevicornis	—	—	—	+	+	+	—	+
30.	*Heterexis sculptipennis	—	—	+	—	—	—	—	—
31.	* seticostatus	—	+	—	—	—	—	—	—
32.	*Oclandius vestitus	—	—	—	+	—	—	—	—
33.	* cinereus	—	+	+	—	—	—	—	—
34.	* laeviusculus	—	—	+	—	—	—	—	—
35.	*Catodryobiolus antipodus	—	+	+	—	—	—	—	—
		1	14	25	9	14	13	2	3

The subantarctic area included in the present study comprises Snares, Auckland, Campbell, and Antipodes as no weevil species have yet been found on Bounty or Macquarie.

The Snares have at present 9 genera and 9 species, none of the genera being endemic. Four genera occur there which are absent on the other islands. The Snares, therefore, have a faunistic composition which is subantarctic to a lower degree than that of the rest of the area. Out of the 9 species 5 are endemic (55.5%).

The Aucklands have 12 genera and 25 species, a single genus and 9 species (36.0%) being endemic.

Campbell has 8 genera and 14 species; none of the genera and only 3 species (21.4%) are endemic to the island.

The Antipodes have a single genus and species, not endemic.

The Snares, Antipodes, and Campbell were probably well explored in the past as far as the weevil fauna is concerned, but I have serious doubts whether this is the case with the Aucklands as three additional species were discovered there during the last expedition. The highlands of Adams I and particularly those of the southern portion of the main Auckland I are in need of further exploration.

Comparison with other cold-temperate or subantarctic faunas of the hemisphere

That the composition of the weevil fauna of the subantarctic islands of New Zealand is rich is best inferred from a comparison with the faunas of other cold-temperate zones of the southern hemisphere. Three main areas must be taken into account: the islands in the South Indian Ocean, the islands in the South Atlantic, and the mainland and off-shore islands of southern Patagonia.

(1) The islands in the South Indian Ocean. The islands south of the subtropical convergence and south of parallel 40, which hold weevil species, are Prince Edward, Marion, the Crozets, Kerguelen, and Heard. About 25 species and 8 genera of Curculionidae are known from these islands, all belonging to the same suprageneric taxon Ectemnorhininae, a remarkable systematic group of soft-bodied species which have free-living (ectophytic) larvae adapted to the most extreme biotopes. The most outstanding genus because of its life habits is *Palirhoeus* Kuschel, the only truly intertidal weevil genus of the world and the only one in Adelognatha feeding upon marine algae. All taxa are endemic to the islands. The affinity of Ectemnorhininae is not well understood at present, but there is very little doubt that the closest relatives are to be sought in the southern Ethiopian Region.

Amsterdam and St Paul are situated outside the cold-temperate zone in the same area. The single weevil species known belongs to Cossoninae and is closely related to species from the islands on the Mascarene Ridge, Seychelles, Rodriguez, Mauritius, and Reunion.

Thus the composition of the subantarctic fauna of the southern Indian Ocean is a very simple one as all taxa belong to the same systematic group, which must have derived from a single original stock.

(2) The islands in the South Atlantic. Those having a weevil fauna are Tristan da Cunha, Gough, and Falklands. The Tristan da Cunha-Gough group of islands has 16 species in 6 genera belonging to the subfamilies Cossoninae (1 sp.) and Rhytirhininae (15 spp.). All species and 5 genera are endemic. The cossonine species and the rhytirhinine genera are closest to the Patagonian Subregion fauna in their relationships. The 5 genera of Rhytirhininae are very closely interrelated and certainly represent a monophyletic group.

The Falklands have 16 species (14 endemic), 8 genera (1 endemic), and 4 subfamilies. Two subfamilies belong to Adelognatha, Cylydrorhininae with 2 genera (*Cylydrorhinus* Guérin and *Caneorhinus* Kuschel) and Leptopiinae with 1 endemic genus (*Malvinius* Kuschel); 2 subfamilies belong to Phanerognatha, Rhytirhininae with 4 genera (*Listroderes* Schönherr, *Puranius* Germain, *Falklandius* Enderlein, and *Falklandiellus* Kuschel) and Tychiinae with 1 genus (*Haversia* Champion). The whole Falklandic fauna is an eastward extension of the Magellanic one. All species are ground dwellers and have, with the possible exception of *Haversia*, ectophytic larvae in the soil. The best represented subfamily is Rhytirhininae, with 11 known species out of a total of 16. There are at least 4 distinct lineages in the group, so that the Falkland Rhytirhininae must be regarded of polyphyletic origin.

The South Atlantic weevil fauna is, therefore, considerably more varied than the South Indian Ocean one, the dominant subfamily being Rhytirhininae which comprises 26 out of a total of 32 species.

(3) The mainland and off-shore islands of southern Patagonia. The Patagonian Subregion from parallel 48 southwards includes the Magellanic Moorland, which is the only strictly subantarctic zone in South America, the Magellanic Forest, the Mountain Zone, and the Patagonian Steppes. Being such a large area not isolated from the rest of the continent, its weevil fauna contains many species belonging to 13 subfamilies; 3 are represented by more than 5 species, Cryptorhynchinae with a dozen or so species, Cylydrorhininae with more than 30 species, and Rhytirhininae with more than 60 species.

Eight out of the 9 subfamilies on the New Zealand subantarctic islands also occur in the southern Patagonian area, only Hylobiinae being unknown south of parallel 48 in South America. Both geographic areas agree in that the vast majority of the endemic species are ground dwellers with ectophytic larvae in the soil and that the dominant subfamily is Rhytirhininae. The second dominant group in both areas belong to Adelognatha, but the classification of this group into subfamilies is at too early a stage to be of much use for biogeographical considerations.

Summarizing the comparison of the cold-temperate curculionid faunas in the southern hemisphere regions, the following points may be significant and of some interest:

(1) Nearly all endemic species have free-living (ectophytic) larvae which are either in the soil or amongst dense swards, mats, and cushion plants. This type of larval life habit was most likely a prerequisite for a better chance of survival during the glaciations. None of the leaf miners, flower dwellers, and wood borers is endemic except for *Pentarthrum carmichaeli* Waterhouse from Tristan da Cunha-Gough.

(2) Nearly all endemic species occur at all altitudinal levels.

(3) Nearly all endemic species are polyphagous as adult and larva.

(4) All endemic species but one are flightless, the only exception being once more the cossonine *Pentarthrum carmichaeli* from Tristan da Cunha-Gough group of islands.

(5) The closest affinity is to be found on the nearest land to the north or northwest of each island group, except for the Atlantic Islands where it is to the west or southwest.

(6) There are no genera with endemic species and no species at all shared among island groups of different biogeographical areas of the southern hemisphere.

(7) The greatest variety and number of genera and species of the different island groups is to be found on the New Zealand subantarctic islands.

(8) The lowest percentage of endemisms of genera and species occurs once again on the New Zealand subantarctic islands which may have been due to their closer proximity to other lands.

Table 3. Comparison of some southern hemisphere weevil faunas (the S. Patagonian fauna in very rough estimates)

Items	NZ Subant.	S. Ind. Ocean	Tristan-Gough	Falkland	S. Patagonia
Subfamilies	9	1	2	4	13
Total genera	17	8	6	8	33
Endemic genera	4	8	5	1	2
Total species	35	25	16	16	120
Endemic species	21	25	16	14	70
Ectophytic larvae	18	25	15	16	100
Flightless species	33	25	15	16	110

Key to Genera

1(26). Mandibular cusp and scar absent (Phanerognatha).

2 (9). Tibiae uncinate (tooth at or close to dorsal angle).

3 (6). Metepisternal suture with sclerolepidia (row of modified scales). Without pectoral canal.
4 (5). Funicle 7-segmented.....1. **Exeiratus**
5 (4). Funicle 5-segmented .....2. **Pentarthrum**
6 (3). Metepisternal suture without sclerolepidia. With pectoral canal for the reception of rostrum.
7 (8). Wings vestigial. Scutellum large. Elytra tufted.....3. **Pachyderris**
8 (7). Wings absent. Scutellum very small or invisible. Elytra not tufted.....4. **Notacalles**
9 (2). Tibiae mucronate (tooth at lower angle) or unarmed.
10(11). Large, more than 15 mm.....5. **Hadramphus**
11(10). Smaller, not more than 8 mm.
12(23). Tibiae with mucro only or unarmed.
13(20). Claws simple.
14(19). Tibiae mucronate. Eyes bare.
15(18). Funicle 7-segmented.
16(17). Scrobes deep, directed towards gular angle. Body nearly bare, without multifid hairs or scales, without tubercles or tufts.....6. **Notonesius**
17(16). Scrobes shallow, directed towards eyes. Body squamose, with multifid scales and with tufts .....7. **Phrynixus**
18(15). Funicle 6-segmented.....8. **Bryocatus**
19(14). Tibiae unarmed. Eyes pilose between ommatidia.....9. **Pactolotypus**
20(13). Claws appendiculate, with broad expansion at base.
21(22). Elytra with humeral callus. Wings functional. Femora armed.....10. **Peristoreus**
22(21). Elytra without humeral callus. Wings vestigial. Femora unarmed.....11. **Notinus**
23(12). Tibiae with mucro and spurs.
24(25). Eyes large. Metepisternal suture distinct throughout. Mandibles with a single long seta .....12. **Gromilus**
25(24). Eyes small. Metepisternal suture obsolete throughout. Mandibles with 2 or 3 long setae .....13. **Nestrius**
26 (1). Mandibular cusp or scar present (Adelognatha).
27(30). Prementum bare.
28(29). Rostrum more than 1.5 × longer than wide (length from distal margin of epistome to front margin of eyes). Scrobes parallel, directed towards lower 1/2 of eyes. ♂:internal sac well protruding at base of aedeagal body. ♀: sternite 8 emarginate or incised at tip.....14. **Catoptes**
29(28). Rostrum very slightly longer than wide. Scrobes strongly widening, directed downwards. ♂: internal sac contained in aedeagal body. ♀: sternite 8 acute, entire at tip.....15. **Heterexis**
30(27). Prementum with a pair of setae.
31(32). Tibiae with mucro and spurs. Lateral genal suture visible as a proximal foveiform impression. ♂: internal sac exposed, without basal sclerite. ♀: sternite 8 asymmetrical, with sinuous apodeme; spermathecal duct basal, inserting near oviduct.....16. **Oclandius**
32(31). Tibiae with mucro only. Lateral genal suture visible as a long sinuous groove almost reaching tip of rostrum. ♂: internal sac not exposed, with strong spiculiform basal sclerite. ♀: sternite 8 symmetrical, with straight apodeme; spermathecal duct insertion terminal on blind end of bursa copulatrix.....17. **Catodryobiolus**

Key to species from the Aucklands (25 spp.)

1(42). Mandibular cusp and scar absent.
2 (5). Metepisternal suture with sclerolepidia (a row of modified scales).
3 (4). Funicle 7-segmented. 3.5–3.7 mm.....**Exeiratus turbotti**
4 (3). Funicle 5-segmented. 2.8–3.8 mm.....**Pentarthrum spadiceum**
5 (2). Metepisternal suture without sclerolepidia.

6(21). Pectoral canal present.
7 (8). Scutellum large. Elytra tufted. 3.3–5.1 mm.....**Pachyderris punctiventris**
8 (7). Scutellum very small or invisible. Elytra not tufted.
9(18). Pronotum on each side of base without a stripe of dense pale scales.
10(13). Sides of metasternum in front of hind coxae without tubercle. Scaling on suture and/or base of interstria 3 and 4 denser than elsewhere.
11(12). Scaling on suture not denser than elsewhere. Derm of elytra usually reddish with a dark spot on each elytron. 1.5–2.7 mm.....**Notacalles planidorsis**
12(11). Scaling on suture very dense. Derm of elytra uniformly piceous. 1.3–2.2 mm.....**Notacalles piciventris**
13(10). Sides of metasternum in front of hind coxae with tubercle. Scaling on suture and base of interstria 3 and 4 not denser than elsewhere.
14(15). Piceous. Segment 3 of front tarsi much narrower than distal width of rostrum. 1.2–2.1 mm.....**Notacalles kronei**
15(14). Rufo-castaneous or ferruginous. Segment 3 of front tarsi about as wide as rostrum at apex.
16(17). Setae on elytra decumbent or nearly so. 1.5–2.1 mm.....**Notacalles latitarsis**
17(16). Setae en elytra semi-erect. 1.3–1.8 mm.....**Notacalles ferrugo**
18 (9). Pronotum on each side of base with a stripe of dense pale scales.
19(20). Pale stripes on pronotum short, about 0.20 the length of pronotum. All interstriae similarly setose. 1.6–2.3 mm.....**Notacalles suillus**
20(19). Pale stripes on pronotum longer, about 0.35 the length of pronotum. Usually alternate interstriae variously setose. 1.4–2.1 mm.....**Notacalles multisetosus**
21 (6). Pectoral canal absent.
22(31). Tibiae with mucro only or unarmed.
23(28). Claws simple, without broad expansion at base.
24(25). Hind femora unarmed. Hind tibiae straight, mucronate. 2.8–3.3 mm...**Notonesius aucklandicus**
25(24). Hind femora with large tooth. Hind tibiae strongly curved, unarmed.
26(27). Funicle 7-segmented. 1.8–2.8 mm.....**Pactolotypus subantarcticus**
27(26). Funicle 6-segmented. 1.9–3.0 mm.....**Pactolotypus depressirostris**
28(23). Claws appendiculate, with broad expansion at base.
29(30). Hind femora armed. Elytra with humeral callus. 2.0–3.1 mm.....**Peristoreus innocens**
30(29). Hind femora unarmed. Elytra without humeral callus. 1.8–2.3 mm.....**Notinus cordipennis aucklandicus**
31(22). Tibiae with mucro and spurs.
32(37). Dorsal surface of rostrum transversely convex between antennal grooves.
33(34). Emargination of tarsal segment 3 weak, lobes not longer than 0.35 the length of entire segment in ventral aspect. 3.9–5.7 mm.....**Gromilus insularis insularis**
34(33). Emargination of tarsal segment 3 deep, lobes 0.50 the length of entire segment in ventral aspect.
35(36). Pterygia auriculate, suddenly expanding behind apex of rostrum. Genal suture groove not quite reaching distal end of pterygia. 5.8–7.8 mm.....**Gromilus veneris veneris**
36(35). Pterygia not auriculate, gradually expanding behind apex of rostrum. Genal suture groove reaching beyond distal end of pterygia. 7.5 mm.....**Gromilus aucklandicus**
37(32). Dorsal surface of rostrum transversely concave between antennal grooves.
38(39). Scape thin, clavate towards apex. Tarsal segment 3 small. 3.7–5.2 mm.....**Gromilus cockaynei**
39(38). Scape thick, cylindrical, not clavate. Tarsal segment 3 large.
40(41). Without erect setae on pronotum and elytra. Rostrum and ventral surface densely punctate. 6.6 mm.....**Gromilus narinosus**
41(40). With erect setae on pronotum and elytra. Rostrum and ventral surface more or less smooth. 6.0–7.6 mm.....**Gromilus fallai**

42 (1). Mandibular cusp or scar present.
43(44). Pronotum with broad depression along median line. Alternate interstriae strongly raised and tuberculate. 14–20 mm.....**Heterexis sculptipennis**
44(43). Pronotum without broad depression along median line. Alternate interstriae not or weakly raised.
45(48). Pronotum without median carina.
46(47). Segment 7 of funicle elongate. 12–18 mm.....**Oclandius cinereus**
47(46). Segment 7 of funicle transverse. 17.5–23.4 mm.....**Oclandius laeviusculus**
48(45). Pronotum with fine median carina. 6.5–10.0 mm.....**Catodryobiolus antipodus**

KEY TO SPECIES FROM CAMPBELL I (14 SPP.)

1(22). Mandibular cusp and scar absent.
2(11). Pectoral canal present.
3 (8). Pronotum on each side of base without a stripe of dense pale scales.
4 (7). Sides of metasternum in front of hind coxae without tubercle.
Scaling on suture and/or base of interstria 3 and 4 denser than elsewhere.
5 (6). Scaling on suture not denser than elsewhere. Derm of elytra usually reddish with a dark spot on each elytron. 1.5–2.7 mm.....**Notacalles planidorsis**
6 (5). Scaling on suture very dense. Derm of elytra uniformly piceous. 1.3–2.2 mm.....**Notacalles piciventris**
7 (4). Sides of metasternum in front of hind coxae with tubercle.
Scaling on suture and base of interstria 3 and 4 not denser than elsewhere. 1.2–2.1 mm...**Notacalles kronei**
8 (3). Pronotum on each side of base with a stripe of dense pale scales.
9(10). Pale stripes on pronotum short, about 0.20 the length of pronotum. All interstriae similarly setose. 1.6–2.3 mm.....**Notacalles suillus**
10 (9). Pale stripes on pronotum longer, about 0.35 the length of pronotum. Alternate interstriae usually variously setose. 1.4–2.1 mm.....**Notacalles multisetosus**
11 (2). Pectoral canal absent.
12(13). Scales agglutinate. Claw segment very short, scarcely reaching beyond lobes. 1.8–2.3 mm.....**Bryocatus serripes**
13(12). Scales if present not agglutinate. Claw segment long, projecting well beyond lobes.
14(15). Tibiae not mucronate. Hind tibiae strongly curved. 1.8–2.8 mm.....**Pactolotypus subantarcticus**
15(14). Tibiae mucronate. Hind tibiae more or less straight.
16(17). Rufo-testaceous. Femora armed. 2.0–3.1 mm.....**Peristoreus innocens**
17(16). Piceous. Femora unarmed.
18(19). Emargination of tarsal segment 3 weak, lobes not longer than 0.35 the length of entire segment in ventral aspect. 4.5–6.0 mm.....**Gromilus insularis robustus**
19(18). Emargination of tarsal segment 3 deep, lobes 0.50 the length of entire segment in ventral aspect.
20(21). Tarsal segment 3 small. Forehead dull, alutaceous, not punctate. 4.2–6.5 mm.....**Gromilus exiguus**
21(20). Tarsal segment 3 large. Forehead shiny, densely and distinctly punctate. 6.1–8.0 mm...**Gromilus veneris setarius**
22 (1). Mandibular cusp or scar present.
23(24). Pronotum with broad median furrow. 8.8–11.7 mm.....**Heterexis seticostatus**
24(23). Pronotum without broad median furrow.
25(26). Pronotum without median carina. 12–18 mm.....**Oclandius cinereus**
26(25). Pronotum with fine median carina. 6.5–10.0 mm.....**Catodryobiolus antipodus**

KEY TO SPECIES FROM THE SNARES (9 SPP.)

1 (4). Metepisternal suture with sclerolepidia.
2 (3). Funicle 7-segmented. 2.4–3.7 mm.....**Exeiratus laqueorum**
3 (2). Funicle 5-segmented. 2.8–3.8 mm.....**Pentarthrum spadiceum**
4 (1). Metepisternal suture without sclerolepidia.
5 (6). Pectoral canal present. 1.5–2.7 mm.....**Notacalles planidorsis**
6 (5). Pectoral canal absent.
7 (8). Elytra strongly tuberculate. 15.5–20.0 mm.....**Hadramphus stilbocarpae**
8 (7). Elytra at most weakly asperate.
9(14). Smaller, less than 6 mm.
10(11). Derm very shiny. Pronotum and elytra tufted. 3.5–4.5 mm.....**Phrynixus laqueorum**
11(10). Derm dull. Pronotum and elytra not tufted.
12(13). Pronotum obsoletely punctate, slightly asperate, mesally sulcate. 4.3–5.3 mm.....
.....**Gromilus laqueorum**
13(12). Pronotum very coarsely punctate, not asperate, not sulcate. 2.6–2.9 mm.....**Nestrius laqueorum**
14 (9). Larger, more than 11 mm.
15(16). Median line of pronotum distinctly impressed. 11.6–14.3 mm.....**Catoptes brevicornis australis**
16(15). Median line of pronotum distinctly raised at least at anterior portion. 11.5–16.0 mm...
.....**Oclandius vestitus**

COSSONINAE

1. **Exeiratus** Broun, 1914

Previously reported as confined to the southern areas of New Zealand (Kuschel 1964), but a species of the genus has since been seen from Tasmania.

The exact systematic position of *Exeiratus* is still undetermined. Further studies on Cossoninae have shown that parameres and a rectal ring also occur in some cossonine genera, so that a separation of Trypetinae from Cossoninae seems untenable.

1. **Exeiratus laqueorum** Kuschel, 1964

Length: 2.4–3.7 mm; width: 1.3–1.8 mm.

SNARES. Near Station Point, I.1967, 10 ♂♂, 7 ♀♀, P. M. Johns, on and under logs of *Olearia lyallii*.

2. **Exeiratus turbotti** (Brookes, 1951)

AUCKLANDS. Auckland I: eastern shore of Musgrave Peninsula, Tagua Bay, 1.II.1966, 1 ♀, Wise (from a leaf litter sample).

Remarks. None of the 29 litter and other samples taken on Adams I contained specimens, although the species is known from just across the narrow channel on the main Auckland I. This is in sharp contrast with what has been found on Stewart I and its off-shore islands where every lowland sample has produced large numbers of *Exeiratus setarius* Broun.

2. **Pentarthrum** Wollaston, 1854

3. **Pentarthrum spadiceum** Broun, 1886

AUCKLANDS. Auckland I: eastern shore of Musgrave Peninsula, Tagua Bay, 31.I.1966, 7 specimens in driftwood above high water mark and 2 under rotten logs, Wise. Adams I: Magnetic Station Cove, 27.I.1966, 3 from beating, Johns, Kuschel. New for Adams I.

SNARES. Station Point, I,II.1967, 13 specimens, mostly under bark of *Olearia lyallii* (Compositae), Johns.

CRYPTORHYNCHINAE

3. **Pachyderris** Broun, 1909

4. **Pachyderris punctiventris** Broun, 1909

simplex Broun, *Bull. N.Z. Inst.* **1914**(2): 133 (*Xenacalles*). **New Synonymy.**

AUCKLANDS. Auckland I: Ranui Cove, 25.I.1966, 2 on tree trunk at night, Ordish. Adams I: Magnetic Station Cove, 26.I.1966, 7 on dead branches of *Metrosideros umbellata*, Kuschel; same place, 22 reared from larvae in dead stems of *Myrsine divaricata*, emerging from April to July 1966, Kuschel; same place, 3 reared out of dead branches of *Pseudopanax simplex*, emerging July 1966, Kuschel; same place, January 1966, 48 from general beating and litter samples 66/67 and 66/75, Johns, Kuschel, Wise. New for Adams I.

STEWART I. Stewart I: Port Williams, Rakeahua Valley, and Twilight Bay in Port Pegasus, 8 specimens, some reared ex dead wood of *Pseudopanax simplex* and *Coprosma foetidissima*, Ent. Div. Exp. Codfish I: Sealers Bay, XII.1966, 4 on *Carpodetus serrata* and *Pseudopanax simplex*, Townsend. Big South Cape I: 43 specimens, XI.1968 and II.1969, some reared ex dead branches of *Metrosideros umbellata*, Ent. Div. Exp.

Ecology and bionomics. This species occurs in forest and dense scrub. The larvae are to be found in sound to moderately rotten wood. The recorded host plants are *Pseudopanax simplex* (Araliaceae), *Myrsine divaricata* (Myrsinaceae), and *Metrosideros umbellata* (Myrtaceae) on the Aucklands, *Coprosma foetidissima* (Rubiaceae) and *Carpodetus serrata* (Escalloniaceae) on Stewart I.

4. **Notacalles** Kuschel, 1964

5. **Notacalles planidorsis** (Kirsch, 1877)

AUCKLANDS. Auckland I: Ranui Cove, 25.I.1966, 8 ex leaf litter, Ordish; Tucker Point, 28.I.1966, 2 on foliage, Ordish; Musgrave Peninsula, Carnley Harbor, 1.II.1966, 1 specimen, Wise. French I: 21.I.1966, 1 in *Pterodroma lessoni* nest, Ordish. Adams I: Magnetic Station Cove, 6 on *Hebe elliptica*, Kuschel, Wise; Fairchild's Garden, I.1966, 83 on *Hebe elliptica*, Kuschel, Wise. New for Adams I.

CAMPBELL I. Lookout Bay, I.1969, 13 on *Hebe elliptica*, Kuschel; Beeman Camp, I.1969, 36 reared ex dead twigs of *Hebe elliptica*, emerging from II.–V.1969, Kuschel.

SNARES. Station Point and Cliffs E. of Sinkhole Flat, I. and II.1967, 45 on *Hebe elliptica*, Johns.

STEWART I. Codfish I: Sealers Bay, XII.1966, 30 on *Hebe elliptica*, Townsend. Big South Cape I: XI.1968 and II.1969, 119 on *Hebe elliptica*, Ent. Div. Exp.

SOUTH I. Homer Saddle, Fiordland, 23–24.I.1962, 1 specimen, Kuschel.

Ecology and bionomics. As the species is host-specific on *Hebe elliptica* (Scrophulariaceae), its occurrence is confined to the maritime vegetation just above the supralittoral zone, usually 1 to 5 m above sea-level on the subantarctic islands, but the plant extends up to 130 m on the exposed west coast of Big South Cape I (Stewart I), and with it also the weevil. The larvae, found by me, were in the pith of dead twigs of *Hebe elliptica*, usually a little lower in the twig than those of *Pactolotypus depressirostris* (Kirsch).

6. **Notacalles piciventris** (Broun, 1909)

AUCKLANDS. Auckland I: Tucker Point, 28.I.1966, 1 off foliage, Ordish; Ranui Cove, 25.I.1966, 1 off foliage, Ordish; Musgrave Penin., Carnley Harbor, 1.II.1966, 1 specimen, Wise. Ewing I: 18.I.1966, 1 specimen, Ordish. Adams I: Magnetic Station Cove, 26.I.1966, 22 beaten

off dead branches of *Metrosideros umbellata*, Kuschel; same place, 28.I.1966, 2 teneral adults extracted from the center of thin dead twigs of *Metrosideros umbellata* and 1 reared from twigs of the same plant, emerging in July 1966, Kuschel; same place, 26.I.1966, 15 beaten off dead branches of *Dracophyllum longifolium*, Kuschel; same place, 3.II.1966, 14 beaten and 8 reared ex twigs of *Coprosma foetidissima*, the reared ones emerging from II. to VII.1966, Kuschel; same place, I.1966, 29 from general beating, Johns, Kuschel; same place, 16.I.1966, 1 ex sample 66/67 (sifted leaf litter from forest floor of *Metrosideros umbellata*), Kuschel; same place and date, 1 ex sample 66/69 (moss on forest floor and on tree trunks of *Metrosideros umbellata*), Kuschel; Fairchild's Garden, 20.I.1966, 4 from general beating, Kuschel; same place, 2.II.1966, 1 ex sample 66/94 (sifted litter of *Poa litorosa*, *P. foliosa*, *Chionochloa antarctica*, and *Anisotome latifolia*), Kuschel.

CAMPBELL I. Beeman Camp, 11–14.I.1969, 31 from general beating, most off *Dracophyllum scoparium*, Kuschel.

STEWART I. Stewart I, II.1968, Codfish I, XII.1966, Big South Cape I, XI.1968 and II.1969, 80 specimens altogether, Ent. Div. Exp.

SOUTH I. Many specimens from Fiordland and Southland.

Type of *Acalles piciventris* Broun: Lectotype ♂, 1.8 × 0.8 mm, Auckland I, British Museum. A paralectotype ♀, mounted on its back on the same card, also in the British Museum.

Ecology and bionomics. This species occurs in the lower 250 m belt in forest and scrub. It is particularly common on dead twigs of *Metrosideros umbellata* (Myrtaceae), *Dracophyllum longifolium* and *D. scoparium* (Epacridaceae), and *Coprosma foetidissima* (Rubiaceae). Larvae were found in these plants and are expected on other trees and shrubs. The larvae feed first in the bark, then work under the bark, and finally penetrate the wood of thin twigs.

7. **Notacalles kronei** (Kirsch, 1877)

AUCKLANDS. Auckland I: Tucker Point, 28.I.1966, 1 on foliage, Ordish. Ewing I: 18.I.1966, 13 specimens, Ordish. Adams I: Magnetic Station Cove, 26.I.1966, 4 off dead branches of *Metrosideros umbellata*, Kuschel; same place, I.1966, 10 from general beating, Kuschel, Wise; same place, 19.I.1966, 1 ex sample 66/75 (litter under *Dracophyllum longifolium* and *Polystichum vestitum*), Kuschel; NE Ridge of Mt Dick, 300–500 m, 17.I.1966, 3 on *Cassinia vauvilliersii*, Kuschel. New for Adams I.

CAMPBELL I. Beeman Camp, 11–14.I.1969, 21 from general beating, Kuschel; Lookout Bay, 23.I.1969, 1 ex sample 69/22 (litter under *Dracophyllum scoparium*, *D. longifolium*, *Myrsine divaricata*, *Coprosma cuneata* and *C. ciliata*), Kuschel.

STEWART I. Stewart I: Christmas Village, Mt Anglem (900 m), Port Williams, Mason Bay, Rakeahua Valley, Mt Rakeahua (300–600 m), 13 specimens, Ent. Div. Exp. Codfish I: Sealers Bay, 12.XII.1966, 2 on *Weinmannia racemosa*, Townsend. Big South Cape I: XI.1968 and II.1969, 30 mostly on *Leptospermum scoparium*, Ent. Div. Exp.

Ecology and bionomics. *N. kronei* occurs in the tree and scrub zone from sea-level up to about 300 m. The larvae are found in thin dead twigs of most woody plants. Safe host records so far are *Metrosideros umbellata* (Myrtaceae), *Cassinia vauvilliersii* (Compositae), *Dracophyllum longifolium* and *D. scoparium* (Epacridaceae), *Myrsine divaricata* (Myrsinaceae), and *Hebe elliptica* (Scrophulariaceae) for the subantarctic islands; and for Stewart I also *Leptospermum scoparium* (Myrtaceae) and *Weinmannia racemosa* (Cunoniaceae).

8. **Notacalles latitarsis** (Kuschel, 1964)

AUCKLANDS. Auckland I: Ranui Cove, 25.I.1966, 3 on foliage, Ordish.; Camp Cove

Carnley Harbor, 23.I.1966, 1 ex sample 66/80 (unsifted leaf litter in *Metrosideros* forest), Johns. French I: 21.I.1966, 1 in *Pterodroma lessoni* nest, Ordish. Adams I: Magnetic Station Cove, 26.I. 1966, 1 from general beating, Kuschel; same place, 16.I.1966, 4 ex sample 66/67 (sifted leaf litter of *Metrosideros umbellata*, *Pseudopanax simplex*, *Myrsine divaricata*, and *Dracophyllum longifolium*, all in *Metrosideros* forest), Kuschel; same place, 27.I.1966, 1 ex sample 66/83 (litter of *Chionochloa* and *Poa*), Kuschel; same place, 28.I.1966, 3 ex sample 66/84 (sifted litter in *Metrosideros* forest), Kuschel; same place, 29.I.1966, 1 ex sample 66/85 (sifted *Poa litorosa*, and *Chionochloa antarctica* litter with some *Carex appressa*, *Asplenium lucidum*, *Blechnum capense*, *Anisotome latifolia*, and *Pleurophyllum criniferum* in an open seepage area), Kuschel; same place and date, 1 ex sample 66/86 (sifted litter amongst *Blechnum capense* in *Metrosideros* forest), Kuschel; same place, 30.I.1966, 1 ex sample 66/93 (unsifted *Chionochloa antarctica* tussock litter), Kuschel; Fairchild's Garden, 2.II.1966, 3 ex sample 66/94 (sifted litter of *Poa litorosa*, *P. foliosa*, *Chionochloa antarctica*, and *Anisotome latifolia*), Kuschel. New for French and Adams I.

STEWART I: Stewart I: Port Williams, Pegasus Creek, Twilight Bay in Port Pegasus, 25 specimens, Ent. Div. Exp. Big South Cape I: XI.1968 and II.1969, 32 specimens, Ent. Div. Exp.

Ecology and bionomics. Little can be said at this stage on the present species. It was found only in the lower 50 m belt on Adams I, where it was rare, but it occurred up to 170 m on Big South Cape I.

9. **Notacalles ferrugo** Kuschel new species Fig. 1–3.

Derm ferruginous, sides of elytra and most of ventral surface usually darker. Setae squamiform, curved, slightly raised to semi-erect, in single rows on all interstriae, the longest setae on elytra 0.04 mm. Mestepisternum with agglutinated scales forming a fine pale line. Outer proximal angle of tibiae with longer and denser setae. Prothorax 1.10–1.14 × longer than wide. Elytra 1.27–1.37 × wider than prothorax and 1.50–1.66 × longer than their own width, sulcate, with a single granule at base on each side of scutellum.

All other characters similar to those of *latitarsis* Kuschel.

♂. Sternite 8 and 9 as in Fig. 3. Genitalia as in Fig. 1–2; body of aedeagus 1.53 × longer than wide, apodemes 2.58 × longer than the aedeagal body, tip distinctly lobed with a pair of short hairs. Internal sac with a weakly sclerotized transverse baculum.

♀. Tergites, sternites, and genitalia very much as in *latitarsis* Kuschel.

Length 1.35–1.75 mm; width 0.55–0.75 mm.

AUCKLANDS. Adams I: Magnetic Station Cove, 26.I.1966, 27 from general beating, Kuschel; same place, 16.I.1966, 2 ex sample 66/67 (sifted floor litter of *Metrosideros umbellata*, *Pseudopanax simplex*, *Myrsine divaricata*, and *Dracophyllum longifolium*, all under *Metrosideros* canopy), Kuschel; same place, 19.I.1966, 1 ex sample 66/75 (litter under *Dracophyllum longifolium* and *Polystichum vestitum*), Kuschel; same place, 29.I.1966, 4 ex sample 66/85 (sifted *Poa litorosa* and *Chionochloa antarctica* litter with some *Carex appressa*, *Asplenium lucidum*, *Blechnum capense*, *Anisotome latifolia*, and *Pleurophyllum criniferum* in an open seepage area), Kuschel; same place and date, 1 ex sample 66/86 (sifted litter amongst *Blechnum capense* in *Metrosideros* forest), Kuschel; same place and date, 1 ex sample 66/87 (unsifted litter of *Metrosideros umbellata*, *Coprosma foetidissima*, *Dracophyllum longifolium*, and *Polystichum vestitum*) Kuschel; Fairchild's Garden, 2.II.1966, 1 ex sample 66/94 (sifted *Poa litorosa*, *P. foliosa*, *Chionochloa antarctica*, and *Anisotome latifolia* litter), Kuschel.

Type locality: Magnetic Station Cove, Adams I.

Holotype ♂, 1.65 × 0.70 mm, Magnetic Station Cove, Adams I, 26.II.1966, G. Kuschel leg., in Entomology Division, D.S.I.R., Nelson; paratypes in same institution, Dominion Museum, Auckland Museum, Canterbury Museum, Bishop Museum, and British Museum.

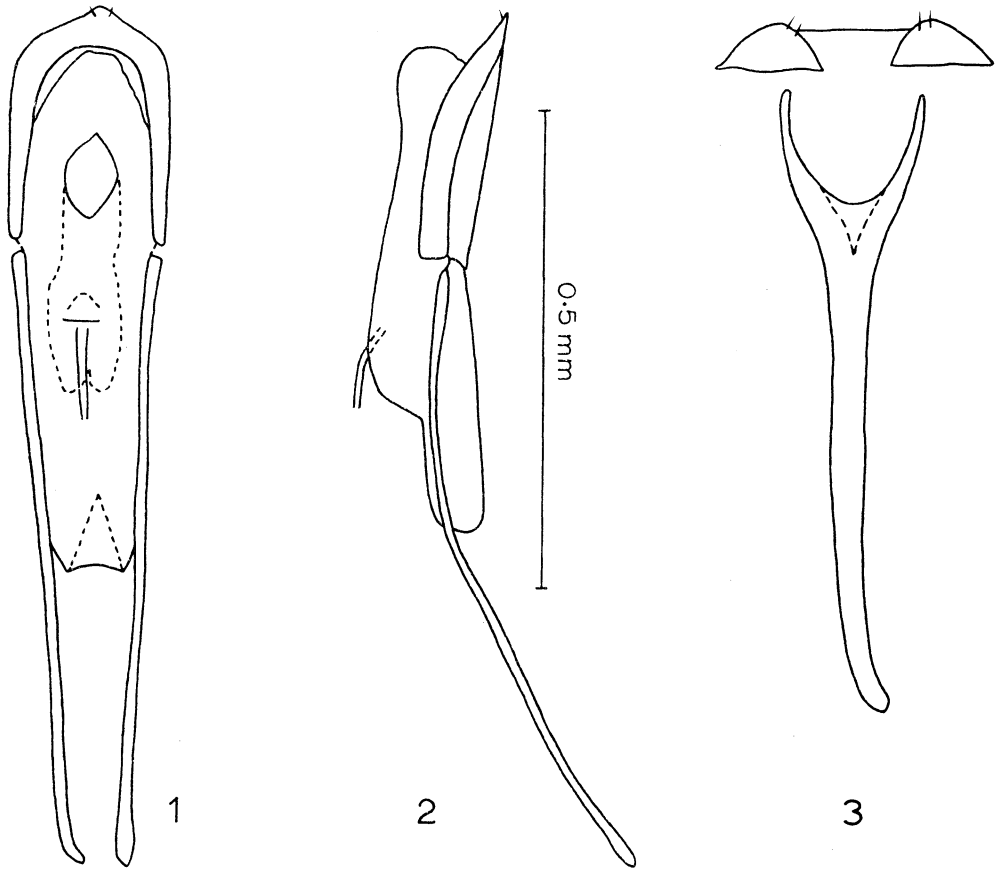

Fig. 1–3. *Notacalles ferrugo* n. sp., ♂, Magnetic Station Cove, Adams I: 1. aedeagus dorsal; 2. same, lateral; 3. sternite 8 and 9, ventral. (All fig. same scale).

Ecology and bionomics. All specimens were found at the lower 30 m belt in *Metrosideros* forest, as well as among the vegetation of boggy and seepage areas in open ground. Intensive separate beating of *Metrosideros umbellata*, *Coprosma foetidissima*, *Hebe elliptica*, *Pseudopanax simplex*, and *Dracophyllum longifolium* did not yield any specimens. Although 27 specimens were once obtained in an outing, I did not keep the specimens separate as I was then unfortunately unaware, because of its small size, that this species WAS represented. It may well be that the species has a quite limited range of host plants.

Remarks. Closely related to the sympatric *N. latitarsis* Kuschel, but narrower and slightly smaller in average size, distinctly different in the ♂ genitalia. As the large collections from the northern Aucklands and from Stewart I do not contain any specimens of *N. ferrugo*, this species probably is endemic to the southern Aucklands. Some closely related species of *Notacalles* from the Chathams and the mainland of New Zealand are now known to live on monocotyledons (*Phormium colensoi* and *tenax*) and even in the dead rhachis of fern fronds (*Cyathea smithii*, *Dicksonia squarrosa*). As trees and shrubs were presumably absent on the subantarctic islands during glaciations, I am

inclined to believe that *ferrugo* is one of those cryptorhynchine species which can live on non-woody plants.

10. **Notacalles suillus** Kuschel, 1964

AUCKLANDS. Auckland I: Musgrave Penin., Carnley Harbor, 1.II.1966, 1 specimen, Wise. Enderby I: 17.I.1963, 2 on *Dracophyllum longifolium*, Johns. Ewing I: 18.I.1966, 1 specimen, Ordish. Adams I: Magnetic Station Cove, 26.I.1966, 20 on dead branches of *Metrosideros umbellata*, Kuschel; same place, I. and II.1966, 8 (2 reared) on *Coprosma foetidissima*, Johns, Kuschel; same place, 26.I.1966, 4 on *Dracophyllum longifolium*, Kuschel; same place, I.1966, 30 from general beating, Kuschel, Wise; same place, 18.I.1966, 1 ex sample 66/73 (unsifted forest floor litter of *Metrosideros umbellata*, *Pseudopanax simplex*, *Myrsine divaricata*, *Dracophyllum longifolium* and *Coprosma foetidissima*), Kuschel; same place, 27.I.1966, 1 ex sample 66/83 (litter of *Chionochloa* and *Poa*), Kuschel; same place, 28.I.1966, 1 ex sample 66/84 (sifted litter in *Metrosideros* forest), Kuschel; Fairchild's Garden, 20.I.1966, 1 ex sample 66/77 (unsifted litter gathered in a shallow water channel, consisting of *Chionochloa antarctica*, *Poa foliosa* and *litorosa*, *Anisotome latifolia*, and *Stilbocarpa polaris*), Kuschel. New for Enderby and Adams I.

CAMPBELL. Beeman Camp, 11–14.I.1969, 17 off *Dracophyllum scoparium* and *longifolium*, *Coprosma ciliata* and *cuneata*, and *Myrsine divaricata*, Kuschel.

STEWART I. Stewart I: Christmas Village, Mt Anglem (900 m), Port Williams, Little Glory Bay in Paterson Inlet, Mt Rakeahua (300–600 m), Table Hill (360–600 m), Port Pegasus, 43 specimens, Ent. Div. Exp. Codfish I: Sealers Bay and Rocky Islet, XII.1966, 21 on *Olearia angustifolia* and *Coprosma lucida*, Townsend. Big South Cape I: XI.1968 and II.1969, 67 specimens, Ent. Div. Exp.

SOUTH I. Common in Fiordland and Southland.

CHATHAMS. Chatham I: Waitangi, Mangahou, and Awatotara, Feb., 28 off trees and shrubs, particularly off *Cyathodes parviflora* and *Senecio huntii*, Kuschel. Pitt I: Tupuangi, Glory Bay, and SE end, II.1967, 78 from beating trees and shrubs, Kuschel.

Ecology and bionomics. Confined to the tree and scrub zone, particularly common at lower levels. The larvae live in dead twigs of a wide range of trees and shrubs.

11. **Notacalles multisetosus** (Broun, 1907)

AUCKLANDS. Auckland I: Ranui Cove, I. 1966, 3 on foliage, Ordish; Tucker Point, 28.I.1966, 1 on foliage, Ordish. Ewing I: 18.I.1966, 6 specimens, Ordish. Enderby I: 17.I.1963, 3 on *Dracophyllum longifolium*, Johns. Adams I: Magnetic Station Cove, 26.I.1966, 37 on dead branches of *Metrosideros umbellata*, Kuschel; same place and date, 1 on *Dracophyllum longifolium*, Kuschel; same place, I. 1966, 19 from general beating, Johns, Kuschel; same place, 28.I.1966, 1 ex sample 66/84 (sifted *Metrosideros* forest litter), Kuschel; Fairchild's Garden, 20.I.1966, 1 ex sample 66/78 (sifted litter under dense grove of *Hebe elliptica*), Kuschel. New for Adams I.

CAMPBELL I. Beeman Camp, 11–14.I.1969, 16 by beating of *Dracophyllum scoparium* and *longifolium*, *Coprosma ciliata* and *cuneata*, and *Myrsine divaricata*, Kuschel.

STEWART I. Stewart I: Rakeahua Valley, Mt Rakeahua (150 m), Port Pegasus, 7 specimens, Kuschel. Big South Cape I: II.1969, 1 specimen, B. A. Kuschel.

Ecology and bionomics. As in *N. suillus* Kuschel.

HYLOBIINAE

The first subantarctic species of this subfamily was recently discovered on the Snares. It belongs

to *Hadramphus* Broun. The New Zealand fauna has only 3 known valid genera of Hylobiinae, the alpine genus *Lyperobius* Pascoe, confined to *Aciphylla* and *Anisotome* (both Umbelliferae), the lowland genus *Hadramphus* Broun, with 2 species probably attached to *Aciphylla*, and 1 species restricted to *Stilbocarpa* (Araliaceae), and the leaf litter genus *Bantiades* Broun, the larvae of which will probably be found in dead wood.

5. **Hadramphus** Broun, 1911

Broun, 1911, *Trans. N.Z. Inst.* **43:** 104.

Mandibles with a distinct cluster of hairs. Prothorax with 4 discal knobs and 1 or 2 lateral knobs. Ocular lobes strongly developed because of a deep emargination of prosternum. Interstriae 3, 5, and 7 with tubercles. Metasternum with a projecting tooth in front of hind coxae. Other characters as in *Lyperobius* Pascoe.

♂. Tergite 8 well exposed beyond 7. Sternite 8 with 2 separate plates, these posteriorly emarginate, with very short latero-apical setae. Sternite 9 with strongly asymmetric arms, with sclerotized lobe; apodeme not upcurved. Tegmen complete, with well developed parameres and with short manubrium. Aedeagus relatively short, broad and thick, weakly sclerotized dorsally along median line, here easily folded longitudinally, margins strongly sclerotized, with numerous microtrichia; ventral surface projecting cephalad well beyond base of apodemes, with a large plate attached or not to the sides at a point caudad from base of apodemes; apodemes fused to and much shorter than main body. Internal sac short, inside main body, with large basal sclerite; ejaculatory duct insertion dorsal.

♀. Tergite 8 narrow, its apical margin entire. Sternite 8 as in Fig. 5, with 2 sclerotized arms; setae short. Vaginal sheath short, with pouch-like projection beyond base of hemisternites. Hemisternites long, distinctly divided into a basal and an apical portion; the apical portion with numerous short setae. Stylus apical, with numerous sensilli on pale tip. Vagina not extending beyond base of hemisternites. Bursa large, long, ventrally invaginated at base, without sclerite. Spermatheca falciform, thick; spermathecal duct longer than bursa, dilated at bursal end, inserting near base of bursa; spermathecal gland large, much longer than spermatheca.

Type-species: *Hadramphus spinipennis* Broun.

Relationship. Very closely allied to *Lyperobius* Pascoe. The two genera are strikingly different externally, but they seem to be identical internally. The diagnostic characters were mentioned above, but the male and female features given there apply to both genera. Broun wrongly placed the genus in Cylydrorhininae.

Ecology and bionomics. Lowland species associated with *Aciphylla* (Umbelliferae) or *Stilbocarpa* (Araliaceae). The larvae feed upon the live roots of the host plants and the adults upon the leaves. The adults are nocturnal, hiding in daylight in debris and low vegetation on the ground at or near the base of the host plant. They are found on the plants from evening to well into the night.

Geographical distribution. *Hadramphus spinipennis* Broun is endemic to the Chatham Is; *H. tuberculatus* (Pascoe) n. comb. (*Lyperobius*) is known mainly from Banks Peninsula but was found as far south as Waimate; and *H. stilbocarpae* n. sp. occurs on some islands off Stewart I and on the Snares. This distribution pattern has a definite insular character, and shows that a member of a preponderantly alpine complex became isolated in the past on some cooler islands and then evolved in a different direction to such an extent that it now constitutes a distinct group.

12. **Hadramphus stilbocarpae** Kuschel new species Fig. 4–12.

Derm, also antennae and tarsi piceous, alutaceous. Body covered with appressed dark to grayish brown scales, the scales small, lanceolate or linear; pronotum with 3 pale lines, the lateral lines often extended forwards to above the eyes and backwards on to the 5th interstria where they usually do not quite reach the 1st tubercle; the scales on top of the tubercles also paler.

Head and forehead densely squamose, with granules. Rostrum from distal margin of epistome to anterior

Fig. 4. *Hadramphus stilbocarpae* n. sp., ♀, 16.5 × 8.7 mm, Station Point, Snares.

margin of eyes 2.40 to 2.58 × longer than wide at apex in males, 2.47 to 2.70 × longer than wide in females, usually with weak median carina or smooth line, with bare partly anastomosing asperities; apical portion densely punctate, bare. Prementum with a pair of setae. Last 5 segments of funicle mostly slightly longer than wide. Prothorax 1.15 to 1.22 × wider than long, uneven throughout, with 4 distinct discal knobs; surface granulose or granulo-rugose. Elytra 1.22 to 1.34 × wider than prothorax, and 1.49 to 1.71 × longer than their own width (width not including tubercles). Interstria 3 with an additional tubercle halfway down declivity; interstria 9 with a low tubercle opposite articulation of ventrites 4 and 5; tubercles on interstria 7 conical. Wings as in Fig. 10, wing/elytra ratio 0.23–0.36.

♂. Sternites and genitalia as in Fig. 5–9; the ventral plate of aedeagus fused at one point to sclerotized margin.

♀. Ventrite 5 usually emarginate. Sternite 8 as in Fig. 12; genitalia as in Fig. 11, the hemisternal pouch long; stylus relatively short.

Length: 15.5–20.0 mm; width (incl. tubercles) 7.8–9.5 mm.

SNARES. Station Point, 24 specimens, 4.I.1967, on *Stilbocarpa robusta* at night, Johns.

STEWART I. Bird I, 3.8 km W of Ruapuke I, Foveaux Strait, 3 specimens, 9.III.1965, on *Stilbocarpa lyallii*, B. D. Bell. Big South Cape I: Murderers Cove, 28 specimens, 4.I.1955, on *Stilbocarpa lyallii* at night, R. K. Dell and B. A. Holloway; Puwau Bay, 1 specimen, 24–28.VIII.1964, in *Olearia* forest at night, Johns; North Peak, 280 m, elytra of 1 specimen, XI.1968, under *Phormium*, J. McBurney; North East End, remains of 4 specimens, II.1969, under *Poa foliosa*, J. McBurney and I. Townsend.

Type locality: Murderers Cove, Big South Cape I.

Holotype ♂, 17.0 × 8.7 mm (incl. tubercles), Murderers Cove, Big South Cape I, 4.I.1955, R. K. Dell and B. A. Holloway, Entomology Division, D.S.I.R., Nelson. Paratypes in same institution, Dominion Museum, Canterbury Museum, Auckland Museum, Bishop Museum and British Museum.

Ecology and bionomics. Larvae and adults are host specific on *Stilbocarpa lyallii* and *robusta* (Araliaceae). The larvae feed upon live roots, and adults notch leaf margins at night.

Remarks. Larger and more elongate than *H. tuberculatus* (Pascoe). *H. tuberculatus* has a shorter rostrum (about 2.0 × longer than wide as against 2.4 × and over in *stilbocarpae*), relatively shorter elytra (about 1.38 × longer than wide as against 1.50 × and over in *stilbocarpae*), and no additional tubercles on declivity; the elytral tubercles are lower, those on interstria 7, blunt.

The populations are not uniform; they are rather easily separable. Snares' specimens are distinctly more granulose as a whole and have a slightly longer rostrum than those from the Stewart I area. The Bird I specimens also are slightly more granulose than those from Big South Cape I and their striae are deeper and more irregular. *H. stilbocarpae* is the only known species of the *Lyperobius-Hadramphus*-complex adapted to a plant other than Umbelliferae.

The parties of two recent expeditions to Big South Cape I, organized by Entomology Division, D.S.I.R. in November 1968 and February 1969, were well aware of the presence of *H. stilbocarpae* on the island. Considerable time was devoted to find adults and larvae, but to no avail. Some remains, however, were found, but these could have been several years old. It is virtually certain that the black rat (*Rattus rattus*) eats the weevils and that it is responsible for the great reduction if not extinction of this large and previously very common weevil on Big South Cape I.

PHRYNIXINAE

6. **Notonesius** Kuschel, 1964

The generic description was based on a single male specimen.

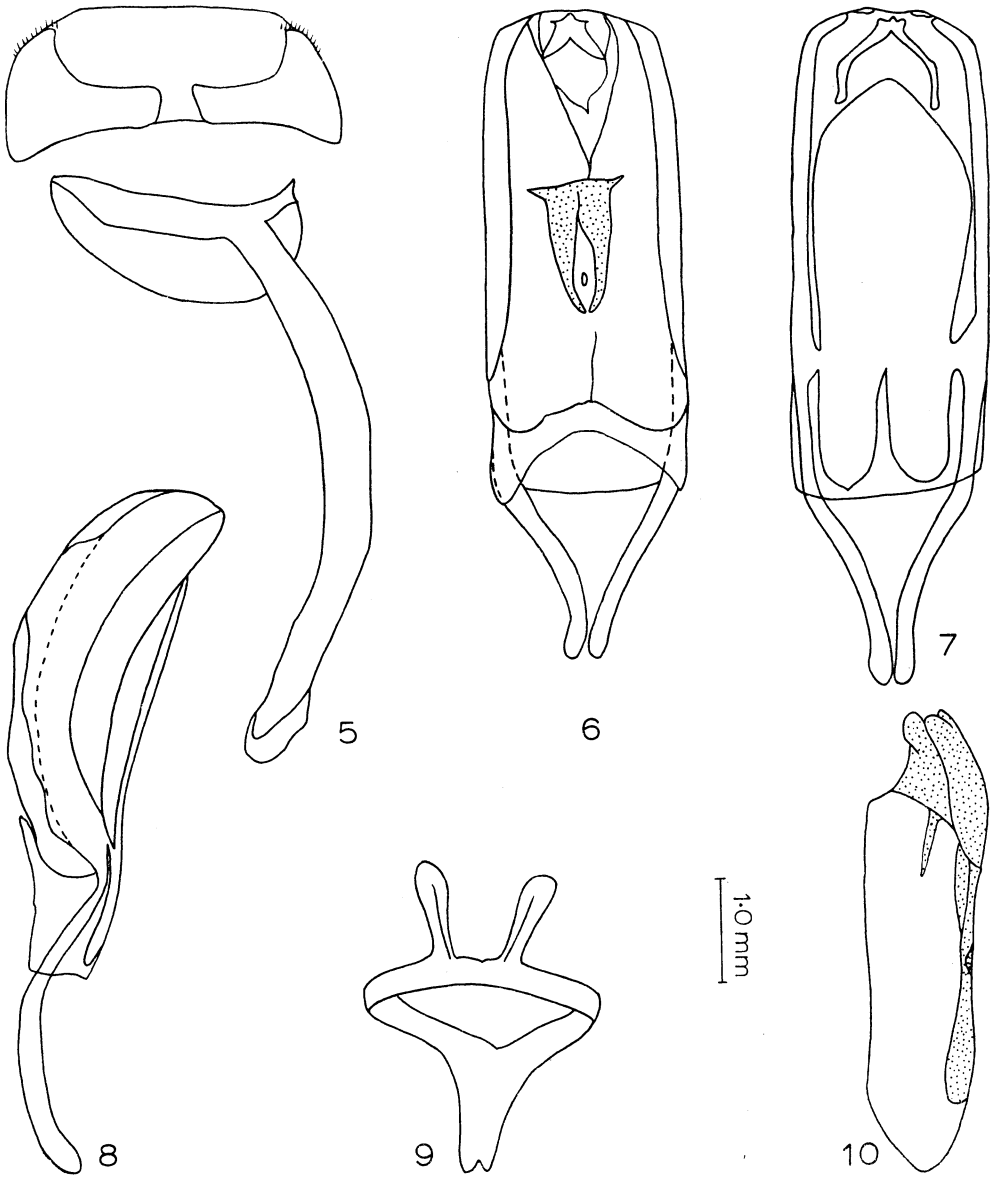

Fig. 5–10. *Hadramphus stilbocarpae* n. sp., ♂, Station Point, Snares: 5. sternite 8 and 9, ventral; 6. aedeagus, dorsal; 7. same, ventral; 8. same, lateral; 9. tegmen, dorsal; 10. right wing. (All fig. same scale).

Sexual dimorphism very weak; the first 2 ventrites slightly more convex in females. Tergite 7 of both sexes with very large pruinose areas nearly reaching apical margin but leaving a smooth shiny median band.

♀. Tergite 8 rounded at tip, entire. Sternite 8 with very broad apodeme, arms long, weakly sclerotized; setae very short. Hemisternites relatively broad, bare. Stylus long, apical, with few very short sensilli. Vagina long and wide. Bursa copulatrix wide, with the oviduct area invaginated and strongly folded, without sclerites;

spermathecal duct inserting on median oviduct. Spermatheca broadly falciform, thick; spermathecal duct inserting on a very short sclerotized stalk on spermatheca, membranous throughout, widening at bursal end; spermathecal gland moderately large, its insertion well separated from that of spermathecal duct.

Ecology and bionomics. All specimens so far collected were found among maritime vegetation at the edges of shore banks. No definite association can be given as no larvae were found. It was assumed that ferns were the probable host plants (Kuschel 1964), but the present evidence indicates that this is unlikely. Forest, dense bush, and fern litter samples did not contain any *Notonesius* specimens. The specimens collected in the field were hiding in daytime in the depressed leaf scars of live stems of *Stilbocarpa polaris* touching the ground. Out of 30 large litter samples taken on Adams I, only 3 had specimens. All 3 were from open maritime vegetation. Comparing the plant composition of the 3 samples, only *Anisotome latifolia* was common to all 3. One adult weevil out of 3 dissected ones had some very small plant fragments in the hind gut. Unfortunately not a single entire plant cell could be recognised for comparison with those of *Stilbocarpa* or *Anisotome* tissues. The particles of cell walls seen did not agree with those of the lamina or petiole of either *Anisotome* or *Stilbocarpa*, but they were not unlike those of *Stilbocarpa* stems. On this evidence it seems that *Stilbocarpa* may be the host plant of *Notonesius*.

13. **Notonesius aucklandicus** Kuschel, 1964 Fig. 13–14.

Described from a single male specimen.

Length 2.8–3.3 mm; width 1.2–1.4 mm.

♀. Sternite 8 and genitalia as in Fig. 13–14.

AUCKLANDS. Masked I, Carnley Harbor: 2.II.1966, 21 specimens under live *Stilbocarpa polaris* stems, Johns. Adams I: Fairchild's Garden, 20.I.1966, 1 under stone and 1 from litter sample 66/77 (large unsifted sample from a shallow water channel, litter consisting mainly of *Chionochloa antarctica*, *Poa foliosa* and *litorosa*, and a little *Anisotome latifolia* and *Stilbocarpa polaris*, nests and chicks of *Macronectes giganteus* nearby), Kuschel; same place, 2.II.1966, 34 specimens ex litter sample 66/95 (unsifted litter of *Poa litorosa*, *P. foliosa*, *Chionochloa antarctica*, and *Anisotome latifolia*), Kuschel; Magnetic Station Cove, 19.I.1966, 1 ex sample 66/74 (sifted litter in the open from under *Pleurophyllum criniferum*, *Stilbocarpa polaris*, *Carex trifida*, *C. appressa*, and *Anisotome latifolia*), Kuschel; same place, 3.II.1966, 4 specimens under *Stilbocarpa polaris* stems, Kuschel.

Ecology and bionomics. As given above for the genus.

Remarks. As the hideouts of adults in pits of old leaf scars underneath prostrate or subprostrate *Stilbocarpa* stems were discovered only two days before leaving the islands, there was, unfortunately, no opportunity to search for larvae.

7. **Phrynixus** Pascoe, 1875

14. **Phyrnixus laqueorum** Kuschel, 1964

SNARES. Station Point, 9.I.1967, 11 under *Olearia lyallii* logs, Johns.

ERIRHININAE

Three genera occurring on the subantarctic islands were included in this subfamily in my paper of 1964, *Baeosomus* Broun (a preoccupied name now replaced by *Bryocatus* Broun), *Peristoreus* Kirsch, and *Notinus* Kuschel. *Bryocatus* feeds on mosses and has the facies of water-weevils although it does not live in or near water, *Peristoreus* is a flower dweller, and *Notinus* a leaf miner. The disparity of morphology and life habits of these genera seemed to be too great to keep them together in the same subfamily without further investigation. This has prompted an examination of many genera

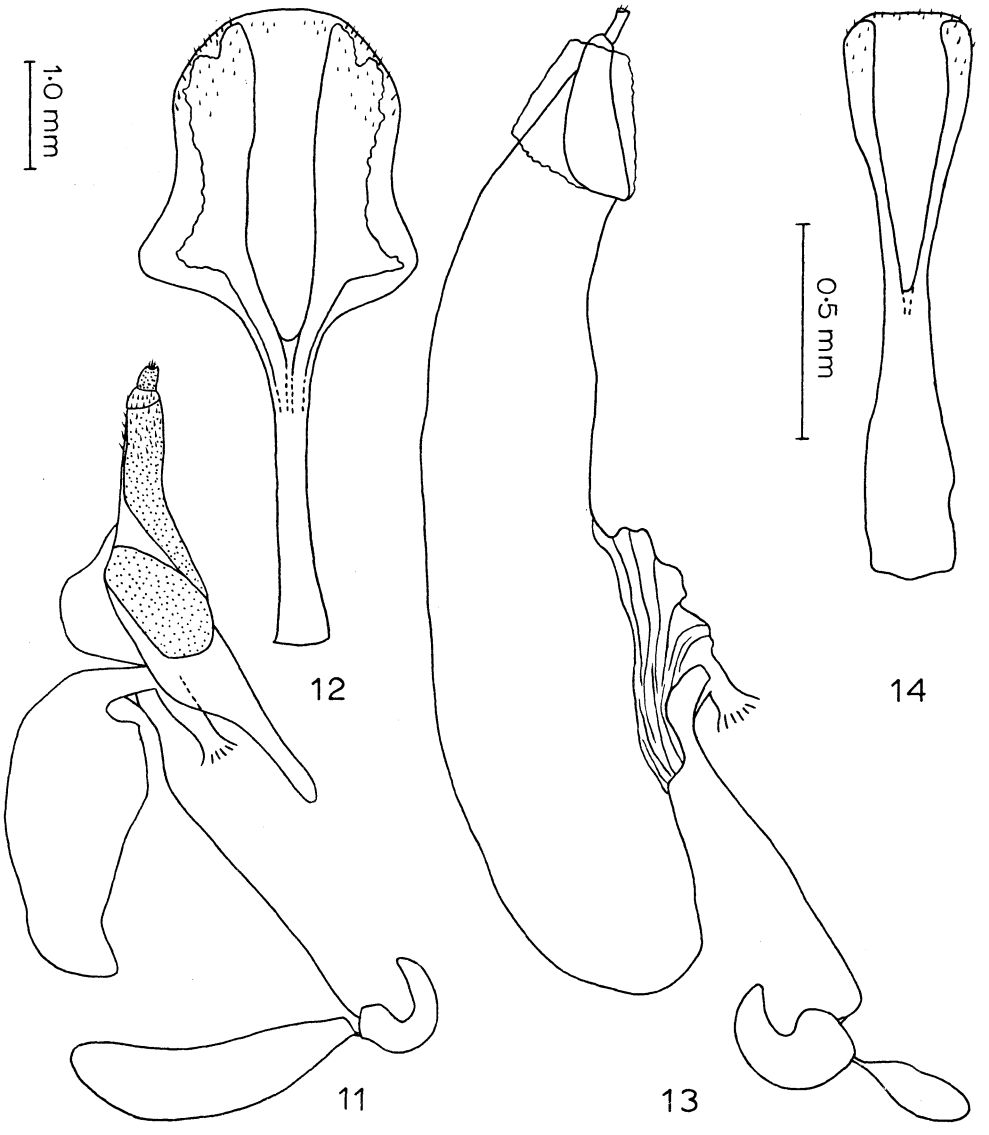

Fig. 11–14. *Hadramphus stilbocarpae* n. sp., ♀, Station Point, Snares: 11. genitalia, lateral; 12. sternite 8, ventral. *Notonesius aucklandicus* Kuschel, ♀, Magnetic Station Cove, Adams I: 13. genitalia, lateral; 14. sternite 8, ventral. (Fig. 11–12 same scale, Fig. 13–14 same scale).

of Erirhininae and other groups of the world. I now believe that *Bryocatus* is in fact closely related to a large number of water-weevils which in turn show a striking and unquestionable affinity with *Notaris* Germar (*Erirhinus* Schönherr).

An evaluation of external morphological characters has always proved to be extremely difficult also taking into account the internal features. Because of the time factor only the hidden abdominal segments and the genitalia of the males were examined. The results are quite promising and may

provide a more satisfactory definition of Erirhininae.

Male characters of Erirhininae sensu stricto as limited here:

(1) Tergite 8: hidden under to well exposed beyond tergite 7. The hidden or very slightly exposed condition of tergite 8 is prevalent in Erirhininae and thus could have some phylogenetic significance as this is a characteristic feature of most Orthoceri families (Anthribidae, Attelabidae, Belidae, Oxycorynidae, and Proterhinidae) and is very seldom found in Curculionidae outside Rhynchophorinae, Lymantinae (Ithaurinae), and Amalactinae.

(2) Sternite 8: often similar to that of the females in that the median apodeme is present in a number of erirhinine genera as in many Orthoceri.

(3) Tergite 9: supposedly absent in all Curculionidae, but it is in fact present at least in *Grypus* Germar (*Grypidius* Schönherr); also present in Anthribidae and Nemonychidae.

(4) Sternite 9 (spiculum gastrale): the two distal arms long, symmetrical, rather weakly divergent, without sclerotized lobe. Again as in most Orthoceri.

(5) Tegmen: very large, nearly as long as or longer than aedeagus (including apodemes). Apodeme always long and broad. Ring strongly proclinate in lateral aspect. Parameres often very large and fringed with abundant long hairs (as in Orthoceri), seldom somewhat reduced or even absent (absent in *Tanysphyrus* Schönherr). The extraordinarily long tegmen, even where the parameres are reduced, may be the easiest diagnostic character of the subfamily as this condition has not yet been observed elsewhere (unless *Desmidophorus* Schönherr ought to be placed in a separate subfamily).

(6) Aedeagus: the aedeagal body frequently divided into a dorsal and a ventral plate by a lateral membrane (as in Orthoceri). Apodemes broad and long, usually with a bifurcation at base, whose dorsal branch frequently fused with the opposite one thus forming a dorsal bridge or arch; this bridge separate from or fused to the median dorsal portion of the aedeagal body. This condition of the apodemes is once more a characteristic feature of the Orthoceri as well as of Rhynchophorinae, but not known elsewhere as yet.

It is immediately apparent from the six points just ennumerated that Erirhininae share most characters of the last abdominal segments and genitalia of the males with the Orthoceri families. In any major study of evolutionary trends and relationships in Curculionidae, Erirhininae will undoubtedly have a preeminent position.

Genera examined belonging to Erirhininae sensu stricto, with feeding plants where known:

Argentinorhynchus Brèthes (*Alhypera* Hustache)—adults on Nymphaeaceae (*Nymphaea*)
Arthrostenus Schönherr—adults on Typhaceae (*Typha*) and/or Sparganiaceae (*Sparganium*)
Athor Broun—adults on Bryophyta (Musci)
Bagoidellus Hustache
Bagoidus Kuschel
Brachybamus Germar—on Alismataceae (*Sagittaria*)
Bryocatus Broun (*Baeosomus* Broun)—on Bryophyta (Musci)
Cyrtobagous Hustache—adults on Salviniaceae (*Salvinia*)
Desmidophorus Schönherr
Echinocnemus Schönherr—adults on Gramineae (*Oryza*)
Grypus Germar (*Grypidius* Schönherr)—on Equisetaceae (*Equisetum*)
Helodytes Kuschel—on Gramineae
Hydronomus Schönherr—on Alismataceae (*Alisma*, *Sagittaria*)
Hydrotimetes Kolbe
Hypselus Schönherr—on Alismataceae (*Sagittaria*, adults also on *Echinodorus*)

Ilyodytes Kuschel—adults on Gramineae
Lissorhoptrus Leconte—on Gramineae (*Oryza* and others)
Neobagous Hustache
Neochetina Hustache—on Pontederiaceae (*Eichhornia*)
Neogeobyrsa Brèthes
Neohydronomus Hustache
Niphobolus Blackburn
Notaris Germar (*Erirhinus* Schönherr)—on Typhaceae (*Typha*), Gramineae (*Glyceria*), Cyperaceae (*Carex*)
Notiodes Schönherr, 1838 (*Endalus* Laporte, 1840)—on Cyperaceae (*Scirpus*, *Heleocharis*), Lemnaceae (*Lemna*), adults also on Marsileaceae (*Marsilea*)
Ochetina Pascoe—on Pontederiaceae (*Pontederia*)
Onychylis Leconte
Oryzophagus Kuschel—on Gramineae (*Oryza* and others)
Penestes Schönherr (*Nannilipus* Marshall; *Pantoteloides* Hustache n. syn.; *Paramonius* Hustache n. syn.; *Pyraechmes* Champion)
Stenopelmus Schönherr—on Salviniaceae (*Azolla*)
Tanysphiroideus Hustache
Tanysphyrus Schönherr—on Araliaceae (*Calla*), Lemnaceae (*Lemna*, *Spirodela*)
Thryogenes Bedel—on Cyperaceae (*Scirpus*, *Heleocharis*, *Carex*), Gramineae (*Calamagrostis*)

Other genera examined which should be excluded from Erirhininae: *Bagous* Germar and *Pnigodes* Leconte: the only unusual character shared with many Erirhininae is the hidden 8th tergite in males, all other features are absent in these two genera. *Hypsomus* Schönherr, *Lixellus* Leconte, and *Grypidiopsis* Champion, also with characters suggesting aquatic habits, have nothing in common with Erirhininae. *Dorytomus* Germar, *Peristoreus* Kirsch and all other New Zealand "Erirhininae," *Storeus* Schönherr and allies, *Smicronyx* Schönherr and allies, such "Bagoini" as *Misophrice* Pascoe, *Rhachiodes* Schönherr, and *Sclerolophus* Faust, as well as *Derelomus* Schönherr and *Acalyptus* Schönherr must all be removed from Erirhininae as listed in Junk's Coleopterorum Catalogus which contains many disparate elements in this subfamily.

On the other hand, it is certain that other genera are to be added to Erirhininae, but were not present for examination.

Ecology. A feature common to erirhinine genera is that they occur in aquatic or semi-aquatic biotopes or in moss mats of open grounds.

Bionomics. Larvae and adults are entirely, or nearly, oligophagous. The larvae are either ectophytic in soil (*Bryocatus*), in mud (*Lissorhoptrus* and allies), and on floating plants (*Stenopelmus*), or endophytic in roots, stems, leaves, and even fruits. The known host plant groups for larvae are Bryophyta, Equisetaceae, Salviniaceae, Typhaceae, Alismataceae, Gramineae, Cyperaceae, Araceae, Lemnaceae, and Pontederiaceae. Adults of some species were observed feeding also on Marsileaceae and Nymphaeaceae.

8. **Bryocatus** Broun, 1914

Baeomorphus Marshall, 1939, *Ann. Mag. Nat. Hist.* (**11**)3: 582 (pro *Baeosomus* Broun 1904, non Thomson 1891).

The name *Baeosomus* Broun was used in my previous paper of 1964, but it was realized since that it was preoccupied and that a replacement name had been proposed by Marshall (1939).

An association of the genus with mosses (Musci) was indicated by Broun and aptly expressed by him in the name *Bryocatus*. It is now known that the adults do feed upon moss and that the larvae are ectophytic soil inhabitants in moss mats. This seems to be the first positive case in the literature

of a weevil genus feeding in its immature and adult stages exclusively on moss.

The systematic position of *Bryocatus* in Erirhininae is now confirmed. The figures of the male genitalia given for *Baeosomus serripes* in Kuschel (1964) illustrate quite well some of the typical characters pointed out above for Erirhininae, (1) the long and weakly divergent arms of sternite 9 (Fig. 110), (2) the large tegmen which is longer than the entire aedeagus with its apodemes (Fig. 111), and (3) the broad aedeagal apodemes with a dorsal sclerotized arch joining the two apodemes near the base (Fig. 108). When these figures are compared with the corresponding ones of *Peristoreus innocens* and *Notinus aucklandicus* in the same paper, the differences become quite obvious.

15. **Bryocatus serripes** (Kuschel, 1964) new combination (*Baeosomus*)

Length 1.85–2.30 mm; width 0.90–1.10 mm.

CAMPBELL I. Mt Lyall, eastern slope, 180 m, 10.I.1969, 3 ex sample 69/5 (swards on nearly flat ground with *Phyllachne clavigera*, *Coprosma pumila*, *Astelia subulata*, *Scirpus aucklandicus*, *Gentiana antarctica*, *Bulbinella rossii*, and *Epilobium* spp.), Kuschel; St Col Ridge, 200 m, 21.I.1969, 1 ex sample 69/14 (assorted mats and mosses), Kuschel; St Col Peak, 300 m, 21.I.1969, 1 ex sample 69/15 (various mats, mosses, and lichens), Kuschel.

Ecology. A ground weevil apparently confined to alpine swards. Only 5 additional specimens were obtained from 12 large suitable samples taken at a range of heights from 20 to 450 m.

EUGNOMINAE

9. **Pactolotypus** Broun, 1909

16. **Pactolotypus subantarcticus** Kuschel, 1964

AUCKLANDS. Auckland I: Ranui Cove, 26.I.1966, 1 specimen, Ordish. Adams I: Magnetic Station Cove, I. and II.1966, numerous specimens on *Coprosma foetidissima*, *C. ciliata*, and *C. cuneata*, Johns, Kuschel, Wise.

CAMPBELL I. Beeman Camp and Tucker Cove, I.1969, a large series on *Coprosma ciliata*, *cuneata*, and *parviflora*, Kuschel.

STEWART I. Stewart I: Rakeahua Valley, Mt Rakeahua, and Table Hill, from near sea-level to 600 m, II.1968, many specimens on *Coprosma foetidissima*, Kuschel.

SOUTH I. West Arm, Wilmot Pass, and Wolfe Burn, at or near W. Lake Manapouri, 180–1000 m, I.1970, a large series on *Coprosma foetidissima*, *C. pseudocuneata*, *C. propinqua*, *C. polymorpha*, and *C. rotundifolia*, Ent. Div. Exp.

NORTH I. Maropea Hut on Ruahine Ranges, 1200 m, II.1970, a small series on *Coprosma propinqua*, G. W. Ramsay.

Ecology and bionomics. This species is confined to *Coprosma* (Rubiaceae), occurring on all erect *Coprosma* species on Auckland and Campbell Is. It is assumed to be absent on the prostrate *Coprosma pumila* as none of the samples of this plant has yielded any *Pactolotypus* specimens. Although some of the suitable *Coprosma* species occur up to 200 m and more, the weevil seems to be confined to the lower 100 m belt, being particularly abundant at the lower 50 m zone. The larvae are phloeophagous in dying or freshly dead twigs. They complete their development in the bark and then make a shallow elliptical pupation chamber in the wood with a lining of quite coarse fibres.

Remarks. The weevil was previously known only from Auckland and Campbell Is. The populations from the subantarctic islands and Stewart I seem to be identical while those from the South and North I differ slightly in the male genitalia. It is somewhat unusual that the species, although common on Stewart I, seems to be absent on Big South Cape I, a small off-shore island to the SW of Stewart I.

17. **Pactolotypus depressirostris** (Kirsch, 1877)

AUCKLANDS. Adams I: Fairchild's Garden and Magnetic Station Cove, I. and II.1966, large series (some reared) on *Hebe elliptica*, Johns, Kuschel, Wise.

STEWART I. Stewart I: Table Hill, 300–600 m, II.1968, small series on *Hebe odora*, Kuschel. Big South Cape I: XI.1968 and II.1969, large series on *Hebe elliptica* and *H. odora*, Ent. Div. Exp.

SOUTH I. Wilmot Pass and Mt Barber, W of Lake Manapouri, 600–900 m, I.1970, large series on *Hebe odora*, *cockayniana*, *mathewsii*, and *salicifolia*, Ent. Div. Exp.

Type of *Pactolotypus striatus* Broun: Lectotype male, 2.7 × 1.2 mm, Auckland I, XI.1908, British Museum.

Ecology and bionomics. *P. depressirostris* is strictly confined to the genus *Hebe* (Scrophulariaceae). It is extremely abundant on Adams I on *Hebe elliptica*, a tall shrub or small tree fringing the rocky maritime banks, while absent on the small and subfrutescent *H. benthamii* of sheltered rocky faces usually above the 350 m mark. Adults feed on pollen, flowers, and younger leaves. The larvae develop in dead twigs starting in the bark and finally penetrate the pith for pupation, sharing the same twig with the even more common cryptorhynchine *Notacalles planidorsis* (Kirsch), but usually occupying the more apical portion of the twig.

TYCHIINAE

With the new delimitation of Erirhininae proposed above, a considerable number of "Erirhininae" are to be placed elsewhere. Among these genera are *Peristoreus* Kirsch, *Notinus* Kuschel, and all other allied genera of the New Zealand fauna. It seems that Tychiinae is the most suitable subfamily for this group.

10. **Peristoreus** Kirsch, 1877

18. **Peristoreus innocens** Kirsch, 1877

fulvescens Broun, *Bull. N.Z. Inst.* **1914**(3): 225 (*Dorytomus*). **New Synonymy.**

AUCKLANDS. Auckland I, Enderby I, and Adams I, many additional specimens from these islands, all on *Dracophyllum longifolium*, Johns, Kuschel, Ordish, and Wise.

CAMPBELL I. Very common throughout the island where *Dracophyllum longifolium* and *scoparium* occur, I. 1969, Kuschel.

[SNARES. As no *Dracophyllum* species is represented on the Snares, the 2 previously recorded specimens (Kuschel 1964) have been wrongly labelled].

STEWART I. Stewart I and Big South Cape I, very common on *Dracophyllum longifolium*, Ent. Div. Exp.

SOUTH I. SW corner from 44° 45′S southwards on *Dracophyllum longifolium* and *menziesii*.

Type of *Dorytomus fulvescens* Broun: Holotype ♀, 2.7 × 1.2 mm, Hump Ridge, II.1912, H. Philpott, British Museum.

Ecology and Bionomics. *P. innocens* occurs up to 200 m of altitude on Adams I and it strictly confined to *Dracophyllum* (Epacridaceae). Adults feed on flower, particularly on pollen. The larvae occur in flowers attacking first anthers, then filaments, ovaries, and part of the petals, in that order. One flower is insufficient for the full development of a larva, but as the flowers have short pedicels they are more or less contiguous on the racemes and thus the free and remarkably agile larva can easily move from one flower to the next. Two flowers provide ample food for one larva, but as the

larvae often do not exhaust all the available food of a flower, as many as 3 flowers may be destroyed by a single larva. Once the larva is fully mature it drops to the ground and pupates in the soil. Almost all flowering shrubs of *Dracophyllum* had some adults, but larvae are usually found on plants with a high concentration of adults. Most plants examined had no larvae. When a plant was infested with larvae, it was practically impossible to find an undamaged flower.

Remarks. Three other species of *Peristoreus* are known to be host-specific on *Dracophyllum* in New Zealand, the larvae of 2 also feeding on flowers. Larvae of the 3rd species occur in the thick stems of the panicles of arboreous *Dracophyllum*. These 3 species are (1) *Peristoreus castigatus* (Broun, 1909) (syn. *exilis* Broun, 1913), from Central Plateau to E. Otago, larvae in flowers of *Dracophyllum recurvum*, *filifolium*, and *longifolium;* (2) *P. maorinus* (Broun, 1913) (syn. *consonus* Broun, 1913 **new synonymy**), from Central Plateau to Canterbury and S. Westland, larvae in flowers of the same 3 *Dracophyllum* species; and (3) *P. grossus* (Broun, 1893), NW Nelson, larvae in the thick flower stems of *Dracophyllum traversii*.

11. **Notinus** Kuschel, 1964

No *Notinus* specimens from the New Zealand mainland were represented in the collections of the country when I proposed this genus in 1964 for a species from the Aucklands. Soon after I had the opportunity of visiting the British Museum (Nat. Hist.) and discovered that Broun had described a species from southern South I under the name of *Erirhinus cordipennis* (Bull. N.Z. Inst. 1915 (4): 336) which differed from *Notinus aucklandicus* Kuschel only slightly. These two names refer, in fact, to the same species but are maintained as distinct subspecies because of constant differences between the mainland and island populations. The weevil is a leaf miner on *Coprosma* (Rubiaceae). Once the host plant and life habits were known special attention was devoted to the species which is now present in the collections from a large area of the mainland.

19. **Notinus cordipennis aucklandicus** (Kuschel, 1964) **new status** (from species)

The most striking difference between the 2 subspecies is in their sexual dimorphism. The rostrum of the nominate form is very similar in both sexes, being up to 3.5 × longer than wide in the female; that of the subantarctic subspecies is short in the males (3.5 × longer than wide) and distinctly longer in the females (usually 4.1 to 4.5 × longer than wide). An inadvertant typographical error in the original description gave the ratio range of rostrum length/width as 3.33–3.46 instead of 3.33–4.46.

AUCKLANDS. Auckland I: eastern shore of Musgrave Peninsula, Tagua Bay, 1.II.1966, 3 specimens, Wise. Adams I: Magnetic Station Cove, I.1966, numerous specimens on *Coprosma foetidissima* and *ciliata*, Johns, Kuschel, Wise.

Ecology and bionomics. The species is more or less confined to the lower 100 m belt on Adams I and is restricted to *Coprosma* (Rubiaceae) species. Adults feed upon the younger leaves, pitting the lamina; the larvae are blotch leaf miners. Mature larvae abandon the leaves, drop to the ground, and pupate in the soil. Larvae were obtained on *Coprosma foetidissima* and *ciliata*, but most mines were empty in late January. It is expected that larvae will occur also on the smaller-leafed *Coprosma cuneata*.

Remarks. The nominate subspecies *Notinus cordipennis cordipennis* (Broun, 1915) **new combination** (*Erirhinus*) was found to be relatively common from Lake Manapouri (600–1100 m) to Stewart I (from 20 m upwards) and Big South Cape I (100–130 m), as well as on the Ruahine Ranges (1200 m), all collected from 1968 to 1970. *Coprosma foetidissima*, *propinqua*, and *pseudocuneata* are host plants of adults of the nominate form. Empty blotch mines were seen on *Coprosma foetidissima* and

occupied mines on a *Coprosma* tree, considered as a possible hybrid of *C. foetidissima* × *lucida*, in November on Big South Cape I.

The holotype of *Erirhinus cordipennis* Broun is a female, 1.70 × 0.42 mm, Longwood Range, Southland, I.1913, A. Philpott, British Museum; the genitalia were examined and kept in glycerine in a minivial attached to the specimen.

This minute weevil, as well as *Pactolotypus subantarcticus*, cannot be expected on the Snares as no *Coprosma* species occurs there.

The only other leaf miner so far known from New Zealand is *Peristoreus discoideus* (Broun) which is host-specific on *Griselinia littoralis* and *lucida* (Cornaceae).

RHYTIRHININAE (Rhyparosominae **new synonymy**)

It has been previously remarked (Kuschel 1964) that the separate subfamily status of Rhyparosominae and Rhytirhininae should be more closely examined. This has been done and I can now confirm that the general structures of their genitalia are so astonishingly similar that they must be merged in a single subfamily.

12. **Gromilus** Blanchard, 1853

20. **Gromilus laqueorum** Kuschel, 1964

SNARES. Station Point, I.1967, 3 under logs of *Olearia lyallii*, Johns.

21a. **Gromilus insularis insularis** Blanchard, 1853

AUCKLANDS. Ewing I: 18.I.1966, 2 ex leaf litter, Ordish. French I: 21.I.1966, 2 under stones, 1 in *Pterodroma lessoni* nest, Ordish. Friday I: 27.I.1966, 1 specimen, Falla. Masked I, Carnley Harbor: 2.II.1966, 8 under *Stilbocarpa polaris*, Johns. Adams I: Fairchild's Garden, 20.I.1966, 13 under *Hebe elliptica* grove, 4 in the open vegetation, Johns; same place and date, 40 under stones and base of plants, 2 ex litter sample 66/77 (large unsifted sample from a shallow water channel, litter consisting mainly of *Chionochloa antarctica*, *Poa foliosa* and *P. litorosa*, and a little *Anisotome latifolia* and *Stilbocarpa polaris*, nests and chicks of *Macronectes* close by), 6 ex sample 66/78 (sifted litter under dense bush of *Hebe elliptica*), Kuschel; same place, 2.II.1966, 2 ex sample 66/94 (sifted litter of *Poa litorosa*, *P. foliosa*, *Chionochloa antarctica*, and *Anisotome latifolia*), Kuschel; Magnetic Station Cove, 16.I.1966, 1 in *Metrosideros* forest at night, Johns; same place, 28.I.1966, 4 ex sample 66/84 (sifted *Metrosideros* forest litter, ground undermined with petrol burrows), Kuschel; same place, 19.I.1966, 2 ex sample 66/86 (sifted litter under *Blechnum capense* in *Metrosideros* forest, some litter from burrow entrance of *Puffinus griseus*), Kuschel; same place, 3.II.1966, 5 under *Stilbocarpa polaris*, Kuschel; same place, 4.II.1966, 2 in *Tillaea moschata* mats, Kuschel; Lake Turbott, 60 m, 27.II.1966, 5 under stones, Wise; NE Ridge of Mt Dick, 450–600 m, 22.I.1966, 5 in fellfield, Johns.

Ecology and bionomics. This nominate subspecies occurs at all levels, but seems to be particularly common on the coastal areas where it prefers the plant communities of the maritime zone (*Tillaea*, *Colobanthus*), and of the swamp margins behind the beach (*Stilbocarpa*, *Anisotome*, *Pleurophyllum*).

Remarks. The holotype of *Gromilus insularis* Blanchard is in the Laboratoire d'Entomologie, Paris and has been examined in April 1964, thus confirming the previous interpretation of the species. An examination of the holotype of *cockaynei* Broun showed that it was not a junior synonym of *insularis*, but a senior synonym of *frontalis*.

21b. **Gromilus insularis robustus** (Brookes, 1951)

CAMPBELL. De la Vire Point, 17.I.1969, 5 ex sample 69/9 (unsifted litter taken under a

single large *Stilbocarpa polaris* plant on a stream bank surrounded with *Poa litorosa* and *Polystichum vestitum*), Kuschel; Beeman Camp, 23.I.1969, 12 ex sample 69/21 (unsifted litter collected at the lower 3 m of the maritime zone under *Hebe elliptica*, *Dracophyllum scoparium*, and *Coprosma ciliata*), Kuschel.

Ecology. This subspecies is also best represented at the lower levels of the island, being particularly common among the maritime vegetation just above the coastal banks and on the coastal rocks.

21c. **Gromilus insularis antipodarum** Kuschel, 1964

ANTIPODES. Antipodes I: Reef Point, above Anchorage Bay (80 m), North Plain (100–115 m), Mt Galloway (300–385 m), Central Valley (300 m), Mt Waterhouse (380 m), above Stack Bay (245 m), South Coast, II. 1969, 111 ex litter and ground plant samples, 2 in pit traps, Kuschel.

Ecology. There is a remarkable difference between this subspecies and the other two of Campbell and Auckland Is in their ecological preferences. The Auckland and Campbell subspecies are extremely abundant at, and close to, the lower coastal levels, and rarely occur above the 50 m line. The populations from the Antipodes are virtually absent below the 100 m mark of altitude, while extremely common from about 250 m upwards to the tops.

Remarks. The general appearance of *antipodarum* is chestnut-brown as against black in the other two subspecies, and the size of the specimens is distinctly smaller, as stated in the original description.

22. **Gromilus exiguus** (Brookes, 1951)

CAMPBELL I. Beeman Camp, 11–14.I.1969, 5 in maritime rocks vegetation at night, Kuschel; Tucker Cove, 15.I.1969, on shore rocks, Kuschel; Lookout Bay, 23.I.1969, 2 ex sample 69/22 (litter from under *Dracophyllum scoparium* and *longifolium*, *Myrsine divaricata*, and *Coprosma* spp.), Kuschel; De la Vire Point, 17.I.1969, 1 in maritime vegetation on coastal rocks, Kuschel; Mt Azimuth, 450 m, 31.XII.1966, 3 in scree, Johns; same place and height, 23.I.1969, 1 ex sample 69/24 (assorted mat plants), B. Bell; Mt Lyall, 180 m, 10.I.1966, 2 ex sample 69/5 (swards on nearly flat ground with *Phyllachne*, *Coprosma*, *Astelia*, and *Scirpus*), 3 ex sample 69/6 (plants from cracks, fissures, and ledges of a basalt outcrop, with *Phyllachne clavigera*, *Coprosma pumila*, *Astelia subulata*, *Scirpus aucklandicus*), Kuschel; same place, 350 m, 18.I.1969, 3 ex sample 69/11 (swards of *Scirpus aucklandicus*, *Agrostis magellanica*, *Bulbinella rossii*, *Coprosma pumila*, *Phyllachne clavigera*, *Abrotanella* and *Epilobium;* ground very soggy) and 3 under stones, 400 m, Kuschel; St Col Ridge, 21.I.1969, 7 at 200 m ex sample 69/14 (assorted mosses and mats) and 2 at 300 m ex sample 69/15 (mixed mosses, lichens, and mat plants), Kuschel; Yvon Villarceau, 330 m, 24.I.1969, 3 ex sample 69/25 (varied mats from top), R. Taylor.

Ecology. Rather uniformly distributed all over the island, being as common in the maritime vegetation as in *Dracophyllum-Coprosma-Myrsine* scrub and alpine swards and fellfields.

23a. **Gromilus veneris veneris** (Kirsch, 1877) Fig. 17, 20.

AUCKLANDS. Ewing I: 18.I.1966, 1 specimen, Ordish. Adams I: Fairchild's Garden, 2.II.1966, 9 ex sample 66/95 (unsifted litter of *Poa litorosa*, *P. foliosa*, *Chionochloa antarctica*, and *Anisotome latifolia*), Kuschel; Magnetic Station Cove, 19.I.1966, 3 ex sample 66/74 (sifted litter from under *Pleurophyllum criniferum*, *Stilbocarpa polaris*, *Carex trifida*, *C. appressa*, and *Antisotome latifolia*), Kuschel; same place, 26.I.1966, 1 at night on moss, Johns; NE Ridge of Mt Dick, 400 m, 22.I.1966, 3 under stones, Kuschel; same place, 550 m, 1.II.1966, 3 ex sample 66/91 (mat plants and mosses

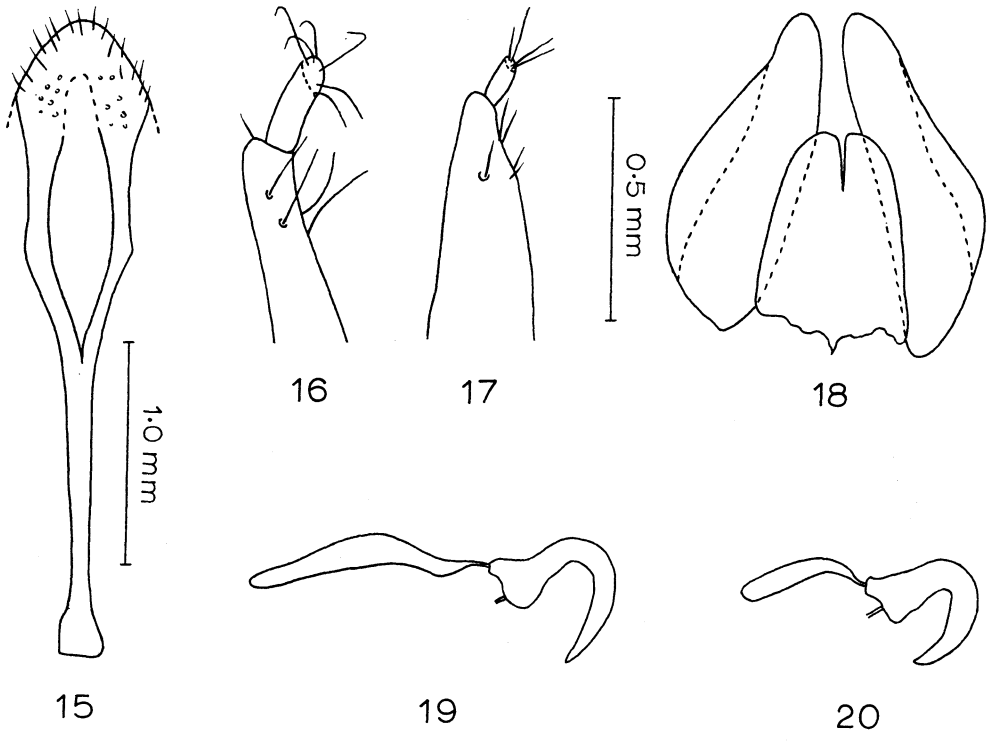

Fig. 15–20. *Gromilus aucklandicus* n. sp., ♀, NE Ridge of Mt Dick, 400 m, Adams I: 15. sternite 8, ventral; 16. stylus and distal portion of left hemisternite, dorsal; 18. bursal sclerite, ventral; 19. spermatheca. *G. veneris veneris* (Kirsch), ♀, NE Ridge of Mt Dick, 400 m, Adams I: 17. stylus and distal portion of left hemisternite, dorsal; 20. spermatheca. (Fig. 16–20 same scale).

from base, crevices, and ledges of rocky outcrops), Kuschel; same place, 450–600 m, 17 and 22.I. 1966, 3 under stones, Johns; Lake Turbott, 26.I.1966, 1 under log in *Metrosideros* forest, Wise.

Ecology. Observations on Adams I indicate that this species is evenly distributed from the maritime zone to the fellfields of the tops.

23b. **Gromilus veneris setarius** (Broun, 1909)

CAMPBELL I. De la Vire Point, 17.I.1969, 1 in maritime vegetation on rocks, Kuschel; Mt Lyall, 350 m, 18.I.1969, 1 ex sample 69/11 (swards containing *Scirpus*, *Agrostis*, *Bulbinella*, *Coprosma*, *Abrotanella*, *Phyllachne*, and *Epilobium*), Kuschel; Mt Azimuth, 450 m, 31.XII.1966, 1 in scree, Johns.

Type of *Stilbodiscus setarius* Broun: Holotype male, 6.5 × 2.5 mm, Campbell I, British Museum.

Ecology. Very little could be observed during my stay on Campbell I. The previous and present records show that the species is widely distributed on the island from the lowest to the highest levels.

Remarks. As the Auckland and Campbell populations of *veneris* differ considerably, the male and female genitalia have been re-examined, but no significant differences could be found to regard them as separate species.

24. **Gromilus aucklandicus** Kuschel new species Fig. 15, 16, 18, 19.

♀. Head and rostrum piceous, remainder of body, including antennae and legs, rufo-castaneous, moderately shiny. Setae on dorsal surface sparse, short, pointed.

Head densely and deeply punctate. Eyes large, with 11 ommatidia in an antero-posterior row. Rostrum thick, 1.55 × longer than its greater width, densely and coarsely punctate, the margins above the antennal grooves not upturned; pterygia not auriculate, gradually expanding behind apex of rostrum; groove of genal suture extending apicad beyond distal end of pterygia. Scape not reaching hind margin of eyes, thin and shiny for slightly more than 1/2 its length, then gradually widening and slightly alutaceous. Prothorax 1.01 × wider than long, densely punctato-coriaceous, moderately shiny, with a broad median groove narrowed in the middle, with a low discal knob on each side halfway between median groove and lateral margins, this knob accentuated by a shallow depression behind. Ocular lobes broad, distinct. Elytra 1.41 × wider than prothorax, 1.98 × longer than their own width, not mucronate or divaricate at tip. Striae fine, shallow. Interstriae finely asperate. Sterna and ventrites indistinctly punctate. Tarsal segment 2 strongly transverse, 3 relatively broad, with long lobes. Claws relatively thick.

♂. Unknown.

♀. Sternite 8 as in Fig. 15, its apodeme (manubrium) 1/2 the total length of sternite; setae long. Stylus as in Fig. 16, cylindrical, slightly curved, long, about 0.165 the length of hemisternite; bursal sclerite as in Fig. 18; spermatheca as in Fig. 19, relatively thin, its gland long.

Length 7.5 mm; width 2.8 mm.

AUCKLANDS. Adams I: NE Ridge of Mt Dick, 400 m, 22.I.1966, under a stone in alpine swards of *Oreobolus*, *Phyllachne*, *Donatia*, *Coprosma*, and *Pleurophyllum hookeri*, Kuschel.

Holotype ♀, 7.5 × 2.8 mm, data as above, in Entomology Division, D.S.I.R., Nelson.

Remarks. Close to *G. veneris veneris* (Kirsch) with which it co-exists. *G. veneris* has a relatively longer rostrum, 1.75–1.85 × longer than wide, the puncta finer, often obsolete; the pterygia are auriculate, the genal suture is shorter, not quite reaching the anterior end of the pterygia; the eyes are smaller, with 9 ommatidia in an antero-posterior row; the ocular lobes are weak, distinctly less developed than in *aucklandicus;* the elytra are mucronate; the tarsal segment 2 is only slightly transverse, 3 is not as wide as but more elongate than in *aucklandicus*, and the claws are finer; the sternite 8 has shorter setae and a shorter apodeme; the stylus is as in Fig. 17, slightly doliiform (barrel-shaped), distinctly shorter, about 0.10 the length of hemisternite, its setae and those of the hemisternite also shorter; the bursal sclerite is much larger and of a different shape; the spermatheca is shorter and its gland is much shorter, Fig. 20.

I was not at all aware while in the field that 2 new species of *Gromilus* had been collected and so no further attempts were made to secure additional specimens.

25. **Gromilus cockaynei** (Broun, 1905) valid species

frontalis (Broun, 1909). **New Synonymy.**

AUCKLANDS. Enderby I: 17.I.1966, 1 ex leaf litter, Ordish. Rose I: 27.I.1966, 1 ex leaf litter, Ordish. Auckland I: Tucker Point, 28.I.1966, 2 ex leaf litter, Ordish; Ranui Cove, 25, 27, 28.I.1966, 15 ex moss and leaf litter, Ordish; Camp Cove, Carnley Harbor, 24.I.1966, 4 in *Metrosideros* forest, Johns. Masked I, Carnley Harbor: 2.II.1966, 1 under *Stilbocarpa* and 1 in *Metrosideros* forest, Johns. Adams I: Magnetic Station Cove, 18.I.1966, 8 under *Metrosideros* logs, Johns; same place, 19–20.I.1966, 2 under *Metrosideros* logs, Wise; same place, 27.I.1966, 1 ex sample 66/81 (*Metrosideros* forest litter), Kuschel; same place, 29.II.1966, 4 ex sample 66/86 (sifted litter amongst *Blechnum capense* under *Metrosideros umbellata* canopy), Kuschel; NE Ridge of Mt Dick, 450–600 m, 22.I.1966, 6 in fellfield, Johns; same place, 400–550 m, 18 and 22.I.1966, 17 under stones and plants, Kuschel; same place, 550 m, 1.II.1966, 3 ex sample 66/91 (mat plants and moss from crevices and ledges of rocky outcrops), Kuschel.

Types: *Hycanus cockaynei* Broun: Holotype ♀, 4.3 × 1.85 mm, Auckland I, British Museum; *Hycanus frontalis* Broun: Holotype ♀, 5.0 × 2.0 mm, Auckland I, British Museum.

Ecology. Although the species occurs at all levels on Adams I, it is far more common in the alpine swards and fellfields above the *Chionochloa*-tussock belt. It was not found in the maritime vegetation and backbeach swamps, where *G. insularis* is abundant.

26. **Gromilus narinosus** Kuschel new species Fig. 21–23.

♂. Piceous dull; antennae, tibiae, and tarsi ferruginous. Setae on pronotum and elytra absent; hairs on elytra sparse, small, appressed, those on interstria 6 and 7 slightly squamiform.

Head densely and coarsely punctate. Rostrum 1.67 × longer than wide, dull, densely and coarsely puctate from base to antennal insertions, very shiny and very finely punctate at the apex; margins above antennal grooves strongly upturned; pterygia auriculate; groove of genal suture reaching as far as anterior end of pterygia. Scape reaching posterior margin of eyes, cylindrical from near base, dull; segment 3 of funicle slightly elongate, 4 to 7 moniliform, at least as wide as long. Prothorax 1.04 × wider than long, densely punctate, with broad median groove. Ocular lobes weak. Elytra 1.54 × wider than prothorax and 1.80 × longer than their own width. Striae fine. Interstriae finely asperate. Entire ventral surface, except mesosternal pleurites, densely and distinctly punctate. Femora without setae. Tarsal segment 2 transverse, 3 large, deeply lobed. Claws long, slender.

♂. Aedeagus as in Fig. 21–23; dorsal ostial valve bifurcate; apodemes very loosely articulate; basal sclerite long, strongly sclerotized.

♀. Unknown.

Length 6.6 mm; width 2.7 mm.

AUCKLANDS. Adams I: NE Ridge of Mt Dick, 550 m, 22.I.1966, under a stone in fellfield at the foot of high bluffs, Kuschel.

Holotype ♂, 6.6 × 2.7 mm, data as above, in Entomology Division, D.S.I.R., Nelson.

Remarks. Similar at first glance to *G. fallai* in size and in possessing the same type of rostrum and scape, but the two species are otherwise very different. *G. fallai* has the rostrum and entire ventral surface smooth or very obsoletely punctate, the pronotum and elytra with long erect setae, a very long first segment of the funicle which is more than twice as long as the second, and a dorsal ostial valve which is simple and pointed, not bifurcate, and lacks a large strongly chitinized basal sclerite.

27. **Gromilus fallai** (Brookes, 1951) Fig. 24.

AUCKLANDS. Rose I: 27.I.1966, 6 specimens, Ordish. Adams I: Magnetic Station Cove, 16 and 20.I.1966, 20 in *Metrosideros* forest and in maritime vegetation, Johns, Kuschel, Wise; same place, 22.I.1966, 1 at night feeding on *Blechnum capense*, Kuschel; NE Ridge of Mt Dick, 400 m, 22.I.1966, 9 under stones and plants in alpine swards and fellfield, Kuschel; same place, 550 m, 1.II.1966, 1 ex sample 66/91 (mat plants and moss from crevices and ledges of rocky outcrops), Kuschel.

Ecology. This species also occurs from sea-level to the alpine swards and fellfield. One specimen was observed feeding on a fern (*Blechnum capense*) (ferns are the sole host plants of most lowland *Gromilus* species in New Zealand). *Gromilus fallai* is, however, a polyphagous species, as are all other subantarctic members of the genus; ferns are not part of their common diet.

13. **Nestrius** Broun, 1893

28. **Nestrius laqueorum** Kuschel, 1964

Length 2.6–2.9 mm; width 1.20–1.35 mm.

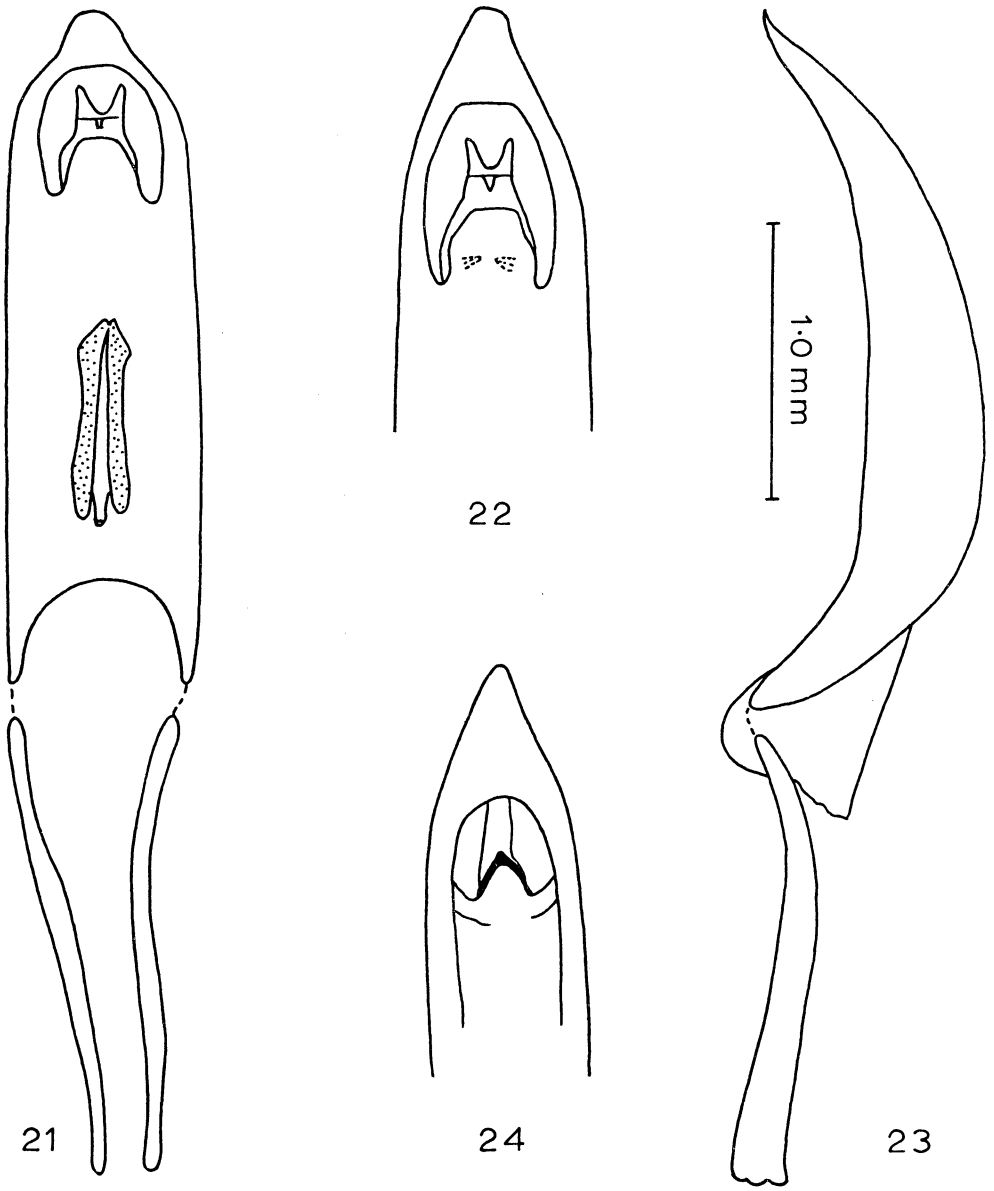

Fig. 21–24. *Gromilus narinosus* n. sp., ♂, NE Ridge of Mt Dick, 550 m, Adams I: 21. aedeagus, dorsal; 22. apex of same, dorsal; 23. aedeagus, lateral. *G. fallai* (Brookes), NE Ridge of Mt Dick, 400 m, Adams I: 24. apex of aedeagus, dorsal. (All fig. same scale).

SNARES. Station Point, I.1967, 4 ♂♂ under *Olearia lyallii* logs, Johns; West Ridge, 7.II. 1967, 1 ♂ under *Olearia lyallii* log, Johns.

Remarks. The female still remains unknown.

LEPTOPIINAE

14. **Catoptes** Schönherr, 1842

The bibliography and synonymy as well as a redescription of the genus is given in Kuschel (1969). *Platyomida* White is a synonym of *Catoptes*.

29. **Catoptes brevicornis australis** (Kuschel, 1964)

Kuschel, 1969, *N.Z. J. Sci.* **12**: 797.

Length 11.0–14.3 mm; width 4.3–6.1 mm.

SNARES. West Ridge, 27.I.1967, 5 on *Anisotome acutifolia* at night, Johns.

15. **Heterexis** Broun, 1909

30. **Heterexis sculptipennis** Broun, 1909

Length 13.8–20.0 mm.

AUCKLANDS. Adams I: Magnetic Station Cove, I.1966, 22 on *Pleurophyllum criniferum*, Johns, Kuschel; NE Ridge of Mt Dick, 400–600 m, I. and II.1966, 58 under stones and bases of plants in alpine swards and fellfields, Johns, Kuschel, Wise.

Ecology. This species is found from sealevel to an altitude of over 600 m and occurs in plant communities of open grounds, on the margins of backbeach swamps and in the alpine swards and fellfields.

31. **Heterexis seticostatus** (Brookes, 1951)

CAMPBELL I. No additional specimens.

16. **Oclandius** Blanchard, 1853

32. **Oclandius vestitus** (Broun, 1909)

SNARES. Station Point, I.1967, 13 on *Olearia lyallii* at night, Johns; West Ridge, I.1967, 6 on *Olearia lyallii* and *Anisotome robusta* at night, Johns.

Type: Lectotype ♂, 12.5 × 5.1 mm, Snares, XI. 1907, British Museum.

33. **Oclandius cinereus** Blanchard, 1853

AUCKLANDS. Ewing I: 18.I.1966, 2 specimens, Ordish. Rose I: 27.I.1966, 1 specimen, Ordish. Auckland I: Musgrave Penin., Carnley Harbor, 3.II.1966, on *Metrosideros umbellata* at night, Johns. Adams I: Magnetic Station Cove, I.1966, 33 on *Metrosideros umbellata* and *Pleurophyllum criniferum*, Johns, Kuschel, Wise; Fairchild's Garden, I.1966, 6 under stones in maritime vegetation, Kuschel; NE Ridge of Mt Dick, 350–550 m, I.1966, 34 under stones and plants in alpine swards and fellfields, Johns, Kuschel, Wise; Lake Turbott, 60 m, 27.I.1966, 1 under stone, Wise.

Types. *Oclandius cinereus* Blanchard: the type should be at the Laboratoire d'Entomologie, Paris; although considerable time was devoted to its search, it was not located.

Catodryobius benhami Broun: Holotype ♂, 17.0 × 6.5 mm, Enderby I, 27.XI.1907, Benham, British Museum.

Catodryobius tetricus Broun: Holotype ♂, 15.0 × 6.5 mm, Carnley Harbor, Auckland I, 17–

20.XI.1907, Hudson, British Museum.

Remarks. The lowland and highland specimens on Adams I are somewhat different in derm color, vestiture, and general facies, but as they seem to be identical in genitalia I cannot but regard them as belonging to the same species. Besides, where the two populations meet, as in Fairchild's Garden, the specimens are intermediate. It may well have been that the population now mainly in the highlands of Adams I was isolated for a longer period during the glaciations from a more northern population, which could since have spread southwards with the disappearance of the extensive glacial fields from the entire Carnley Harbor area.

34. **Oclandius laeviusculus** (Broun, 1902)

AUCKLANDS. Adams I: Magnetic Station Cove, I.1966, 59 on *Pleurophyllum ciniferum*, *Metrosideros umbellata*, and *Anisotome latifolia*, Johns, Kuschel, Wise; Fairchild's Garden, I.1966, 9 under stones in maritime vegetation, same collectors; NE Ridge of Mt Dick, 350–550 m, I.1966, 5 under stones in alpine swards and fellfields, Kuschel, Wise; Lake Turbott, 27.I.1966, 1 in tussock, Wise.

Type of *laeviusculus* Broun: Holotype ♂, 17.5 × 7.2 mm, Adams I, I.1901, Bollans, British Museum.

Ecology. Found at all levels on Adams I. Most lowland specimens were collected under *Pleurophyllum criniferum* in the daytime, or feeding on the same plant at night.

17. **Catodryobiolus** Brookes, 1951

35. **Catodryobiolus antipodus** Brookes, 1951

AUCKLANDS. Ewing I: 18.I.1966, 1 specimen, Ordish. Adams I: Magnetic Station Cove, I.1966, 8 specimens, Johns, Kuschel, Wise; Fairchild's Garden, I.1966, 4 under stones and in litter, Johns, Kuschel; NE Ridge of Mt Dick, 540 m, 1.II.1966, 1 ex sample 66/91 (moss and mat plants from rock faces and crevices), Kuschel.

CAMPBELL I. Beeman Camp, 11–14.I.1969, 1 specimen, Kuschel; Mt Lyall, 180 m, 10.I. 1969, 1 ex sample 69/5 (varied alpine swards), Kuschel.

Ecology. Only a few additional specimens have been collected on Adams and Campbell Is. These indicate that the species occurs in forest and scrub, in maritime vegetation, and in alpine swards and fellfields.

Doubtfully established species on the Subantarctic Islands

(1) *Sitophilus oryzae* (Linné, 1763) (Rhynchophorinae)—in stored products. Not observed in recent years. Cosmopolitan.

(2) *Sitophilus granarius* (Linné, 1758) (Rhynchophorinae)—in stored products. Last specimens collected by J. Dumbleton during the 1962/1963 expedition. Cosmopolitan.

(3) *Rhinanisus parvicornis* (Sharp, 1878) (Cossoninae)—One specimen labelled as reared from dead wood of *Pseudopanax simplex* (Araliaceae) brought to Nelson from Magnetic Station Cove, Adams I, I.1966, G. Kuschel and removed from the rearing tin in Nelson on 13.VII.1967. As this species on tree-ferns (*Cyathea* and *Dicksonia*) does not seem to occur in the far South of the New Zealand mainland, this record must be treated with great reservation. A New Zealand species.

(4) *Hyperodes bonariensis* Kuschel, 1955 (Rhytirhininae)—One specimen ex sample 66/95 (unsifted litter of *Poa litorosa*, *P. foliosa*, *Chionochloa antarctica*, and *Anisotome latifolia*), Fairchild's Garden,

Adams I, 2.II.1966, G. Kuschel. The sample was processed in Nelson where contamination could have occurred. The species is, however, very widely distributed in New Zealand and its establishment on the Aucklands cannot be ruled out as it is known from even more southern latitudes in Chile (Magellan Strait). A South American species.

(5) *Nestrius bifurcus* Kuschel, 1964 (Rhytirhininae)—The species is known only from the North I, New Zealand, so that the single specimen labelled as from the Aucklands is a very doubtful record.

(6) *Phrynixus astutus* Pascoe, 1876 (Phrynixinae)—Three specimens of this species were recorded for Campbell I (Kuschel 1964). Considerable attention was devoted to find this species under dead wood and at night in the Beeman Camp scrub area, and several suitable litter samples were taken, but no specimens were obtained. The record for Campbell I is, therefore, doubtful.

(7) *Phrynixus thoracicus* (Broun, 1892) (Phrynixinae)—The statement on *Nestrius bifurcus* above also applies to this species.

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