

# Fauna of New Zealand

## Ko te Aitanga Pepeke o Aotearoa

Larochelle, A.; Larivière, M.-C. 2013. Carabidae (Insecta: Coleoptera): synopsis of species, Cicindelinae to Trechinae (in part). *Fauna of New Zealand* 69: 193 pp.

**The Copyright notice printed on page 4 applies to the use of this PDF.**

**This PDF is not to be posted on websites.**

**Links should be made to:**

**[FNZ.LandcareResearch.co.nz](http://FNZ.LandcareResearch.co.nz)**

## **EDITORIAL BOARD**

**Dr R. M. Emberson**, *c/- Department of Ecology, P.O. Box 84, Lincoln University,  
New Zealand*

**Dr M. J. Fletcher**, *NSW Agricultural Scientific Collections Unit, Forest Road,  
Orange, NSW 2800, Australia*

**Dr R. J. B. Hoare**, *Landcare Research, Private Bag 92170, Auckland, New  
Zealand*

**Dr M.-C. Larivière**, *Landcare Research, Private Bag 92170, Auckland, New  
Zealand*

**Mr R. L. Palma**, *Natural Environment Department, Museum of New Zealand  
Te Papa Tongarewa, P.O. Box 467, Wellington, New Zealand*

## **SERIES EDITOR**

**Dr T. K. Crosby**, *Landcare Research, Private Bag 92170, Auckland, New  
Zealand*

**Fauna of New Zealand  
Ko te Aitanga Pepeke o Aotearoa**

**Number / Nama 69**

**Carabidae  
(Insecta: Coleoptera):  
synopsis of species,  
Cicindelinae to Trechinae (in part)**

**A. Laroche and M.-C. Larivière**

**Landcare Research, Private Bag 92170,**

**Auckland 1142, New Zealand**

**LarochelleAndre@hotmail.com**

**LariviereM@landcareresearch.co.nz**



**Manaaki  
Whenua  
P R E S S**

**Lincoln, Canterbury, New Zealand**

**2013**

Copyright © Landcare Research New Zealand Ltd 2013

No part of this work covered by copyright may be reproduced or copied in any form or by any means (graphic, electronic, or mechanical, including photocopying, recording, taping information retrieval systems, or otherwise) without the written permission of the publisher.

### Cataloguing in publication

Laroche, André, 1940 Apr.10–

Carabidae (Insecta: Coleoptera): synopsis of species, Cicindelinae to Trechinae (in part) /  
A. Laroche and M.-C. Larivière. – Lincoln, Canterbury, N.Z. : Manaaki Whenua Press, 2013.  
(Fauna of New Zealand, ISSN 0111-5383 (print), ISSN 1179-7193 (online) ; no. 69).  
ISBN 978-0-478-34738-8 (print)  
ISBN 978-0-478-34739-5 (online)

I. Larivière, Marie-Claude. II. Title. III. Series.

UDC 595.762.12

### Suggested citation:

Laroche, A.; Larivière, M.-C. 2013. Carabidae (Insecta: Coleoptera): synopsis of species, Cicindelinae to Trechinae (in part). *Fauna of New Zealand* 69: 193 pp.

Prepared for publication by the series editor and the authors using computer-based text processing, layout, and printing at Landcare Research, Private Bag 92170, Auckland, New Zealand.

To access on-line extracts from this series visit:

<http://fnz.landcareresearch.co.nz/>

Māori text by Piripi Walker, Tokomāpuna Māori Language Services, Upper Hutt/ Whakatiki.

Published by Manaaki Whenua Press, Landcare Research, P.O. Box 40, Lincoln, Canterbury, N.Z.

Website: <http://www.mwpress.co.nz/>

Printed by PrintLink Ltd, Wellington

Date of publication 7 March 2013

Front cover: *Amarotypus edwardsii* Bates, 1872 (© Photographer: H. Goulet).

**Publication of the *Fauna of New Zealand* series is supported by Core funding for Crown Research Institutes from the Ministry of Business, Innovation and Employment's Science and Innovation Group, for the Defining New Zealand's Land Biota research programme**

## POPULAR SUMMARY

## HE WHAKARĀPOPOTOTANGA

Class **Insecta**Order **Coleoptera**Family **Carabidae****Ground-beetles**

The family Carabidae (ground-beetles, including tiger beetles) is composed of over 34,000 species distributed among 1,927 genera worldwide. Carabids occupy most land habitats on nearly all continents. These beetles are abundant in the field and attract attention with their peculiar shape and coloration. They are mostly active at night and prey on a wide range of small animals such as other insects and spiders; some species are active during the day and feed on plant tissue. Most ground-beetles, in temperate climates at least, live at the surface of the ground, while some species dwell in the soil (e.g., Anillina), in caves (e.g., Trechini, Harpalini), or on the vegetation (e.g., Zolini, Lebiini). Most New Zealand species cannot fly, which reduces their dispersal capacity and affects the flow of genes defining their body shape, making it rather variable. In 2001, Laroche & Larivière's Catalogue (*Fauna of New Zealand* 43) recorded 5 subfamilies, 20 tribes, 78 genera, and 424 species for this country, whereas this new work recognises 7 subfamilies, 20 tribes, 97 genera, and 518 species. When completely inventoried and described the fauna will likely reach 800 species. Compared with larger or warmer regions of the world, the New Zealand fauna may appear relatively small, but New Zealand is a very special place – a biodiversity ‘hot-spot’ – with over fifty genera (about 60 % of fauna) found nowhere else in the world. The remaining genera not endemic to this country are made up of overseas genera introduced mainly from Australia and native genera shared with Australia and other parts of the world.

*(continued overleaf)*

**Illustration / Whakaahua:** *Loxomerus brevis* (Blanchard, 1843) (© Photographer: H. Goulet).

**Ngā pītara noho papa**

Kua hipa ake i te 34,000 ngā momo o te whānau Carabidae (ngā pītara noho papa, tae atu ki ngā tātaka), nō ngā puninga 1927, huri katoa i te ao. Kitea ai ngā pepeke nei i te nuinga o ngā kāinga noho o te taiwhenua, i te nuinga o ngā whenua-rahi o te ao. He pītara ngaruru, he tiwha anō, nā te rerekē o te hanga me ngā tae. Ko te nuinga, he haere pō, ā, kai ai rātou i ngā momo hanga huhua, tae atu ki te pepeke me te pūngāwerewere; heoi, ko ētahi momo, he haere awatea, ā, kai ai ērā rā i te tipu. Ko te nuinga o ngā pītara noho papa i ngā takiwā kāore i tino makariri,

*(haere tonu)*

In New Zealand, ground-beetles are generally recognised by the following body features: length, 1.0–39.0 mm; colour dark (usually black or brown); elytra (wing covers) rarely spotted; dorsal surface without hair cover; head narrower than pronotum (dorsal part between head and wings); mandibles well developed, with sharp tips; eyes moderate in size; antennae thread-like or beaded like a necklace, composed of 11 segments; pronotum narrower than elytra, with a pronounced mobility; legs long and slender, fit for running; tarsi (last part of legs) composed of 5 segments; elytra fused, with striae (deepened lines) present; membranous wings very short, almost absent. Most carabids are recognisable alive by a peculiar way of running on the ground.

As a family, Carabidae are sensitive to their environment and are commonly used as biological indicators to evaluate the diversity of life in ecological systems, indicate the influence of landscape changes, evaluate environmental health, predict the effect of climate changes, select habitats for nature conservation, and characterise forest soil. They can also be used to control pest insects (e.g., caterpillars). In the future, ground-beetles may become more commonly used in biological control, e.g., as natural control agents against harmful insects, especially soil pests, or as control agents of weeds, especially their seeds. In New Zealand, conservation biologists have listed many, often large-sized carabids, as rare or threatened and worthy of protection.

This *Fauna of New Zealand* contribution is aimed at specialists and non-specialists; it should greatly facilitate identification and information gathering. Its purpose is to provide an overview of 134 species and subspecies belonging to the tribes Cicindelini, Pamborini, Amrotypini, Migadopini, Clivinini, Moriomorphini, and Trechini. This work is one more step in the authors' goal of reaching an overall understanding of the New Zealand carabid fauna within a reasonable time frame and making relatively large amounts of information available for practical use by a wide range of end-users.

**Cicindelini.** Tiger beetles are represented by two endemic genera and 16 species occurring on the North, South and Stewart Islands. New Zealand species are mostly active during the day and live in a range of habitats such as coastal sand beaches and dunes, riverbanks, grasslands, and roadsides. These stunning insects are recognised by the metallic colour of their body, hairy legs, very large eyes, strongly toothed mandibles, and pale markings on the elytra. Adults and larvae are voracious predators, often feeding on ants. The larva lives in a deep burrow dug into the soil, placing itself at the burrow's entrance, attached to the wall by two pairs of hooks on the abdomen, and awaiting organisms on which it preys.

(continued overleaf)

ka noho ki te mata tonu o Papa, engari ko ētahi ka noho ki roto tonu i te oneone (hei tauira, ko Anillina), ki te ana (hei tauira, ko Trechini me Harpalini), ki te otaota rānei (pērā i a Zolini me Lebiini). He rerekore te nuinga o ngā momo o Aotearoa, nā konā i kore ai e pirara ki tawhiti, nā konā anō i herea ai te hanumi haere o ngā ira e whakatau ana i te hanga o te tinana, me te aha, kua kaha tonu te taurangi o tērā āhua. I te Rārangi a Larochelle & Larivière (*Ko te Aitanga Pepeke o Aotearoa 43*) o te tau 2001, e 5 ngā whānau iti, e 20 ngā iwi, e 78 ngā puninga, e 424 ngā momo i Aotearoa nei. Engari i tēnei tuhinga hou, e 7 ngā whānau iti, e 20 ngā iwi, e 97 ngā puninga, e 518 ngā momo. Kia oti rawa ngā huānga katoa te whakarārangi, te whakaahua, tērā ka eke ki te 800 ngā momo. Ina whakaritea ki ngā takiwā nui ake, mahana ake o te ao, kāore i pērā rawa te whānui o te puna pītara noho papa o Aotearoa. Engari he wāhi ahurei tonu a Aotearoa, i te mea neke atu i te 50 ngā puninga o Aotearoa (e 60% o ngā pītara), kāore e kitea ana i tētahi atu wāhi kotahi nei o te ao. O ērā atu puninga ehara nō konei taketake ake, i ahu mai i Ahitereiria, he puninga māori rānei nō konei me Ahitereiria, nō konei rānei me ētahi atu whenua o te ao.

I Aotearoa nei, ka tautohua nuitia ngā pītara papa i runga anō i ngā āhuatanga e whai ake nei: te roa, 1.0–39.0 mm; te uriuri o te tae (he pango, he parauri te nuinga); ngā kahu parirau, he tino ruarua ngā mea kōiraira; te tuarā, he huruhuru kore; te upoko, he whāiti ake i te papatua pohomua; te waha, he pakari tonu, he koi ngā pito; ngā karu, kāore i tino iti, kāore rānei i tino rahi; ngā pūhihi, me te miro te hanga, me te hei rānei kua tuiatu he kākano ki runga, 11 ngā wāhanga; te papatua pohomua, he whāiti ake i ngā kahu parirau, he āhua nekeneke anō; ngā waewae, he roa, he tōhihi, he pai mō te oma; te wāhanga whakamutunga o ngā waewae, e 5 ngā wāhanga iti; ngā kahu parirau, kua hono tahi, he haenga anō kei te mata; ngā parirau, he rite ki te kiriuhi, he tino poto, he toenga parirau kau. He māmā te tautohu i te nuinga o ngā pītara nei i a rātou e ora ana, i te rerekē o tā rātou karapetapeta haere i te papa.

He kaha rongo te whānau Carabidae i ngā hanga rerekē i tō rātou taiao, ā, koinā i whakamahia ai hei waitohu koiora, e whakatauria ai te huhuatanga koiora o ngā pūnaha hauropi, e kitea ai te kaha o ngā pānga o te whakarerekē i te takoto o te whenua, e whakatauria ai te ora o te taiao, e matapaetia ai te hua o ngā rerekētanga i te āhua o ngā rangi, e kōwhiria ai ngā wāhi pai hei papa rāhui, e whakatauria ai te āhua o ngā oneone i te ngahere. Ka taea anō te whakamahi hei patu i ngā pepeke kino (hei tauira, ngā anuhe). I ngā rā kei te tū mai, ka kaha ake pea te whakamahi i ngā pītara noho papa hei kaiwhakataki koiora, hei patu i ngā pepeke kino (e tino hāngai ana ki ngā pepeke noho oneone), hei here rānei i ngā taru (arā, ngā kākano o aua taru). I Aotearoa nei, kua tohua e ngā

(haere tonu)

**Pamborini.** This tribe is represented by the endemic Fairburn's snail-eater (*Maoripamborus fairburni*) occurring only in the northern part of the North Island. This beetle is active at night, living in forests under logs and fallen branches. It is a fascinating flightless insect recognised by its elongate head with mouthparts adapted to feed on snails.

**Amarotypini.** This tribe occurs only in New Zealand and is known from a single endemic genus and species (*Amarotypus edwardsii*) found on the North, South and Stewart Islands. This flightless beetle is easily recognised by its metallic bronze colour and its oval shape. It is active at night, hiding during the day under the bark of live southern beech trees. When disturbed, the beetle drops to the ground or emits a strong smell.

**Migadopini.** These insects, also known as Austral shiny carab beetles, occur in New Zealand, Australia, the Falkland Islands, and southern South America. The New Zealand fauna comprises three endemic genera and 18 species. Some species occur only on subantarctic islands (Antipodes, Auckland), while most species are distributed on the South and Stewart Islands. These beetles often live along the edges of rills and seepages running through forests or in high altitude meadows and fellfields. They live in groups and are active at night, often hiding during the day under stones. They are also flightless and predatory.

**Clivinini.** This tribe occurs throughout the world. The New Zealand fauna is known from a single genus (*Clivina*) and four species introduced from Australia, occurring on the North and South Islands. Slope-rumped beetles are recognisable by their narrow-waisted body, forelegs with finger-like elongations, and strongly developed mandibles. They live in groups and are active at night, living in wet or moist areas, hiding in burrows during the day, and flying readily to lights at night.

**Rhysodini.** Four genera and six endemic species of Wrinkled bark beetles are known from New Zealand. They are darkly coloured, have cylindrical, narrow-waisted bodies and bead-like antennae. Of the six New Zealand species, five are found only in the northern part of the North Island; the sixth species extends its range to northern areas of the South Island. These beetles can be found in fallen logs, standing dead trees, stumps, woody roots, and under loose bark. They have been observed feeding on slime moulds or fungi.

**Moriomorphini.** This tribe occurs in the Australian Region, on Pacific Islands, and in southern South America. The New Zealand fauna is composed of seven genera and 48 species distributed on the North and South Islands; they are endemic except for a single species introduced from the Australian region. These insects are mostly flightless,

ringa koiora tiaki taiao te maha tonu o ngā momo pītara noho papa (ko ngā mea nui ngā mea e kaha ana te arohia), hei momo e onge ana, e mōrearea ana rānei, ā, e tika ana kia āta tiakina.

Kua tuhia tēnei kōrero mā ngā tohunga me ērā o tātou kāore e tino tohunga ana ki ngā aitanga a pepeke; ko te tūmanako he āwhina nui kei konei mō ngā mahi tautohu me ngā mahi kohikohi pārongo. Ko te whāinga, he whakatakoto tuatahi i tētahi tirohanga whānui ngā momo me ngā momo iti 134 nō ngā iwi Cicindelini, Pamborini, Amarotypini, Migadopini, Clivinini, Moriomorphini, me Trechini. He takahanga whakamua anō tēnei i te ara whakatutuki i te wawata o ngā kautuhi kia tau tētahi māramatanga tuawhiti nei e pā ana ki ngā pītara noho papa o Aotearoa, kia wawe anō te puta, me te hora i ngā pārongo maha tonu hei whāwhā mā te iti, mā te rahi.

Originally translated by H. Jacob, Ōtaki, for *Fauna N.Z.* 60; updated

**Cicindelini.** Kei konei ngā tātaka; e rua ngā puninga o konei taketake ake, 16 hoki ngā momo taketake ake, kitea ai i ngā moutere o Te Ika a Māui, o Te Waipounamu me Rakiura. Ko te nuinga o ngā momo o Aotearoa o ēnei pītatea he haere awatea, ā, ka noho i te matahuhuatanga o ngā wāhi noho pēnei i ngā takutaki one me ngā hiwi onepū, i ngā tahataha awa, i ngā pārae me ngā taha huarahi. Ka mōhiotia ēnei pepeke whakamāharo nā te kano maitai o te tinana, nā ngā waewae huruhuru, nā ngā karu tino nui, nā te waha, he pakari tonu, he koi ngā pito, me ētahi tohu kōtea kei ngā kahu parirau. He konihi horopetapeta ngā kātua me ngā torongū, ko te pōpokorua tētahi tino kai. Noho ai te torongū i tāna rua hōhonu i kerī ai ki te one, ka tāpapa ia i te waha tonu o taua rua me te piri ngā matau takirua e rua i tana puku ki te pātū me te tatari i reira ki ngā koiora e kai nei ia kia haere mai.

**Pamborini.** Ko te kanohi o tēnei iwi ko te kai-ngata taketake ake a Fairburn (*Maoripamborus fairburni*), he momo taketake nō Aotearoa nei, kitea ai i te pito whakate-raki anake o Te Ika-a-Māui. He haere pō tēnei pītara, ā, ka noho i te ngahere i raro i ngā poro rākau takoto me ngā manga kua ngahoro. He tino pepeke whakamāharo, pepeke rerekore, ā, mā tōna upoko roroa me ngā wāhanga o tōna waha, kua urutau hei kai ngata, e mōhiotia ai.

**Amarotypini.** E mōhiotia ana tēnei iwi i Aotearoa anake, nā tētahi puninga taketake nō Aotearoa kotahi, me tētahi momo kotahi (*Amarotypus edwardsii*) e noho ana i Te Ika-a-Māui, i Te Waipounamu me Rakiura. Ka mōhiotia wawetia tēnei pītara rerekore nā tōna kano maitai, kano kōura, me tōna āhua porohita-tītaha. He haere pō ia, he huna i te awatea i raro i te peha o ngā tawhai o te tonga ina ora ēnei rākau. Ina whakaohongia, ka ngahoro tēnei pītara ki te papa, ka kona hoki tōna haunga.

(continued overleaf)

(haere tonu)

active at night, and probably predatory. They inhabit forests, fields, sand dunes, and the vicinity of streams. They are often found during the day in leaf-litter or under logs, fallen branches, and stones. Several species occasionally climb on trees. Many species have strongly convex and ovate elytra (wing-covers), giving them a “hump-backed” appearance. The largest genus (*Trichopsida*) is known from 18 species occurring in southern areas of the North Island and on the South Island. This genus is unique in having palpi (structures fit to touch) with hairy last segments. Many species have strongly reduced eyes, swollen tempora (temples), pale and flattened body, and long hair-cover, suggesting subterranean habits. Some species can be collected only by using soil-washing techniques.

**Trechini.** This tribe is represented by 11 genera and 34 flightless species distributed from the North Island to the subantarctic islands. All representatives of this group are endemic to New Zealand, except for one species also occurring on the Falkland Islands, South Georgia Island, and in Patagonia. Most species are cave-dwellers, many live on the banks of streams, and some occur in the vicinity of seashores, e.g., under stones and among gravel. A single species is found in the humus and leaf-litter of southern beech rainforests. Cave-dwelling species are usually pale in colour, flat-bodied, without eyes, and with long antennae and legs. Species of this tribe are probably predacious. The most diverse genus is *Duvaliomimus* with 13 species and two subspecies; they live in groups and are active at night, hiding during the day under stones and among gravel.

**Migadopini.** Ka kitea ēnei pepeke i Aotearoa, i Ahitereiria, i ngā moutere Falkland, me te tonga o Te Tonga o Amerika. E toru ngā puninga nō Aotearoa taketake i Aotearoa, ā, 18 ngā momo. Ko ētahi o aua momo ka kitea i ngā moutere o Te Moana-o-te-Tonga anake (Antipodes, Motu Maha [Aucklands]). Ko te nuinga he māhorahora te noho, kei ngā rohe o Te Waipounamu me Rakiura. Noho ai ēnei tātaka i te taha o te hāroto me te pipitanga wai e pae ana i te ngahere, i te pārae o ngā maunga, i te pātītī o ngā maunga hunuhunu rānei. He noho ā-rōpū, he haere pō te āhua, ā, he huna i te awatea i raro i te kōhatu ēnei pītara. He rerekore, he konihi hoki ēnei pepeke.

**Clivinini.** Kitea ai tēnei iwi puta noa i te ao. E mōhiotia ana ngā pītara Clivinini ki Aotearoa nā te puninga kotahi (*Clivina*) me ētahi atu momo e whā i kawea mai i Ahitereiria ka kitea i ngā moutere o Te Ika-a-Māui me te Waipounamu. Ka mōhiotia ngā pītara kumu-pīnanaki mā tō rātou tinana whāiti nei te hope, mā ngā peke whai toronga āhua rite ki te maikara, me ō rātou waha tino pakari te hanga. He noho ā-rōpū ēnei pītara, he haere pō, ka noho i ngā wāhi mākū, mākūkū rānei, ka huna i ō rātou rua i te awatea, ā, ka rere horo ki ngā rama hiko i te pō.

**Rhysodini.** E whā ngā puninga, e ono ngā momo pītara peha rākau kurehe, he taketake nō Aotearoa, e mōhiotia ana i Aotearoa. He pouri te kano, ā, he hope kikini, he porotaka ngā tinana, ā, ko ngā ihiihi he rite ki te pata kākano. E rima ngā momo o ngā momo e ono nō Aotearoa ka kitea i te wāhanga whaka-te-raki o Te Ika ā-Māui anake, ā, ko te tuaono ka whātoro tōna nōhanga ki ngā rohe whaka-te-raki o te Waipounamu. Ka kitea ēnei pītara i roto i ngā poro rākau takoto, i ngā rākau mate e tū tonu ana, i ngā tumu rākau, i ngā paiaka rākau, i raro hoki i te peha rākau marara. Kua kitea ēnei pītara e kai ana i ngā puruheka hāware, i ngā harore rānei.

**Moriomorphini.** Ka noho tēnei iwi i te rohe nui tonu o Ahitereiria, i ngā moutere o Te Moana-nui-a-Kiwa, me te tonga o Amerika ki te Tonga. Noho ai ngā puninga e whitu o Aotearoa me ōna momo whāiti 48 o tēnei pepeke i Te-Ika-ā-Māui me Te Waipounamu anake, ā, he momo taketake nō Aotearoa, hāunga te momo kotahi i kawea mai i te rohe nui tonu o Ahitereiria. He rerekore te nuinga, he haere pō, ā, he konihi, te āhua nei. He noho i te ngahere ēnei pepeke, i te pārae, i ngā hiwi onepū o te takutai, i te takiwā hoki o ngā pūkaki. Ka kitea puta noa i te rā katoa i roto i te pūranga rau rākau, i raro rānei i te poro rākau, i te manga ngahoro rānei, me te kōhatu. Ko ētahi o ēnei momo he pikipiki rākau i ētahi wā. He koropuku tonu, he porohita-tītaha hoki te hanga o ngā kahu parirau o ngā momo maha, e kīa ai te āhua he “tuarā tuapuku”. E mōhiotia ana te puninga nui rawa (*Trichopsida*) nā ngā momo 18 ka kitea i ngā rohe ki te tonga o Te Ika-ā-Māui

(haere tonu)



Contributor **André Larochelle** was born and educated in Québec, graduating in 1974 with a Brevet d'Enseignement spécialisé from the Université du Québec à Montréal. He taught ecology at the Collège Bourget, Rigaud, Québec, until 1990. With the encouragement of the late carabid specialist Carl H. Lindroth, André very quickly became interested in the study of ground-beetles. From 1975 to 1979 he was the co-editor of two entomological journals, *Cordulia* and *Bulletin d'inventaire des insectes du Québec*. From 1986 to 1992, he was honorary curator to the Lyman Entomological Museum and Research Laboratory, McGill University, Québec. In 1992, André moved to New Zealand to work as a research scientist. Currently, he is a Research Associate with the New Zealand Arthropod Collection, Landcare Research, Auckland. André has written over 400 papers on the distribution, ecology, biology, and dispersal power of North American carabids and other insects (including two handbooks on the Heteroptera of Québec). In 1990 he published "The food of carabid beetles of the world"; in 1993, with Yves Bousquet, he co-authored a "Catalogue of Carabidae of America North of Mexico"; and in 2001 and 2003, with his wife Marie-Claude, he published a "Natural History of the tiger beetles of North America North of Mexico" and "A Natural History of Carabidae" for the same region. His current main research interests are the faunistics and taxonomy of New Zealand ground-beetles on which he has co-authored four *Fauna of New Zealand* contributions (Catalogue of Carabidae, 2001; Revision of tribe Harpalini, 2005; Synopsis of supraspecific taxa, 2007; Synopsis of species, 2013). André is also actively involved in providing web-based information on ground-beetles. Finally, he and his wife Marie-Claude have carried out specialised field inventories in New Zealand for 20 years, surveying Hemiptera and ground-beetles in over 1000 localities so as to gain a better understanding of their taxonomy, natural history, and biogeography.

Contributor **Marie-Claude Larivière** was born and educated in Québec, graduating with a PhD in systematics entomology from McGill University in 1990. For the following two years she did postdoctoral research at the Canadian National Collection (Agriculture Canada, Ottawa). In 1992, Marie-Claude moved to New Zealand to work as a full-time Hemiptera systematist with Landcare Research and Curator of Hemiptera at the New Zealand Arthropod Collection. From 1994, in addition to working as a researcher, she has been involved in science management as Programme Leader, Biosystematics of New Zealand Land Invertebrates (1994-1997); Project Leader, development of New Zealand Arthropod Collection's databasing (1995-2005, 2011-present) and digital imaging facilities (1995-2005); Project Leader, establishment of Koiora-

(continued overleaf)



André Larochelle

me Te Waipounamu. He ahurei tonu tēnei puninga, inā hoki tōna ngutu whāwhā whai wehenga whakamutunga pūhuru. Hei ētahi momo he ngoikore noa ngā karu, he pupuhi tonu te rae, he kōtea, he pāharaha te tinana, he huruhuru roora hei whakakapi. Te āhua nei he noho i raro i te whenua ēnei. Ko ētahi momo mā ngā tikanga horoi oneone anake e kohia ai.

**Trechini.** Ko ngā rerenga o tēnei iwi, 11 ngā puninga, e 34 ngā momo rerekore, ko te rohe o ēnei mai i Te Ika-ā-Māui ki ngā moutere o Te Moana-o-Te-Tonga. Nō Aotearoa taketake ngā kanohi katoa o tēnei rōpū, hāunga anō tētahi, ka kitea hoki tērā i ngā moutere Falkland, i te Moutere o South Georgia, me Patagonia. Ko te nuinga o ōna momo he noho ana, he maha tonu hoki he noho ki te tahataha awa, ko ētahi anō he noho i te takutaki moana, inā koa i raro i ngā kōhatu, i roto tahora kirikiri hoki. Kotahi anō te momo ka noho i roto i te paraumu me te pūranga rau rākau i ngā ngahere tawhai o te tonga. Ko te nuinga o ngā momo noho ana he kōtea te kano, he pāharaha te tinana, he kore karu, he roa ngā hihī me ngā wae. Te āhua nei he konihi ngā momo o tēnei iwi. Ko te momo matahuhua rawa ko *Duvaliomimus*, 13 ōna momo, e rua ngā momo whāiti; he noho ā-rōpū, he haere pō, he huna i te awatea i raro i te kōhatu, i roto hoki i ngā kirikiri.

Translation by **Piripi Walker**  
Whakatiki



Marie-Claude Larivière

BioAssist™ (Biodiversity Assessment using Information Technology and Taxonomy, 1999-2004); Research Group Leader for Invertebrate Biosystematics and Director of the New Zealand Arthropod Collection (2007-2010). She has been an active member of the *Fauna of New Zealand* series editorial board (1994–2004, 2007–present). She is the author of over 100 papers and monographs on the taxonomy, distribution, and natural history of Hemiptera and Carabidae (Coleoptera), including nine *Fauna of New Zealand* contributions (Hemiptera - Auchenorrhyncha catalogue, Heteroptera catalogue, Cixiidae, Peloridiidae and Pentatomoidea revisions; Carabidae – catalogue, Harpalini revision, synopsis of supraspecific taxa, synopsis of species). She has also published on Australian and South Pacific Hemiptera as well as on North and Central American Hemiptera, Orthoptera, and Carabidae. Many of her publications have been written in collaboration with her husband André Larochelle with whom she hopes to soon publish new works on the New Zealand fauna. In addition she maintains a number of international research collaborations and participates in New Zealand-based commercial research. Marie-Claude has a keen interest in biological information technology, especially e-taxonomy, computer-assisted biological illustration, digital micro-imaging, interactive identification systems, and web-publishing. She is also actively involved in providing web-based information on Hemiptera. Finally, Marie-Claude and her husband André have carried out specialised field inventories in New Zealand for 20 years, surveying Hemiptera and ground-beetles in over 1000 localities so as to gain a better understanding of their taxonomy, natural history, and biogeography.

The authors dedicate this work to their friend **Terry L. Erwin** (Smithsonian Institution, Washington) in acknowledgment of his authoritative contributions to the study of world Carabidae.

## DEDICATION

*“Le premier [précepte] était de ne recevoir jamais aucune chose pour vraie que je ne la connusse évidemment être telle.*

*Le second, de diviser chacune des difficultés que j'examinerais en autant de parcelles qu'il se pourrait et qu'il serait requis pour les mieux résoudre.*

*Le troisième, de conduire par ordre mes pensées, en commençant par les objets les plus simples et les plus aisés à connaître, pour monter peu à peu, comme par degrés, jusqu'à la connaissance des plus composés.*

*Et le dernier, de faire partout des dénombrements si entiers, et des revues si générales, que je fusse assuré de ne rien omettre.”*

(René Descartes, 1637. Discours de la Méthode, Première Partie)

“The first rule was never to accept anything as true if I do not know unambiguously.

The second rule was to divide each of the problems I was about to examine into as many parts as it would be possible and necessary to resolve them better.

The third rule was to guide and organise my thoughts, starting from the most simple parts and easiest to know, until I rose slowly, as by steps, to the knowledge of the most complex.

And the last rule was always to make such exhaustive lists and such general reviews that I was certain not to omit anything.”

(René Descartes, 1637. Discourse on Method, First Part)



**Frontispiece** *Trichopsida pretiosa* (Broun, 1910) © H. Goulet.

## ABSTRACT

A synopsis of 134 species and subspecies of New Zealand Carabidae (Insecta: Coleoptera) belonging to the subfamilies Cicindelinae (Cicindelini), Carabinae (Pamborini), Migadopinae (Amarotypini, Migadopini), Scaritinae (Clivinini, Rhysodini), and Trechinae (Moriomorphini, Trechini), is presented. This follows the publication of a synopsis of supraspecific taxa by Laroche & Larivière (2007, *Fauna of New Zealand* 60).

This taxonomic overview takes the form of identification guides for taxonomically well-known groups (Amarotypini, Migadopini, Clivinini, Rhysodini, Moriomorphini in part – *Mecyclothorax* Sharp 1903, *Meonochilus* Liebherr & Marris 2009, *Rossoycea* Liebherr 2011, and Trechini). For lesser-known groups, more detailed taxonomic reviews (Pamborini, Cicindelini) or revisions (Moriomorphini in part – *Selenochilus* Chaudoir 1878, *Molopsida* White 1846, *Tarastethus* Sharp 1883, *Trichopsida* new genus) are provided. References, habitus photos, and distributional maps are included for all taxa. Descriptions, identification keys, habitus photos, and distributional information are given in reviews and revisions. Information on ecology, biology, and dispersal power is also included in revisions.

Two genera and 16 species are described as new: *Zecicindela* new genus (type species: *Cicindela feredayi* Bates, 1867); *Trichopsida* new genus (type species: *Tropopterus oxygonus* Broun, 1886); *Neocicindela garnerae* new species; *Selenochilus hnewai* new species; *Selenochilus hutchisonae* new species; *Selenochilus omalleyi* new species; *Molopsida lindrothi* new species; *Tarastethus sirvidi* new species; *Trichopsida boltoni* new species; *Trichopsida erwini* new species; *Trichopsida goethei* new species; *Trichopsida hewitti* new species; *Trichopsida koyai* new species; *Trichopsida maudensis* new species; *Trichopsida nitida* new species; *Trichopsida nunni* new species; *Trichopsida paturauensis* new species; and *Trichopsida popei* new species.

The taxonomic status of seven taxa is reinstated (valid names listed after equal sign): *Cicindela* (*Neocicindela* Rivalier, 1963) = *Neocicindela* Rivalier, 1963; *Tarastethus* Sharp, 1883 (previously synonymised with *Molopsida* White, 1846, type species *Tarastethus puncticollis* Sharp, 1883); *Molopsida alpinalis* (Broun, 1893) = *Tarastethus alpinalis* Broun, 1893; *Molopsida convexa* (Broun, 1917) = *Tarastethus convexus* Broun, 1917; *Molopsida puncticollis* (Sharp, 1883) = *Tarastethus puncticollis* Sharp, 1883; *Molopsida simulans* (Broun, 1894) = *Tarastethus simulans* Broun, 1894; and *Molopsida southlandica* (Broun, 1908) = *Tarastethus southlandicus* Broun, 1908.

Twenty new combinations are established including nine changes in taxonomic status (valid names listed after equal sign): *Neocicindela hamiltoni* (Broun, 1921) = *Zecicindela hamiltoni* (Broun, 1921); *Neocicindela novaseelandica* (Horn, 1892) = *Zecicindela helmsi novaseelandica* (Horn, 1892); *Cicindela halli* Broun, 1917 = *Zecicindela helmsi halli* (Broun, 1917); *Cicindela circumpictoides* Horn, 1900 = *Zecicindela helmsi circumpictoides* (Horn, 1900); *Neocicindela helmsi* (Sharp, 1886) = *Zecicindela helmsi helmsi* (Sharp, 1886); *Neocicindela feredayi* (Bates, 1867) = *Zecicindela feredayi* (Bates, 1867); *Neocicindela austromontana* (Bates, 1878) = *Zecicindela austromontana* (Bates, 1878); *Neocicindela perhispidi giveni* Brouerius van Nidek, 1965 = *Zecicindela giveni* (Brouerius van Nidek, 1965); *Neocicindela perhispidi savilli* Wiesner, 1988 = *Zecicindela savilli* (Wiesner, 1988); *Neocicindela brevilunata* (Horn, 1926) = *Zecicindela brevilunata* (Horn, 1926); *Neocicindela perhispidi campbelli* (Broun, 1886) = *Zecicindela campbelli* (Broun, 1886); *Neocicindela*

*perhispidata perhispidata* (Broun, 1880) = *Zecicindela perhispidata* (Broun, 1880); *Molopsida debilis* (Sharp, 1886) = *Trichopsida debilis* (Sharp, 1886); *Molopsida diversa* (Broun, 1917) = *Trichopsida diversa* (Broun, 1917); *Molopsida optata* (Broun, 1917) = *Trichopsida optata* (Broun, 1917); *Molopsida oxygona* (Broun, 1886) = *Trichopsida oxygona* (Broun, 1886); *Molopsida pretiosa* (Broun, 1910) = *Trichopsida pretiosa* (Broun, 1910); *Molopsida propinqua* (Broun, 1917) = *Trichopsida propinqua* (Broun, 1917); *Molopsida robusta* (Broun, 1921) = *Trichopsida robusta* (Broun, 1921); and *Molopsida simplex* (Broun, 1903) = *Trichopsida simplex* (Broun, 1903).

Thirteen new synonymies are established (valid names listed after equal sign): *Sympiestus fallax* Broun, 1893 and *Sympiestus frontalis* Broun, 1917 = *Selenochilus syntheticus* (Sharp, 1886); *Tropopterus sulcicollis* Bates, 1874 and *Tropopterus marginalis* Broun, 1882 = *Molopsida antarctica* (Laporte de Castelnau, 1867); *Tarastethus carbonarius* Broun, 1908 = *Molopsida polita* White, 1846; *Tarastethus phyllocharis* Broun, 1912, *Tarastethus fuscipes* Broun, 1923, and *Tarastethus insularis* Broun, 1923 = *Molopsida seriatoporus* (Bates, 1874); *Tarastethus dubius* Broun, 1894 = *Molopsida strenua* (Broun, 1894); *Tarastethus fovealis* Broun, 1917 = *Tarastethus southlandicus* Broun, 1908; *Tarastethus longulus* Broun, 1917 = *Trichopsida debilis* (Sharp, 1886); *Tarastethus halli* Broun, 1917 = *Trichopsida diversa* (Broun, 1917); and *Tarastethus cinctus* Broun, 1893 = *Trichopsida oxygona* (Broun, 1886).

The species *Carabus nemoralis* O. F. Müller, 1764 is deleted from the New Zealand fauna. The Rhysodini (four genera, six species) are catalogued as a carabid tribe for the first time in the New Zealand literature.

An updated checklist of the New Zealand Carabidae fauna, known from 7 subfamilies, 20 tribes, 97 genera, 518 species, and 18 subspecies, is also provided.

Keywords: Coleoptera, Carabidae, New Zealand, synopsis of species, keys, classification, distribution, ecology, checklist, fauna.

Larochelle, A.; Larivière, M.-C. 2013. Carabidae (Insecta: Coleoptera): synopsis of species, Cicindelinae to Trechinae (in part). *Fauna of New Zealand* 69, 193 pp.

Received: 23 July 2012. Accepted 29 October 2012.

## CHECKLIST OF TAXA

**Notes.** The higher classification follows Larochelle & Larivière (2007a). Valid genus- and species-group taxa are listed alphabetically (A=Adventive; E=Endemic; N=Native, but not endemic to New Zealand).

### Family CARABIDAE

Subfamily CICINDELINAE .....	24
Tribe CICINDELINI .....	24
Subtribe CICINDELINA .....	24
Genus <i>Neocicindela</i> Rivalier, 1963 <sup>E</sup> reinstated .....	24
<i>dunedensis</i> (Laporte de Castelnau, 1867) <sup>E</sup> .....	27
<i>garnerae</i> <sup>E</sup> new species .....	26

<i>latecincta</i> (White, 1846) <sup>E</sup> .....	28
<i>parryi</i> (White, 1846) <sup>E</sup> .....	26
<i>spilleri</i> Broerius van Nidek, 1965 <sup>E</sup> .....	25
<i>tuberculata</i> (Fabricius, 1775) <sup>E</sup> .....	27
<i>waiouraensis</i> (Broun, 1914) <sup>E</sup> .....	27
Genus <i>Zecicindela</i> <sup>E</sup> new genus .....	28
<i>austromontana</i> (Bates, 1878) <sup>E</sup> new combination .....	32
<i>brevilunata</i> (Horn, 1926) <sup>E</sup> new combination .....	34
<i>campbelli</i> (Broun, 1886) <sup>E</sup> new combination and status .....	34
<i>feredayi</i> (Bates, 1867) <sup>E</sup> new combination .....	32
<i>giveni</i> (Broerius van Nidek, 1965) <sup>E</sup> new combination and status .....	33
<i>hamiltoni</i> (Broun, 1921) <sup>E</sup> new combination .....	30

<i>helmsi circumpectoides</i> (Horn, 1900) <sup>E</sup> new combination and status .....	31	<i>heterogena</i> Putzeys, 1866 <sup>A</sup> .....	38
<i>helmsi halli</i> (Broun, 1917) <sup>E</sup> new combination and status .....	30	<i>vagans</i> Putzeys, 1866 <sup>A</sup> .....	38
<i>helmsi helmsi</i> (Sharp, 1886) <sup>E</sup> new combination and status .....	31	Tribe RHYSODINI .....	38
<i>helmsi novaseelandica</i> (Horn, 1892) <sup>E</sup> new combination and status .....	30	Subtribe DHYSORINA .....	39
<i>perhispida</i> (Broun, 1880) <sup>E</sup> new combination and status .....	35	Genus <i>Tangarona</i> Bell & Bell, 1982 <sup>E</sup> .....	39
<i>savilli</i> (Wiesner, 1988) <sup>E</sup> new combination and status .....	33	<i>pensa</i> (Broun, 1880) <sup>E</sup> .....	39
Subfamily CARABINAE .....	35	Subtribe RHYSODINA .....	39
Tribe PAMBORINI .....	35	Genus <i>Kupeus</i> Bell & Bell, 1982 <sup>E</sup> .....	39
Genus <i>Maoripamborus</i> Brookes, 1944 <sup>E</sup> .....	35	<i>arcuatus</i> (Chevrolat, 1873) <sup>E</sup> .....	39
<i>fairburni</i> Brookes, 1944 <sup>E</sup> .....	35	Genus <i>Kaveinga</i> Bell & Bell, 1978 <sup>N</sup> .....	39
Subfamily MIGADOPINAE .....	36	Subgenus <i>Ingevaka</i> Bell & Bell, 1979 <sup>N</sup> .....	39
Tribe AMAROTYPINI .....	36	<i>bellorum</i> Emberson, 1995 <sup>E</sup> .....	39
Genus <i>Amarotypus</i> Bates, 1872 <sup>E</sup> .....	36	<i>orbitosa</i> (Broun, 1880) <sup>E</sup> .....	39
<i>edwardsii</i> Bates, 1872 <sup>E</sup> .....	36	Subgenus <i>Vakeinga</i> Bell & Bell, 1979 <sup>N</sup> .....	39
Tribe MIGADOPINI .....	36	<i>lusca</i> (Chevrolat, 1875) <sup>E</sup> .....	39
Genus <i>Calathosoma</i> Jeannel, 1938 <sup>E</sup> .....	36	Subtribe CLINIDIINA .....	39
<i>rubromarginatum</i> (Blanchard, 1843) <sup>E</sup> .....	36	Genus <i>Rhizodiastes</i> Fairmaire, 1895 <sup>N</sup> .....	39
Genus <i>Loxomerus</i> Chaudoir, 1842 <sup>E</sup> .....	36	Subgenus <i>Rhyzoarca</i> Bell & Bell, 1985 <sup>N</sup> .....	39
<i>brevis</i> (Blanchard, 1843) <sup>E</sup> .....	36	<i>proprius</i> (Broun, 1880) <sup>E</sup> .....	39
<i>huttoni</i> (Broun, 1902) <sup>E</sup> .....	36	Subfamily TRECHINAE .....	40
<i>katote</i> Johns, 2010 <sup>E</sup> .....	36	Tribe MORIOMORPHINI .....	40
<i>nebrioides</i> (Guérin-Ménéville, 1841) <sup>E</sup> .....	37	Subtribe AMBLYTELINA .....	41
Genus <i>Taenarthrus</i> Broun, 1914 <sup>E</sup> .....	37	Genus <i>Mecyclothorax</i> Sharp, 1903 <sup>N</sup> .....	41
<i>aenigmaticus</i> Johns, 2010 <sup>E</sup> .....	37	<i>ambiguus</i> (Erichson, 1842) <sup>A</sup> .....	41
<i>aquatilis</i> Johns, 2010 <sup>E</sup> .....	37	<i>oopteroides</i> Liebherr & Marris, 2009 <sup>E</sup> .....	41
<i>capito</i> (Jeannel, 1938) <sup>E</sup> .....	37	<i>otagoensis</i> Liebherr & Marris, 2009 <sup>E</sup> .....	41
<i>curvispinatus</i> Johns, 2010 <sup>E</sup> .....	37	<i>rotundicollis</i> (White, 1846) <sup>E</sup> .....	41
<i>gelidimontanus</i> Johns, 2010 <sup>E</sup> .....	37	Genus <i>Meonochilus</i> Liebherr & Marris, 2009 <sup>E</sup> .....	41
<i>latispinatus</i> Johns, 2010 <sup>E</sup> .....	37	<i>amplipennis</i> (Broun, 1912) <sup>E</sup> .....	41
<i>lissus</i> Johns, 2010 <sup>E</sup> .....	37	<i>bellorum</i> Liebherr, 2011 <sup>E</sup> .....	41
<i>minor</i> Johns, 2010 <sup>E</sup> .....	37	<i>eplicatus</i> (Broun, 1923) <sup>E</sup> .....	41
<i>obliteratus</i> Johns, 2010 <sup>E</sup> .....	37	<i>placens</i> (Broun, 1880) <sup>E</sup> .....	42
<i>pakinius</i> Johns, 2010 <sup>E</sup> .....	37	<i>rectus</i> Liebherr, 2011 <sup>E</sup> .....	42
<i>philpotti</i> Broun, 1914 <sup>E</sup> .....	37	<i>spiculatus</i> Liebherr, 2011 <sup>E</sup> .....	42
<i>pluriciliatus</i> Johns, 2010 <sup>E</sup> .....	38	Genus <i>Selenochilus</i> Chaudoir, 1878 <sup>E</sup> .....	42
<i>ruaumokoi</i> Johns, 2010 <sup>E</sup> .....	38	<i>hinewai</i> <sup>E</sup> new species .....	44
Subfamily SCARITINAE .....	38	<i>hutchisonae</i> <sup>E</sup> new species .....	47
Tribe CLIVININI .....	38	<i>oculator</i> (Broun, 1893) <sup>E</sup> .....	43
Subtribe CLIVININA .....	38	<i>omalleyi</i> new species .....	47
Genus <i>Clivina</i> Latreille, 1802 <sup>A</sup> .....	38	<i>piceus</i> (Blanchard, 1843) <sup>E</sup> .....	44
<i>australasiae</i> Boheman, 1858 <sup>A</sup> .....	38	<i>ruficornis</i> (Broun, 1882) <sup>E</sup> .....	46
<i>basalis</i> Chaudoir, 1843 <sup>A</sup> .....	38	<i>syntheticus</i> (Sharp, 1886) <sup>E</sup> .....	45
		Subtribe MORIOMORPHINA .....	48
		Genus <i>Molopsida</i> White, 1846 <sup>E</sup> .....	48
		<i>antarctica</i> (Laporte de Castelnau, 1867) <sup>E</sup> .....	51
		<i>cordipennis</i> (Broun, 1912) <sup>E</sup> .....	53
		<i>lindrothi</i> new species <sup>E</sup> .....	54
		<i>polita</i> White, 1846 <sup>E</sup> .....	50
		<i>seriatoporus</i> (Bates, 1874) <sup>E</sup> .....	49
		<i>strenua</i> (Broun, 1894) <sup>E</sup> .....	52

Genus <i>Rossjockeya</i> Liebherr, 2011 <sup>E</sup> .....	55	<i>walkeri brittoni</i> Jeannel, 1938 <sup>E</sup> .....	81
<i>glacialis</i> Liebherr, 2011 <sup>E</sup> .....	55	<i>walkeri walkeri</i> (Broun, 1903) <sup>E</sup> .....	81
Genus <i>Tarastethus</i> Sharp, 1883 <sup>E</sup> reinstated .....	56	<i>watti</i> Britton, 1958 <sup>E</sup> .....	81
<i>alpinalis</i> Broun, 1893 <sup>E</sup> reinstated .....	59	Subgenus <i>Mayotrechus</i> Townsend, 2010 <sup>E</sup> .....	82
<i>convexus</i> Broun, 1917 <sup>E</sup> reinstated .....	59	<i>mayae mayae</i> Britton, 1958 <sup>E</sup> .....	82
<i>puncticollis</i> Sharp, 1883 <sup>E</sup> reinstated .....	57	<i>mayae mayorum</i> Townsend, 2010 <sup>E</sup> .....	82
<i>simulans</i> Broun, 1894 <sup>E</sup> reinstated .....	58	Genus <i>Erebotrechus</i> Britton, 1964 <sup>E</sup> .....	82
<i>sirvidi</i> <sup>E</sup> new species .....	61	<i>infernus</i> Britton, 1964 <sup>E</sup> .....	82
<i>southlandicus</i> Broun, 1908 <sup>E</sup> reinstated .....	60	Genus <i>Kettlotrechus</i> Townsend, 2010 <sup>E</sup> .....	82
Genus <i>Trichopsida</i> <sup>E</sup> new genus .....	62	<i>edridgeae</i> Townsend, 2010 <sup>E</sup> .....	82
<i>boltoni</i> new species <sup>E</sup> .....	75	<i>marchanti</i> Townsend, 2010 <sup>E</sup> .....	82
<i>debilis</i> (Sharp, 1886) <sup>E</sup> new combination .....	77	<i>millari</i> Townsend, 2010 <sup>E</sup> .....	82
<i>diversa</i> (Broun, 1917) <sup>E</sup> new combination .....	68	<i>orpheus</i> (Britton, 1962) <sup>E</sup> .....	82
<i>erwini</i> <sup>E</sup> new species .....	70	<i>pluto</i> (Britton, 1964) <sup>E</sup> .....	82
<i>goethei</i> <sup>E</sup> new species .....	75	Genus <i>Kiwitrechus</i> Larochelle & Larivière, 2007 <sup>E</sup> ..	82
<i>hewitti</i> <sup>E</sup> new species .....	74	<i>karenscoottae</i> Larochelle & Larivière, 2007 <sup>E</sup> .....	82
<i>koyai</i> <sup>E</sup> new species .....	73	Genus <i>Kupetrechus</i> Larochelle & Larivière, 2007 <sup>E</sup> ..	83
<i>maudensis</i> <sup>E</sup> new species .....	67	<i>gracilis</i> Townsend, 2010 <sup>E</sup> .....	83
<i>nitida</i> <sup>E</sup> new species .....	65	<i>lamberti</i> (Britton, 1960) <sup>E</sup> .....	83
<i>nunni</i> <sup>E</sup> new species .....	76	<i>larsonae</i> Townsend, 2010 <sup>E</sup> .....	83
<i>optata</i> (Broun, 1917) <sup>E</sup> new combination .....	70	Genus <i>Neanops</i> Britton, 1962 <sup>E</sup> .....	83
<i>oxygona</i> (Broun, 1886) <sup>E</sup> new combination .....	69	<i>caecus</i> (Britton, 1960) <sup>E</sup> .....	83
<i>paturauensis</i> <sup>E</sup> new species .....	72	<i>pritchardi</i> Valentine, 1987 <sup>E</sup> .....	83
<i>popei</i> <sup>E</sup> new species .....	79	Genus <i>Scototrechus</i> Britton, 1962 <sup>E</sup> .....	83
<i>pretiosa</i> (Broun, 1910) <sup>E</sup> new combination .....	71	<i>hardingi hardingi</i> Townsend, 2010 <sup>E</sup> .....	83
<i>propinqua</i> (Broun, 1917) <sup>E</sup> new combination .....	78	<i>hardingi worthyi</i> Townsend, 2010 <sup>E</sup> .....	83
<i>robusta</i> (Broun, 1921) <sup>E</sup> new combination .....	66	<i>morti</i> Townsend, 2010 <sup>E</sup> .....	83
<i>simplex</i> (Broun, 1903) <sup>E</sup> new combination .....	64	<i>orcinus</i> Britton, 1962 <sup>E</sup> .....	83
Tribe TRECHINI .....	80	Genus <i>Waiputrechus</i> Townsend, 2010 <sup>E</sup> .....	83
Subtribe AEPINA .....	80	<i>cavernicola</i> Townsend, 2010 <sup>E</sup> .....	83
Genus <i>Kenodactylus</i> Broun, 1909 <sup>N</sup> .....	80		
<i>audouini</i> (Guérin-Méneville, 1830) <sup>N</sup> .....	80		
Genus <i>Maoritrechus</i> Brookes, 1932 <sup>E</sup> .....	80		
<i>nunni</i> Townsend, 2010 <sup>E</sup> .....	80		
<i>rangitotoensis</i> Brookes, 1932 <sup>E</sup> .....	80		
<i>stewartensis</i> Townsend, 2010 <sup>E</sup> .....	80		
Genus <i>Oarotrechus</i> Townsend, 2010 <sup>E</sup> .....	80		
<i>gracilentus</i> Townsend, 2010 <sup>E</sup> .....	80		
Subtribe TRECHINA .....	80		
Genus <i>Duvaliomimus</i> Jeannel, 1928 <sup>E</sup> .....	80		
Subgenus <i>Duvaliomimus</i> Jeannel, 1928 <sup>E</sup> .....	80		
<i>australis</i> Townsend, 2010 <sup>E</sup> .....	80		
<i>chrySTALLAE</i> Townsend, 2010 <sup>E</sup> .....	80		
<i>crypticus</i> Townsend, 2010 <sup>E</sup> .....	81		
<i>maori</i> (Jeannel, 1928) <sup>E</sup> .....	81		
<i>megawattus</i> Townsend, 2010 <sup>E</sup> .....	81		
<i>obscurus</i> Townsend, 2010 <sup>E</sup> .....	81		
<i>orientalis</i> Giachino, 2005 <sup>E</sup> .....	81		
<i>pseudostyx</i> Townsend, 2010 <sup>E</sup> .....	81		
<i>styx</i> Britton, 1959 <sup>E</sup> .....	81		
<i>taieriensis</i> Townsend, 2010 <sup>E</sup> .....	81		



## CONTENTS

Acknowledgments .....	17
Introduction .....	18
Morphology and terminology .....	21
Methods and conventions .....	21
Taxonomic treatments .....	24
Subfamily Cicindelinae .....	24
Tribe Cicindelini .....	24
Subfamily Carabinae .....	35
Tribe Pamborini .....	35
Subfamily Migadopinae .....	36
Tribe Amarotyptini .....	36
Tribe Migadopini .....	36
Subfamily Scaritinae .....	38
Tribe Clivinini .....	38
Tribe Rhysodini .....	38
Subfamily Trechinae .....	40
Tribe Moriomorphini .....	40
Tribe Trechini .....	80
Selected bibliography .....	84
Appendix A. Glossary of technical terms .....	89
Appendix B. Geographical coordinates of main localities.....	93
Appendix C. Updated checklist of New Zealand carabid species .....	95
Appendix D. Taxonomic changes subsequent to Laroche & Larivière (2001)'s Catalogue of New Zealand Carabidae .....	101
Illustrations .....	108
Map 1. The New Zealand subregion .....	167
Map 2. Area codes and collecting localities from mainland New Zealand: North Island .....	168
Map 3. Area codes and collecting localities from mainland New Zealand: South Island and Stewart Island .....	169
Species distribution maps .....	170
Taxonomic index .....	185

## ACKNOWLEDGMENTS

For the opportunity to examine material in their care the authors thank J. M. W. Marris and M. H. Bowie (Entomology Research Museum, Lincoln University, Lincoln), J. W. Early (Auckland Institute and Museum, Auckland), P. M. Johns and S. D. Pollard (Canterbury Museum,

Christchurch), R. L. Palma and P. Sirvid (Museum of New Zealand Te Papa Tongarewa, Wellington), B. I. P. Barratt (Mosgiel), P. Howe (Timaru), J. Nunn (Dunedin), C. McPhee (Museum of Victoria, Melbourne, Australia), R. Davidson (Carnegie Museum, Pittsburgh, Pennsylvania, U.S.A.), and D. Brzoska (Naples, Florida, U.S.A.). Further thanks are extended to T. Deuve and A. Taghavian (Muséum d'Histoire naturelle, Paris, France) for their efforts in locating type specimens.

The authors owe exceptional thanks to B. Garner (The Natural History Museum, London, U.K.) for her extraordinary and sustained efforts in making extensive type material available for this work. A large proportion of New Zealand primary types of Carabidae are in London and over 30 primary types travelled safely and efficiently between the U.K. and New Zealand. It would have been nearly impossible to complete this monograph without such facilitated access, e.g., to the Broun Collection.

The authors wish to thank the following referees for their helpful comments and suggestions to improve the manuscript: R. Davidson (Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, U.S.A.), H. Goulet (Agri-Seed Canada, Ottawa, Canada), R. J. B. Hoare and T. K. Crosby (Landcare Research, Auckland), and R. L. Palma (Museum of New Zealand Te Papa Tongarewa, Wellington).

The authors are deeply indebted to B. E. Rhode (Landcare Research) who has taken beautiful photos illustrating most species in this monograph, prepared species distribution maps, laid out all photos and maps, and provided other technical assistance. They are also grateful to H. Goulet for his splendid photos of ground-beetles for the cover, frontispiece, and popular summary. Thanks are also extended to P. M. Johns and S. D. Pollard (Canterbury Museum, Christchurch) for permission to reproduce photos of Migadopini taxa published in the *Records of Canterbury Museum* and to S. Myers (Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.) for permission to use a photo of one of their Trechini types.

The authors are also grateful to Y. Bousquet (Agri-Seed Canada, Ottawa, Canada) for consultation on nomenclatural issues and to L. H. Clunie (Landcare Research, Auckland) for technical assistance with the curation of NZAC.

The authors are most obliged to T. R. Buckley and I. Breitwieser (Landcare Research, Auckland and Lincoln) for their encouragement and for allocating resources towards completion of this work.

This research was supported by Core funding for Crown Research Institutes from the Ministry of Business, Innovation and Employment's Science and Innovation Group, for the Defining New Zealand's Land Biota research programme (and its predecessors).

## INTRODUCTION

The family Carabidae (including tiger-beetles) is taxonomically diverse, with an estimated total of over 34,000 species in 1,927 genera (Lorenz, 2005). Carabids occupy most terrestrial habitats on nearly all continents. These beetles are abundant in the field and attract attention with their shape and coloration. They are mostly nocturnal and polyphagous predators (Larochelle, 1990) although some are diurnal or phytophagous. Most ground-beetles, in temperate zones at least, live at the surface of the ground, while some species live in the soil (e.g., Anillina), in caves (e.g., Trechini, Harpalini), or on the vegetation (e.g., Zolini, Lebiini). Most New Zealand carabids are flightless, which makes their dispersal capacity somewhat limited and their populations morphologically varied, sometimes even aberrant. In 2001 Larochelle & Larivière catalogued the fauna (*Fauna of New Zealand* 43). In 2007, they updated this inventory (*Fauna of New Zealand* 60) by recording 7 subfamilies, 21 tribes, 86 genera, and 461 species. The current work recognises 7 subfamilies, 20 tribes, 97 genera, and 518 species.

As a family, Carabidae exhibit a relatively high degree of morphological uniformity, making them suitable for studying the ecophysiological adaptations required to cope with environmental demands. Being sensitive to their environment, they demonstrate a flexible set of responses to both abiotic and biotic factors. Carabids are commonly used as bioindicators (Larochelle & Larivière, 2003) to assess the biodiversity of ecosystems, indicate the impact of landscape changes, evaluate environmental health, predict the effect of climate changes, classify habitats for nature protection, and characterise soil-nutrient status in forestry. They can also be used to control pest invertebrates (e.g., lepidopteran caterpillars). In the future, ground-beetles may become more commonly used in biological and integrated programs, e.g., as natural control agents of noxious invertebrates, especially soil insect pests, or control agents of weeds, especially their seeds.

This Synopsis is aimed at systematists and identifiers. Its purpose is to provide a taxonomic overview of all New Zealand species and subspecies of Carabidae, primarily in the form of an identification guide for taxonomically well-known groups or in the form of taxonomic reviews and revisions for lesser- or little-known groups. Further goals of this synopsis are to supplement the Synopsis of supraspecific taxa (Larochelle & Larivière, 2007a) and the New Zealand Catalogue (Larochelle & Larivière, 2001) by providing additions, corrections, or changes and updating the faunal checklist. The Synopsis will be published in several monographs. The present

work covers the tribes Cicindelini, Pamborini, Amartyptini, Migadopini, Clivinini, Moriomorphini (formerly Mecyclothoracini, Meonini, Tropopterini), and Trechini.

This work is one more step in the authors' goal of reaching an overall understanding of the New Zealand carabid fauna within a reasonable time frame and making relatively large amounts of information available for practical use by a wide range of end-users. The methodology is based on the concept of 'practical taxonomy' described by Darlington (1971), which aims to provide "a floor plan for more detailed taxonomic, ecological, zoogeographical, and evolutionary studies."

### Recent history of New Zealand carabid taxonomy

A more detailed account of the history of carabid taxonomy in New Zealand can be found in Larochelle & Larivière (2001, 2007a); recent developments are emphasised here.

The following taxonomic works have been recently published: Larochelle & Larivière, 2007b (identification guide to genera); Liebherr & Marris, 2009 (*Mecyclothorax* revision); Johns, 2010 (Migadopini revision); Townsend, 2010 (Trechini revision); Liebherr, 2011b (*Meonochilus* revision, *Rossjoycea* description); Liebherr *et al.*, 2011 (*Orthoglymma* description); Seldon & Leschen, 2011 (*Mecodema* in part, revision); Townsend, 2011 (*Mecodema* in part; taxonomy); and Seldon *et al.*, 2012 (*Mecodema* in part; revision). Finally, Will (2011) transferred the genus *Cerabilia* from the tribe Platynini to the tribe Loxandriini, establishing the first record of this tribe for New Zealand.

At a higher classification level, Liebherr (2011a) synonymised the tribes Amblytelini, Melisoderini, Tropopterini, Mecyclothoracini, and Meonini under the tribe Moriomorphini.

### Higher classification

The history of carabid classification has been extensively discussed by Ball (1979), Bousquet & Larochelle (1993), Ball *et al.* (1998b), and Arndt *et al.* (2005). The classification presented by Arndt *et al.* (2005) takes into account the major changes brought about by recent scientific research at the subfamily level only and it is followed here. An alternative classification published by Bouchard *et al.* (2011) places the tribe Broscini in the subfamily Broscinae.

The tribal classification used by Larochelle & Larivière (2001, 2007a) and kept here, is based mostly on the classification proposed by Erwin (1991), which still receives general acceptance from the scientific community.

**Table 1.** Higher classification. Comparison between subfamilies and tribes used in the present work and in Larochele & Larivière (2007a). Names in **bold** indicate tribes covered in the present work.

Present work	Larochele & Larivière (2007a)
Subfamily Cicindelinae	Subfamily Cicindelinae
Tribe <b>Cicindelini</b>	Tribe Cicindelini
Subfamily Carabinae	Subfamily Carabinae
Tribe <b>Pamborini</b>	Tribe Carabini
Subfamily Migadopinae	Tribe Pamborini
Tribe <b>Amarotypini</b>	Subfamily Migadopinae
Tribe <b>Migadopini</b>	Tribe Amarotypini
Subfamily Scaritinae	Tribe Migadopini
Tribe <b>Clivinini</b>	Subfamily Scaritinae
Tribe <b>Rhysodini</b>	Tribe Clivinini
Subfamily Trechinae	Subfamily Trechinae
Tribe Broscini	Tribe Broscini
Tribe <b>Moriomorphini</b>	Tribe Mecyclothoracini
Tribe <b>Trechini</b>	Tribe Meonini
Tribe Zolini	Tribe Tropopterini
Tribe Bembidiini	Tribe Trechini
Subfamily Harpalinae	Tribe Zolini
Tribe Pterostichini	Tribe Bembidiini
Tribe Loxandrini	Subfamily Harpalinae
Tribe Licinini	Tribe Pterostichini
Tribe Harpalini	Tribe Licinini
Tribe Platynini	Tribe Harpalini
Tribe Perigonini	Tribe Platynini
Tribe Pentagonicini	Tribe Perigonini
Tribe Lebiini	Tribe Pentagonicini
Subfamily Pseudomorphae	Tribe Lebiini
Tribe Pseudomorphiini	Subfamily Pseudomorphae
	Tribe Pseudomorphiini

Table 1 offers a comparison between the higher classification used in the present work and in Larochele & Larivière (2007a). Four major changes are noted. The tribe Carabini, previously recorded for New Zealand, is hereby removed; the establishment of *Carabus nemoralis* O.F. Müller, 1764 in New Zealand cannot be supported by collection records following its introduction from Europe in 1948. Bell & Bell (2009) and Erwin (2011) recognised the tribe Rhysodini, previously a distinct family from Carabidae, and this view is adopted here. The tribes Tropopterini, Mecyclothoracini, and Meonini were synonymised under the tribe Moriomorphini by Liebher (2011a). The genus *Cerabilia* was transferred by Will (2011) from the tribe Platynini to the tribe Loxandrini.

### Notes on tribes

**Cicindelini.** This tribe is represented by two endemic genera, *Neocicindela* (7 species) and *Zecicindela* (9 species), occurring on the North, South, and Stewart Islands. New Zealand tiger beetles are mostly diurnal and live in a range of habitats such as coastal sand beaches and dunes, riverbanks, grasslands, and roadsides. These stunning insects are recognised by the metallic colour of their body, hairy legs, large protruding eyes, strongly toothed mandibles, and the pale markings on the elytra. The most commonly encountered species are *Neocicindela tuberculata* (mostly North Island) and *N. latecincta* (South Island). *Neocicindela* species occur independently of water whereas *Zecicindela* species live along riverbanks and the seashore.

A few tiger beetle species can be found in forested areas, e.g. *N. parryi* and *N. spilleri*. Sand dune species (e.g., *Z. brevilunata* and *Z. perhispidata*) have cryptic coloration (body colour blending with the sandy background) and are less active during the warmest period of the day when the sand is too hot. New Zealand species fly much shorter distances than their northern hemisphere counterparts. Adults and larvae are voracious predators, feeding mostly on insects (e.g., ants). Larval development occurs in deep burrows dug into the soil. The larva positions itself at the burrow's entrance, attached to the wall by two pairs of hooks on the dorsal surface of the abdomen, and awaits passing organisms on which it preys. Little is known about the life history and behaviour of New Zealand tiger beetles. The larvae of a number of taxa have been described.

**Pamborini.** This tribe is represented by a single endemic genus and species, *Maoripamborus fairburni*, occurring only in the northern part of the North Island. This species is nocturnal, living in forests under logs and fallen branches. This fascinating flightless insect is recognised by its elongate head, including mouthparts, adapted to feed on snails. The genus *Pamborus*, the only other genus in this tribe, occurs only in Australia.

**Amarotypini.** This tribe occurs only in New Zealand and is known from a single endemic genus and species, *Amarotypus edwardsii*. This group is being revised by P. M. Johns (Canterbury Museum, Christchurch), and new genera and species await description. *Amarotypus edwardsii* is distributed on the North, South, and Stewart Islands. This flightless beetle is easily recognised by its metallic bronze colour and its oval shape reminiscent of the Northern Hemisphere genus *Amara* (Zabrini). It is nocturnal, hiding during the day under the bark of live trees (e.g., *Nothofagus*). When disturbed, this ground-beetle drops to the ground or emits a strong smell.

**Migadopini.** This tribe occurs in New Zealand, Australia, the Falkland Islands, and southern South America. The New Zealand fauna comprises three endemic genera and 18 species. The genera *Calathosoma* and *Loxomerus*, with one and four species respectively, occur only on the subantarctic islands (Antipodes, Auckland). The genus *Taenarthrus*, with 13 species, is distributed on the South and Stewart Islands. Species live along the edges of rills and seepages running through forests or in high altitude meadows and fellfields. They are gregarious and nocturnal, hiding during the day under embedded stones. New Zealand migadopines are flightless and predatory. The heart-shaped pronotum, suboval elytra, habitat requirements, and behaviour of *Loxomerus* and *Taenarthrus* species are reminiscent of the Northern Hemisphere *Nebria* (Nebriini).

**Clivinini.** This tribe occurs throughout the world. The

New Zealand fauna is known from four species belonging to the genus *Clivina* introduced from Australia and occurring on the North and South Islands. The highly diverse Australasian fauna of Clivinini is being revised by M. Baehr (Zoologische Staatssammlung, München, Germany). Results from his research may affect the composition of the New Zealand fauna. *Clivina* species are recognisable by their pedunculate body, protibiae with a finger-like protrusion on outer side, and strongly developed mandibles. They are gregarious and nocturnal, living in wet or moist areas, hiding in burrows during the day, and flying readily to lights at night.

**Rhysodini.** This tribe, long regarded as a family distinct from Carabidae, occurs throughout the world. The New Zealand fauna has been revised (Bell & Bell 1978, 1979, 1982, 1985; Emberson, 1995). Four genera and six species are known. All species are endemic but the genus *Kaveinga* is Australasian and the genus *Rhyzodiastes* is known from Australasia and South America. Rhysodine species are darkly coloured, have cylindrical pedunculate bodies, and moniliform (bead-like) antennae. They also possess unique mouthparts with retractile palpi and mandibles forming a cover protective to other mouthparts rather than being used for feeding (Bell, 1994). Of the six New Zealand species, five are restricted to the northern part of the North Island; *Kupeus arcuatus* extends to northern areas of the South Island. Rhysodines can be found in fallen logs, erect dead trees, stumps, woody roots, and under loose bark; they are often found in relatively firm wood requiring splitting with an axe to collect them (Bell & Bell, 1995). They do not dig burrows but push themselves through the wood layers using the margin of their elongate mentum as a cutting blade (Bell, 1998). They have been observed feeding on slime molds (Myxomycetes) (Bell & Bell, 1995).

**Moriomorphini.** This tribe occurs in the Australian Region, on Pacific Islands, and in southern South America. The New Zealand fauna is composed of seven genera and 48 species previously assigned to the tribes Mecyclothoracini, Meonini, and Tropopterini until they were synonymised with the tribe Moriomorphini by Liebherr (2011a). All taxa are endemic except for the adventive Australian species *Mecyclothorax ambiguus*. Moriomorphine species are flightless (except *Mecyclothorax ambiguus* and *M. rotundicollis*), nocturnal, and probably predatory (as suggested by mouthpart morphology). Very little is known about the life history and behaviour of New Zealand moriomorphines. Their representation in collections is rather poor; many species are known from fewer than ten populations, suggesting that new taxa may be discovered with additional field surveys and specialised sampling methods (e.g., leaf-litter sifting and soil-washing).

The four species of *Mecyclothorax* occur on the North and South Islands, and on some off-shore islands (Kermadecs, Three Kings, Chathams). They inhabit forests, fields, sand dunes, and the vicinity of streams. These beetles are often found during the day in leaf-litter and under fallen branches. *Mecyclothorax ambiguus* is often seen in large numbers at the base of *Lupinus* plants growing on sand dunes.

The genus *Meonochilus*, with six species, is restricted to the North Island. These beetles are forest-dwelling and active at night on mossy logs or trees. They hide during the day under logs, fallen branches, stones, and in leaf-litter.

The genus *Rossjoycea* is known from a single species occurring in one locality in southern Westland, South Island. *Rossjoycea glacialis* is the largest New Zealand moriomorphine species (9.2–10.3 mm in length). It has been collected in shrubby-grassy rocky areas above the Franz Josef glacier. The bilobed pro- and mesotarsi suggest plant-climbing abilities.

Seven species of *Selenochilus* and six species of *Molopsida* are found on the North Island and in northern areas of the South Island. *Selenochilus* species superficially resemble Northern Hemisphere representatives of *Phonias*, a subgenus of *Pterostichus* (Pterostichini). *Selenochilus* species are unique among New Zealand moriomorphines in having verticillate setae medially on the second antennal segment. Their enlarged and heavily ciliate maxillae suggest specialised feeding, possibly on millipedes. They live in forests where they can be found during the day mostly under logs and stones. *Selenochilus hutchisonae* new species has been collected in large numbers by pitfall trapping. *Molopsida* species are also forest-dwellers. They are mostly associated with wood, hiding during the day in and under fallen rotten branches and logs. Some species occasionally climb on trees. Most taxa have strongly convex and ovate elytra, giving them a “hump-backed” appearance.

*Tarastethus* (six species), previously a junior synonym of *Molopsida*, is restricted to the South Island. Members of this genus are active at night on trees and logs. They are primarily associated with wood, hiding during the day under the loose bark of fallen tree-trunks as well as in and under logs. The bilobed pro- and mesotarsi of *Tarastethus* may be associated with their climbing abilities.

*Trichopsida* new genus, is known from 18 species, several of which had been previously assigned to *Molopsida*. *Trichopsida* occurs in southern areas of the North Island and on the South Island. Species are found in forests where they live deep in the soil, in the thick leaf-litter, or under embedded stones. This genus is

unique among New Zealand moriomorphines in having palpi with setose terminal segments. Many species have strongly reduced eyes, inflated tempora, pale and flattened body, and long pubescence, suggesting subterranean habits similar to those of Anillina (Bembidiini) that live deep in soil fissures and in thick leaf-litter. Some species of *Trichopsida* can be collected only by using soil-washing techniques.

**Trechini.** This tribe is represented by 11 genera and 34 flightless species distributed from the North Island to the subantarctic islands. All taxa are endemic to New Zealand, except *Kenodactylus audouini* which also occurs on the Falkland Islands, South Georgia Island, and in Patagonia. A high proportion of New Zealand trechines are cave-dwellers; many species are riparian (e.g., most *Duvaliomimus* species); some species live in the vicinity of seashores under stones and among gravel (e.g., *Kenodactylus*, *Maoritrechus*, *Oarotrechus*); one species (*Kiwitrechus karenscottae*) is found in the humus and leaf-litter of *Nothofagus* rainforests. Cave-dwelling species are usually pale in colour, flat-bodied, without eyes, and with long antennae and legs. Trechine species are probably predacious (as suggested by mouthpart morphology). The most diverse genus is *Duvaliomimus* with 13 species and two subspecies. Members of this genus are gregarious and nocturnal, hiding during the day under stones and among gravel.

## MORPHOLOGY AND TERMINOLOGY

Figures 1–4 provide a basic understanding of the morphological structures used to describe and identify ground-beetles. Most of the morphological terms used in this work can be found in Jeannel (1941–1942), Lindroth (1961–1969), Ball & Bousquet (2001), and Larochelle & Larivière (2005, 2007a). A glossary of technical terms is also provided (Appendix A, p. 89).

## METHODS AND CONVENTIONS

### Materials

This synopsis is based on our 20 years of laboratory research and extensive fieldwork carried out in over 1000 localities, an extensive survey of the world literature up to now, and identification of carabids and recording of information associated with adult specimens from the following entomological museums and collections:

AMNZ	Auckland Institute and Museum, Auckland, New Zealand.
ANIC	Australian National Insect Collection, Canberra, Australia.
BBNZ	B. I. P. Barratt private collection, Dunedin, New Zealand.
BMNH	The Natural History Museum, London, U.K.
CMNH	Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, U.S.A.
CMNZ	Canterbury Museum, Christchurch, New Zealand.
DBPC	D. Brzoska private collection, Naples, Florida, U.S.A.
FMNH	Field Museum of Natural History, Chicago, Illinois, U.S.A.
JNNZ	J. Nunn private collection, Dunedin, New Zealand.
LUNZ	Entomology Research Museum, Lincoln University, Lincoln, New Zealand.
MNHN	Muséum National d'Histoire Naturelle, Paris, France.
MONZ	Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand.
NMV	Museum of Victoria, Melbourne, Victoria, Australia.
NZAC	New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand.
PHNZ	P. Howe private collection, Timaru, New Zealand.

### Collecting and preparation

Detailed accounts on the collecting and preparation of adult ground-beetles can be found in Larochelle & Larivière (2001, 2005, 2007a).

### Taxonomically relevant characters

The characters presented in the keys and descriptions are subsets of the totality of adult characters studied, and represent the most important or easily seen differences between, or variation amongst, closely related taxa.

Body length was measured from apex of mandibles to apex of elytra (with the specimen in dorsal view), and is cited as a range.

Characters with the highest diagnostic value at the species level have been photographed or illustrated, including the most diagnostic aspects of the male genitalia. Most illustrations provided in this work represent the

most commonly encountered state of a character. The user must allow some degree of variation when working with individual specimens.

The male genitalia offer the most stable characters and the ultimate criteria for species recognition. The second best diagnostic character for the majority of taxa is the configuration of the pronotum.

Although it is necessary to dissect male genitalia within the context of taxonomic revisions, it is often sufficient to pull out the apex of the aedeagus with a pin when mounting specimens to expose enough of the genitalia for identification.

### Identification keys

Keys are somewhat artificial. They are intended as an aid to identification, not a statement of the authors' opinion on phylogenetic relations. Additional supporting characters (e.g., body length, distribution) have sometimes been included between key couplets to help identification.

### Illustrations and digital photographs

Illustrations and maps were prepared using the software package CorelDRAW® graphics suite. All figures were laid out using this software package. Photographs were captured using Leica stereomicroscopes (MZ12.5 and M205A), digital cameras (LeicaDC500 and Nikon DS-R1), and the image stacking software Helicon Focus. Photos of larger ground-beetle species were taken using a Canon EOS 40D digital SLR camera with a 50 mm macro lens and life-size converter, and were montaged using the software Zerene Stacker. Further photo-processing was done with the software packages Adobe® Photoshop® and CorelDRAW® graphics suite.

An attempt was made to include habitus photos of all species and subspecies but specimens suitable for photography could not be secured for the following taxa: Migadopini – *Loxomerus huttoni* (Broun, 1902) and *Taenarthrus pluriciliatus* Johns, 2010; Trechini – *Maoritrechus stewartensis* Townsend, 2010 and *Duvaliomimus walkeri brittoni* Jeannel, 1938.

### Taxonomic concepts

The authors' approach regarding genus and species concepts has been thoroughly discussed in Larochelle & Larivière (2005, 2007a).

In the current work a number of subspecies of tiger beetles (tribe Cicindelini) are recognised. The subspecies concept used generally agrees with Mayr & Ashlock's (1991) definition: "A subspecies is an aggregate of phenotypically similar populations of a species inhabiting a

geographic subdivision of the range of that species and differing taxonomically from other populations of that species.”

More specifically, in cases where the male genitalia are identical the subspecies criteria defined by Pearson *et al.* (2006) are followed as closely as possible: “subspecies share: (1) a unique geographic range or habitat; (2) several distinct sets of [morphological] characters, all of which vary together across the range; (3) a unique natural history relative to other subdivisions of the species.”

### Taxonomic arrangement

In this Synopsis subfamilies and tribes are arranged phylogenetically following the higher classification shown in Table 1. Subtribes and genus-group taxa are treated alphabetically within tribes. Species-group taxa are ordered according to identification keys.

### Synonymies and type data

Synonyms, new combinations, and type data are omitted unless taxa are fully revised, or if taxonomic changes have occurred since the publication of Laroche & Larivière (2001, 2007a).

When the primary types of native species were examined, information is listed in the following format: type status (holotype, lectotype, etc.) followed by sex, acronym of entomological collection or museum serving as repository, and original label data with a forward slash (/) indicating a different label.

### Biostatus

This is indicated for all genera and species (A=Adventive; E=Endemic; N=Native, but not endemic). The biostatus categories used are defined in the Glossary (Appendix A, p. 89). A combination of criteria was used to assess whether taxa were adventive including: recency of first New Zealand record in the literature and collections; fit of current geographical and ecological distribution with recognised natural patterns, or similarity of such distribution with that of other adventive arthropods; and dispersal ability, especially in relation to flightlessness and distance from the nearest overseas populations.

### Geographic distribution and ecology

The two-letter area code abbreviations of Crosby *et al.* (1976, 1998) are used when New Zealand distribution records are provided (see Maps 1–3):

**New Zealand. North Island:** AK, Auckland; BP, Bay of Plenty; CL, Coromandel; GB, Gisborne; HB, Hawke’s Bay; ND, Northland; RI, Rangitikei; TK, Taranaki; TO, Taupo; WA, Wairarapa; WI, Wanganui; WN, Wellington; WO, Waikato. **South Island:** BR, Buller; CO, Central Otago; DN, Dunedin; FD, Fiordland; KA, Kaikoura; MC, Mid Canterbury; MK, Mackenzie; NC, North Canterbury; NN, Nelson; OL, Otago Lakes; SC, South Canterbury; SD, Marlborough Sounds; SL, Southland; WD, Westland. **Stewart Island, SI. Offshore Islands:** AN, Antipodes Islands; AU, Auckland Islands; BO, Bounty Islands; CA, Campbell Island; CH, Chatham Islands; KE, Kermadec Islands; SN, Snares Islands; TH, Three Kings Islands.

Maps summarising species distributions are provided on p. 170–184.

Ecological information, when provided, is based on specimen label data, field and laboratory observations by the authors, and from the literature. The terminology and style of presentation adopted here follow closely Laroche & Larivière (2001, 2005, 2007a). Many technical terms are also defined in the Glossary (Appendix A, p. 89).

Detailed species-level accounts of geographic distribution, ecology, biology, and dispersal power already published in Laroche & Larivière (2001), are not repeated unless groups are revised here. In such cases, the original accounts are supplemented and updated. For groups not revised in the present work, only directly useful information is provided and readers are referred to the 2001 catalogue for more details.

### References

Under References, except in the case of full revisions, only the most important references published since 2007 or not included in Laroche & Larivière (2001, 2007a), are provided.

## TAXONOMIC TREATMENTS

### Family CARABIDAE

#### Subfamily CICINDELINAE

##### Tribe CICINDELINI

**Common name.** Tiger Beetles.

**Reference.** Larochelle & Larivière, 2007a: 26 (description).

**Remarks.** The New Zealand Cicindelini are relatively well-known taxonomically. Species and subspecies were keyed by Savill (1999), but not revised. A concise taxonomic review of the tribe is provided here.

##### Key to genera of Cicindelini

- 1 Labrum tridentate anteriorly (Fig. 6); frons, clypeus, genae, and pronotum glabrous (Fig. 8, 10). [Occurs independently of vicinity of water.] .....  
 .....(p. 24)... *Neocicindela* Rivalier
- Labrum unidentate anteriorly (Fig. 7); frons, clypeus, genae, and pronotum setose (Fig. 9, 11). [Occurs in the vicinity of water.] .....  
 .....(p. 28)... *Zecicindela* new genus

##### Subtribe CICINDELINA

**Reference.** Larochelle & Larivière, 2007a: 26 (description).

##### Genus *Neocicindela* Rivalier, 1963 <sup>E</sup> reinstated

Figures 44–50, 141–147; Maps p. 176–177

*Neocicindela* Rivalier, 1963: 36. Type species. *Cicindela tuberculata* Fabricius, 1775, by original designation.

*Cicindela* (*Neocicindela*): Larochelle & Larivière, 2001: 35 and 2007a: 26.

**Description.** Body length: 7.0–15.0 mm. Elongate, cylindrical. Forebody (head and pronotum) dark; elytra with pale markings (humeral lunule, marginal line, middle band, apical lunule) more or less developed; legs with femora dark, tibiae and tarsi mostly pale. Metallic lustre present. Dorsal surface mostly glabrous; frons, clypeus, genae, and pronotum glabrous. Elytra mostly punctate-tuberculate (punctate-granulate in *N. dunedensis*). **Head.** Very wide across eyes. Mandibles very long. Labrum tridentate and quadrisetose anteriorly, very broad, mostly pale. Clypeus glabrous. Antennal segment 1 (scape) with one to nine setiferous pores. Frons glabrous. Eyes strongly developed,

convex, semiglobular, with numerous vertical striae or wrinkles (about 20–25) between them. Genae glabrous. Mentum tooth entire. Maxillary palpi with penultimate segment shorter than terminal one. **Thorax.** Pronotum more or less cordate, glabrous; base about as wide as apex; lateral margins mostly simple (double in *N. waiou-raensis*). Prosternum setose or glabrous. Proepisterna and metepisterna setose or glabrous. **Legs.** Long and slender, with strong spines; protochanters with subapical seta(e); male protarsi with the three basal segments dilated laterally and clothed with ventral adhesive setae; tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Basal margin absent. Shoulders well developed. Scutellar setiferous pore absent. Scutellar striae absent. Apices serrulate or not. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 44–50). Lateral view: main shaft strongly arcuate; basal bulb generally wide and triangular; dorsal membranous area usually almost invisible; ventral margin barely sinuate in apical half.

**References.** Cassola, 1990 (biogeography); Brzoska, 2006 (ecology, geographic distribution); Larochelle & Larivière, 2001: 35–40 (as *Cicindela* (*Neocicindela*); catalogue), 2007a: 26–27 (as *Cicindela* (*Neocicindela*); description, ecology, geographic distribution, references); Cassola & Putschkov, 2009: 17–27 (larval descriptions); Cassola & Moravec, 2010 (ecology, geographic distribution; taxonomy of *N. helmsi*); Pons *et al.*, 2011 (molecular phylogeny and evolution).

**Remarks.** The genus *Neocicindela* comprises seven species, including a newly described species. Larochelle & Larivière (2001, 2007a) treated *Neocicindela* Rivalier, 1963 as a subgenus of the genus *Cicindela* Linnaeus, 1758. Rivalier (1950–1963)'s splitting of the genus *Cicindela* into several genera had not received widespread acceptance at the time despite the publication of world catalogues by Wiesner (1992) and Lorenz (2005). In recent years the use of Rivalier's genera, including the genus *Neocicindela*, has gained worldwide acceptance (e.g., Erwin & Pearson, 2008). This position is followed here and the generic status of *Neocicindela* is reinstated for the New Zealand fauna. Twelve taxa previously assigned to *Neocicindela* are transferred to *Zecicindela* new genus.

Our splitting of *Neocicindela* into two separate genera based on morphological evidence is consistent with the recovery, by the molecular phylogeny of Pons *et al.* (2011), of two lineages from the *Neocicindela* stem group, *Neocicindela* 1 [= *Zecicindela* new genus] and *Neocicindela* 2 [= *Neocicindela* Rivalier].



Key to species of *Neocicindela*

- 1 Pale markings of elytra maculate (Fig. 141–143). Antennal segment 1 (scape) with a single setiferous pore (Fig. 12) ..... 2
- Pale areas of elytra immaculate (Fig. 144–147). Antennal segment 1 (scape) with two or more setiferous pores (Fig. 13–14) ..... 4
- 2(1) Elytra (Fig. 141): dark areas without smooth velvet black maculations along suture. [Body length larger, 9.5–12.1 mm; northern North Island.] ..... (p. 25)... *spilleri* Brouerius van Nidek
- Elytra (Fig. 142–143): dark areas with smooth velvet black maculations along suture. [Body length smaller, 7.5–11.5 mm; southern North Island, South Island, Stewart Island.] ..... 3
- 3(2) Antennal segments 5–11 deep black, sharply contrasting with paler antennal segments 1–4. Pronotum (Fig. 142) strongly cordate; sides strongly rounded. Elytra (Fig. 142): marginal line narrow, notched medially. [Body length 8.3–11.5 mm; southern South Island, Stewart Island.] ..... (p. 26)... *garnerae* new species
- Antennal segments 5–11 paler, not sharply contrasting with antennal segments 1–4. Pronotum (Fig. 143) moderately cordate; sides moderately rounded. Elytra (Fig. 143): marginal line moderately wide, not notched medially. [Body length 7.5–10.0 mm; North Island, northern South Island.] ..... (p. 26)... *parryi* (White)
- 4(1) Pronotum with lateral margins double (Fig. 17). Antennal segment 1 (scape) with two setiferous pores only (Fig. 13). [Body length 11.3–15.0 mm; elytra (Fig. 144); North Island (TO), South Island (MB).] ..... (p. 27)... *waiourauensis* (Broun)
- Pronotum with lateral margins simple (Fig. 18). Antennal segment 1 (scape) with four to nine setiferous pores (Fig. 14) ..... 5
- 5(4) Elytra (Fig. 145): middle band very long, its apex nearly reaching base of apical lunule; dark areas granulate. [Body length 7.0–8.7 mm; Eastern South Island.] ..... (p. 27)... *dunedensis* (Laporte de Castelnau)
- Elytra (Fig. 146–147): middle band shorter, its apex not nearly reaching base of apical lunule; dark areas tuberculate ..... 6

- 6(5) Elytra (Fig. 146): pale markings moderately wide; subsutural row of sparse large green foveae present, without minute punctures between foveae; sides with elongate dark area behind humeral lunule; marginal line separated from apical lunule. [Body length 9.0–12.0 mm; North Island, northern South Island (SD, MB, NN).] ..... (p. 27)... *tuberculata* (Fabricius)
- Elytra (Fig. 147): pale markings very wide; subsutural row of sparse green foveae absent or poorly developed (foveae small with minute punctures in between); sides without elongate dark area behind humeral lunule; marginal line fused with apical lunule. [Body length, 11.0–13.3 mm; eastern South Island.] ..... (p. 28)... *latecincta* (White)

*Neocicindela spilleri* Brouerius van Nidek, 1965<sup>E</sup>

Figures 44, 141; Map p. 177

**Common name.** Spiller's Tiger Beetle.

*Cicindela* (*Neocicindela*) *spilleri*: Larochelle & Larivière, 2001: 39 and 2007a: 111.

*Neocicindela spilleri*: Lorenz, 2005: 61; Brzoska, 2006: 23; Cassola & Putchkov, 2009: 19; Cassola & Moravec, 2010: 3.

**Description.** Body length: 9.5–12.1 mm. Head and pronotum light brown; dark areas of elytra light brown, without smooth velvet black maculations along elytral suture (as opposed to *N. garnerae* and *N. parryi*). Pale markings of elytra white, moderately wide, maculate; humeral lunule separated from marginal line; middle band complete oblique, not extending beyond base of apical lunule; marginal line separated or not from apical lunule. Antennae mostly pale, usually only with antennal segment 11 black (rarely antennal segments 9–11); femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas tuberculate, sparsely covered with minute brown punctures, with sparse, small to medium-sized green foveae. Dark areas of elytra moderately shiny, with bronze or green metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with a single setiferous pore. **Thorax.** Pronotum (Fig. 141) moderately cordate; sides moderately rounded; lateral margins simple. Proepisterna and metepisterna glabrous. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Narrow. Sides subparallel. Apices not serrulate. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 44).

**References.** Larochelle & Larivière, 2001: 39 (as *Cicindela* (*Neocicindela*) *spilleri*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 23, 25 (ecology, geographic distribution); Cassola & Putchkov, 2009: 19 (larval description); Cassola & Moravec, 2010: 3–4 (ecology, geographic distribution).

***Neocicindela garnerae*<sup>♀</sup> new species**

Figures 45, 142; Map p. 177

**Common name.** Garner's Tiger Beetle.

*Neocicindela garnerae* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled "S. [=South] Borland R. [=Ridge] 760m (typed) / Manapouri Exp. Jan 70 I. Townsend (typed) / HOLOTYPE [male symbol] *Neocicindela garnerae* Larochelle & Larivière, 2013 (red label; typed)." Paratype: one female (NZAC) from the same locality as the holotype, bearing blue paratype label.

**Description.** Body length: 8.3–11.5 mm. Head and pronotum light brown; dark areas of elytra light brown, with smooth velvet black maculations along elytral suture (as in *N. parryi*). Pale markings of elytra white or pale yellow, moderately wide, maculate (more densely so than in *N. parryi*); humeral lunule separated from marginal line by a narrow gap (as opposed to *N. parryi*); middle band complete, oblique, not extending beyond base of apical lunule; marginal line narrow, notched medially (as opposed to *N. parryi*), separated from apical lunule. Antennae contrastingly coloured, abruptly passing from yellow to black; antennal segments 1–4 mostly pale yellowish, 5–11 deep black; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas tuberculate, sparsely covered with minute brown punctures, with sparse, small to medium-sized green foveae. Dark areas of elytra moderately shiny, with bronze or green metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with a single setiferous pore. **Thorax.** Pronotum (Fig. 142) strongly cordate; sides strongly rounded; lateral margins simple. Proepisterna and metepisterna moderately to strongly setose; proepisterna with 1–15 setae, usually more than 4 setae; metepisterna with 10–20 setae. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Wide; sides strongly widening behind middle. Apices not serrulate. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 45). Lateral view: apex narrower and less rounded than in *N. parryi*; laterodorsal compression narrow, elongate.

**Material examined.** 156 specimens (NZAC).

**Geographic distribution** (Map p. 177). South Island: BR, CO, DN, FD, MC, NC, OL, SC, SL, WD. Stewart Island.

**Ecology.** Lowland, montane, subalpine, alpine. Openings, paths, and roads in forests (beech, broadleaf, podocarp), shrublands, and scrublands; roadside and clay banks in tussock grasslands and cultivated fields; sandy beaches bordering tussock grasslands; screes, stream beds, and gardens. Larval burrows dug in bare areas of tussock grasslands. Open or shaded ground; moist clay soil, usually bare, sometimes covered with sparse moss. Mostly diurnal; active both during the day in the sunshine and in cloudy weather, and also at twilight. Solitary or by pairs.

**Biology.** Seasonality: November–June. Teneral: March. Predacious. Food: caterpillars. Defense-mechanism: cryptic coloration – body colour blending perfectly with its surrounding; immobility (beetle reluctant to fly).

**Dispersal power.** Macropterous. Short-distance flier (about 0.5 m). Occasional and weak flier to artificial lights at night and when exposed to warming sun. Occasional climber on shrubs.

**Remarks.** This species is named after our colleague Beulah Garner (The Natural History Museum, London) for facilitating our study of the type material of Carabidae, especially the Broun Collection.

*Neocicindela garnerae* is morphologically close to *N. parryi* but it has the following distinguishing features: antennal segments 5–11 deep black, sharply contrasting with paler antennal segments 1–4; pronotum strongly cordate, with sides strongly rounded; elytra with pale markings more densely maculate, humeral lunule separated from marginal line by a narrow gap, and marginal line narrow, notched medially.

***Neocicindela parryi* (White, 1846)<sup>♀</sup>**

Figures 46, 143; Map p. 177

**Common name.** Parry's Tiger Beetle.

*Cicindela* (*Neocicindela*) *parryi*: Larochelle & Larivière, 2001: 38 and 2007a: 110.

*Neocicindela parryi*: Lorenz, 2005: 61; Brzoska, 2006: 21; Casola & Moravec, 2010: 3.

**Description.** Body length: 7.5–10.0 mm. Head and pronotum light brown; dark areas of elytra light brown, with smooth velvet black maculations along elytral suture (as in *N. garnerae*). Pale markings of elytra white or pale yellow, moderately wide, maculate (less densely so than in *N. garnerae*); humeral lunule usually separated from marginal line by a wide gap (as opposed to *N. garnerae*); middle band incomplete (very short), oblique, not extending beyond base of apical lunule; marginal line moderately wide, not notched medially (as opposed to *N. garnerae*), separated from apical lunule. Antennae not contrastingly coloured as in *N. garnerae*, gradually passing from pale yellowish, through brown, to blackish; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas tuberculate, sparsely covered with minute brown punctures, with sparse, small to medium-sized green foveae. Dark areas of elytra moderately shiny, with bronze or green metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with a single setiferous pore. **Thorax.** Pronotum (Fig. 143) moderately cordate; sides moderately rounded; lateral margins simple. Proepisterna and metepisterna glabrous or slightly setose (with one to four setae). **Legs.** Tarsal claws much shorter than tarsal

segment 5 (about half its length). **Elytra.** Wide; sides slightly widening behind middle. Apices not serrulate. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 46).

**References.** Larochelle & Larivière, 2001: 38 (as *Cicindela* (*Neocicindela*) *parryi*; (catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 21–23 (ecology, geographic distribution); Cassola & Moravec, 2010: 3 (ecology, geographic distribution).

**Remarks.** Populations from Buller show more variation in size, antennal colour, pronotal and elytral shape, as well as in elytral pale markings and granulate surface. The shape of the aedeagus is however stable.

### *Neocicindela waiouraensis* (Broun, 1914)<sup>E</sup>

Figures 48, 144; Map p. 177

**Common name.** Waiouru Tiger Beetle.

*Cicindela* (*Neocicindela*) *waiouraensis*: Larochelle & Larivière, 2001: 39 and 2007a: 111.

*Neocicindela waiouraensis*: Lorenz, 2005: 61; Brzoska, 2006: 27; Cassola & Moravec, 2010: 8.

**Description.** Body length: 11.3–15.0 mm. Head and pronotum dark brown; dark areas of elytra dark brown tinged with velvet black. Pale markings of elytra cream-coloured, narrow, immaculate; humeral lunule separated or not from marginal line; middle band complete, narrow, angular, not extending beyond base of apical lunule; marginal line separated from apical lunule. Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas tuberculate, densely covered with minute green punctures; subsutural row of sparse large green foveae present; basal and subapical dark areas with sparse medium-sized green foveae. Dark areas of elytra moderately shiny, with bronze or green metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with two setiferous pores. **Thorax.** Pronotum (Fig. 144) subcordate-trapezoidal; sides moderately rounded; lateral margins double (Fig. 17; simple in other species). Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides widening behind middle. Apices not serrulate, divergent and strongly bent dorsally in males (as opposed to other species). **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 48).

**References.** Larochelle & Larivière, 2001: 39–40 (as *Cicindela* (*Neocicindela*) *waiouraensis*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 27 (ecology, geographic distribution); Cassola & Moravec, 2010: 8 (ecology, geographic distribution).

### *Neocicindela dunedensis* (Laporte de Castelnau, 1867)<sup>E</sup>

Figures 47, 145; Map p. 176

**Common name.** Dunedin Tiger Beetle.

*Cicindela* (*Neocicindela*) *dunedensis*: Larochelle & Larivière, 2001: 36 and 2007a: 110.

*Neocicindela dunedensis*: Lorenz, 2005: 61; Brzoska, 2006: 27; Cassola & Putschkov, 2009: 20; Cassola & Moravec, 2010: 8.

**Description.** Body length: 7.0–8.7 mm. Head, pronotum, and dark areas of elytra dark brown. Pale markings of elytra white, moderately wide, immaculate; humeral lunule fused with marginal line; middle band complete, narrow, oblique, nearly reaching or slightly extending beyond base of apical lunule; marginal line fused with apical lunule. Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas granulate, densely covered with minute green punctures; subsutural row of sparse large green foveae present; basal and subapical dark areas with sparse medium-sized green foveae. Dark areas of elytra moderately shiny, with bronze or green metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with five to nine setiferous pores. **Thorax.** Pronotum (Fig. 145) cordate, with a few setae near anterolateral angles (as opposed to other species); sides strongly rounded; lateral margins simple. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides parallel. Apices feebly or not at all serrulate. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 47).

**References.** Larochelle & Larivière, 2001: 36 (as *Cicindela* (*Neocicindela*) *dunedensis*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 27, 29 (ecology, geographic distribution); Cassola & Putschkov, 2009: 20–21 (larval description); Cassola & Moravec, 2010: 8–9 (ecology, geographic distribution).

### *Neocicindela tuberculata* (Fabricius, 1775)<sup>E</sup>

Figures 49, 146; Map p. 177

**Common name.** Tuberculate Tiger Beetle.

*Cicindela* (*Neocicindela*) *tuberculata*: Larochelle & Larivière, 2001: 39 and 2007a: 111.

*Neocicindela tuberculata*: Lorenz, 2005: 61; Brzoska, 2006: 25; Cassola & Putschkov, 2009: 19; Cassola & Moravec, 2010: 4.

**Description.** Body length: 9.0–12.0 mm. Head and pronotum dark brown; dark areas of elytra dark brown tinged with velvet black. Pale markings of elytra yellowish, moderately wide, immaculate; humeral lunule fused with marginal line; middle band complete, narrow to moderately

wide, angular, not extending beyond base of apical lunule; marginal line separated from apical lunule. Sides of elytra with elongate dark area behind humeral lunule (as opposed to *N. latecincta*). Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas tuberculate, densely covered with minute green punctures; subsutural row of sparse large green foveae present (never with minute punctures between foveae as in *N. latecincta*); basal dark area with sparse small green foveae. Dark areas of elytra moderately shiny, with bronze or green metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with five to nine setiferous pores. **Thorax.** Pronotum (Fig. 146) subcordate; sides moderately rounded; lateral margins simple. Prosternum setose (with a few lateral setae; glabrous in *N. latecincta*). Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides widening behind middle. Apices strongly serrulate. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 49).

**References.** Larochelle & Larivière, 2001: 39 (as *Cicindela (Neocicindela) tuberculata*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 25–26 (ecology, geographic distribution); Cassola & Putschkov, 2009: 19–20 (larval description); Cassola & Moravec, 2010: 4–5 (ecology, geographic distribution).

### *Neocicindela latecincta* (White, 1846) <sup>E</sup>

Figures 50, 147; Map p. 177

**Common name.** Wide-banded Tiger Beetle.

*Cicindela (Neocicindela) latecincta*: Larochelle & Larivière, 2001: 37 and 2007a: 110.

*Neocicindela latecincta*: Lorenz, 2005: 61; Brzoska, 2006: 26; Cassola & Putschkov, 2009: 20; Cassola & Moravec, 2010: 5.

**Description.** Body length: 11.0–13.3 mm. Head, pronotum, and dark areas of elytra dark brown. Pale markings of elytra yellow, very wide, immaculate; humeral lunule fused with marginal line; middle band complete, very wide (wider than in *N. tuberculata*), oblique, not extending beyond base of apical lunule; marginal line fused with apical lunule. Sides of elytra without elongate dark area behind humeral lunule (as opposed to *N. tuberculata*). Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas tuberculate, densely covered with minute green punctures; subsutural row of sparse green foveae absent or poorly developed (foveae small with minute punctures in between); basal dark area with sparse small green foveae. Dark areas of elytra moderately shiny, with bronze or green metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with

four to six setiferous pores. **Thorax.** Pronotum (Fig. 147) subcordate; sides moderately rounded; lateral margins simple. Prosternum glabrous (with a few lateral setae in *N. tuberculata*). Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides subparallel. Apices strongly serrulate. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 50).

**References.** Larochelle & Larivière, 2001: 37 (as *Cicindela (Neocicindela) latecincta*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 26–27 (ecology, geographic distribution); Cassola & Putschkov, 2009: 20 (larval description); Cassola & Moravec, 2010: 5–6 (ecology, geographic distribution).

### Genus *Zecicindela* <sup>E</sup> new genus

Figures 51–59, 148–159; Maps p. 183–184

**Type species.** *Cicindela feredayi* Bates, 1867, by present designation.

**Description.** Body length: 7.5–12.5 mm. Elongate, cylindrical. Forebody (head and pronotum) dark; elytra with pale markings (humeral lunule, marginal line, middle band, apical lunule) more or less developed; legs entirely dark or with femora dark, tibiae and tarsi mostly pale. Metallic lustre present. Dorsal surface of forebody mostly setose; elytra mostly glabrous. Elytra punctate-granulate. **Head.** Very wide across eyes. Mandibles very long. Labrum unidentate anteriorly, quadrisetose or sexsetose anteriorly, very broad, mostly pale. Clypeus setose. Antennal segment 1 (scape) with 1–22 setiferous pores. Frons setose. Eyes strongly developed, convex, semiglobular, with numerous vertical striae or wrinkles (about 20–25) between them. Genae setose. Mentum tooth entire. Maxillary palpi with penultimate segment shorter than terminal one. **Thorax.** Pronotum subcordate or subquadrate, setose; base about as wide as apex; lateral margins double or simple. Prosternum, proepisterna, and metepisterna setose. **Legs.** Long and slender, with strong spines; protrochanters with subapical seta(e); male protarsi with the three basal segments dilated laterally and clothed with ventral adhesive setae; tarsal claws about as long as tarsal segment 5 or much shorter (about half its length). **Elytra.** Basal margin absent. Shoulders well developed. Scutellar setiferous pore absent. Scutellar striole absent. Apices serrulate or not. **Abdomen.** Sterna mostly setose (glabrous in *Z. hamiltoni*). **Aedeagus** (Fig. 51–59). Lateral view: main shaft slightly to moderately arcuate; basal bulb generally narrow and rounded; dorsal membranous area usually broadly visible (ostium deflected to the left); ventral margin distinctly sinuate in apical half.

**References.** Brzoska, 2006 (as *Neocicindela*; ecology, geographic distribution); Cassola & Moravec, 2010 (as *Neocicindela*; ecology, geographic distribution; taxonomy of *N. helmsi*); Pons *et al.*, 2011 (as *Neocicindela*; molecular phylogeny and evolution).

**Remarks.** The generic name is derived from *Ze-* (New Zealand) and *Cicindela* (the type genus of the tribe Cicindelini). The morphological characters unifying species of *Zecicindela* are: labrum unidentate anteriorly; frons, clypeus, genae, and pronotum setose; aedeagus with main shaft slightly to moderately arcuate, basal bulb generally narrow and rounded, dorsal membranous area usually broadly visible (ostium deflected to the left), and ventral margin distinctly sinuate in apical half.

The genus *Zecicindela* includes twelve taxa previously ascribed to the genus *Neocicindela*.

### Key to species of *Zecicindela*

- 1 Legs entirely dark. Tarsal claws much shorter than tarsal segment 5 (about half its length; Fig. 15) ..... 2
- Femora dark, tibiae and tarsi mostly pale. Tarsal claws about as long as tarsal segment 5 (Fig. 16) ..... 8
- 2(1) Middle band of elytra incomplete, almost absent (Fig. 148). Antennal segment 1 (scape) with a single setiferous pore (Fig. 12). Abdominal sterna glabrous. [Body length 8.5–9.2 mm; northern and central South Island (KA, MC).] .....(p. 30)... *hamiltoni* (Broun)
- Middle band of elytra complete (Fig. 149–154). Antennal segment 1 (scape) with more than 5 setiferous pores (Fig. 14). Abdominal sterna setose ..... 3
- 3(2) Apical lunule of elytra maculate (Fig. 149–152) ... 4
- Apical lunule of elytra immaculate (Fig. 153–154) .. 7
- 4(3) Elytra (Fig. 149–150): dark areas with sparse large deep foveae, making surface uneven; middle band angular; sides strongly widening behind middle .... 5
- Elytra (Fig. 151–152): dark areas with sparse small shallow foveae, making surface even; middle band oblique; sides subparallel ..... 6
- 5(4) Elytra (Fig. 149): humeral lunule usually widely separated from marginal line; apical lunule usually widely separated from marginal line. [Body length 9.2–11.3 mm; North Island: TO (Central Volcanic Plateau); occurs on roads and trails away from water.] .....(p. 30)... *helmsi novaseelandica* (Horn)
- Elytra (Fig. 150): humeral lunule usually narrowly separated from marginal line; apical lunule usually fused with marginal line. [Body length 9.2–11.4 mm; South Island: WD, OL; occurs on riverbanks.] .....(p. 30)... *helmsi halli* (Broun)
- 6(4) Elytra (Fig. 151): humeral lunule and apical lunule fused with marginal line; dark areas with sparse very small shallow foveae [Body length: 9.6–11.7 mm; northeastern South Island: MB, KA, NC.] .....(p. 31)... *helmsi circumpectoides* (Horn)
- Elytra (Fig. 152): humeral lunule and apical lunule separated from marginal line; dark areas with sparse larger shallow foveae [Body length: 8.7–12.5 mm; northwestern South Island: NN, BR, MB.] .....(p. 31)... *helmsi helmsi* (Sharp)
- 7(3) Elytra (Fig. 153): middle band angular, long, extending close to apical lunule; humeral lunule complete; subsutural row of foveae absent. Smaller species, body length 7.5–9.0 mm. [North Island, South Island.] .....(p. 32)... *feredayi* (Bates)
- Elytra (Fig. 154): middle band oblique, shorter, not extending towards apical lunule; humeral lunule incomplete (almost absent); subsutural row of foveae present. Larger species, body length 10.0–12.5 mm. [Eastern South Island (MB to SC).] .....(p. 32)... *austromontana* (Bates)
- 8(1) Elytra (Fig. 155–156): pale markings maculate, covering most of surface ..... 9
- Elytra (Fig. 157–159): pale markings immaculate, partly covering surface (dark areas more extensive) ..... 10
- 9(8) Elytra (Fig. 155): dark areas on each side of suture forming wide-based upside-down triangle; pale markings cream-coloured. [Body length 9.0–10.0 mm; occurs on cream-coloured sand; northern North Island (ND, top of Aupouri Peninsula).] .....(p. 33)... *giveni* (Brouerius van Nidek)
- Elytra (Fig. 156): dark areas on each side of suture forming narrow-based upside-down triangle; pale markings white. [Body length 9.0–10.0 mm; occurs on white quartz sand; northern North Island (ND, centre of Aupouri Peninsula).] .....(p. 33)... *savilli* (Wiesner)
- 10(8) Elytra (Fig. 157): dark area behind humeral lunule short and truncate laterally; humeral lunule incomplete. [Body length 7.5–9.4 mm; occurs on greyish-white sand; northern North Island (eastern ND to AK, CL).] .....(p. 34)... *brevilunata* (Horn)
- Elytra (Fig. 158–159): dark area behind humeral lunule long, triangular or lanceolate laterally; humeral lunule complete ..... 11

**11(10)** Head, pronotum, and dark areas of elytra blackish brown. Elytra (Fig. 158): pale markings narrow; humeral lunule separated from marginal line; middle band jagged. [Body length 8.4–10.7 mm; occurs on black ironsand; northern North Island (western AK and WO).] .....(p. 34)... *campbelli* (Broun)

—Head, pronotum, and dark areas of elytra greenish bronze. Elytra (Fig. 159): pale markings very wide; humeral lunule fused with marginal line; middle band not jagged. [Body length 8.5–10.3 mm; occurs on yellow sand; northern North Island (western ND and AK).] .....(p. 35)... *perhispid* (Broun)

***Zecicindela hamiltoni* (Broun, 1921)<sup>E</sup> new combination**

Figures 51, 148; Map p. 184

**Common name.** Hamilton's Tiger Beetle.

*Cicindela* (*Neocicindela*) *hamiltoni*: Larochelle & Larivière, 2001: 37 and 2007a: 110.

*Neocicindela hamiltoni*: Lorenz, 2005: 61; Brzoska, 2006: 29; Cassola & Moravec, 2010: 12.

**Description.** Body length: 8.5–9.2 mm. Head and pronotum greenish; dark areas of elytra dark brown. Pale markings of elytra cream-coloured, narrow, immaculate; humeral lunule incomplete, fused with marginal line; middle band incomplete, almost absent, not extending beyond base of apical lunule; marginal line fused with apical lunule. Antennae and legs entirely dark. Elytral sculpture: dark areas granulate, densely covered with minute green punctures, with small green foveae in subsutural row and humeral area. Dark areas of elytra rather dull, with slight greenish metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with a single setiferous pore. **Thorax.** Pronotum (Fig. 148) subcordate; sides moderately rounded; lateral margins double. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides widening behind middle. Apices not serrulate. **Abdomen.** Sterna glabrous. **Aedeagus** (Fig. 51).

**References.** Larochelle & Larivière, 2001: 37 (as *Cicindela* (*Neocicindela*) *hamiltoni*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 29 (as *Neocicindela hamiltoni*; ecology); Cassola & Moravec, 2010: 12 (as *Neocicindela hamiltoni*; ecology, geographic distribution).

***Zecicindela helmsi novaseelandica* (Horn, 1892)<sup>E</sup> new combination and status**

Figure 149; Map p. 184

**Common name.** New Zealand Tiger Beetle.

*Cicindela novaseelandica*: as a junior synonym of *Cicindela* (*Neocicindela*) *helmsi* (Larochelle & Larivière 2001: 37).

*Neocicindela novaseelandica*: resurrected from synonymy with *Neocicindela helmsi* by Cassola & Moravec, 2010: 13.

**Description.** Body length: 9.2–11.3 mm. Head and pronotum aeneous or bronze, with greenish tinge; dark areas of elytra purplish-brown, with greenish tinge. Pale markings cream-coloured, moderately wide; apical lunule maculate; humeral lunule complete, usually widely separated from marginal line; middle band complete, angular, not extending beyond base of apical lunule; marginal line usually widely separated from apical lunule. Antennae and legs entirely dark. Elytral sculpture: dark areas granulate, densely covered with minute blue punctures ringed with golden-green, with sparse large bluish foveae with golden centre (foveae deep giving uneven elytral surface). Dark areas of elytra dull, with slight greenish, aeneous or bronze metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with 9–16 setiferous pores. **Thorax.** Pronotum (Fig. 149) subcordate; sides moderately rounded; lateral margins double. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides strongly widening behind middle. Apices not serrulate. **Abdomen.** Sterna setose. **Aedeagus.** As in nominal subspecies.

**References.** Larochelle & Larivière, 2001: 37 (as *Cicindela* (*Neocicindela*) *helmsi*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Cassola & Moravec, 2010: 13–16 (as *Neocicindela novaseelandica*; ecology, geographic distribution, taxonomy).

**Remarks.** *Zecicindela helmsi novaseelandica* is closest to *Zecicindela helmsi halli*, from which it can be distinguished by a combination of morphological and eco-geographic characters: elytra with humeral lunule usually widely separated from marginal line and apical lunule usually widely separated from marginal line; occurring away from water, on roads and trails of the Central Volcanic Plateau (TO) of the North Island. Other subspecies of *Z. helmsi* are associated with South Island riverbanks. Cassola & Moravec (2010) provided photos of the left elytron of the lectotype and paralectotype of *Cicindela novaseelandica*.

See also **Remarks** under *Z. helmsi helmsi*.

***Zecicindela helmsi halli* (Broun, 1917)<sup>E</sup> new combination and status**

Figure 150; Map p. 184

**Common name.** Hall's Tiger Beetle.

*Cicindela halli*: as a junior synonym of *Cicindela* (*Neocicindela*) *helmsi* (Larochelle & Larivière, 2001: 37).

*Cicindela halli*: resurrected from synonymy with *Neocicindela*

*helmsi*, synonymised with *N. novaseelandica* by Cassola & Moravec, 2010: 13.

**Description.** Body length: 9.2–11.4 mm. Head and pronotum aeneous or bronze, with greenish tinge; dark areas of elytra purplish-brown, with greenish tinge. Pale markings of elytra cream-coloured, moderately wide; apical lunule maculate; humeral lunule complete, usually narrowly separated from marginal line; middle band complete, angular, not extending beyond base of apical lunule; marginal line usually fused with apical lunule. Antennae and legs entirely dark. Elytral sculpture: dark areas granulate, densely covered with minute blue punctures ringed with golden-green, with sparse large bluish foveae with golden centre (foveae deep giving uneven elytral surface). Dark areas of elytra dull, with slight greenish, aeneous or bronze metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with 12–16 setiferous pores. **Thorax.** Pronotum (Fig. 150) subcordate; sides moderately rounded; lateral margins double. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides strongly widening behind middle. Apices not serrulate. **Abdomen.** Sterna setose. **Aedeagus.** As in nominal subspecies.

**References.** Laroche & Larivière, 2001: 37 (as *Cicindela* (*Neocicindela*) *helmsi*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Cassola & Moravec, 2010: 13–16 (as a junior synonym of *Neocicindela novaseelandica*; ecology, geographic distribution, taxonomy).

**Remarks.** *Zecicindela helmsi halli* is morphologically close to *Z. helmsi novaseelandica*, from which it can be distinguished by a combination of morphological and eco-geographic characters: elytra with humeral lunule usually narrowly separated from marginal line and apical lunule usually fused with marginal line; occurring on riverbanks of the South Island west coast (WD, OL).

Cassola & Moravec (2010) provided a photo of the left elytron of a syntype specimen. These authors who had only seen North Island specimens of *Z. helmsi novaseelandica* questioned the validity of “Hollyford” as type locality of *Cicindela halli* which they considered a junior synonym. They considered Hollyford to be an unlikely extralimital distribution record for their North Island species and suggested the type specimen might have been mislabelled. These authors, however, overlooked large holdings of *Z. helmsi* specimens from the South Island west coast contained in New Zealand collections. Our study of this extensive material confirms the presence of *C. halli*, albeit as a subspecies of *Z. helmsi*, on the South Island and the likelihood of Hollyford as the type locality for this taxon.

See also **Remarks** under *Zecicindela helmsi helmsi*.

### *Zecicindela helmsi circumpectoides* (Horn, 1900)<sup>E</sup> new combination and status

Figure 151; Map p. 184

**Common name.** Banded Tiger Beetle.

*Cicindela circumpectoides*: as a junior synonym of *Cicindela* (*Neocicindela*) *helmsi* (Laroche & Larivière, 2001: 37).

**Description.** Body length: 9.6–11.7 mm. Head and pronotum aeneous or bronze, with greenish tinge; dark areas of elytra purplish-brown, with greenish tinge. Pale markings cream-coloured, moderately wide; apical lunule maculate; humeral lunule complete, fused with marginal line; middle band complete, oblique, not extending beyond base of apical lunule; marginal line fused with apical lunule. Antennae and legs entirely dark. Elytral sculpture: dark areas granulate, densely covered with minute blue punctures ringed with golden-green, with sparse very small bluish foveae with golden centre (foveae shallow giving even elytral surface). Dark areas of elytra dull, with slight greenish, aeneous or bronze metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with 10–17 setiferous pores. **Thorax.** Pronotum (Fig. 151) subcordate; sides moderately rounded; lateral margins double. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides subparallel. Apices not serrulate. **Abdomen.** Sterna setose. **Aedeagus.** As in nominal subspecies.

**References.** Laroche & Larivière, 2001: 37 (as *Cicindela* (*Neocicindela*) *helmsi*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Cassola & Moravec, 2010: 12–13 (as a junior synonym of *Neocicindela helmsi*; ecology, geographic distribution, taxonomy).

**Remarks.** *Zecicindela helmsi circumpectoides* is morphologically close to *Z. helmsi helmsi*, from which it can be distinguished by the following morphological characters: elytra with humeral lunule and apical lunule fused with marginal line, and dark areas with sparse very small shallow foveae. Cassola & Moravec (2010) provided a photo of the left elytron of the holotype of *Cicindela circumpectoides*.

*Zecicindela helmsi circumpectoides* occurs on riverbanks of the northeastern South Island (MB, KA, NC).

See also **Remarks** under *Z. helmsi helmsi*.

### *Zecicindela helmsi helmsi* (Sharp, 1886)<sup>E</sup> new combination and status

Figures 52, 152; Map p. 184

**Common name.** Helms’s Tiger Beetle.

*Cicindela* (*Neocicindela*) *helmsi*: Laroche & Larivière, 2001: 37 and 2007a: 110.

*Neocicindela helmsi*: Lorenz, 2005: 61; Brzoska, 2006: 29; Cassola & Moravec, 2010: 12.

**Description.** Body length: 8.7–12.5 mm. Head and pronotum aeneous or bronze, with greenish tinge; dark areas of elytra purplish-brown, with greenish tinge. Pale markings of elytra cream-coloured, moderately wide; apical lunule maculate; humeral lunule complete, narrowly separated from marginal line; middle band complete, oblique, not extending beyond base of apical lunule; apical lunule narrowly separated from marginal line. Antennae and legs entirely dark. Elytral sculpture: dark areas granulate, densely covered with minute blue punctures ringed with golden-green, with sparse small bluish foveae with golden centre (foveae shallow giving even elytral surface). Dark areas of elytra dull, with slight greenish, aeneous or bronze metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with 12–16 setiferous pores. **Thorax.** Pronotum (Fig. 152) subcordate; sides moderately rounded; lateral margins double. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides subparallel. Apices not serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 52).

**References.** Larochelle & Larivière, 2001: 37 (as *Cicindela* (*Neocicindela*) *helmsi*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 29–32 (as *Neocicindela helmsi*; ecology, geographic distribution); Cassola & Moravec, 2010: 12–13 (as *Neocicindela helmsi*; ecology, geographic distribution, taxonomy).

**Remarks.** Cassola & Moravec (2010) resurrected *Cicindela novaeseelandica* Horn, 1892, from synonymy with *Neocicindela helmsi* and provided the new combination *Neocicindela novaeseelandica*. These authors also placed *Cicindela halli* Broun, 1917, previously a synonym of *N. helmsi*, as a junior synonym of *N. novaeseelandica*. These taxonomic changes were based on two elytral characters, the degree of fusion of the pale marginal band and the number of foveae, and on extremely limited material representing few populations. No reference was made to the configuration of the male genitalia but a photo of the left elytron of the holotype was provided.

Our examination of the large amount of material identified as *N. helmsi* in New Zealand collections revealed a single species with an identical male aedeagus across four morphological subspecies (*Z. helmsi helmsi*, *Z. helmsi circumpictoides*, *Z. helmsi halli*, *Z. helmsi novaeseelandica*), and with geographic distributions that do not overlap. Results also showed that the diagnostic characters used by Cassola & Moravec (2010) are highly variable within and between populations of *Z. helmsi*.

*Zecicindela helmsi helmsi* is morphologically close to *Z. helmsi circumpictoides*, from which it can be dis-

tinguished by the following morphological characters: elytra with humeral lunule and apical lunule narrowly separated from marginal line, and dark areas with sparse larger shallow foveae.

*Zecicindela helmsi helmsi* occurs on riverbanks of the northwestern South Island (NN, BR).

See also **Remarks** under other subspecies.

### *Zecicindela feredayi* (Bates, 1867) <sup>E</sup> new combination

Figures 53, 153; Map p. 183

**Common name.** Fereday's Tiger Beetle.

*Cicindela* (*Neocicindela*) *feredayi*: Larochelle & Larivière, 2001: 37 and 2007a: 110.

*Neocicindela feredayi*: Lorenz, 2005: 61; Brzoska, 2006: 32; Cassola & Moravec, 2010: 17.

**Description.** Body length: 7.5–9.0 mm. Head, pronotum, and dark areas of elytra greenish black. Pale markings of elytra white, narrow, immaculate; humeral lunule complete, separated or not from marginal line; middle band complete, angular, extending close to apical lunule; marginal line fused with apical lunule. Antennae and legs entirely dark. Elytral sculpture: dark areas granulate, densely covered with minute blue punctures with green centre, with sparse small-sized greenish foveae in humeral area; subsutural row absent. Dark areas of elytra dull, with slight greenish metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with 9–19 setiferous pores. **Thorax.** Pronotum (Fig. 153) subcordate; sides rather moderately rounded; lateral margins double. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides widening behind middle. Apices not serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 53).

**References.** Larochelle & Larivière, 2001: 37 (as *Cicindela* (*Neocicindela*) *feredayi*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 32–33 (as *Neocicindela feredayi*; ecology, geographic distribution); Cassola & Moravec, 2010: 17 (as *Neocicindela feredayi*; ecology, geographic distribution).

### *Zecicindela austromontana* (Bates, 1878) <sup>E</sup> new combination

Figures 54, 154; Map p. 183

**Common name.** Southern Mountains Tiger Beetle.

*Cicindela* (*Neocicindela*) *austromontana*: Larochelle & Larivière, 2001: 36 and 2007a: 110.

*Neocicindela austromontana*: Lorenz, 2005: 61; Brzoska, 2006: 32; Cassola & Moravec, 2010: 17.

**Description.** Body length: 10.0–12.5 mm. Head, pronotum, and dark areas of elytra olivaceous black. Pale markings of elytra white, narrow, immaculate; humeral lunule incomplete, separated or not from marginal line; middle



band complete, oblique, not extending towards apical lunule; marginal line fused with apical lunule. Antennae and legs entirely dark. Elytral sculpture: dark areas granulate, densely covered with minute blue punctures with green centre, with sparse small green foveae in subsutural row and humeral area. Dark areas of elytra dull, with olivaceous metallic lustre. **Head.** Labrum quadrisetose anteriorly. Antennal segment 1 (scape) with 6–12 setiferous pores. **Thorax.** Pronotum (Fig. 154) subcordate; sides moderately rounded; lateral margins double. Proepisterna and metepisterna setose. **Legs.** Tarsal claws much shorter than tarsal segment 5 (about half its length). **Elytra.** Sides subparallel. Apices feebly serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 54).

**References.** Larochelle & Larivière, 2001: 36 (as *Cicindela* (*Neocicindela*) *austromontana*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 32 (as *Neocicindela austromontana*; ecology, geographic distribution); Cassola & Moravec, 2010: 17 (as *Neocicindela austromontana*; ecology, geographic distribution).

### *Zecicindela giveni* (Brouerius van Nidek, 1965) <sup>E</sup> new combination and status

Figures 55, 155; Map p. 184

**Common name.** Given's Tiger Beetle.

*Cicindela* (*Neocicindela*) *perhispidata giveni*: Larochelle & Larivière, 2001: 38 and 2007a: 110.

*Neocicindela perhispidata giveni*: Lorenz, 2005: 61; Brzoska, 2006: 33; Cassola & Moravec, 2010: 19.

**Description.** Body length: 9.0–10.0 mm. Head, pronotum, and dark areas of elytra purple red. Pale markings of elytra cream-coloured, very wide, fused together, covering most of elytra, maculate. Dark areas of elytra on each side of suture forming a wide-based upside-down triangle (narrow-based in *Z. savilli*). Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas granulate, sparsely covered with minute coppery-green punctures, with sparse medium-sized green foveae. Dark areas of elytra very shiny, with coppery-green metallic lustre. **Head.** Labrum quadrisetose or sexsetose anteriorly. Antennal segment 1 (scape) with 18–22 setiferous pores. **Thorax.** Pronotum (Fig. 155) subquadrate; sides moderately rounded; lateral margins simple. Proepisterna and metepisterna setose. **Legs.** Tarsal claws about as long as tarsal segment 5. **Elytra.** Sides subparallel. Apices strongly serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 55). Lateral view: main shaft less concave dorsomedially than in *Z. savilli*; apex rounded.

**References.** Larochelle & Larivière, 2001: 38 (as *Cicindela* (*Neocicindela*) *perhispidata giveni*; catalogue; biology, dispersal power, ecology, geographic distribution,

references); Brzoska, 2006: 33–34 (as *Neocicindela perhispidata giveni* [sic]; ecology, geographic distribution); Cassola & Moravec, 2010: 19 (as *Neocicindela perhispidata giveni*; ecology, geographic distribution).

**Remarks.** *Zecicindela giveni*, previously a subspecies of *Neocicindela perhispidata*, is removed from synonymy with it and given full species status based on the distinctiveness of the male genitalia and other characters of the external morphology.

*Zecicindela giveni* is morphologically close to *Z. savilli* but it has the following distinguishing features: elytra with dark areas on each side of suture forming a wide-based upside-down triangle and cream-coloured pale markings; main shaft of aedeagus less concave dorsomedially and apex rounded.

This species has narrow ecological preferences and geographic distribution, occurring only on the cream-coloured sand beaches and dunes at the top of the Aupouri Peninsula in northern Northland (ND).

### *Zecicindela savilli* (Wiesner, 1988) <sup>E</sup> new combination and status

Figures 56, 156; Map p. 184

**Common name.** Savill's Tiger Beetle.

*Neocicindela perhispidata savilli*: as a junior synonym of *Cicindela* (*Neocicindela*) *perhispidata giveni* (Larochelle & Larivière, 2001: 38).

**Description.** Body length: 9.0–10.0 mm. Head, pronotum, and dark areas of elytra purple red. Pale markings of elytra white, very wide, fused together, covering most of elytra, maculate. Dark areas of elytra on each side of suture forming a narrow-based upside-down triangle (wide-based in *Z. giveni*). Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas granulate, sparsely covered with minute coppery-green punctures, with sparse medium-sized green foveae. Dark areas of elytra very shiny, with coppery-green metallic lustre. **Head.** Labrum quadrisetose or sexsetose anteriorly. Antennal segment 1 (scape) with 18–22 setiferous pores. **Thorax.** Pronotum (Fig. 156) subquadrate; sides moderately rounded; lateral margins simple. Proepisterna and metepisterna setose. **Legs.** Tarsal claws about as long as tarsal segment 5. **Elytra.** Sides subparallel. Apices strongly serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 56). Lateral view: main shaft more concave dorsomedially than in *Z. giveni*; apex triangular.

**References.** Larochelle & Larivière, 2001: 38 (as a junior synonym of *Cicindela* (*Neocicindela*) *perhispidata giveni*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Cassola & Moravec, 2010: 19 (as a junior synonym of *Neocicindela perhispidata giveni*; ecology, geographic distribution, taxonomy).

**Remarks.** Savill (1999: 129) did not provide any justification for placing *Neocicindela perhispidata savilli* as a junior synonym of *N. perhispidata giveni*. After careful consideration of Wiesner (1988)'s original description, including drawings from type specimens (Fig. 14–17), and study of further material from New Zealand collections, *Neocicindela perhispidata savilli* is hereby removed from synonymy with *N. perhispidata giveni* (= *Z. giveni*) and is afforded full species status.

*Zecicindela savilli* is morphologically close to *Z. giveni* but it has the following distinguishing features: elytra with dark areas on each side of suture forming a narrow-based upside-down triangle and white pale markings; main shaft of aedeagus more concave dorsomedially and apex triangular.

*Zecicindela savilli* has narrow ecological preferences and geographic distribution, occurring only on the white quartz sand beaches and dunes of central Aupouri Peninsula in northern Northland (ND).

### *Zecicindela brevilunata* (Horn, 1926) <sup>E</sup> new combination

Figures 57, 157; Map p. 183

**Common name.** Hieroglyphic Tiger Beetle.

*Cicindela* (*Neocicindela*) *brevilunata*: Larochelle & Larivière, 2001: 36 and 2007a: 110.

*Neocicindela brevilunata*: Lorenz, 2005: 61; Brzoska, 2006: 35; Cassola & Moravec, 2010: 19.

**Description.** Body length: 7.5–9.4 mm. Head, pronotum, and dark areas of elytra testaceous to purple red. Pale markings of elytra white, very wide, immaculate; humeral lunule incomplete, fused with marginal line; middle band complete, angular, extending beyond base of apical lunule (middle band shorter than in *Z. perhispidata*); marginal line fused with apical lunule. Dark area of elytra behind humeral lunule truncate laterally (lanceolate in *Z. perhispidata*). Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas granulate, sparsely covered with minute green punctures, with sparse medium-sized green foveae. Dark areas of elytra very shiny, with bronze or green metallic lustre. **Head.** Labrum sexsetose anteriorly. Antennal segment 1 (scape) with about 20 setiferous pores. **Thorax.** Pronotum (Fig. 157) subquadrate; sides moderately rounded; lateral margins simple. Proepisterna and metepisterna setose. **Legs.** Tarsal claws about as long as tarsal segment 5. **Elytra.** Sides subparallel. Apices strongly serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 57).

**References.** Larochelle & Larivière, 2001: 36 (as *Cicindela* (*Neocicindela*) *brevilunata*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 35 (as *Neocicindela brevilunata*; ecology, geographic distribution); Cassola & Moravec,

2010: 19 (as *Neocicindela brevilunata*; ecology, geographic distribution).

### *Zecicindela campbelli* (Broun, 1886) <sup>E</sup> new combination and status

Figures 58, 158; Map p. 183

**Common name.** Campbell's Tiger Beetle.

*Cicindela* (*Neocicindela*) *perhispidata campbelli*: Larochelle & Larivière, 2001: 38 and 2007a: 110.

*Neocicindela perhispidata campbelli*: Lorenz, 2005: 61; Brzoska, 2006: 33; Pons *et al.*, 2011: 254.

*Cicindela campbelli*: as a junior synonym of *Neocicindela perhispidata perhispidata*; Cassola & Moravec, 2010: 18.

**Description.** Body length: 8.4–10.7 mm. Head, pronotum, and dark areas of elytra blackish brown. Pale markings of elytra yellowish, narrow, immaculate; humeral lunule complete, separated from marginal line; middle band complete, angular-jagged, extending beyond base of apical lunule; marginal line fused with apical lunule. Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas granulate, sparsely covered with minute green or blue punctures, with sparse medium-sized green foveae. Dark areas of elytra moderately shiny, with coppery-green metallic lustre. **Head.** Labrum quadrisetose or sexsetose anteriorly. Antennal segment 1 (scape) with 15–22 setiferous pores. **Thorax.** Pronotum (Fig. 158) subquadrate; sides moderately rounded; lateral margins simple. Proepisterna and metepisterna setose. **Legs.** Tarsal claws about as long as tarsal segment 5. **Elytra.** Sides subparallel. Apices strongly serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 58). Lateral view: main shaft more angular dorsally than in *Z. perhispidata*.

**References.** Larochelle & Larivière, 2001: 38 (as *Cicindela* (*Neocicindela*) *perhispidata campbelli*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 33 (as *Neocicindela perhispidata campbelli*; ecology, geographic distribution); Cassola & Moravec, 2010: 18–19 (as a junior synonym of *Neocicindela perhispidata perhispidata*; ecology, geographic distribution, taxonomy).

**Remarks.** *Zecicindela campbelli* is given full species status based on the distinctiveness of the male genitalia and other characters of the external morphology. This species is morphologically close to *Z. perhispidata* but has the following distinguishing features: head, pronotum, and dark areas of elytra blackish brown; elytra with pale markings narrow, humeral lunule separated from marginal line, middle band jagged; main shaft of aedeagus more angular dorsally.

This species has narrow ecological preferences and geographic distribution, occurring only on black iron-sand beaches and dunes along the west coast of the Auckland (AK) and Waikato (WO) regions.

***Zecicindela perhispid* (Broun, 1880)<sup>E</sup> new  
combination and status**

Figures 59, 159; Map p. 184

**Common name.** Hispid Tiger Beetle.

*Cicindela* (*Neocicindela*) *perhispid* *perhispid*: Laroche & Larivière, 2001: 38 and 2007a: 111.

*Neocicindela perhispid* *perhispid*: Lorenz, 2005: 61; Brzoska, 2006: 33; Cassola & Moravec, 2010: 18.

**Description.** Body length: 8.5–10.3 mm. Head, pronotum, and dark areas of elytra greenish bronze. Pale markings of elytra cream-coloured, very wide, immaculate; humeral lunule complete, fused with marginal line; middle band complete, angular, extending beyond base of apical lunule (middle band longer than in *Z. brevilunata*); marginal line fused with apical lunule. Dark area of elytra behind humeral lunule lanceolate laterally (truncate in *Z. brevilunata*). Antennae dark; femora dark, tibiae and tarsi mostly pale. Elytral sculpture: dark areas granulate, sparsely covered with minute coppery-green punctures, with sparse medium-sized green foveae. Dark areas of elytra very shiny, with coppery-green metallic lustre. **Head.** Labrum quadrisetose or sexsetose anteriorly. Antennal segment 1 (scape) with 18–22 setiferous pores. **Thorax.** Pronotum (Fig. 159) subquadrate; sides moderately rounded; lateral margins simple. Proepisterna and metepisterna setose. **Legs.** Tarsal claws about as long as tarsal segment 5. **Elytra.** Sides subparallel. Apices strongly serrulate. **Abdomen.** Sterna setose. **Aedeagus** (Fig. 59). Lateral view: main shaft straighter dorsally than in *Z. campbelli*.

**References.** Laroche & Larivière, 2001: 38–39 (as *Cicindela* (*Neocicindela*) *perhispid* *perhispid*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Brzoska, 2006: 33 (as *Neocicindela perhispid* *perhispid*; ecology, geographic distribution); Cassola & Moravec, 2010: 18–19 (as *Neocicindela perhispid* *perhispid*; ecology, geographic distribution).

**Remarks.** *Zecicindela perhispid* is given full species status based on the distinctiveness of the male genitalia and other characters of the external morphology. This species is morphologically close to *Z. campbelli* but has the following distinguishing features: head, pronotum, and dark areas of elytra greenish bronze; elytra with pale markings very wide, humeral lunule fused with marginal line, middle band regular (not jagged); main shaft of aedeagus straighter dorsally.

This species has narrow ecological preferences and geographic distribution, occurring only on yellow sand beaches and dunes along the west coast of the Auckland (AK) and Northland (ND) regions.

**Subfamily CARABINAE**

**Tribe CARABINI**

(deleted from the fauna)

***Carabus* (*Archicarabus*) *nemoralis* O.F. Müller, 1764<sup>A</sup>**

**Remarks.** Spiller (1949: 137) and Laroche & Larivière (2001: 35) catalogued this adventive species found in 1948 in Avondale, AK. Laroche & Larivière (2007a: 27) questioned the establishment of *C. nemoralis* in New Zealand. To date no record from New Zealand entomological collections can support the presence of this European taxon in this country.

**Tribe PAMBORINI**

**Reference.** Laroche & Larivière, 2007a: 28 (description).

**Remarks.** A single well-known species of Pamborini occurs in New Zealand. *Maoripamborus fairburni* Brookes, 1944 is redescribed and illustrated here.

**Genus *Maoripamborus* Brookes, 1944<sup>E</sup>**

Figures 60, 160, Map p. 174

**References.** Laroche & Larivière, 2001: 35 (catalogue), 2007a: 28 (description, ecology, geographic distribution, references).

***Maoripamborus fairburni* Brookes, 1944<sup>E</sup>**

Figures 60, 160; Map p. 174

**Common name.** Fairburn's Snail-eater.

**Description.** Body length: 19.0–21.0 mm. Dark violaceous; sides of thorax and elytra greenish; antennae rufopiceous; femora and tibiae dark violaceous; tarsi rufopiceous. Microsculpture obsolete and transverse on head and pronotum, strong and isodiametric on elytra. Iridescence absent. Very shiny, with metallic lustre (greenish, violaceous). **Head.** Very narrow, impunctate, wrinkled. Eyes very large and convex. **Thorax.** Pronotum elongate, convex, impunctate, wrinkled; apex emarginate; sides moderately rounded, sinuate posteriorly, explanate; lateral beads narrow; posterolateral angles rectangular; laterobasal foveae deep, elongate. **Legs.** Segments 1–4 of male protarsi strongly dilated. **Elytra.** Convex, subovate, widest in front of middle. Shoulders rounded. Base truncate. Sides rounded, explanate. Striae deep. Intervals slightly to strongly convex from base to apex. Apices angularly rounded. **Aedeagus.** Lateral view (Fig. 60): strongly arcuate; apical half very wide, subtriangular; apex notched and dentate ventrally. Dorsal view: asymmetrical (ostium

deflected to the right); apex wide, rounded, dentate laterally, deflected to the right. Parameres subequal in length; apex attenuate, glabrous.

**Geographic distribution** (Map p. 174). North Island: AK (Hunua), central ND.

**Reference.** Laroche & Larivière, 2001: 35 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

## Subfamily MIGADOPINAE

### Tribe AMAROTYPINI

**Reference.** Laroche & Larivière, 2007a: 29 (description).

**Remarks.** The tribe is being revised by P. M. Johns (Canterbury Museum, Christchurch). A few genera and numerous species await description. A single species, *Amarotypus edwardsii* Bates, 1872 is known so far from New Zealand. It is listed and illustrated here.

### Genus *Amarotypus* Bates, 1872

Figure 161, Map p. 170

**References.** Laroche & Larivière, 2001: 40 (catalogue), 2007a: 29 (description, ecology, geographic distribution, references).

### *Amarotypus edwardsii* Bates, 1872 <sup>E</sup>

Figure 161; Map p. 170

**Reference.** Laroche & Larivière, 2001: 40 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

### Tribe MIGADOPINI

**References.** Laroche & Larivière, 2007a: 29 (description; key to genera); Johns, 2010 (revision; key to genera).

**Remarks.** The New Zealand Migadopini have recently been recently revised by Johns (2010). An alphabetical list of Migadopini taxa, habitus photos, and species distribution maps are provided here.

### Genus *Calathosoma* Jeannel, 1938 <sup>E</sup>

Figure 162; Map p. 170

**References.** Laroche & Larivière, 2001: 40 (catalogue), 2007a: 30 (description, ecology, geographic distribution, references); Johns, 2010: 43 (taxonomy).

### *Calathosoma rubromarginatum* (Blanchard, 1843) <sup>E</sup>

Figure 162; Map p. 170

**References.** Laroche & Larivière, 2001: 40 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Johns, 2010: 43 (geographic distribution, taxonomy).

### Genus *Loxomerus* Chaudoir, 1842 <sup>E</sup>

Figures 163–165; Maps p. 174

*Heterodactylus* Guérin-Méneville, 1841b: 213. Type species: *Heterodactylus nebricides* Guérin-Méneville, 1841b (*nec Heterodactylus* Spix, 1825), by monotypy. Synonymised by Chaudoir, 1861: 514.

*Loxomerus* Chaudoir, 1842: 851. Type species: *Loxomerus nebricides* Chaudoir, 1842, by monotypy.

*Pristancylus* Blanchard, 1853: 22. Type species: *Pristonychus brevis* Blanchard, 1843, designated by Jeannel, 1938b: 13. Synonymised by Johns, 2010: 43.

*Loxomerus* (*Pristancylus*): Jeannel, 1938b: 13.

**References.** Laroche & Larivière, 2001: 41–42 (catalogue), 2007a: 30 (description, ecology, geographic distribution, references); Johns, 2010: 43–46 (revision; key to species).

**Remark.** *Pristancylus* Blanchard, 1853, previously regarded as a subgenus of *Loxomerus*, was synonymised by Johns (2010: 43).

### *Loxomerus brevis* (Blanchard, 1843) <sup>E</sup>

Figure 163; Map p. 174

**References.** Laroche & Larivière, 2001: 41–42 (as *Loxomerus* (*Pristancylus*) *brevis*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Johns, 2010: 45–46 (ecology, geographic distribution, taxonomy).

### *Loxomerus huttoni* (Broun, 1902) <sup>E</sup>

Map p. 174

**References.** Laroche & Larivière, 2001: 42 (as *Loxomerus* (*Pristancylus*) *huttoni*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Johns, 2010: 45 (ecology, geographic distribution, taxonomy).

### *Loxomerus katote* Johns, 2010 <sup>E</sup>

Figure 164; Map p. 174

*Loxomerus katote* Johns, 2010: 43–44.

**Reference.** Johns, 2010: 43–45 (ecology, geographic distribution, taxonomy).

***Loxomerus nebrionides* (Guérin-Méneville, 1841) <sup>E</sup>**

Figure 165; Map p. 174

**References.** Larochelle & Larivière, 2001: 41 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Johns, 2010: 43 (taxonomy).

**Genus *Taenarthrus* Broun, 1914 <sup>E</sup>**

Figures 166–177; Maps p. 179–180

*Taenarthrus* Broun, 1914a: 85. Type species: *Taenarthrus philpotti* Broun, 1914a, by monotypy. Synonymised with *Loxomerus* by Larochelle & Larivière, 2007a: 30; resurrected from synonymy by Johns, 2010: 46.

**References.** Larochelle & Larivière, 2001: 42 (catalogue), 2007a: 30 (as a synonym of *Loxomerus*; description, ecology, geographic distribution, references); Johns, 2010: 46–62 (revision; partial identification table).

***Taenarthrus aenigmaticus* Johns, 2010 <sup>E</sup>**

Figure 166; Map p. 179

*Taenarthrus aenigmaticus* Johns, 2010: 58.

**Reference.** Johns, 2010: 58 (geographic distribution, taxonomy).

***Taenarthrus aquatilis* Johns, 2010 <sup>E</sup>**

Figure 167; Map p. 179

*Taenarthrus aquatilis* Johns, 2010: 49.

**Reference.** Johns, 2010: 49, 51 (geographic distribution, taxonomy).

***Taenarthrus capito* (Jeannel, 1938) <sup>E</sup>**

Figure 168; Map p. 179

*Loxomerus* (*Pristancylus*) *capito* Jeannel, 1938b: 17. Type locality: Lake Nakatipu [=Wakatipu], OL.

*Taenarthrus capito*: Larochelle & Larivière, 2001: 42; Johns, 2010: 59.

*Loxomerus* (*Pristancylus*) *capito*: Larochelle & Larivière, 2007a: 112.

**References.** Larochelle & Larivière, 2001: 42 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Johns, 2010: 59–60 (ecology, geographic distribution, taxonomy).

***Taenarthrus curvispinatus* Johns, 2010 <sup>E</sup>**

Figure 169; Map p. 179

*Taenarthrus curvispinatus* Johns, 2010: 51, 53.

**Reference.** Johns, 2010: 51, 53 (ecology, geographic distribution, taxonomy).

***Taenarthrus gelidimontanus* Johns, 2010 <sup>E</sup>**

Figure 170; Map p. 179

*Taenarthrus gelidimontanus* Johns, 2010: 49.

**Reference.** Johns, 2010: 49 (geographic distribution, taxonomy).

***Taenarthrus latispinatus* Johns, 2010 <sup>E</sup>**

Figure 171; Map p. 179

*Taenarthrus latispinatus* Johns, 2010: 51.

**Reference.** Johns, 2010: 51 (ecology, geographic distribution, taxonomy).

***Taenarthrus lissus* Johns, 2010 <sup>E</sup>**

Figure 172; Map p. 179

*Taenarthrus lissus* Johns, 2010: 47.

**Reference.** Johns, 2010: 47, 49 (geographic distribution, taxonomy).

***Taenarthrus minor* Johns, 2010 <sup>E</sup>**

Figure 173; Map p. 180

*Taenarthrus minor* Johns, 2010: 61.

**Reference.** Johns, 2010: 61–62 (geographic distribution, taxonomy).

***Taenarthrus obliterated* Johns, 2010 <sup>E</sup>**

Figure 174; Map p. 180

*Taenarthrus obliterated* Johns, 2010: 53.

**Reference.** Johns, 2010: 53, 55–56 (ecology, geographic distribution, taxonomy).

***Taenarthrus pakinius* Johns, 2010 <sup>E</sup>**

Figure 175; Map p. 180

*Taenarthrus pakinius* Johns, 2010: 56.

**Reference.** Johns, 2010: 56–57 (ecology, geographic distribution, taxonomy).

***Taenarthrus philpotti* Broun, 1914 <sup>E</sup>**

Figure 176; Map p. 180

*Taenarthrus philpotti* Broun, 1914a: 85. Type locality: Hump Ridge, Southland [FD].

*Loxomerus* (*Pristancylus*) *philpotti*: Larochelle & Larivière, 2007a: 112.

*Taenarthrus philpotti*: Johns, 2010: 47.

**References.** Larochelle & Larivière, 2001: 42 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Johns, 2010: 47 (ecology, geographic distribution, taxonomy).

***Taenarthrus pluriciliatus* Johns, 2010<sup>E</sup>**

Map p. 180

*Taenarthrus pluriciliatus* Johns, 2010: 57.

**Reference.** Johns, 2010: 57 (geographic distribution, taxonomy).

***Taenarthrus ruaumokoi* Johns, 2010<sup>E</sup>**

Figure 177; Map p. 180

*Taenarthrus ruaumokoi* Johns, 2010: 60.

**Reference.** Johns, 2010: 60–61 (geographic distribution, taxonomy).

**Subfamily SCARITINAE****Tribe CLIVININI**

**Reference.** Larochelle & Larivière, 2007a: 31 (description).

**Remarks.** Clivinini species occurring in New Zealand are introduced from Australia and belong to the genus *Clivina* Latreille, 1802. Australasian members of the tribe Clivinini are being revised by M. Baehr (Zoologische Staatssammlung, München, Germany). Results of this research may affect the composition of the New Zealand fauna. In the meantime, an alphabetical checklist of species currently recorded for this country together with habitus photos and distribution maps is provided here.

**Subtribe CLIVININA**

**Reference.** Larochelle & Larivière, 2007a: 31 (description).

**Genus *Clivina* Latreille, 1802<sup>A</sup>**

Figures 178–181; Maps p. 170

**References.** Larochelle & Larivière, 2001: 42–44 (catalogue), 2007a: 31 (description, ecology, geographic distribution, references).

***Clivina australasiae* Boheman, 1858<sup>A</sup>**

Figure 178; Map p. 170

**Reference.** Larochelle & Larivière, 2001: 43 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

***Clivina basalis* Chaudoir, 1843<sup>A</sup>**

Figure 179; Map p. 170

**Reference.** Larochelle & Larivière, 2001: 43–44 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

***Clivina heterogena* Putzeys, 1866<sup>A</sup>**

Figure 180; Map p. 170

**Reference.** Larochelle & Larivière, 2001: 44 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

***Clivina vagans* Putzeys, 1866<sup>A</sup>**

Figure 181; Map p. 170

**Reference.** Larochelle & Larivière, 2001: 43–44 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Tribe RHYSDINI**

**References.** Bell, 1998: 261–272 (higher classification, phylogeny); Bell & Bell, 1978: 43–88, 1979: 377–446, 1982: 127–259, 1985: 1–171 (higher classification, revisions), and 1991: 179–210 (Australia, revision); Watt, 1980: 31–32 (geographic distribution, key to genera and species); Emberson, 1995: 9–14 (genus *Kaveinga*; geographic distribution, key to species, taxonomy); Bell, 1998: 261–271 (higher classification); Lorenz, 2005: 156–159 (world catalogue); Bell & Bell, 2009: 45–77 (higher classification, taxonomy); Erwin, 2011: 245–275 (higher classification).

**Remarks.** This group of beetles has long been considered a distinct family, although Bell & Bell (1995) interpreted them to be highly modified Carabidae. Bell (1998) provided evidence that they belong within the subfamily Scaritinae. This classification was adopted by Lorenz (2005), but did not receive wide acceptance among carabidologists until Bell & Bell (2009) confirmed their tribal placement within Carabidae, which Erwin (2011) adopted in his *Treatise of the Western Hemisphere Caraboidea*. This position is also adopted here. Consequently, the Rhysodini are catalogued as a tribe of Carabidae for the first time for New Zealand.

The world Rhysodini were revised by Bell & Bell between 1970 and 2009. New Zealand taxa were also keyed by Watt (1980) except for *Kaveinga bellorum* described later by Emberson (1995), who provided a new key for the species of this genus. All New Zealand rhysodines occur in rotten wood.

An alphabetical list of Rhysodini taxa, habitus photos, and species distribution maps are provided here.

### Subtribe DHYSORINA

**Reference.** Bell & Bell, 1978: 53–56 (higher classification).

#### Genus *Tangarona* Bell & Bell, 1982<sup>E</sup>

Figure 187; Map p. 180

**References.** Bell & Bell, 1982: 253 (taxonomy); Lorenz, 2005: 156 (world catalogue).

#### *Tangarona pensa* (Broun, 1880)<sup>E</sup>

Figure 187; Map p. 180

**References.** Bell & Bell, 1979: 381 (as *Tangaroa pensus*; geographic distribution, nomenclature), 1982: 253 (taxonomy); Emberson, 1995: 12 (geographic distribution, nomenclature); Lorenz, 2005: 156 (world catalogue).

### Subtribe RHYSODINA

**Reference.** Bell & Bell, 1978: 56–59 (higher classification).

#### Genus *Kupeus* Bell & Bell, 1982<sup>E</sup>

Figure 185; Map p. 173

**References.** Bell & Bell, 1982: 253–254 (taxonomy); Lorenz, 2005: 156 (world catalogue).

#### *Kupeus arcuatus* (Chevrolat, 1873)<sup>E</sup>

Figure 185; Map p. 173

**References.** Bell & Bell, 1979: 388–389 (as *Kupea arcuatus*; geographic distribution, taxonomy), 1982: 253–254 (taxonomy); Lorenz, 2005: 156 (world catalogue).

#### Genus *Kaveinga* Bell & Bell, 1978<sup>N</sup>

Figures 182–184; Map p. 172

**References.** Bell & Bell, 1978: 58–59 (key to species; taxonomy), 1979: 389–408 (revision); Emberson, 1995: 9–14 (description, ecology, geographic distribution, key to species, taxonomy); Lorenz, 2005: 156 (world catalogue).

#### Subgenus *Ingevaka* Bell & Bell, 1979<sup>N</sup>

**References.** Bell & Bell, 1979: 394–408 (taxonomy); Lorenz, 2005: 156 (world catalogue).

#### *Kaveinga (Ingevaka) bellorum* Emberson, 1995<sup>E</sup>

Figure 182; Map p. 172

**References.** Emberson, 1995: 9–14 (ecology, geographic distribution, taxonomy); Lorenz, 2005: 156 (world catalogue).

#### *Kaveinga (Ingevaka) orbitosa* (Broun, 1880)<sup>E</sup>

Figure 184; Map p. 172

**References.** Bell & Bell, 1979: 394–395 (geographic distribution; taxonomy); Emberson, 1995: 13 (geographic distribution, nomenclature); Lorenz, 2005: 156 (world catalogue).

#### Subgenus *Vakeinga* Bell & Bell, 1979<sup>N</sup>

**References.** Bell & Bell, 1979: 395–408 (taxonomy); Lorenz, 2005: 156 (world catalogue).

#### *Kaveinga (Vakeinga) lusca* (Chevrolat, 1875)<sup>E</sup>

Figure 183; Map p. 172

**References.** Bell & Bell, 1979: 396–397 (geographic distribution, taxonomy); Emberson, 1995: 13 (geographic distribution, nomenclature); Lorenz, 2005: 156 (world catalogue).

### Subtribe CLINIDIINA

**Reference.** Bell & Bell, 1978: 59–66 (higher classification).

#### Genus *Rhyzodiastes* Fairmaire, 1895<sup>N</sup>

Figure 186; Map p. 177

**References.** Bell & Bell, 1978: 61–62 (taxonomy), 1985: 6–59 (revision); Lorenz, 2005: 156 (world catalogue).

#### Subgenus *Rhyzoarca* Bell & Bell, 1985<sup>N</sup>

**References.** Bell & Bell, 1985: 8–11 (revision); Lorenz, 2005: 156 (world catalogue).

#### *Rhyzodiastes (Rhyzoarca) proprius* (Broun, 1880)<sup>E</sup>

Figure 186; Map p. 177

**References.** Bell & Bell, 1985: 9 (geographic distribution, taxonomy); Emberson, 1995: 13 (geographic distribution, taxonomy); Lorenz, 2005: 156 (world catalogue).

## Subfamily TRECHINAE

## Tribe MORIOMORPHINI

**Description** (New Zealand). Body length, 3.2–10.3 mm. Pedunculate or not. **Head.** Mandibles short to very long, with setiferous puncture in scrobe. Labrum truncate to strongly emarginate anteriorly. Clypeus with a setiferous puncture on each side. Antennae filiform or submoniliform; segments 1–3 usually glabrous (excluding apical setae); segment 2 densely pubescent in apical third (*Selenochilus*, *Trichopsida simplex*), with verticillate setae medially (*Selenochilus*); segment 3 densely pubescent (in apical third in *Selenochilus*; entirely in *Trichopsida simplex*). Eyes present; usually two supraorbital setiferous punctures on inner side, rarely with a single posterior puncture. Tempora inflated or not. Mentum tooth present medially, entire. Mentum-submentum suture present. Submentum with four setae. Ligula apically truncate, arcuate or conical, narrow or broad, bisetose. Palpi: terminal segment fusiform, rarely elliptical, glabrous or setulose; penultimate maxillary segment glabrous or setulose. **Thorax.** Pronotum usually with two setiferous punctures on each side (sometimes with a single anterior puncture, rarely without puncture). Scutellum entirely or partly visible, elongate or broad, inserted either partly between and above elytral bases, or entirely between elytral bases. **Legs.** Tarsi usually glabrous dorsally (pubescent in *Selenochilus*); segments 1–3 of male protarsi dilated and biserially pubescent ventrally; segment 4 of pro- and mesotarsi of both sexes bilobed (*Rossjoycea*, *Tarastethus*) or emarginate; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Usually fused along suture (hindwings vestigial), rarely free (hindwings fully developed; *Mecyclothorax*, in part). Stria 1 not recurrent apically. Discal setiferous punctures present or absent. Interval 8 carinate or not apically. Umbilicate series present, separated into two major groups (usually 7+6 setiferous punctures, sometimes 5+5 punctures, rarely 8+6 punctures). Radial field without fine dense pubescence. Sutural apices angular to rounded. Epipleura twisted (with inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only; last visible sternum (sternum VII) of male usually with two or four apical ambulatory setae, rarely with six setae; last visible sternum (sternum VII) of female usually with four apical ambulatory setae (rarely with six or eight setae) and usually with two medial setae (rarely with four setae). **Aedeagus** (Fig. 61–92). Base closed, bulbous. **Parameres.** Dissimilar in shape (right paramere smaller; left paramere elongate or conchiform, broader basally), glabrous or setulose.

**References.** Larivière & Larochelle, 2007a: 36–38, (as Mecyclothoracini, Meonini, Tropopterini; description). Liebherr, 2011a: 20–21 (description, higher classification), 2011b: 280–300 (higher classification, key to New Zealand subtribes and genera).

**Remarks.** Liebherr (2011a) recently synonymised the tribes Amblytelini, Melisoderini, Tropopterini, Mecyclothoracini, and Meonini under the tribe Moriomorphini.

The genera *Mecyclothorax*, *Meonochilus* (Amblytelina), and *Rossjoycea* (Moriomorphina) have been recently revised (Liebherr & Marris, 2009; Liebherr, 2011b); an alphabetical checklist of taxa with habitus photos and species distribution maps is provided here. A taxonomic revision of the genera *Selenochilus* (Amblytelina), *Molopsida*, *Tarastethus* (reinstated), and *Trichopsida* new genus (Moriomorphina), is presented below.

## Key to genera of Moriomorphini

- 1 Elytra with interval 8 carinate apically (Fig. 19) ..... 2  
 —Elytra with interval 8 not carinate apically (Fig. 20) 5
- 2(1) Terminal segment of palpi setulose (Fig. 21). Posterior bead of pronotum present (complete or interrupted medially; Fig. 23–24) .....  
 ..... (p. 62)... *Trichopsida* new genus
- Terminal segment of palpi glabrous (Fig. 22). Posterior bead of pronotum absent (Fig. 25) ..... 3
- 3(2) Segment 4 of pro- and mesotarsi of both sexes emarginate apically (cleft for less than half their length; Fig. 26–27) ..... (p. 48)... *Molopsida* White
- Segment 4 of pro- and mesotarsi of both sexes bilobed apically (cleft for more than half their length; Fig. 28) ..... 4
- 4(3) Elytra: stria 3 with three to five setiferous punctures; stria 5 with one or two setiferous punctures. Segment 5 of metatarsi with four pairs of ventral setae (Fig. 29). [Body length over 9.0 mm.] .....  
 ..... (p. 55)... *Rossjoycea* Liebherr
- Elytra: striae 3 and 5 without setiferous punctures. Segment 5 of metatarsi with a single pair of ventral setae (Fig. 30). [Body length under 7.0 mm.] .....  
 ..... (p. 56)... *Tarastethus* Sharp
- 5(1) Tarsi pubescent dorsally (Fig. 31). Labrum strongly emarginate (Fig. 33) anteriorly; anterior marginal setae not equidistant (four setae grouped medially). Antennae (Fig. 36): segment 2 densely pubescent in apical third, with verticillate setae medially; segment 3 densely pubescent in apical third .....  
 ..... (p. 42)... *Selenochilus* Chaudoir



—Tarsi glabrous dorsally (Fig. 32). Labrum moderately emarginate (Fig. 35) to truncate (Fig. 34) anteriorly; anterior marginal setae equidistant. Antennae (Fig. 38): segments 2–3 glabrous (excluding apical setae)

..... 6  
**6(5)** Pronotum with two setiferous punctures on each side (Fig. 39). Elytral scutellar striole long (Fig. 39) .....(p. 41)... *Mecyclothorax* Sharp

—Pronotum with a single setiferous puncture on each side (anteriorly; Fig. 40). Elytral scutellar striole short (Fig. 40) .....  
 .....(p. 41)... *Meonochilus* Liebherr & Marris

### Subtribe AMBLYTELINA

**Reference.** Liebherr, 2011b: 299–300 (higher classification).

#### Genus *Mecyclothorax* Sharp, 1903<sup>E</sup>

Figures 93–96, 188–191; Maps p. 174–175

**References.** Larochelle & Larivière, 2001: 61–63 (catalogue), 2007a: 36–37 (description, ecology, geographic distribution, references); Liebherr & Marris, 2009: 5–22 (revision; key to species).

#### *Mecyclothorax ambiguus* (Erichson, 1842)<sup>A</sup>

Figures 93, 188; Map p. 174

**References.** Larochelle & Larivière, 2001: 61 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Liebherr & Marris, 2009: 18–19 (ecology, geographic distribution, taxonomy).

#### *Mecyclothorax oopterooides* Liebherr & Marris, 2009<sup>E</sup>

Figures 94, 189; Map p. 175

*Mecyclothorax oopterooides* Liebherr & Marris, 2009: 12.

**Reference.** Liebherr & Marris, 2009: 12–15 (ecology, geographic distribution, taxonomy).

#### *Mecyclothorax otagoensis* Liebherr & Marris, 2009<sup>E</sup>

Figures 95, 190; Map p. 175

*Mecyclothorax otagoensis* Liebherr & Marris, 2009: 15.

**Reference.** Liebherr & Marris, 2009: 15–16 (ecology, geographic distribution, taxonomy).

#### *Mecyclothorax rotundicollis* (White, 1846)<sup>E</sup>

Figures 96, 191; Map p. 175

**References.** Larochelle & Larivière, 2001: 62–63 (catalogue; biology, dispersal power, ecology, geographic dis-

tribution, references); Liebherr & Marris, 2009: 16–18 (ecology, geographic distribution, taxonomy).

#### Genus *Meonochilus* Liebherr & Marris, 2009<sup>E</sup>

Figures 97–102, 192–197; Maps p. 175

*Meonochilus* Liebherr & Marris, 2009: 7. Type species: *Tarastethus amplipennis* Broun, 1912, by original designation.

**References.** Larochelle & Larivière, 2001: 61–62 (as *Mecyclothorax*, in part; catalogue), 2007a: 36–37 (as *Mecyclothorax*, in part; description, ecology, geographic distribution, references); Liebherr & Marris, 2009: 7–10 (taxonomy); Liebherr, 2011b: 308–330 (revision; key to species).

#### *Meonochilus amplipennis* (Broun, 1912)<sup>E</sup>

Figures 97, 192; Map p. 175

*Tarastethus amplipennis amplipennis* Broun, 1912: 386. Type locality: Raurimu, TO.

*Tarastethus amplipennis labralis* Broun, 1912: 387. Type locality: Raurimu, TO. Synonymised by Liebherr, 2011b: 321.

*Molopsida amplipennis amplipennis*: Britton, 1940: 477.

*Molopsida amplipennis labralis*: Britton, 1940: 477.

*Mecyclothorax amplipennis amplipennis*: Larochelle & Larivière, 2001: 61.

*Mecyclothorax amplipennis labralis*: Larochelle & Larivière, 2001: 62.

*Meonochilus amplipennis amplipennis*: Liebherr & Marris, 2009: 10.

*Meonochilus amplipennis labralis*: Liebherr & Marris, 2009: 10.

**References.** Larochelle & Larivière, 2001: 61–62 (as *Mecyclothorax amplipennis amplipennis* & *M. amplipennis labralis*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Liebherr & Marris, 2009: 10 (taxonomy); Liebherr, 2011b: 321–324 (ecology, geographic distribution, taxonomy).

#### *Meonochilus bellorum* Liebherr, 2011<sup>E</sup>

Figures 98, 193; Map p. 175

*Meonochilus bellorum* Liebherr, 2011b: 314.

**Reference.** Liebherr, 2011b: 314–318 (ecology, geographic distribution, taxonomy).

#### *Meonochilus eplicatus* (Broun, 1923)<sup>E</sup>

Figures 99, 194; Map p. 175

*Tarastethus eplicatus* Broun, 1923: 675. Type locality: Pakarau [=Pekerau], ND.

*Molopsida eplicata*: Britton, 1940: 477.

*Mecyclothorax eplicatus*: Larochelle & Larivière, 2001: 62.

*Meonochilus eplicatus*: Liebherr & Marris, 2009: 10.

**References.** Larochelle & Larivière, 2001: 62 (as *Mecyclothorax eplicatus*; catalogue; biology, dispersal power,

ecology, geographic distribution, references); Liebherr & Marris, 2009: 10 (taxonomy); Liebherr, 2011b : 321–325–328 (ecology, geographic distribution, taxonomy).

### ***Meonochilus placens* (Broun, 1880) <sup>E</sup>**

Figures 100, 195; Map p. 175

*Tropopterus placens* Broun, 1880: 28. Type locality: Near Whangarei Heads, ND.

*Tarastethus placens*: Sharp, 1886: 373.

*Molopsida placens*: Britton, 1940: 477.

*Mecyclothorax placens*: Larochelle & Larivière, 2001: 62.

*Meonochilus placens*: Liebherr & Marris, 2009: 10.

**References.** Larochelle & Larivière, 2001: 62 (as *Mecyclothorax placens*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Liebherr & Marris, 2009: 10 (taxonomy); Liebherr, 2011b: 321, 329–330 (ecology, geographic distribution, taxonomy).

### ***Meonochilus rectus* Liebherr, 2011 <sup>E</sup>**

Figures 101, 196; Map p. 175

*Meonochilus rectus* Liebherr, 2011b: 320.

**Reference.** Liebherr, 2011b: 320–321 (ecology, geographic distribution, taxonomy).

### ***Meonochilus spiculatus* Liebherr, 2011 <sup>E</sup>**

Figures 102, 197; Map p. 175

*Meonochilus spiculatus* Liebherr, 2011b: 318.

**Reference.** Liebherr, 2011b: 318–320 (ecology, geographic distribution, taxonomy).

## **Genus *Selenochilus* Chaudoir, 1878 <sup>E</sup>**

Figures 61–65, 103–109, 198–204; Maps p. 178–179

*Selenochilus* Chaudoir, 1878: 21. Type species: *Argutor erythropus* Blanchard, 1843, by monotypy.

*Sympiestus* Sharp, 1886: 372. Type species: *Sympiestus synteticus* Sharp, 1886, by monotypy. Synonymised by Britton, 1940: 477; synonymy subsequently confirmed by Moore, 1963: 288.

**Description.** Body: length 4.8–7.6 mm; pedunculate. Colour mostly dark. Dorsal surface mostly glabrous. Microsculpture absent on head, present or absent on pronotum, present on elytra. Iridescence absent on head and pronotum, rarely present on elytra. Metallic lustre absent. **Head.** Mandibles very long. Labrum strongly emarginate anteriorly; anterior marginal setae not equidistant (four setae grouped medially). Antennae submoniliform; segment 1 glabrous (excluding apical setae); segment 2 densely pubescent in apical third, with verticillate setae medially; segment 3 densely pubescent in apical third. Eyes normally

developed (slightly reduced in *S. ruficornis*), convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea absent. Tempora inflated or not. Mentum deeply depressed, excavated laterally; median tooth obtuse apically, moderately shorter than lateral lobes; outer side of lateral lobes oblique. Ligula conical and narrow apically. Paraglossae setose. Palpi: terminal segment fusiform, elliptical, setulose; penultimate maxillary segment setulose. **Thorax.** Pronotum (Fig. 103–109) slightly to moderately transverse, cordate, subrectangular or subquadrate; anterior bead absent or incomplete (broadly interrupted medially); two setiferous punctures on each side; posterolateral angles rectangular, acute or obtuse; laterobasal foveae present, deep, sulcate; posterior bead absent; base about as wide as apex. Scutellum partly visible, broad, inserted partly between and above elytral bases. Metepisterna short, subquadrate. **Legs.** Tarsi pubescent dorsally and ventrally (segment 5 of metatarsi with two pairs of ventral setae); segment 4 of pro- and mesotarsi emarginate apically (cleft for less than half their length). **Elytra.** Depressed to moderately convex, oblong, subovate or elongate-oblong. Basal margin incomplete, reaching level of stria 4 or 5. Shoulders normally developed, obtuse. Scutellar setiferous pore present (inserted at base of stria 2) or absent. Scutellar striole absent. Striae present, complete or incomplete (striae 5–7 obsolete), punctate. Striae 3 and 5 without setiferous punctures. Interval 8 not carinate apically. Umbilicate series separated into two major groups (5+5 setiferous punctures), with posterior group continuous. Sutural apices angular. **Abdomen.** Sterna punctate, unwrinkled. Last visible segment (sternum VII): male and female with four apical ambulatory setae. **Aedeagus.** Lateral view (Fig. 61–65): moderately or strongly arcuate; apex narrow or very wide, projecting ventrally. Dorsal view: asymmetrical (ostium deflected to the left); apex deflected to the left. **Parameres.** Left paramere conchiform, setulose (with a few short setae at apex); right paramere setulose (with numerous short ventral setae in apical half).

**References.** Larochelle & Larivière, 2001: 63–64 (catalogue), 2007a: 37 (description, ecology, geographic distribution, references); Liebherr & Marris, 2009: 9 (identification table).

**Remark.** Species of the genus *Selenochilus* share the following unique morphological features: labrum strongly emarginate anteriorly, with four anterior marginal setae grouped medially; antennal segment 2 with verticillate setae medially; ligula conical apically; laterobasal foveae of pronotum sulcate; tarsi setose dorsally; elytral umbilicate series of setiferous punctures separated into two major groups (5+5).

Key to species of *Selenochilus*

- 1 Elytral striae 5–7 obsolete ..... 2  
 —Elytral striae 5–7 complete, distinctly impressed ..... 5
- 2(1) Eyes (Fig. 198) prominent, strongly convex. Elytral striae 1–4 coarsely punctate; intervals 1–4 slightly convex, 5–7 depressed. Microsculpture absent on pronotum. [Body length: 6.4 mm; northern North Island (AK, Hunua).] .....(p. 43)... *oculator* (Broun)  
 —Eyes (Fig. 199–201) smaller, less convex. Elytral striae 1–4 finely punctate; intervals 1–7 depressed. Microsculpture present on pronotum. [South Island.] 3
- 3(2) Pronotum (Fig. 104) strongly cordate; posterolateral angles acute and projecting laterally. Elytra (Fig. 199): subovate; scutellar setiferous pore present; basal margin reaching level of stria 5. [Body length 7.0–7.1 mm; South Island (MC, Banks Peninsula).] .....(p. 44)... *hinewai* new species  
 —Pronotum (Fig. 105–106) slightly cordate or subrectangular; posterolateral angles rectangular or obtuse, not projecting laterally. Elytra (Fig. 200–201) oblong or elongate-oblong; scutellar setiferous pore absent; basal margin reaching level of stria 4 ..... 4
- 4(3) Pronotum (Fig. 105) subrectangular; basal constriction short; posterolateral angles rectangular. Elytra (Fig. 200) elongate-oblong, depressed dorsally, convex laterally, dull; microsculpture isodiametric; sides subparallel. Head impunctate or finely punctate in frontal furrows. [Body length 6.0–6.7 mm; South Island (MC, Banks Peninsula).] .....(p. 44)... *piceus* (Blanchard)  
 —Pronotum (Fig. 106) slightly cordate; basal constriction long; posterolateral angles slightly obtuse. Elytra (Fig. 201) oblong, slightly convex, shiny; microsculpture moderately transverse; sides moderately rounded. Head coarsely punctate in frontal furrows. [Body length 5.1–6.6 mm; northeastern South Island.] .....(p. 45)... *syntheticus* (Sharp)
- 5(1) Eyes (Fig. 202) slightly reduced, rather small and slightly convex. Pronotum (Fig. 107) subquadrate, slightly cordate; posterolateral angles obtuse. Elytra: striae shallow, impunctate or finely punctate; intervals depressed. Abdominal sterna finely punctate. [Body length 4.8–5.9 mm; southern North Island.] .....(p. 46)... *ruficornis* (Broun)  
 —Eyes (Fig. 203–204) normally developed, larger and more convex. Pronotum (Fig. 108–109) transverse, more strongly cordate; posterolateral angles rectangular or slightly acute and projecting laterally. Elytra: striae deep, coarsely punctate; intervals convex. Abdominal sterna coarsely punctate ..... 6

- 6(5) Femora and tibiae black or piceous black. Elytra (Fig. 203) moderately convex; sides moderately rounded; microsculpture present in basal half, moderately transverse. Pronotum (Fig. 108) slightly transverse; sides moderately rounded; posterolateral angles rectangular. [Body length 5.1–6.5 mm; southern North Island.] .....(p. 47)... *hutchisonae* new species  
 —Femora and tibiae infusate reddish. Elytra (Fig. 204) more strongly convex; sides more strongly rounded; microsculpture absent in basal half. Pronotum (Fig. 109) more strongly transverse; sides more strongly rounded; posterolateral angles slightly acute and projecting laterally. [Body length 6.7–7.6 mm; southern North Island.] .....(p. 47)... *omalleyi* new species

*Selenochilus oculator* (Broun, 1893)<sup>E</sup>

Figures 103, 198; Map p. 178

*Sympiestus oculator* Broun, 1893: 1398. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 2439. (hand-written) / Hunua (typed) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Sympiestus oculator*. (hand-written)". Condition: Excellent.

*Selenochilus oculator*: Britton, 1940: 477.

**Description.** Body: length 6.4 mm. Head, pronotum, elytra, and abdomen black; antennae, palpi, and tarsi reddish; femora and tibiae pale, infusate reddish. Microsculpture absent on head and pronotum, strong and isodiametric on elytra. Iridescence absent. Very shiny. **Head.** Impunctate and unwrinkled dorsally, narrower across eyes than pronotal apex. Frontal furrows wide, shallow. Eyes normally developed, very large, strongly convex. Tempora not inflated. **Thorax.** Pronotum (Fig. 103) slightly convex, finely punctate across base, wrinkled on disc, moderately transverse, slightly cordate; apex subtruncate; anterior bead incomplete, broadly interrupted medially; anterolateral angles poorly developed, obtusely rounded; sides slightly rounded anteriorly, slightly sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; basal constriction long; posterolateral angles acute and projecting laterally; base subtruncate, subdepressed, slightly narrower than elytral base. **Elytra.** Moderately convex, oblong, widest about middle. Basal margin reaching level of stria 4. Shoulders denticulate. Sides moderately rounded. Scutellar setiferous pore absent. Striae incomplete; striae 1–4 deep, coarsely punctate; striae 5–7 obsolete. Intervals 1–4 slightly convex, 5–7 depressed. **Aedeagus.** Male unknown.

**Material examined.** A single specimen (BMNH).

**Geographic distribution** (Map p. 178). North Island: AK–Hunua.

**Ecology.** Lowland. Probably silvicolous and nocturnal.

**Biology.** Seasonality: Unknown. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused along the suture. Subapterous. Moderate runner (based on body morphology). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 63 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remarks.** This species is known only from the holotype (BMNH) which is glued to a piece of cardboard. A number of characters from the underside of the body, were omitted from the above description for fear of causing damage to the type by ungluing it. *Selenochilus oculator* is easily separated from its congeners by its very large, strongly convex eyes.

### *Selenochilus hinewai*<sup>E</sup> new species

Figures 104, 199; Map p. 178

*Selenochilus hinewai* Larochelle & Larivière, new species.

Holotype: female (LUNZ) labelled “NEW ZEALAND, MC Banks Pen [=Peninsula], Hinewai Res [=Reserve] 7.II.1995 R.M. Henderson under logs and rocks in mixed forest (typed) / HOLOTYPE [female symbol] *Selenochilus hinewai* Larochelle & Larivière, 2013 (red label; typed).”

Paratype: one female (NZAC) from the same locality as the holotype, bearing blue paratype label.

**Description.** Body: length 7.0–7.1 mm. Head, pronotum, elytra, and abdomen black; lateral margins of elytra dark reddish apically; antennae, palpi, and legs pale, infusate reddish. Microsculpture absent on head, moderately transverse, feeble on pronotum, strong on elytra. Iridescence absent on head and pronotum, present in apical third of elytra. Very shiny. **Head.** Impunctate and unwrinkled dorsally, about as wide across eyes as pronotal apex. Frontal furrows wide, shallow. Eyes normally developed, moderately large, moderately convex. Tempora not inflated. Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 104) slightly convex, impunctate, unwrinkled, moderately transverse, strongly cordate; apex subtruncate; anterior bead absent (present, incomplete in other species); anterolateral angles poorly developed, rounded; sides strongly rounded anteriorly, strongly sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; basal constriction long; posterolateral angles acute and projecting laterally; base subtruncate, subdepressed, moderately narrower than elytral base. Prosternum impunctate,

unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna finely punctate. **Elytra.** Slightly convex, subovate, widest about middle. Basal margin reaching level of stria 5 (stria 4 in other species). Shoulders denticulate. Sides moderately rounded. Scutellar setiferous pore present. Striae incomplete; striae 1–4 shallow, finely punctate; striae 5–7 obsolete. Intervals depressed. **Abdomen.** Sterna finely punctate, unwrinkled. **Aedeagus.** Male unknown. **Material examined.** Two specimens (LUNZ, NZAC).

**Geographic distribution** (Map p. 178). South Island: MC–Banks Peninsula, Hinewai Scenic Reserve.

**Ecology.** Lowland (hills). A mixed forest. Shaded ground; dry soil. Nocturnal; hides during the day under logs and stones.

**Biology.** Seasonality: October, February. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused along the suture. Subapterous (hindwings vestigial). Moderate runner. Vagility limited by flight incapacity.

**Remarks.** The name of this taxon is based on the type locality, Hinewai Scenic Reserve (Banks Peninsula, MC). *Selenochilus hinewai* is morphologically close to *S. piceus* and *S. syntheticus*. In addition to diagnostic characters of the male genitalia *S. hinewai* has the following distinguishing features: pronotum strongly cordate, with sides strongly rounded anteriorly and strongly sinuate posteriorly, and posterolateral angles acute, projecting laterally; elytra subovate, with a scutellar setiferous pore and a short basal margin reaching the level of stria 5.

### *Selenochilus piceus* (Blanchard, 1843)<sup>E</sup>

Figures 61, 105, 200; Map p. 178

*Argutor erythropus* Blanchard, 1843: Plate 2, Figure 7 (re-described in 1853: 27). Holotype: sex undetermined “cette espèce a été prise à Akaroa [MC] (Nouvelle-Zélande)”. Secondary homonym of *Pterostichus erythropus* (Marshall, 1802). Synonymised by Chaudoir, 1878: 21.

*Argutor piceus* Blanchard, 1843: Plate 2, Figure 8 (re-described in 1853: 28). Holotype: sex undetermined “cette espèce comme la précédente a été recueillie à Akaroa [MC] (Nouvelle-Zélande)” (MNHN, could not be located).

*Feronia (Argutor) erythropus*: Lacordaire, 1854: 326.

*Feronia (Argutor) picea*: Lacordaire, 1854: 326.

*Selenochilus erythropus*: Chaudoir, 1878: 23.

*Sympiestus modestus* Broun, 1894: 311. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 2655. (hand-written) / [male symbol] (hand-written) / Canterbury (typed) / *Sympiestus modestus*. (hand-written)”. Condition: Excellent. Synonymised by Johns, 1986: 29.

*Selenochilus piceus*: Csiki, 1930: 736.

**Description.** Body: length 6.0–6.7 mm. Head, pronotum,

elytra, and abdomen piceous black; lateral margins of elytra dark reddish; antennae (except segment 1), palpi, and tarsi pale reddish; antennal segment 1, femora, and tibiae pale, red or infuscate red. Microsculpture absent on head, feeble and moderately transverse on pronotum, strong and isodiametric on elytra. Iridescence absent. Very shiny on head and pronotum, dull on elytra. **Head.** Impunctate or finely punctate in frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Frontal furrows wide, shallow. Eyes normally developed, moderately large, moderately convex. Tempora not inflated. Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 105) slightly convex, impunctate, unwrinkled, slightly transverse, subrectangular; apex subtruncate; anterior bead incomplete, broadly interrupted medially; anterolateral angles poorly developed, rounded; sides slightly rounded anteriorly, slightly sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; basal constriction short; posterolateral angles rectangular; base subtruncate, depressed, slightly narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate or finely punctate. **Elytra.** Depressed dorsally, convex laterally. Elongate-oblong. Widest about middle. Basal margin reaching level of stria 4. Shoulders denticulate. Sides subparallel. Scutellar setiferous pore absent. Striae incomplete; striae 1–4 deep, finely punctate; striae 5–7 obsolete. Intervals depressed. **Abdomen.** Sterna finely punctate, unwrinkled. **Aedeagus.** Lateral view (Fig. 61): strongly arcuate; dorsobasal blade present, wide; apex very wide, rounded, moderately projecting ventrally. Dorsal view: apex acute on the right side, rounded on the left.

**Material examined.** 15 specimens (AMNZ, BMNH, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 178). South Island: MC-Banks Peninsula: Ahuriri Reserve; Akaroa; Armstrong Reserve; Flea Bay/Pohatu; Le Bons Bay; Okains Bay; Panama Rock; The Kaik.

**Ecology.** Lowland (hills). Dry forests (broadleaf) and shrublands. Shaded ground; dry soil. Nocturnal; hides during the day under debris.

**Biology.** Seasonality: December. Predacious (based on mouthpart morphology). Occasionally infested with Laboulbeniales (Fungi).

**Dispersal power.** Elytra fused along the suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 63 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remarks.** The holotype of *Argutor piceus* could not be located in MNHN. Johns (1986) synonymised *Sympiestus modestus* with *Selenochilus piceus*. The authors are also confident that *S. modestus* is a synonym of *S. piceus*, based on Blanchard's original description and figure as well as their examination of the holotype of *Sympiestus modestus*.

### *Selenochilus syntheticus* (Sharp, 1886)<sup>E</sup>

Figures 62, 106, 201; Map p. 179

*Sympiestus syntheticus* Sharp, 1886: 373. Holotype: male (BMNH) labelled "Sympiestus syntheticus. Type D.S. Bealey N.Z. Helms. (hand-written on card mount) / Type H.T. (circular red-bordered label) / Bealey, New Zealand. Helms. / Sharp Coll. 1905-313." Condition: Very good; left antennal segments 7–11 missing.

*Sympiestus fallax* Broun, 1893: 1007. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 1805. (hand-written) / Castle Hill (typed) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Sympiestus fallax. (hand-written)". Condition: Good; left & right antennal segments 3–11 missing. **New synonym.**

*Sympiestus frontalis* Broun, 1917: 370. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 3816. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Scarcliff. 20.10.1913. (hand-written) / Sympiestus frontalis. (hand-written)". Condition: Excellent. **New synonym.**

*Selenochilus syntheticus*: Britton, 1940: 477 (as a junior synonym of *Selenochilus piceus*) resurrected from synonymy by Johns, 1980: 61).

*Selenochilus fallax*: Britton, 1940: 477.

*Selenochilus frontalis*: Britton, 1940: 477.

*Selenochilus* [sic] *syntheticus*: Johns, 1980: 61.

**Description.** Body: length 5.1–6.6 mm. Head, pronotum, elytra, and abdomen black; lateral margins of elytra dark reddish; antennae, palpi, and tarsi infuscate reddish; femora and tibiae black or piceous black. Microsculpture absent on head, moderately transverse, feeble on pronotum, strong on elytra. Iridescence absent. Very shiny. **Head.** Coarsely punctate in frontal furrows, unwrinkled dorsally, about as wide across eyes as pronotal apex. Frontal furrows wide, shallow. Eyes normally developed, moderately large, moderately convex. Tempora inflated, moderately long (about one-third as long as eyes). Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 106) slightly convex, impunctate, wrinkled along median longitudinal impression, moderately transverse, slightly cordate; apex subtruncate; anterior bead incomplete, broadly interrupted medially; anterolateral angles poorly developed, rounded; sides moderately rounded anteriorly, moderately sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral

setiferous puncture situated well in front of middle and touching lateral bead; basal constriction long; posterolateral angles slightly obtuse; base subtruncate, subdepressed to slightly convex, slightly narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate or finely punctate. **Elytra.** Slightly convex, oblong, widest about middle. Basal margin reaching level of stria 4. Shoulders denticulate. Sides moderately rounded. Scutellar setiferous pore absent. Striae incomplete; striae 1–4 shallow or deep, finely punctate; striae 5–7 obsolete. Intervals depressed. **Abdomen.** Sterna finely punctate, unwrinkled. **Aedeagus.** Lateral view (Fig. 62): strongly arcuate; dorsobasal blade absent; apex very wide, triangular-rounded, strongly projecting ventrally. Dorsal view: apex acute on the right side, rounded on the left.

**Material examined.** 25 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, NZAC, PHNZ).

**Geographic distribution** (Map p. 179). South Island: MB, MC, NC.

**Ecology.** Lowland, Montane. Dry forests (beech), scrublands, and tree plantations (pine). Shaded ground; dry soil. Nocturnal; hides during the day under logs and fallen branches. The species is xylophilous (associated with wood).

**Biology.** Seasonality: October–January, March. Teneral: November. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused along the suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 64 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remark.** Examination of the types of *Sympiestus fallax* and *Sympiestus frontalis* revealed them to be conspecific with *Selenochilus syntheticus*.

### ***Selenochilus ruficornis* (Broun, 1882) <sup>E</sup>**

Figures 64, 107, 202; Map p. 179

*Cerabilia ruficorne* [sic] Broun, 1882: 223 (redescribed in 1883: 223 and 1886: 754). Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 1338. (typed) / Wellington / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Sympiestus ruficornis* (hand-written)”. Condition: Excellent.

*Selenochilus ruficornis*: Britton, 1940: 477.

**Description.** Body: length 4.8–5.9 mm (usually 5.3 mm and less). Head, pronotum, elytra, and abdomen dark reddish or piceous black; antennae, palpi, and tarsi reddish; femora and tibiae rather pale, either reddish or infuscate

reddish. Microsculpture absent on head and pronotum, isodiametric on elytra, feeble in basal half, strong in apical half. Iridescence absent. Very shiny. **Head.** Coarsely punctate in frontal furrows, unwrinkled dorsally, narrower across eyes than pronotal apex. Frontal furrows wide, shallow. Eyes slightly reduced, rather small, slightly convex (moderately to strongly convex in other species). Tempora inflated, moderately long (about one third as long as eyes). Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 107) moderately convex, finely punctate across base, wrinkled along median longitudinal impression or unwrinkled, subquadrate, slightly cordate; apex subtruncate; anterior bead incomplete, broadly interrupted medially; anterolateral angles poorly developed, obtusely rounded; sides moderately rounded anteriorly, moderately sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; basal constriction short; posterolateral angles obtuse; base subtruncate, subdepressed, slightly narrower than elytral base. Prosternum finely punctate, unwrinkled. Proepisterna finely punctate, unwrinkled. Metepisterna finely punctate. **Elytra.** Slightly convex, oblong, widest about middle. Basal margin reaching level of stria 4. Shoulders denticulate. Sides moderately rounded. Scutellar setiferous pore present. Striae complete, shallow, impunctate or finely punctate. Intervals depressed. **Abdomen.** Sterna finely punctate, unwrinkled. **Aedeagus.** Lateral view (Fig. 64): strongly arcuate; dorsobasal blade present, narrow; apex narrow, moderately projecting ventrally. Dorsal view: apex truncate-rounded.

**Material examined.** 37 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 179). North Island: RI, TO, WA, WN.

**Ecology.** Lowland, montane. Wet forests (broadleaf). Shaded ground; wet soil. Nocturnal; hides during the day in leaf litter and under stones.

**Biology.** Seasonality: September–June, August. Teneral: February–March, July. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

**Dispersal power.** Elytra fused along the suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 63–64 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remark.** *Selenochilus ruficornis* is easily separated from its congeners, by its smaller, less convex eyes.

***Selenochilus hutchisonae*<sup>E</sup> new species**

Figures 65, 108, 203; Map p. 178

*Selenochilus hutchisonae* Laroche & Larivière, new species.

Holotype: male (NZAC) labelled "NEW ZEALAND WN Lake Papaitonga Scenic Res [=Reserve] Levin 28 Feb 2000 M Hutchison (typed) / Wet podocarp-broadleaf forest Pit traps (typed) / C4 (7) (hand-written) / HOLOTYPE [male symbol] *Selenochilus hutchisonae* Laroche & Larivière, 2013 (red label; typed)." Paratypes: three males (LUNZ, MONZ, NZAC) two females (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 5.1–6.5 mm (usually 6.0 mm and more). Head, pronotum, elytra, and abdomen black; antennae, palpi, and tarsi reddish; femora and tibiae black or piceous black. Microsculpture absent on head and pronotum, moderately transverse, feeble in basal half of elytra. Iridescence absent. Very shiny. **Head.** Coarsely punctate in frontal furrows, unwrinkled dorsally, about as wide across eyes as pronotal apex. Frontal furrows wide, shallow. Eyes normally developed, moderately large, moderately convex. Tempora inflated, moderately long (about one-fourth as long as eyes). Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 108) moderately convex, finely punctate across base, wrinkled along median longitudinal impression or unwrinkled, slightly transverse, moderately cordate; apex subtruncate; anterior bead incomplete, broadly interrupted medially; anterolateral angles poorly developed, obtusely rounded; sides moderately rounded anteriorly, moderately sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; basal constriction long; posterolateral angles rectangular; base subtruncate, subdepressed, slightly narrower than elytral base. Prosternum finely punctate, unwrinkled. Proepisterna finely punctate, unwrinkled. Metepisterna coarsely punctate. **Elytra.** Moderately convex, oblong, widest about middle. Basal margin reaching level of stria 4. Shoulders denticulate. Sides moderately rounded. Scutellar setiferous pore present. Striae complete, deep, coarsely punctate. Intervals moderately convex. **Abdomen.** Sterna coarsely punctate, unwrinkled. **Aedeagus.** Lateral view (Fig. 65): strongly arcuate; dorsobasal blade present, wide (narrow in *S. ruficornis*); apex narrow, moderately projecting ventrally. Dorsal view: apex truncate-rounded.

**Material examined.** 45 specimens (AMNZ, JNNZ, NZAC).

**Geographic distribution** (Map p. 178). North Island: WI–Ballance Reserve (Manawatu). Takapari Road (Manawatu). Manawatu Gorge Scenic Reserve. WN–Lake Papaitonga Scenic Reserve (Levin). Mangahao No 1 Reservoir (Tararua Forest Park). Lower Waingawa Gorge

(Tararua Forest Park). Nikau Reserve (Paraparaumu).

**Ecology.** Lowland. Wet forests (broadleaf, podocarp). Shaded ground; wet soil. Nocturnal; hides during the day under stones.

**Biology.** Seasonality: September–June, August. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused along the suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after Melissa Hutchison (Christchurch) who collected the type series. *Selenochilus hutchisonae* is morphologically close to *S. omalleyi*. In addition to diagnostic characters of the male genitalia *S. hutchisonae* has the following distinguishing features: femora and tibiae black or piceous black; pronotum slightly transverse, with sides moderately rounded anteriorly and posterolateral angles rectangular; elytra moderately convex, with moderately rounded sides and moderately transverse microsculpture in basal half.

***Selenochilus omalleyi*<sup>E</sup> new species**

Figures 63, 109, 204; Map p. 178

*Selenochilus omalleyi* Laroche & Larivière, new species.

Holotype: male (NZAC) labelled "NEW ZEALAND HB Kaweka FP [=Forest Park], Kaweka Flats tk [=track] (N [=North of] Boulder Stream tk Jct [=track junction]) 1000m 3.III. 1996 Larivière, Laroche (typed) / Moist Mtn Beech for. [=Mountain Beech forest]: Under logs & big fallen branches (typed) / HOLOTYPE [male symbol] *Selenochilus omalleyi* Laroche & Larivière, 2013 (red label; typed)." Paratypes: three males (LUNZ, MONZ, NZAC), one female (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 6.7–7.6 mm. Head, pronotum, elytra, and abdomen black; antennae, palpi, and tarsi reddish; femora and tibiae pale, infusate reddish. Microsculpture absent on head and pronotum, strong and moderately transverse in apical third of elytra. Iridescence absent. Very shiny. **Head.** Coarsely punctate in frontal furrows, unwrinkled dorsally, about as wide across eyes as pronotal apex. Frontal furrows wide, shallow. Eyes normally developed, moderately large, moderately convex. Tempora inflated, moderately long (about one-fourth as long as eyes). Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 109) moderately convex, finely punctate across base, wrinkled on disc, moderately transverse, moderately cordate; apex subtruncate; anterior bead incomplete, broadly interrupted medially; anterolateral angles poorly developed, obtusely rounded; sides strongly rounded anteriorly, moderately sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral setiferous puncture situated

well in front of middle and touching lateral bead; basal constriction long; posterolateral angles slightly acute and projecting laterally; base subtruncate, subdepressed, about as wide as apex, slightly narrower than elytral base. Prosternum coarsely punctate, unwrinkled. Proepisterna coarsely punctate, unwrinkled. Metepisterna coarsely punctate. **Elytra.** Strongly convex, oblong, widest about middle. Basal margin reaching level of stria 4. Shoulders denticulate. Sides strongly rounded. Scutellar setiferous pore present. Striae complete, deep, coarsely punctate. Intervals moderately convex. **Abdomen.** Sterna coarsely punctate, unwrinkled. **Aedeagus.** Lateral view (Fig. 63): moderately arcuate; dorsobasal blade present, narrow; apex narrow, rounded, moderately projecting ventrally. Dorsal view: apex subtruncate.

**Material examined.** 16 specimens (AMNZ, JNNZ, NZAC).

**Geographic distribution** (Map p. 178). North Island: HB–Kaweka Forest Park (Kaweka Flats Track, Ngahere Loop Track, Ngahere Basin). TK–Mount Messenger Forest (Mokau Road, White Cliffs). TO–Erua. WO–Whareorino State Forest (Leitchs Clearing). Maungatautari Scenic Reserve, Hicks Road Track).

**Ecology.** Lowland, Montane. Wet forests (broadleaf, beech). Shaded ground; sheltering during the day under logs and fallen branches. The species is xylophilous (associated with wood). Observed running on moss at night.

**Biology.** Seasonality: December–April. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused along the suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after Phil O'Malley (Takapuna, Auckland), a special acquaintance and highly skilled financial adviser. *Selenochilus omalleyi* is morphologically close to *S. hutchisonae*. In addition to diagnostic characters of the male genitalia *S. omalleyi* has the following distinguishing features: size relatively larger than in other species (6.7–7.6 mm); femora and tibiae infuscate reddish; pronotum moderately transverse, with sides strongly rounded and posterolateral angles slightly acute, projecting laterally; elytra strongly convex, with strongly rounded sides and without microsculpture in basal half.

### Subtribe MORIOMORPHINA

**Reference.** Liebherr, 2011b: 299–300 (higher classification).

#### Genus *Molopsida* White, 1846<sup>E</sup>

Figures 66–71, 110–115, 205–210; Maps p. 176  
*Molopsida* White, 1846: 6. Type species. *Molopsida polita* White, 1846, by monotypy.

**Description.** Body: length 5.0–7.0 mm; not pedunculate. Colour dark or pale. Dorsal surface mostly glabrous. Microsculpture present or absent. Iridescence absent on head and pronotum, absent or present on elytra. Metallic lustre absent. **Head.** Mandibles moderately or very long. Labrum truncate to slightly emarginate anteriorly; anterior marginal setae equidistant. Antennae usually submoniliform, rarely subfiliform; segments 1–3 glabrous (excluding apical setae). Eyes usually normally developed, sometimes reduced, usually convex (depressed in *M. lindrothi*); usually two supraorbital setiferous punctures on inner side of each eye, rarely a single puncture (anterior one missing in *M. polita* and *M. seriatoporus*). Interocular fovea present or absent. Tempora inflated. Mentum feebly depressed, not excavated laterally; median tooth usually acute apically (rarely rounded), usually moderately shorter than lateral lobes (rarely slightly shorter); outer side of lateral lobes slightly rounded. Ligula truncate and narrow apically. Paraglossae glabrous. Palpi: terminal segment fusiform, not elliptical, glabrous; penultimate maxillary segment usually glabrous, rarely setulose. **Thorax.** Pronotum (Fig. 110–115) slightly to moderately transverse, usually subquadrate, sometimes cordate; anterior bead complete or incomplete (narrowly or broadly interrupted medially); usually two setiferous punctures on each side (punctures absent in *M. seriatoporus*); posterolateral angles subrectangular, rarely acute and projecting laterally; laterobasal foveae usually present, shallow or deep, not sulcate; posterior bead absent; base usually much wider than apex, rarely slightly wider. Scutellum partly visible, broad, inserted entirely between elytral bases. Metepisterna short, subquadrate. **Legs.** Tarsi glabrous dorsally, pubescent ventrally (segment 5 of metatarsi with one or two pairs of ventral setae); segment 4 of pro- and mesotarsi emarginate apically (cleft for less than half their length). **Elytra.** Usually strongly convex and ovate (depressed and subovate in *M. lindrothi*). Basal margin complete, reaching level of stria 1. Shoulders normally developed, obtuse or rounded. Scutellar setiferous pore present, inserted at base of stria 1. Scutellar striole usually present, short, bi- or tripunctate. Striae usually present, complete or incomplete, punctate (absent, replaced by rows of punctures in *M. seriatoporus*). Striae 3 and 5 without setiferous punctures. Interval



8 carinate apically. Umbilicate series separated into two major groups (7+6 setiferous punctures), with posterior group continuous. Sutural apices usually angular, rarely angular-rounded. **Abdomen.** Sterna usually impunctate, unwrinkled. Last visible sternum (sternum VII): male with two or four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 66–71): slightly to strongly arcuate; apex moderately or very wide, projecting or not dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex either straight or deflected to the left or to the right. **Parameres.** Left paramere elongate, glabrous or setulose (with a few short setae at apex); right paramere setulose (with a few short setae at apex or numerous short ventral setae in apical half to apical fourth).

**Geographic distribution.** North Island; northern South Island.

**References.** Larochelle & Larivière, 2001: 64–69 (catalogue), 2007a: 38 (description, ecology, geographic distribution, references).

**Remarks.** In the course of this revision species previously assigned to the genus *Molopsida* were found to belong also to two other genera, *Tarastethus* Sharp (resurrected from synonymy with *Molopsida*) and *Trichopsida* (described as new). Five species are retained in *Molopsida* and a new species is described. The characters unifying the species of this genus are: terminal segments of palpi glabrous, pronotum without posterior bead, segment 4 of pro- and mesotarsi emarginate apically, segment 5 of metatarsi with one or two pairs of ventral setae.

### Key to species of *Molopsida*

- 1 A single supraorbital setiferous puncture on inner side of each eye (posteriorly; Fig. 43) ..... 2  
 —Two supraorbital setiferous punctures on inner side of each eye (Fig. 41) ..... 3  
 2(1) Pronotum (Fig. 110) cordate, without setiferous punctures. Elytra not iridescent; striae absent, replaced by rows of punctures (Fig. 205). [Body length 5.0–6.0 mm; North Island, northern South Island.] ..  
 .....(p. 49)... *seriatoporus* (Bates)  
 —Pronotum (Fig. 111) subquadrate, with two setiferous punctures on each side. Elytra iridescent; striae present (Fig. 206). [Body length 6.5–6.9 mm; North Island] .....(p. 50)... *polita* White  
 3(1) Eyes (Fig. 207–208) normally developed. Tempora short (about one-third as long as eyes). [Colour mostly black.] ..... 4  
 —Eyes (Fig. 209–210) reduced, very small. Tempora very long (about as long as eyes). [Colour mostly testaceous.] ..... 5

4(3) Pronotum (Fig. 112) cordate; base strongly emarginate medially, strongly oblique laterally. Eyes (Fig. 207) strongly convex. Interocular fovea absent. Elytra not iridescent. [Body length 5.5–7.0 mm; southern North Island, northern South Island.] .....  
 .....(p. 51)... *antarctica* (Laporte de Castelnau)

—Pronotum (Fig. 113) not cordate; base rather straight. Eyes (Fig. 208) less convex. Interocular fovea present. Elytra very iridescent. [Body length 5.3–6.0 mm; North Island, northern South Island.] .....  
 .....(p. 52)... *strenua* (Broun)

5(3) Pronotum (Fig. 114) elongate, cordate; posterolateral angles acute and projecting laterally. Elytra strongly convex. Eyes slightly convex. Segment 5 of metatarsi with a single pair of ventral setae. [Body (Fig. 209), length 5.0–6.0 mm; southern North Island.] .....(p. 53)... *cordipennis* (Broun)

—Pronotum (Fig. 115) transverse, subrectangular; posterolateral angles rectangular, not projecting laterally. Elytra depressed. Eyes depressed. Segment 5 of metatarsi with two pairs of setae. [Body (Fig. 210), length 6.0–6.8 mm; South Island (NN).] .....  
 .....(p. 54)... *lindrothi* new species

### *Molopsida seriatoporus* (Bates, 1874)<sup>E</sup>

Figures 66, 110, 205; Map p. 176

*Tropopterus seriatoporus* Bates, 1874: 242 (re-described in 1875: 305). Holotype: female “Mr. H. Edwards; one example”, New Zealand (could not be located either in MNHN or in CMNZ).

*Tarastethus phyllocharis* Broun, 1912: 387. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 3171. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Erua. Jany. 1910 (hand-written) / Tarastethus phyllocharis. (hand-written).” Condition: Very good. **New synonym.**

*Tarastethus fuscipes* Broun, 1923: 675. Holotype: female (BMNH) labelled “Type (circular red-bordered label; typed) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Belgrove. 24.10.1914. (hand-written) / Tarastethus fuscipes. (hand-written).” Condition: Very good (right antenna missing four apical segments). **New synonym.**

*Tarastethus insularis* Broun, 1923: 676. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / Chetwood Isld - July 1917. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Tarastethus insularis (hand-written).” Condition: Excellent. Erroneously synonymised with *Molopsida antarctica* (Laporte de Castelnau, 1867) by Townsend, 1998: 5. **New synonym.**

*Molopsida fuscipes*: Britton, 1940: 277.

*Molopsida insularis*: Britton, 1940: 277.

*Molopsida phyllocharis*: Britton, 1940: 277.

*Molopsida seriatoporus*: Britton, 1940: 277.

**Description.** Body: length 5.0–6.0 mm. Head, pronotum, elytra, and abdomen black; antennae, palpi, and legs entirely pale red. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Impunctate and unwrinkled dorsally, moderately convex, much narrower across eyes than pronotal apex. Mandibles moderately long. Labrum slightly transverse, slightly emarginate anteriorly. Antennae submoniliform; segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows narrow, deep. Eyes normally developed, moderately large and convex (smaller than in *M. polita*); a single supraorbital setiferous puncture on inner side of each eye posteriorly (as in *M. polita*). Interocular fovea absent. Tempora inflated, oblique, short (about one-third as long as eyes). Mentum: medial tooth acute apically, moderately shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. Palpi: penultimate maxillary segment glabrous. **Thorax.** Pronotum (Fig. 110) strongly convex, coarsely punctate across base, unwrinkled, moderately transverse and cordate; apex straight; anterior bead complete; anterolateral angles poorly developed, rounded; sides strongly rounded anteriorly, moderately sinuate posteriorly; lateral beads of similar width from apex to base; lateral depressions absent; setiferous punctures absent on each side (present in other species); posterolateral angles subrectangular, denticulate; laterobasal foveae well defined, coarsely punctate, deep, narrow, more or less elongate; base moderately convex, much wider than apex, slightly narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna punctate. **Legs.** Segment 5 of metatarsi with a single pair of ventral setae. **Elytra.** Strongly convex, ovate, widest about middle. Shoulders rounded, denticulate. Sides strongly rounded. Scutellar striole bipunctate. Striae absent (present in other species), replaced by incomplete rows of coarse punctures; rows 6–7 vestigial basally; rows 1–4 moderately deep, 5–6 shallower. Intervals depressed. Sutural apices angular. **Abdomen.** Sterna coarsely punctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 66): slightly arcuate; apex very wide and rounded, angularly projecting ventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the right. **Parameres.** Left paramere glabrous; right paramere setulose (with numerous short ventral setae in apical half).

**Material examined.** 422 specimens (AMNZ, BMNH, CMNH, CMNZ, JNNZ, LUNZ, MONZ, NZAC, PHNZ).

**Geographic distribution** (Map p. 176). North Island: BP, CL, GB, HB, RI, TK, TO, WI, WA, WN, WO. South Island: BR, MB, NN, SD.

**Ecology.** Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp). Shaded ground; wet soil. Nocturnal; hides during the day in and under fallen rotten branches as well as in and under rotten logs. The species is xylophilous (associated with wood).

**Biology.** Seasonality: September to May, August. Teneral: September, January to April, July. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales) and mites.

**Dispersal power.** Elytra fused basally along the suture. Subapterous. Swift runner. Occasional climber (on trees and logs). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 68 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remarks.** The holotype of *Tropopterus seriatoporus* could not be located either in MNHN or in CMNZ where Bates' specimens can usually be found. However, there is no ambiguity regarding the identity of this taxon, the only *Molopsida* species lacking setiferous punctures on each side of the pronotum and bearing rows of coarse punctures instead of striae on the elytra. Examination of the types of *Tarastethus phyllocharis*, *T. fuscipes*, and *T. insularis* – previously treated as a synonym of *Molopsida antarctica* – revealed these taxa to be conspecific with *Molopsida seriatoporus*.

### *Molopsida polita* White, 1846<sup>E</sup>

Figures 67, 111, 206; Map p. 176

*Molopsida polita* White, 1846: 6. Holotype: female (BMNH) labelled “Type (circular red-bordered label; typed) / N. Zeal (hand-written; circular white label) / Waikouaiti [= Wellington, see **Remarks**] (hand-written) / *Molopsida polita* White Zool Erebus & Terror. (hand-written; long folded label).” Condition: Good (left profemur and tarsus missing).

*Tarastethus laevicollis* Broun, 1903: 458. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 2657. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Te Aroha. J.J. Walker (hand-written) / *Tarastethus laevicollis*. [female symbol]. (hand-written).” Condition: Excellent. Synonymised by Britton, 1940: 277.

*Tarastethus carbonarius* Broun, 1908: 351. Holotype: female (BMNH) labelled “Type (circular red-bordered label; typed) / 2675. (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Manawatu. nr. Gorge. (hand-written) / *Tarastethus carbonarius*. [female symbol]. (hand-written).” Condition: Excellent. **New synonym.**

*Molopsida carbonaria*: Britton, 1940: 277.

**Description.** Body: length 6.5–6.9 mm. Head, pronotum, and abdomen deep black, elytra lighter black; antennae,

palpi, and legs pale red, except femoral apex and tibiae infuscate. Microsculpture absent on head and pronotum, strong and very transverse (with microlines) on elytra. Iridescence absent on head and pronotum, strong on elytra (as in *M. strenua*). Very shiny on head and pronotum, moderately shiny on elytra. **Head.** Impunctate or punctate in and between frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles moderately long. Labrum moderately transverse, truncate or slightly emarginate anteriorly. Antennae submoniliform; segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, shallow. Eyes normally developed, moderately large and convex; a single supraorbital setiferous puncture on inner side of each eye posteriorly (as in *M. seriatoporus*). Interocular fovea absent. Tempora inflated, oblique, short (about one-third as long as eyes). Mentum: medial tooth acute apically, moderately shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. Palpi: penultimate maxillary segment glabrous. **Thorax.** Pronotum (Fig. 111) strongly convex, impunctate, unwrinkled, subquadrate; apex straight; anterior bead complete; anterolateral angles poorly developed, obtuse; sides moderately rounded about middle, very slightly sinuate posteriorly; lateral beads gradually widening from apex to base; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles subrectangular, not denticulate; laterobasal foveae absent; base moderately convex, much wider than apex, slightly narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna punctate. **Legs.** Segment 5 of metatarsi with a single pair of ventral setae. **Elytra.** Strongly convex, ovate, widest about middle. Shoulders obtuse, denticulate. Sides moderately rounded. Scutellar striae bipunctate. Striae mostly complete (stria 7 obsolete basally), finely punctate; striae 1–3 moderately deep, striae 4–7 shallower. Intervals depressed, becoming slightly convex apically. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 67): strongly arcuate; apex very wide and rounded, projecting dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the left. **Parameres.** Setulose (with a few short setae at apex).

**Material examined.** 219 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 176). North Island: BP, CL, GB, HB, RI, TK, TO, WA, WI, WN, WO.

**Ecology.** Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp), shrublands, and scrublands. Shaded ground; wet soil. Gregarious. Nocturnal; hides during the day in and under fallen rotten branches as well as under and in rotten logs. The species is xylophilous (associated with wood).

**Biology.** Seasonality: September to June, August. Teneral: August, December to February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales) and mites.

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Laroche & Larivière, 2001: 67 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remarks.** Examination of the types of *Tarastethus laevicollis* and *T. carbonarius* confirmed them to be conspecific with *Molopsida polita*. The North Island distribution of *M. polita* indicates that the type specimen collected by Mr Earl has been mislabelled. The likely type locality is Port Nicholson [= Wellington] as White records Earl as collector of a number of other beetles from this locality. See also **Remarks** under *M. strenua*.

### *Molopsida antarctica* (Laporte de Castelnau, 1867)<sup>E</sup>

Figures 71, 112, 207; Map p. 176

*Drimostoma antarctica* Laporte de Castelnau, 1867: 113 (re-described in 1868: 199). Holotype: male (NMV) labelled “[no text] (small red square label; typed) / Wellington (hand-written) / antarctica (hand-written) / TYPE (red label; typed) / HOLOTYPE T- 20692 Drimostoma antarctica Castelnau (hand-written after T-; pink label).” Condition: Good (antennae broken; left hindleg broken).

*Tropopterus sulcicollis* Bates, 1874: 241 (re-described in 1875: 304). Holotype: female “One example, female, sent by Mr. Fereday from Christchurch” (could not be located either in MNHN or in CMNZ). **New synonym.**

*Tropopterus marginalis* Broun, 1882: 219 (re-described in 1883: 219 and 1886: 749). Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 1329. (typed) / Wellington (typed) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Tarastethus marginalis* (hand-written).” Condition: Very good (left antenna terminal segments missing). **New synonym.**

*Tarastethus antarcticus*: Sharp, 1886: 373.

*Tropopterus antarcticus*: Sloane, 1898: 472.

*Molopsida antarctica*: Britton, 1940: 277.

*Molopsida marginalis*: Britton, 1940: 277.

*Molopsida sulcicollis*: Britton, 1940: 277.

**Description.** Body: length 5.5–7.0 mm. Head, pronotum, elytra, and abdomen black (elytral margins rufous);

antennae, palpi, and legs entirely dark red. Microsculpture strong, moderately transverse on head and elytra, very transverse (with microlines) on pronotum. Iridescence absent. Moderately shiny on head and elytra, very shiny on pronotum. **Head.** Finely punctate in frontal furrows, finely wrinkled on frons, much narrower across eyes than pronotal apex. Mandibles very long. Labrum moderately transverse, slightly emarginate or subtruncate anteriorly. Antennae submoniliform; segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, shallow. Eyes normally developed, very large and strongly convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea absent. Tempora inflated, oblique, short (about one-third as long as eyes). Mentum: medial tooth rounded apically, moderately shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. Palpi: penultimate maxillary segment glabrous. **Thorax.** Pronotum (Fig. 112) strongly convex, finely punctate across base and along lateral beads, wrinkled along median longitudinal impression, subrectangular, moderately cordate; apex moderately arcuate; anterior bead narrowly interrupted medially; anterolateral angles moderately developed, obtusely rounded; sides moderately rounded anteriorly, moderately sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles subrectangular, not denticulate; laterobasal foveae ill-defined, finely punctate, rather shallow, oblong, moderately elongate; base strongly emarginate medially, strongly oblique laterally, much wider than apex, slightly narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Legs.** Segment 5 of metatarsi with a single pair of ventral setae. **Elytra.** Strongly convex, ovate, widest in front of middle. Shoulders obtuse, not denticulate. Sides strongly rounded. Scutellar striae bi- or tripunctate. Striae complete, shallow (striae 5–7 shallower), finely punctate. Intervals depressed. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 71): strongly arcuate; apex moderately wide, slightly truncate-rounded, angularly projecting ventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the left. **Parameres.** Left paramere glabrous; right paramere setulose (with numerous short setae in apical third).

**Material examined.** 192 specimens (AMNZ, BMNH, CMNH, CMNZ, JNNZ, LUNZ, MONZ, NMV, NZAC, PHNZ).

**Geographic distribution** (Map p. 176). North Island: WA, WN. South Island: KA, MB, MC, NC, SD.

**Ecology.** Lowland, montane. Wet forests (beech, broad-leaf, podocarp), tree plantations (pine), river bed plantings, shelter belts, and city gardens. Shaded ground. Nocturnal; hides during the day in fallen rotten branches, also in and under logs. The species is xylophilous (associated with wood).

**Biology.** Seasonality: throughout the year (September to August). Teneral: October–November, February–March, August. Predacious (based on mouthpart morphology). Regularly infested with fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Occasional climber (on trees and logs). Vigility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 64–65 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remarks.** The holotype of *Tropopterus sulcicollis* could not be located either in MNHN or in CMNZ where Bates' specimens can usually be found. The authors are, however, confident that this species is a synonym of *M. antarctica*, based on characters from Bates' original description. Examination of the holotype of *Tropopterus marginalis* revealed it to be conspecific with *M. antarctica*. *Tarastethus insularis* Broun, 1923, was erroneously synonymised with *Molopsida antarctica* by Townsend (1998), see **Remarks** under *M. seriatorporus*.

*Molopsida antarctica* is highly distinctive and can easily be separated from its congeners by its pronotal base strongly emarginate medially and strongly oblique laterally, its strongly convex eyes, and relatively larger size.

### *Molopsida strenua* (Broun, 1894)<sup>E</sup>

Figures 68, 113, 208; Map p. 176

*Tarastethus strenuus* Broun, 1894: 308. Holotype: female (BMNH) labelled "HOLOTYPE (circular red-bordered label; typed) / Type (upside-down circular red-bordered label; typed) / Napier / 2671. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Tarastethus strenuus* (hand-written) / HT det. from original descr. BHG 26.05.2011. (typed) " Condition: Excellent.

*Tarastethus dubius* Broun, 1894: 309. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 2672. (hand-written) / Hudson. no. 141. (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Tarastethus dubius* (hand-written)." Condition: Excellent. **New synonym.**

*Molopsida dubia*: Britton, 1940: 277.

*Molopsida strenua*: Britton, 1940: 277.

**Description.** Body: length 5.3–6.0 mm. Head, pronotum, elytra, and abdomen black; antennae, palpi, and legs entirely pale red. Microsculpture absent on head and pronotum, strong and very transverse (with microlines) on elytra. Iridescence absent on head and pronotum, strong on elytra (as in *M. polita*). Very shiny on head and pronotum, moderately shiny on elytra. **Head.** Coarsely punctate in and between frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles moderately long. Labrum quadrate, subtruncate anteriorly. Antennae subfiliform; segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, deep. Eyes normally developed, moderately large, moderately convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea present, deep, rounded. Tempora inflated, oblique, short (about one-third as long as eyes). Mentum: medial tooth acute apically, moderately shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. Palpi: penultimate maxillary segment glabrous. **Thorax.** Pronotum (Fig. 113) strongly convex, coarsely punctate across base, unwrinkled, moderately transverse, subrectangular; apex straight; anterior bead narrowly interrupted medially; anterolateral angles poorly developed, obtusely rounded; sides moderately rounded anteriorly, very slightly sinuate posteriorly; lateral beads slightly widening from apex to base; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles subrectangular, not denticulate; laterobasal foveae ill-defined, coarsely punctate, shallow, narrow, vaguely elongate; base rather straight, much wider than apex, slightly narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna punctate. **Legs.** Segment 5 of metatarsi with a single pair of ventral setae. **Elytra.** Strongly convex, ovate, widest in front of middle. Shoulders obtuse, denticulate. Sides moderately rounded. Scutellar striole usually absent, when present bipunctate. Striae mostly complete (stria 7 obsolete basally), moderately deep, with moderately coarse punctures. Intervals depressed, becoming slightly convex apically. Sutural apices angular. **Abdomen.** Sterna coarsely punctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 68): moderately arcuate; apex moderately wide, strongly rounded, moderately projecting ventrally, notched dorsally. Dorsal view: asymmetrical (ostium deflected to the right); apex rather straight. **Parameres.** Setulose (with a few short setae at apex).

**Material examined.** 85 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 176). North Island: BP, GB, HB, RI, TK, TO, WA, WI, WN, WO. South Island: KA, SD

**Ecology.** Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp) and shrublands. Shaded ground; wet soil. Nocturnal; hides during the day in and under fallen rotten branches as well as in and under rotten logs. The species is xylophilous (associated with wood).

**Biology.** Seasonality: September to August. Teneral: October, December to March. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Laroche & Larivière, 2001: 68–69 (catalogue; biology, dispersal power, ecology, geographic distribution, references).

**Remarks.** Examination of the type of *Tarastethus dubius* revealed it to be conspecific with *Molopsida strenua*. As in the case of *M. polita*, *M. strenua* is a highly distinctive species characterised by strongly iridescent elytra.

### *Molopsida cordipennis* (Broun, 1912) <sup>F</sup>

Figures 69, 114, 209; Map p. 176

*Tarastethus cordipennis* Broun, 1912: 388. Holotype: female (BMNH) labelled “Type (circular red-bordered label; typed) / 3173. (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Mt. Quoin. Tararua. (hand-written) / *Tarastethus cordipennis* (hand-written).” Condition: Excellent.

*Molopsida cordipennis*: Britton, 1940: 277.

**Description.** Body: length 5.0–6.0 mm. Head, pronotum, and elytra testaceous; antennae, palpi, and legs yellowish red. Microsculpture absent. Iridescence absent. Very shiny.

**Head.** Coarsely punctate in and between frontal furrows, unwrinkled dorsally, slightly narrower across eyes than pronotal apex. Mandibles very long. Labrum slightly transverse, truncate anteriorly. Antennae submoniliform; segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, deep. Eyes reduced, very small, slightly convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea absent. Tempora inflated, oblique, very long (about as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. Palpi: penultimate maxillary segment barely setulose (with a single short apical seta). **Thorax.** Pronotum (Fig. 114) strongly convex, coarsely punctate across base, finely punctate along lateral beads, wrinkled, elongate, moderately cordate; apex

more or less straight; anterior bead broadly interrupted medially; anterolateral angles poorly developed, slightly rounded; sides moderately rounded anteriorly, moderately sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles acute and projecting laterally, denticulate; laterobasal foveae well defined, coarsely punctate, deep, moderately wide, elongate; base emarginate medially, slightly oblique laterally, slightly wider than apex, moderately narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna impunctate. **Legs.** Segment 5 of metatarsi with a single pair of ventral setae. **Elytra.** Strongly convex, ovate, widest in front of middle. Shoulders rounded, denticulate. Sides moderately rounded. Scutellar striole absent. Striae mostly complete (stria 7 obsolete basally), moderately deep, coarsely punctate. Intervals depressed, becoming slightly convex apically. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 69): strongly arcuate; apex moderately wide, rounded, not projecting dorsoventrally, slightly notched posteromedially. Dorsal view: asymmetrical (ostium deflected to the right); apex rather straight. **Parameres.** Left paramere setulose (with a few short setae at apex); right paramere setulose (with numerous short ventral setae in apical fourth).

**Material examined.** 11 specimens (BMNH, JNNZ, NZAC).

**Geographic distribution** (Map p. 176). North Island: GB—Lake Waikaremoana. WN—Dundas Hut area (Tararua Range). Kohitere Forest (Levin). Mangahao No. 1 Reservoir. Manakau North. Mount Quoin. Waitotauru Road. RI—Armstrong Saddle, Ruahine Range.

**Ecology.** Lowland, montane, subalpine, alpine. Dry or wet forests (beech, broadleaf) and alpine meadows. Shaded (mostly) and open ground; dry or wet soil. Nocturnal; hides during the day under and in logs, branches, in leaf litter, in moss growing on tree-trunks, and at the base of tussock-clumps. The species is primarily xylophilous (associated with wood).

**Biology.** Seasonality: September, November, February, June, August. Teneral: March. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Occasional climber (on trees). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 65 (catalogue;

biology, dispersal power, ecology, geographic distribution, references).

### *Molopsida lindrothi*<sup>E</sup> new species

Figures 70, 115, 210; Map p. 176

*Molopsida lindrothi* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “Upper Maitai Nelson 11 Nov 69 J.I. Townsend (hand-written) / HOLOTYPE [male symbol] *Molopsida lindrothi* Larochelle & Larivière, 2013 (red label; typed).” Paratype: one male (NZAC) from the same locality as the holotype, bearing blue paratype label.

**Description.** Body: length 6.0–6.8 mm. Head, pronotum, elytra, and abdomen testaceous; antennae, palpi, and legs entirely pale red. Microsculpture absent on head and pronotum, strong and very transverse (with microlines) on elytra. Iridescence absent on head and pronotum, strong on elytra. Very shiny on head and pronotum, moderately shiny on elytra. **Head.** Coarsely punctate in and between frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles very long. Labrum quadrate, slightly emarginate anteriorly. Antennae subfiliform; segment 1 (scape) very long, about 2× longer than its maximum width. Frontal furrows wide, deep. Eyes reduced, very small, depressed; two supraorbital setiferous punctures on inner side of each eye. Interocular foveae present, deep, oblong. Tempora inflated, oblique, very long (about as long as eyes). Mentum: medial tooth rounded apically, slightly shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. Palpi: penultimate maxillary segment glabrous. **Thorax.** Pronotum (Fig. 115) moderately convex anteriorly, depressed posteriorly, coarsely punctate across base and at apex, finely punctate along lateral beads, unwrinkled, moderately transverse, subrectangular; apex straight; anterior bead narrowly interrupted medially; anterolateral angles poorly developed, obtuse; sides moderately rounded anteriorly, not sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles rectangular, denticulate; laterobasal foveae ill-defined, coarsely punctate, shallow, wide; base emarginate medially, slightly oblique laterally, much wider than apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Legs.** Segment 5 of metatarsi with two pairs of ventral setae (a single pair in other species). **Elytra.** Depressed, subovate, widest in front of middle. Shoulders rounded, denticulate. Sides slightly rounded. Scutellar striole bipunctate. Striae complete, shallow, finely punctate. Intervals depressed, becoming slightly convex apically. Sutural apices angular-

rounded. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 70): strongly arcuate; apex very wide and rounded, slightly projecting ventrally, with slight posterodorsal notch. Dorsal view: asymmetrical (ostium deflected to the right); apex rather straight. **Parameres.** Left paramere setulose (with a few short setae at apex); right paramere setulose (with numerous short ventral setae in apical half).

**Material examined.** Three specimens (NZAC).

**Geographic distribution** (Map p. 176). South Island: NN—Upper Maitai. Dun Mountain.

**Ecology.** Lowland (hills). Forests (beech). Probably nocturnal and sheltering during the day under cover. The shape (long mandibles, flattened eyes, depressed body) and pale colour of the body indicate that the species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones). The species could be best collected by soil-washing techniques.

**Biology.** Seasonality: November. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vigility limited by flight incapacity.

**Remarks.** This species is named after Carl H. Lindroth (1905–1979), the first author's late mentor and friend, and a master of faunal taxonomy.

*Molopsida lindrothi* is morphologically close to *M. cordipennis*. In addition to diagnostic characters of the male genitalia *M. lindrothi* has the following distinguishing features: colour testaceous; antennal segment 1 (scape) very long; eyes depressed; tempora inflated, very long; pronotum subrectangular, with posterolateral angles rectangular; segment 5 of metatarsi with two pairs of ventral setae; elytra depressed, subovate.

### Genus *Rossjoycea* Liebherr, 2011<sup>E</sup>

Figures 116, 211; Map p. 177

*Rossjoycea* Liebherr, 2011b: 303. Type species. *Rossjoycea glacialis* Liebherr, 2011, by original designation.

**Description.** Body: length 9.2–10.3 mm; not pedunculate. Colour mostly dark. Dorsal surface mostly glabrous. Microsculpture present. Iridescence absent. Metallic lustre absent. **Head.** Mandibles short. Labrum slightly emarginate anteriorly; anterior marginal setae equidistant. Antennae subfiliform; segments 1–3 glabrous (excluding apical setae). Eyes normally developed, convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea absent. Tempora inflated. Mentum feebly depressed,

not excavated laterally; median tooth acute apically, moderately shorter than lateral lobes; outer side of lateral lobes slightly rounded. Ligula arcuate and wide apically. Paraglossae glabrous. Palpi: terminal segment fusiform, elliptical, glabrous; penultimate segment barely setulose (only with two short apical setae). **Thorax.** Pronotum (Fig. 116) strongly transverse and cordate; anterior bead incomplete (narrowly interrupted medially); two setiferous punctures on each side; posterolateral angles acute and projecting laterally; laterobasal foveae present, deep, not linear; posterior bead absent; base about as wide as apex. Scutellum partly visible, broad, entirely inserted between elytral bases. Metepisterna short, subrectangular. **Legs.** Tarsi glabrous dorsally, pubescent ventrally (with four pairs of ventral setae); segment 4 of pro- and mesotarsi bilobed apically (cleft for more than half their length). **Elytra.** Moderately convex, ovate. Basal margin complete, reaching level of stria 1. Shoulders normally developed, rounded. Scutellar setiferous pore present, inserted at base of stria 1. Scutellar striole present, short, impunctate. Striae present, complete, impunctate; stria 3 with three to five setiferous punctures; stria 5 with one or two setiferous punctures. Interval 8 carinate apically. Umbilicate series separated into two major groups (8+6 setiferous punctures), with posterior group continuous. Sutural apices angular-rounded. **Abdomen.** Sterna impunctate, wrinkled. Last visible sternum (sternum VII): male unknown; female with eight apical and two medial ambulatory setae. **Aedeagus and Parameres.** Male unknown.

**Geographic distribution.** South Island (WD).

**Reference.** Liebherr, 2011b: 303–308 (taxonomy).

**Remark.** Genus *Rossjoycea* is separated from other genera, by the following exclusive characters: segment 5 of metatarsi with four pairs of ventral setae; stria 3 of elytra with three to five setiferous punctures; stria 5 with one or two setiferous punctures; umbilicate series of setiferous punctures separated into two major groups (8+6).

### *Rossjoycea glacialis* Liebherr, 2011<sup>E</sup>

Figures 116, 211; Map p. 177

*Rossjoycea glacialis* Liebherr, 2011b: 303. Holotype: female (LUNZ); “Westland N.P. WD / Castle Rocks Hut” (Liebherr, 2011b).

**Description.** Body: length 9.2–10.3 mm. Head, pronotum, elytra, and abdomen black; antennae, palpi, and legs dull red; femora infusate. Microsculpture strong and isodiametric. Dull. **Head.** Impunctate dorsally, wrinkled in frontal furrows, slightly narrower across eyes than pronotal apex. Labrum moderately transverse. Frontal furrows wide, shallow. Eyes normally developed, moderately large

and convex. Tempora oblique, moderately long (about 2/3 as long as eyes). Paraglossae prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 116) moderately convex, impunctate, strongly wrinkled between laterobasal foveae; apex strongly concave; anterolateral angles moderately developed, obtusely rounded; sides strongly rounded anteriorly, strongly sinuate posteriorly; lateral beads of similar width from apex to base; lateral depressions widening posteriorly; each anterolateral setiferous puncture situated just in front of middle and not touching lateral bead; posterolateral angles not denticulate; laterobasal foveae well defined, impunctate, wide, round; base emarginate medially, strongly oblique laterally, about as wide as apex and elytral base. Prosternum impunctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna coarsely and sparsely punctate. **Elytra.** Widest in front of middle. Shoulders denticulate. Sides moderately rounded. Striae moderately deep. Intervals moderately convex.

**Material examined.** Five specimens (JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 177). South Island: WD—Fox Glacier (Chancellor area, Castle Rocks Hut).

**Ecology.** Subalpine. A moraine and a tussock/scrub area species. Open ground; sparsely vegetated soil. Nocturnal; sheltering during the day under stones. **Biology.** Seasonality: January, March. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along the suture. Subapterous. Moderate runner (based on leg morphology). Regular vegetation-climber (based on bilobed penultimate segment of pro- and mesotarsi). Vagility limited by flight incapacity.

**Reference.** Liebherr, 2011b: 303–308 (ecology, geographic distribution, taxonomy).

### Genus *Tarastethus* Sharp, 1883<sup>E</sup> reinstated

Figures 72–77, 117–122, 212–217; Maps p. 180–181  
*Tarastethus* Sharp, 1883: 23. Synonymised with *Molopsida* by Britton, 1940: 477. Type species. *Tarastethus puncticollis* Sharp, 1883, designated by Lorenz, 1998: 170. **Reinstated**

**Description.** Body: length 4.3–6.6 mm; not pedunculate. Colour dark or pale. Dorsal surface mostly glabrous. Microsculpture absent. Iridescence absent. Metallic lustre absent. **Head.** Mandibles moderately long. Labrum truncate to slightly emarginate anteriorly; anterior marginal setae equidistant. Antennae submoniliform; segments 1–3 glabrous (excluding apical setae). Eyes normally developed, convex; usually two supraorbital setiferous punctures on inner side of each eye, rarely a single puncture (anterior one missing in *T. alpinalis*). Interocular fovea present or

absent. Tempora inflated. Mentum feebly depressed, not excavated laterally; median tooth acute apically, moderately or slightly shorter than lateral lobes; outer side of lateral lobes slightly rounded. Ligula truncate and narrow apically. Paraglossae glabrous. Palpi: terminal segment fusiform, not elliptical, glabrous; penultimate maxillary segment glabrous. **Thorax.** Pronotum (Fig. 117–122) moderately transverse, slightly to strongly cordate; anterior bead incomplete (broadly interrupted medially); two setiferous punctures on each side; posterolateral angles usually subrectangular (acute and projecting laterally in *T. southlandicus*); laterobasal foveae present, usually deep (shallow in *T. southlandicus*), not sulcate; posterior bead absent; base about as wide as to much wider than apex. Scutellum partly visible, broad, inserted entirely between elytral bases. Metepisterna short, subquadrate. **Legs.** Tarsi glabrous dorsally, pubescent ventrally (segment 5 of metatarsi with a single pair of ventral setae); segment 4 of pro- and mesotarsi bilobed apically (cleft for more than half their length). **Elytra.** Strongly convex, ovate. Basal margin complete, reaching level of stria 1. Shoulders normally developed, obtuse or rounded. Scutellar setiferous pore present, inserted at base of stria 1. Scutellar striae usually present, short, usually uni- or bipunctate (rarely impunctate). Striae present, usually complete (incomplete in *T. southlandicus*), punctate. Striae 3 and 5 without setiferous punctures. Interval 8 carinate apically. Umbilicate series separated into two major groups (7+6 setiferous punctures), with posterior group continuous. Sutural apices angular. **Abdomen.** Sterna punctate (impunctate in *T. southlandicus*), unwrinkled. Last visible sternum (sternum VII): male with four apical and often two subapical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 72–77): slightly to strongly arcuate; apex moderately to very wide, sometimes projecting ventrally. Dorsal view: symmetrical (ostium expanding equally towards sides) or asymmetrical (ostium deflected to the left or to the right); apex either straight or deflected to the left or to the right. **Parameres.** Left paramere elongate; both parameres setulose (with a few short setae at apex).

**References.** Larochelle & Larivière, 2001: 64–69 (as a synonym of *Molopsida*; catalogue), 2007a: 38 (as a synonym of *Molopsida*; description, ecology, geographic distribution, references).

**Remarks.** The genus *Tarastethus* Sharp, 1883 was synonymised with *Molopsida* by Britton (1940) without justification. This taxon is resurrected from synonymy here on the basis of the bilobed apex of segment 4 of pro- and mesotarsi, a character unifying included species and distinguishing this genus from *Molopsida* and the newly



described genus *Trichopsida*. In addition, *Tarastethus* species share the following characters: terminal segment of palpi glabrous, posterior bead of pronotum absent, segment 5 of metatarsi always with a single pair of ventral setae.

The genus *Tarastethus* now includes one newly described species as well as five species originally described in *Tarastethus*, more recently ascribed to *Molopsida*, and here reinstated to their original combinations.

### Key to species of *Tarastethus*

- 1 Legs uniformly coloured, pale red ..... 2  
 —Legs not uniformly coloured, at least tibiae infusate 4
- 2(1) Pronotum (Fig. 117) punctate throughout. [Body (Fig. 212), length 4.6–6.3 mm; northwestern South Island (coastal NN and BR).] .....  
 .....(p. 57)... *puncticollis* Sharp  
 —Pronotum (Fig. 118–119) impunctate on disc ..... 3
- 3(2) Pronotum (Fig. 118) moderately cordate; sides moderately sinuate posteriorly. Head coarsely punctate in and between deep frontal furrows. Head, pronotum, elytra, and abdomen testaceous to reddish black. [Body slender (Fig. 213); two supraorbital setiferous punctures on inner side of each eye; body length 5.0–6.6 mm; northern and central South Island.] .....  
 .....(p. 58)... *simulans* Broun  
 —Pronotum (Fig. 119) less cordate; sides less sinuate than above. Head impunctate or finely and sparsely punctate in shallow frontal furrows. Head, pronotum, elytra, and abdomen black. [Body stout (Fig. 214); one or two supraorbital setiferous punctures on inner side of each eye; body length 4.9–6.1 mm; northern South Island.] .....(p. 59)... *alpinalis* Broun
- 4(1) Colour of apex and sides of elytra widely yellowish red, contrasting with dark background (Fig. 215). Sides of pronotum (Fig. 120) strongly sinuate posteriorly. [Pronotum strongly cordate; body length 4.5–6.2 mm; central and southwestern South Island.] .....  
 .....(p. 59)... *convexus* Broun  
 —Colour of apex and sides of elytra not contrasting with background as described above (Fig. 216–217). Sides of pronotum (Fig. 121–122) less sinuate than above ..... 5
- 5(4) Head, pronotum, elytra, and abdomen testaceous. Pronotum (Fig. 121) finely punctate across base; laterobasal foveae shallow, narrow. Elytra: striae shallow, finely punctate; intervals depressed, becoming slightly convex apically. Abdominal sterna impunctate. [Body (Fig. 216), length 4.8–5.4 mm; southern South Island.] .....(p. 60)... *southlandicus* Broun

—Head, pronotum, elytra, and abdomen black. Pronotum (Fig. 122) coarsely punctate across base; laterobasal foveae deep, wide. Elytra: striae deeper, coarsely punctate; intervals slightly convex throughout. Abdominal sterna punctate. [Body (Fig. 217), length 4.3–5.6 mm; southwestern South Island.] .....  
 .....(p. 61)... *sirvidi* new species

### *Tarastethus puncticollis* Sharp, 1883<sup>E</sup> reinstated

Figures 72, 117, 212; Map p. 181

*Tarastethus puncticollis* Sharp, 1883: 24. Holotype: female (BMNH) labelled “*Tarastethus puncticollis*. Type D.S. Greymouth. (hand-written on card mount) / Type H.T. (circular red-bordered label; typed) / Greymouth, New Zealand. Helms. (white label with red horizontal line; typed) / Sharp Coll. 1905-313.” Condition: Excellent. Paratype: female (BMNH) labelled “ [female symbol] *Tarastethus puncticollis* Greymouth 1885 (hand-written on card mount) / Paratype (circular yellow-bordered label; typed) / Greymouth, New Zealand. Helms. (white label with red horizontal line; typed) / Sharp Coll. 1905-313. (typed)” Condition: Excellent. **Original combination reinstated.**

*Molopsida puncticollis*: Britton, 1940: 277.

**Description.** Body: length 4.6–6.3 mm. Head, pronotum, elytra, and abdomen black; lateral margins of elytra dark reddish; antennae, palpi, and legs entirely pale red. **Head.** Coarsely punctate in and between frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Labrum moderately transverse, truncate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, deep. Eyes moderately large and convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea shallow. Tempora convex, short (about one-third as long as eyes). Mentum: medial tooth moderately shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 117) strongly convex, punctate throughout (coarsely punctate across base, finely to moderately punctate elsewhere; disc impunctate in other species), unwrinkled, slightly cordate; apex straight; anterolateral angles well developed, obtuse; sides moderately rounded anteriorly, slightly sinuate posteriorly; lateral beads slightly widening from apex to base; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles rectangular, not denticulate; laterobasal foveae well defined, coarsely punctate, deep, wide, oblong; base very slightly arcuate, more or less straight medially, slightly oblique laterally, much wider than apex, slightly narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna punctate. **Elytra.** Widest in front

of middle. Shoulders moderately rounded, denticulate. Sides slightly rounded. Scutellar striole uni- or bipunctate. Striae complete, very deep, coarsely punctate. Intervals slightly convex, more strongly so apically. Sutural apices angular. **Abdomen.** Sterna coarsely punctate. Last visible sternum (sternum VII): male with four apical and two subapical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 72): slightly arcuate; apex moderately wide, mostly rounded, not projecting dorsoventrally, with a posterobasal tooth-like projection. Dorsal view: symmetrical (ostium expanding equally towards sides); apex rather straight.

**Material examined.** 90 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 181). South Island: BR, NN.

**Ecology.** Lowland, montane. Wet forests (beech, broadleaf, podocarp). Shaded ground; wet soil. Nocturnal; hides during the day mostly under the loose bark of logs and tree-trunks, also under stones and in moss. The species is primarily corticolous (associated with the bark of trees).

**Biology.** Seasonality: October to June, August. Teneral: December, March, June. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along the suture. Subapterous. Moderate runner. Regular climber (of logs and trees). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 67–68 (biology, dispersal power, ecology, geographic distribution).

**Remark.** *Tarastethus puncticollis* is easily distinguished from its congeners by the presence of punctation over the entire surface of the pronotum.

### *Tarastethus simulans* Broun, 1894 <sup>E</sup> reinstated

Figures 73, 118, 213; Map p. 181

*Tarastethus simulans* Broun, 1894: 309. Holotype: female (BMNH) labelled “Type (circular red-bordered label; typed) / 2673 (hand-written) / Westland / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Tarastethus simulans*. (hand-written).” Condition: Very good (right antennal segments 7–11 missing). Paratype: female (BMNH) labelled “Paratype (circular yellow-bordered label; typed) / 2673. (hand-written) / Capleston. Westland. (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Tarastethus simulans* (hand-written).” Condition: Fair (antennae and tarsi with some segments missing).

**Original combination reinstated.**

*Molopsida simulans*: Britton, 1940: 277.

**Description.** Body: length 5.0–6.6 mm. Head, pronotum, elytra, and abdomen testaceous to reddish black; lateral

margins of elytra light to dark reddish; antennae, palpi, and legs entirely pale red. **Head.** Coarsely punctate in and between frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Labrum moderately transverse, truncate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, deep. Eyes moderately large and convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea shallow. Tempora convex, short (about one-third as long as eyes). Mentum: medial tooth moderately shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula.

**Thorax.** Pronotum (Fig. 118) strongly convex, coarsely punctate across base, finely punctate along lateral beads, impunctate or slightly to moderately punctate anteriorly, impunctate on disc, unwrinkled, moderately cordate; apex straight; anterolateral angles well developed, rounded; sides moderately rounded anteriorly, moderately sinuate posteriorly; lateral beads slightly to moderately widening from apex to base; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles rectangular or acute and projecting laterally, not denticulate; laterobasal foveae well defined, coarsely punctate, deep, wide, oblong; base very slightly arcuate, rather straight medially, slightly oblique laterally, much wider than apex, slightly narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna impunctate or barely punctate, unwrinkled. Metepisterna punctate. **Elytra.** Widest in front of middle. Shoulders moderately rounded, denticulate. Sides slightly rounded. Scutellar striole uni- or bipunctate. Striae complete, very deep, coarsely punctate. Intervals depressed or slightly convex, becoming more convex apically. Sutural apices angular. **Abdomen.** Sterna coarsely punctate. Last visible sternum (sternum VII): male with four apical and two subapical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 73): slightly arcuate; apex very wide (enlarging in apical third), rounded-triangular, not projecting ventrally, with a posterobasal tooth-like projection (longer than in *T. puncticollis*). Dorsal view: symmetrical (ostium expanding equally towards sides); apex slightly deflected to the left.

**Material examined.** 225 specimens (AMNZ, BMNH, CMNH, CMNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 181). South Island: BR, MB, MC, NC, NN, WD.

**Ecology.** Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp). Shaded ground; wet or dry soil. Nocturnal; active at night on logs and moss; hides during the day under logs. The species is xylophilous (associated with logs)

**Biology.** Seasonality: September to July. Teneral: December to February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along the suture. Subapterous. Moderate runner. Occasional climber (on logs). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 68 (biology, dispersal power, ecology, geographic distribution).

**Remarks.** The body colour of *Tarastethus simulans* is highly variable, more so than in other *Tarastethus* species. The apex of the aedeagus (in lateral view) resembles that of *T. puncticollis*, but it is wider, rounded-triangular, and bears a longer posterobasal tooth-like projection.

### *Tarastethus alpinalis* Broun, 1893<sup>E</sup> reinstated

Figures 74, 119, 214; Map p. 180

*Tarastethus alpinalis* Broun, 1893: 1005. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 1801. (hand-written) / [female symbol] (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Mount Arthur (typed) / *Tarastethus alpinalis* (hand-written)." Condition: Excellent. **Original combination reinstated.**

*Molopsida alpinalis*: Britton, 1940: 277.

**Description.** Body: length 4.9–6.1 mm. Head, pronotum, elytra, and abdomen black; lateral margins and apex of elytra dark reddish; antennae, palpi, and legs entirely pale red. **Head.** Impunctate or finely and sparsely punctate in frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Labrum moderately transverse, truncate or subtruncate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, shallow. Eyes moderately large and convex; two supraorbital setiferous punctures or a single puncture posteriorly on inner side of each eye. Interocular fovea shallow. Tempora convex, short (about one-third as long as eyes). Mentum: medial tooth moderately shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula. **Thorax.** Pronotum (Fig. 119) strongly convex, coarsely and sparsely punctate across base, finely punctate along lateral beads, impunctate on disc, unwrinkled, slightly cordate; apex straight; anterolateral angles well developed, obtuse; sides moderately rounded anteriorly, slightly sinuate posteriorly; lateral beads moderately widening from apex to base; lateral depressions absent; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles obtuse or rectangular, denticulate; laterobasal foveae well defined, coarsely punctate, deep, wide, round; base slightly arcuate, slightly to much wider than apex, as wide as elytral base. Prosternum punctate, unwrinkled. Proepisterna

punctate, unwrinkled. Metepisterna punctate. **Elytra.** Widest in front of middle. Shoulders obtuse, denticulate. Sides slightly rounded. Scutellar striole unipunctate. Striae complete, very deep, coarsely punctate. Intervals slightly convex, more strongly so apically. Sutural apices angular. **Abdomen.** Sterna coarsely punctate. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 74): slightly arcuate; apex moderately wide, triangular, strongly projecting ventrally. Dorsal view: symmetrical (ostium expanding equally towards sides); apex deflected to the right.

**Material examined.** 238 specimens (AMNZ, BMNH, CMNH, CMNZ, JNNZ, LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 180). South Island: MB, NN, SD.

**Ecology.** Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp), scrublands, alpine meadows. Shaded (mostly) or open ground; wet soil. Nocturnal; active at night on mossy logs; hides during the day under logs. This species is xylophilous (associated with wood).

**Biology.** Seasonality: Throughout the year, September to August. Teneral: February–March, May. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along the suture. Subapterous. Moderate runner. Occasional climber (on logs). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 64 (biology, dispersal power, ecology, geographic distribution).

**Remark.** *Tarastethus alpinalis* is morphologically close to *T. puncticollis* from which it can be distinguished by the impunctate pronotal disc and the triangularly shaped, strongly projecting apex of the aedeagus, lacking a posterobasal tooth-like projection.

### *Tarastethus convexus* Broun, 1917<sup>E</sup> reinstated

Figures 75, 120, 215; Map p. 180

*Tarastethus convexus* Broun, 1917: 366. Holotype: male (BMNH) labelled "Type (circular red-bordered label; typed) / 3809. (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Routeburn. 13.2.1914. (hand-written) / *Tarastethus convexus*. [male symbol]. (hand-written)." Condition: Excellent. Paratype: male (BMNH) labelled "Paratype (circular yellow-bordered label; typed) / 3809. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Routeburn. 13.2.1914. (hand-written) / *Tarastethus convexus*. [male symbol]. (hand-written)." Condition: Excellent. **Original combination reinstated.**

*Molopsida convexus*: Britton, 1940: 277.

**Description.** Body: length 4.5–6.2 mm. Head, pronotum, elytra, and abdomen dark testaceous; apex, interval 1, and sides of elytra widely yellowish red (elytral colour not so contrasting in other species); antennae, palpi, and legs pale yellowish; tibiae, sometimes femora, infusate. **Head.** Impunctate dorsally or finely and sparsely punctate in frontal furrows, unwrinkled dorsally, slightly narrower across eyes than pronotal apex. Labrum strongly transverse, subtruncate or slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, shallow. Eyes moderately large and convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea obsolete. Tempora convex, rather short (about two-fifths as long as eyes). Mentum: medial tooth slightly shorter than lateral lobes. Paraglossae membranous, prominent, distinctly converging anteriorly, much longer than ligula. **Thorax.** Pronotum (Fig. 120) strongly convex, coarsely and sparsely punctate across base, finely punctate along lateral beads, impunctate on disc, feebly wrinkled anteriorly, strongly cordate; apex straight; anterolateral angles well developed, obtuse; sides strongly rounded anteriorly, strongly sinuate posteriorly; lateral beads slightly widening from apex to base; lateral depressions absent; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles rectangular, denticulate or not; laterobasal foveae well defined, coarsely punctate, deep, wide, round; base very slightly arcuate medially, slightly oblique laterally, about as long as apex, moderately narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna punctate. **Elytra.** Widest about middle. Shoulders strongly rounded, denticulate. Sides strongly rounded. Scutellar striole bipunctate. Striae complete, moderately deep, coarsely punctate. Intervals depressed. Sutural apices angular. **Abdomen.** Sterna finely and sparsely punctate. Last visible sternum (sternum VII): male with four apical and two subapical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 75): slightly arcuate; apex moderately wide, rounded, strongly projecting ventrally. Dorsal view: symmetrical (ostium expanding equally towards sides); apex deflected to the left.

**Material examined.** 63 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 180). South Island: FD, OL, WD.

**Ecology.** Lowland, montane, subalpine. Forests (beech, podocarp). Gregarious. Shaded ground; wet soil. Nocturnal; hides during the day under the loose bark of fallen tree-trunks and logs. This species is corticolous (associated with the bark of trees).

**Biology.** Seasonality: November to February. Teneral: January–February. Predacious (based on mouthpart morphology). Occasionally infested by fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Regular climber (on trees and logs). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 65 (biology, dispersal power, ecology, geographic distribution).

**Remark.** *Tarastethus convexus* is a highly distinctive species easily separated from its congeners by the widely yellowish red apex and sides of elytra and the unusually strongly cordate pronotum.

### *Tarastethus southlandicus* Broun, 1908<sup>E</sup> reinstated

Figures 76, 121, 216; Map p. 181

*Tarastethus southlandicus* Broun, 1908: 350. Holotype: male (BMNH) labelled “HOLOTYPE (circular red-bordered label; typed) / Type (upside-down circular red-bordered label; typed) / 2674. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Invercargill (typed) / *Tarastethus southlandicus* (hand-written) / Philpott n.sp. \_\_\_ (hand-written, upside down label) / HT det. from original descr. BHG 26.05.2011. (typed)” Condition: Very good (left antennal segments 8–11 missing). **Original combination reinstated.**

*Tarastethus fovealis* Broun, 1917: 367. Holotype: female (BMNH) labelled “Type (circular red-bordered label; typed) / 3812\_ (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Lomond. 6.3.1914 (hand-written) / *Tarastethus fovealis*. (hand-written)” Condition: Excellent. **New synonym.**

*Molopsida fovealis*: Britton, 1940: 277.

*Molopsida southlandica*: Britton, 1940: 277.

**Description.** Body: length 4.8–5.4 mm. Head, pronotum, and elytra dark testaceous; abdomen dark brown; pronotum somewhat paler; elytral margins, interval 1, and sutural apices dark reddish; antennae, palpi, femora, and tarsi pale yellowish red; tibiae infusate. **Head.** Impunctate and unwrinkled dorsally, slightly narrower across eyes than pronotal apex. Labrum moderately transverse, subtruncate or slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, shallow. Eyes moderately large and convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea obsolete. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth slightly shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula, moderately converging anteriorly. **Thorax.** Pronotum (Fig. 121) strongly convex, finely and sparsely punctate across base, impunctate on disc, feebly wrinkled along median longitudinal impression, moderately cordate; apex straight; anterolateral angles well developed, subrectangular; sides moderately rounded

anteriorly, moderately sinuate posteriorly; lateral beads narrow; lateral depressions absent; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles usually rectangular, sometimes acute and projecting laterally, not denticulate; laterobasal foveae well defined, finely punctate, shallow, narrow, oblong; base slightly arcuate, about as wide as apex, moderately narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate or barely punctate, unwrinkled. Metepisterna impunctate or barely punctate. **Elytra.** Widest in front of middle. Shoulders moderately rounded, denticulate. Sides strongly rounded. Scutellar striole impunctate. Striae mostly complete (stria 7 obsolete in basal half; complete in other species), shallow, finely punctate (coarsely punctate in other species). Intervals depressed, becoming slightly convex apically. Sutural apices angular. **Abdomen.** Sterna impunctate (punctate in other species). Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 76): strongly arcuate; apex moderately wide, moderately rounded, not projecting dorsoventrally, with a posterodorsal notch. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the right.

**Material examined.** 71 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 181). South Island: CO, DN, OL, SL.

**Ecology.** Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp), tussock grasslands, and alpine meadows. Gregarious. Shaded (mostly) or open ground; wet soil. Nocturnal; active at night on trees; hides during the day under (mostly) and in logs, also in leaf litter.

**Biology.** Seasonality: September to March, June, August. Teneral: January–February. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Regular climber (on trees). Vagility limited by flight incapacity.

**Reference.** Laroche & Larivière, 2001: 68 (biology, dispersal power, ecology, geographic distribution).

**Remark.** Examination of the holotype of *Tarastethus fovealis* revealed it to be conspecific with *Tarastethus southlandicus*.

### *Tarastethus sirvidi*<sup>E</sup> new species

Figures 77, 122, 217; Map p. 181

*Tarastethus sirvidi* Laroche & Larivière, new species. Holotype: male (NZAC) labelled “NEW ZEALAND SL Longwood SF [=State Forest], Bald Hill 700m 26.1.1999 Larivière, Laroche (typed) / Wet subalpine cloud for. [=forest] (beech): mossy floor. Under beech branches, in the open (typed) / HOLOTYPE [male symbol] *Tarastethus sirvidi* Laroche & Larivière, 2013 (red label; typed).” Paratypes: one male and one female (NZAC) from Longwood Range, bearing blue paratype labels.

**Description.** Body: length 4.3–5.6 mm. Head, pronotum, elytra, and abdomen black; margins and suture of elytra reddish; antennae, palpi, and tarsi pale yellowish; tibiae and femora infuscate. **Head.** Finely and sparsely punctate in and between frontal furrows, unwrinkled dorsally, slightly narrower across eyes than pronotal apex. Labrum moderately transverse, subtruncate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width. Frontal furrows wide, shallow. Eyes smaller than in other species, moderately convex; two supraorbital setiferous punctures on inner side of each eye. Interocular fovea absent or almost so. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth slightly shorter than lateral lobes. Paraglossae membranous, prominent, much longer than ligula, slightly converging anteriorly. **Thorax.** Pronotum (Fig. 122) strongly convex, coarsely punctate across base, finely punctate along lateral beads, impunctate on disc, unwrinkled, strongly cordate; apex straight; anterolateral angles poorly developed, obtusely rounded; sides strongly rounded anteriorly, moderately sinuate posteriorly; lateral beads slightly widening from apex to base; lateral depressions absent; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles usually rectangular, sometimes acute and projecting laterally, not denticulate; laterobasal foveae well defined, finely punctate, deep, wide, oblong, elongate anteriorly; base more or less straight, about as wide as apex, moderately narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna punctate. **Elytra.** Widest in front of middle. Sides strongly rounded. Shoulders moderately rounded, denticulate. Scutellar striole absent. Striae complete, moderately deep, coarsely punctate. Intervals slightly convex throughout. Sutural apices angular. **Abdomen.** Sterna coarsely and sparsely punctate. Last visible sternum (sternum VII): male with four apical and two subapical ambulatory setae; female with four apical and four medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 77): strongly arcuate; apex very wide, truncate, not projecting dorsoventrally, notched dorsally only. Dorsal view: symmetrical (ostium expanding equally towards sides); apex deflected to the left.

**Material examined.** 83 specimens (AMNZ, CMNZ, JNNZ, LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 181). South Island: FD, SL (west), WD.

**Ecology.** Lowland, montane, subalpine. Wet forests (beech, podocarp, broadleaf). Shaded ground; wet soil. Nocturnal; active at night on trees; hides during the day in and under logs. This species is xylophilous (associated with wood).

**Biology.** Seasonality: October to March, May–June, August. Teneral: February–March. Predacious (based on mouthpart morphology). Occasionally infested by mites.

**Dispersal power.** Elytra fused in basal half. Subapterous. Moderate runner. Occasional climber (on trees). Vagility limited by flight incapacity.

**Remarks.** This species is named after our good friend Phil Sirvid (Museum of New Zealand Te Papa Tongarewa, Wellington).

*Tarastethus sirvidi* is morphologically close to *T. southlandicus*. In addition to diagnostic characters of the male genitalia *T. sirvidi* has the following distinguishing features: head, pronotum, elytra, and abdomen black; pronotum coarsely punctate across base, with laterobasal foveae deep and wide; elytra with striae deep, coarsely punctate and intervals slightly convex throughout; abdominal sterna punctate.

### Genus *Trichopsida* <sup>E</sup> new genus

Figures 78–92, 123–140, 218–235; Maps p. 181–183

Type species. *Tropopterus oxygonus* Broun, 1886, by present designation.

**Description.** Body: length 3.2–8.4 mm; not pedunculate. Colour dark or pale. Dorsal surface mostly glabrous. Microsculpture present or absent. Iridescence absent on head, present or absent on pronotum and elytra. Metallic lustre absent. **Head.** Mandibles short to very long. Labrum truncate to moderately emarginate anteriorly; anterior marginal setae equidistant. Antennae submoniliform; segments 1–3 glabrous, excluding apical setae (segment 2 densely pubescent in apical third and segment 3 along its entire length in *T. simplex*). Eyes reduced or normally developed, usually convex (rarely depressed or subdepressed); two supraorbital setiferous punctures on inner side of each eye. Interocular fovea absent. Tempora inflated. Mentum feebly depressed, not excavated laterally; median tooth usually acute apically (rarely rounded), usually slightly shorter than lateral lobes (rarely much shorter); outer side of lateral lobes slightly rounded. Ligula truncate, usually narrow apically (rarely wide). Paraglossae glabrous. Palpi: terminal segment fusiform, usually not elliptical (except in

*T. nitida*), setulose; penultimate maxillary segment setulose. **Thorax.** Pronotum (Fig. 123–140) usually slightly to strongly transverse or cordate, rarely subquadrate or subrectangular; anterior bead incomplete (narrowly interrupted medially); a single setiferous puncture (anteriorly) or two punctures on each side; posterolateral angles usually obtuse or subrectangular, rarely acute and projecting laterally; laterobasal foveae usually present, shallow or deep, not sulcate; posterior bead present, complete or incomplete (narrowly interrupted medially); base usually narrower than apex, sometimes as wide. Scutellum partly visible, broad, inserted entirely between elytral bases. Metepisterna short, subquadrate. **Legs.** Tarsi glabrous dorsally, pubescent ventrally (segment 5 of metatarsi with two pairs of ventral setae); segment 4 of pro- and mesotarsi emarginate apically (cleft for less than half their length). **Elytra.** Convex or depressed; usually ovate or subovate, rarely elongate. Basal margin usually complete (interrupted medially in *T. popei*) and reaching level of stria 1 (stria 3 in *T. simplex*). Shoulders normally developed, obtuse or rounded. Scutellar setiferous pore usually present, inserted at base of stria 1 or at junction of striae 1+2, rarely at base of stria 2. Scutellar striole usually present, short, uni- to tripunctate (sometimes impunctate). Striae present, complete or incomplete, punctate or impunctate; stria 3 without or with one to four setiferous punctures; stria 5 without setiferous punctures. Interval 8 carinate apically. Umbilicate series separated into two major groups (7+6 setiferous punctures), with posterior group continuous. Sutural apices usually angular, sometimes angular-rounded. **Abdomen.** Sterna usually impunctate and unwrinkled. Last visible sternum (sternum VII): male usually with two or four apical ambulatory setae (six in *T. simplex*); female usually with four apical setae (six in *T. nitida* and *T. simplex*) and two medial (sometimes four) ambulatory setae. **Aedeagus.** Lateral view (Fig. 78–92): slightly to strongly arcuate; apex narrow or moderately wide, projecting or not ventrally. Dorsal view: asymmetrical (ostium deflected to the left or to the right); apex either straight or deflected to the left or to the right. **Parameres.** Left paramere elongate, glabrous or setulose (with a few short setae at apex); right paramere glabrous or setulose (with a few short setae at apex or numerous short ventral setae in apical half).

**References.** Larochelle & Larivière, 2001: 65–68 (as *Molopsida*, in part; catalogue), 2007a: 38 (as *Molopsida*, in part; description, ecology, geographic distribution, references).

**Remarks.** The generic name is derived from the Greek noun *Tricho-*, hair (Brown, 1985) and the suffix *-psida*, from the generic name *Molopsida*. The morphological characters unifying species of *Trichopsida* are: terminal

segments of palpi setulose and pronotum with posterior bead. The segment 5 of the metatarsi with two pairs of ventral setae is also a character shared among species of this genus.

The genus *Trichopsida* includes eight species previously ascribed to the genus *Molopsida* and ten newly described species.

### Key to species of *Trichopsida*

- 1 Antennae (Fig. 37): segment 2 densely pubescent in apical third; segment 3 entirely pubescent. [Body (Fig. 218), length 4.6–5.8 mm; southeastern South Island (DN, SL).] .....(p. 64)... *simplex* (Broun)
- Antennae (Fig. 38): segments 2–3 glabrous (excluding apical setae) ..... 2
- 2(1) Pronotum (Fig. 40) with a single setiferous puncture on each side (anteriorly) ..... 3
- Pronotum (Fig. 39) with two setiferous punctures on each side ..... 11
- 3(2) Elytra: stria 3 with four setiferous punctures. Body length over 6.3 mm ..... 4
- Elytra: stria 3 with one or two setiferous punctures. Body length 6.3 mm or less ..... 6
- 4(3) Microsculpture absent on head, pronotum, and elytra; dorsal surface shiny. Pronotum (Fig. 124) moderately cordate. Elytra: striae very deep, coarsely punctate; intervals strongly convex. [Body (Fig. 219), length 7.6 mm; northwestern South Island (BR).] .....(p. 65)... *nitida* new species
- Microsculpture present on head, pronotum, and elytra; dorsal surface dull. Pronotum (Fig. 125–126) strongly cordate. Elytra: striae moderately deep, impunctate; intervals depressed, becoming slightly convex apically ..... 5
- 5(4) Pronotum (Fig. 125): each lateral setiferous puncture touching lateral bead; laterobasal foveae ill-defined, shallow. Tempora convex, short (about one third as long as eyes). Male aedeagus (in lateral view; Fig. 79): apex without a posteroventral tooth-like prolongation. [Body (Fig. 220), length 6.4–7.6 mm; northwestern South Island (NN, BR).] .....(p. 66)... *robusta* (Broun)
- Pronotum (Fig. 126): each lateral setiferous puncture not touching lateral bead; laterobasal foveae well defined, deep. Tempora oblique, moderately long (about half as long as eyes). Male aedeagus (in lateral view; Fig. 80): apex with a posteroventral tooth-like prolongation. [Body (Fig. 221), length 6.7–8.4 mm; northeastern South Island (SD).] .....(p. 67)... *maudensis* new species

- 6(3) Microsculpture present on pronotum and elytra. Elytra (Fig. 222–224) subovate, moderately convex; sides moderately rounded; striae impunctate or finely punctate ..... 7
- Microsculpture absent on pronotum and elytra. Elytra (Fig. 225–227) ovate, strongly convex; sides strongly rounded; striae coarsely punctate ..... 9
- 7(6) Pronotum (Fig. 127): base coarsely punctate; laterobasal foveae deep, very wide, rounded; lateral depressions present, strongly widening posteriorly. Elytra (Fig. 222): colour of sides not contrasting with background; striae moderately deep, impunctate; intervals slightly convex. [Body length 5.4–6.3 mm; central South Island (BR, WD, NC, MC).] .....(p. 68)... *diversa* (Broun)
- Pronotum (Fig. 128–129): base impunctate or finely punctate; laterobasal foveae shallow, narrow, elongate medially; lateral depressions absent. Elytra (Fig. 223–224); colour of sides contrasting with background; striae shallow, finely punctate; intervals depressed ..... 8
- 8(7) Sides of pronotum and elytra (Fig. 223) widely pale yellowish, strongly contrasting with black background. Pronotum (Fig. 128) subquadrate, not sinuate posteriorly, iridescent, impunctate. [Body length 4.4–5.8 mm; southern South Island (MK, CO, DN, SL).] .....(p. 69)... *oxygona* (Broun)
- Sides of pronotum and elytra (Fig. 224) darker, not contrasting with background as above. Pronotum (Fig. 129) strongly cordate, sinuate posteriorly, not iridescent, finely punctate across base. [Body length 5.6–5.9 mm; south central South Island (OL).] .....(p. 70)... *optata* (Broun)
- 9(6) Pronotum (Fig. 130) strongly cordate; sides strongly sinuate posteriorly; posterolateral angles subrectangular or acute and projecting laterally. Elytra: striae with moderately coarse punctation. Male aedeagus (in lateral view; Fig. 84): apex subtriangular. [Body (Fig. 225), length 3.2–5.2 mm; northwestern South Island (NN, BR).] .....(p. 70)... *erwini* new species
- Pronotum (Fig. 131–132) slightly cordate; sides not sinuate posteriorly; posterolateral angles obtuse. Elytra: striae with very coarse punctation. Male aedeagus (in lateral view; Fig. 85–86): apex not subtriangular .. 10
- 10(9) Antennae entirely pale yellowish. Elytra (Fig. 226) mostly dark brown. Male aedeagus (in lateral view; Fig. 85): apex moderately wide, subtruncate-rounded. [Body length 3.9–4.4 mm; central North Island.] .....(p. 71)... *pretiosa* (Broun)

- Antennae partially pale yellowish, segments 4–6 infuscate. Elytra (Fig. 227) mostly black. Male aedeagus (in lateral view; Fig. 86); apex narrow, rounded. [Body length 3.3–4.2 mm; northwestern South Island (NN).] .....(p. 72)... *paturauensis* new species
- 11(2)** Elytra: stria 3 with setiferous punctures ..... 12
- Elytra: stria 3 without setiferous punctures ..... 14
- 12(11)** Elytra: stria 3 with three setiferous punctures. Colour (Fig. 228) mostly blackish brown. [Body length 4.3–5.4 mm; northern South Island (SD).] .....(p. 73)... *koyai* new species
- Elytra: stria 3 with a single setiferous puncture, situated about middle. Colour (Fig. 229–230) mostly infuscate testaceous ..... 13
- 13(12)** Pronotum (Fig. 134): laterobasal foveae well defined, deep, coarsely punctate. Elytra: striae deep, coarsely punctate; stria 3 with a large setiferous puncture; intervals slightly convex. Legs partially pale red, tibiae and tarsi infuscate. Abdominal sterna coarsely punctate. [Body (Fig. 229), length 3.9–4.2 mm; northwestern South Island (BR).] .....(p. 74)... *hewitti* new species
- Pronotum (Fig. 135): laterobasal foveae ill-defined, very shallow, finely punctate. Elytra: striae shallow, finely punctate; stria 3 with a small setiferous puncture; intervals depressed. Legs entirely pale red. Abdominal sterna impunctate. [Body (Fig. 230), length 4.6–5.4 mm; southern North Island.] .....(p. 75)... *boltoni* new species
- 14(11)** Microsculpture absent on head, pronotum, and elytra ..... 15
- Microsculpture present on head, pronotum, and elytra ..... 16
- 15(14)** Pronotum (Fig. 136) quadrate, slightly cordate; sides strongly rounded anteriorly, slightly sinuate posteriorly; laterobasal foveae present, shallow, elongate; posterior bead complete. Sides of elytra (Fig. 231) slightly rounded. [Body length 4.7–6.6 mm; northwestern South Island (BR).] .....(p. 75)... *goethei* new species
- Pronotum (Fig. 137) slightly transverse, subrectangular; sides slightly rounded anteriorly, not sinuate posteriorly; laterobasal foveae absent; posterior bead interrupted medially. Sides of elytra (Fig. 232) almost straight. [Body length 4.7–4.9 mm; southern North Island (WN).] .....(p. 76)... *nunni* new species

- 16(14)** Pronotum (Fig. 138) strongly wrinkled and punctate throughout. Elytra: striae moderately deep, finely punctate. Tempora (Fig. 41) very long (about as long as eyes). [Body (Fig. 233), length 4.2–5.5 mm; central South Island.] .....(p. 77)... *debilis* (Sharp)
- Pronotum (Fig. 139–140) wrinkled only along median longitudinal impression and between laterobasal foveae, impunctate or finely punctate across posterior bead only. Elytra: striae shallow, barely punctate. Tempora (Fig. 42) shorter (about two-thirds as long as eyes) ..... 17
- 17(16)** Head, pronotum, and elytra black (forebody sometimes tinged with reddish). Pronotum (Fig. 139) moderately convex, quadrate; anterolateral angles (in lateral view) poorly developed, obtusely rounded; sides not sinuate posteriorly. Elytra (Fig. 234) depressed dorsally and slightly convex laterally, subelongate; basal margin complete; sides slightly rounded. [Body length 4.7–6.6 mm; southern South Island (general).] .....(p. 78)... *propinqua* (Broun)
- Head, pronotum, and elytra testaceous. Pronotum (Fig. 140) slightly convex, very transverse; anterolateral angles (in lateral view) strongly developed, obtuse; sides slightly sinuate posteriorly. Elytra (Fig. 235) slightly convex, subovate; basal margin interrupted medially; sides moderately rounded. [Body length 4.5–5.3 mm; southern South Island (CO).] .....(p. 79)... *popei* new species

### *Trichopsida simplex* (Broun, 1903)<sup>E</sup> new combination

Figures 78, 123, 218; Map p. 183

*Tarastethus simplex* Broun, 1903: 457. Holotype: female (BMNH) labelled “HOLOTYPE (circular red-bordered label; typed) / 2656. [male symbol] (hand-written) / Type (upside-down circular red-bordered label; typed) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Port Chalmers. J.J. Walker (hand-written) / *Tarastethus simplex*. (hand-written) / HT det. from original descr. BHG 26.05.2011. (typed)”. Condition: Excellent.

*Molopsida simplex*: Britton, 1940: 477.

**Description.** Body: length 4.6–5.8 mm. Head, pronotum, and abdomen brownish black; elytra darker brownish black with interval 1, lateral margins, and apex pale yellowish; antennae, palpi, femora, and tarsi pale yellowish; tibiae infuscate. Microsculpture feeble, very transverse (with microlines). Iridescence absent on head, feeble on pronotum and elytra. Very shiny. **Head.** Impunctate and unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles very long. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1



(scape) moderately long, about 1.5× longer than its maximum width, glabrous (excluding apical setae); segment 2 densely pubescent in apical third (glabrous, excluding apical setae, in other species); segment 3 densely pubescent (glabrous, excluding apical setae, in other species). Frontal furrows wide, shallow. Eyes normally developed, moderately large, strongly convex. Tempora oblique, short (about one-third as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 123) moderately convex, impunctate, feebly wrinkled basally as well as along median longitudinal impression and apex, strongly transverse, trapezoid; apex strongly arcuate; anterolateral angles strongly developed, obtusely rounded; sides strongly rounded anteriorly, not sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles acute and projecting laterally, denticulate; laterobasal foveae absent; posterior bead interrupted medially; base emarginate medially, slightly oblique laterally, slightly narrower than apex, much wider than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Moderately convex, ovate, widest about middle. Basal margin incomplete, only reaching level of stria 3 (complete, reaching level of stria 1 in other species). Shoulders rounded, denticulate. Sides strongly rounded. Scutellar setiferous pore absent. Scutellar striae bipunctate. Striae complete, shallow (striae 5–7 shallower), virtually impunctate; stria 3 with a single setiferous puncture (behind middle). Intervals depressed, becoming slightly convex apically. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with six apical ambulatory setae (with two or four setae in other species); female with six apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 78): strongly arcuate; apex narrow, subtriangular-rounded, strongly projecting ventrally (more so than in other species). Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the right. **Parameres.** Left paramere glabrous; right paramere setulose (with numerous short ventral setae in apical half). **Material examined.** 31 specimens (BMNH, CMNZ, JNNZ, NZAC).

**Geographic distribution** (Map p. 183). South Island: DN–Allison Scenic Reserve (near Akatore). Measly Beach (near Waikaro). Port Chalmers. Taieri Mouth (Picnic Gully). Waipori Falls. Waipori Gorge. Waipori Valley (Government Track). SL–Tapanui (Whisky Gully).

**Ecology.** Lowland. Wet forests (broadleaved, podocarp, beech). Shaded ground; wet soil. Nocturnal; hides during the day mostly in the soil and under stones, sometimes in leaf litter. The species is truly endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones). It is best collected by soil-washing techniques.

**Biology.** Seasonality: September, December to February, April to June. Teneral: May. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 68 (biology, dispersal power, ecology, geographic distribution).

**Remarks.** *Trichopsida simplex* differs from all other *Trichopsida* species by the following characters: antennae with segment 2 densely pubescent in apical third (segment 2 glabrous, excluding apical setae in other species), segment 3 densely pubescent (segment 3 glabrous excluding apical setae in other species); elytra with basal margin incomplete, only reaching level of stria 3 (complete, reaching level of stria 1 in other species); last visible sternum (sternum VII) of male abdomen with six apical ambulatory setae (with two or four setae in other species); apex of aedeagus strongly projecting ventrally (more so than in other species). The above-mentioned characters are generally indicative of species-level variation among Moriormorphina and probably do not warrant a different subgeneric or generic status for this species. *Trichopsida simplex* simply appears to be an odd-looking species of *Trichopsida*.

### *Trichopsida nitida* <sup>♀</sup> new species

Figures 124, 219; Map p. 182

*Trichopsida nitida* Larochelle & Larivière, new species. Holotype: female (NZAC) labelled “NEW ZEALAND BR Tiropahi River 140m 11 Feb 1986 J. Nunn & J.I. Townsend (typed) / NZMS 260: K30: 810144 (typed) / HOLOTYPE [female symbol] *Trichopsida nitida* Larochelle & Larivière, 2013 (red label; typed).”

**Description.** Body: length 7.6 mm. Head, pronotum, and elytra black; lateral margins and apex of elytra yellowish red; abdomen black; antennae, palpi, and legs entirely pale red. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Coarsely punctate in frontal furrows, wrinkled on frons, slightly narrower across eyes than pronotal apex. Mandibles short. Labrum moderately transverse, asymmetrical, slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 2× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, shallow. Eyes normally

developed, moderately large and convex. Tempora oblique, short (about one-third as long as eyes). Mentum: medial tooth acute apically, moderately shorter than lateral lobes. Ligula wide apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, elliptical, sparsely setulose; penultimate maxillary segment apically setulose. **Thorax.** Pronotum (Fig. 124) moderately convex, coarsely punctate across base, feebly wrinkled across base and along median longitudinal impression, strongly transverse, moderately cordate; apex strongly arcuate; anterolateral angles moderately developed, obtusely rounded; sides moderately rounded anteriorly, moderately sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions absent; a single setiferous puncture on each side (anteriorly) about middle and touching lateral bead; posterolateral angles subrectangular, not denticulate; laterobasal foveae ill-defined, coarsely and densely punctate, shallow, wide, oblong; posterior bead complete; base emarginate medially, slightly oblique laterally, moderately narrower than apex, slightly narrower than elytral base. Prosternum punctate, wrinkled. Proepisterna punctate, wrinkled. Metepisterna punctate. **Elytra.** Moderately convex, ovate, widest about middle. Basal margin complete. Shoulders rounded, denticulate. Sides strongly rounded. Scutellar setiferous pore inserted at base of stria 1. Scutellar striole impunctate. Striae complete, very deep, coarsely punctate; stria 3 with four setiferous punctures. Intervals strongly convex. Sutural apices angular-rounded. **Abdomen.** Sterna coarsely punctate, wrinkled. Last visible sternum (sternum VII): male unknown; female with six apical and four medial ambulatory setae. **Aedeagus and Parameres.** Male unknown.

**Material examined.** A single specimen (NZAC).

**Geographic distribution** (Map p. 182). South Island: BR–Tiropahi River Valley (Tiropahi Track).

**Ecology.** Lowland. Flat beech forest, along a riverbank (J. Nunn, personal communication). Probably living in shaded ground and hiding during the day under cover. This species is probably epigeal (living on the surface of the ground).

**Biology.** Seasonality: February. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** The name of this species is derived from the Latin adjective *nitidus*, shining (Brown, 1985).

*Trichopsida nitida* is morphologically close to *T. robusta* and *T. maudensis*. This species has the following distinguishing features: dorsal surface shiny and without microsculpture; terminal segment of palpi elliptical;

pronotum moderately cordate; elytra with striae coarsely punctate and intervals strongly convex; abdominal sterna punctate and wrinkled. The male is unknown.

### *Trichopsida robusta* (Broun, 1921)<sup>E</sup> new combination

Figures 79, 125, 220; Map p. 183

*Tarastethus robustus* Broun, 1921: 600. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 4163. [male symbol] (hand-written) / Mt. Roberts. 28.12.1915. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922-482. (white label with red horizontal line; typed) / *Tarastethus robustus*. [male symbol] (hand-written).” Condition: Excellent.

*Molopsida robusta*: Britton, 1940: 477.

**Description.** Body: length 6.4–7.6 mm. Head, pronotum, elytra, and abdomen reddish-black or brown; lateral margins and apex of elytra yellowish red; antennae, palpi, and legs entirely pale red. Microsculpture strong and isodiametric. Iridescence absent. Dull (as in *T. maudensis*).

**Head.** Impunctate dorsally, wrinkled on frons, slightly narrower across eyes than pronotal apex. Mandibles short. Labrum moderately transverse, slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 2× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, shallow. Eyes normally developed, moderately large and convex. Tempora convex, short (about one-third as long as eyes). Mentum: medial tooth rounded apically, slightly shorter than lateral lobes. Ligula wide apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment apically setulose. **Thorax.** Pronotum (Fig. 125) moderately convex, coarsely punctate across base, feebly wrinkled across base, strongly transverse, strongly cordate; apex strongly arcuate; anterolateral angles moderately developed, obtuse; sides strongly rounded anteriorly, strongly sinuate posteriorly; lateral beads narrow; lateral depressions absent; a single setiferous puncture on each side (anteriorly) about middle and touching lateral bead; posterolateral angles subrectangular or acute and projecting laterally, not denticulate; laterobasal foveae ill-defined, coarsely punctate, shallow, rather wide, elongate anteriorly; posterior bead complete; base emarginate medially, slightly oblique laterally, about as wide as apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Moderately convex, ovate, widest about middle. Basal margin complete. Shoulders rounded, denticulate. Sides strongly rounded. Scutellar setiferous pore inserted at base of stria 1. Scutellar striole impunctate. Striae complete, moderately deep, impunctate; stria 3 with four setiferous

punctures. Intervals depressed, becoming slightly convex apically. Sutural apices angular-rounded. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 79): slightly arcuate; apex moderately wide, rounded, strongly projecting ventrally, without a posteroventral tooth-like prolongation. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected and twisted strongly to the left. **Parameres.** Left paramere setulose (with a few short setae at apex); right paramere setulose (with numerous short ventral setae in apical half).

**Material examined.** 15 specimens (BMNH, CMNH, JNNZ, NZAC).

**Geographic distribution** (Map p. 183). South Island: BR—Mount Robert. NN—Canaan (Takaka Hill). Matiri Tops. Mount Arthur (Flora Track, Tableland). Mount Domett. Turk's Cap (west of Mount Owen). Wangapeka (Patriarch Creek).

**Ecology.** Lowland, montane, subalpine, alpine. Wet forests (beech) and alpine meadows. Shaded (mostly) or open ground; wet soil. Nocturnal; hides during the day under stones. This species is primarily epigeal (living on the surface of the ground).

**Biology.** Seasonality: September, November–December, February–March. Teneral: September. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vigility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 68 (biology, dispersal power, ecology, geographic distribution).

**Remarks.** *Trichopsida robusta* and *T. maudensis* are externally similar. See also remarks under *T. maudensis*.

### *Trichopsida maudensis* <sup>♀</sup> new species

Figures 80, 126, 221; Map p. 182

*Trichopsida maudensis* Larochelle & Larivière, new species.

Holotype: male (NZAC) labelled "NEW ZEALAND S.D. Maud. Is. 13th Sept 1981 Col: P.R. Nutman. (hand-written) / Collected from Pit trap material. 2. night period. Area 2. wet. (hand-written) / Molopsida robusta Det. J.I. Townsend 1990 (hand-written) / HOLOTYPE [male symbol] *Trichopsida maudensis* Larochelle & Larivière, 2013 (red label; typed)." Paratype: one female (NZAC) from the same locality as the holotype, bearing blue paratype label.

**Description.** Body: length 6.7–8.4 mm. Head, pronotum, and elytra black; lateral margins and apex of elytra yel-

lowish red; abdomen black; antennae, palpi, and legs entirely pale red. Microsculpture strong and isodiametric. Iridescence absent. Dull (as *T. robusta*). **Head.** Impunctate dorsally, wrinkled on frons, slightly narrower across eyes than pronotal apex. Mandibles short. Labrum moderately transverse, slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 2× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, shallow. Eyes normally developed, moderately large and convex. Tempora oblique, moderately long (about half as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula wide apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment apically setulose. **Thorax.** Pronotum (Fig. 126) moderately convex, coarsely punctate and feebly wrinkled across base, strongly transverse, strongly cordate; apex strongly arcuate; anterolateral angles moderately developed, obtuse; sides strongly rounded anteriorly, strongly sinuate posteriorly; lateral beads narrow; lateral depressions absent; a single setiferous puncture on each side (anteriorly), about middle and not touching lateral bead; posterolateral angles subrectangular, not denticulate; laterobasal foveae well defined, coarsely punctate, deep, wide, elongate anteriorly; posterior bead complete; base emarginate medially, slightly oblique laterally, moderately narrower than apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Moderately convex, ovate, widest about middle. Basal margin complete. Shoulders rounded, denticulate. Sides strongly rounded. Scutellar setiferous pore inserted at base of stria 1. Scutellar striae complete. Striae complete, moderately deep, impunctate; stria 3 with four setiferous punctures. Intervals depressed, becoming slightly convex apically. Sutural apices angular-rounded. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and four medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 80): moderately arcuate; apex moderately wide, rounded, strongly projecting ventrally, with a posteroventral tooth-like prolongation. Dorsal view: asymmetrical (ostium deflected to the right); apex strongly deflected and twisted to the left (as in *T. robusta*). **Parameres.** Left paramere setulose (with a few short setae at apex); right paramere setulose (with numerous short ventral setae in apical half).

**Material examined.** Three specimens (NZAC).

**Geographic distribution** (Map p. 182). South Island: SD—Maud Island. Mount Stokes.

**Ecology.** Lowland (hills). Wet forest (beech) area. Probably living in shaded ground and hiding during the day under cover. This species is probably epigeal (living on the surface of the ground).

**Biology.** Seasonality: September, May. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after its type locality, Maud Island (SD), and the Latin suffix *-ensis*, denoting a place, locality, or country (Brown, 1985).

*Trichopsida maudensis* is morphologically close to *T. robusta* from which it can only be reliably diagnosed using the male genitalia, especially the posteroventral tooth-like projection of the aedeagus. In addition, *T. maudensis* has the following characteristic features: tempora oblique, moderately long (about half as long as eyes); pronotum with lateral setiferous puncture not touching lateral bead and laterobasal foveae well defined, deep.

### *Trichopsida diversa* (Broun, 1917) <sup>♀</sup> new combination

Figures 81, 127, 222; Map p. 181

*Tarastethus diversus* Broun, 1917: 366. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 3810. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922-482. (white label with red horizontal line; typed) / Moa Basin. 20.10.1913. (hand-written) / Tarastethus diversus (hand-written)." Condition: Excellent.

*Tarastethus halli* Broun, 1917: 367. Holotype: male (BMNH) labelled "Type (circular red-bordered label; typed) / 3811-[male symbol] (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922-482. (white label with red horizontal line; typed) / Mount Kiwi. 20-10-1913. (hand-written) / Tarastethus halli -[male symbol]. (hand-written)." Condition: Excellent. **New synonym.**

*Molopsida diversa*: Britton, 1940: 477.

*Molopsida halli*: Britton, 1940: 477.

**Description.** Body: length 5.4–6.3 mm. Head, pronotum, elytra, and abdomen dark chestnut-red (forebody darker); base, lateral margins, and apex of elytra pale red; antennae, palpi, and legs entirely pale red. Microsculpture absent on head, feeble and very transverse on pronotum, strong and very transverse on elytra. Iridescence absent. Very shiny on head, moderately shiny on pronotum and elytra. **Head.** Coarsely punctate in interocular area, unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles short. Labrum strongly transverse, moderately emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide,

deep. Eyes reduced, very small, slightly convex. Tempora convex, very long (about as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment setulose (with a few sparse vestigial setae and a few short apical setae). **Thorax.** Pronotum (Fig. 127) moderately convex, coarsely punctate across base, finely punctate along lateral beads, feebly wrinkled along median longitudinal impression, strongly transverse, moderately cordate; apex strongly arcuate; anterolateral angles well developed, obtuse; sides strongly rounded anteriorly, moderately sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions present, strongly widening posteriorly; a single setiferous puncture on each side (anteriorly), about middle and touching lateral bead; posterolateral angles rectangular, not denticulate; laterobasal foveae well defined, coarsely punctate, deep, unusually wide (reaching lateral margins and median longitudinal impression), rounded; posterior bead complete; base unusually depressed, emarginate medially, slightly oblique laterally, about as wide as apex, moderately narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Moderately convex, subovate, widest about middle. Basal margin complete. Shoulders obtuse, not denticulate. Sides moderately rounded. Scutellar setiferous pore inserted at junction of striae 1+2. Scutellar striole impunctate. Striae complete, moderately deep, impunctate; stria 3 with two setiferous punctures. Intervals slightly convex. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 81): strongly arcuate (more so than in other species); apex very narrow, exceptionally slender (more so than in other species), not projecting dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the left); apex deflected to the left. **Parameres.** Glabrous.

**Material examined.** 27 specimens (BMNH, CMNZ, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 181). South Island: BR, WD, NC, MC.

**Ecology.** Lowland, montane, subalpine, alpine. Forests (beech, podocarp, broadleaf), shrublands, scrublands, and moraines. Shaded (mostly) or open ground. Nocturnal; hides during the day in leaf litter, moss, under embedded fallen branches and stones, and under logs. The body shape (poorly-developed eyes, inflated tempora) suggests that the

species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones).

**Biology.** Seasonality: October to December, February, April. Teneral: October, February. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 65 (biology, dispersal power, ecology, geographic distribution).

**Remarks.** Examination of the holotype of *Tarastethus halli* revealed it to be conspecific with *Trichopsida diversa*. The pronotum of this species is very characteristic with its coarsely punctate base, deep and unusually wide lateral foveae, and lateral depressions strongly widening posteriorly.

### *Trichopsida oxygona* (Broun, 1886)<sup>E</sup> new combination

Figures 82, 128, 223; Map p. 182

*Tropopterus oxygonus* Broun, 1886: 820. Holotype: male (BMNH) labelled "HOLOTYPE (circular red-bordered label; typed) / Type (upside-down circular red-bordered label; typed) / 1456. (hand-written) / Maungatua / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Tarastethus oxygonus*. (hand-written) / HT det. from original descr. BHG 26.05.2011. (typed)" Condition: Very good (left antennal segments 8–11 glued to card).

*Tarastethus oxygonus*: Sharp, 1886: 373.

*Tarastethus cinctus* Broun, 1893: 1005. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 1803. (hand-written) / Hermitage Mt. Cook. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / *Tarastethus cinctus*. (hand-written)." Condition: Excellent. **New synonym.**

*Molopsida cincta*: Britton, 1940: 277.

*Molopsida oxygona*: Britton, 1940: 277.

**Description.** Body: length: 4.4–5.8 mm. Head, pronotum, and elytra black; sides of pronotum and elytra widely pale yellowish; abdomen mostly brownish black; antennae, palpi, and legs pale red. Microsculpture very transverse (with microlines), feeble on head and pronotum, strong on elytra. Iridescence absent on head, moderate on pronotum, strong on elytra. Very shiny. **Head.** Impunctate and unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles short. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, deep. Eyes normally developed, moderately

large, slightly convex. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose in apical half. **Thorax.** Pronotum (Fig. 128) moderately convex, impunctate, feebly wrinkled along median longitudinal impression, subquadrate; apex strongly arcuate laterally, straight medially; anterolateral angles strongly developed, very wide, obtusely rounded; sides strongly rounded anteriorly and posteriorly; lateral beads narrow; lateral depressions absent; a single setiferous puncture on each side (anteriorly), situated slightly or well in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae ill-defined, impunctate or finely punctate, shallow, narrow, elongate medially; posterior bead complete; base emarginate medially, slightly oblique laterally, about as wide as apex, moderately narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Moderately convex, subovate, widest about middle. Basal margin complete. Shoulders obtuse, not denticulate. Sides moderately rounded. Scutellar setiferous pore inserted at base of stria 1. Scutellar striole bi- or tripunctate. Striae mostly complete (striae 6–7 obsolete basally), shallow (striae 5–7 shallower), finely punctate; stria 3 with one or two setiferous punctures. Intervals depressed. Sutural apices rounded to angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 82): slightly arcuate; apex moderately wide, triangular-oblong, strongly projecting ventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the left. **Parameres.** Glabrous.

**Material examined.** 22 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 182). South Island: CO—Rock and Pillar Range (Six Mile Creek, Leaning Lodge). DN—Careys Creek (near Waitati). Mount Maungatua. Waipori Falls. Swampy Summit (Leith Saddle). MK—Mount Cook (Bush Stream, The Hermitage, Sealy Range). SL—Blue Mountains (Manuka Ridge road, Microwave Tower), Gore (Croydon Bush).

**Ecology.** Lowland, montane, subalpine, alpine. Wet forests (broadleaf, podocarp, beech) and alpine meadows. Shaded ground; wet soil. Nocturnal; hides during the day in plant litter, leaf litter, moss, turf, soil, cushion plants, and under stones. This species is primarily epigeal (living on the surface of the ground).

**Biology.** Seasonality: October to June, August. Teneral: October, January, March. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along the suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 67 (biology, dispersal power, ecology, geographic distribution).

**Remark.** Examination of the holotype of *Tarastethus cincus* revealed it to be conspecific with *Trichopsida oxygona*.

### *Trichopsida optata* (Broun, 1917)<sup>E</sup> new combination

Figures 129, 224; Map p. 182

*Tarastethus optatus* Broun, 1917: 369. Holotype: female (BMNH) labelled "Type (circular red-bordered label; typed) / 3815- (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922-482. (white label with red horizontal line; typed) / Mount Dick. 17-3-1914. (hand-written) / *Tarastethus optatus*-[female symbol]- (hand-written)." Condition: Good (terminal segment of right antenna missing).

*Molopsida optata*: Britton, 1940: 277.

**Description.** Body: length 5.6–5.9 mm. Head, pronotum, elytra brownish black; sides of pronotum dark or somewhat paler anterolaterally; sides of elytra narrowly pale yellowish; abdomen dark brownish; antennae, palpi, and femora pale red; tibiae and tarsi infusate. Microsculpture very transverse (with microlines), feeble on head and pronotum, strong on elytra. Iridescence absent on head and pronotum, strong on elytra. Very shiny. **Head.** Impunctate and unwrinkled dorsally (as in *T. oxygona*), much narrower across eyes than pronotal apex. Mandibles short. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, rather deep. Eyes normally developed, moderately large, slightly convex. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment apically setulose. **Thorax.** Pronotum (Fig. 129) moderately convex, finely punctate across base, feebly wrinkled along median longitudinal impression, strongly transverse, strongly cordate; apex rather straight; anterolateral angles poorly developed, obtusely rounded; sides strongly rounded anteriorly, oblique and slightly sinuate posteriorly; lateral beads narrow; lateral depressions absent; a single setiferous puncture on each side (anteriorly), situated just in front of middle and touching lateral bead; posterolateral angles

obtuse, denticulate; laterobasal foveae well defined, finely punctate, shallow, narrow, elongate medially; posterior bead complete; base emarginate medially, slightly oblique laterally, slightly wider than apex, moderately narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Moderately convex, subovate, widest about middle. Basal margin complete. Shoulders obtuse, not denticulate. Sides moderated rounded. Scutellar setiferous pore inserted at junction of striae 1+2. Scutellar striae barely visible, almost impunctate. Striae mostly complete (striae 6–7 obsolete basally), shallow, finely punctate; stria 3 with two small setiferous punctures. Intervals depressed. Apices angular-rounded. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII); male unknown; female with four to six apical and three to five medial ambulatory setae. **Aedeagus and Parameres.** Male unknown.

**Material examined.** Six specimens (BMNH, NZAC).

**Geographic distribution** (Map p. 182). South Island: OL—Mount Dick. North Mavora Lake. South Mavora Lake.

**Ecology.** Lowland (hills), subalpine. Wet forests (beech). Shaded ground; mossy soil. Probably nocturnal and hiding during the day in moss. The species is possibly epigeal (living on the surface of the ground). Four specimens were collected by pit trapping.

**Biology.** Seasonality: January, March. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused in basal half. Subapterous. Moderate runner. Vagility limited by flight incapacity.

### *Trichopsida erwini*<sup>E</sup> new species

Figures 84, 130, 225; Map p. 181

*Trichopsida erwini* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled "Mt Domett NN 1463m 1 Dec 71 J.S. Dugdale (typed) / mat plants (typed) / HOLOTYPE [male symbol] *Trichopsida erwini* Larochelle & Larivière, 2013 (red label; typed)." Paratypes: one male (NZAC), three females (LUNZ, MONZ, NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 3.2–5.2 mm. Head reddish; pronotum dark brown medially; elytra dark brown, with sides and apex brownish red; abdomen mostly yellowish, brownish black medially; antennae, palpi, and legs entirely pale yellowish. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Impunctate and sparsely wrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles moderately long. Labrum slightly transverse, truncate or slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its

maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows narrow, shallow. Eyes reduced, very small, slightly convex. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment apically setulose. **Thorax.** Pronotum (Fig. 130) moderately convex, coarsely and sparsely punctate across base, unwrinkled, moderately transverse, strongly cordate; apex strongly arcuate laterally, straight medially; anterolateral angles strongly developed, obtuse or obtusely rounded; sides strongly rounded anteriorly, strongly sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions widening posteriorly; a single setiferous puncture on each side (anteriorly), situated well in front of middle and touching lateral bead; posterolateral angles subrectangular or acute and projecting laterally, not denticulate; laterobasal foveae ill-defined, coarsely punctate, deep, wide, elongate medially; posterior bead complete; base rather straight, slightly narrower than apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna impunctate. **Elytra.** Strongly convex, ovate, widest about middle. Basal margin complete. Shoulders rounded, denticulate. Sides strongly rounded. Scutellar setiferous pore inserted at junction of striae 1+2. Scutellar striole absent. Striae complete, striae 1–5 moderately deep, striae 6–7 shallower, with moderately coarse punctation; stria 3 with two setiferous punctures. Intervals slightly convex. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two or four medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 84): strongly arcuate; apex moderately wide, subtriangular, not projecting dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the right. **Parameres.** Glabrous.

**Material examined.** 44 specimens (LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 181). South Island: BR—Lake Rotoroa. NN—Canaan. Cobb Reservoir. Cobb Valley. Karamea (9 miles north). Mount Arthur (Flora Hut, Flora Stream, Flora Track, Tableland). Mount Domett. Oparara River.

**Ecology.** Lowland, montane, subalpine, alpine. Wet forests (beech), shrublands, and fellfields. Shaded or open ground; wet soil. Nocturnal; hides during the day in leaf litter, moss, and plant mats. Gregarious.

**Biology.** Seasonality: November to February, April, June.

Teneral: November. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after our friend and colleague Terry L. Erwin (Smithsonian Museum, Washington D.C.) for his authoritative contribution to the study of world Carabidae.

*Trichopsida erwini* is morphologically close to *T. pretiosa* and *T. paturauensis*. In addition to diagnostic characters of the male genitalia, especially the subtriangular apex of the aedeagus, *T. erwini* has the following distinguishing features: pronotum strongly cordate, with sides strongly sinuate and posterolateral angles subrectangular or acute and projecting laterally; elytral striae with moderately coarse punctation.

### *Trichopsida pretiosa* (Broun, 1910)<sup>E</sup> new combination

Figures 85, 131, 226; Map p. 183

*Tarastethus pretiosus* Broun, 1910: 6. Holotype: male (BMNH) labelled "Type (circular red-bordered label; typed) / 3022 (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Raurimu. Jany. 1909. (hand-written) / *Tarastethus pretiosus*. (hand-written)." Condition: Excellent. Paratype: male (BMNH) labelled "Paratype (circular yellow-bordered label; typed) / 3022 (hand-written) / New Zeal. Broun Coll. Brit. Mus. 1922–482. (white label with red horizontal line; typed) / Raurimu. Jany. 1909. (hand-written) / *Tarastethus pretiosus*. (hand-written)." Condition: Fair.

*Molopsida pretiosa*: Britton, 1940: 477.

**Description.** Body: length 3.9–4.4 mm. Head and pronotum reddish; pronotum dark brown medially; elytra dark brown with sides and apex brownish red; abdomen mostly yellowish, blackish medially; antennae, palpi, and legs entirely pale yellowish. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Impunctate and unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles moderately long. Labrum moderately transverse, truncate anteriorly. Antennae: segment I (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, deep. Eyes reduced, very small, slightly convex. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment apically setulose. **Thorax.** Pronotum (Fig. 131) moderately convex,

impunctate or finely punctate between laterobasal foveae, unwrinkled, moderately transverse, slightly cordate; apex strongly arcuate laterally, straight medially; anterolateral angles moderately developed, obtusely rounded; sides strongly rounded anteriorly, not sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions widening posteriorly; a single setiferous puncture on each side (anteriorly), situated well in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae ill-defined, impunctate to coarsely punctate, deep, wide, elongate medially; posterior bead complete; base rather straight, much narrower than apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna impunctate. **Elytra.** Strongly convex, ovate, widest about middle. Basal margin complete. Shoulders rounded, denticulate. Sides strongly rounded. Scutellar setiferous pore inserted at base of stria 1. Scutellar striole absent. Striae complete, striae 1–5 very deep and 6–7 shallower, with very coarse punctation; stria 3 with two setiferous punctures. Intervals slightly convex, becoming more convex apically. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and four medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 85): strongly arcuate; apex moderately wide, subtruncate-rounded at tip, not projecting dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex rather straight. **Parameres.** Glabrous.

**Material examined.** 174 specimens (AMNZ, BMNH, JNNZ, LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 183). North Island: BP, TK, TO, WO.

**Ecology.** Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp) and shrublands. Shaded ground; wet soil. Nocturnal; hides during the day in thick litter (assemblages of leaves and twigs). This species occurs mostly in vegetal debris. Best collected by litter-sifting. Gregarious.

**Biology.** Seasonality: October to April, June, August. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 67 (biology, dispersal power, ecology, geographic distribution).

**Remark.** See under *Trichopsida paturauensis*.

### *Trichopsida paturauensis* <sup>♀</sup> new species

Figures 86, 132, 227; Map p. 182

*Trichopsida paturauensis* Larochelle & Larivière, new species.

Holotype: male (NZAC) labelled "NEW ZEALAND NN Paturau Twin Forks Cave 8 Dec 1997 G. Hall (typed) / D.M. Gleeson L. Miller Under logs outside cave (typed) / HOLOTYPE [male symbol] *Trichopsida paturauensis* Larochelle & Larivière, 2013 (red label; typed)." Paratypes: one male (NZAC), one female (MONZ) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 3.3–4.2 mm. Head and pronotum reddish; disc of pronotum dark brown; elytra black with sides and apex brownish red; abdomen mostly yellowish, blackish medially; palpi and legs entirely pale yellowish; antennae partially pale yellowish, with segments 4–6 infusate. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Impunctate and unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles moderately long. Labrum slightly transverse, slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, deep. Eyes reduced, very small, slightly convex. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate segment apically setulose. **Thorax.** Pronotum (Fig. 132) moderately convex, coarsely and sparsely punctate between laterobasal foveae, unwrinkled, moderately transverse, slightly cordate; apex strongly arcuate laterally, straight medially; anterolateral angles moderately developed, obtuse; sides strongly rounded anteriorly, not sinuate posteriorly; lateral beads strongly widening from apex to base; lateral depressions widening posteriorly; a single setiferous puncture on each side (anteriorly), situated well in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae ill-defined, coarsely punctate, deep, wide, elongate medially; posterior bead complete; base rather straight, slightly narrower than apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Strongly convex, ovate, widest about middle. Basal margin complete. Shoulders rounded, denticulate. Sides strongly rounded. Scutellar setiferous pore inserted at base of stria 1. Scutellar striole absent. Striae mostly complete (striae 6–7 obsolete basally), striae 1–5 very deep and 6–7 shallower, with very coarse punctation; stria 3 with two setiferous punctures. Intervals slightly convex. Sutural apices angular. **Abdomen.** Sterna impunctate,



unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two or four medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 86): strongly arcuate; apex narrow, elongate, rounded at tip, not projecting dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the right. **Parameres.** Glabrous.

**Material examined.** Four specimens (NZAC).

**Geographic distribution** (Map p. 182). South Island: NN—Paturau (Twin Forks Cave area).

**Ecology.** Lowland. Wet forest (beech) area. Shaded ground; wet soil. Nocturnal; hides during the day under logs.

**Biology.** Seasonality: December, January. Predacious (based on mouthpart morphology). One specimen infested by fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after the type locality, Paturau (NN), and the Latin suffix *-ensis*, denoting a place, locality, or country (Brown, 1985).

*Trichopsida paturauensis* is morphologically close to *T. pretiosa* from which it can be most reliably diagnosed by the male genitalia, especially the narrow, rounded apex of the aedeagus. In addition, *T. paturauensis* has the following distinguishing features: antennae partially pale yellowish, with segments 4–6 infuscate; elytra mostly black, with striae 6–7 obsolete basally.

### *Trichopsida koyai*<sup>E</sup> new species

Figures 87, 133, 228; Map p. 182

*Trichopsida koyai* Laroche & Larivière, new species. Holotype: male (NZAC) labelled “Mt Stokes Ridge, 2,500’ Marlborough (hand-written) / Attacked by fungoid growth. (hand-written) / Coll. A.C. O’Connor Oct. 1944 (hand-written) / A.E. Brookes Collection (typed) / HOLOTYPE [male symbol] *Trichopsida koyai* Laroche & Larivière, 2013 (red label; typed).” Paratype: one female (NZAC) from the same locality as the holotype, bearing blue paratype label.

**Description.** Body: length 4.3–5.4 mm. Head, pronotum, and elytra mostly blackish brown; abdomen dark brown; antennae, palpi, and tarsi pale red; femora and tibiae blackish brown. Microsculpture very transverse (with microlines), feeble on head and pronotum, strong on elytra. Iridescence absent. Very shiny. **Head.** Finely and sparsely punctate in frontal furrows, unwrinkled dorsally, slightly narrower across eyes than pronotal apex. Mandibles moderately long. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae).

Frontal furrows narrow, deep. Eyes reduced, very small, very slightly convex. Tempora convex, very long (about as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 133) moderately convex, coarsely and sparsely punctate across base, unwrinkled or sparsely wrinkled along median longitudinal impression, moderately transverse, subquadrate; apex straight; anterolateral angles poorly developed, obtusely rounded; sides moderately rounded anteriorly, not sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae ill-defined, very shallow, narrow, round; posterior bead interrupted medially; base emarginate medially, moderately oblique laterally, slightly narrower than apex, much narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna impunctate. **Elytra.** Depressed dorsally, slightly convex laterally, subovate, widest about middle. Basal margin complete. Shoulders obtuse, not denticulate. Sides slightly rounded. Scutellar setiferous pore inserted at base of stria 1 or at junction of striae 1+2. Scutellar striole impunctate. Striae mostly complete (stria 7 obsolete basally), moderately deep, very finely punctate (almost impunctate); stria 3 with three setiferous punctures. Intervals slightly convex, becoming moderately convex apically. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 87): slightly arcuate; apex narrow, subtriangular, rounded at tip, not projecting dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the right. **Parameres.** Glabrous.

**Material examined.** Four specimens (NZAC).

**Geographic distribution** (Map p. 182). South Island: SD—Mount Robinson. Mount Stokes.

**Ecology.** Lowland (hill), montane. Forest (beech) area. Probably shaded ground. Nocturnal; hiding during the day in leaf litter and under a stone. The body shape (poorly-developed eyes, inflated tempora, depressed elytra) suggests that the species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones).

**Biology.** Seasonality: October, March. Predacious (based on mouthpart morphology). Occasionally infested by fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after Madhusudan P. Koya (Auckland), a special acquaintance and highly skilled health specialist.

*Trichopsida koyai* is morphologically close to *T. hewitti* and *T. boltoni*. In addition to diagnostic characters of the male genitalia *T. koyai* has the following distinguishing features: colour mostly blackish brown; microsculpture present on head, pronotum, and elytra; elytra with striae very finely punctate (almost impunctate) and stria 3 with three setiferous punctures.

### *Trichopsida hewitti*<sup>E</sup> new species

Figures 83, 134, 229; Map p. 182

*Trichopsida hewitti* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled "Mt Dewar 1060m J.I. Townsend (typed) / Plants 2 Dec 69 (hand-written) / HOLOTYPE [male symbol] *Trichopsida hewitti* Larochelle & Larivière, 2013 (red label; typed)." Paratypes: two females (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 3.9–4.2 mm. Head, pronotum, and elytra testaceous; disc of head, pronotum and elytra infuscate; abdomen testaceous; antennae, palpi, and legs pale red, except tibiae and tarsi infuscate. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Coarsely and sparsely punctate in frontal furrows, unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles very long. Labrum slightly transverse, moderately emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, deep. Eyes reduced, very small, slightly convex. Tempora convex, moderately long (about two-thirds as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 134) moderately convex, punctate across base (finely about middle, coarsely on each side), unwrinkled, strongly transverse, subquadrate; apex straight; anterolateral angles poorly developed, obtusely rounded; sides moderately rounded anteriorly, not sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae well defined, deep, oblong, elongate medially; posterior bead interrupted medially; base emarginate medially, slightly

oblique laterally, about as wide as apex, moderately narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna punctate. **Elytra.** Depressed dorsally, slightly convex laterally, subovate, widest about middle. Basal margin complete. Shoulders obtuse, denticulate. Sides moderately rounded. Scutellar setiferous pore inserted at junction of striae 1+2. Scutellar striole bipunctate. Striae mostly complete (stria 7 obsolete basally), deep, coarsely punctate; stria 3 with a large setiferous puncture behind middle. Intervals slightly convex. Sutural apices angular. **Abdomen.** Sterna coarsely punctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 83): moderately arcuate; apex moderately wide, rounded, not projecting dorsoventrally, with a posterodorsal notch. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the left. **Parameres.** Left paramere glabrous; right paramere setulose (with a few short setae at apex).

**Material examined.** Seven specimens (LUNZ, NZAC).

**Geographic distribution** (Map p. 182). South Island: BR–Baldy Ridge (Matakitaki, Glenroy Divide). Cupola Basin (Nelson Lakes National Park). Mawhera State Forest (15 km SE Ngahere). Mount Dewar. Mount Priestley.

**Ecology.** Lowland (hills), montane, subalpine, alpine. Forests (beech, broadleaf), shrublands, and alpine meadows. Shaded (mostly) or open ground. Nocturnal; hides during the day in leaf litter, plant debris, moss, turf, and under logs. The body shape (poorly-developed eyes, inflated tempora, depressed elytra) and pale colour suggest that the species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones).

**Biology.** Seasonality: November–December. Teneral: November, April. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along the suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after our good friend and exceptionally talented primary health care practitioner Michael C. L. Hewitt (Auckland).

*Trichopsida hewitti* is morphologically close to *T. boltoni*. In addition to diagnostic characters of the male genitalia *T. hewitti* has the following distinguishing features: legs partially pale red, tibiae and tarsi infuscate; pronotum with laterobasal foveae well defined, deep, elongate medially, and coarsely punctate; elytra with striae deep and coarsely punctate, stria 3 with a large setiferous puncture, and intervals slightly convex; abdominal sterna coarsely punctate.

***Trichopsida boltoni*<sup>E</sup> new species**

Figures 88, 135, 230; Map p. 181

*Trichopsida boltoni* Laroche & Larivière, new species. Holotype: male (NZAC) labelled "NEW ZEALAND WN Tararua Ra [=Range] Dundas Hut Ridge 990m 3 Dec 1984 (typed) / B.G. Bennett & T.K. Crosby Sifted litter 84[forward slash]83 (typed) / HOLOTYPE [male symbol] *Trichopsida boltoni* Laroche & Larivière, 2013 (red label; typed)." Paratypes: two males (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 4.6–5.4 mm. Head, pronotum, elytra, and abdomen infuscate testaceous; disc of head, pronotum, and elytra infuscate; antennae, palpi, and legs entirely pale red. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Impunctate and unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles very long. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, shallow. Eyes reduced, moderately small and convex. Tempora convex, moderately long (about half as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 135) moderately convex, finely punctate laterobasally, finely wrinkled along median longitudinal impression, slightly transverse, subquadrate; apex moderately arcuate; anterolateral angles moderately developed, rounded; sides moderately rounded anteriorly, not sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae ill-defined, finely punctate, very shallow, narrow, round; posterior bead interrupted medially; base emarginate medially, moderately oblique laterally, about as wide as apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Depressed dorsally, slightly convex laterally, subovate, widest about middle. Basal margin complete. Shoulders obtuse, not denticulate. Sides slightly rounded. Scutellar setiferous pore inserted at base of stria 2. Scutellar striae bi- or tripunctate. Striae mostly complete (stria 6 obsolete basally; stria 7 obsolete throughout), shallow, finely punctate; stria 3 with a small setiferous puncture about middle. Intervals depressed. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four api-

cal and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 88): strongly arcuate; apex moderately wide, rounded, moderately projecting ventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the right. **Parameres.** Glabrous.

**Material examined.** 38 specimens (JNNZ, LUNZ, MONZ, NZAC).

**Geographic distribution** (Map p. 181). North Island: RI, WA, WI, WN.

**Ecology.** Lowland, montane, subalpine, alpine. Forests (beech) and alpine meadows. Shaded (mostly) or open ground. Nocturnal; hides during the day mostly in leaf litter, also under stones, in the soil, in moss and hepatics growing on tree-trunks. The body shape (flattened eyes, inflated tempora, depressed elytra) and pale colour suggest that the species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones).

**Biology.** Seasonality: September to April, June. Teneral: September, March–April. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Occasional climber (on trees). Vagility limited by flight incapacity.

**Remarks.** This species is named after John Bolton (Auckland), a special acquaintance and highly skilled health specialist.

*Trichopsida boltoni* is morphologically close to *T. hewitti*. In addition to diagnostic characters of the male genitalia *T. boltoni* has the following distinguishing features: legs entirely pale red; pronotum with laterobasal foveae ill-defined, very shallow, and finely punctate; elytra with striae shallow, finely punctate, stria 3 with a small setiferous puncture, and intervals depressed; abdominal sterna impunctate.

***Trichopsida goethei*<sup>E</sup> new species**

Figures 136, 231; Map p. 181

*Trichopsida goethei* Laroche & Larivière, new species. Holotype: female (NZAC) labelled "Mt Dewar 975 m 5 Dec 69 J.C. Watt (hand-written) / under stones in forest (hand-written) / Paparoa Range Dec. 69 (typed) / HOLOTYPE [female symbol] *Trichopsida goethei* Laroche & Larivière, 2013 (red label; typed)." Paratypes: two females (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 4.7–6.6 mm. Head, pronotum, elytra, and abdomen testaceous; antennae, palpi, and legs entirely pale red. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Finely punctate in and behind frontal furrows as well as behind eyes, unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles very long. Labrum slightly transverse, slightly emarginate

anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, shallow. Eyes reduced, very small and depressed. Tempora convex, very long (about as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 136) moderately convex anteriorly, depressed posteriorly, finely punctate across base and along lateral beads, unwrinkled, quadrate, slightly cordate; apex strongly arcuate laterally, straight medially; anterolateral angles well developed, obtusely rounded; sides strongly rounded anteriorly, slightly sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated just in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae ill-defined, coarsely punctate, shallow, elongate; posterior bead complete; base emarginate medially, arcuate laterally, slightly narrower than apex, much narrower than elytral base. Prosternum punctate, unwrinkled. Proepisterna punctate, unwrinkled. Metepisterna punctate. **Elytra.** Depressed dorsally, slightly rounded laterally, elongate, widest about middle. Basal margin complete. Shoulders obtuse, denticulate. Sides slightly rounded. Scutellar setiferous pore inserted at junction of striae 1+2. Scutellar striole absent. Striae complete, moderately deep (stria 7 shallower basally), finely punctate; stria 3 without setiferous punctures. Intervals depressed, becoming slightly convex apically. Sutural apices angular. **Abdomen.** Sterna moderately punctate, unwrinkled. Last visible sternum (sternum VII): male unknown; female with four apical and two medial ambulatory setae. **Aedeagus and Parameres.** Male unknown.

**Material examined.** Two specimens (NZAC).

**Geographic distribution** (Map p. 181). South Island: BR–Mount Dewar. Mount Priestley.

**Ecology.** Montane. Forest (beech) area. Probably shaded ground. Nocturnal; hiding during the day under a stone and in leaf litter. The poorly-developed eyes, inflated tempora, depressed elytra, and pale colour suggest that the species lives in soil crevices, fissures, in deep humus of leaf litter, or under well-embedded stones).

**Biology.** Seasonality: December. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after Johann W. von Goethe (1749–1842), the German poet, novelist, dramatist, and

scientist, who commented on the importance of expertise by writing “Self-limitation is where you demonstrate you are a master” (*Nature and Art*, 1800).

*Trichopsida goethei* is morphologically close to *T. nunni*. This species has the following distinguishing features: colour testaceous; pronotum quadrate, slightly cordate, with sides strongly rounded anteriorly and slightly sinuate posteriorly, with laterobasal foveae shallow, elongate, and posterior bead complete; elytra slightly rounded. The male is unknown.

### *Trichopsida nunni*<sup>E</sup> new species

Figures 89, 137, 232; Map p. 182

*Trichopsida nunni* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “New Zealand WN Wilton Bush Wilton J. Nunn 4726 6 Nov 73 (hand-written) / HOLOTYPE [male symbol] *Trichopsida nunni* Larochelle & Larivière, 2013 (red label; typed).” Paratypes one male (NZAC), two females (NZAC, LUNZ) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 4.7–4.9 mm. Head, pronotum, elytra, and abdomen testaceous; disc of head, pronotum and elytra sometimes vaguely infusate; antennae, palpi, and legs testaceous. Microsculpture absent. Iridescence absent. Very shiny. **Head.** Coarsely and sparsely punctate in frontal furrows, unwrinkled dorsally, slightly narrower across eyes than pronotal apex. Mandibles very long. Labrum moderately transverse, slightly emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, deep. Eyes reduced, very small, very slightly convex. Tempora convex, very long (about as long as eyes). Mentum: medial tooth acute apically, much shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 137) moderately convex, finely and sparsely punctate across base, unwrinkled, slightly transverse, subrectangular; apex slightly arcuate; anterolateral angles moderately developed, rounded; sides slightly rounded anteriorly, not sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles acute, denticulate; laterobasal foveae absent; posterior bead interrupted medially; base slightly emarginate medially, slightly oblique laterally, moderately narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Depressed dorsally, slightly convex laterally, elongate and subparallel, widest behind middle. Basal margin complete. Shoulders obtuse, not denticulate.

Sides almost straight. Scutellar setiferous pore inserted at junction of striae 1+2. Scutellar striole absent or present (uni- or bipunctate). Striae mostly complete (stria 7 obsolete basally), moderately deep, with moderately coarse punctation; stria 3 without setiferous punctures. Intervals depressed in basal half, slightly convex in apical half. Sutural apices angular. **Abdomen.** Sterna impunctate, wrinkled laterally. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 89): moderately arcuate; apex narrow, strongly projecting dorsally. Dorsal view: asymmetrical (ostium deflected to the right); apex straight. **Parameres.** Setulose (with a few short setae at apex).

**Material examined.** Nine specimens (JNNZ, NZAC).

**Geographic distribution** (Map p. 182). South Island: WN–Keith George Scenic Reserve. Kaitoke. Wellington (Tinakori Hill, Wilton’s Bush).

**Ecology.** Lowland (hills). Forests (broadleaf, tree-fern, pine). Shaded ground. Nocturnal; hides during the day under deeply embedded stones; also found under a log, with *Mesoponera castanea* ants (J. Nunn, personal communication). The body shape (poorly-developed eyes, inflated tempora, depressed elytra) and pale colour suggest that the species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones).

**Biology.** Seasonality: September to January, July–August. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vigility limited by flight incapacity.

**Remarks.** This species is named after our friend the coleopterist John Nunn (Dunedin) who discovered this species.

*Trichopsida nunni* is morphologically close to *T. goethei*. In addition to diagnostic characters of the male genitalia *T. nunni* has the following distinguishing features: microsculpture absent on head, pronotum, and elytra; tempora very long (about as long as eyes); pronotum slightly transverse, subrectangular, barely punctate, unwrinkled, with sides slightly rounded anteriorly, not sinuate posteriorly, without laterobasal foveae, and with posterior bead interrupted medially; elytra elongate and subparallel, with striae distinctly punctate.

### *Trichopsida debilis* (Sharp, 1886) <sup>F</sup> new combination

Figures 90, 138, 233; Map p. 181

*Tarastethus debilis* Sharp, 1886: 373. Holotype: male (BMNH) labelled “*Tarastethus debilis*. Type D.S. Bealey. N.Z. Helms. (hand-written on card mount) / Type H.T. (circular red-bordered label; typed) / Bealey, New Zealand. Helms. (typed) / Sharp Coll. 1905-313. (typed)” Condition: Excellent.

*Tarastethus longulus* Broun, 1917: 368. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 3813- (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922-482. (white label with red horizontal line; typed) / Clippings. 28-1-1914. (hand-written) / *Tarastethus longulus* (hand-written).” Condition: Excellent. **New synonym.**

*Molopsida debilis*: Britton, 1940: 477.

*Molopsida longula*: Britton, 1940: 477.

**Description.** Body: length 4.2–5.5 mm. Head, pronotum, and elytra dark reddish; base of pronotum and base, suture, margins, and apex of elytra pale yellowish red; abdomen dark testaceous; antennae, palpi, and femora pale red; tibiae and tarsi infuscate. Microsculpture moderately transverse, feeble on head and pronotum, strong on elytra. Iridescence absent. Very shiny. **Head.** Coarsely and entirely punctate, wrinkled dorsally in apical half (unwrinkled in other species), slightly narrower across eyes than pronotal apex. Mandibles moderately long. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, rather deep. Eyes reduced, moderately small, slightly convex. Tempora convex, very long (about as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 138) moderately convex, strongly punctate and wrinkled throughout, very transverse, moderately cordate; apex straight; anterolateral angles poorly developed, obtuse; sides strongly rounded anteriorly, slightly sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles obtuse, denticulate; laterobasal foveae absent; posterior bead interrupted medially; base emarginate medially, moderately oblique laterally, slightly narrower than apex, much narrower than elytral base. Prosternum punctate, wrinkled. Proepisterna punctate, wrinkled. Metepisterna impunctate. **Elytra.** Depressed dorsally, slightly convex laterally, subovate, widest about middle. Basal margin complete. Shoulders obtuse, denticulate. Sides moderately rounded. Scutellar setiferous pore inserted at junction of striae 1+2. Scutellar striole impunctate. Striae complete, moderately deep (stria 7 shallower basally), finely punctate; stria 3 without setiferous punctures. Intervals depressed. Sutural apices angular. **Abdomen.** Sterna coarsely punctate, wrinkled. Last visible sternum (sternum VII): male with two apical ambulatory setae; female with four apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 90): slightly arcuate; apex rather moderately wide, subtruncate,

moderately projecting ventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the left. **Parameres.** Glabrous.

**Material examined.** 18 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 181). South Island: MC–Cass. Lake Sumner. NC–Arthur’s Pass (Coral Creek, Mount Aicken, Temple Basin), Bealey. OL–Clipping’s Bush (near Kingston). WD–Upper Otira Valley.

**Ecology.** Lowland, montane, subalpine. Forests (beech, podocarp) and scrublands. Shaded ground. Nocturnal; hides during the day in leaf litter, under stones, and in moss growing on tree–trunks. The body shape (poorly-developed eyes, inflated tempora, depressed elytra) and pale colour suggest that the species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones).

**Biology.** Seasonality: October to December, February. Predacious (based on mouthpart morphology). Occasionally infested by fungi (Laboulbeniales).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Occasional climber (on trees). Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 67 (biology, dispersal power, ecology, geographic distribution).

**Remarks.** Examination of the holotype of *Tarastethus longulus* revealed it to be conspecific with *Trichopsida debilis*. This is the only species of *Trichopsida* with the pronotum strongly wrinkled and punctate throughout.

### *Trichopsida propinqua* (Broun, 1917) <sup>♀</sup> new combination

Figures 91, 139, 234; Map p. 183

*Tarastethus propinquus* Broun, 1917: 369. Holotype: male (BMNH) labelled “Type (circular yellow-bordered label; typed) / 3814. [male symbol] (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922-482. (white label with red horizontal line; typed) / Lomond. 6.3.1914. (hand-written) / *Tarastethus propinquus*. [male symbol] (hand-written).” Condition: Excellent. Paratype: female (BMNH) labelled “Paratype (circular yellow-bordered label; typed) / 3814. (hand-written) / Ben Lomond. 6.3.1914. (hand-written) / New Zealand. Broun Coll. Brit. Mus. 1922-482. (white label with red horizontal line; typed) / *Tarastethus propinquus*. (hand-written).” Condition: Excellent.

*Molopsida propinqua*: Britton, 1940: 477.

**Description.** Body: length 4.7–6.6 mm. Head, pronotum, and elytra black (forebody sometimes reddish black); abdomen reddish black; antennae, palpi, and legs entirely pale red. Microsculpture very transverse (with microlines), feeble on head and pronotum, strong on elytra. Iridesence

absent. Very shiny. **Head.** Impunctate and unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles very long. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, deep. Eyes reduced, moderately small, slightly convex. Tempora convex, moderately long (about two-thirds as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 139) moderately convex, impunctate or punctate across posterior bead, wrinkled along median longitudinal impression and between laterobasal foveae, quadrate, moderately cordate; apex slightly arcuate; anterolateral angles (in lateral view) poorly developed, obtusely rounded; sides strongly rounded anteriorly, not sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well in front of middle and touching lateral bead; posterolateral angles acute, denticulate; laterobasal foveae absent; posterior bead interrupted medially; base emarginate medially, slightly oblique laterally, about as wide as apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Depressed dorsally, slightly convex laterally, subelongate, widest about middle. Basal margin complete. Shoulders obtuse, denticulate. Sides slightly rounded. Scutellar setiferous pore absent. Scutellar striole bipunctate. Striae mostly complete (striae 6–7 obsolete), shallow, indistinctly punctate; stria 3 without setiferous punctures. Intervals depressed. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four or six apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 91): strongly arcuate; apex moderately wide, subtriangular-rounded, moderately projecting ventrally. Dorsal view: asymmetrical (ostium deflected to the right); apex deflected to the left. **Parameres.** Setulose (with a few short setae at apex).

**Material examined.** 67 specimens (AMNZ, BMNH, CMNZ, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 183). South Island: CO, DN, FD, OL, SL, WD.

**Ecology.** Lowland, montane, subalpine, alpine. Forests (beech, broadleaf, podocarp), shrublands, scrublands, and alpine meadows. Shaded (mostly) or open ground; wet soil. Nocturnal; hides during the day in the soil, deep leaf

litter, and under logs. The body shape (poorly-developed eyes, inflated tempora, depressed elytra) confirms that the species is truly endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones). The species is best collected by soil-washing techniques.

**Biology.** Seasonality: September to March, July–August. Teneral: January, March, July. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Reference.** Larochelle & Larivière, 2001: 67 (biology, dispersal power, ecology, geographic distribution).

**Remark.** See under *Trichopsida popei*.

### *Trichopsida popei*<sup>E</sup> new species

Figures 92, 140, 235; Map p. 182

*Trichopsida popei* Larochelle & Larivière. Holotype: male (NZAC) labelled “Rock & Pillar RA. [=Range] 3400’, OTAGO 12.11.69. Mtn. totara litter 69[forward slash]205 J.G.R. McBurney. (hand-written) / HOLOTYPE [male symbol] *Trichopsida popei* Larochelle & Larivière, 2013 (red label; typed).” Paratypes: one male (LUNZ), one female (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body: length 4.5–5.3 mm. Head, pronotum, and elytra testaceous; abdomen reddish; antennae, palpi, and legs entirely pale red. Microsculpture very transverse (with microlines), feeble on head, strong on pronotum and elytra. Iridescence absent on head, strong on pronotum and elytra. Very shiny. **Head.** Impunctate and unwrinkled dorsally, much narrower across eyes than pronotal apex. Mandibles very long. Labrum moderately transverse and emarginate anteriorly. Antennae: segment 1 (scape) moderately long, about 1.5× longer than its maximum width; segments 1–3 glabrous (excluding apical setae). Frontal furrows wide, deep. Eyes reduced, moderately small, slightly convex. Tempora convex, moderately long (about two-thirds as long as eyes). Mentum: medial tooth acute apically, slightly shorter than lateral lobes. Ligula narrow apically. Paraglossae membranous, prominent, much longer than ligula. Palpi: terminal segment fusiform, not elliptical, sparsely setulose; penultimate maxillary segment sparsely setulose. **Thorax.** Pronotum (Fig. 140) slightly convex, finely punctate across posterior bead, wrinkled along median longitudinal impression and between laterobasal foveae, very transverse, moderately cordate; apex strongly arcuate; anterolateral angles (in lateral view) strongly developed, obtuse; sides strongly rounded anteriorly, slightly sinuate posteriorly; lateral beads narrow; lateral depressions absent; two setiferous punctures on each side; each anterolateral setiferous puncture situated well

in front of middle and touching lateral bead; posterolateral angles rectangular, denticulate; laterobasal foveae absent; posterior bead interrupted medially; base emarginate medially, slightly oblique laterally, about as wide as apex, much narrower than elytral base. Prosternum impunctate, unwrinkled. Proepisterna impunctate, unwrinkled. Metepisterna impunctate. **Elytra.** Slightly convex, subovate, widest behind middle. Basal margin interrupted medially (complete in other species). Shoulders obtuse, denticulate. Sides moderately rounded. Scutellar setiferous pore absent. Scutellar striole absent. Striae mostly complete (striae 6–7 obsolete), shallow, indistinctly punctate; stria 3 without setiferous punctures. Intervals depressed. Sutural apices angular. **Abdomen.** Sterna impunctate, unwrinkled. Last visible sternum (sternum VII): male with four apical ambulatory setae; female with four or six apical and two medial ambulatory setae. **Aedeagus.** Lateral view (Fig. 92): moderately arcuate; apex narrow, truncate-rounded, not projecting dorsoventrally. Dorsal view: asymmetrical (ostium deflected to the left); apex deflected to the left. **Parameres.** Setulose (with a few short setae at apex).

**Material examined.** Five specimens (NZAC).

**Geographic distribution** (Map p. 182). South Island: CO–Rock and Pillar Range.

**Ecology.** Montane. Tussock grassland/scrubland (mountain totara) area. Shaded ground. Nocturnal; hides during the day in leaf litter. The body shape (poorly-developed eyes, inflated tempora, depressed elytra) suggest that the species is endogean (living in soil crevices or fissures, in deep humus of leaf litter, under well-embedded stones).

**Biology.** Seasonality: November. Predacious (based on mouthpart morphology).

**Dispersal power.** Elytra fused basally along suture. Subapterous. Moderate runner. Vagility limited by flight incapacity.

**Remarks.** This species is named after Alexander Pope (1688–1744), English poet, who commented on the importance of expertise by writing “One science only will one genius fit; so vast is art, so narrow human wit” and “A little learning is a dang’rous thing” (*An Essay on Criticism*, 1711).

*Trichopsida popei* is morphologically close to *T. propinqua*. In addition to diagnostic characters of the male genitalia *T. popei* has the following distinguishing features: colour testaceous; pronotum slightly convex, very transverse, with anterolateral angles strongly developed, obtuse, and sides slightly sinuate posteriorly; elytra slightly convex, subovate, widest behind middle, with basal margin interrupted medially and sides moderately rounded.

### Tribe TRECHINI

**References.** Larochelle & Larivière, 2007a: 38–39 (description; key to genera); Townsend, 2010 (revision; key to subtribes).

**Remarks.** The New Zealand Trechini have been recently revised by Townsend (2010). An alphabetical checklist of taxa with habitus photos and species distribution maps is provided here within each subtribe.

#### Subtribe AEPINA

**References.** Larochelle & Larivière, 2007a: 39 (description); Townsend, 2010: 19 (description; key to genera).

#### Genus *Kenodactylus* Broun, 1909<sup>N</sup>

Figure 236; Map p. 172

**References.** Larochelle & Larivière, 2001: 69 (catalogue), 2007a: 39–40 (description, ecology, geographic distribution, references); Townsend, 2010: 19–21 (taxonomy).

#### *Kenodactylus audouini* (Guérin-Méneville, 1830)<sup>N</sup>

Figure 236; Map p. 172

**References.** Larochelle & Larivière, 2001: 69 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 20–21 (geographic distribution, taxonomy).

#### Genus *Maoritrechus* Brookes, 1932<sup>E</sup>

Figures 237–238; Maps p. 174

**References.** Larochelle & Larivière, 2001: 70 (catalogue), 2007a: 40 (description, ecology, geographic distribution, references); Townsend, 2010: 21–24 (revision; key to species).

#### *Maoritrechus nunni* Townsend, 2010<sup>E</sup>

Figure 237; Map p. 174

*Maoritrechus nunni* Townsend, 2010: 23.

**Reference.** Townsend, 2010: 23 (ecology, geographic distribution, taxonomy).

#### *Maoritrechus rangitotoensis* Brookes, 1932<sup>E</sup>

Figure 238; Map p. 174

**References.** Larochelle & Larivière, 2001: 70 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 22–23 (ecology, geographic distribution, taxonomy).

#### *Maoritrechus stewartensis* Townsend, 2010<sup>E</sup>

Map p. 174

*Maoritrechus stewartensis* Townsend, 2010: 23.

**Reference.** Townsend, 2010: 23–24 (ecology, geographic distribution, taxonomy).

#### Genus *Oarotrechus* Townsend, 2010<sup>E</sup>

Figure 239; Map p. 177

*Oarotrechus* Townsend, 2010: 25. Type species: *Oarotrechus gracilentus* Townsend, 2010, by monotypy.

**Reference.** Townsend, 2010: 25–27 (taxonomy).

#### *Oarotrechus gracilentus* Townsend, 2010<sup>E</sup>

Figure 239; Map p. 177

*Oarotrechus gracilentus* Townsend, 2010: 26.

**Reference.** Townsend, 2010: 26–27 (ecology, geographic distribution, taxonomy).

### Subtribe TRECHINA

**References.** Larochelle & Larivière, 2007a: 40 (description); Townsend, 2010: 35 (description; key to genera and subgenera).

#### Genus *Duvaliomimus* Jeannel, 1928<sup>E</sup>

Figures 240–253; Maps p. 170–172

**References.** Larochelle & Larivière, 2001: 70–72 (catalogue), 2007a: 40–41 (description, ecology, geographic distribution, references); Townsend, 2010: 41–52 (revision; key to species and subspecies).

#### Subgenus *Duvaliomimus* Jeannel, 1928<sup>E</sup>

**Reference.** Townsend, 2010: 42 (description).

#### *Duvaliomimus (Duvaliomimus) australis* Townsend, 2010<sup>E</sup>

Figure 240; Map p. 170

*Duvaliomimus (Duvaliomimus) australis* Townsend, 2010: 46.

**Reference.** Townsend, 2010: 46 (ecology, geographic distribution, taxonomy).

#### *Duvaliomimus (Duvaliomimus) chrySTALLAE* Townsend, 2010<sup>E</sup>

Figure 241; Map p. 170

*Duvaliomimus (Duvaliomimus) chrySTALLAE* Townsend, 2010: 46.

**Reference.** Townsend, 2010: 46–47 (ecology, geographic distribution, taxonomy).



***Duvaliomimus (Duvaliomimus) crypticus* Townsend, 2010<sup>E</sup>**

Figure 242; Map p. 170

*Duvaliomimus (Duvaliomimus) crypticus* Townsend, 2010: 49.**Reference.** Townsend, 2010: 49 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) maori* (Jeannel, 1928)<sup>E</sup>**

Figure 243; Map p. 171

*Trechus maori* Jeannel, 1920: 111. Type locality: Greymouth, BR. Synonymised with *Duvaliomimus walkeri* (Broun, 1903) by Jeannel, 1938a: 256; resurrected from synonymy by Townsend, 2010: 43.**References.** Larochelle & Larivière, 2001: 71 (as a synonym of “*Duvaliomimus*” *walkeri*; catalogue); Townsend, 2010: 43 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) megawattus* Townsend, 2010<sup>E</sup>**

Figure 244; Map p. 171

*Duvaliomimus (Duvaliomimus) megawattus* Townsend, 2010: 50.**Reference.** Townsend, 2010: 50–51 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) obscurus* Townsend, 2010<sup>E</sup>**

Figure 245; Map p. 171

*Duvaliomimus (Duvaliomimus) obscurus* Townsend, 2010: 48.**Reference.** Townsend, 2010: 48–49 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) orientalis* Giachino, 2005<sup>E</sup>**

Figure 246; Map p. 171

*Duvaliomimus (Duvaliomimus) orientalis* Giachino, 2005: 82.**References.** Giachino, 2005: 81–84 (ecology, geographic distribution, taxonomy); Townsend, 2010: 49 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) pseudostyx* Townsend, 2010<sup>E</sup>**

Figure 247; Map p. 171

*Duvaliomimus (Duvaliomimus) pseudostyx* Townsend, 2010: 47.**Reference.** Townsend, 2010: 47–48 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) styx* Britton, 1959<sup>E</sup>**

Figure 248; Map p. 171

**References.** Larochelle & Larivière, 2001: 71 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 47 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) taieriensis* Townsend, 2010<sup>E</sup>**

Figure 249; Map p. 171

*Duvaliomimus (Duvaliomimus) taieriensis* Townsend, 2010: 45.**Reference.** Townsend, 2010: 45–46 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) walkeri brittoni* Jeannel, 1938<sup>E</sup>**

Map p. 172

*Duvaliomimus brittoni* Jeannel, 1938a: 256. Type locality: [Mt] Earnslaw, OL.*Duvaliomimus (Duvaliomimus) walkeri brittoni*: Townsend, 2010: 45.**References.** Larochelle & Larivière, 2001: 70 (as *Duvaliomimus brittoni*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 45 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) walkeri walkeri* (Broun, 1903)<sup>E</sup>**

Figure 250; Map p. 172

*Anchomenus walkeri* Broun, 1903: 456. Type locality: Westport, NN.*Agonum (Anchomenus) walkeri*: Csiki, 1931: 865.*Duvaliomimus walkeri*: Jeannel, 1938a: 256.*Duvaliomimus (Duvaliomimus) walkeri walkeri*: Townsend, 2010: 43.**References.** Larochelle & Larivière, 2001: 71 (as “*Duvaliomimus*” *walkeri*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 43–44 (ecology, geographic distribution, taxonomy).***Duvaliomimus (Duvaliomimus) watti* Britton, 1958<sup>E</sup>**

Figure 251; Map p. 172

**References.** Larochelle & Larivière, 2001: 72 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 50 (ecology, geographic distribution, taxonomy).

**Subgenus *Mayotrechus* Townsend, 2010<sup>E</sup>**

*Duvaliomimus* (*Mayotrechus*) Townsend, 2010: 51. Type species: *Duvaliomimus mayae* Britton, 1958, by original designation.

**Reference.** Townsend, 2010: 51 (description).

***Duvaliomimus* (*Mayotrechus*) *mayae mayae* Britton, 1958<sup>E</sup>**

Figure 252; Map p. 171

*Duvaliomimus mayae* Britton, 1958: 184. Type locality: Waipuna Caves, Te Kuiti, WO.

*Duvaliomimus* (*Mayotrechus*) *mayae mayae* Britton: Townsend, 2010: 51.

**References.** Larochelle & Larivière, 2001: 71 (as *Duvaliomimus mayae*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 51–52 (ecology, geographic distribution, taxonomy).

***Duvaliomimus* (*Mayotrechus*) *mayae mayorum* Townsend, 2010<sup>E</sup>**

Figure 253; Map p. 171

*Duvaliomimus* (*Mayotrechus*) *mayae mayorum* Townsend, 2010: 52.

**Reference.** Townsend, 2010: 52 (ecology, geographic distribution, taxonomy).

**Genus *Erebotrechus* Britton, 1964<sup>E</sup>**

Figure 254; Map p. 172

**References.** Larochelle & Larivière, 2001: 72 (catalogue), 2007a: 41 (synopsis of supraspecific taxa); Townsend, 2010: 30–31 (revision).

***Erebotrechus infernus* Britton, 1964<sup>E</sup>**

Figure 254; Map p. 172

**References.** Larochelle & Larivière, 2001: 72 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 31 (ecology, geographic distribution, taxonomy).

**Genus *Kettlotrechus* Townsend, 2010<sup>E</sup>**

Figures 255–259; Maps p. 172–173

*Kettlotrechus* Townsend, 2010: 38. Type species: *Duvaliomimus orpheus* Britton, 1962, by original designation.

**References.** Larochelle & Larivière, 2001: 71 (as *Duvaliomimus*, in part; catalogue); Townsend, 2010: 38–41 (revision; key to species).

***Kettlotrechus edridgeae* Townsend, 2010<sup>E</sup>**

Figure 255; Map p. 172

*Kettlotrechus edridgeae* Townsend, 2010: 39.

**Reference.** Townsend, 2010: 39–40 (ecology, geographic distribution, taxonomy).

***Kettlotrechus marchanti* Townsend, 2010<sup>E</sup>**

Figure 256; Map p. 173

*Kettlotrechus marchanti* Townsend, 2010: 40.

**Reference.** Townsend, 2010: 40–41 (ecology, geographic distribution, taxonomy).

***Kettlotrechus millari* Townsend, 2010<sup>E</sup>**

Figure 257; Map p. 173

*Kettlotrechus millari* Townsend, 2010: 41.

**Reference.** Townsend, 2010: 41 (ecology, geographic distribution, taxonomy).

***Kettlotrechus orpheus* (Britton, 1962)<sup>E</sup>**

Figure 258; Map p. 173

*Duvaliomimus orpheus* Britton, 1962: 668. Type locality: Twin Forks Cave, “Paturau District”, NN.

*Kettlotrechus orpheus*: Townsend, 2010: 38.

**References.** Larochelle & Larivière, 2001: 71 (as *Duvaliomimus orpheus*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 38–39 (ecology, geographic distribution, taxonomy).

***Kettlotrechus pluto* (Britton, 1964)<sup>E</sup>**

Figure 259; Map p. 173

*Duvaliomimus pluto* Britton, 1964a: 627. Type locality: Fenian Creek Cave, Oparara, NN.

*Kettlotrechus pluto*: Townsend, 2010: 39.

**References.** Larochelle & Larivière, 2001: 71 (as *Duvaliomimus pluto*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 39 (ecology, geographic distribution, taxonomy).

**Genus *Kiwitrechus* Larochelle & Larivière, 2007<sup>E</sup>**

Figure 260; Map p. 173

**References.** Larochelle & Larivière, 2007a: 41–42 (description, ecology, geographic distribution, references, taxonomy); Townsend, 2010: 24–25 (revision).

***Kiwitrechus karenscoffae* Larochelle & Larivière, 2007<sup>E</sup>**

Figure 260; Map p. 173

**References.** Larochelle & Larivière, 2007a: 42 (biology, dispersal power, ecology, geographic distribution, taxonomy); Townsend, 2010: 24–25 (ecology, geographic distribution, taxonomy).

**Genus *Kupetrechus* Laroche & Larivière, 2007** <sup>E</sup>

Figures 261–263; Maps p. 173

**References.** Laroche & Larivière, 2001: 70 (as *Duvaliomimus*, in part; catalogue), 2007a: 42–43 (description, ecology, geographic distribution, references); Townsend, 2010: 32–34 (revision; key to species).

***Kupetrechus gracilis* Townsend, 2010** <sup>E</sup>

Figure 261; Map p. 173

*Kupetrechus gracilis* Townsend, 2010: 34.

**Reference.** Townsend, 2010: 34 (ecology, geographic distribution, taxonomy).

***Kupetrechus lamberti* (Britton, 1960)** <sup>E</sup>

Figure 262; Map p. 173

*Duvaliomimus lamberti* Britton, 1960b: 34. Type locality: Dog-leg Hole, Takaka Hill, NN.

*Kupetrechus lamberti*: Laroche & Larivière, 2007a: 42.

**References.** Laroche & Larivière, 2001: 70 (as “*Duvaliomimus*” *lamberti*; catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 33–34 (ecology, geographic distribution, taxonomy).

***Kupetrechus larsonae* Townsend, 2010** <sup>E</sup>

Figure 263; Map p. 173

*Kupetrechus larsonae* Townsend, 2010: 32.

**Reference.** Townsend, 2010: 32–33 (ecology, geographic distribution, taxonomy).

**Genus *Neanops* Britton, 1962** <sup>E</sup>

Figures 264–265, Maps p. 176

**References.** Laroche & Larivière, 2001: 72 (catalogue), 2007a: 43 (description, ecology, geographic distribution, references); Townsend, 2010: 28–30 (revision; key to species).

***Neanops caecus* (Britton, 1960)** <sup>E</sup>

Figure 264; Map p. 176

**References.** Laroche & Larivière, 2001: 72 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 29–30 (ecology, geographic distribution, taxonomy).

***Neanops pritchardi* Valentine, 1987** <sup>E</sup>

Figure 265; Map p. 176

**References.** Laroche & Larivière, 2001: 72 (catalogue; biology, dispersal power, ecology, geographic distribution,

references); Townsend, 2010: 30 (ecology, geographic distribution, taxonomy).

**Genus *Scototrechus* Britton, 1962** <sup>E</sup>

Figures 266–269; Maps p. 178

**References.** Laroche & Larivière, 2001: 72 (catalogue), 2007a: 43–44 (description, ecology, geographic distribution, references); Townsend, 2010: 35–37 (revision; key to species and subspecies).

***Scototrechus hardingi hardingi* Townsend, 2010** <sup>E</sup>

Figure 266; Map p. 178

*Scototrechus hardingi hardingi* Townsend, 2010: 37.

**Reference.** Townsend, 2010: 37 (ecology, geographic distribution, taxonomy).

***Scototrechus hardingi worthyi* Townsend, 2010** <sup>E</sup>

Figure 267; Map p. 178

*Scototrechus hardingi worthyi* Townsend, 2010: 37.

**Reference.** Townsend, 2010: 37 (ecology, geographic distribution, taxonomy).

***Scototrechus morti* Townsend, 2010** <sup>E</sup>

Figure 268; Map p. 178

*Scototrechus morti* Townsend, 2010: 36.

**Reference.** Townsend, 2010: 36–37 (ecology, geographic distribution, taxonomy).

***Scototrechus orcinus* Britton, 1962** <sup>E</sup>

Figure 269; Map p. 178

**References.** Laroche & Larivière, 2001: 72 (catalogue; biology, dispersal power, ecology, geographic distribution, references); Townsend, 2010: 36 (ecology, geographic distribution, taxonomy).

**Genus *Waiputrechus* Townsend, 2010** <sup>E</sup>

Figure 270; Map p. 183

*Waiputrechus* Townsend, 2010: 27. Type species: *Waiputrechus cavernicola* Townsend, 2010, by monotypy.

**Reference.** Townsend, 2010: 27–28 (taxonomy).

***Waiputrechus cavernicola* Townsend, 2010** <sup>E</sup>

Figure 270; Map p. 183

*Waiputrechus cavernicola* Townsend, 2010: 27.

**Reference.** Townsend, 2010: 27–28 (ecology, geographic distribution, taxonomy).

## SELECTED BIBLIOGRAPHY

All references cited in the text of taxonomic reviews and revisions are provided in this bibliography. Selected recent or major references are given in other cases. Readers are referred to Larochelle & Larivière (2001, 2007a) for supplementary references.

- Baehr, M. 2005: The Australian species of the genus *Anomotarus* Chaudoir, subgenus *Anomotarus* s. str. (Insecta: Coleoptera: Carabidae: Lebiinae). *Coleoptera* 9: 11–107.
- Ball, G. E.; Bousquet, Y. 2001: Carabidae Latreille, 1810. Pp. 32–132. In: Arnett, R. H. Jr.; Thomas, M. C. (Editors). *American Beetles*. Volume 1. CRC Press, Boca Raton, London, New York, and Washington, D.C. 443 pp.
- Bates, H. W. 1867: New species of insects from the Province of Canterbury, New Zealand, collected by R. W. Fereday, Esq. *Entomologist's Monthly Magazine* 4: 52–56, 78–80.
- 1874: On the geodephagous Coleoptera of New Zealand. *Annals and Magazine of Natural History* (4) 13: 233–246, 270–277.
- 1878: New species of geodephagous Coleoptera from New Zealand. *Entomologist's Monthly Magazine* 15: 22–28, 57–58.
- Bell, R. T. 1970: The Rhysodini of North America, Central America, and the West Indies (Coleoptera: Carabidae or Rhysodidae). *Miscellaneous Publications of the Entomological Society of America* 6: 289–324.
- 1994: Beetles that cannot bite: functional morphology of the head of adult rhysodines (Coleoptera: Carabidae or Rhysodidae). *Canadian Entomologist* 126: 667–672.
- 1998: Where do the Rhysodini (Coleoptera) belong? Phylogeny and classification of Caraboidea (Coleoptera: Adepaga). Proceedings of a Symposium (28 August, 1996, Florence, Italy) XX International Congress of Entomology. *Museo regionale di Scienze naturali di Torino* 1998: 261–271.
- ; Bell, J. R. 1978: Rhysodini of the world. Part I. A new classification of the tribe, and synopsis of *Omoglymmius* subgenus *Nitiglymmius*, new subgenus (Coleoptera: Carabidae or Rhysodidae). *Quaestiones Entomologicae* 14: 43–88.
- ; ——— 1979: Rhysodini of the world. Part II. Revisions of smaller genera (Coleoptera: Carabidae or Rhysodidae). *Quaestiones Entomologicae* 15: 377–446.
- Bell, R. T.; Bell, J. R. 1982: Rhysodini of the world. Part III. Revision of *Omoglymmius* Ganglbauer (Coleoptera: Carabidae or Rhysodidae) and substitutions for preoccupied generic names. *Quaestiones Entomologicae* 18: 127–259.
- ; ——— 1985: Rhysodini of the world. Part IV. Revisions of *Rhyzodiastes* Fairmaire and *Clinidium* Kirby, with new species in other genera (Coleoptera: Carabidae or Rhysodidae). *Quaestiones Entomologicae* 21: 1–172.
- ; ——— 1991: The Rhysodini of Australia (Insecta: Coleoptera: Carabidae or Rhysodidae). *Annals of Carnegie Museum* 60: 179–210.
- ; ——— 1995: The Rhysodini (Insecta: Coleoptera: Carabidae) of Cuba. *Annals of Carnegie Museum* 64: 185–195.
- ; ——— 2009: Rhysodine beetles (Insecta: Coleoptera: Carabidae), new species, new data III. *Annals of Carnegie Museum* 78: 45–77.
- Blanchard, C. E. 1842–1847: Planches I–XVII In: Dumont d'Urville, J. S. C. Voyage au Pôle Sud et dans l'Océanie sur les Corvettes l'Astrolabe et la Zélée;...pendant les années, 1837–40, par Hombron et Jacquinot. Paris. Atlas of 140 plates. [See Emberson (1993) for dates of publication of individual plates].
- 1853: Descriptions des insectes. Pp. 1–422 In: Dumont D'Urville, J. S. C., Voyage au Pôle Sud et dans l'Océanie sur les Corvettes l'Astrolabe et la Zélée;...pendant les années, 1837–40, par Hombron et Jacquinot. Paris. Volume IV.
- Bouchard, P.; Bousquet, Y.; Davies, A. E.; Alonso-Zarazaga, M. A.; Lawrence, J. F.; Lyal, C. H. C.; Newton, A. F.; Reid, C. A. M.; Schmitt, M.; Slipinski, S. A.; Smith, A. B. T. 2011: Family-group names in Coleoptera (Insecta). *ZooKeys* 88: 1–972.
- Britton, E. B. 1940: The Carabidae (Coleoptera) of New Zealand. Part I, Pterostichini. *Transactions of the Royal Society of New Zealand* 69: 473–508, plates 68–75.
- Brookes, A. E. 1944: Descriptions of two other genera and species of New Zealand beetles, and notes on other described species. *Transactions and Proceedings of the Royal Society of New Zealand* 73 (1943): 262–266.
- Brouerius van Nidek, C. M. C. 1965: Cicindelidae of New Zealand with descriptions of a new species and subspecies. *New Zealand Journal of Science* 8: 352–358.
- Broun, T. 1880: Manual of the New Zealand Coleoptera. Government Printer, Wellington. [Part I]: XIX + 1–651 + VIII.

- Broun, T. 1882: On the New Zealand Carabidae. *New Zealand Journal of Science (Dunedin) 1*: 215–227.
- 1886: Manual of the New Zealand Coleoptera. Government Printer, Wellington. Parts III and IV: 745–973 + XVII. [Species numbers 1322–1345 were described both in 1882 and 1883; species numbers 1634–1644 were described in 1884.]
- 1893: Manual of the New Zealand Coleoptera. Parts V–VII: XVII + 975–1504. Government Printer, Wellington.
- 1894: Descriptions of new Coleoptera from New Zealand. *Annals and Magazine of Natural History (6) 14*: 302–312, 379–386, 419–428.
- 1903: Descriptions of new genera and species of New Zealand Coleoptera. *Annals and Magazine of Natural History (7) 11*: 450–458, 602–618; 12: 69–86.
- 1908: Descriptions of new species of New-Zealand Coleoptera. *Annals and Magazine of Natural History (8) 2*: 334–352, 405–422.
- 1910: Descriptions of new genera and species of Coleoptera. *Bulletin of the New Zealand Institute 1*: 1–78.
- 1912: Descriptions of new genera and species of Coleoptera. [Part I]. *Transactions and Proceedings of the New Zealand Institute 44 (1911)*: 379–440.
- 1914: Descriptions of new genera and species of Coleoptera. Part III. *Bulletin of the New Zealand Institute 1*: 143–266.
- 1917: Descriptions of new genera and species of Coleoptera. Part V. *Bulletin of the New Zealand Institute 1*: 347–474.
- 1921: Descriptions of new genera and species of Coleoptera. Part VII. *Bulletin of the New Zealand Institute 1*: 475–665.
- 1923: Descriptions of new species of Coleoptera. Part VIII. *Bulletin of the New Zealand Institute 1*: 667–708.
- Brzoska, D. 2006: Collecting notes from New Zealand. *Cicindela 38*: 21–36.
- Cassola, F. 1990: Studies on tiger beetles. LV. Biogeography of the Cicindelidae (Coleoptera) of the Australo-Papuan Region. In: Biogeographical aspects of insularity. *Atti dei Convegni Lincei (Accademia Nazionale dei Lincei, Roma) 85*: 559–574.
- ; Moravec, J. 2010: New records of tiger beetles from New Zealand with taxonomic and nomenclatural notes on the genus *Neocicindela* (Coleoptera, Cicindelidae). *Fragmenta entomologica, Roma 42*: 1–22.
- Cassola, F.; Putschkov, A. 2009: Descriptions of the larvae of four species of the New Zealand tiger beetle genus *Neocicindela* (Coleoptera Cicindelidae). *Bolletino della Società Entomologica Italiana 141*: 17–27.
- Chaudoir, M. de. 1878: Descriptions de genres nouveaux et d'espèces inédites de la famille des carabiques. *Bulletin de la Société Impériale des Naturalistes de Moscou 53*: 1–80.
- Crosby, T. K.; Dugdale, J. S.; Watt, J. C. 1976: Recording specimen localities in New Zealand: an arbitrary system of areas and codes defined. *New Zealand Journal of Zoology 3*: 69 + map.
- ; ——; —— 1998: Area codes for recording specimen localities in the New Zealand subregion. *New Zealand Journal of Zoology 25*: 175–183.
- Csiki, E. 1930: Carabidae: Harpalinae IV. Pars 112: 529–737. In: Junk, W.; Schenklng, S. (Editors), *Coleopterorum Catalogus*. Junk, Berlin.
- Emberson, R. M. 1993: The publication dates of the zoology plates of Dumont d'Urville's Voyage au Pôle Sud; nomenclatorial implications for New Zealand beetles. *New Zealand Entomologist 16*: 17–21.
- 1995: A new species of *Kaveinga* (Coleoptera: Rhyssodidae) and lectotype designations for four species of rhyssodids described by Thomas Broun (1880). *New Zealand Entomologist 18*: 9–14.
- 2004: A European ground beetle, *Harpalus tardus* (Panzer) (Coleoptera: Carabidae) in Canterbury, and the predisposition of European carabids to establish in exotic temperate locations. *New Zealand Entomologist 27*: 39–42.
- Erichson, W. F. 1842: Beitrag zur Insecten-Fauna von Vandiemensland, mit besonderer Berücksichtigung der geographischen Verbreitung der Insecten. *Archiv für Naturgeschichte 8*: 83–287.
- Erwin, T. L. 2011: A treatise on the Western Hemisphere Caraboidea (Coleoptera), their classification, distributions, and ways of life. Volume III (Carabidae–Loxomeriformes, Melaeniformes). *Pensoft Series Faunistica (Sofia–Moscow) 99*: 412 pp.
- ; Pearson, D. L. 2008: A treatise on the Western Hemisphere Caraboidea (Coleoptera). Their classification, distributions, and ways of life. Volume II (Carabidae–Nebriiformes 2–Cicindelitae). *Pensoft Series Faunistica (Sofia–Moscow) 84*: 365 pp.

- Fabricius, J. C. 1775: *Systema entomologiae, sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. Kortii, Flensburgi et Lipsiae. XXXII + 832 pp.
- Giachino, P. M. 2003: A new *Polyderis* species from the Northern Territory, Australia (Coleoptera, Carabinae, Bembidiinae). *Monografia del Museo Regionale de Scienze Naturali, Torino* 53: 245–252.
- 2005: A new *Duvaliomimus* Jeannel, 1928 from the North Island of New Zealand (Coleoptera: Carabidae: Trechina). *New Zealand Entomologist* 28: 81–84.
- Horn, W. 1892: Fünf Dekaden neuer Cicindelinen. *Deutsche Entomologische Zeitschrift* (1892): 65–92.
- 1900: De novis cicindelidarum speciebus. *Deutsche Entomologische Zeitschrift* (1900): 193–212.
- 1926: Über neue und alte Cicindelinen der Welt. *Entomologische Blätter für Biologie und Systematik der Käfer* 22: 164–173.
- Howe, P. 2011: Notes on carabid beetles in South Canterbury. *Weta* 42: 31–33.
- Jeannel, R. 1941: Coléoptères carabiques. Première partie. Faune de France 39. Librairie de la Faculté des Sciences, Paris. Pp. 1–571.
- 1942: Coléoptères carabiques. Deuxième partie. Faune de France 40. Librairie de la Faculté des Sciences, Paris. Pp. 572–1173.
- Johns, P. M. 1980: Ground beetles (Carabidae) of Arthur's Pass National Park. *Mauri Ora* 8: 55–67.
- 1986: Arthropods of the Banks Peninsula Reserves. Report to the Commissioner of Crown Lands, Christchurch, August 1986: 114 pp.
- 2003: New species of *Holcaspis* and others of conservation interest, and a species guide (Coleoptera: Carabidae). *Records of Canterbury Museum* 17: 7–16.
- 2005: Field guide to South Island carabid beetles of conservation interest (Coleoptera: Carabidae). Department of Conservation, Christchurch. 74 pp + CD-rom.
- 2007: New genera and species of rare New Zealand endemic carabids. (Coleoptera: Carabidae). Privately published, New Zealand [Christchurch]. 10 pp.
- 2010: Migadopini (Coleoptera: Carabidae: Migadopinae) of New Zealand. *Records of Canterbury Museum* 24: 39–63.
- Lacordaire, T. 1854: *Histoire naturelle des insectes. Genera des Coléoptères ou exposé méthodique et critique de tous les genres proposés jusqu'ici dans cet ordre d'insectes*. Tome premier contenant les familles des cicindélètes, carabiques, dytiscides, gyridés et palpicornes. Roret, Paris. XX + 486 pp.
- Laporte de Castelnau, F. L. 1867: Notes on Australian Coleoptera. Royal Society of Victoria, Melbourne. 139 pp. [Separates available prior to publication in 1867–1868.]
- Larochelle, A.; Larivière, M.-C. 2001: Carabidae (Insecta: Coleoptera): catalogue. *Fauna of New Zealand* 43: 281 pp.
- ; ———2003: A natural history of the ground beetles (Coleoptera: Carabidae) of America north of Mexico. *Pensoft Series Faunistica (Sofia-Moscow)* 27: 583 pp.
- ; ———2005: Harpalini (Insecta: Coleoptera: Carabidae: Harpalinae). *Fauna of New Zealand* 53: 160 pp.
- ; ———2007a: Carabidae (Insecta: Coleoptera): synopsis of supraspecific taxa. *Fauna of New Zealand* 60: 188 pp.
- ; ———2007b (and updates): New Zealand ground-beetles (Coleoptera: Carabidae): a virtual identification guide to genera. *The New Zealand Carabidae, NZC 02*. Retrieved from <http://www.landcareresearch.co.nz/>
- Leschen, R. A. B.; Lawrence, J. F.; Kuschel, G.; Thorpe, S.; Wang, Q. 2003: Coleoptera genera of New Zealand. *New Zealand Entomologist* 26: 15–28.
- Liebherr, J. K. 2005: Platynini (Coleoptera: Carabidae) of Vanuatu: Miocene diversification on the Melanesian Arc. *Invertebrate Systematics* 19: 263–295.
- 2011a: The *Mecyclothorax* beetles (Coleoptera, Carabidae, Moriormorphinini) of West Maui, Hawaii: taxonomy, biogeography, and conservation. *Deutsche Entomologische Zeitschrift* 58: 15–76.
- 2011b: Cladistic assessment of subtribal affinities within the tribe Moriormorphini with description of *Rossjoycea glacialis*, gen. n. and sp. n. from the South Island and revision of *Meonochilus* Liebherr and Marris from the North Island, New Zealand (Coleoptera, Carabidae). *ZooKeys* 147: 277–335.
- ; Marris, J. W. 2009: Revision of the New Zealand species of *Mecyclothorax* Sharp (Coleoptera: Carabidae: Psydrinae, Mecyclothoracini) and the consequent removal of several species to *Meonochilus* gen. n. (Psydrinae, Meonini). *New Zealand Entomologist* 32: 5–22.

- ; ——; Emberson, R. M.; Syrett, P.; Roig-Juñent, S. 2011: *Orthoglymma wangapeka* gen. n., sp. n. (Coleoptera: Carabidae: Broscini): a newly discovered relict from the Buller Terrane, north-western South Island, New Zealand, corroborates a general pattern of Gondwanan endemism. *Systematic Entomology* 36: 395–414.
- Lindroth, C. H. 1961: The ground-beetles (Carabidae, excl. Cicindelinae) of Canada and Alaska. Part 2. *Opuscula Entomologica Supplementum* 20: 1–200.
- 1963: The ground-beetles (Carabidae, excl. Cicindelinae) of Canada and Alaska. Part 3. *Opuscula Entomologica Supplementum* 24: 201–408.
- 1966: The ground-beetles (Carabidae, excl. Cicindelinae) of Canada and Alaska. Part 4. *Opuscula Entomologica Supplementum* 29: 409–648.
- 1968: The ground-beetles (Carabidae, excl. Cicindelinae) of Canada and Alaska. Part 5. *Opuscula Entomologica Supplementum* 33: 649–944.
- 1969a: The ground-beetles (Carabidae, excl. Cicindelinae) of Canada and Alaska. Part 6. *Opuscula Entomologica Supplementum* 34: 945–1192.
- 1969b: The ground-beetles (Carabidae, excl. Cicindelinae) of Canada and Alaska. Part 1. *Opuscula Entomologica Supplementum* 35: XLVIII pp.
- Lorenz, W. 2005: A systematic list of extant ground beetles of the world (Coleoptera “Geadephaga”: Tachypachidae and Carabidae incl. Paussinae, Cicindelinae, Rhysodinae. 2nd edition. Published by the author, Tutzing. 530 pp.
- Marshall, T. 1802: Entomologia Britannica, sistens insecta Britanniae indigena, secundum methodum Linnaeanam disposita. Tomus I. Coleoptera. White, Londinii. XXXI + 547 pp + 1 page Errata et corrigenda. [Also published under the title “Coleoptera Britannica, sistens insecta Coleoptera Britanniae indigena, secundum methodum Linnaeanam disposita”.]
- Mayr, E.; Ashlock, P. D. 1991: Principles of systematic zoology. McGraw-Hill, New York. 475 pp.
- Moore, B. P. 1963: Studies on Australian Carabidae (Coleoptera). 3. — The Psydrinae. *Transactions of the Royal Entomological Society of London* 115: 277–290.
- Pawson, S. M.; Emberson, R. M.; Armstrong, K. F.; Patterson, A. M. 2003: Phylogenetic revision of the endemic New Zealand carabid genus *Oregus* Putzeys (Coleoptera: Carabidae: Broscini). *Invertebrate Systematics* 17: 625–640.
- Pearson, D. L.; Knisley, C. B.; Kazilek, C. J. 2006: A field guide to the tiger beetles of the United States and Canada: identification, natural history, and distribution of the Cicindelidae. Oxford University Press, New York. 227 pp.
- Pons, J.; Fujisawa, T.; Claridge, E. M.; Savill, R. A.; Barraclough, T. C.; Vogler, A. P. 2011: Deep mtDNA subdivision within Linnean species in an endemic radiation of tiger beetles from New Zealand (genus *Neocicindela*). *Molecular Phylogenetics and Evolution* 59: 251–262.
- Rivalier, E. 1950: Démembrement du genre *Cicindela* Linné (Travail préliminaire limité à la faune paléarctique). *Revue Française d'Entomologie* 17: 217–244.
- 1954: Démembrement du genre *Cicindela* Linné. II. Faune américaine. *Revue Française d'Entomologie* 21: 249–268.
- 1957a: Démembrement du genre *Cicindela* Linné. III. Faune africano-malgache. *Revue Française d'Entomologie* 24: 312–342.
- 1957b: Démembrement du genre *Cicindela* L. (suite). IV. Faune indomalaise. *Revue Française d'Entomologie* 28: 121–149.
- 1963: Démembrement du genre *Cicindela* L. (fin). V. Faune australienne. *Revue Française d'Entomologie* 30: 30–48.
- Savill, R. A. 1999: A key to the New Zealand tiger beetles, including distribution, habitat and new synonyms. *Records of the Canterbury Museum* 13: 129–146.
- Seldon, D. S.; Leschen, R. A. B. 2011: Revision of the *Mecodema curvidens* species group (Coleoptera: Carabidae: Broscini). *Zootaxa* 2829: 1–45.
- ; ——; Liebherr, J. K. 2012: A new species of *Mecodema* (Carabidae: Broscini) from Northland, New Zealand, with notes on a newly observed structure within the female genitalia. *New Zealand Entomologist* 35: 39–50.
- Sharp, D. 1883: Some new species and genera of Coleoptera from New Zealand. *Entomologist's Monthly Magazine* 20: 23–27, 66–68.
- 1886: On New Zealand Coleoptera, with descriptions of new genera and species. *Scientific Transactions of the Royal Dublin Society* (2) 3: 351–454.
- 1903: Coleoptera. II. Coleoptera Caraboidea. *Fauna Hawaiiensis* 3: 175–292 + 2 plates.

- Sloane, T. G. 1898: On Carabidae from West Australia, sent by Mr. A. M. Lea (with descriptions of new genera and species, synoptic tables, &c.). *Proceedings of the Linnean Society of New South Wales* 23: 444–520.
- Spiller, D. 1949: An occurrence of the ground beetle *Carabus nemoralis* Mull. (Coleoptera: Carabidae) at Auckland. *New Zealand Science Review* 7: 137.
- Toledano, L. 2005: The Australian species of *Bembidion* Latreille, 1802: a taxonomic treatment with notes about Gondwana as an evolutionary source area (Coleoptera, Carabidae, Bembidiini). Pp. 73–136 In: Daccordi, M.; Giachino, P. M. (Eds. ). Results of the Zoological Missions to Australia of the Regional Museum of Natural Sciences of Turin, Italy, II. *Monografia del Museo Regionale de Scienze Naturali, Torino* 42: 644 pp.
- Townsend, J. I. 2010: Trechini (Insecta: Coleoptera: Carabidae: Trechinae). *Fauna of New Zealand* 62: 101 pp.
- 2011: Notes on the taxonomy of the *Mecodema spiniferum* species group (Coleoptera: Carabidae). *Weta* 42: 4–13.
- Watt, J. C. 1980: New Zealand Rhysodidae (Coleoptera). *Weta* 3: 31–32.
- White, A. 1846: Insects of New Zealand. In: Richardson, J.; Gray, J. E. (Editors). The zoology of the voyage of H.M.S. Erebus and Terror, under the command of Captain Sir James Clark Ross, R.N., F.R.S., during the years 1839 to 1843. Green and Longman, London. 2 (4): 1–24 + 6 plates.
- Wiesner, J. 1988: Sandlaufkäfer (Col., Cicindelidae) von der Nordinsel Neuseelands. 17. Beitrag zur Kenntniss der Cicindelidae. *Entomologische Blätter für Biologie und Systematik der Käfer* 84: 175–181.
- 1992: Verzeichnis der Sandlaufkäfer der Welt. Erna Bauer, Kelttern. 364 pp.
- Will, K. W. 2011: Taxonomic review of the Pterostichini and Loxandriini fauna of New Caledonia (Coleoptera, Carabidae). *ZooKeys* 147: 337–397.



**Appendix A. Glossary of technical terms.**

**adhesive setae** (of male tarsi) — ventral setae functioning to adhere to female body surfaces.

**adventive** — not native; an organism not originating or not naturally occurring in a geographic area in which it is found. *Synonym*: introduced.

**adeagus** — the tubular intromittent structure of the male genitalia, analogous to the mammalian penis and usually containing an eversible internal sac.

**aeuous** (of metallic lustre) — with a copper or brass appearance.

**alpine** — of or pertaining to land located above the subalpine zone, characterised by grasslands, herb fields and scree, and reaching up to the summer snow line.

**altitudinal distribution** — distribution related to altitude, i.e., lowland, upland or montane, subalpine, alpine.

**ambulatory setae** (of abdomen) — specialised pairs of setae occurring ventrally on the abdomen.

**anterior bead** (of pronotum) — raised transverse border situated at the apex of the pronotum, close to the head.

**anterolateral** — situated both at the front and on each side; anterior and lateral together.

**apex** — end or extremity of a structure or organ.

**apical** — related to the apex.

**appendages** — the antennae, palpi, and legs together.

**apterous** — without membranous wings.

**arboreal** — living on trees or shrubs.

**arcuate** — arched; bow-like.

**basal** — related to the base.

**base** — the beginning or point of attachment of a structure or organ.

**bead** — a raised border.

**bidentate** — with two teeth.

**bifid** — cleft or divided into two parts.

**bilobed** — divided into two lobes.

**biostatus** — status of an organism based on its geographic origin relative to its occurrence in a particular region, e.g., endemic, native, adventive.

**bipunctate** — with two punctures.

**biseriate** — forming a series of two punctures or points.

**biseriately** — disposed in two series or rows.

**bisetose** — with two setae.

**brachypterous** — with abbreviated membranous wings, shorter than those of macropterous species but not vestigial like those of subapterous species; incapable of flight.

**buccal fissure** — a lateral mouth opening beneath the eye area.

**carina** (plural, **carinae**) — a keel or ridge.

**carinate** — keeled or ridged.

**cavernicolous** — living in caves.

**cleft** — divided longitudinally.

**coastal** — of or pertaining to the strip of land within the influence of the sea.

**conchiform** — shell-shaped.

**conical** (of terminal segment of palpi) — shaped like a cone; with a flat base and tapering to a point.

**cordate** — shaped like a heart.

**corticulous** — associated with the bark of trees.

**crepuscular** — active at twilight or dusk.

**dentate** — toothed.

**denticulate** — with minute or small teeth.

**depigmented** — with weak pigmentation (appearing pale in colour).

**depressed** — flattened as though subjected to dorsal pressure.

**dilated** — widened; expanded.

**disc, disk** — the dorsal central area of a body part.

**discal** — related to the disc.

**discal setiferous punctures** (of elytra) — seta-bearing punctures usually on interval or stria 3, rarely on 2, 5, 7.

**dispersal power** — capacity of self-dispersal.

**dissimilar** — not similar.

**diurnal** — active during the day.

**dorsal** — pertaining to the upperside of a part or structure.

**dorsoventrally** — both over and under.

**elliptical** — with the ends equally rounded; attenuate at both ends, widest about middle.

**elytral** — related to an elytron (plural elytra).

**emarginate** — having a notched or concave (inwardly curved) edge.

**emargination** — notched edge; sharp cut.

**embedded** (of stones, logs) — fixed firmly and deeply in the soil.

**endemic** — restricted to a geographic area.

**endogean** — living in soil crevices or fissures, in deep humus or leaf litter, or under well-embedded stones.

**entire** — with an unbroken margin; without emargination, excision, or projection.

**epigean** — living on the surface of the ground.

**epilittoral** — living on the sea shore, over the high tide line.

**epipleuron** (plural, **epipleura**) — recurved ventral outer side of each elytron.

**equidistant** — equally distant.

**excavated** — with a cavity or depression.

- explanate** (of pronotal and elytral margins) — spread and flattened.
- family** — a category in the taxonomic hierarchy, that includes one or more genera or tribes of common phylogenetic origin, separated from other such groups by a decided gap.
- filiform** — shaped like a thread.
- forebody** — the head and thorax together.
- fovea** (plural, **foveae**) — small pit or depression.
- foveate** — with fovea(e).
- foveola** (plural, **foveolae**) — a small fovea.
- free** (of elytra) — mobile; not fused. See soldered.
- frontal furrows** (of head) — longitudinal deep lines, often paired, situated on the frons, between the eyes.
- furrow** — see groove, sulcus.
- furrowed** — see grooved, sulcate.
- fusiform** — shaped like a spindle.
- genus** (plural, **genera**) — a category in the taxonomic hierarchy, that includes one or more phylogenetically related, and morphologically similar species.
- geographic distribution** — the distribution related to the geography, i.e., districts, regions.
- glabrous** — without hair or seta(e).
- granulate** (of microsculpture) — appearing covered with small grains.
- gregarious** — living in groups or colonies.
- groove** — long narrow channel or depression.
- grooved** — with groove(s).
- head capsule** — the fused sclerites of the head.
- hindwings** — posterior wings.
- holotype** or **type** — the single specimen designated or indicated as the type specimen of a species by the original author at the time of publication or, if no type was specified, the only existing specimen seen by the author.
- immaculate** — without spots or marks.
- impressed** — well marked (as being produced by pressure).
- impunctate** — without punctures.
- indigenous** — see native.
- inflated** — swollen; distended.
- infusate** — with brownish tinge.
- inner** — situated close to the center.
- inner striae** (of an elytron) — striae situated between the suture and the disc of the elytron; striae 1-4.
- inserted** (of a moveable part) — attached to a point.
- interocular fovea** (of head) — fovea situated in the centre of the head, between the eyes.
- interval** (of an elytron) — space between two striae.
- iridescent** — displaying a rainbow-effect colour.
- isodiametric** (of microsculpture) — appearing covered with polygons of equal diameter.
- lateral** — related to a side.
- lateral beads** (of pronotum) — paired longitudinal raised beads, situated on the outer side of the pronotum.
- laterobasal** — situated both on each side and at the base; lateral and basal together.
- laterobasal foveae** (of pronotum) — foveae situated both on each side and at the base of the pronotum.
- lateroventral** — situated both on each side and on the underside of the abdomen.
- lobate** — shaped like a lobe.
- lowland** — of or pertaining to land located below the montane zone and generally reaching up to the limit of rimu (*Dacrydium cupressinum*), e.g., about 500 m in central New Zealand.
- macropterous** — with long or fully developed membranous wings.
- medial** — situated in the middle.
- medially** — in the middle.
- median** — situated in or at the middle.
- metallic lustre** — a reflection like polished metal (e.g., brassy, bronze, coppery, aeneous).
- microsculpture** — microscopic sculpture.
- moniliform** — shaped like a necklace composed of beads.
- monophyletic** — derived from the same ancestral taxon.
- montane** — of or pertaining to land located above the lowland zone and reaching up to the tree line.
- muscolous** — living in moss.
- native** — occurring naturally in the area in question.
- neck** (of head) — the narrowed part situated behind the eyes and connecting the head to the thorax.
- new status** — of a taxonomic name given a new rank, e.g., a subspecific name given specific status.
- nocturnal** — active during the night.
- obliterate** — absent (of a structure that is normally present).
- oblong** — longer than wide; with longitudinal diameter more than twice the transverse one.
- obsolete** — rudimentary; vestigial.
- olivaceous** — olive-green.
- orbicular** — circular or spherical.
- ostium** — the membranous opening of the aedeagus.
- outer** — situated on the outside or far from the center.
- outer striae** (of an elytron) — the striae situated

between the outer side and the disc of the elytron; striae 5 to 7.

**ovate** — shaped like an egg.

**peduncle** — stalk-like structure between the thorax and the abdomen.

**pedunculate** (of body) — with a peduncle between the thorax and the abdomen; taxa with a pedunculate body have the scutellum placed directly on a visible peduncle (between pronotum and elytra) or placed partly between and above elytral bases. Note: Taxa without a pedunculate body have the scutellum inserted entirely between elytral bases.

**penis** — see aedeagus.

**penultimate** — next to the last; second from the end.

**phytophagous** — feeding on plant material.

**piceous** — with reddish tinge; pitchy.

**planticolous** — living on plants (not on trees or shrubs).

**plurisetose** — with four setae or more.

**polyphagous** — eating many types of food.

**posterior bead** (of pronotum) — raised transverse border situated at the base of the pronotum, close to the elytra.

**posterolateral** — situated both behind and on each side; posterior and lateral together.

**posterolateral angles** (of pronotum) — angles situated behind and on each side of the pronotum. Their shape may be rounded, rectangular, obtuse, or acute.

**posteroventral** — situated both behind and under.

**predacious** — eating live animals.

**prominent** — standing out; projecting outwards.

**pronotal** — related to the pronotum.

**pubescence** — covering of hairs or setae.

**pubescent** — covered with hairs or setae.

**punctate** — marked with punctures.

**puncture** — microscopic pit similar to that made by a needle.

**quadrate** — square or nearly so.

**quadrisetose** — with four setae.

**radial field** (of elytron) — the outer area extending from the lateral margin to, and including, the interval bearing the umbilicate series.

**recurrent** — curving back; turning back.

**recurrent stria** (of an elytron) — the stria 1 when it curves back at the tip of the elytron.

**reinstated** — of a taxonomic name restored to a former status, e.g., a name restored to its original combination.

**riparian** — living at the border of streams, lakes, or ponds.

**rudimentary** — imperfectly developed; represented by a vestige.

**rufopiceous** — piceous with a reddish tinge; pitchy-red.

**rufous** — reddish-brown.

**scape** — the first segment of the antenna; antennal segment 1.

**scree** — accumulation of loose stones on a slope.

**scrobe** (of a mandible) — lateral longitudinal depression in the outer wall of the mandible.

**scrubland** — vegetation unit with dense cover about 1–2 metres tall.

**scutellar** — related to the scutellum.

**scutellar setiferous pore** (of elytron) — seta-bearing pore situated next to the scutellum.

**scutellar striole** (of elytron) — short stria situated next to the scutellum.

**scutellum** — small triangular sclerite situated basally between the elytra or on a peduncle between thorax and abdomen.

**seasonality** — period of the year when the animal is active.

**semi** (as a prefix) — half.

**serrate** — toothed like a saw.

**serrulate** — with small saw-like teeth; minutely serrate.

**seta** (plural, **setae**) — hair-like projection surrounded basally by a small cuticular ring.

**setiferous** — bearing seta(e) or bristle(s).

**setiferous puncture** — puncture bearing seta(e) or bristle(s).

**setiform** — shaped like a seta or bristle.

**setose** — covered with setae.

**setulose** — covered with short setae.

**sexsetose** — with six setae.

**shoulder** (of an elytron) — the outer anterior angle.

**shrubland** — vegetation unit with sparse or moderate cover often taller than 2 metres.

**simple** — not modified.

**sinuate** (of pronotal and elytral sides) — with a wavy margin or S-shape.

**species** — a taxon of the rank of species, the category below the genus in the taxonomic hierarchy; naturally occurring populations with a common heredity; groups of actually or potentially interbreeding populations which are reproductively isolated from other such groups.

**sternum** (plural, **sterna**) — the ventral surface of each segment of the abdomen.

**stria** (plural, **striae**) (of an elytron) — longitudinal impressed line or row of punctures on the dorsal surface of the elytron.

- striole** — a short stria.
- sub** (as a prefix) — rather, almost; part of.
- subalpine** — of or pertaining to land located above the tree line and characterised by a mountain shrubland (e.g., of *Olearia*, *Brachyglottis*, and *Dracophyllum*).
- subapical** — situated near the apex.
- subapical sinuations** (of elytra) — sinuations of the side, near the apex.
- subapterous** — with vestigial membranous wings (reduced to small wing buds).
- subdepressed** — rather depressed.
- subequal** — almost or rather equal in shape, size, or length.
- subfiliform** (of antennae) — almost shaped like a thread; rather filiform.
- submoniliform** (of antennae) — almost shaped like a necklace composed of beads; rather moniliform.
- subovate** — rather ovate.
- sulci** (singular, **sulcus**) — furrows; grooves.
- sulcate** — with a groove. *Synonym*: sulciform.
- supraorbital** — situated above the eye.
- sutural** — related to the suture.
- suture** — line of contact between two sclerites or parts.
- suture** (of elytra) — line of contact between the inner sides of the elytra.
- synonym** — one of two or more scientific names applied to a single taxon.
- synopsis** — a taxonomic publication with a brief summary about the current knowledge of a group.
- syntype** — any of two or more specimens on which the original description of a taxon was based when a holotype was not designated.
- tarsal** — related to a tarsus.
- taxon** (plural, **taxa**) — a taxonomic grouping of any rank (e. g. , a family, a genus, a species) including all its subordinate groups.
- teneral** — a new or young adult, recently emerged, sexually immature, with softer or paler exoskeleton.
- terminal** — situated at the tip or extremity; last in a series.
- testaceous** — reddish brown.
- tinge** — a slight colouring or trace.
- transverse** — wider than long; in a crosswise orientation.
- transverse** (of microsculpture) — appearing covered with flattened or sublinear shapes.
- tribe** — a category in the taxonomic hierarchy below a subfamily, that includes one or more genera of common phylogenetic origin, separated from other such groups by a decided gap.
- tridentate** — with three teeth.
- tripunctate** — with three punctures.
- trisetose** — with three setae.
- truncate** — cut off rather squarely at the tip.
- twisted** (of epipleura) — condition of the epipleura with an inner fold near apex.
- type or name-bearing type** — the specimen(s), species or genus that serves as the objective standard of reference determining the application of a name to a taxon.
- type locality** — the precise geographical site where the type of a species or subspecies was collected.
- type species** — the species designated as the type of a genus or subgenus.
- type specimen** — a specimen (e. g. , holotype, lectotype, neotype) or one of a series of specimens (syntypes) designated as the type of a species or subspecies.
- umbilicate** — shaped like a navel.
- umbilicate series** (of an elytron) — row of seta-bearing punctures situated along the outermost interval (usually interval 9).
- unicolorous** — with a single colour throughout.
- unidentate** — with a single tooth.
- unipunctate** — with a single puncture.
- vagility** — ability to move or migrate.
- valid name** — the name for a particular taxon that is correct according to the provisions of the Code of Zoological Nomenclature.
- ventral** — pertaining to the underside of the abdomen or of another part or structure.
- vertical distribution** — distribution related to the horizon, i.e., cavernicolous, endogean, epigean, planticolous, arboreal.
- verticillate** — with rings or whorls of setae.
- vestigial** — represented only by a remnant or vestige; rudimentary.
- violaceous** — violet-coloured, with a mixture of blue and red.
- xylophilous** — associated with wood.

**Appendix B. Geographical coordinates of main localities.** Coordinates should read as 00 00'S/000 00'E. The two-letter area codes follow Crosby *et al.* (1976, 1998).

Ahuriri Reserve, Banks Peninsula, MC ..	4340/17237	Flora Stream, Mount Arthur, NN .....	4110/17242
Akaroa, Banks Peninsula, MC.....	4339/17258	Flora Track, Mount Arthur, NN.....	4110/17243
Akatore, DN.....	4605/17007	Four Mile River, See Tiropahi River, BR	
Allison Scenic Reserve/Conservation Area (near Akatore), DN.....	4608/17006	Fox Glacier, WD .....	4330/17007
Armstrong Reserve, MC.....	4350/17300	Glenroy Divide/River, BR.....	4214/17222
Armstrong Saddle, Ruahine Range, RI ..	3946/17610	Gore, SL .....	4606/16856
Arthur's Pass, NC.....	4554/17133	Government Track, Waipori Valley, DN ..	4554/17001
Aupouri Peninsula, ND.....	3444/17258	Greymouth, BR.....	4227/17112
Avondale, AK.....	3654/17442	Hermitage (The), Mount Cook, MK.....	4344/17005
Baldy Ridge, Glenroy Divide/River, BR ..	4201/17226	Hinewai Scenic Reserve, Banks Peninsula, MC ..	4348/17301
Ballance, Manawatu, WI.....	4024/17549	Hollyford, OL.....	4420/16800
Banks Peninsula, MC .....	4340/17245	Hunua, AK .....	3704/17504
Bealey, NC.....	4302/17138	Hunua Ranges, AK.....	3701/17513
Ben Lomond, OL .....	4501/16837	Invercargill, SL.....	4625/16822
Blue Mountains, SL .....	4556/16920	Kaitoke, WN.....	4105/17510
Borland Ridge/Range, FD .....	4542/16728	Karamea, NN.....	4115/17206
Bush Stream, Mount Cook, MK.....	4351/17003	Kaweka Forest Park, HB .....	3917/17622
Canaan, NN.....	4058/17251	Keith George Scenic Reserve, WN .....	4106/17505
Canterbury, NC/MC/SC .....	4300/17200	Kingston, OL.....	4520/16843
Capleston, BR .....	4204/17155	Kohitere Forest, Levin, WN .....	4038/17521
Careys Creek, near Waitaki, DN .....	4544/17031	Lake Papaitonga, Levin, WN .....	4038/17513
Cass, MC.....	4302/17145	Lake Rotoroa, BR.....	4149/17237
Castle Hill, MC.....	4314/17143	Lake Sumner, MC.....	4243/17216
Castle Rocks Hut, Fox Glacier, WD.....	4327/17010	Lake Waikaremoana, GB .....	3846/17706
Central Volcanic Plateau [=Desert Road], TO .....	3914/17544	Le Bons Bay, MC.....	4345/17303
Chancellor area, Fox Glacier, WD .....	4330/17006	Leitchs Clearing, Whareorino State Forest, WO ..	3825/17446
Chetwood Island, SD.....	4054/17405	Leith Saddle, Swampy Summit, DN .....	4548/17031
Christchurch, MC.....	4332/17238	Levin, WN.....	4037/17517
Clipping's Bush, near Kingston, OL.....	4520/16843	Lomond, See Ben Lomond, OL	
Cobb Reservoir, NN.....	4108/17236	Longwood State Forest, SL .....	4613/16750
Cobb Valley, NN .....	4106/17235	Lower Waingawa Gorge, Tararua Forest Park, WN .....	4053/17528
Coral Creek/Track, Arthur's Pass, NC ..	4255/17133	Manakau, WN.....	4042/17512
Croydon Bush, Gore, SL .....	4603/16852	Manawatu Gorge, WI.....	4018/17546
Cupola Basin, Nelson Lakes National Park, BR..	4159/17245	Mangahao [Upper] No 1 Reservoir, Tararua Forest Park, WN .....	4037/17528
Dun Mountain, NN.....	4121/17322	Matakitaki, BR .....	4159/17220
Dundas Hut/Ridge, Tararua Range, WN	4042/17527	Matiri Tops/Range, NN .....	4133/17218
Erua, TO .....	3914/17524	Maud Island, SD .....	4101/17353
Fenian Creek, Oparara, NN.....	4112/17211	Maungatautari Scenic Reserve, WO .....	3801/17534
Flea Bay/Pohatu, MC .....	4352/17300	Maungatua, See Mount Maungatua, DN	
Flora Hut, Mount Arthur, NN .....	4110/17243	Mawhera State Forest, BR .....	4228/17130
		Measly Beach, near Waikaro, DN .....	4614/17000
		Mokau Road, Mount Messenger Forest, TK.....	3853/17435

Mount Aicken, NC.....	4255/17135	Temple Basin, NC.....	4254/17134
Mount Algidus, MC .....	4314/17121	The Kaik, MC.....	4350/17256
Mount Arthur, NN.....	4113/17241	Tinakori Hill/Range, WN .....	4116/17446
Mount Cook, MK.....	4336/17009	Tiropahi River (old Four Mile River), BR.	4157/17126
Mount Dewar, BR .....	4205/17133	Twin Forks Cave, Paturau, NN.....	4043/17229
Mount Dick, OL.....	4516/16841		
Mount Domett, NN.....	4104/17219	Upper Maitai Valley, NN.....	4117/17320
Mount Kiwi, MC .....	4307/17119	Upper Otira Valley, WD.....	4253/17133
Mount Maungatua, DN .....	4553/17007		
Mount Messenger, TK .....	3854/17456	Waikaro, DN .....	4614/16959
Mount Owen, NN .....	4133/17233	Waikouaiti, DN.....	4536/17041
Mount Priestley, BR.....	4204/17133	Waiotauru, near Waikanae, WN .....	4055/17511
Mount Quoin, WN.....	4100/17514	Waipori Falls/Gorge, DN.....	4555/16959
Mount Robert, BR.....	4150/17249	Waipuna Caves, Te Kuiti, WO .....	3815/17505
Mount Robinson, SD .....	4105/17408	Waitati, DN .....	4545/17035
Mount Stokes, SD.....	4103/17406	Wangapeka, NN .....	4120/17247
		Wellington, WN.....	4115/17446
Napier, HB .....	3930/17654	Westland, WD.....	4323/17010
Nelson Lakes National Park, BR .....	4156/17241	Westport, NN/BR .....	4145/17136
Ngahere, BR.....	4224/17127	Whareorino State Forest, WO .....	3824/17441
North Mavora Lake, OL .....	4515/16810	Whisky Gully, Tapanui, SL .....	4557/16917
		White Cliffs, near Mount Messenger Forest, TK..	
Okains Bay, MC.....	4342/17302	.....	3851/17433
Oparara, NN .....	4113/17209	Wilton's Bush, WN.....	4116/17445
Oparara River, NN.....	4111/17211		
Otira Valley, WD .....	4245/17138		
Panama Rock, MC .....	4344/17303		
Paraparaumu, WN.....	4053/17458		
Patriarch Creek, Wangapeka, NN .....	4126/17232		
Paturau, NN.....	4042/17229		
Picnic Gully, DN.....	4603/17011		
Port Chalmers, DN .....	4549/17037		
Raurimu, TO .....	3907/17524		
Rock and Pillar Range, CO .....	4522/17008		
Routeburn, FD/OL .....	4445/16820		
Sealy Range, Mount Cook, MK .....	4344/17003		
Six Mile Creek, Rock and Pillar Range, CO .....	4527/17008		
South Mavora Lake, OL.....	4517/16810		
Swampy Summit, DN .....	4548/17028		
Tableland, Mount Arthur, NN.....	4111/17240		
Taieri Mouth, DN.....	4603/17011		
Takaka Hill, NN.....	4102/17251		
Takapari, Manawatu, WI.....	4006/17602		
Tapanui, SL.....	4557/16916		
Tararua Forest Park/Range, WN .....	4103/17520		
Te Aroha, BP.....	3732/17542		
Te Kuiti, WO.....	3820/17510		

### Appendix C. Updated checklist of New Zealand carabid species.

Larochelle & Larivière's Catalogue (2001) and Synopsis of supraspecific taxa (2007a) listed respectively 438 species-group taxa (424 species and 14 subspecies) and 476 species-group taxa (461 species and 15 subspecies) for the country. Since then, many species have either been added to the fauna or have had their taxonomic status altered. The New Zealand fauna now totals 7 subfamilies, 20 tribes, 97 genera, 536 species-group taxa (518 species, plus 18 subspecies). Valid species and subspecies are listed alphabetically within genera. N = native, but not endemic to New Zealand; A = adventive; other taxa are endemic. Full details of taxonomic references for taxa recorded prior to the current Synopsis can be found in the 2001 Catalogue, and in the 2007 Synopsis. Taxonomic changes made subsequently to the 2001 Catalogue are also given in Appendix D.

*Actenonyx bembidioides* White, 1846  
*Adelotopus macilentus* Baehr, 1997<sup>A</sup>  
*Agonocheila antipodum* (Bates, 1867)<sup>N</sup>  
*Allocinopus angustulus* Broun, 1912  
*Allocinopus belli* Larochelle & Larivière, 2005  
*Allocinopus bousqueti* Larochelle & Larivière, 2005  
*Allocinopus latitarsis* Broun, 1911  
*Allocinopus sculpticollis* Broun, 1903  
*Allocinopus smithi* Broun, 1912  
*Allocinopus wardi* Larochelle & Larivière, 2005  
*Amarotypus edwardsii* Bates, 1872  
*Anisodactylus (Anisodactylus) binotatus* (Fabricius, 1787)<sup>A</sup>  
*Anomotarus (Anomotarus) illawarrae* (Macleay, 1873)<sup>A</sup>  
*Anomotarus (Anomotarus) variegatus obscuripennis* Baehr, 2005<sup>A</sup>  
*Aulacopodus brouni* (Csiki, 1930)  
*Aulacopodus calathoides* (Broun, 1886)  
*Aulacopodus maorinus* (Bates, 1874)  
*Aulacopodus sharpianus* (Broun, 1893)

*Bembidion (Zeperyphus) actuarium* Broun, 1903  
*Bembidion (Zecillenens) alacre* (Broun, 1921)  
*Bembidion (Zecillenens) albescens* (Bates, 1878)  
*Bembidion (Zemetallina) anchonoderus* Bates, 1878  
*Bembidion (Notaphus) brullei* Gemminger & Harold, 1868<sup>A</sup>  
*Bembidion (Zeperyphodes) callipeplum* Bates, 1878  
*Bembidion (Zemetallina) chalceipes* Bates, 1878  
*Bembidion (Zecillenens) chalmeri* (Broun, 1886)  
*Bembidion (Zeplataphus) charile* Bates, 1867  
*Bembidion (Zeplataphus) dehiscens* Broun, 1893

*Bembidion (Zecillenens) embersoni* (Lindroth, 1980)  
*Bembidion (Zeplataphus) granuliferum* Lindroth, 1976  
*Bembidion (Zemetallina) hokitikense* Bates, 1878  
*Bembidion (Zeplataphus) maorinum levatum* Lindroth, 1976  
*Bembidion (Zeplataphus) maorinum maorinum* Bates, 1867  
*Bembidion (Zeactedium) musae* Broun, 1882  
*Bembidion (Zeactedium) orbiferum giachinoi* Toledano, 2005  
*Bembidion (Zeactedium) orbiferum orbiferum* Bates, 1878  
*Bembidion (Zemetallina) parviceps* Bates, 1878  
*Bembidion (Ananotaphus) rotundicolle eustictum* Bates, 1878  
*Bembidion (Ananotaphus) rotundicolle rotundicolle* Bates 1874  
*Bembidion (Zemetallina) solitarium* Lindroth, 1976  
*Bembidion (Zemetallina) stewartense* Lindroth, 1976  
*Bembidion (Zeplataphus) tairuense* Bates, 1878  
*Bembidion (Zemetallina) tekapoense* Broun, 1886  
*Bembidion (Zecillenens) tillyardi* (Brookes, 1927)  
*Bembidion (Zeplataphus) townsendi* Lindroth, 1976  
*Bembidion (Zemetallina) urewerense* Lindroth, 1976  
*Bembidion (Zemetallina) wanakense* Lindroth, 1976  
*Bountya insularis* Townsend, 1971  
*Brullea antarctica* Laporte de Castelnau, 1867

*Calathosoma rubromarginatum* (Blanchard, 1843)  
*Cerabilia aphela* (Broun, 1912)  
*Cerabilia major* (Broun, 1912)  
*Cerabilia maori* Laporte de Castelnau, 1867  
*Cerabilia oblonga* (Broun, 1910)  
*Cerabilia rufipes* (Broun, 1893)  
*Cerabilia striatula* (Broun, 1893)  
*Clivina australasiae* Boheman, 1858<sup>A</sup>  
*Clivina basalis* Chaudoir, 1843<sup>A</sup>  
*Clivina heterogena* Putzeys, 1866<sup>A</sup>  
*Clivina vagans* Putzeys, 1866<sup>A</sup>  
*Ctenognathus actochares* Broun, 1894  
*Ctenognathus adamsi* (Broun, 1886)  
*Ctenognathus amaudensis* (Broun, 1921)  
*Ctenognathus bidens* (Chaudoir, 1878)  
*Ctenognathus cardiophorus* (Chaudoir, 1878)  
*Ctenognathus cheesemani* (Broun, 1880)  
*Ctenognathus colenonis* (White, 1846)  
*Ctenognathus crenatus* (Chaudoir, 1878)  
*Ctenognathus deformipes* (Broun, 1880)  
*Ctenognathus edwardsii* (Bates, 1874)  
*Ctenognathus helmsi* (Sharp, 1881)  
*Ctenognathus integratus* (Broun, 1908)  
*Ctenognathus intermedius* (Broun, 1908)

- Ctenognathus libitus* (Broun, 1914)  
*Ctenognathus littorellus* (Broun, 1908)  
*Ctenognathus lucifugus* (Broun, 1886)  
*Ctenognathus macrocoelis* (Broun, 1908)  
*Ctenognathus montivagus* (Broun, 1880)  
*Ctenognathus munroi* Broun, 1893  
*Ctenognathus neozelandicus* (Chaudoir, 1878)  
*Ctenognathus novaezelandiae* (Fairmaire, 1843)  
*Ctenognathus oreobius* (Broun, 1886)  
*Ctenognathus otagoensis* (Bates, 1878)  
*Ctenognathus parabilis* (Broun, 1880)  
*Ctenognathus perrugithorax* (Broun, 1880)  
*Ctenognathus pictonensis* Sharp, 1886  
*Ctenognathus politulus* (Broun, 1880)  
*Ctenognathus punctulatus* (Broun, 1877)  
*Ctenognathus sandageri* (Broun, 1882)  
*Ctenognathus simmondsi* (Broun, 1912)  
*Ctenognathus sophronitis* (Broun, 1908)  
*Ctenognathus suborbithorax* (Broun, 1880)  
*Ctenognathus sulcitaris* (Broun, 1880)  
*Ctenognathus xanthomelus* (Broun, 1908)
- Demetrida (Demetrida) dieffenbachii* (White, 1843)  
*Demetrida (Demetrida) lateralis* Broun, 1910  
*Demetrida (Demetrida) lineella* White, 1846  
*Demetrida (Demetrida) moesta atra* Broun, 1880  
*Demetrida (Demetrida) moesta moesta* Sharp, 1878  
*Demetrida (Demetrida) nasuta* White, 1846  
*Demetrida (Demetrida) sinuata maculata* Britton, 1941  
*Demetrida (Demetrida) sinuata sinuata* Broun, 1917  
*Dicrochile anchomenoides* Guérin-Méneville, 1846  
*Dicrochile anthracina* Broun, 1893  
*Dicrochile aterrima* Bates, 1874  
*Dicrochile cephalotes* Broun, 1894  
*Dicrochile cordicollis* Broun, 1903  
*Dicrochile fabrii* Guérin-Méneville, 1846  
*Dicrochile flavipes* Broun, 1917  
*Dicrochile insignis* Broun, 1917  
*Dicrochile maura* Broun, 1880  
*Dicrochile nitida* Broun, 1882  
*Dicrochile novaezelandiae* (Laporte de Castelnau, 1867)  
*Dicrochile rugicollis* Broun, 1917  
*Dicrochile subopaca* Bates, 1874  
*Dicrochile thoracica* Broun, 1908  
*Dicrochile whitei* (Csiki, 1931)  
*Diglymma castigatum* Broun, 1909  
*Diglymma clivinooides* (Laporte de Castelnau, 1867)  
*Diglymma marginale* Broun, 1914  
*Diglymma obtusum* (Broun, 1886)  
*Diglymma seclusum* (Johns, 2007)  
*Dromius (Dromius) meridionalis* Dejean, 1825<sup>A</sup>
- Duvaliomimus (Duvaliomimus) australis* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) chrystallae* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) crypticus* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) maori* (Jeannel, 1928)  
*Duvaliomimus (Mayotrechus) mayae* Britton, 1958  
*Duvaliomimus (Mayotrechus) mayorum* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) megawattus* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) obscurus* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) orientalis* Giachino, 2005  
*Duvaliomimus (Duvaliomimus) pseudostyx* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) styx* Britton, 1959  
*Duvaliomimus (Duvaliomimus) taieriensis* Townsend, 2010  
*Duvaliomimus (Duvaliomimus) walkeri brittoni* Jeannel, 1938  
*Duvaliomimus (Duvaliomimus) walkeri walkeri* (Broun, 1903)  
*Duvaliomimus (Duvaliomimus) wattii* Britton, 1958
- Egadroma picea* (Guérin-Méneville, 1830)<sup>A</sup>  
*Erebotrechus infernus* Britton, 1964  
*Euthenarus bicolor* Moore, 1985<sup>A</sup>  
*Euthenarus brevicollis* Bates, 1874  
*Euthenarus promptus* (Erichson, 1842)<sup>A</sup>  
*Euthenarus puncticollis* Bates, 1874
- Gaioxenus pilipalpis* Broun, 1910  
*Gnathaphanus melbournensis* (Laporte de Castelnau, 1867)<sup>A</sup>  
*Gourlayia regia* Britton, 1964
- Hakaharpalus cavelli* (Broun, 1893)  
*Hakaharpalus davidsoni* Larochelle & Larivière, 2005  
*Hakaharpalus maddisoni* Larochelle & Larivière, 2005  
*Hakaharpalus patricki* Larochelle & Larivière, 2005  
*Hakaharpalus rhodeae* Larochelle & Larivière, 2005  
*Haplanister crypticus* Moore, 1996<sup>A</sup>  
*Harpalus (Harpalus) affinis* (Schrank, 1781)<sup>A</sup>  
*Harpalus australasiae* Dejean, 1829<sup>A</sup>  
*Harpalus (Harpalus) tardus* (Panzer, 1797)<sup>A</sup>  
*Holcaspis abdita* Johns, 2003  
*Holcaspis algida* Britton, 1940



- Holcaspis angustula* (Chaudoir, 1865)  
*Holcaspis bathana* Butcher, 1984  
*Holcaspis bessatica* Johns, 2003  
*Holcaspis bidentella* Johns, 2003  
*Holcaspis brevicula* Butcher, 1984  
*Holcaspis brouniana* (Sharp, 1886)  
*Holcaspis catenulata* Broun, 1882  
*Holcaspis delator* (Broun, 1893)  
*Holcaspis dentifera* (Broun, 1880)  
*Holcaspis egregialis* (Broun, 1917)  
*Holcaspis elongella* (White, 1846)  
*Holcaspis falcis* Butcher, 1984  
*Holcaspis hispida* (Broun, 1877)  
*Holcaspis hudsoni* Britton, 1940  
*Holcaspis impigra* Broun, 1886  
*Holcaspis implica* Butcher, 1984  
*Holcaspis intermittens* (Chaudoir, 1865)  
*Holcaspis mordax* Broun, 1886  
*Holcaspis mucronata* Broun, 1886  
*Holcaspis obvelata* Johns, 2003  
*Holcaspis odontella* (Broun, 1908)  
*Holcaspis oedictema* Bates, 1874  
*Holcaspis ohauensis* Butcher, 1984  
*Holcaspis ovatella* (Chaudoir, 1865)  
*Holcaspis placida* Broun, 1881  
*Holcaspis sinuiventris* (Broun, 1908)  
*Holcaspis sternalis* Broun, 1881  
*Holcaspis stewartensis* Butcher, 1984  
*Holcaspis subaenea* (Guérin-Méneville, 1841)  
*Holcaspis suteri* (Broun, 1893)  
*Holcaspis tripunctata* Butcher, 1984  
*Holcaspis vagepunctata* (White, 1846)  
*Holcaspis vexata* (Broun, 1908)  
*Hygranillus kuscheli* Moore, 1980  
*Hypharpax antarcticus* (Laporte de Castelnau, 1867)  
*Hypharpax australis* (Dejean, 1829)<sup>A</sup>
- Kaveinga (Ingevaka) bellorum* Emberson, 1995  
*Kaveinga (Vakeinga) lusca* (Chevrolat, 1875)  
*Kaveinga (Ingevaka) orbitosa* (Broun, 1880)  
*Kenodactylus audouini* (Guérin-Méneville, 1830)<sup>N</sup>  
*Kettlotrechus edridgeae* Townsend, 2010  
*Kettlotrechus marchanti* Townsend, 2010  
*Kettlotrechus millari* Townsend, 2010  
*Kettlotrechus orpheus* (Britton, 1962)  
*Kettlotrechus pluto* (Britton, 1964)  
*Kiwiarpalus townsendi* Laroche & Larivière, 2005  
*Kiwitachys antarcticus* (Bates, 1874)  
*Kiwitachys latipennis* (Sharp, 1886)  
*Kiwitrechus karencottae* Laroche & Larivière, 2007  
*Kupeharpalus barrattae* Laroche & Larivière, 2005  
*Kupeharpalus embersoni* Laroche & Larivière, 2005
- Kupeharpalus johnsi* Laroche & Larivière, 2005  
*Kupetrechus gracilis* Townsend, 2010  
*Kupetrechus lamberti* (Britton, 1960)  
*Kupetrechus larsonae* Townsend, 2010  
*Kupeus arcuatus* (Chevrolat, 1873)
- Laemostenus (Laemostenus) complanatus* (Dejean, 1828)<sup>A</sup>  
*Lecanomerus atriceps* (Macleay, 1871)<sup>A</sup>  
*Lecanomerus insignitus* Broun, 1880  
*Lecanomerus latimanus* Bates, 1874  
*Lecanomerus marrisi* Laroche & Larivière, 2005  
*Lecanomerus obesulus* Bates, 1878  
*Lecanomerus sharpi* (Csiki, 1932)  
*Lecanomerus verticalis* (Erichson, 1842)<sup>A</sup>  
*Lecanomerus vestigialis* (Erichson, 1842)<sup>A</sup>  
*Loxomerus brevis* (Blanchard, 1843)  
*Loxomerus huttoni* (Broun, 1902)  
*Loxomerus katote* Johns, 2010  
*Loxomerus nebrioides* (Guérin-Méneville, 1841)
- Maoriarpalus sutherlandi* Laroche & Larivière, 2005  
*Maoripamborus fairburni* Brookes, 1944  
*Maoritrechus nunni* Townsend, 2010  
*Maoritrechus rangitotoensis* Brookes, 1932  
*Maoritrechus stewartensis* Townsend, 2010  
*Mecodema allani* Fairburn, 1945  
*Mecodema alternans alternans* Laporte de Castelnau, 1867  
*Mecodema alternans hudsoni* Broun, 1909  
*Mecodema angustulum* Broun, 1914  
*Mecodema aoteanoho* Seldon & Leschen, 2011  
*Mecodema atrox* Britton, 1949  
*Mecodema brittoni* Townsend, 1965  
*Mecodema bullatum* Lewis, 1902  
*Mecodema chiltoni* Broun, 1917  
*Mecodema constrictum* Broun, 1881  
*Mecodema costellum costellum* Broun, 1903  
*Mecodema costellum gordonense* Broun, 1917  
*Mecodema costellum lewisi* Broun, 1908  
*Mecodema costellum obesum* Townsend, 1965  
*Mecodema costipenne* Broun, 1914  
*Mecodema crenaticolle* Redtenbacher, 1868  
*Mecodema crenicolle* Laporte de Castelnau, 1867  
*Mecodema curvidens* (Broun, 1915)  
*Mecodema ducale* Sharp, 1886  
*Mecodema dunense* Townsend, 1965  
*Mecodema dux* Britton, 1949  
*Mecodema elongatum* Laporte de Castelnau, 1867  
*Mecodema femorale* Broun, 1921  
*Mecodema florae* Britton, 1949  
*Mecodema fulgidum* Broun, 1881  
*Mecodema gourlayi* Britton, 1949

- Mecodema haunoho* Seldon & Leschen, 2011  
*Mecodema hector* Britton, 1949  
*Mecodema howitti* Laporte de Castelnau, 1867  
*Mecodema huttese* Broun, 1915  
*Mecodema impressum* Laporte de Castelnau, 1867  
*Mecodema infimate* Lewis, 1902  
*Mecodema integratum* Townsend, 1965  
*Mecodema kokoromatu* Seldon *et al.* 2012  
*Mecodema laeviceps* Broun, 1904  
*Mecodema laterale* Broun, 1917  
*Mecodema litoreum* Broun, 1886  
*Mecodema longicollis* Broun, 1923  
*Mecodema lucidum* Laporte de Castelnau, 1867  
*Mecodema manaia* Seldon & Leschen, 2011  
*Mecodema metallicum* Sharp, 1886  
*Mecodema minax* Britton, 1949  
*Mecodema morio* (Laporte de Castelnau, 1867)  
*Mecodema nitidum* Broun, 1903  
*Mecodema oblongum* (Broun, 1882)  
*Mecodema occiputale* Broun, 1923  
*Mecodema oconnori* Broun, 1912  
*Mecodema oregoides* (Broun, 1894)  
*Mecodema parataiko* Seldon & Leschen, 2011  
*Mecodema pavidum* Townsend, 1965  
*Mecodema persculptum* Broun, 1915  
*Mecodema pluto* Britton, 1949  
*Mecodema politanum* Broun, 1917  
*Mecodema ponaiti* Seldon & Leschen, 2011  
*Mecodema proximum* Britton, 1949  
*Mecodema puiakium* Johns & Ewers, 2007  
*Mecodema pulchellum* Townsend, 1965  
*Mecodema punctatum* (Laporte de Castelnau, 1867)  
*Mecodema punctellum* Broun, 1921  
*Mecodema quoinense* Broun, 1912  
*Mecodema retcolineatum* Laporte de Castelnau, 1867  
*Mecodema regulus* Britton, 1964  
*Mecodema rex* Britton, 1949  
*Mecodema rugiceps anomalum* Townsend, 1965  
*Mecodema rugiceps rugiceps* Sharp, 1886  
*Mecodema sculpturatum puncticolle* Broun, 1914  
*Mecodema sculpturatum sculpturatum* Blanchard, 1843  
*Mecodema simplex* Laporte de Castelnau, 1867  
*Mecodema spiniferum* Broun, 1880  
*Mecodema striatum* Broun, 1904  
*Mecodema strictum* Britton, 1949  
*Mecodema sulcatum* (Sharp, 1886)  
*Mecodema tenaki* Seldon & Leschen, 2011  
*Mecodema validum* Broun, 1923  
*Mecyclothorax ambiguus* (Erichson, 1842)<sup>A</sup>  
*Mecyclothorax oopterooides* Liebherr & Marris, 2009  
*Mecyclothorax otagoensis* Liebherr & Marris, 2009  
*Mecyclothorax rotundicollis* (White, 1846)  
*Megadromus (Megadromus) alternus* (Broun, 1886)  
*Megadromus (Megadromus) antarcticus* (Chaudoir, 1865)  
*Megadromus (Megadromus) asperatus* (Broun, 1886)  
*Megadromus (Megadromus) bucolicus* (Broun, 1903)  
*Megadromus (Megadromus) bullatus* (Broun, 1915)  
*Megadromus (Megadromus) capito* (White, 1846)  
*Megadromus (Megadromus) compressus* (Sharp, 1886)  
*Megadromus (Megadromus) curtulus* (Broun, 1884)  
*Megadromus (Megadromus) enysi* (Broun, 1882)  
*Megadromus (Megadromus) fultoni* (Broun, 1882)  
*Megadromus (Megadromus) guerinii* (Chaudoir, 1865)  
*Megadromus (Megadromus) haplopus* (Broun, 1893)  
*Megadromus (Megadromus) lobipes* (Bates, 1878)  
*Megadromus (Megadromus) memes* (Broun, 1903)  
*Megadromus (Megadromus) meritus* (Broun, 1884)  
*Megadromus (Megadromus) omaramae* Johns, 2007  
*Megadromus (Megadromus) rectalis* (Broun, 1881)  
*Megadromus (Megadromus) rectangulus* (Chaudoir, 1865)  
*Megadromus (Megadromus) sandageri* (Broun, 1893)  
*Megadromus (Megadromus) speciosus* Johns, 2007  
*Megadromus (Megadromus) temukensis* (Bates, 1878)  
*Megadromus (Megadromus) turgidiceps* (Broun, 1908)  
*Megadromus (Megadromus) vigil* (White, 1846)  
*Megadromus (Megadromus) virens* (Broun, 1886)  
*Megadromus (Megadromus) walkeri* (Broun, 1903)  
*Megadromus (Megadromus) wallacei* (Broun, 1912)  
*Meonochilus amplipennis* (Broun, 1912)  
*Meonochilus bellorum* Liebherr, 2011  
*Meonochilus epicatus* (Broun, 1923)  
*Meonochilus placens* (Broun, 1880)  
*Meonochilus rectus* Liebherr, 2011  
*Meonochilus spiculatus* Liebherr, 2011  
*Metaglymma aberrans* Putzeys, 1868  
*Metaglymma moniliferum* Bates, 1867  
*Metaglymma tibiale* (Laporte de Castelnau, 1867)  
*Molopsida antarctica* (Laporte de Castelnau, 1867)  
*Molopsida cordipennis* (Broun, 1912)  
*Molopsida lindrothi* new species  
*Molopsida polita* White, 1846  
*Molopsida seriatoporus* (Bates, 1874)  
*Molopsida strenua* (Broun, 1894)

- Neanops caecus* (Britton, 1960)  
*Neanops pritchardi* Valentine, 1987  
*Neocicindela dunedensis* (Laporte de Castelnau, 1867)  
*Neocicindela garnerae* new species  
*Neocicindela latecincta* (White, 1846)  
*Neocicindela parryi* (White, 1846)  
*Neocicindela spilleri* Brouerius van Nidek, 1965  
*Neocicindela tuberculata* (Fabricius, 1775)  
*Neocicindela waiouraensis* (Broun, 1914)  
*Neoferonia ardua* (Broun, 1893)  
*Neoferonia edax* (Chaudoir, 1878)  
*Neoferonia fossalis* (Broun, 1914)  
*Neoferonia integrata* (Bates, 1878)  
*Neoferonia prassignis* (Broun, 1903)  
*Neoferonia procerula* (Broun, 1886)  
*Neoferonia proluxa* (Broun, 1880)  
*Neoferonia straneoi* Britton, 1940  
*Neoferonia truncatula* (Broun, 1923)  
*Nesamblyops oreobius* (Broun, 1893)  
*Nesamblyops subcaecus* (Sharp, 1886)  
*Notagonum chathamense* (Broun, 1909)  
*Notagonum feredayi* (Bates, 1874)  
*Notagonum lawsoni* (Bates, 1874)  
*Notagonum submetallicum* (White, 1846)<sup>N</sup>  
*Notiobia (Anisotarsus) quadricollis* (Chaudoir, 1878)<sup>A</sup>
- Oarotrechus gracilentus* Townsend, 2010  
*Onawea pantomelas* (Blanchard, 1843)  
*Ooapterus atratus* (Broun, 1893)  
*Ooapterus basalis* Broun, 1915  
*Ooapterus carinatus* Broun, 1882  
*Ooapterus clivinoides* Guérin-Méneville, 1841  
*Ooapterus collaris* Broun, 1893  
*Ooapterus femoralis* (Broun, 1894)  
*Ooapterus frontalis* Broun, 1908  
*Ooapterus fulvipes* Broun, 1886  
*Ooapterus helmsi* (Sharp, 1886)  
*Ooapterus labralis* (Broun, 1921)  
*Ooapterus laevicollis* Bates, 1871  
*Ooapterus laevigatus* Broun, 1912  
*Ooapterus laeviventris* (Sharp, 1883)  
*Ooapterus latifossus* Broun, 1917  
*Ooapterus latipennis* Broun, 1903  
*Ooapterus lewisi* (Broun, 1912)  
*Ooapterus marrineri* Broun, 1909  
*Ooapterus minor* Broun, 1917  
*Ooapterus nigrifulus* Broun, 1908  
*Ooapterus ocularius* (Broun, 1917)  
*Ooapterus pallidipes* Broun, 1893  
*Ooapterus parvulus* Broun, 1903  
*Ooapterus patulus* (Broun, 1881)
- Ooapterus plicaticollis* Blanchard, 1843  
*Ooapterus probus* Broun, 1903  
*Ooapterus puncticeps* Broun, 1893  
*Ooapterus pygmeatus* Broun, 1907  
*Ooapterus sculpturatus ovinotatus* Broun, 1908  
*Ooapterus sculpturatus sculpturatus* Broun, 1908  
*Ooapterus sobrinus* Broun, 1886  
*Ooapterus strenuus* Johns, 1974  
*Ooapterus suavis* Broun, 1917  
*Ooapterus subopacus* (Broun, 1915)  
*Oregus aereus* (White, 1846)  
*Oregus crypticus* Pawson, 2003  
*Oregus inaequalis* (Laporte de Castelnau, 1867)  
*Oregus septentrionalis* Pawson, 2003  
*Orthoglymma wangapeka* Liebherr *et al.*, 2011
- Parabaris atratus* Broun, 1881  
*Parabaris hoarei* Larochele & Larivière, 2005  
*Parabaris lesagei* Larochele & Larivière, 2005  
*Paratachys crypticola* (Britton, 1960)<sup>A</sup>  
*Pelodiaetodes prominens* Moore, 1980  
*Pelodiaetus lewisi* Jeannel, 1937  
*Pelodiaetus sulcatipennis* Jeannel, 1937  
*Pentagonica vittipennis* Chaudoir, 1877<sup>N</sup>  
*Pericompsus (Upocompsus) australis* (Schaum, 1863)<sup>A</sup>  
*Perigona (Trechicus) nigriceps* (Dejean, 1831)<sup>A</sup>  
*Philophaeus luculentus* (Newman, 1842)<sup>A</sup>  
*Pholeodytes cerberus* Britton, 1964  
*Pholeodytes helmerei* Larochele & Larivière, 2005  
*Pholeodytes nunni* Larochele & Larivière, 2005  
*Pholeodytes palmai* Larochele & Larivière, 2005  
*Pholeodytes townsendi* Britton, 1962  
*Physolaesthus insularis* Bates, 1878  
*Physolaesthus limbatus* (Broun, 1880)<sup>N</sup>  
*Platynus macropterus* (Chaudoir, 1879)  
*Plocamostethus planiusculus* (White, 1846)  
*Plocamostethus scribae* Johns, 2007  
*Polyderis captus* (Blackburn, 1888)<sup>A</sup>  
*Prosopogmus oodiformis* (Macleay, 1871)<sup>A</sup>  
*Prosphodrus occultus* Britton, 1960  
*Prosphodrus waltoni* Britton, 1959  
*Psegmatopterus politissimus* (White, 1846)
- Rhytisternus liopleurus* (Chaudoir, 1865)<sup>A</sup>  
*Rhytisternus miser* (Chaudoir, 1865)<sup>A</sup>  
*Rhyzodiastes (Rhyzoarca) proprius* (Broun, 1880)  
*Rossjoycea glacialis* Liebherr, 2011
- Scopodes basalis* Broun, 1893  
*Scopodes bryophilus* Broun, 1886  
*Scopodes cognatus* Broun, 1886  
*Scopodes edwardsii* Bates, 1878

- Scopodes fossulatus* (Blanchard, 1843)  
*Scopodes laevigatus* Bates, 1878  
*Scopodes levistriatus* Broun, 1886  
*Scopodes multipunctatus* Bates, 1878  
*Scopodes prasinus* Bates, 1878  
*Scopodes pustulatus* Broun, 1882  
*Scopodes versicolor* Bates, 1878  
*Scototrechus hardingi hardingi* Townsend, 2010  
*Scototrechus hardingi worthyi* Townsend, 2010  
*Scototrechus morti* Townsend, 2010  
*Scototrechus orcinus* Britton, 1962  
*Selenochilus hinewai* new species  
*Selenochilus hutchisonae* new species  
*Selenochilus oculator* (Broun, 1893)  
*Selenochilus omalleyi* new species  
*Selenochilus piceus* (Blanchard, 1843)  
*Selenochilus ruficornis* (Broun, 1882)  
*Selenochilus syntheticus* (Sharp, 1886)  
*Syllectus anomalus* Bates, 1878  
*Syllectus gouletti* Larochelle & Larivière, 2005  
*Syllectus magnus* Britton, 1964  
*Synteratus ovalis* Broun, 1909
- Taenarthrus aenigmaticus* Johns, 2010  
*Taenarthrus aquatilis* Johns, 2010  
*Taenarthrus capito* (Jeannel, 1938)  
*Taenarthrus curvispinatus* Johns, 2010  
*Taenarthrus gelidimontanus* Johns, 2010  
*Taenarthrus latispinatus* Johns, 2010  
*Taenarthrus lissus* Johns, 2010  
*Taenarthrus minor* Johns, 2010  
*Taenarthrus obliterated* Johns, 2010  
*Taenarthrus pakinius* Johns, 2010  
*Taenarthrus philpotti* Broun, 1914  
*Taenarthrus pluriciliatus* Johns, 2010  
*Taenarthrus ruaumokoi* Johns, 2010  
*Tangarona pensa* (Broun, 1880)  
*Tarastethus alpinalis* Broun, 1893  
*Tarastethus convexus* Broun, 1917  
*Tarastethus puncticollis* Sharp, 1883  
*Tarastethus simulans* Broun, 1894  
*Tarastethus sirvidi* new species  
*Tarastethus southlandicus* Broun, 1908  
*Trichopsida boltoni* new species  
*Trichopsida debilis* (Sharp, 1886)  
*Trichopsida diversa* (Broun, 1917)  
*Trichopsida erwini* new species  
*Trichopsida goethei* new species  
*Trichopsida hewitti* new species  
*Trichopsida koyai* new species  
*Trichopsida maudensis* new species  
*Trichopsida nitida* new species  
*Trichopsida nunni* new species
- Trichopsida optata* (Broun, 1917)  
*Trichopsida oxygona* (Broun, 1886)  
*Trichopsida paturauensis* new species  
*Trichopsida popei* new species  
*Trichopsida pretiosa* (Broun, 1910)  
*Trichopsida propinqua* (Broun, 1917)  
*Trichopsida robusta* (Broun, 1921)  
*Trichopsida simplex* (Broun, 1903)  
*Trigonothops (Trigonothops) pacifica* (Erichson, 1842)<sup>A</sup>  
*Triplosarus novaezelandiae* (Laporte de Castelnau, 1867)  
*Tuiharpalus cluniae* Larochelle & Larivière, 2005  
*Tuiharpalus crosbyi* Larochelle & Larivière, 2005  
*Tuiharpalus gourlayi* (Britton, 1964)  
*Tuiharpalus hallae* Larochelle & Larivière, 2005  
*Tuiharpalus moorei* Larochelle & Larivière, 2005
- Waiputrechus cavernicola* Townsend, 2010
- Zeanillus pallidus* (Broun, 1884)  
*Zeanillus phyllobius* (Broun, 1893)  
*Zeanillus punctiger* (Broun, 1914)  
*Zecicindela austromontana* (Bates, 1878)  
*Zecicindela brevilunata* (Horn, 1926)  
*Zecicindela campbelli* (Broun, 1886)  
*Zecicindela feredayi* (Bates, 1867)  
*Zecicindela giveni* (Brouerius van Nidek, 1965)  
*Zecicindela hamiltoni* (Broun, 1921)  
*Zecicindela helmsi circumpictoides* (Horn, 1900)  
*Zecicindela helmsi halli* (Broun, 1917)  
*Zecicindela helmsi helmsi* (Sharp, 1886)  
*Zecicindela helmsi novaseelandica* (Horn, 1892)  
*Zecicindela perhispidata* (Broun, 1880)  
*Zecicindela savilli* (Wiesner, 1988)  
*Zeopoecilus calcaratus* (Sharp, 1886)  
*Zeopoecilus caperatus* Johns, 2007  
*Zeopoecilus putus* (Broun, 1882)

#### Appendix D. Taxonomic changes subsequent to Larochelle & Larivière (2001)'s Catalogue of New Zealand Carabidae.

Changes made by Giachino, 2003 (*Polyderis*), Johns, 2003 (*Holcaspis*), Leschen *et al.*, 2003 (*Dromius*, *Trigonothops*), Pawson in Pawson *et al.*, 2003 (*Oregus*), Emberson, 2004 (*Harpalus*), Baehr, 2005 (*Anomotarus*), Giachino, 2005 (*Duvaliomimus*), Johns, 2005 (*Mecodema*, *Megadromus*), Larochelle & Larivière, 2005 (Harpalini), Liebherr, 2005 (“*Anchomenus*”), Lorenz, 2005 (Rhysodini), Toledano, 2005 (*Bembidion*, subgenera *Zeactedium* and *Zecillenus*), Johns, 2007 (*Anomalobrosclus*, *Mecodema*, *Megadromus*, *Onawea*, *Plocamostethus*, *Zeopoecilus*), Larochelle & Larivière, 2007a (*Synopsis of supraspecific taxa*), Bell & Bell, 2009 (Rhysodini), Liebherr & Marris, 2009 (*Mecyclothorax*, *Meonochilus*), Cassola & Moravec, 2010 (*Neocicindela*), Johns, 2010 (Migadopini), Townsend, 2010 (Trechini), Liebherr, 2011a (Moriomorphini), Pons *et al.*, 2011 (*Neocicindela*), Seldon & Leschen, 2011 (*Mecodema*), Liebherr, 2011b (Amblytelina, *Meonochilus*, *Rossjoycea*, Moriomorphina), Liebherr *et al.*, 2011 (*Orthogymma*), Townsend, 2011 (*Mecodema*), Will, 2011 (*Cerabilia*, Loxandriini), Seldon *et al.*, 2012 (*Mecodema*) as well as those implemented in the present work, are provided below. Valid names are *italicised*. Indications in **bold** refer to changes made here in this work. Synonyms and changed combinations are between square brackets ([ ]). Referrals, following the word (See), are to valid names.

- Adelotopus macilentus* Baehr, 1997 first record for New Zealand (Larochelle & Larivière, 2007a)  
*Allocinopus belli* Larochelle & Larivière, 2005  
*Allocinopus bousqueti* Larochelle & Larivière, 2005  
[*Allocinopus castaneus* Broun, 1912, See *Allocinopus smithi* Broun, 1912] new synonym (Larochelle & Larivière, 2005)  
[*Allocinopus ocularius* Broun, 1908, See *Allocinopus sculpticollis* Broun, 1903] new synonym (Larochelle & Larivière, 2005)  
*Allocinopus wardi* Larochelle & Larivière, 2005  
Amblytelina new status (Liebherr, 2011b)  
[“*Anchomenus*” *sensu* White, 1846, *nec* Bonelli, 1810, See *Ctenognathus* Fairmaire, 1843] new combination (Larochelle & Larivière, 2007a)  
[*Anchomenus* Bonelli, 1810, deleted from the fauna] (Larochelle & Larivière, 2007a)  
[“*Anchomenus*” *arnaudensis* Broun, 1921, See *Ctenognathus arnaudensis* (Broun, 1921)]  
[“*Anchomenus*” *colenisonis* White, 1846, See *Ctenognathus colenisonis* (White, 1846)]  
[“*Anchomenus*” *edwardsii* Bates, 1874, See *Ctenognathus edwardsii* (Bates, 1874)]  
[“*Anchomenus*” *helmsi* Sharp, 1881, See *Ctenognathus helmsi* (Sharp, 1881)]  
[“*Anchomenus*” *integratus* Broun, 1908, See *Ctenognathus integratus* (Broun, 1908)]

- [“*Anchomenus*” *intermedius* Broun, 1908, See *Ctenognathus intermedius* (Broun, 1908)]  
[“*Anchomenus*” *libitus* Broun, 1914, See *Ctenognathus libitus* (Broun, 1914)]  
[“*Anchomenus*” *macrocoelis* Broun, 1908, See *Ctenognathus macrocoelis* (Broun, 1908)]  
[“*Anchomenus*” *oreobius* Broun, 1886, See *Ctenognathus oreobius* (Broun, 1886)]  
[“*Anchomenus*” *otagoensis* Bates, 1878, See *Ctenognathus otagoensis* (Bates, 1878)]  
[“*Anchomenus*” *punctulatus* Broun, 1877, See *Ctenognathus punctulatus* (Broun, 1877)]  
[“*Anchomenus*” *sandageri* Broun, 1882, See *Ctenognathus sandageri* (Broun, 1882)]  
[“*Anchomenus*” *sophronitis* Broun, 1908, See *Ctenognathus sophronitis* (Broun, 1908)]  
[“*Anchomenus*” *sulcitaris* Broun, 1880, See *Ctenognathus sulcitaris* (Broun, 1880)]  
[“*Anchomenus*” *xanthomelus* Broun, 1908, See *Ctenognathus xanthomelus* (Broun, 1908)]  
[*Anomalobrosclus* Johns, 2007, See *Diglymma* Sharp, 1886] new synonymy (Larochelle & Larivière, 2007a)  
[*Anomalobrosclus seclusus* Johns, 2007, See *Diglymma seclusum* (Johns, 2007)]  
[*Anomotarus variegatus* Moore, 1967, See *Anomotarus variegatus obscuripennis* Baehr, 2005]  
*Anomotarus variegatus obscuripennis* Baehr, 2005  
[“*Argutor*” *sensu* Blanchard, 1843, *nec* Dejean, 1821, See *Onawea* Johns, 2007]  
[*Argutor* Dejean, 1821 is excluded from the New Zealand fauna by Johns, 2007]  
[*Argutor pantomelas* Blanchard, 1843, See *Onawea pantomelas* (Blanchard, 1843)]  
[*Bembidion* (*Zeactedium*) *orbiferum* Bates, 1878, See *Bembidion* (*Zeactedium*) *orbiferum orbiferum* Bates, 1878]  
*Bembidion* (*Zeactedium*) *orbiferum giachinoi* Toledano, 2005  
*Bembidion* (*Zeactedium*) *orbiferum orbiferum* Bates, 1878 new status (Toledano, 2005)  
*Bembidion* (*Zecillenus*) new status (Toledano, 2005)  
*Bembidion* (*Zecillenus*) *alacre* (Broun, 1921) new combination (Toledano, 2005)  
*Bembidion* (*Zecillenus*) *albescens* (Bates, 1878) new combination (Toledano, 2005)  
*Bembidion* (*Zecillenus*) *chalmeri* (Broun, 1886) new combination (Toledano, 2005)  
*Bembidion* (*Zecillenus*) *embersoni* (Lindroth, 1980) new combination (Toledano, 2005)  
*Bembidion* (*Zecillenus*) *tillyardi* (Brookes, 1927) new combination (Toledano, 2005)  
[*Carabus* (*Archicarabus*) *nemoralis* Müller, 1764 **deleted from fauna**]

- Cerabilia* Laporte de Castelnau, 1867, transfer from Platynini to Loxandriini (Will, 2011)
- Cerabilia rufipes* (Broun, 1893) new combination (Larochelle & Larivière, 2007a)
- Cerabilia striatula* (Broun, 1893) new combination (Larochelle & Larivière, 2007a)
- [*Cicindela* (Neocicindela), See *Neocicindela* Rivalier, 1963 and *Zecicindela* new genus]
- [*Cicindela* (Neocicindela) *austromontana*, See *Zecicindela austromontana* (Bates, 1878)]
- [*Cicindela* (Neocicindela) *brevilunata*, See *Zecicindela brevilunata* (Horn, 1926)]
- [*Cicindela* (Neocicindela) *dunedensis*, See *Neocicindela dunedensis* (Laporte de Castelnau, 1867)]
- [*Cicindela* (Neocicindela) *feredayi*, See *Zecicindela feredayi* (Bates, 1867)]
- [*Cicindela* (Neocicindela) *hamiltoni*, See *Zecicindela hamiltoni* (Broun, 1921)]
- [*Cicindela* (Neocicindela) *helmsi*, See *Zecicindela helmsi circumpectoides* (Horn, 1900), *Z. helmsi halli* (Broun, 1917), *Z. helmsi helmsi* (Sharp, 1886), *Z. helmsi novaseelandica* (Horn, 1892)]
- [*Cicindela* (Neocicindela) *latecincta*, See *Neocicindela latecincta* (White, 1846)]
- [*Cicindela* (Neocicindela) *parryi*, See *Neocicindela parryi* (White, 1846)]
- [*Cicindela* (Neocicindela) *perhispida campbelli*, See *Zecicindela campbelli* (Broun, 1886)]
- [*Cicindela* (Neocicindela) *perhispida giveni*, See *Zecicindela giveni* (Brouerius van Nidek, 1965)]
- [*Cicindela* (Neocicindela) *perhispida perhispida*, See *Zecicindela perhispida* (Broun, 1880)]
- [*Cicindela* (Neocicindela) *spilleri*, See *Neocicindela spilleri* Brouerius van Nidek, 1965]
- [*Cicindela* (Neocicindela) *tuberculata*, See *Neocicindela tuberculata* (Fabricius, 1775)]
- [*Cicindela* (Neocicindela) *waiouaensis*, See *Neocicindela waiouaensis* (Broun, 1914)]
- Clinidiina*, as subtribe of Carabidae Rhysodini (Lorenz, 2005)
- Ctenognathus arnaudensis* (Broun, 1921) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus colensonis* (White, 1846) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus edwardsii* (Bates, 1874) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus helmsi* (Sharp, 1881) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus integratus* (Broun, 1908) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus intermedius* (Broun, 1908) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus libitus* (Broun, 1914) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus macrocoelis* (Broun, 1908) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus oreobius* (Broun, 1886) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus otagoensis* (Bates, 1878) new combination (Liebherr, 2005)
- Ctenognathus punctulatus* (Broun, 1877) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus sandageri* (Broun, 1882) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus sophronitis* (Broun, 1908) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus sulcitaris* (Broun, 1880) new combination (Larochelle & Larivière, 2007a)
- Ctenognathus xanthomelus* (Broun, 1908) new combination (Larochelle & Larivière, 2007a)
- Dhysorina, as subtribe of Carabidae Rhysodini (Lorenz, 2005)
- Diglymma seclusum* (Johns, 2007) new combination (Larochelle & Larivière, 2007a)
- Dromius* Bonelli, 1810 first record for New Zealand (Leschen *et al.*, 2003)
- Dromius (Dromius) meridionalis* Dejean, 1825 first record for New Zealand (Larochelle & Larivière, 2007a)
- [*Duvaliomimus* Jeannel, 1928, See *Duvaliomimus (Duvaliomimus)* and *Duvaliomimus (Mayotrechus)*]
- [*Duvaliomimus brittoni* Jeannel, 1938, See *Duvaliomimus (Duvaliomimus) walkerii brittoni* Jeannel, 1938]
- [*Duvaliomimus lamberti* Britton, 1960, See *Kupetrechus lamberti* (Britton, 1960)]
- [*Duvaliomimus mayae* Britton, 1958, See *Duvaliomimus (Mayotrechus) mayae* Britton, 1958 and *Duvaliomimus (Mayotrechus) mayae mayorum* Townsend, 2010]
- [*Duvaliomimus orpheus* Britton, 1962, See *Kettlotrechus orpheus* (Britton, 1962)]
- [*Duvaliomimus orientalis* Giachino, 2005, See *Duvaliomimus (Duvaliomimus) orientalis* Giachino, 2005]
- [*Duvaliomimus pluto* Britton, 1964, See *Kettlotrechus pluto* (Britton, 1964)]
- [*Duvaliomimus styx* Britton, 1959, See *Duvaliomimus (Duvaliomimus) styx* Britton, 1959]
- [“*Duvaliomimus*” *walkerii* (Broun, 1903), See *Duvaliomimus (Duvaliomimus) walkerii brittoni* Jeannel, 1938 and *Duvaliomimus (Duvaliomimus) walkerii walkerii* (Broun, 1903)]
- [*Duvaliomimus watti* Britton, 1958, See *Duvaliomimus (Duvaliomimus) watti* Britton, 1958]
- Duvaliomimus (Duvaliomimus)* new combination (Townsend, 2010)

- Duvaliomimus (Mayotrechus)* new combination (Townsend, 2010)
- Duvaliomimus (Duvaliomimus) australis* Townsend, 2010
- Duvaliomimus (Duvaliomimus) chrystallae* Townsend, 2010
- Duvaliomimus (Duvaliomimus) crypticus* Townsend, 2010
- Duvaliomimus (Duvaliomimus) maori* (Jeannel, 1920) new combination (Townsend, 2010)
- Duvaliomimus (Mayotrechus) mayae mayae* Britton, 1958 new combination (Townsend, 2010)
- Duvaliomimus (Mayotrechus) mayae mayorum* Townsend, 2010
- Duvaliomimus (Duvaliomimus) megawattus* Townsend, 2010
- Duvaliomimus (Duvaliomimus) obscurus* Townsend, 2010
- Duvaliomimus (Duvaliomimus) orientalis* Giachino, 2005 new combination (Townsend, 2010)
- Duvaliomimus (Duvaliomimus) pseudostyx* Townsend, 2010
- Duvaliomimus (Duvaliomimus) styx* Britton, 1959 new combination (Townsend, 2010)
- Duvaliomimus (Duvaliomimus) taieriensis* Townsend, 2010
- Duvaliomimus (Duvaliomimus) walkeri brittoni* Jeannel, 1938 new combination (Townsend, 2010)
- Duvaliomimus (Duvaliomimus) walkeri walkeri* (Broun, 1903) new combination (Townsend, 2010)
- Duvaliomimus (Duvaliomimus) watti* Britton, 1958 new combination (Townsend, 2010)
- Euthenarus bicolor* Moore, 1985 first record for New Zealand (Laroche & Larivière, 2005)
- Euthenarus promptus* (Erichson, 1842) first record for New Zealand (Laroche & Larivière, 2005)
- Gnathaphanus melbournensis* (Laporte de Castelnau, 1867) first record for New Zealand (Laroche & Larivière, 2005)
- Hakaharpalus* Laroche & Larivière, 2005
- Hakaharpalus cavelli* (Broun, 1893) new combination (Laroche & Larivière, 2005)
- Hakaharpalus davidsoni* Laroche & Larivière, 2005
- Hakaharpalus maddisoni* Laroche & Larivière, 2005
- Hakaharpalus patricki* Laroche & Larivière, 2005
- Hakaharpalus rhodeae* Laroche & Larivière, 2005
- Harpalus australasiae* Dejean, 1829 reinstated (Laroche & Larivière, 2005).
- Harpalus (Harpalus) tardus* (Panzer, 1797) first record for New Zealand (Emberson, 2004)
- Holcaspis abdita* Johns, 2003
- Holcaspis bessatica* Johns, 2003
- Holcaspis bidentella* Johns, 2003
- Holcaspis obvelata* Johns, 2003
- [*Hypharpax abstrusus* Bates, 1878, See *Hypharpax australis* (Dejean, 1829)] new synonym (Laroche & Larivière, 2005)
- [*Hypharpax australasiae* (Dejean, 1829, See *Harpalus australasiae* Dejean, 1829)]
- Ingevaka* Bell & Bell, 1979, as subgenus of *Kaveinga* (Carabidae: Rhysodini) (Lorenz, 2005)
- Kaveinga* Bell & Bell, 1978, as genus of Carabidae Rhysodini (Lorenz, 2005)
- Kaveinga (Ingevaka) bellorum* Emberson, 1995, as Carabidae Rhysodini (Lorenz, 2005)
- Kaveinga (Vakeinga) lusca* (Chevrolat, 1875), as Carabidae Rhysodini (Lorenz, 2005)
- Kaveinga (Ingevaka) orbitosa* (Broun, 1880), as Carabidae Rhysodini (Lorenz, 2005)
- Kettlotrechus* Townsend, 2010
- Kettlotrechus edridgeae* Townsend, 2010
- Kettlotrechus marchanti* Townsend, 2010
- Kettlotrechus millari* Townsend, 2010
- Kettlotrechus orpheus* (Britton, 1962) new combination (Townsend, 2010)
- Kettlotrechus pluto* (Britton, 1964) new combination (Townsend, 2010)
- Kiwiharpalus* Laroche & Larivière, 2005
- Kiwiharpalus townsendi* Laroche & Larivière, 2005
- Kiwitachys* Laroche & Larivière, 2007a
- Kiwitachys antarcticus* (Bates, 1874) new combination (Laroche & Larivière, 2007a)
- Kiwitachys latipennis* (Sharp, 1886) new combination (Laroche & Larivière, 2007a)
- Kiwitrechus* Laroche & Larivière, 2007a
- Kiwitrechus karenscottae* (Laroche & Larivière, 2007a)
- Kupeharpalus* Laroche & Larivière, 2005
- Kupeharpalus barrattae* Laroche & Larivière, 2005
- Kupeharpalus embersoni* Laroche & Larivière, 2005
- Kupeharpalus johnsi* Laroche & Larivière, 2005
- Kupetrechus* Laroche & Larivière, 2007a
- Kupetrechus gracilis* Townsend, 2010
- Kupetrechus lamberti* (Britton, 1960) new combination (Laroche & Larivière, 2007a)
- Kupetrechus larsonae* Townsend, 2010
- Kupeus* Bell & Bell, 1982, as genus of Carabidae Rhysodini (Lorenz, 2005)
- Kupeus arcuatus* (Chevrolat, 1873), as Carabidae Rhysodini (Lorenz, 2005)
- [*Lecanomerus fallax* Broun, 1880, See *Lecanomerus insignitus* Broun, 1880] new synonym (Laroche & Larivière, 2005)
- [*Lecanomerus fuliginosus* Broun, 1880, See *Lecanomerus latimanus* Bates, 1874] new synonym (Laroche & Larivière, 2005)

- [*Lecanomerus incertus* Broun, 1914, See  
*Lecanomerus latimanus* Bates, 1874] new  
synonym (Larochelle & Larivière, 2005)  
*Lecanomerus marrisi* Larochelle & Larivière, 2005  
[*Lecanomerus pallipes* Broun, 1894, See  
*Lecanomerus latimanus* Bates, 1874] new  
synonym (Larochelle & Larivière, 2005)  
*Loxandri* (Will, 2011), See *Cerabilia*  
*Loxomerus brevis* (Blanchard, 1843) new combination  
(Johns, 2010)  
*Loxomerus huttoni* (Broun, 1902) reinstated (Johns,  
2010)  
*Loxomerus katote* Johns, 2010  
*Loxomerus nebrionides* (Guérin-Méneville, 1841)  
reinstated (Johns, 2010)  
[*Loxomerus* (*Loxomerus*), See *Loxomerus* Chaudoir,  
1842] new synonym (Johns, 2010)  
[*Loxomerus* (*Loxomerus*) *nebrionides* (Guérin-  
Méneville, 1841), See *Loxomerus nebrionides*  
(Guérin-Méneville, 1841)  
[*Loxomerus* (*Pristancylus*), See *Loxomerus* Chaudoir,  
1842] new synonym (Johns, 2010)  
[*Loxomerus* (*Pristancylus*) *brevis* (Blanchard, 1843),  
See *Loxomerus brevis* (Blanchard, 1843)  
[*Loxomerus* (*Pristancylus*) *capito* Jeannel, 1938  
reinstated (Larochelle & Larivière, 2007a); See  
*Taenarthrus capito* (Jeannel, 1938)]  
[*Loxomerus* (*Pristancylus*) *huttoni* (Broun, 1902), See  
*Loxomerus huttoni* (Broun, 1902)]  
[*Loxomerus* (*Pristancylus*) *philpotti* (Broun, 1914) new  
combination (Larochelle & Larivière, 2007a),  
See *Taenarthrus philpotti* (Broun, 1914)]
- Maoriharpalus* Larochelle & Larivière, 2005  
*Maoriharpalus sutherlandi* Larochelle & Larivière,  
2005  
*Maoritrechus nunci* Townsend, 2010  
*Maoritrechus stewartensis* Townsend, 2010  
*Mayotrechus* Townsend, 2010  
*Mecodema aoteanoho* Seldon & Leschen, 2011  
[*Mecodema exitiosus* Brookes, 1927, See *Mecodema*  
*curvidens* Broun, 1915] new synonym (Seldon  
& Leschen, 2011)  
*Mecodema constrictum* Broun, 1881 reinstated  
(Townsend, 2011)  
*Mecodema haunoho* Seldon & Leschen, 2011  
*Mecodema kokoromatu* Seldon et al., 2012  
*Mecodema manaia* Seldon & Leschen, 2011  
*Mecodema parataiko* Seldon & Leschen, 2011  
*Mecodema persculptum* Broun, 1915 reinstated  
(Johns, 2005)  
*Mecodema ponaiti* Seldon & Leschen, 2011  
*Mecodema puiakium* Johns & Ewers, 2007 (Johns,  
2007)  
*Mecodema tenaki* Seldon & Leschen, 2011  
[*Mecyclothoracini*, See *Moriomorphiini*] new synonym  
(Liebherr, 2011a)  
[*Mecyclothorax amplipennis amplipennis* (Broun,  
1912), See *Meonochilus amplipennis* (Broun,  
1912)]  
[*Mecyclothorax amplipennis labralis* (Broun, 1912),  
See *Meonochilus amplipennis* (Broun, 1912)]  
[*Mecyclothorax epicatus* (Broun, 1923), See  
*Meonochilus epicatus* (Broun, 1923)]  
*Mecyclothorax oopterooides* Liebherr & Marris, 2009  
*Mecyclothorax otagoensis* Liebherr & Marris, 2009  
[*Mecyclothorax placens* (Broun, 1880), See  
*Meonochilus placens* (Broun, 1880)]  
*Megadromus* (*Megadromus*) *omaramae* Johns, 2007  
*Megadromus* (*Megadromus*) *speciosus* Johns, 2007  
[*Megadromus* (*Megadromus*) *vagans* (Broun, 1886),  
See *Megadromus* (*Megadromus*) *fultoni*  
(Broun, 1882)] new synonym (Johns, 2005)  
*Megadromus* (*Megadromus*) *walker* (Broun, 1903)  
resurrected from synonymy with *Megadromus*  
(*M.*) *enysi* (Broun, 1882) (Johns, 2005)  
[*Meonini*, See *Moriomorphiini*] new synonym (Liebherr,  
2011a)  
*Meonochilus amplipennis* (Broun, 1912) new status  
(Liebherr, 2011b)  
[*Meonochilus amplipennis amplipennis* (Broun, 1912)  
new combination (Liebherr & Marris, 2009),  
See *Meonochilus amplipennis* (Broun, 1912)]  
[*Meonochilus amplipennis labralis* (Broun, 1912) new  
combination (Liebherr & Marris, 2009), See  
*Meonochilus amplipennis* (Broun, 1912) new  
synonym (Liebherr, 2011b)]  
*Meonochilus bellorum* Liebherr, 2011b  
*Meonochilus epicatus* (Broun, 1923) new combination  
(Liebherr & Marris, 2009)  
*Meonochilus placens* (Broun, 1880) new combination  
(Liebherr & Marris, 2009)  
*Meonochilus rectus* Liebherr, 2011b  
*Meonochilus spiculatus* Liebherr, 2011b  
[*Molopsida alpinalis* (Broun, 1893), See *Tarastethus*  
*alpinalis* Broun, 1893]  
[*Molopsida carbonaria* (Broun, 1908), See *Molopsida*  
*polita* White, 1846] **new synonym**  
[*Molopsida cincta* (Broun, 1893), See *Molopsida*  
*oxygona* (Broun, 1886)] **new synonym**  
[*Molopsida convexa* (Broun, 1917), See *Tarastethus*  
*convexus* Broun, 1917]  
[*Molopsida debilis* (Sharp, 1886), See *Trichopsida*  
*debilis* (Sharp, 1886)]  
[*Molopsida diversa* (Broun, 1917), See *Trichopsida*  
*diversa* (Broun, 1917)]  
[*Molopsida dubia* (Broun, 1894), See *Molopsida*  
*strenua* (Broun, 1894)] **new synonym**  
[*Molopsida fovealis* (Broun, 1917), See *Trichopsida*  
*southlandica* (Broun, 1908)] **new synonym**  
[*Molopsida fuscipes* (Broun, 1923), See *Molopsida*  
*seriatoporus* (Bates, 1874)] **new synonym**



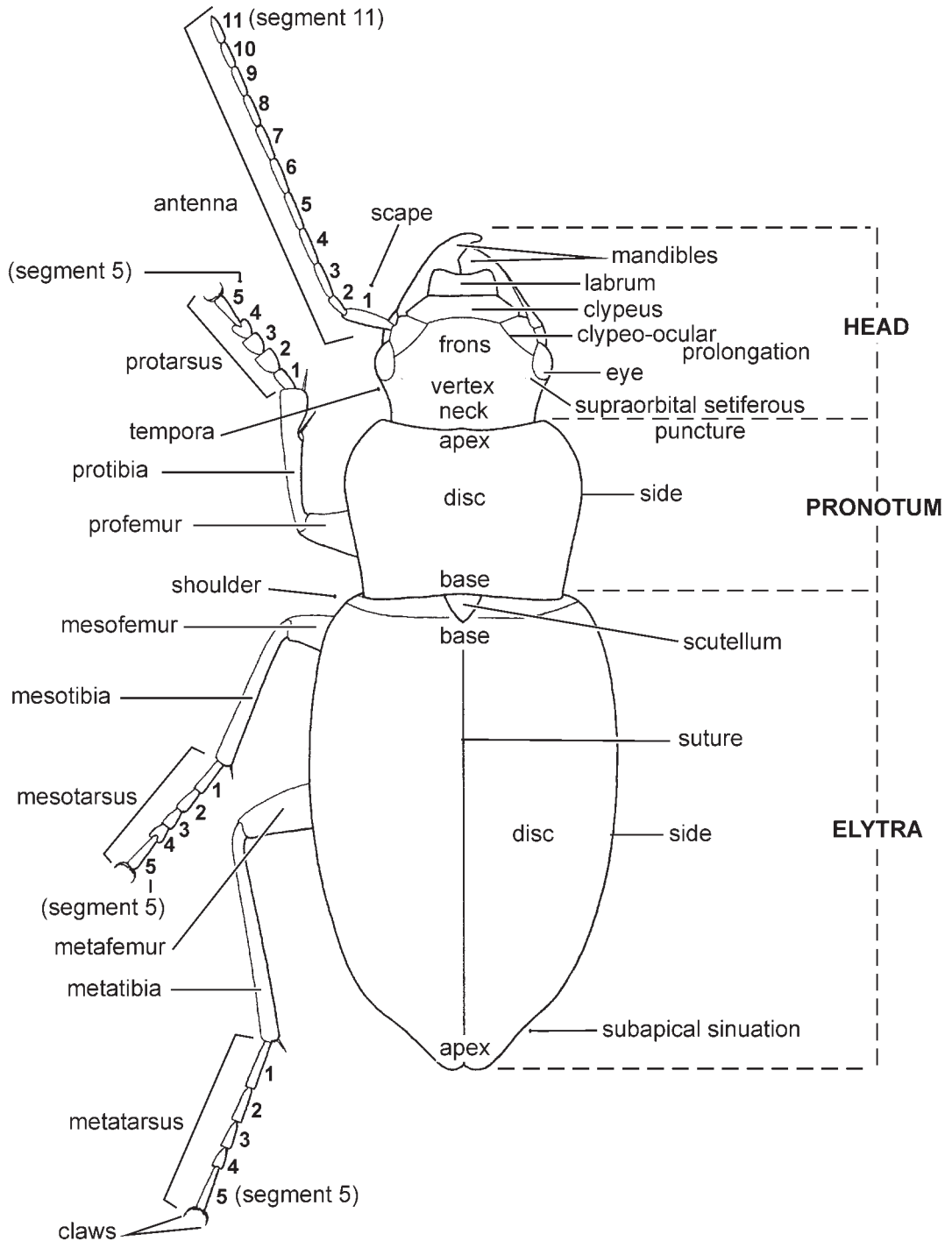
- [*Molopsida halli* (Broun, 1917), See *Trichopsida diversa* (Broun, 1917)] **new synonym**
- [*Molopsida laevicollis* (Broun, 1903), See *Molopsida polita* White, 1846 **new synonym**
- Molopsida lindrothi* **new species**
- [*Molopsida longula* (Broun, 1917), See *Trichopsida debilis* (Sharp, 1886)] **new synonym**
- [*Molopsida marginalis* (Broun, 1882), See *Molopsida antarctica* (Laporte de Castelnau, 1867)] **new synonym**
- [*Molopsida optata* (Broun, 1917), See *Trichopsida optata* (Broun, 1917)]
- [*Molopsida oxygona* (Broun, 1886), See *Trichopsida oxygona* (Broun, 1886)]
- [*Molopsida phyllocharis* (Broun, 1912), See *Molopsida seriatorporus* (Bates, 1874)] **new synonym**
- [*Molopsida pretiosa* (Broun, 1910), See *Trichopsida pretiosa* (Broun, 1910)]
- [*Molopsida propinqua* (Broun, 1917), See *Trichopsida propinqua* (Broun, 1917)]
- [*Molopsida puncticollis* (Sharp, 1883), See *Tarastethus puncticollis* Sharp, 1883]
- [*Molopsida robusta* (Broun, 1921), See *Trichopsida robusta* (Broun, 1921)]
- [*Molopsida simplex* (Broun, 1903), See *Trichopsida simplex* (Broun, 1903)]
- [*Molopsida simulans* (Broun, 1894), See *Tarastethus simulans* Broun, 1894]
- [*Molopsida southlandica* (Broun, 1908), See *Tarastethus southlandicus* Broun, 1908]
- [*Molopsida sulcicollis* (Bates, 1874), See *Molopsida antarctica* (Laporte de Castelnau, 1867)] **new synonym**
- Moriomorphina new status (Liebherr, 2011b)
- Moriomorphini new status (Liebherr, 2011a)
- Neocicindela* Rivalier, 1963 reinstated (Cassola & Moravec, 2010), See also *Zecicindela* **new genus**
- [*Neocicindela austromontana* (Bates, 1878) reinstated (Cassola & Moravec, 2010), See *Zecicindela austromontana*]
- [*Neocicindela brevilunata* (Horn, 1926) reinstated (Cassola & Moravec, 2010), See *Zecicindela brevilunata*]
- [*Neocicindela campbelli* (Broun, 1886) new combination, See *Zecicindela campbelli*]
- Neocicindela dunedensis* (Laporte de Castelnau, 1867) reinstated (Cassola & Moravec, 2010)
- [*Neocicindela feredayi* (Bates, 1867) reinstated (Cassola & Moravec, 2010), See *Zecicindela feredayi*]
- Neocicindela garnerae* **new species**
- [*Neocicindela giveni* Brouerius van Nidek, 1965 new combination, See *Zecicindela giveni*]
- [*Neocicindela hamiltoni* (Broun, 1921) reinstated (Cassola & Moravec, 2010), See *Zecicindela hamiltoni*]
- [*Neocicindela helmsi* (Sharp, 1886) reinstated (Cassola & Moravec, 2010), See *Zecicindela helmsi circumpictoides*, *Z. helmsi halli*, *Z. helmsi helmsi*, *Z. helmsi novaseelandica*]
- Neocicindela latecincta* (White, 1846) reinstated (Cassola & Moravec, 2010)
- [*Neocicindela novaseelandica* (Horn, 1892) resurrected from synonymy (Cassola & Moravec, 2010), See *Zecicindela helmsi novaseelandica*]
- Neocicindela parryi* (White, 1846) new combination
- [*Neocicindela perhispidata* (Broun, 1880) reinstated (Cassola & Moravec, 2010), See *Zecicindela perhispidata*]
- [*Neocicindela perhispidata giveni* Brouerius van Nidek, 1965 reinstated (Cassola & Moravec, 2010), See *Zecicindela giveni*]
- Neocicindela spilleri* Brouerius van Nidek, 1965 reinstated (Cassola & Moravec, 2010)
- Neocicindela tuberculata* (Fabricius, 1775) reinstated (Cassola & Moravec, 2010)
- Neocicindela waiouraensis* (Broun, 1914) reinstated (Cassola & Moravec, 2010)
- Notagonum marginellum* (Erichson, 1842) deleted from fauna (Larochele & Larivière, 2007a)
- Notiobia (Anisotarsus) quadricollis* (Chaudoir, 1878) first record for New Zealand (Larochele & Larivière, 2005)
- Oarotrechus* Townsend, 2010
- Oarotrechus gracilentus* Townsend, 2010
- Onawea* Johns, 2007
- Onawea pantomelas* (Blanchard, 1843) (Johns, 2007)
- Oopterus atratus* (Broun, 1893) reinstated (Larochele & Larivière, 2007a)
- Oopterus carinatus* (Broun, 1882) reinstated (Larochele & Larivière, 2007a)
- Oopterus femoralis* (Broun, 1894) reinstated (Larochele & Larivière, 2007a)
- Oopterus helmsi* (Broun, 1886) reinstated (Larochele & Larivière, 2007a)
- Oopterus labralis* (Broun, 1921) reinstated (Larochele & Larivière, 2007a)
- Oopterus ocularius* (Broun, 1917) reinstated (Larochele & Larivière, 2007a)
- Oopterus subopacus* (Broun, 1915) reinstated (Larochele & Larivière, 2007a)
- Oregus crypticus* Pawson, 2003 (Pawson *et al.*, 2003b)
- Oregus septentrionalis* Pawson, 2003 (Pawson *et al.*, 2003b)
- Orthoglymma* Liebherr *et al.*, 2011

- Orthoglymma wangapeka* Liebherr et al., 2011
- [*Parabaris gourlayi* Britton, 1964, See *Tuibaris gourlayi* (Britton, 1964)] new combination (Larochelle & Larivière, 2005)
- Parabaris hoarei* Larochelle & Larivière, 2005
- Parabaris lesagei* Larochelle & Larivière, 2005
- Pholeodytes helmerei* Larochelle & Larivière, 2005
- Pholeodytes nunni* Larochelle & Larivière, 2005
- Pholeodytes palmai* Larochelle & Larivière, 2005
- Plocamostethus scribeae* Johns, 2007
- Polyderis* Motschulsky, 1862 first record for New Zealand (Larochelle & Larivière, 2007a)
- Polyderis captus* (Blackburn, 1888) new combination (Giachino, 2003)
- [*Pristancyclus* Blanchard, 1853, See *Loxomerus* Chaudoir, 1842] new synonym (Johns, 2010)
- Rhysodidae, as Carabidae Rhysodini (Lorenz, 2005)
- Rhysodina, as subtribe of Carabidae Rhysodini (Lorenz, 2005)
- Rhysodini, as tribe of Carabidae (Lorenz, 2005)
- Rhyzoarca* Bell & Bell, 1985, as subgenus of *Rhysodiastes* (Carabidae: Rhysodini) (Lorenz, 2005)
- Rhysodiastes* Fairmaire, 1895, as genus of Carabidae Rhysodini (Lorenz, 2005)
- Rhysodiastes* (*Rhyzoarca*) *proprius* (Broun, 1880), as Carabidae Rhysodini (Lorenz, 2005)
- Rossjoycea* Liebherr, 2011b
- Rossjoycea glacialis* Liebherr, 2011b
- Scototrechus hardingi hardingi* Townsend, 2010
- Scototrechus hardingi worthyi*, Townsend, 2010
- Scototrechus morti* Townsend, 2010
- [*Selenochilus fallax* (Broun, 1893), See *Selenochilus syntheticus* (Sharp, 1886)] **new synonym**
- [*Selenochilus frontalis* (Broun, 1917), See *Selenochilus syntheticus* (Sharp, 1886)] **new synonym**
- Selenochilus hinewai* **new species**
- Selenochilus hutchisonae* **new species**
- Selenochilus omalleyi* **new species**
- Syllectus gouletti* Larochelle & Larivière, 2005
- [*Syllectus spelaeus* Britton, 1964, See *Syllectus magnus* Britton, 1964] new synonym (Larochelle & Larivière, 2005)
- [*Tachys* Dejean, 1821, See *Hakaharpalus* Larochelle & Larivière, 2005, *Kiwitachys* Larochelle & Larivière, 2005, and *Polyderis* Motschulsky, 1862]
- [*Tachys antarcticus* Bates, 1874, See *Kiwitachys antarcticus* (Bates, 1874)]
- [“*Tachys*” *cavelli* Broun, 1893, See *Hakaharpalus cavelli* (Broun, 1893)]
- [*Tachys captus* Blackburn, 1888, See *Polyderis captus* (Blackburn, 1888)]
- [*Tachys latipennis* Sharp, 1886, See *Kiwitachys latipennis* (Sharp, 1886)]
- Taenarthrus* Broun, 1914, See *Loxomerus* Chaudoir, 1842, new synonym (Larochelle & Larivière, 2007a); reinstated (Johns, 2010)
- Taenarthrus aenigmaticus* Johns, 2010
- Taenarthrus aquatilis* Johns, 2010
- Taenarthrus capito* (Jeannel, 1938) reinstated (Johns, 2010)
- [*Taenarthrus* (*Pristancyclus*) *capito* (Jeannel, 1938), See *Loxomerus* (*Pristancyclus*) *capito* Jeannel, 1938] new combination (Larochelle & Larivière, 2007a).
- Taenarthrus curvispinatus* Johns, 2010
- Taenarthrus gelidimontanus* Johns, 2010
- Taenarthrus latispinatus* Johns, 2010
- Taenarthrus lissus* Johns, 2010
- Taenarthrus minor* Johns, 2010
- Taenarthrus obliteratus* Johns, 2010
- Taenarthrus pakinius* Johns, 2010
- Taenarthrus philpotti* Broun, 1914 reinstated (Johns, 2010)
- Taenarthrus pluriciliatus* Johns, 2010
- Tangarona* Bell & Bell, 1982, as genus of Carabidae Rhysodini (Lorenz, 2005)
- Tangarona pensa* (Broun, 1880), as Carabidae Rhysodini (Lorenz, 2005)
- Tarastethus* Sharp, 1883 **reinstated**
- Tarastethus alpinalis* Broun, 1893 **reinstated**
- Tarastethus convexus* Broun, 1917 **reinstated**
- [*Tarastethus insularis* Broun, 1923, See *Molopsida seriatoporus* (Bates, 1874)] **new synonym**
- Tarastethus puncticollis* Sharp, 1883 **reinstated**
- Tarastethus simulans* Broun, 1894 **reinstated**
- Tarastethus sirvidi* **new species**
- Tarastethus southlandicus* Broun, 1908 **reinstated**
- [*Trechus* maori Jeannel, 1920, See *Duvaliomimus* (*Duvaliomimus*) *maori* (Jeannel, 1928)] **new combination and status**
- Trichopsida* **new genus**
- Trichopsida boltoni* **new species**
- Trichopsida debilis* (Sharp, 1886) **new combination**
- Trichopsida diversa* (Broun, 1917) **new combination**
- Trichopsida erwini* **new species**
- Trichopsida goethei* **new species**
- Trichopsida hewitti* **new species**
- Trichopsida koyai* **new species**
- Trichopsida maudensis* **new species**
- Trichopsida nitida* **new species**
- Trichopsida nunni* **new species**
- Trichopsida optata* (Broun, 1917) **new combination**

*Trichopsida oxygona* (Broun, 1886) **new combination**  
*Trichopsida paturauensis* **new species**  
*Trichopsida popei* **new species**  
*Trichopsida pretiosa* (Broun, 1910) **new combination**  
*Trichopsida propinqua* (Broun, 1917) **new combination**  
*Trichopsida robusta* (Broun, 1921) **new combination**  
*Trichopsida simplex* (Broun, 1903) **new combination**  
*Trigonothops* Macleay, 1864 first record for New Zealand (Leschen *et al.*, 2003)  
*Trigonothops (Trigonothops) pacifica* (Erichson, 1842) first record for New Zealand (Larochelle & Larivière, 2007a)  
 [Tropopterini, See Moriomorphini] new synonym (Liebherr, 2011a)  
*Tuiharpalus* Larochelle & Larivière, 2005  
*Tuiharpalus cluniae* Larochelle & Larivière, 2005  
*Tuiharpalus crosbyi* Larochelle & Larivière, 2005  
*Tuiharpalus gourlayi* (Britton, 1964) new combination (Larochelle & Larivière, 2005)  
*Tuiharpalus hallae* Larochelle & Larivière, 2005  
*Tuiharpalus moorei* Larochelle & Larivière, 2005  
  
*Wakeinga* Bell & Bell, 1979, as subgenus of *Kaveinga* (Carabidae: Rhyssodini) (Lorenz, 2005)  
  
*Waiputrechus* Townsend, 2010  
*Waiputrechus cavernicola* Townsend, 2010  
  
 [Zabronothus Broun, 1893, See *Cerabilia* Laporte de Castelnau, 1867] new synonym (Larochelle & Larivière, 2007a)  
 [Zabronothus rufipes Broun, 1893, See *Cerabilia rufipes* (Broun, 1893)]  
 [Zabronothus striatulus Broun, 1893, See *Cerabilia striatula* (Broun, 1893)]  
*Zecicindela* **new genus**  
*Zecicindela austromontana* (Bates, 1878) **new combination**  
*Zecicindela brevilunata* (Horn, 1926) **new combination**  
*Zecicindela campbelli* (Broun, 1886) **new combination and status**  
*Zecicindela feredayi* (Bates, 1867) **new combination**  
*Zecicindela giveni* (Brouerius van Nidek, 1965) **new combination and status**  
*Zecicindela hamiltoni* (Broun, 1921) **new combination**  
*Zecicindela helmsi circumpictoides* (Horn, 1900) **new combination and status**  
*Zecicindela helmsi halli* (Broun, 1917) **new combination and status**  
*Zecicindela helmsi helmsi* (Sharp, 1886) **new combination and status**  
*Zecicindela helmsi novaseelandica* (Horn, 1892) **new combination and status**

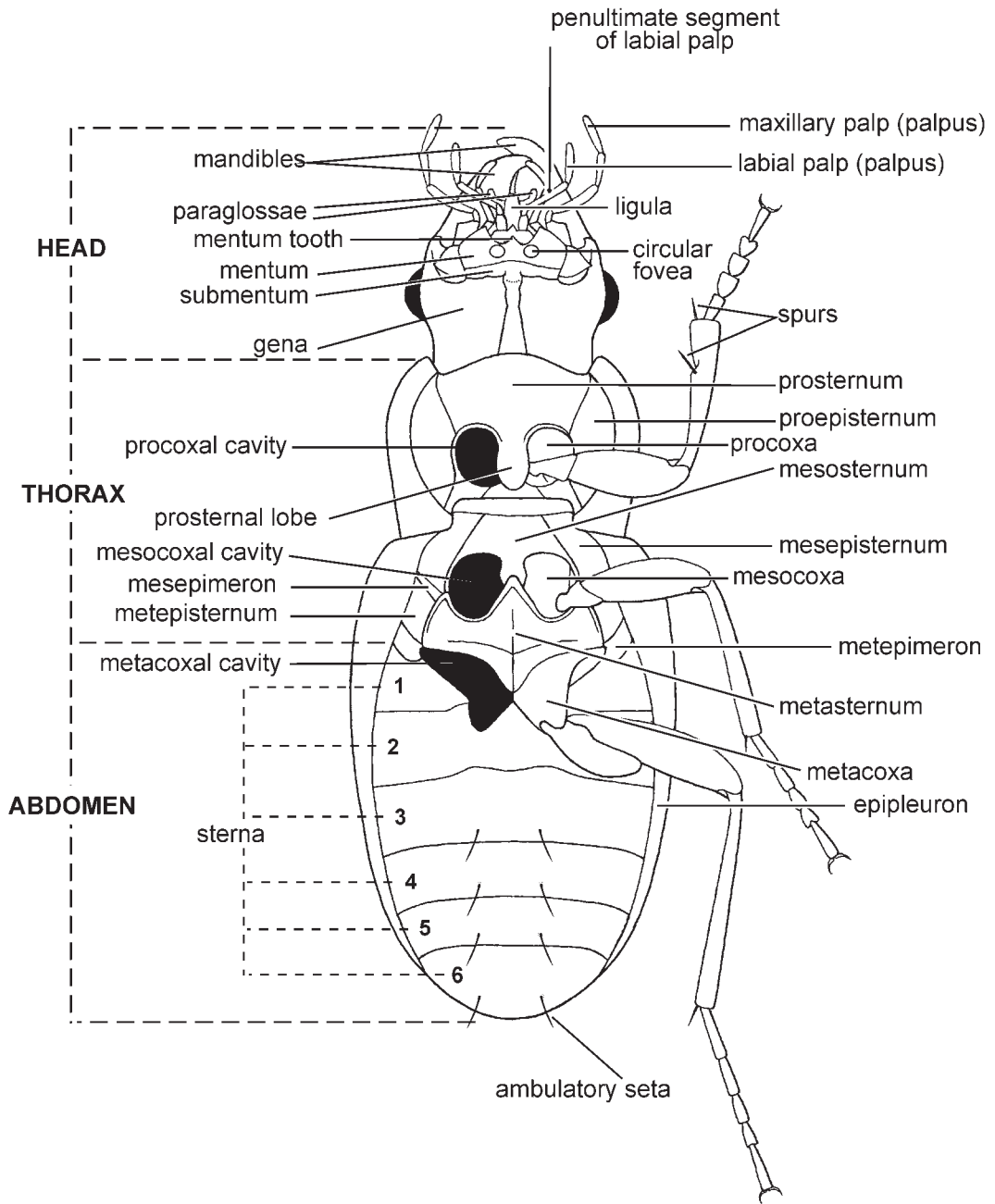
*Zecicindela perhispidata* (Broun, 1880) **new combination and status**  
*Zecicindela savilli* (Wiesner, 1988) **new combination and status**  
 [Zecillenens Lindroth, 1980, See *Bembidion (Zecillenens)*]  
 [Zecillenens alacris (Broun, 1921), See *Bembidion (Zecillenens) alacre* (Broun, 1921)]  
 [Zecillenens albescens (Bates, 1878), See *Bembidion (Zecillenens) albescens* (Bates, 1878)]  
 [Zecillenens chalmeri (Broun, 1886), See *Bembidion (Zecillenens) chalmeri* (Broun, 1886)]  
 [Zecillenens emersoni Lindroth, 1980, See *Bembidion (Zecillenens) emersoni* (Lindroth, 1980)]  
 [Zecillenens tillyardi (Brookes, 1927), See *Bembidion (Zecillenens) tillyardi* (Brookes, 1927)]  
*Zeopoecilus caperatus* Johns, 2007  
 [Zolus Sharp, 1886, See *Oopterus* Guérin-Méneville, 1841] reinstated synonymy (Larochelle & Larivière, 2007a)  
 [Zolus atratus Broun, 1893, See *Oopterus atratus* (Broun, 1893)]  
 [Zolus carinatus (Broun, 1882), See *Oopterus carinatus* Broun, 1882]  
 [Zolus femoralis Broun, 1894, See *Oopterus femoralis* (Broun, 1894)]  
 [Zolus helmsi Sharp, 1886, See *Oopterus helmsi* (Sharp, 1886)]  
 [Zolus labralis Broun, 1921, See *Oopterus labralis* (Broun, 1921)]  
 [Zolus ocularius Broun, 1917, See *Oopterus ocularius* (Broun, 1917)]  
 [Zolus subopacus Broun, 1915, See *Oopterus subopacus* (Broun, 1915)]

ILLUSTRATIONS



(1)

Fig. 1 Schematic dorsal view of a carabid.



(2)

Fig. 2 Schematic ventral view of a carabid.

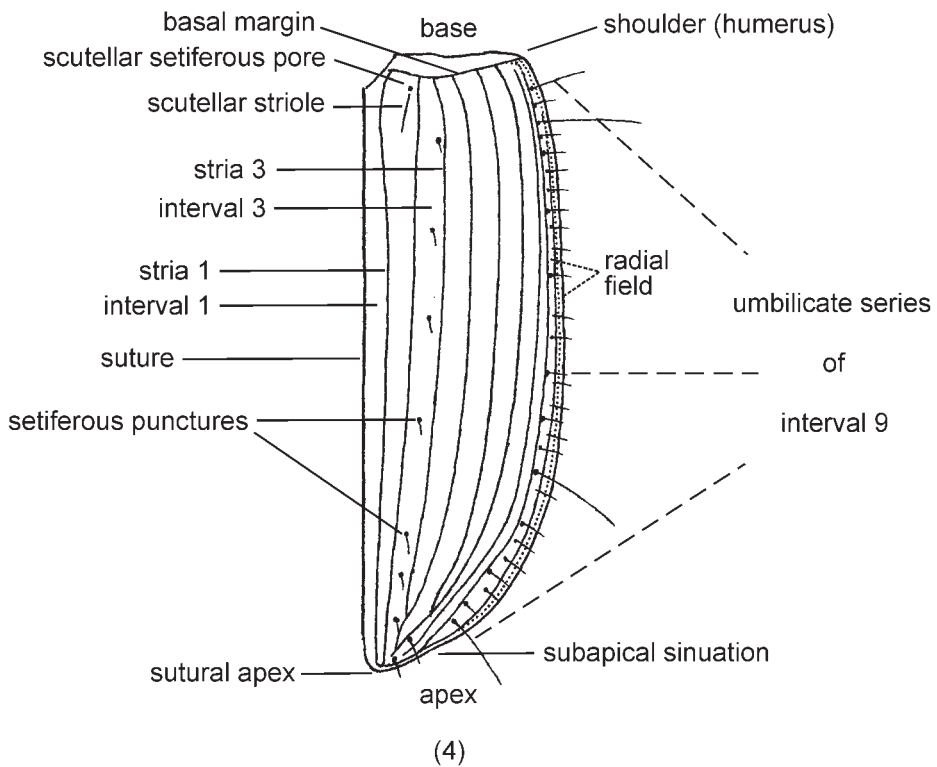
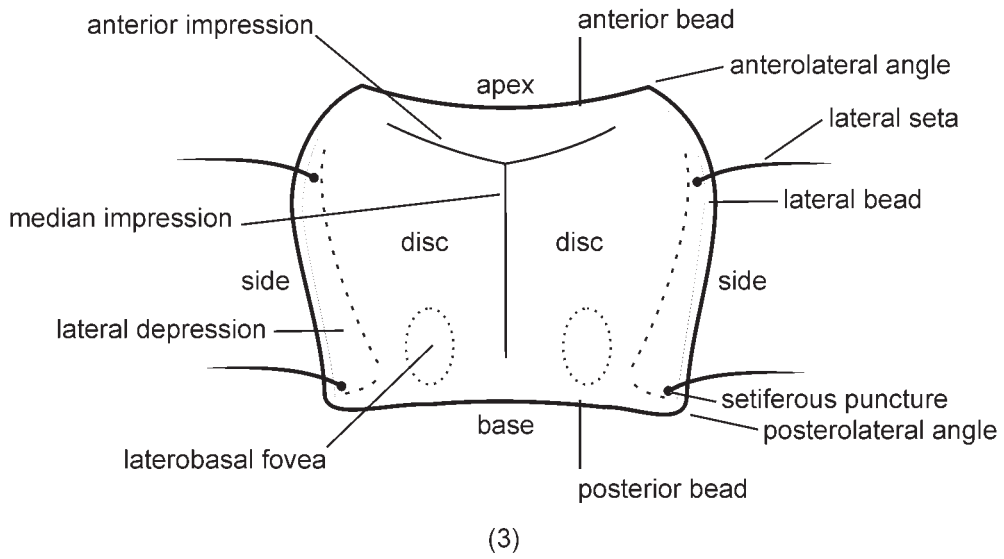
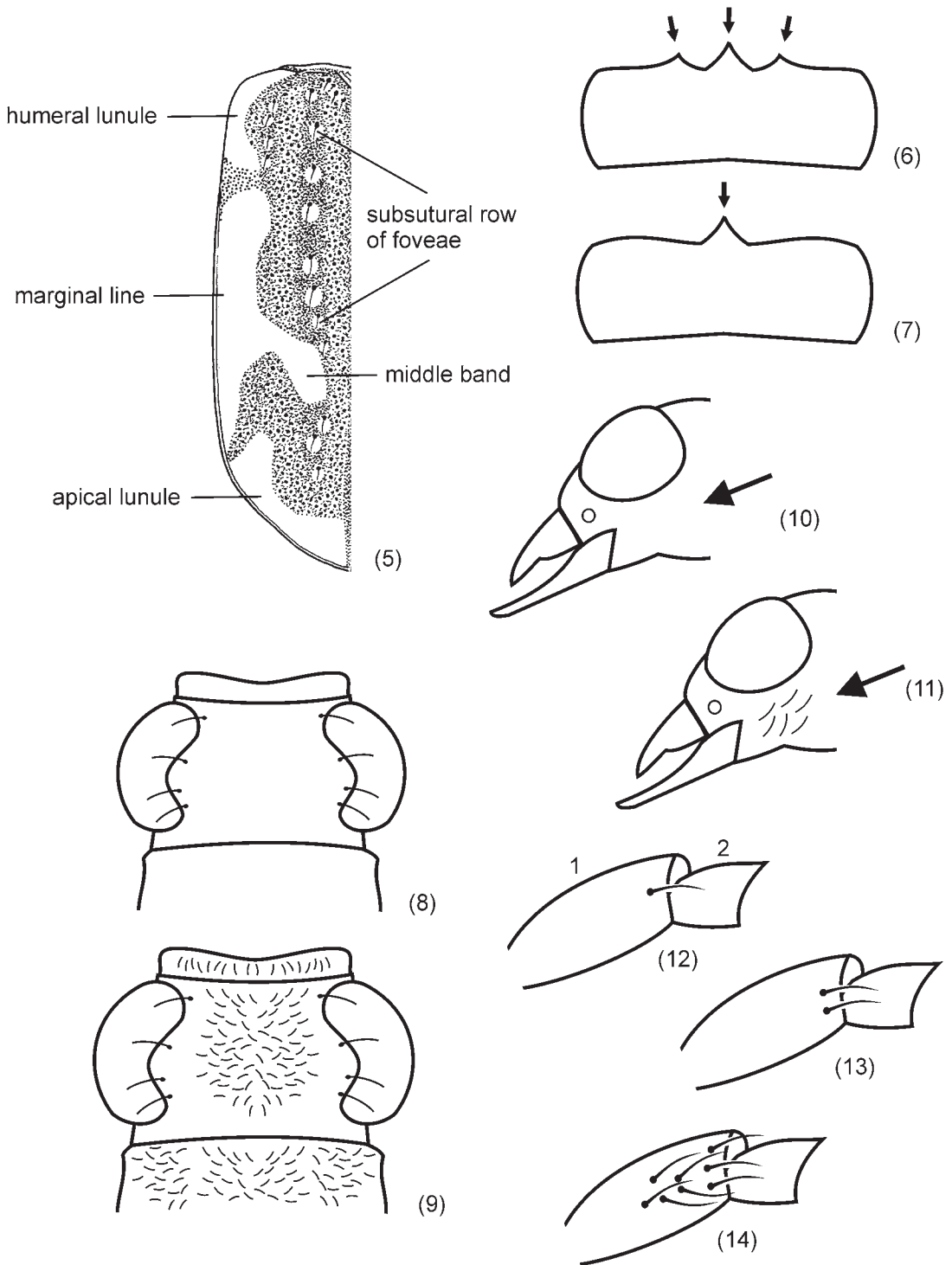
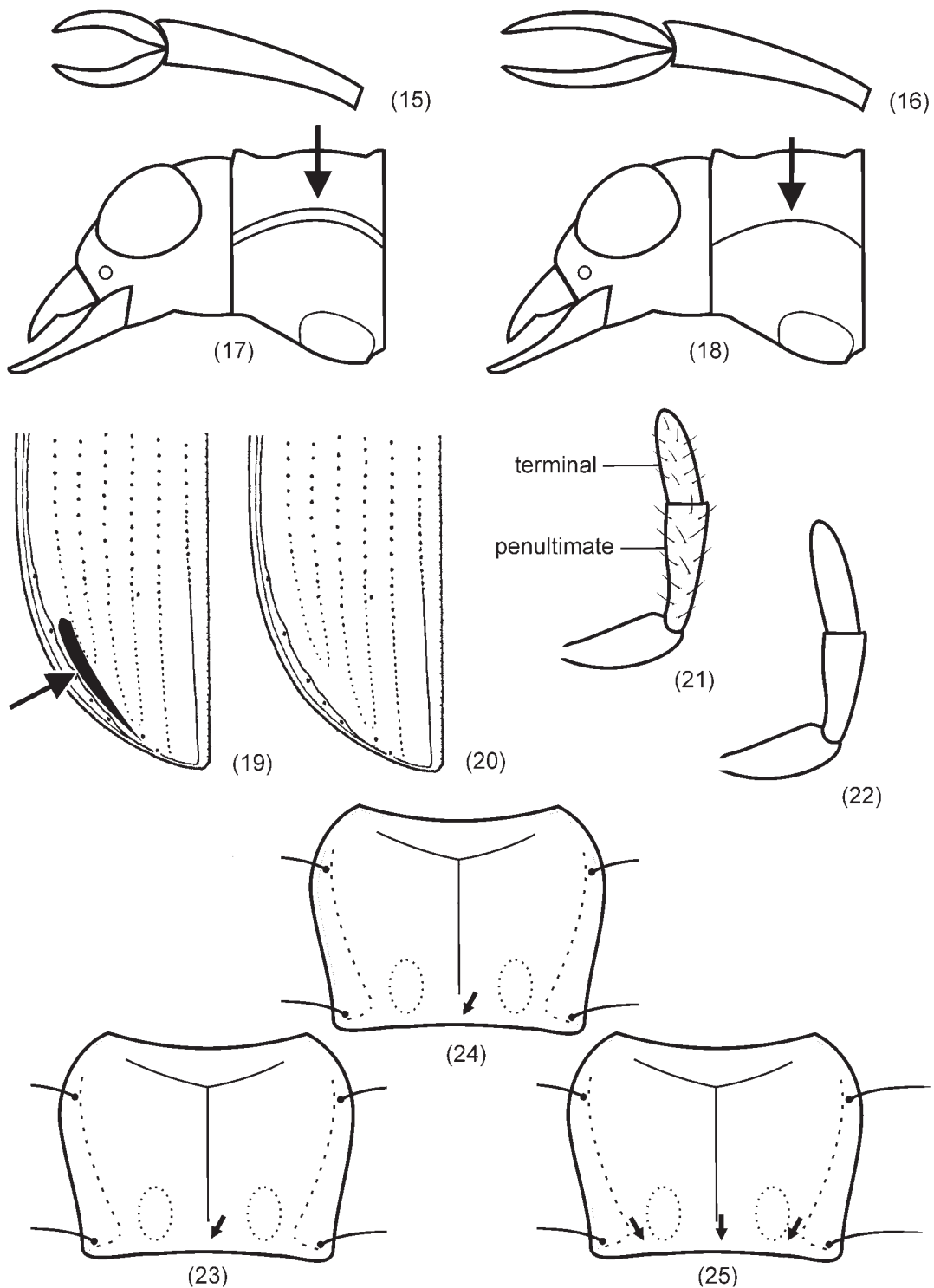


Fig. 3–4 Schematic view: (3) pronotum; (4) right elytron.

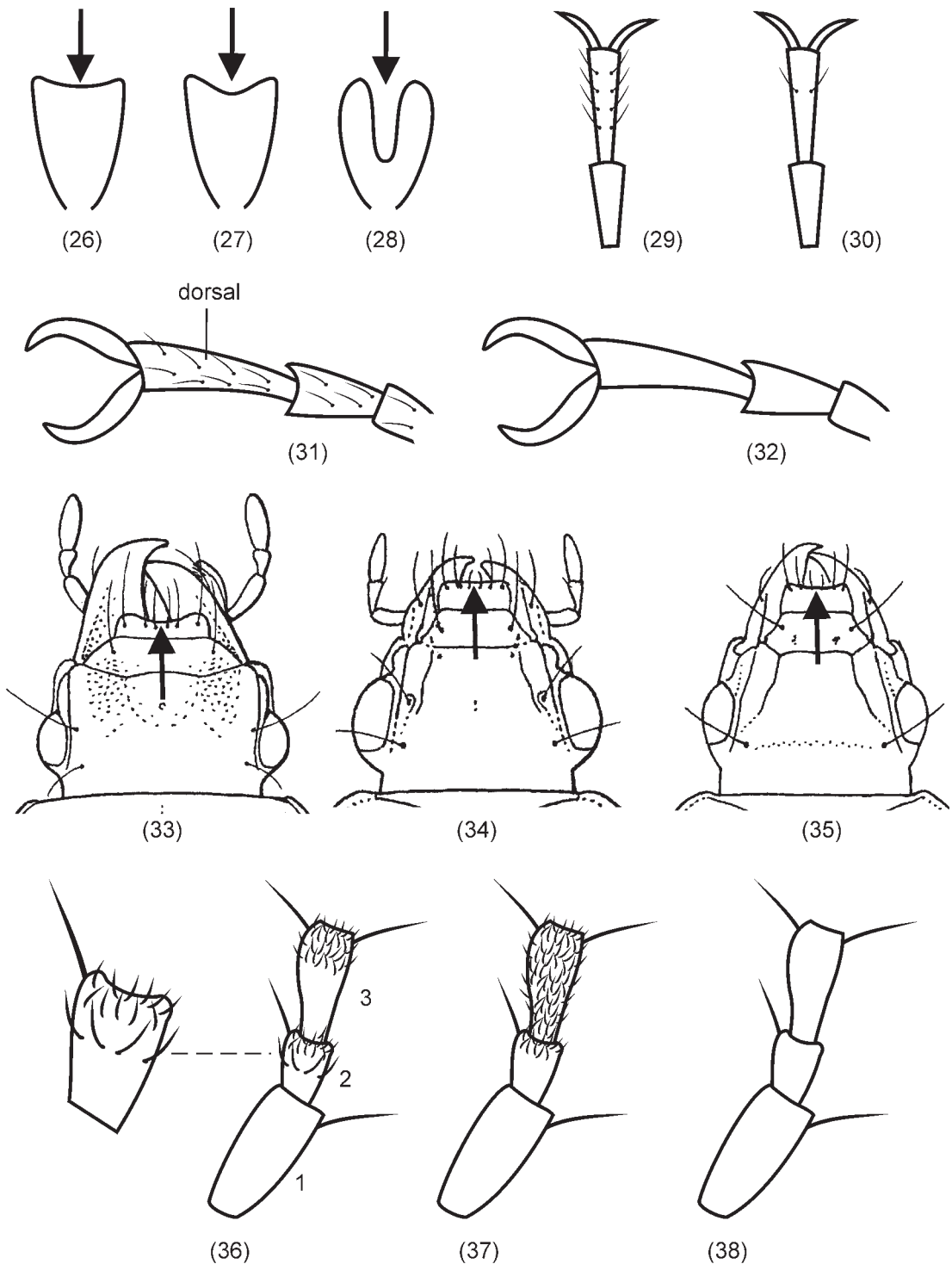


**Fig. 5-14** (5) Left elytron of a tiger beetle. (6-7) Labrum: (6) tridentate; (7) unidentate. (8-9) Clypeus, frons, pronotum: (8) glabrous; (9) pubescent. (10-11) Gena: (10) glabrous; (11) setose. (12-14): Antennal segment 1: (12) with a single setiferous pore; (13) with two setiferous pores; (14) with numerous setiferous pores.

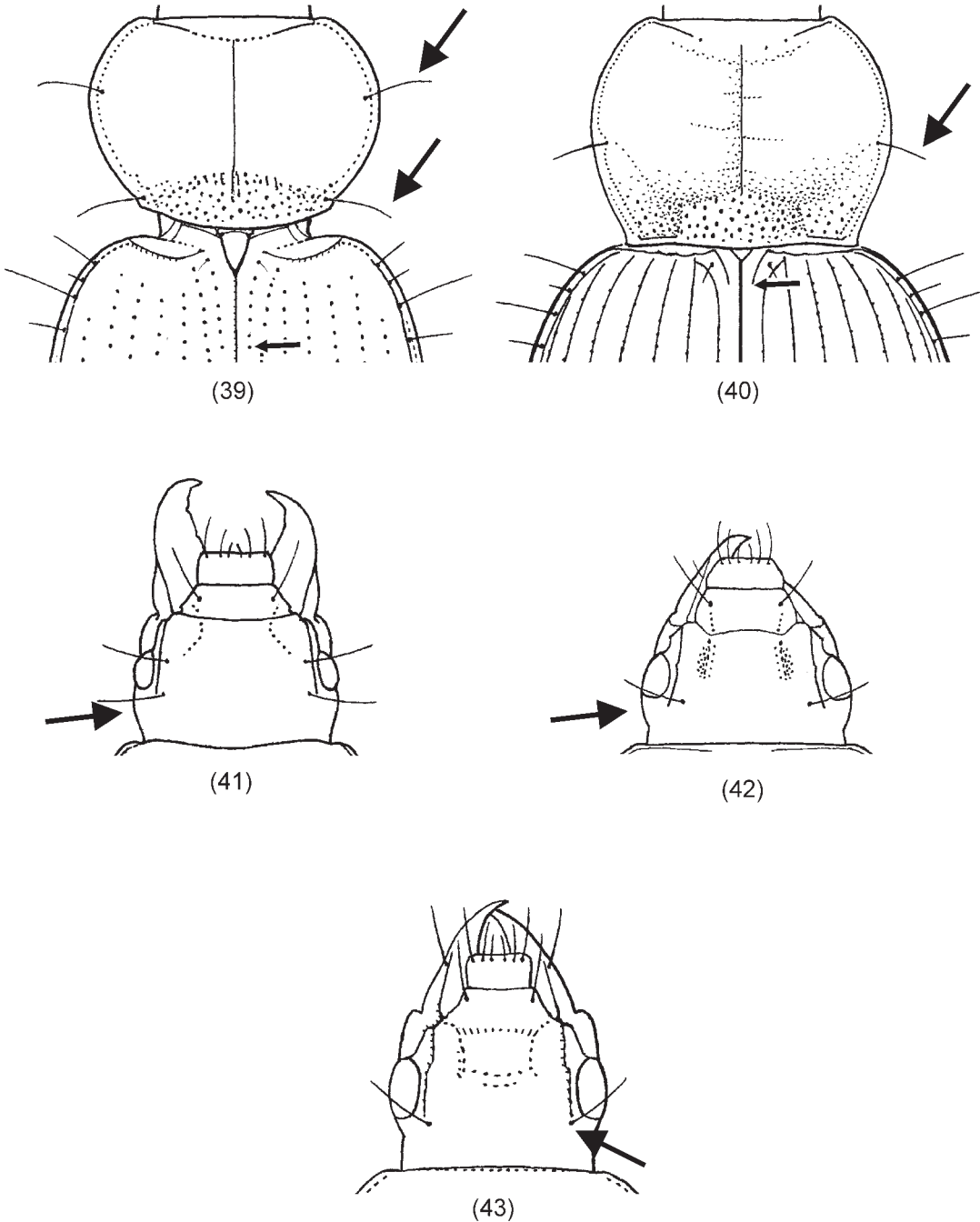


**Fig. 15–25** (15–16) Tarsal claws: (15) much shorter than tarsal segment 5; (16) about as long as tarsal segment 5. (17–18) Lateral margin of pronotum: (17) double; (18) simple. (19–20) Interval 8 of elytron: (19) carinate apically; (20) not carinate apically. (21–22) Terminal segment of palpi: (21) setulose; (22) glabrous. (23–25) Posterior bead of pronotum: (23) present, complete; (24) present, interrupted medially; (25) absent.





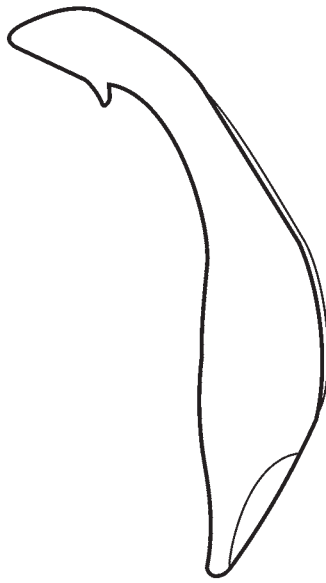
**Fig. 26–38** (26–28) Tarsal segment 4, apically: (26–27) emarginate; (28) bilobed. (29–30) Tarsal segment 5: (29) with four pairs of ventral setae; (30) with a single pair of ventral setae. (31–32) Tarsi, dorsally: (31) pubescent; (32) glabrous. (33–35) Labrum, anteriorly: (33) strongly emarginate; (34) truncate; (35) moderately emarginate. (36–38) Antennae: (36) segments 2–3 densely pubescent in apical third, segment 2 with verticillate setae medially; (37) segment 3 entirely pubescent, segment 2 without verticillate setae medially; (38) segments 2–3 glabrous.



**Fig. 39–43** (39–40) Pronotum with two setiferous punctures on each side and elytron with long scutellar striole (39); pronotum with a single setiferous puncture on each side and elytron with short scutellar striole (40). (41–42) Tempora: (41) very long; (42) shorter. (43) Head with a single setiferous puncture on inner side of each eye.



(44) *Neocicindela spilleri*



(45) *N. garnerae*



(46) *N. parryi*



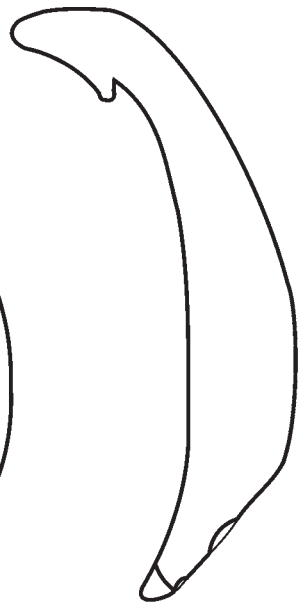
(47) *N. dunedensis*



(48) *N. waiouraensis*



(49) *N. tuberculata*



(50) *N. latecincta*

Fig. 44–92 Aedeagus, lateral view.

(51) *Zecicindela hamiltoni*(52) *Z. helmsi*(53) *Z. feredayi*(54) *Z. austromontana*(55) *Z. giveni*(56) *Z. savilli*



(57) *Zecicindela brevilunata*



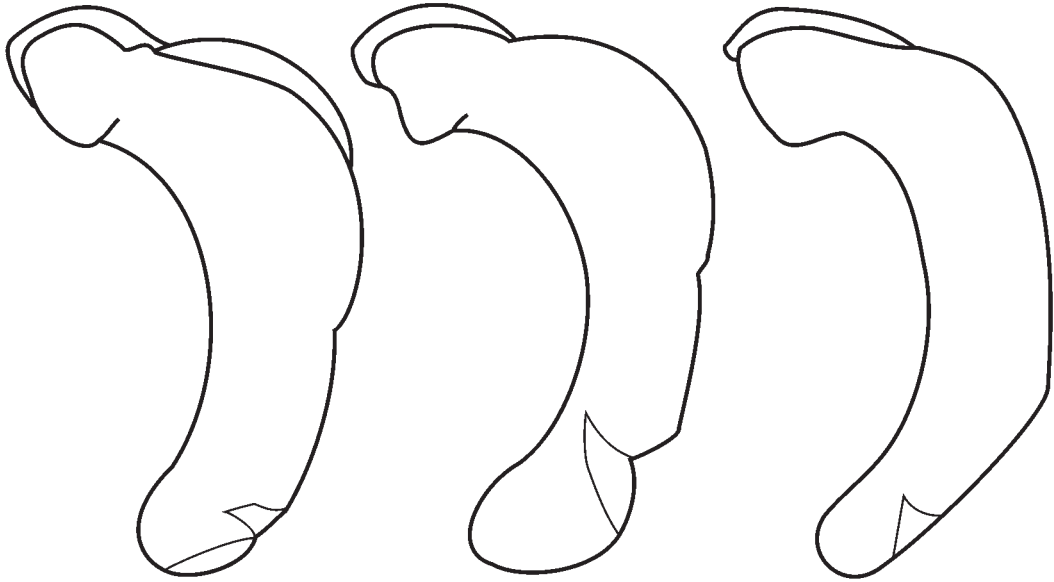
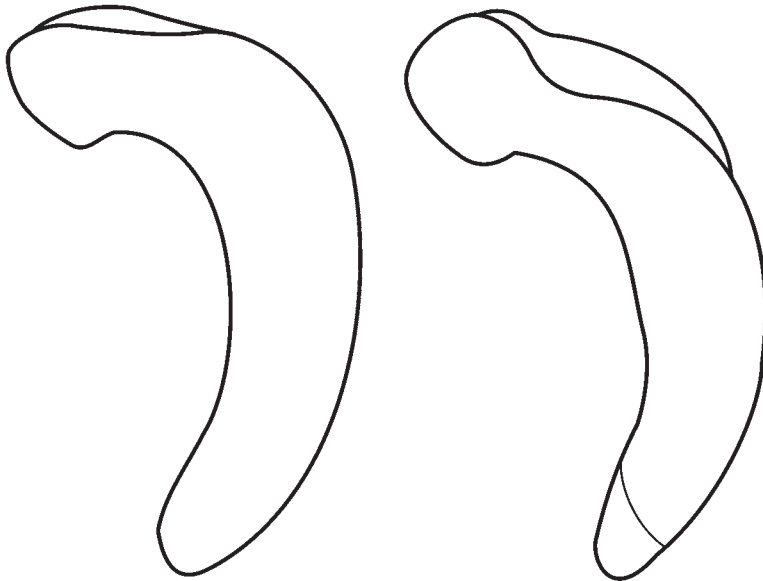
(58) *Z. campbelli*



(59) *Z. perhispidata*



(60) *Maoripamborus fairburni*

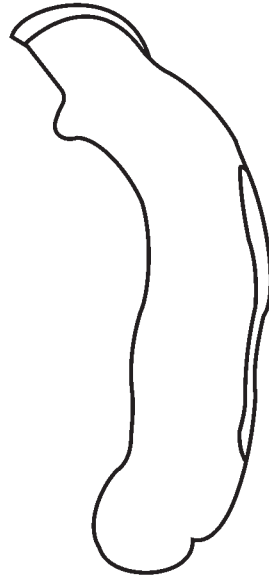
(61) *Selenochilus piceus*(62) *S. syntheticus*(63) *S. omalleyi*(64) *S. ruficornis*(65) *S. hutchisonae*



(66) *Molopsida seriatoporus*



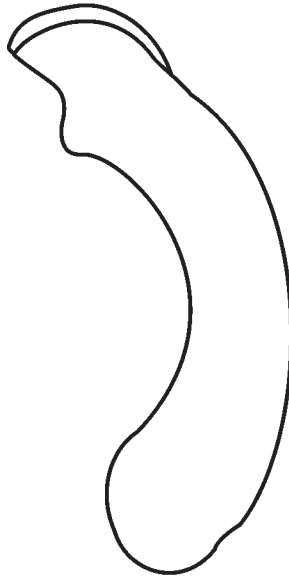
(67) *M. polita*



(68) *M. strenua*



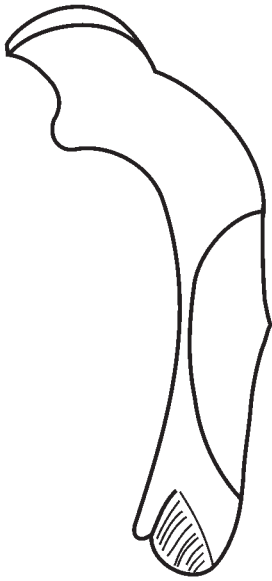
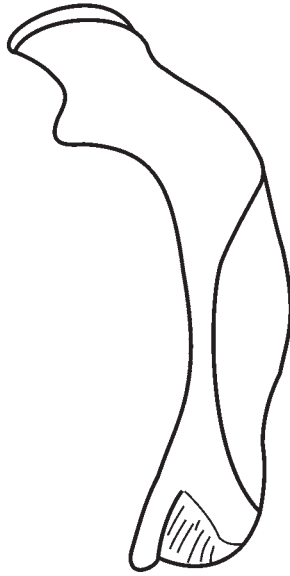
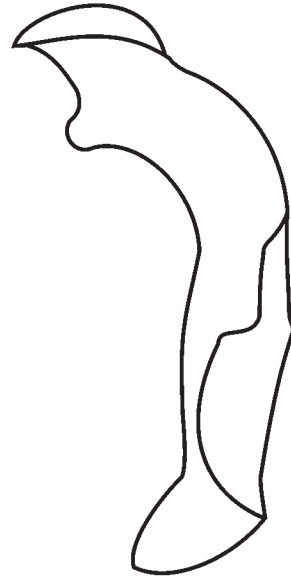
(69) *M. cordipennis*



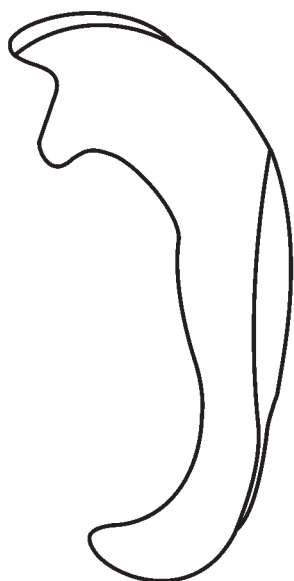
(70) *M. lindrothi*



(71) *M. antarctica*

(72) *Tarastethus puncticollis*(73) *T. simulans*(74) *T. alpinalis*(75) *T. convexus*(76) *T. southlandicus*(77) *T. sirvidi*





(78) *Trichopsida simplex*



(79) *T. robusta*



(80) *T. maudensis*



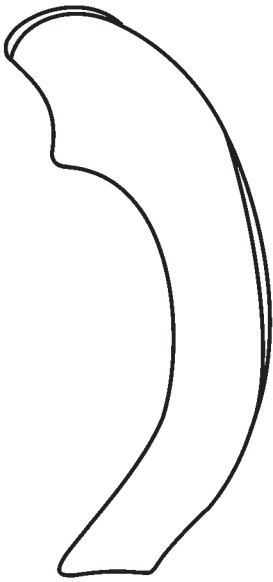
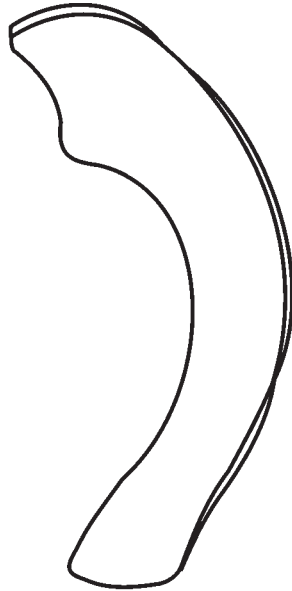
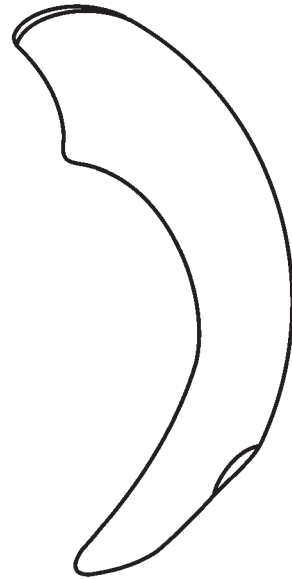
(81) *T. diversa*



(82) *T. oxygona*



(83) *T. hewitti*

(84) *Trichopsida erwini*(85) *T. pretiosa*(86) *T. paturauensis*(87) *T. koyai*(88) *T. boltoni*(89) *T. nunni*



(90) *Trichopsida debilis*



(91) *T. propinqua*



(92) *T. popei*



(93) *Mecyclothorax ambiguus*



(94) *Mecyclothorax oopteroides*



(95) *Mecyclothorax otagoensis*



(96) *Mecyclothorax rotundicollis*



(97) *Meonochilus amplipennis*

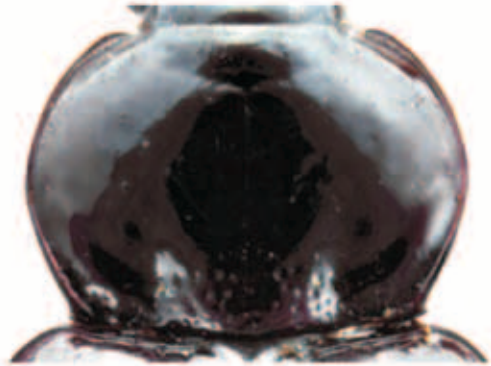


(98) *Meonochilus bellorum*

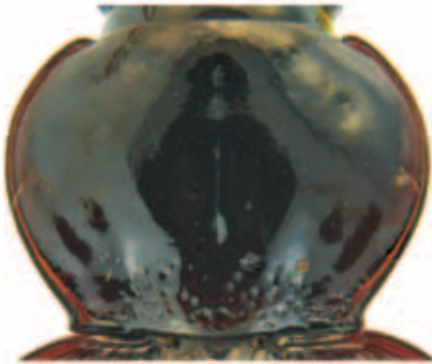
Fig. 93–140 Colour photographs of Moriomorhini pronota.



(99) *Meonochilus eplicatus*



(100) *Meonochilus placens*



(101) *Meonochilus rectus*



(102) *Meonochilus spiculatus*



(103) *Selenochilus oculator*



(104) *Selenochilus hinewai*



(105) *Selenochilus piceus*



(106) *Selenochilus syntheticus*



(107) *Selenochilus ruficornis*



(108) *Selenochilus hutchisonae*



(109) *Selenochilus omalleyi*



(110) *Molopsida seriatoporus*



(111) *Molopsida polita*



(112) *Molopsida antarctica*



(113) *Molopsida strenua*



(114) *Molopsida cordipennis*



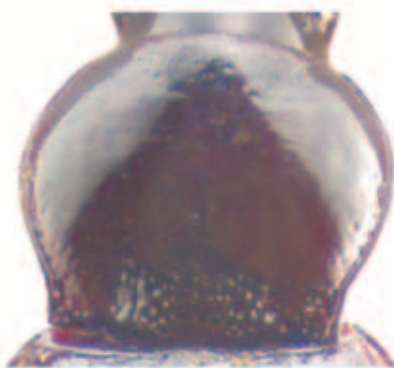
(115) *Molopsida lindrothi*



(116) *Rossjoycea glacialis*



(117) *Tarastethus puncticollis*



(118) *Tarastethus simulans*



(119) *Tarastethus alpinalis*



(120) *Tarastethus convexus*



(121) *Tarastethus southlandicus*



(122) *Tarastethus sirvidi*





(123) *Trichopsida simplex*



(124) *Trichopsida nitida*



(125) *Trichopsida robusta*



(126) *Trichopsida maudensis*



(127) *Trichopsida diversa*



(128) *Trichopsida oxygona*



(129) *Trichopsida optata*



(130) *Trichopsida erwini*



(131) *Trichopsida pretiosa*



(132) *Trichopsida paturauensis*



(133) *Trichopsida koyai*



(134) *Trichopsida hewitti*



(135) *Trichopsida boltoni*



(136) *Trichopsida goethei*



(137) *Trichopsida nunni*



(138) *Trichopsida debilis*



(139) *Trichopsida propinqua*



(140) *Trichopsida popei*

## CICINDELINI

(141) *Neocicindela spilleri*(142) *Neocicindela garnerae*(143) *Neocicindela parryi*(144) *Neocicindela waiouraensis*

Fig. 141–270 Colour photographs of Carabidae. Scale lines are 1 mm. (Photographer: B. E. Rhode, except Fig. 164, 166, 171 P. M. Johns, Fig. 265 S. Myers, and Fig. 178–191 Anonymous.)



(145) *Neocicindela dunedensis*



(146) *Neocicindela tuberculata*



(147) *Neocicindela latecincta*



(148) *Zecicindela hamiltoni*



(149) *Zecicindela helmsi novaseelandica*



(150) *Zecicindela helmsi halli*



(151) *Zecicindela helmsi circumpictoides*



(152) *Zecicindela helmsi helmsi*



(153) *Zecicindela feredayi*



(154) *Zecicindela austromontana*



(155) *Zecicindela giveni*



(156) *Zecicindela savilli*



(157) *Zecicindela brevilunata*



(158) *Zecicindela campbelli*



(159) *Zecicindela perhispida*



PAMBORINI



(160) *Maoripamborus fairburni*

AMAROTYPINI



(161) *Amarotypus edwardsii*

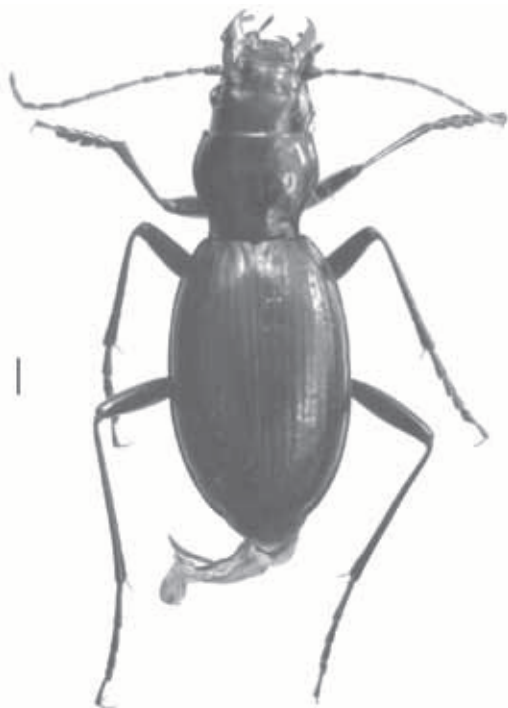
MIGADOPINI



(162) *Calathosoma rubromarginatum*



(163) *Loxomerus brevis*



(164) *Loxomerus katote*



(165) *Loxomerus nebrionides*



(166) *Taenarthrus aenigmaticus*



(167) *Taenarthrus aquatilis*



(168) *Taenarthrus capito*



(169) *Taenarthrus curvispinatus* ♀



(170) *Taenarthrus gelidimontanus*



(171) *Taenarthrus latispinatus*



(172) *Taenarthrus lissus*



(173) *Taenarthrus minor*



(174) *Taenarthrus oblitteratus*



(175) *Taenarthrus pakinius*



(176) *Taenarthrus philpotti*



(177) *Taenarthrus ruaumokoi*

## CLIVININI

(178) *Clivina australasiae*(179) *Clivina basalis*(180) *Clivina heterogena*(181) *Clivina vagans*

RHYSODINI



(182) *Kaveinga bellorum*



(183) *Kaveinga lusca*



(184) *Kaveinga orbitosa*



(185) *Kupeus arcuatus*



(186) *Rhyzodiastes proprius*



(187) *Tangarona pensa*



MORIOMORPHINI



(188) *Mecyclothorax ambiguus*



(189) *Mecyclothorax oopterooides*



(190) *Mecyclothorax otagoensis*



(191) *Mecyclothorax rotundicollis*



(192) *Meonochilus amplipennis*



(193) *Meonochilus bellorum*



(194) *Meonochilus eplicatus*



(195) *Meonochilus placens*



(196) *Meonochilus rectus*



(197) *Meonochilus spiculatus*



(198) *Selenochilus oculator*



(199) *Selenochilus hinewai*



(200) *Selenochilus piceus*



(201) *Selenochilus syntheticus*



(202) *Selenochilus ruficornis*



(203) *Selenochilus hutchisonae*



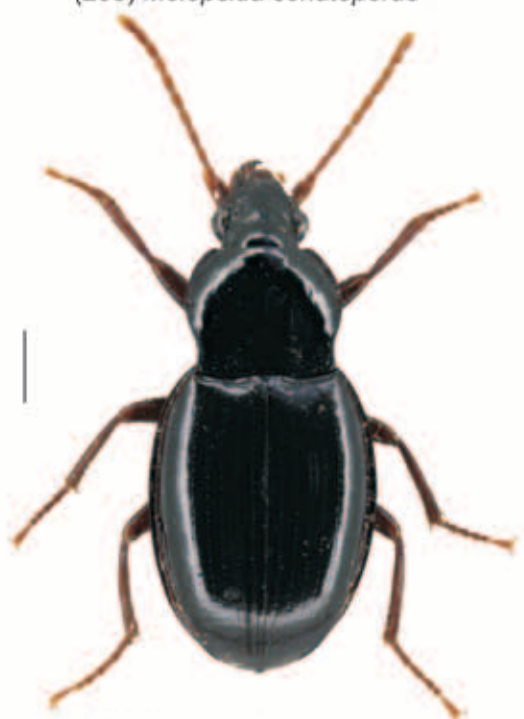
(204) *Selenochilus omalleyi*



(205) *Molopsida seriatoporus*



(206) *Molopsida polita*



(207) *Molopsida antarctica*



(208) *Molopsida strenua*



(209) *Molopsida cordipennis*



(210) *Molopsida lindrothi*



(211) *Rossjoycea glacialis*



(212) *Tarastethus puncticollis*



(213) *Tarastethus simulans*



(214) *Tarastethus alpinalis*



(215) *Tarastethus convexus*



(216) *Tarastethus southlandicus*



(217) *Tarastethus sirvidi*



(218) *Trichopsida simplex*



(219) *Trichopsida nitida*





(220) *Trichopsida robusta*



(221) *Trichopsida maudensis*



(222) *Trichopsida diversa*



(223) *Trichopsida oxygona*



(224) *Trichopsida optata*



(225) *Trichopsida erwini*



(226) *Trichopsida pretiosa*



(227) *Trichopsida paturauensis*



(228) *Trichopsida koyai*



(229) *Trichopsida hewitti*



(230) *Trichopsida boltoni*



(231) *Trichopsida goethei*



(232) *Trichopsida nunni*



(233) *Trichopsida debilis*



(234) *Trichopsida propinqua*



(235) *Trichopsida popei*

TRECHINI



(236) *Kenodactylus audouini*



(237) *Maoritrechus nunni*



(238) *Maoritrechus rangitotoensis*



(239) *Oarotrechus gracilentus*



(240) *Duvaliomimus australis*



(241) *Duvaliomimus chrystallae*



(242) *Duvaliomimus crypticus*



(243) *Duvaliomimus maori*



(244) *Duvaliomimus megawattus*



(245) *Duvaliomimus obscurus*



(246) *Duvaliomimus orientalis*



(247) *Duvaliomimus pseudostyx*



(248) *Duvaliomimus styx*



(249) *Duvaliomimus taieriensis*





(250) *Duvaliomimus walkeri walkeri*



(251) *Duvaliomimus watti*



(252) *Duvaliomimus mayae mayae*



(253) *Duvaliomimus mayae mayorum*



(254) *Erebotrechus infernus*



(255) *Kettlotrechus edridgeae*



(256) *Kettlotrechus marchanti*



(257) *Kettlotrechus millari*



(258) *Kettlotrechus orpheus*



(259) *Kettlotrechus pluto*



(260) *Kiwitrechus karencottae*



(261) *Kupetrechus gracilis*



(262) *Kupetrechus lamberti*



(263) *Kupetrechus larsonae*



(264) *Neanops caecus*



(265) *Neanops pritchardi*



(266) *Scototrechus hardingi hardingi*



(267) *Scototrechus hardingi worthyi*



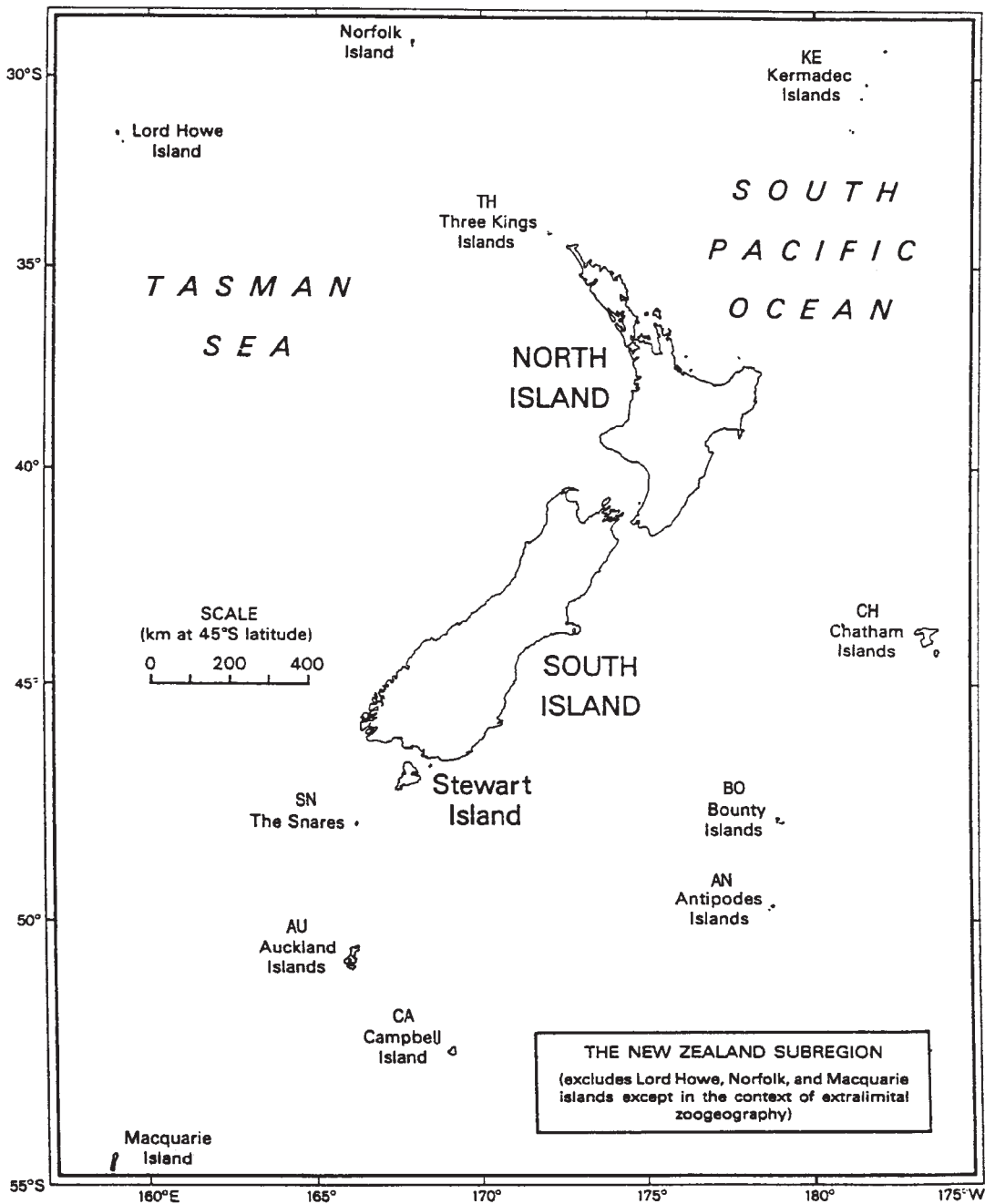
(268) *Scototrechus morti*



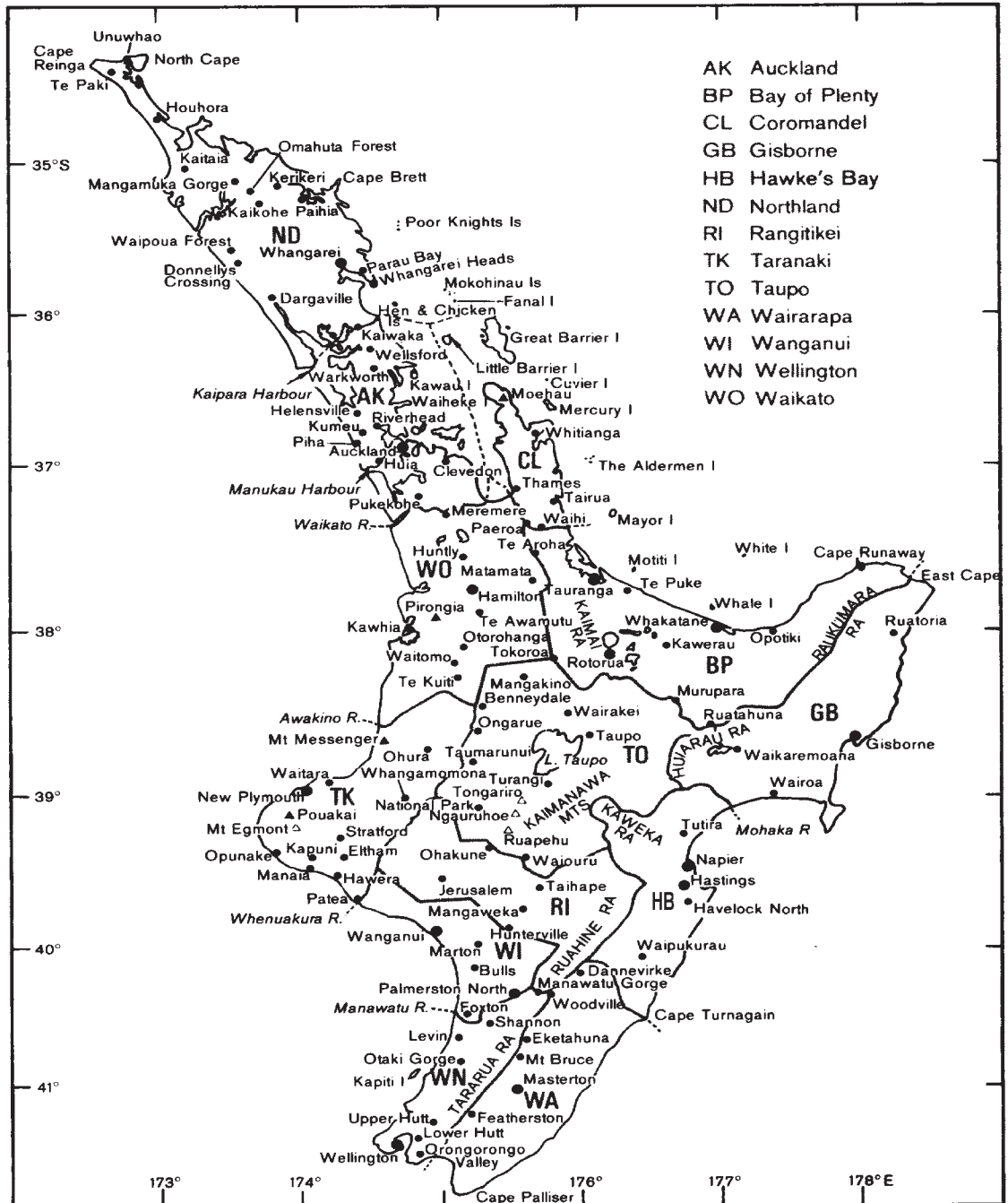
(269) *Scototrechus orcinus*



(270) *Waiputrechus cavernicola*



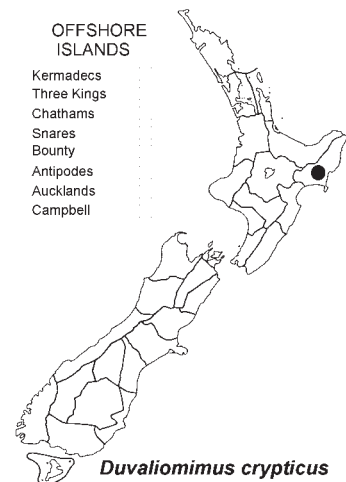
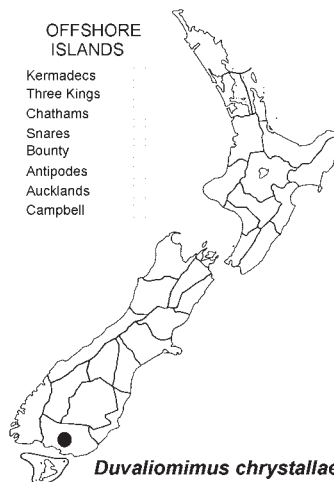
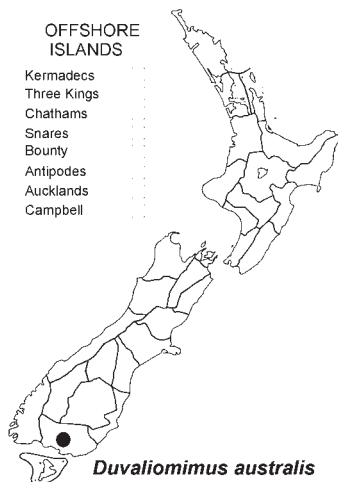
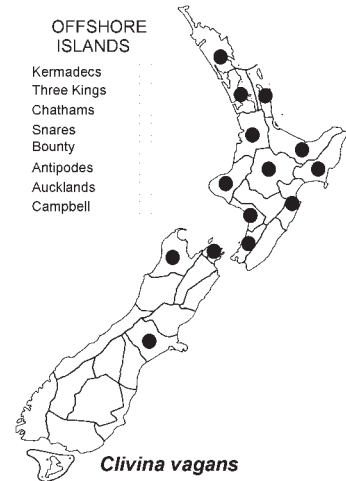
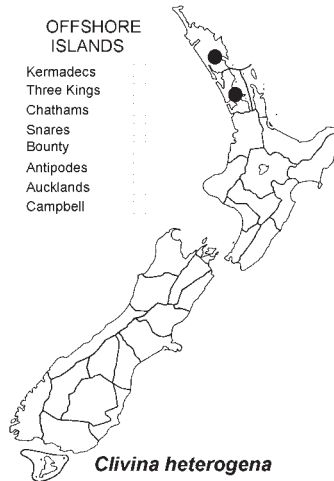
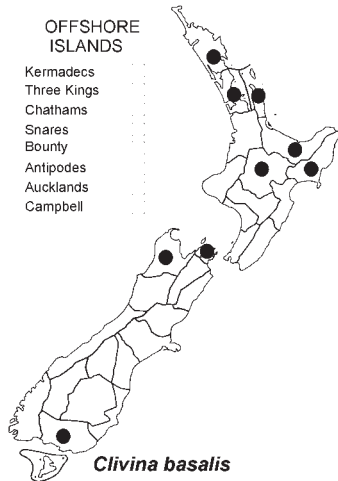
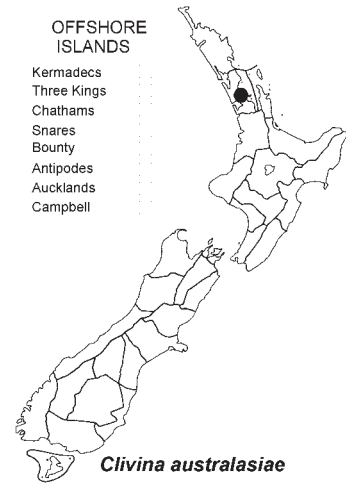
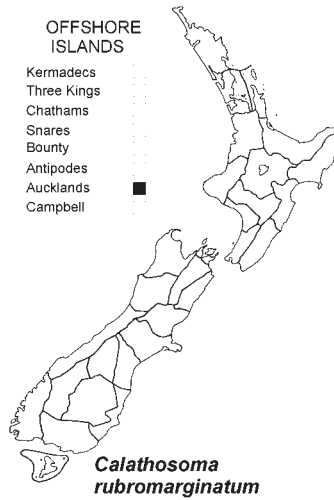
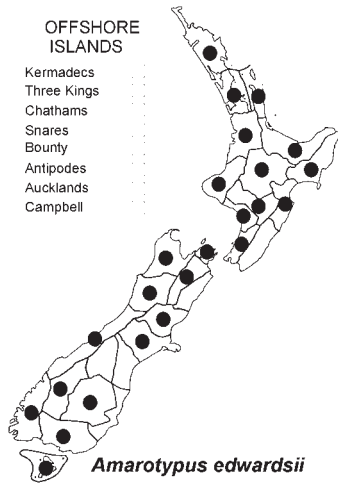
Map 1 The New Zealand subregion.



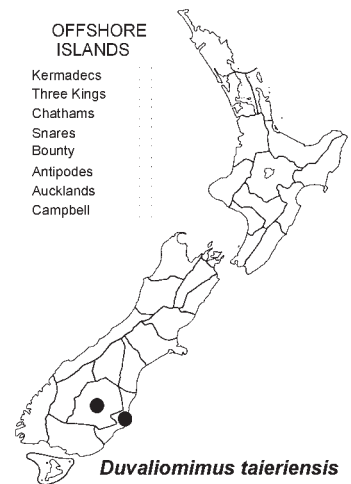
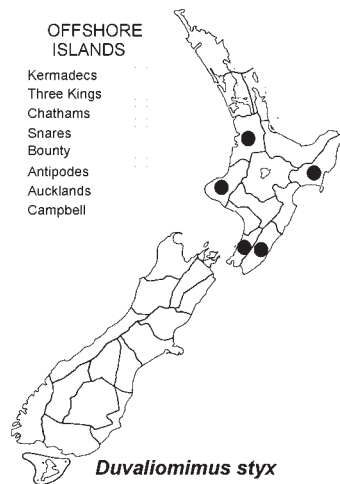
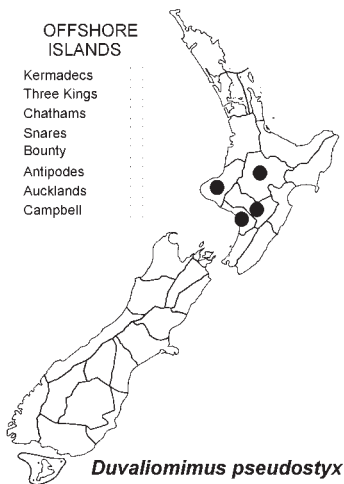
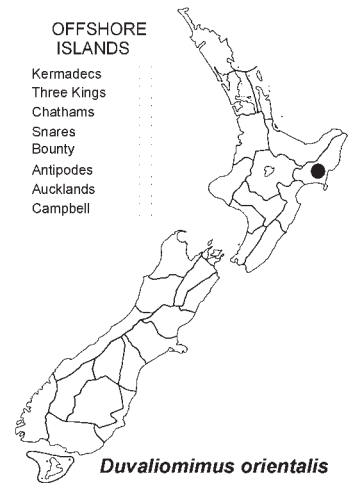
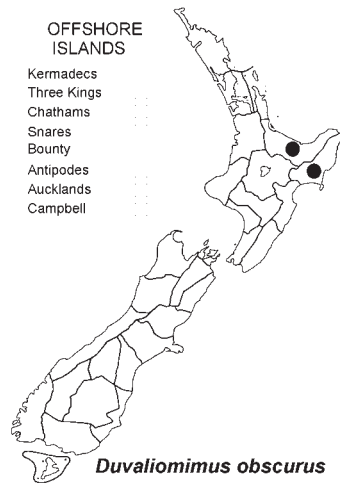
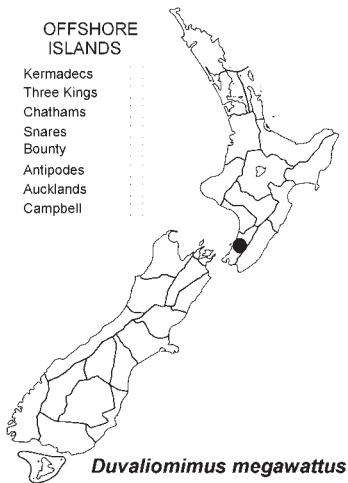
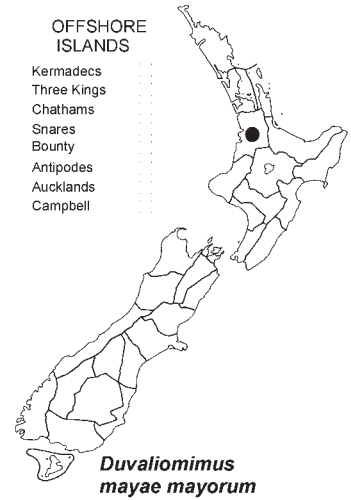
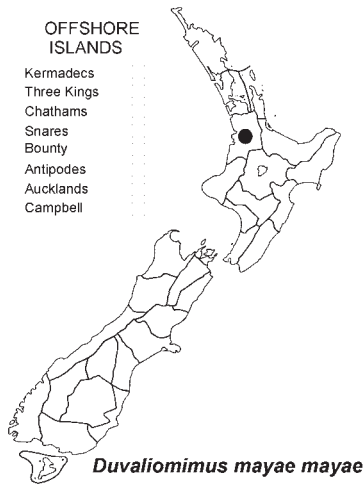
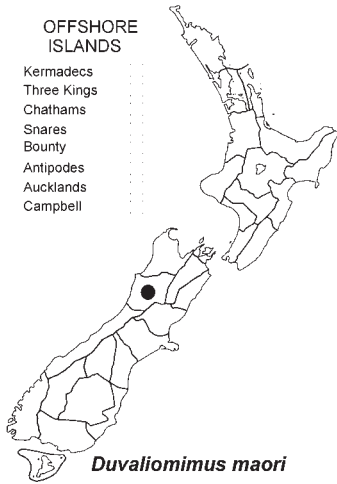
Map 2 Area codes and collecting localities from mainland New Zealand: North Island.

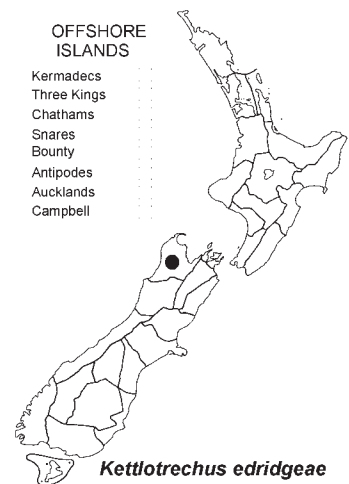
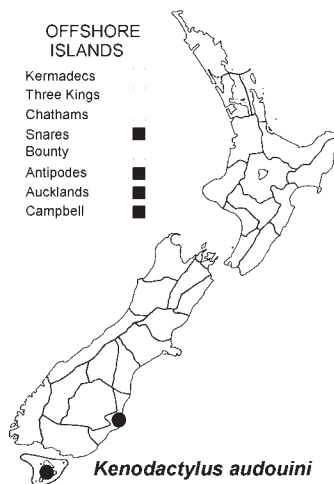
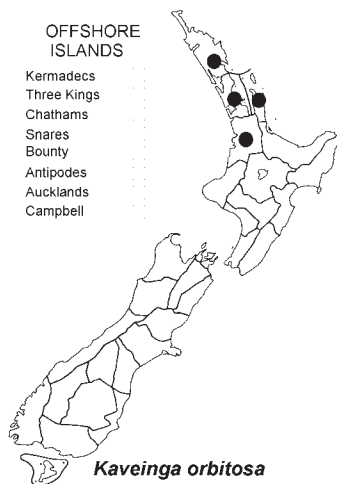
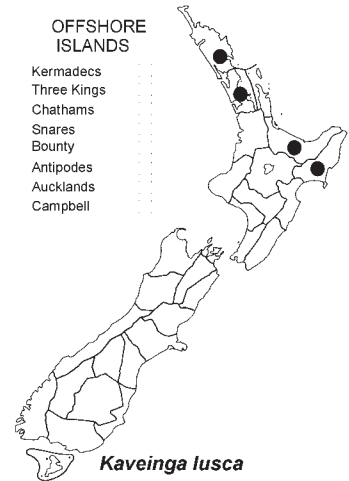
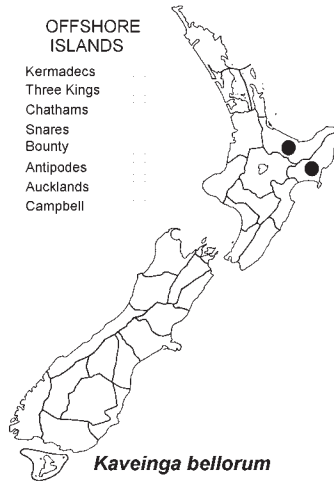
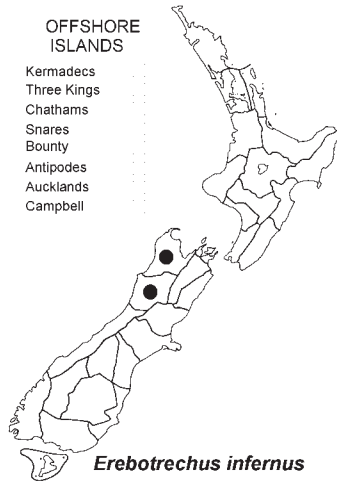
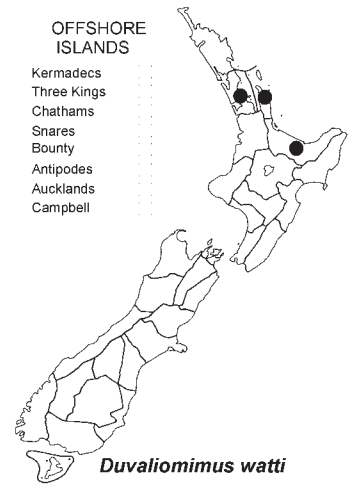
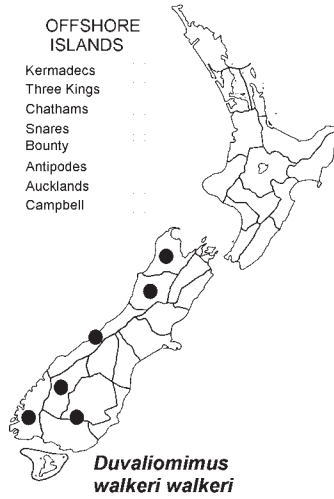
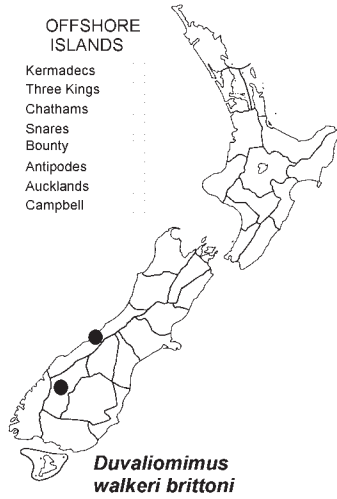


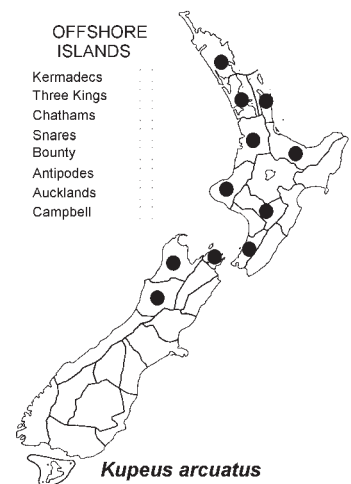
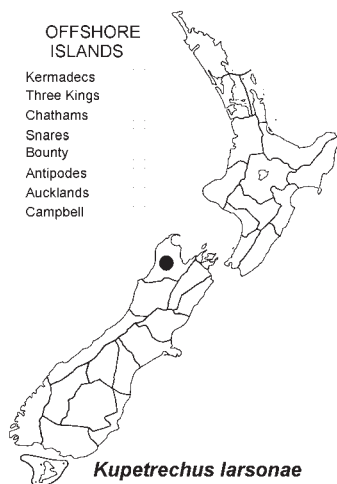
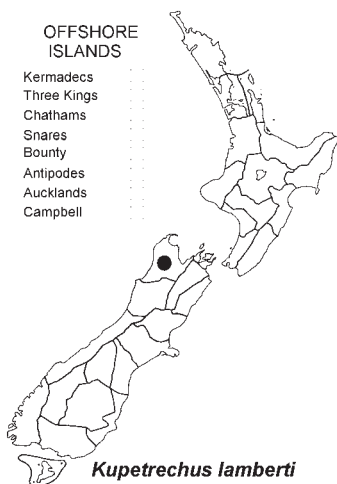
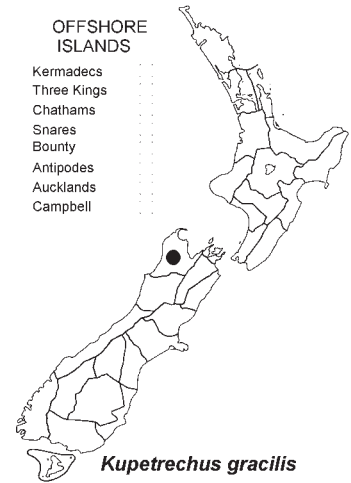
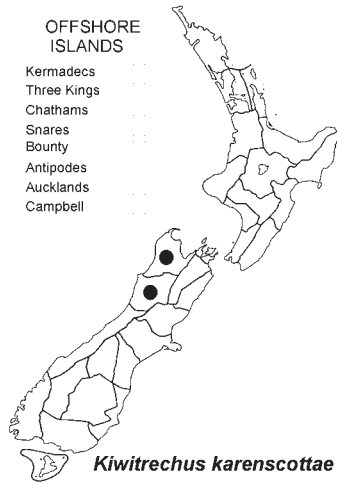
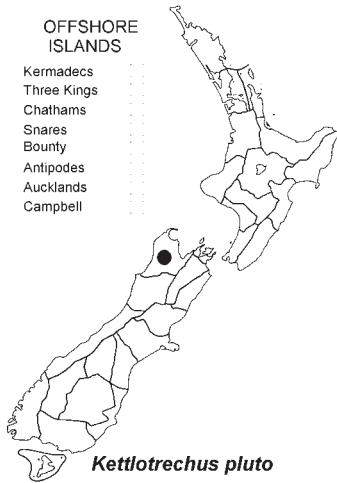
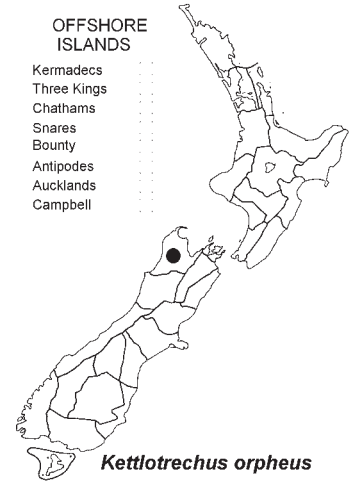
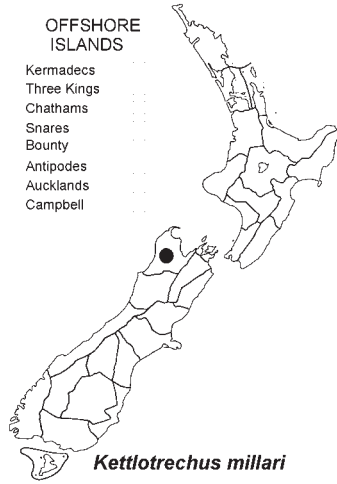
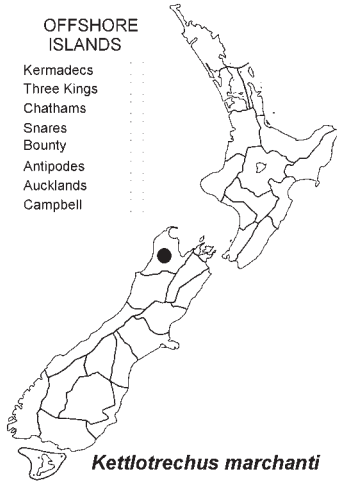


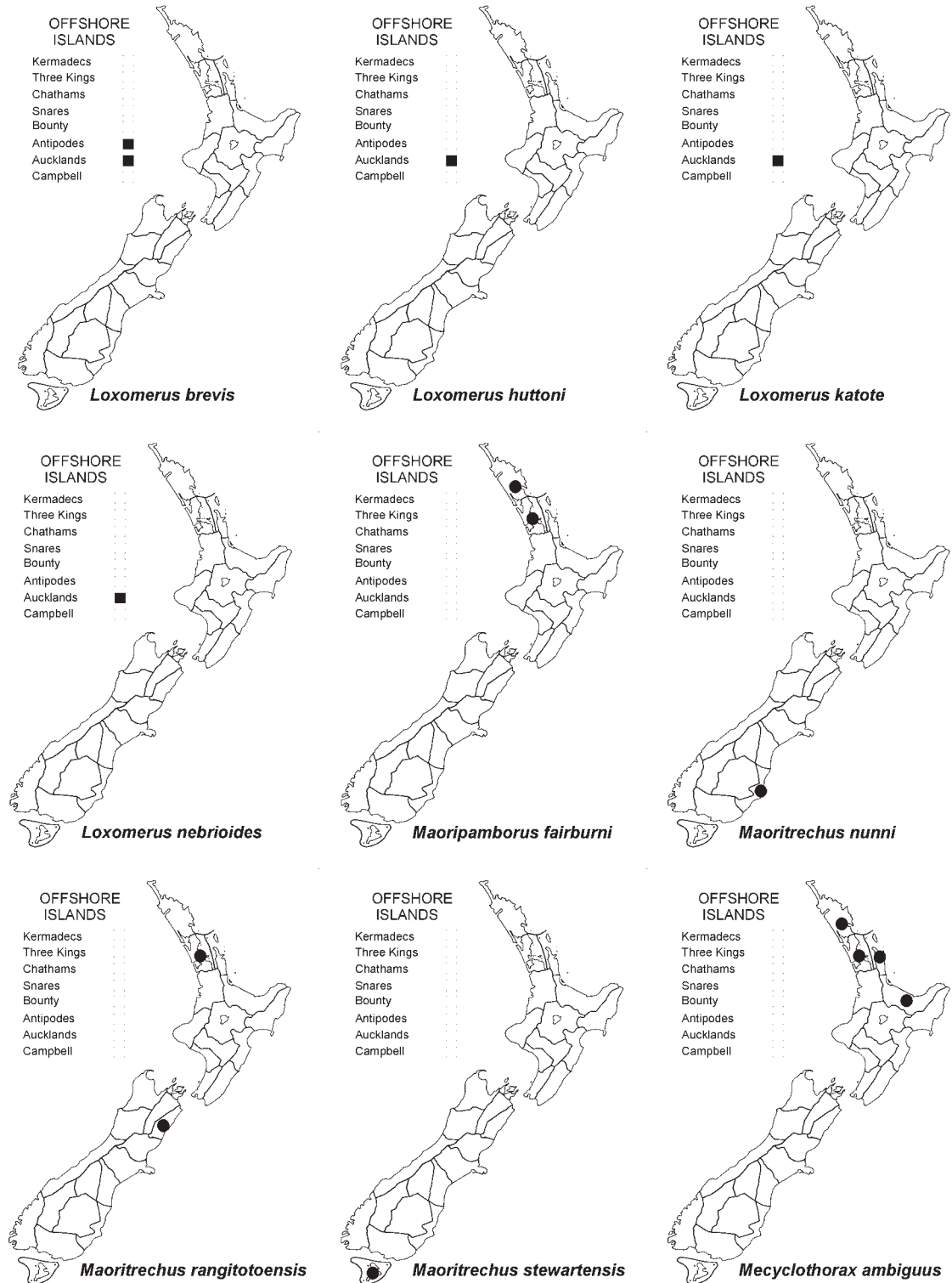


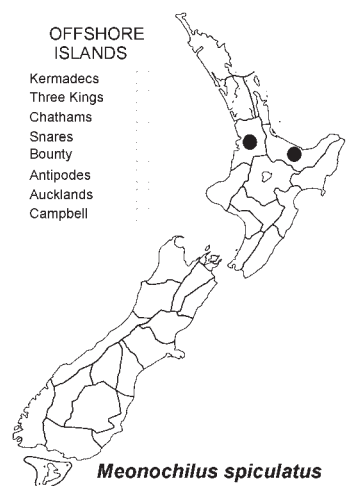
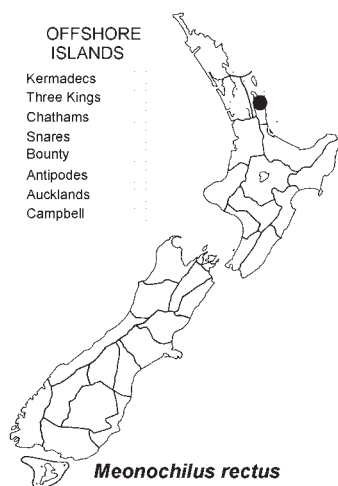
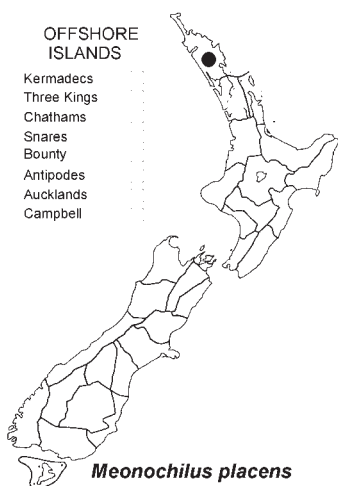
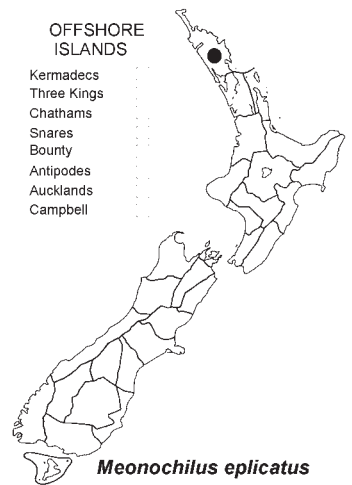
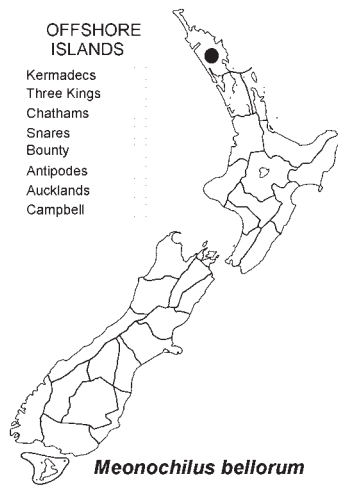
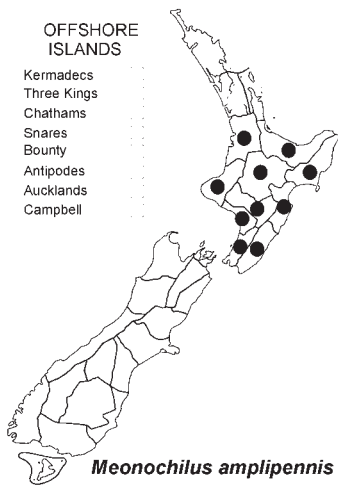
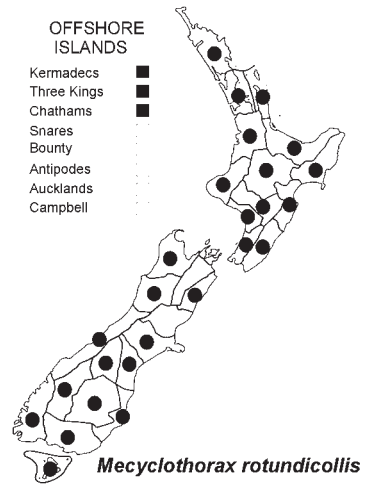
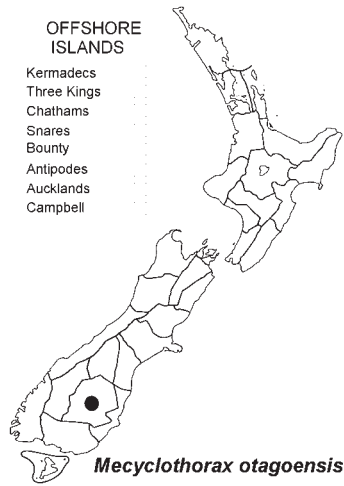
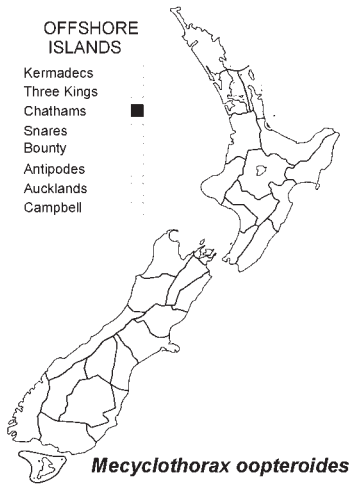
Species distribution maps (pp. 170–184). Presented in alphabetical order by taxa. Area boundaries follow area codes of Crosby *et al.* (1976, 1998).

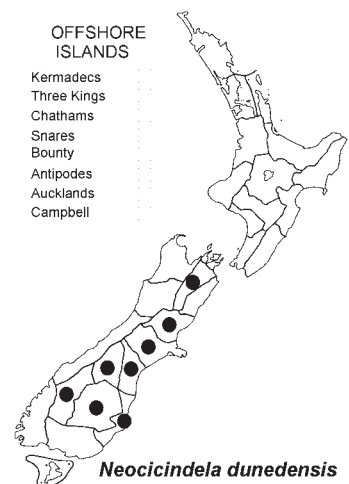
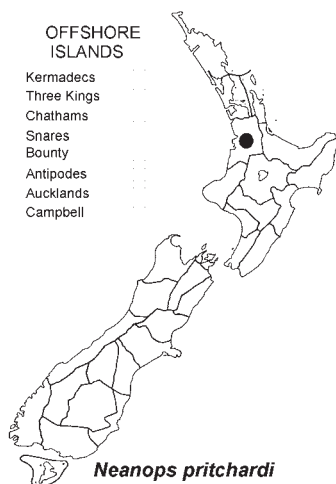
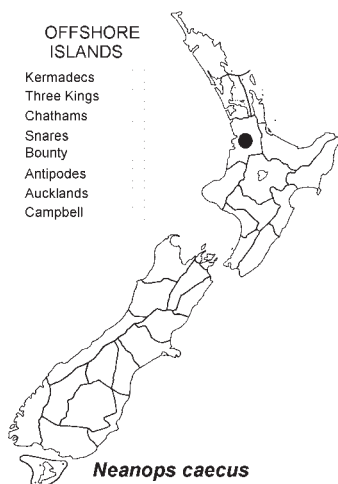
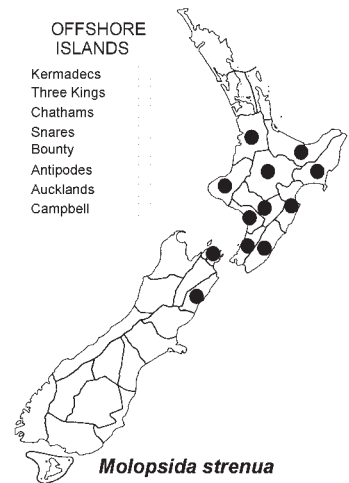
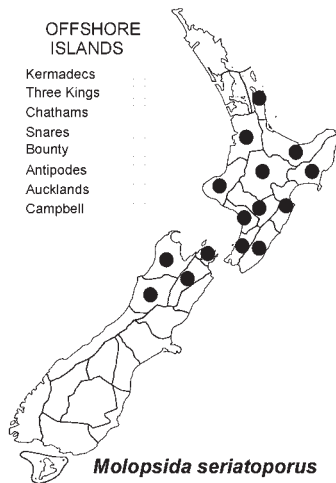
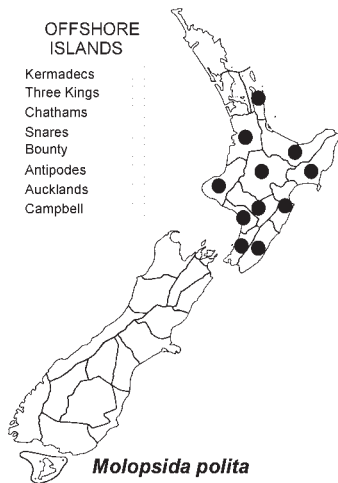
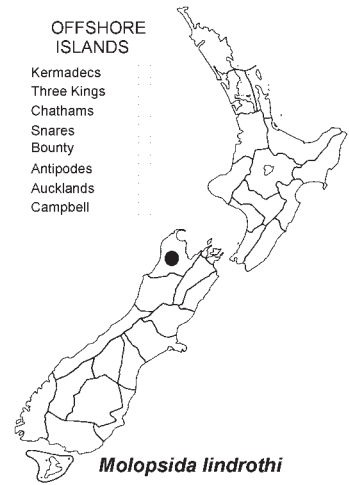
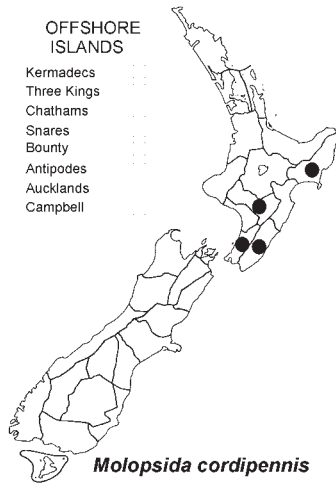
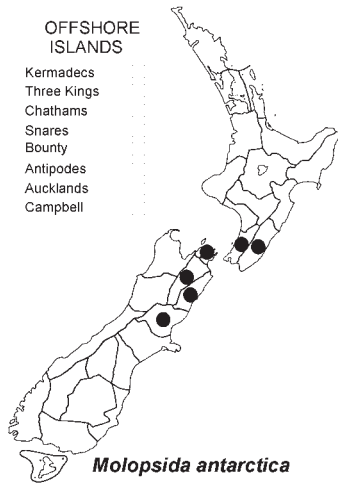




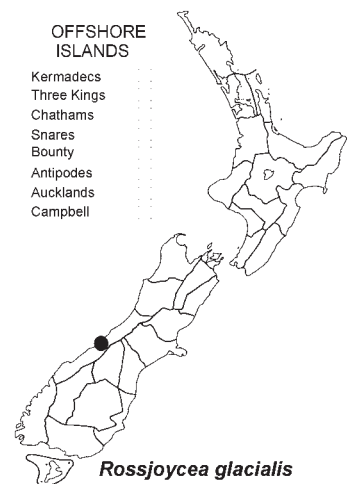
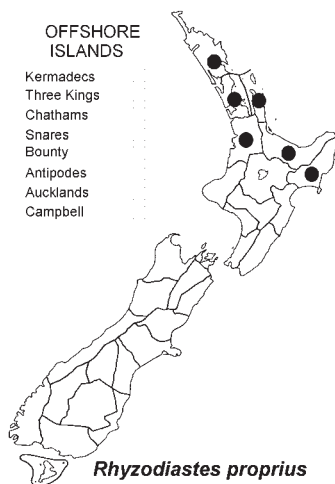
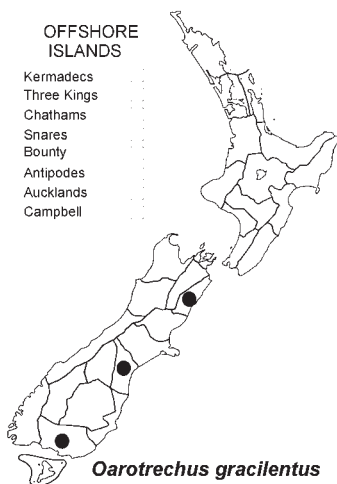
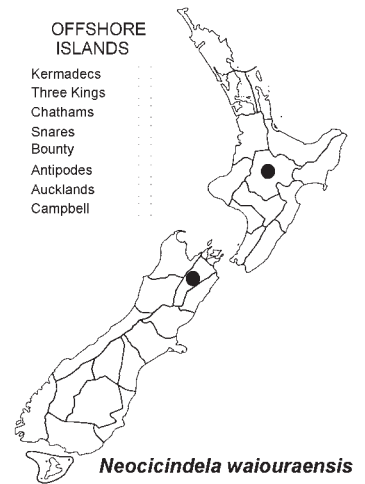
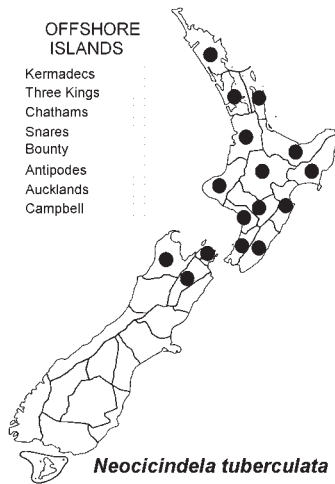
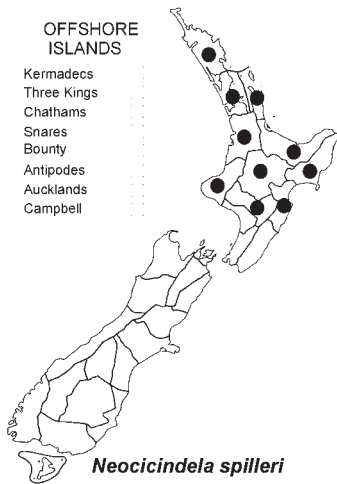
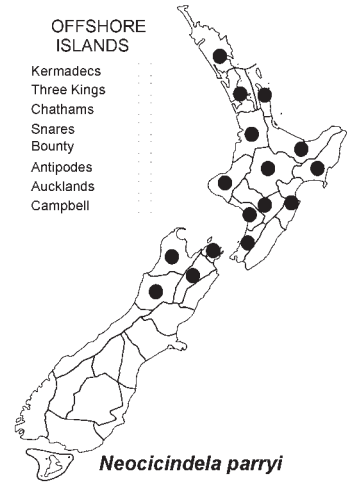
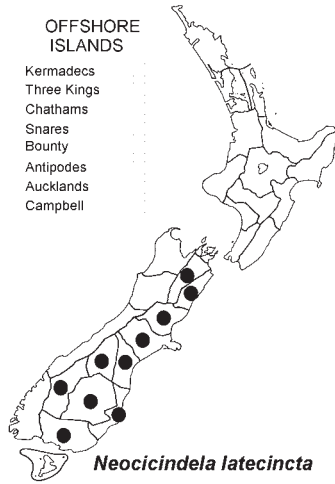
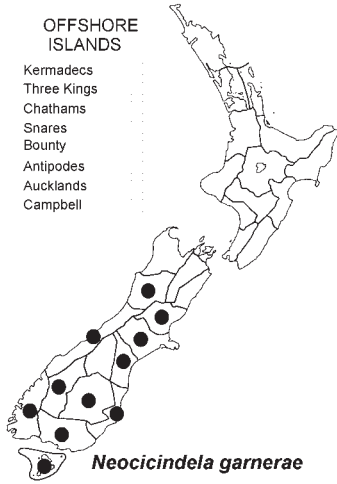


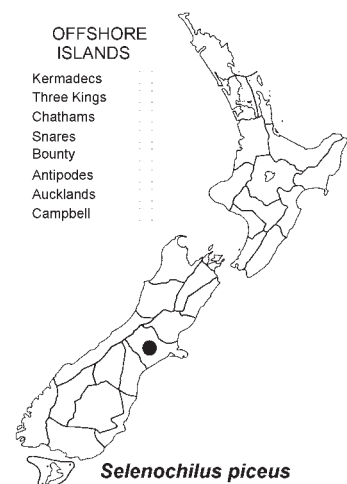
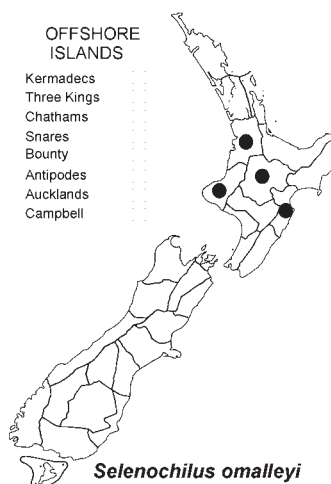
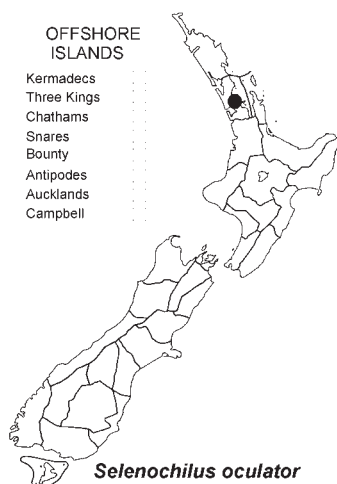
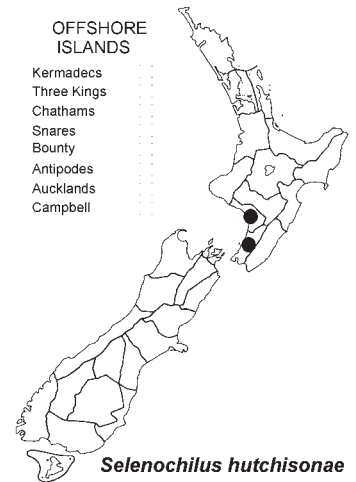
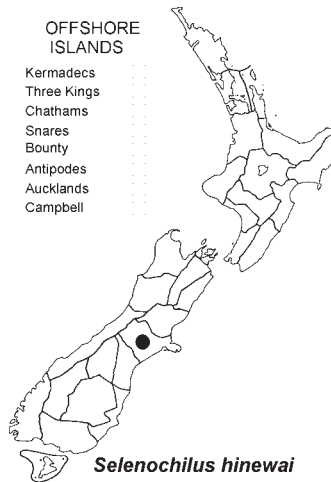
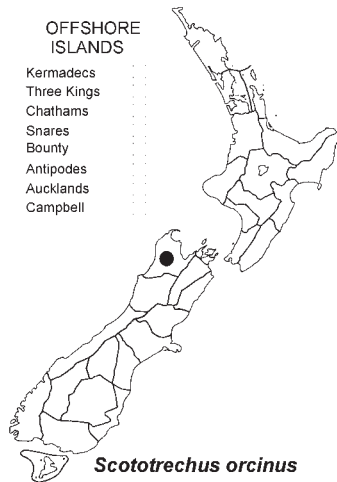
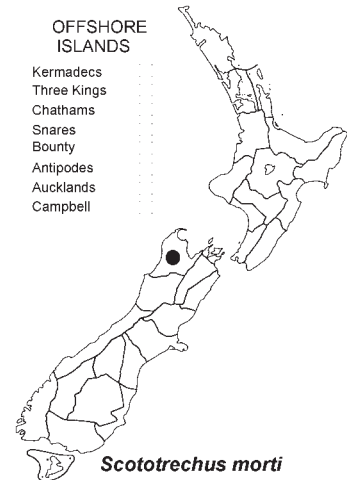
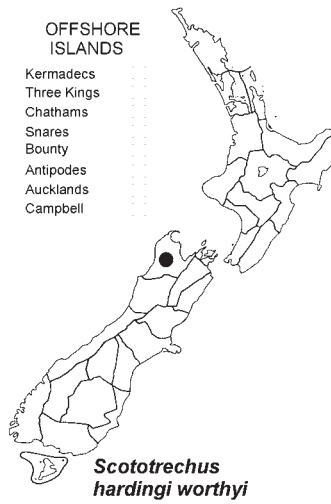
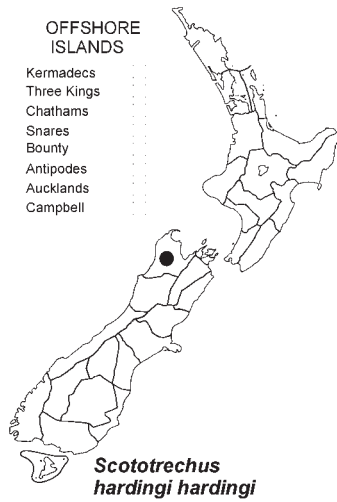


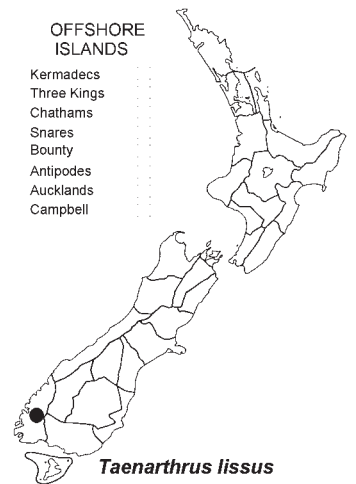
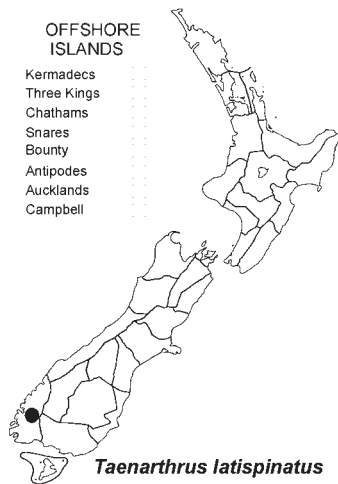
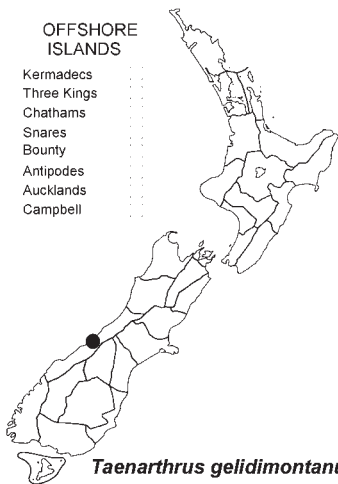
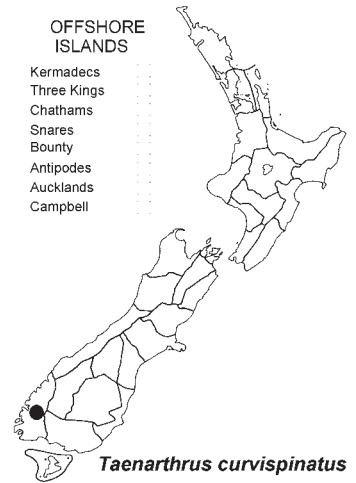
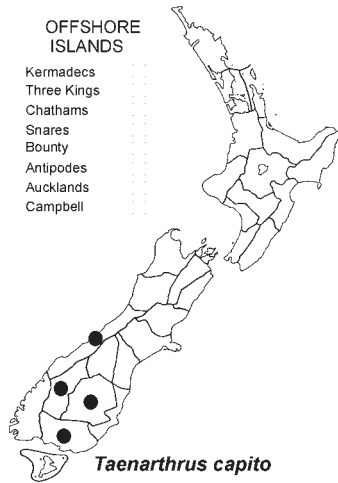
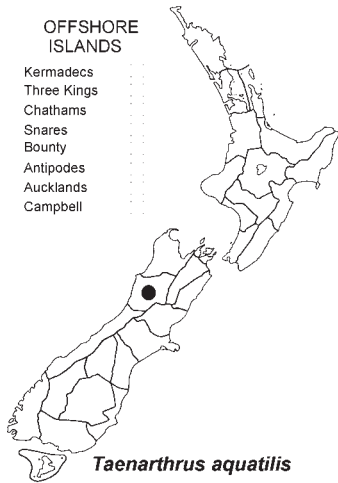
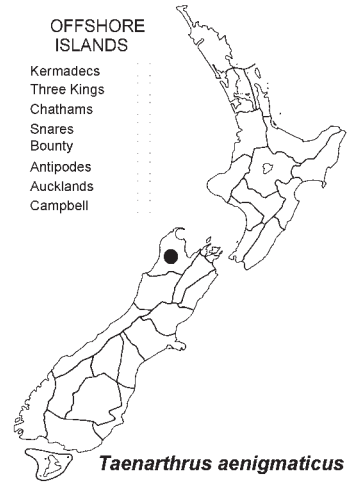
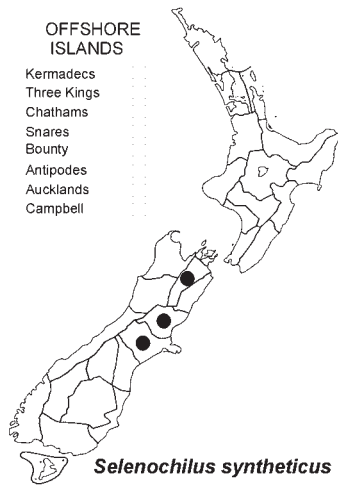
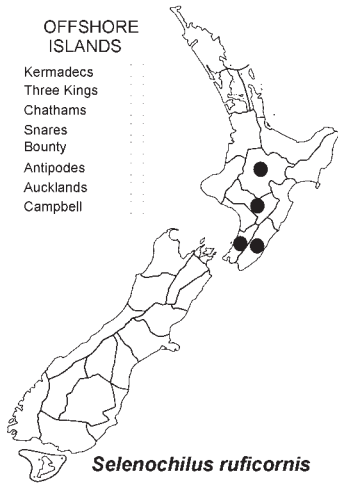


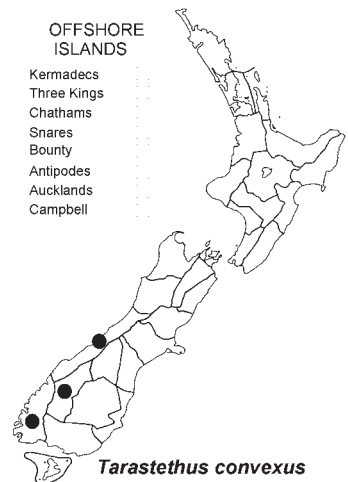
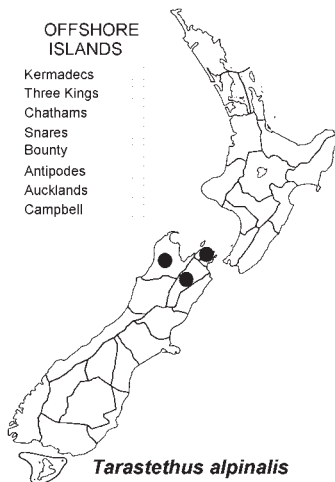
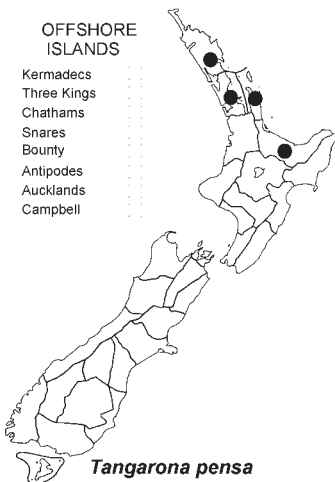
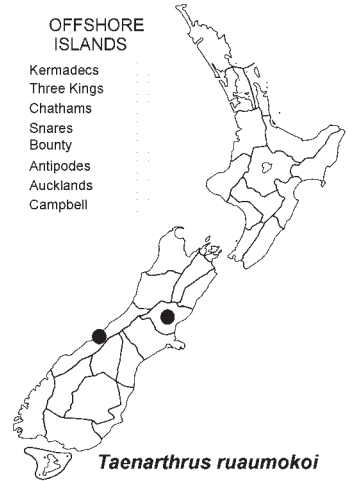
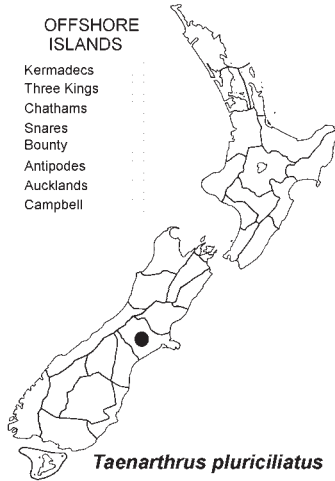
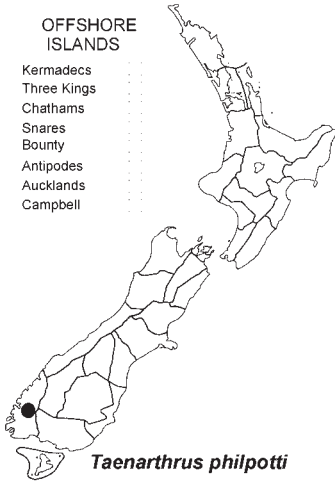
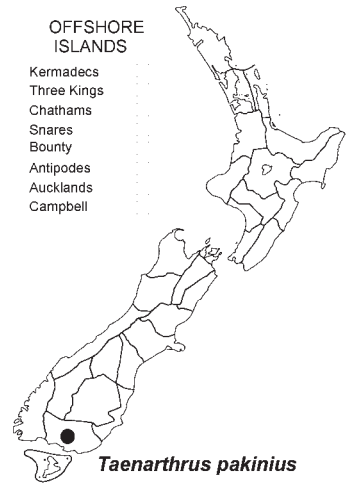
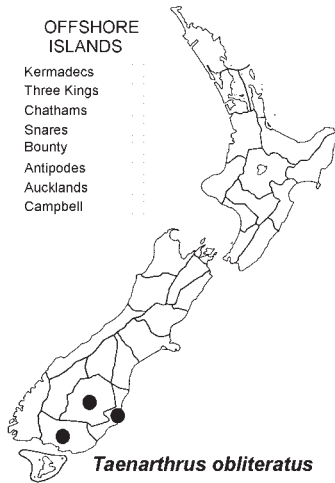
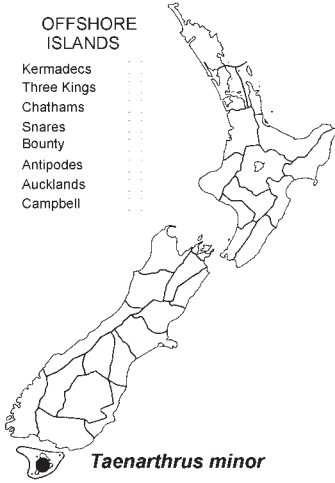


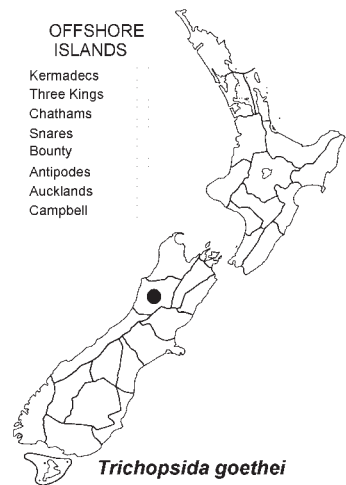
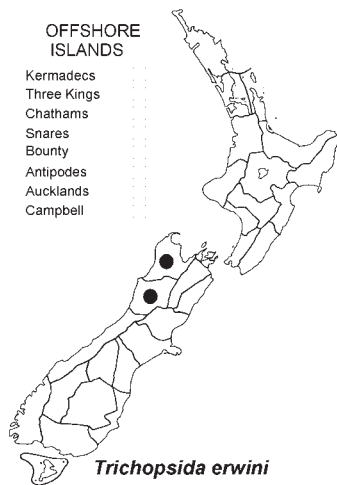
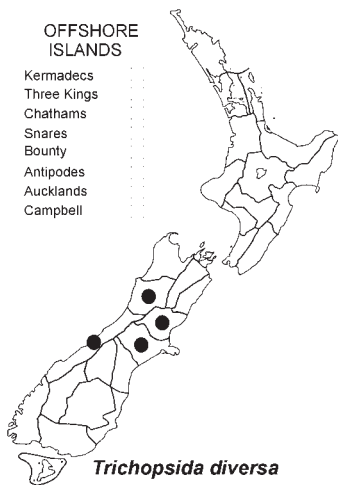
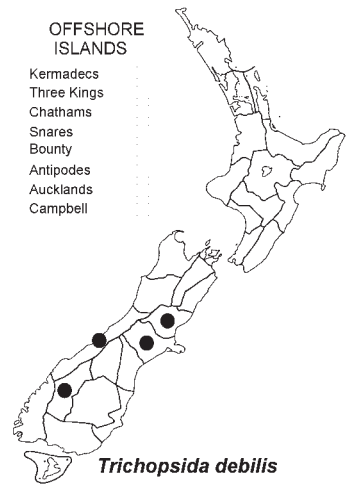
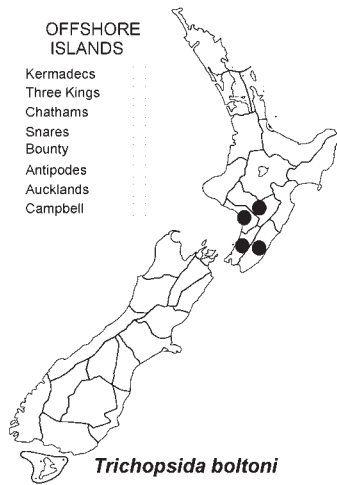
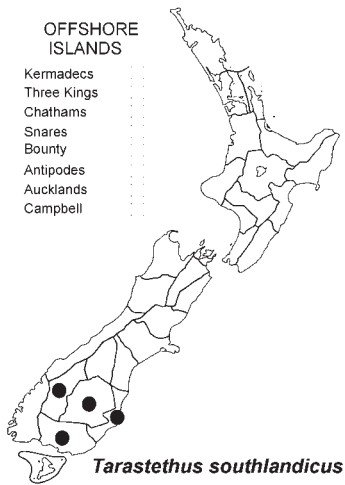
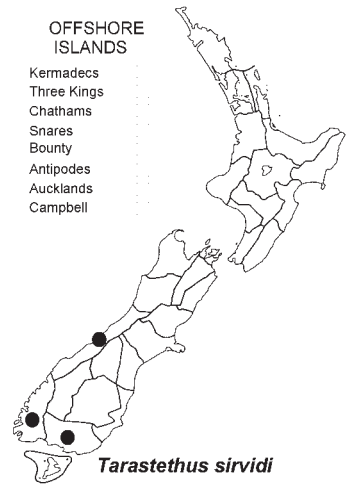
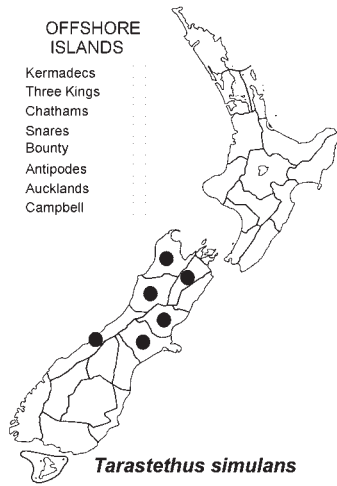
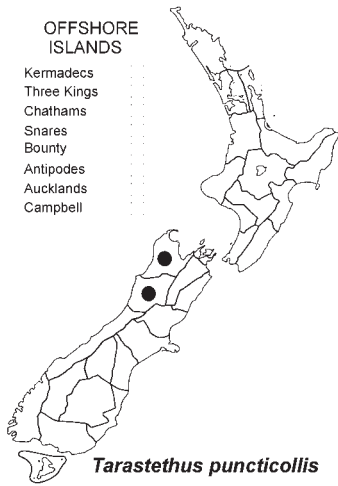


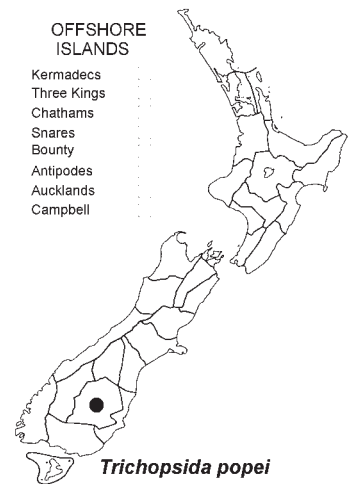
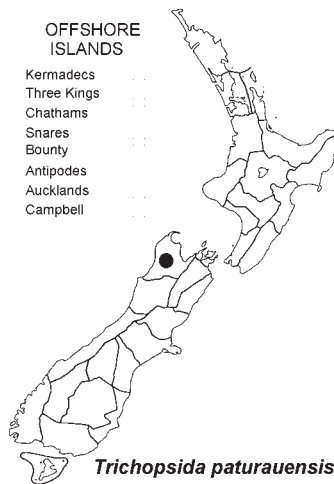
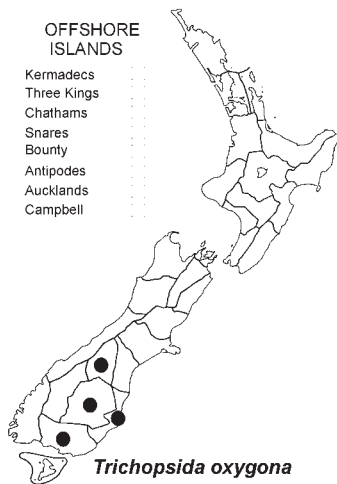
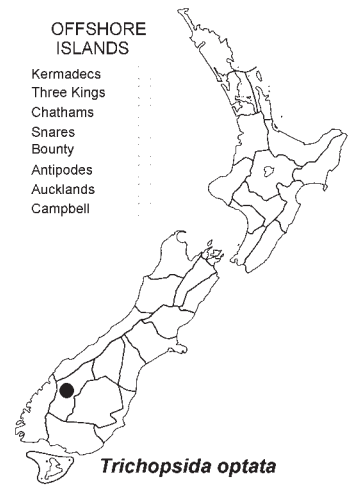
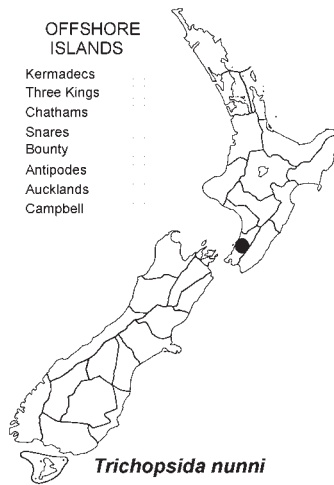
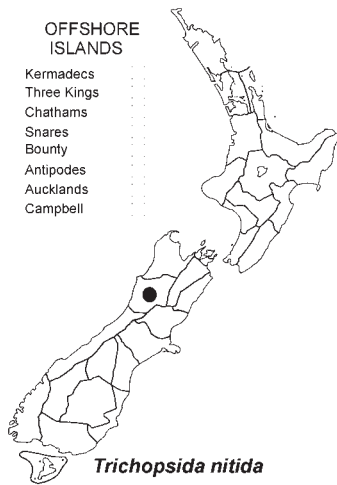
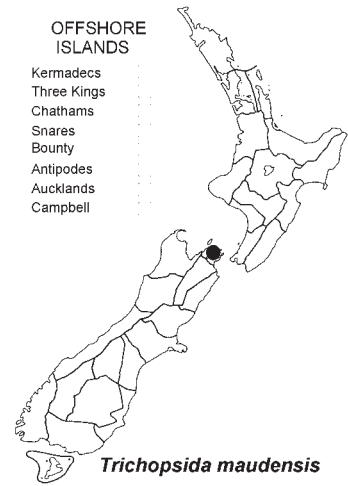
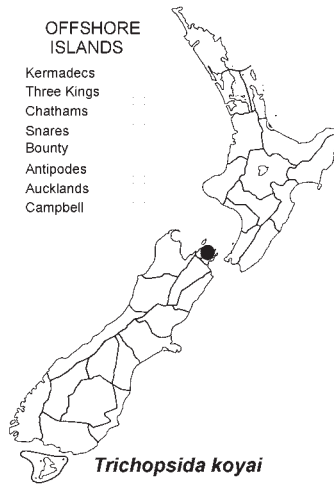
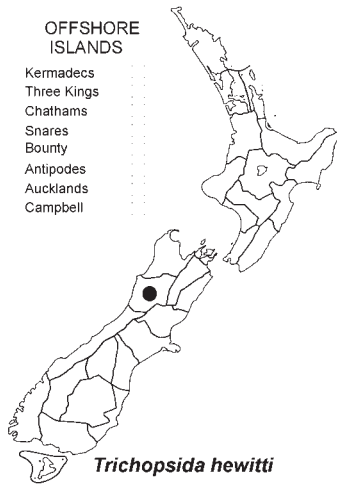


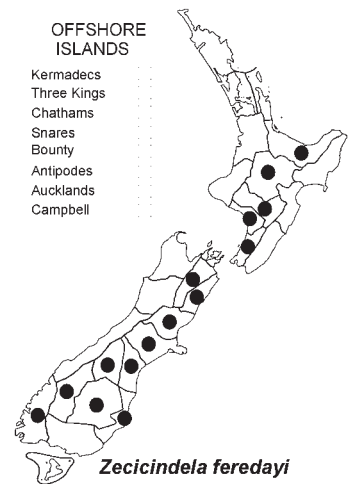
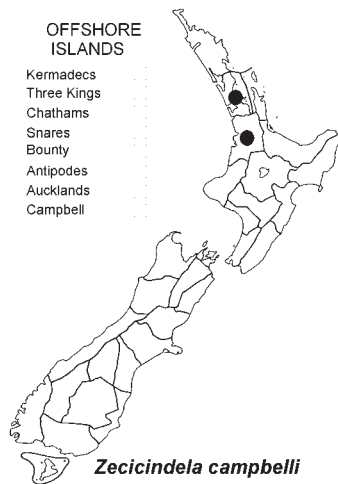
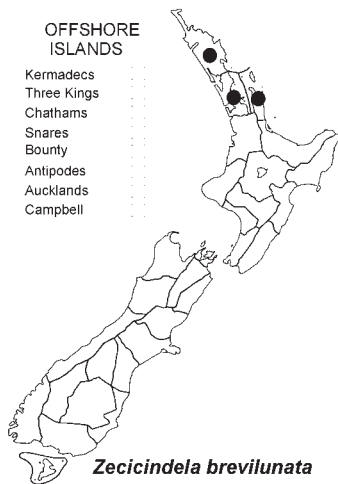
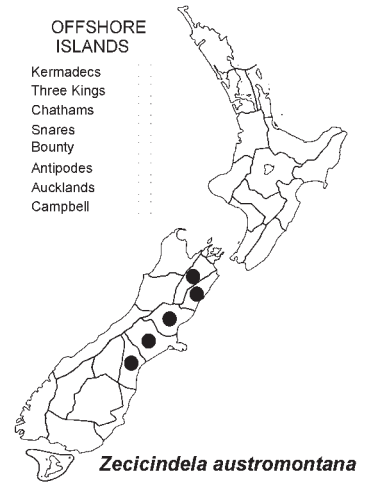
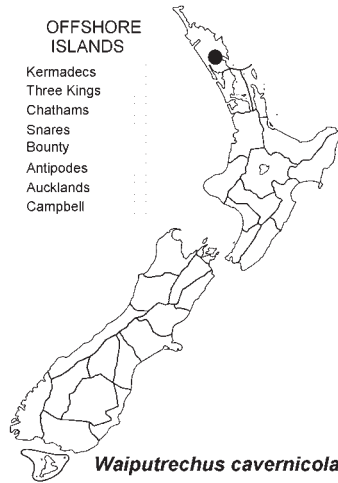
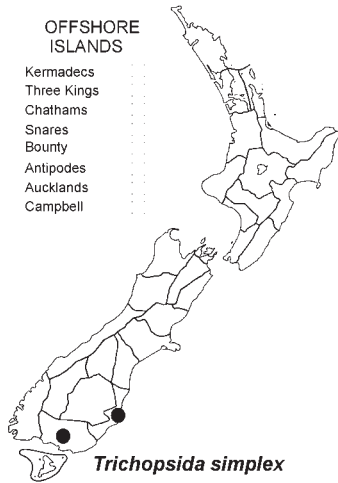
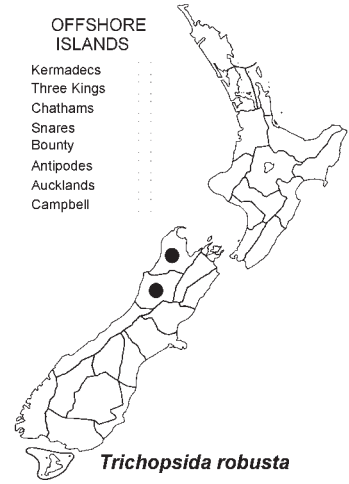
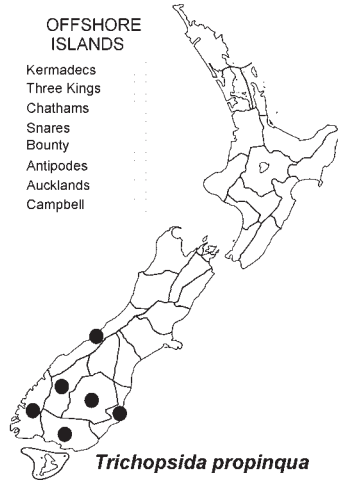
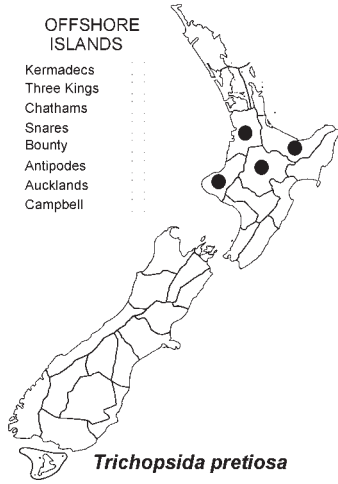


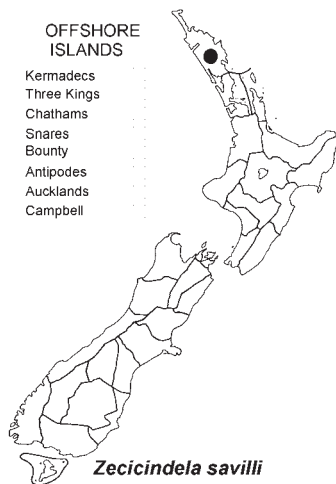
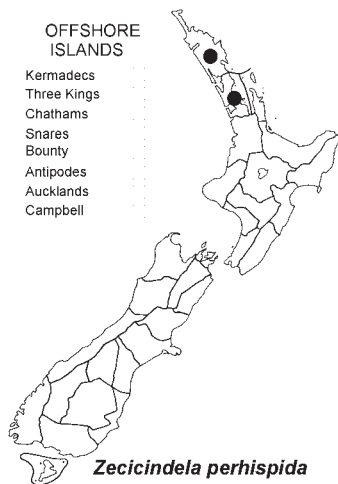
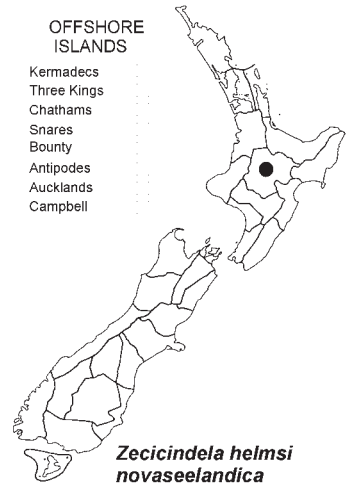
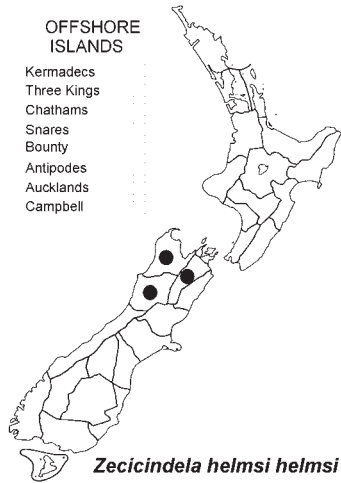
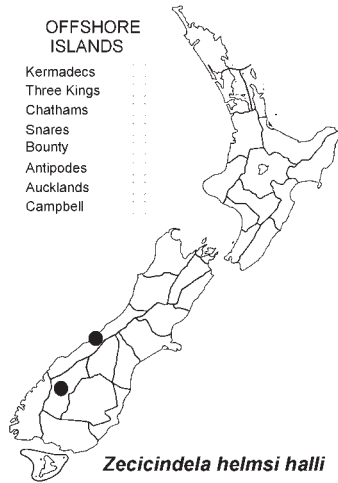
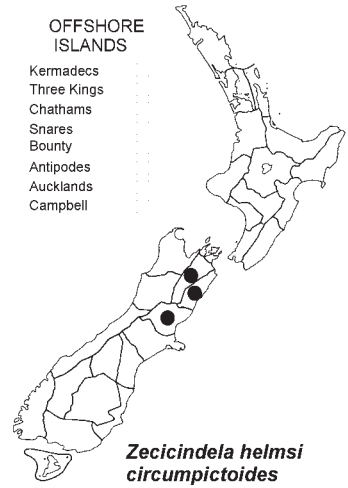
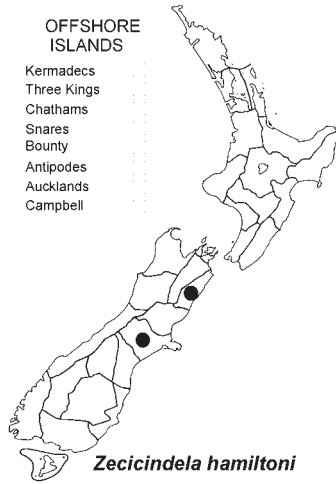
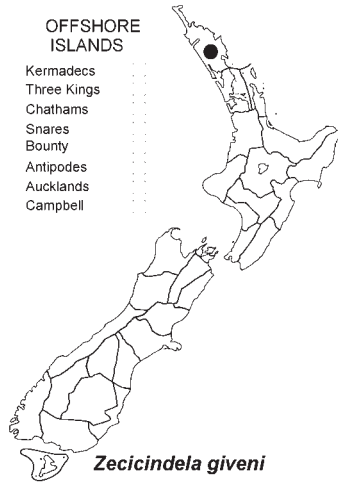














## TAXONOMIC INDEX

This index covers the nominal taxa mentioned in the text, regardless of their current status in taxonomy. Taxa in **bold** indicate valid taxa. Pages numbers in **bold** indicate main synopsis entries. The letter “f” after a page indicates a **figure**. The letter “m” indicates a **distribution map**.

**aeigmaticus** Johns, *Taenarthrus* **37**, 138f, 179m

**Aepina** **80**

**alpinalis** Broun, *Tarastethus* **57**, **59**, 120f, 128f, 151f, 180m

**Amara Bonelli** **20**

**Amarotypini** **18**, **19**, **20**, **36**

**Amarotypus** Bates **20**, **36**

**ambiguus** (Erichson), *Mecyclothorax* **20**, **21**, **41**, 124f, 145f, 174m

**Amblytelina** **40**, **41**

*Amblytelini* **18**, **40**

**amplipennis** (Broun), *Meonochilus* **41**, 124f, 146f, 175m

*amplipennis amplipennis* Broun, *Tarastethus* **41**

*amplipennis labralis* Broun, *Tarastethus* **41**

**Anillina** **18**, **21**

*antarctica* Laporte de Castelnau, *Drimostoma* **51**

**antarctica** (Laporte de Castelnau), *Molopsida* **49**, **50**, **51**, **52**, 119f, 127f, 149f, 176m

**aquatilis** Johns, *Taenarthrus* **37**, 139f, 179m

**Archicarabus** Seidlitz **35**

**arcuatus** (Chevrolat), *Kupeus* **20**, **39**, 143f, 173m

**audouini** (Guérin-Méneville), *Kenodactylus* **21**, **80**, 157f, 172m

**australasiae** Boheman, *Clivina* **38**, 142f, 170m

**australis** Townsend, *Duvaliomimus* **80**, 158f, 170m

**austromontana** (Bates), *Zecicindela* **29**, **32**, 116f, 135f, 183m

**basalis** Chaudoir, *Clivina* **38**, 142f, 170m

**bellorum** Emberson, *Kaveinga* **38**, **39**, 143f, 172m

**bellorum** Liebherr, *Meonochilus* **41**, 124f, 146f, 175m

**Bembidiini** **19**, **21**

**boltoni** Laroche & Larivière, *Trichopsida* **64**, **74**, **75**, 122f, 131f, 155f, 181m

**brevilunata** (Horn), *Zecicindela* **20**, **29**, **34**, 117f, 136f, 183m

**brevis** (Blanchard), *Loxomerus* **36**, 137f, 174m

*brevis* Blanchard, *Pristonychus* **36**

*brittoni* Jeannel, *Duvaliomimus* **81**

**brittoni** Jeannel, *Duvaliomimus walkeri* **22**, **81**

**Broscini** **18**, **19**

**caecus** (Britton), *Neanops* **83**, 164f, 176m

**Calathosoma** Jeannel **20**, **36**

*campbelli* Broun, *Cicindela* **34**

**campbelli** (Broun), *Zecicindela* **30**, **34**, **35**, 117f, 136f, 183m

*capito* Jeannel, *Loxomerus* **37**

**capito** (Jeannel), *Taenarthrus* **37**, 139f, 179m

**Carabinae** **19**, **35**

**Carabini** **19**, **35**

**Carabus** Linnaeus **19**, **35**

*carbonarius* Broun, *Tarastethus* **50**, **51**

**cavernicola** Townsend, *Waiputrechus* **83**, 166f, 183m

**Cerabilia** Laporte de Castelnau **18**, **19**

**chrySTALLAE** Townsend, *Duvaliomimus* **80**, 158f, 170m

*Cicindela* Linnaeus **24**, **29**

**Cicindelina** **24**

**Cicindelinae** **19**, **24**

**Cicindelini** **18**, **19**, **22**, **24**

*cinctus* Broun, *Tarastethus* **70**

*circumpictoides* Horn, *Cicindela* **31**

**circumpictoides** (Horn), *Zecicindela helmsi* **29**, **31**, **32**, 134f, 184m

**Clinidiina** **39**

**Clivina** Latreille **20**, **38**

**Clivinina** **38**

**Clivinini** **18**, **19**, **20**, **38**

**convexus** Broun, *Tarastethus* **57**, **59**, **60**, 120f, 128f, 151f, 180m

**cordipennis** (Broun), *Molopsida* **49**, **53**, **55**, 119f, 127f, 150f, 176m

*cordipennis* Broun, *Tarastethus* **53**

**crypticus** Townsend, *Duvaliomimus* **81**, 158f, 170m

**curvispinatus** Johns, *Taenarthrus* **37**, 139f, 179m

*debilis* Sharp, *Tarastethus* **77**

**debilis** (Sharp), *Trichopsida* **64**, **77**, **78**, 123f, 131f, 156f, 181m

**Dhysorina** **39**

**diversa** (Broun), *Trichopsida* **63**, **68**, **69**, 121f, 129f, 153f, 181m

*diversus* Broun, *Tarastethus* **68**

*dubius* Broun, *Tarastethus* **52**, **53**

**dunedensis** (Laporte de Castelnau),

*Neocicindela* **24**, **25**, **27**, 115f, 133f, 176m

**Duvaliomimus** Jeannel **21**, **22**, **80**

**edridgeae** Townsend, *Kettlotrechus* **82**, 162f, 172m

**edwardsii** Bates, *Amarotypus* **20**, **36**, 137f, 170m

**eplicatus** (Broun), *Meonochilus* **41**, 125f, 146f, 175m

eplicatus Broun, Tarastethus 41

**Erebotrechus Britton 82**

**erwini Larochelle & Larivière, Trichopsida 63, 70,**  
71, 122f, 130f, 154f, 181m

erythropus Blanchard, Argutor 42, 44

**fairburni Brookes, Maoripamborus 20, 35, 117f,**  
137f, 174m

fallax Broun, Sympiestus 45, 46

feredayi Bates, Cicindela 28

**feredayi (Bates), Zecicindela 29, 32, 116f, 135f,**  
183m

fovealis Broun, Tarastethus 60, 61

frontalis Broun, Sympiestus 45, 46

fuscipes Broun, Tarastethus 49, 50

**garnerae Larochelle & Larivière, Neocicindela 25,**  
26, 115f, 132f, 177m

**gelidimontanus Johns, Taenarthrus 37, 139f, 179m**  
giveni Brouerius van Nidek, Neocicindela perhispidata  
33, 34

**giveni (Brouerius van Nidek), Zecicindela 29, 33,**  
34, 116f, 135f, 184m

**glacialis Liebherr, Rossjoycea 21, 55, 127f, 150f,**  
177m

**goethei Larochelle & Larivière, Trichopsida 64, 75,**  
76, 77, 131f, 155f, 181m

**gracilentus Townsend, Oarotrechus 80, 158f, 177m**

**gracilis Townsend, Kupetrechus 83, 163f, 173m**

halli Broun, Cicindela 30, 31, 32

halli Broun, Tarastethus 68, 69

**halli (Broun), Zecicindela helmsi 29, 30, 31, 32,**  
134f, 184m

**hamiltoni (Broun), Zecicindela 28, 29, 30, 116f,**  
133f, 184m

**hardingi hardingi Townsend, Scototrechus 83,**  
165f, 178m

**hardingi worthyi Townsend, Scototrechus 83,**  
165f, 178m

**Harpalinae 19**

**Harpalini 18, 19**

**helmsi circumpictoides (Horn), Zecicindela 29, 31,**  
32, 134f, 184m

**helmsi halli (Broun), Zecicindela 29, 30, 31, 32,**  
134f, 184m

**helmsi helmsi (Sharp), Zecicindela 29, 31, 32, 116f,**  
134f, 184m

**helmsi novaseelandica (Horn), Zecicindela 29, 30,**  
31, 32, 134f, 184m

Heterodactylus Guérin-Ménéville 36

Heterodactylus Spix 36

**heterogena Putzeys, Clivina 38, 142f, 170m**

**hewitti Larochelle & Larivière, Trichopsida 64, 74,**  
75, 121f, 130f, 155f, 182m

**hinewai Larochelle & Larivière, Selenochilus 43,**  
44, 125f, 147f, 178m

**hutchisonae Larochelle & Larivière, Selenochilus**  
21, 43, 47, 48, 118f, 126f, 148f, 178m

**huttoni (Broun), Loxomerus 22, 36, 174m**

**infernus Britton, Erebotrechus 82, 162f, 172m**

**Ingevaka Bell & Bell 39**

insularis Broun, Tarastethus 49, 50, 52

**karenscothae Larochelle & Larivière, Kiwitrechus**  
21, 82, 163f, 173m

**katote Johns, Loxomerus 36, 138f, 174m**

**Kaveinga Bell & Bell 20, 39**

**Kenodactylus Broun 21, 80**

**Kettlotrechus Townsend 82**

**Kiwitrechus Larochelle & Larivière 21, 82**

**koyai Larochelle & Larivière, Trichopsida 64, 73,**  
74, 122f, 130f, 155f, 182m

**Kupetrechus Larochelle & Larivière 83**

**Kupeus Bell & Bell 20, 39**

labralis Broun, Tarastethus amplipennis 41

laevicollis Broun, Tarastethus 50, 51

lamberti Britton, Duvaliomimus 83

**lamberti (Britton), Kupetrechus 83, 164f, 173m**

**larsonae Townsend, Kupetrechus 83, 164f, 173m**

**lateincta (White), Neocicindela 19, 25, 28, 115f,**  
133f, 177m

**latispinatus Johns, Taenarthrus 37, 140f, 179m**

**Lebiini 18, 19**

**Licinini 19**

**lindrothi Larochelle & Larivière, Molopsida 48, 49,**  
54, 55, 119f, 127f, 150f, 176m

**lissus Johns, Taenarthrus 37, 140f, 179m**

longulus Broun, Tarastethus 77, 78

**Loxandrini 18, 19**

**Loxomerus Chaudoir 20, 22, 36, 37**

**lusca (Chevrolat), Kaveinga 39, 143f, 172m**

**maori (Jeannel), Duvaliomimus 81, 159f, 171m**

maori Jeannel, Trechus 81

**Maoripamborus Brookes 20, 35**

**Maoritrechus Brookes 21, 22, 80**

**marchanti Townsend, Kettlotrechus 82, 162f, 173m**

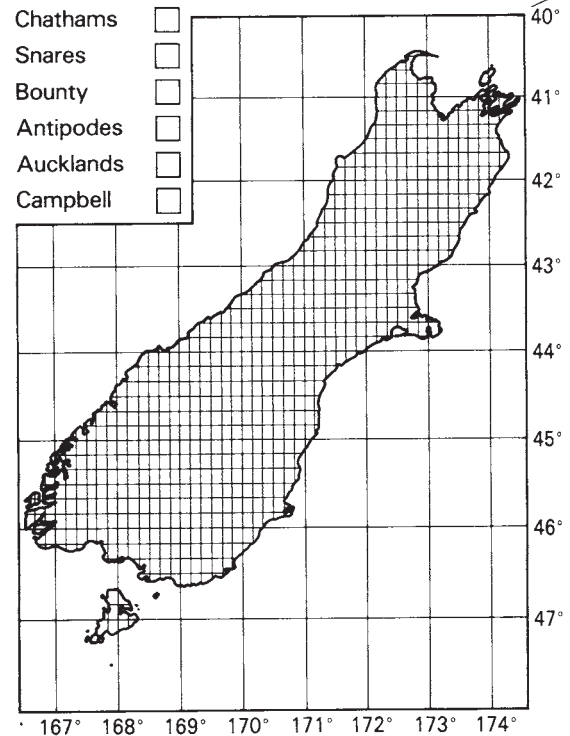
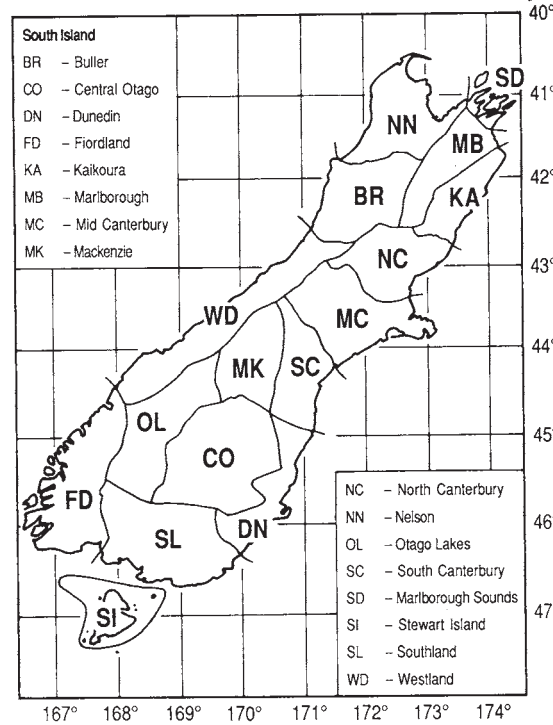
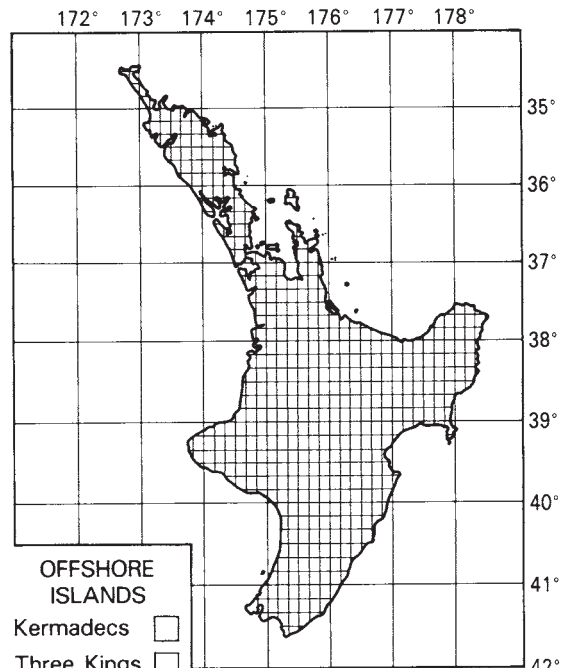
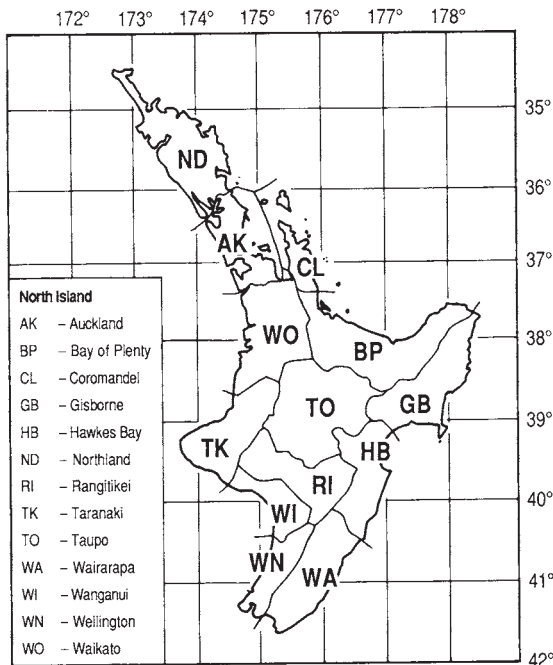
marginalis Broun, Tropopterus 51, 52

**maudensis Larochelle & Larivière, Trichopsida 63,**  
66, 67, 68, 121f, 129f, 153f, 182m

mayae Britton, Duvaliomimus 82

- mayae mayae* Britton, *Duvaliomimus* 82, 161f, 171m
- mayae mayorum* Townsend, *Duvaliomimus* 82, 161f, 171m
- Mayotrechus** Townsend 82
- Mecodema** Blanchard 18
- Mecyclothoracini 18, 19, 20, 40
- Mecyclothorax** Sharp 18, 20, 21, 40, 41
- megawattus* Townsend, *Duvaliomimus* 81, 159f, 171m
- Melisoderini 18, 40
- Meonini 18, 19, 20, 40
- Meonochilus** Liebherr & Marris 18, 21, 40, 41
- Migadopinae** 19, 36
- Migadopini** 18, 19, 20, 22, 36
- millari* Townsend, *Kettlotrechus* 82, 162f, 173m
- minor* Johns, *Taenarthrus* 37, 140f, 180m
- modestus* Broun, *Sympiestus* 44, 45
- Molopsida** White 21, 40, 48, 49, 50, 56, 57, 63
- Moriomorphina** 48, 65
- Moriomorphini** 18, 19, 20, 40
- morti* Townsend, *Scototrechus* 83, 165f, 178m
- Neanops** Britton 83
- Nebria** Latreille 20
- Nebriini** 20
- nebrionides* Guérin-Méneville, *Heterodactylus* 36
- nebrionides* Chaudoir, *Loxomerus* 36
- nebrionides* (Guérin-Méneville), *Loxomerus* 36, 37, 138f, 174m
- nemoralis* O.F. Müller, *Carabus* 19, 35
- Neocicindela** Rivalier 19, 24, 25, 29
- nitida* Laroche & Larivière, *Trichopsida* 62, 63, 65, 66, 129f, 152f, 182m
- novaseelandica* Horn, *Cicindela* 30, 32
- novaseelandica* (Horn), *Zecicindela helmsi* 29, 30, 31, 32, 134f, 184m
- nunni* Townsend, *Maoritrechus* 80, 157f, 174m
- nunni* Laroche & Larivière, *Trichopsida* 64, 76, 77, 122f, 131f, 156f, 182m
- Oarotrechus** Townsend 21, 80
- obliteratus* Johns, *Taenarthrus* 37, 140f, 180m
- obscurus* Townsend, *Duvaliomimus* 81, 159f, 171m
- oculator** (Broun), *Selenochilus* 43, 44, 125f, 147f, 178m
- oculator* Broun, *Sympiestus* 43
- omalleyi** Laroche & Larivière, *Selenochilus* 43, 47, 48, 118f, 126f, 149f, 178m
- oopteroideus* Liebherr & Marris, *Mecyclothorax* 41, 124f, 145f, 175m
- optata* (Broun), *Trichopsida* 63, 70, 130f, 154f, 182m
- optatus* Broun, *Tarastethus* 70
- orbitosa** (Broun), *Kaveinga* 39, 143f, 172m
- orcinus** Britton, *Scototrechus* 83, 165f, 178m
- orientalis** Giachino, *Duvaliomimus* 81, 159f, 171m
- orpheus* Britton, *Duvaliomimus* 82
- orpheus** (Britton), *Kettlotrechus* 82, 163f, 173m
- Orthoglymma** Liebherr *et al.* 18
- otagoensis** Liebherr & Marris, *Mecyclothorax* 41, 124f, 145f, 175m
- oxygona** (Broun), *Trichopsida* 63, 69, 70, 121f, 129f, 153f, 182m
- oxygenus* Broun, *Tropopterus* 62, 69
- pakinius** Johns, *Taenarthrus* 37, 141f, 180m
- Pamborini** 18, 19, 20, 35
- Pamborus** Latreille 20
- parryi** (White), *Neocicindela* 20, 25, 26, 115f, 132f, 177m
- paturauensis** Laroche & Larivière, *Trichopsida* 64, 71, 72, 73, 122f, 130f, 154f, 182m
- pensa** (Broun), *Tangarona* 39, 144f, 180m
- Pentagonicini** 19
- perhispida** (Broun), *Zecicindela* 20, 30, 33, 34, 35, 117f, 136f, 184m
- perhispida* giveni Brouerius van Nidek, *Neocicindela* 33, 34
- perhispida* savilli Wiesner, *Neocicindela* 33, 34
- Perigonini** 19
- philpotti** Broun, *Taenarthrus* 37, 141f, 180m
- Phonias** Gozis 21
- phyllocharis* Broun, *Tarastethus* 49, 50
- piceus* Blanchard, *Argutor* 44, 45
- piceus** (Blanchard), *Selenochilus* 43, 44, 45, 118f, 126f, 148f, 178m
- placens** (Broun), *Meonochilus* 42, 125f, 146f, 175m
- placens* Broun, *Tropopterus* 42
- Platynini** 18, 19
- pluriciliatus** Johns, *Taenarthrus* 22, 38, 180m
- pluto* Britton, *Duvaliomimus* 82
- pluto** (Britton), *Kettlotrechus* 82, 163f, 173m
- polita** White, *Molopsida* 48, 49, 50, 51, 53, 119f, 127f, 149f, 176m
- popei** Laroche & Larivière, *Trichopsida* 62, 64, 79, 123f, 131f, 156f, 182m
- pretiosa** (Broun), *Trichopsida* 63, 71, 73, 122f, 130f, 154f, 183m
- pretiosus* Broun, *Tarastethus* 71
- Pristancylus* Blanchard 36
- pritchardi** Valentine, *Neanops* 83, 164f, 176m
- propinqua** (Broun), *Trichopsida* 64, 78, 79, 123f, 131f, 156f, 183m

- propinquus Broun, Tarastethus 78  
**proprius (Broun), Rhyzodiastes 39**, 144f, 177m  
**Pseudomorphinae 19**  
**Pseudomorphini 19**  
**pseudostyx Townsend, Duvaliomimus 81**, 160f, 171m  
**Pterostichini 19, 21**  
**Pterostichus Bonelli 21**  
**puncticollis Sharp, Tarastethus 56, 57, 58, 59**, 120f, 128f, 151f, 181m
- rangitotoensis Brookes, Maoritrechus 80**, 157f, 174m  
**rectus Liebherr, Meonochilus 42**, 125f, 147f, 175m  
**Rhysodina 39**  
**Rhysodini 19, 20, 38**  
**Rhyzoarca Bell & Bell 39**  
**Rhyzodiastes Fairmaire 20, 39**  
**robusta (Broun), Trichopsida 63, 66, 67, 68, 121f**, 129f, 153f, 183m  
robustus Broun, Tarastethus 66  
**Rossjoycea Liebherr 18, 21, 40, 55**  
**rotundicollis (White), Mecyclothorax 20, 41, 124f**, 145f, 175m  
**ruaumokoi Johns, Taenarthrus 38**, 141f, 180m  
**rubromarginatum (Blanchard), Calathosoma 36**, 137f, 170m  
ruficorne Broun, Cerabilia 46  
**ruficornis (Broun), Selenochilus 43, 46**, 118f, 126f, 148f, 179m
- savilli Wiesner, Neocicindela perhispidata 33, 34  
**savilli (Wiesner), Zecicindela 29, 33, 34, 116f, 135f**, 184m
- Scaritinae 19, 38**  
**Scototrechus Britton 83**  
**Selenochilus Chaudoir 21, 40, 42, 43**  
**seriatoporus (Bates), Molopsida 48, 49, 50, 51**, 119f, 126f, 149f, 176m  
seriatoporus Bates, Tropopterus 49, 50  
simplex Broun, Tarastethus 64  
**simplex (Broun), Trichopsida 62, 63, 64, 65, 121f**, 129f, 152f, 183m  
**simulans Broun, Tarastethus 57, 58, 59, 64, 120f**, 128f, 151f, 181m  
**sirvidi Larochelle & Larivière, Tarastethus 57, 61**, 62, 120f, 128f, 152f, 181m  
**southlandicus Broun, Tarastethus 57, 60, 61, 62**, 120f, 128f, 152f, 181m  
**spiculatus Liebherr, Meonochilus 42, 125f, 147f**, 175m
- spilleri Brouerius van Nidek, Neocicindela 20, 25**, 115f, 132f, 177m  
**stewartensis Townsend, Maoritrechus 22, 80**, 174m  
**strenua (Broun), Molopsida 49, 51, 52, 53, 119f**, 127f, 150f, 176m  
strenuus Broun, Tarastethus 52  
**styx Britton, Duvaliomimus 81**, 160f, 171m  
sulcicollis Bates, Tropopterus 51, 52  
Sympiestus Sharp 42  
**syntheticus (Sharp), Selenochilus 42, 43, 44, 45**, 46, 118f, 126f, 148f, 179m  
syntheticus Sharp, Sympiestus 45
- Taenarthrus Broun 20, 22, 37**  
**taieriensis Townsend, Duvaliomimus 81**, 160f, 171m  
**Tangarona Bell & Bell 39**  
**Tarastethus Sharp 21, 40, 49, 56, 57, 59**  
**Trechina 80**  
**Trechinae 19, 40**  
**Trechini 18, 19, 21, 22, 80**  
**Trichopsida Larochelle & Larivière 21, 40, 49, 56**, 62, 63, 65, 78  
Tropopterini 18, 20, 40  
tuberculata Fabricius, Cicindela 24  
**tuberculata (Fabricius), Neocicindela 19, 25, 27**, 28, 115f, 133f, 177m
- vagans Putzeys, Clivina 38**, 142f, 170m  
**Vakeinga Bell & Bell 39**
- waiouraensis (Broun), Neocicindela 25, 27, 115f**, 132f, 177m  
**Waiputrechus Townsend 83**  
walkeri Broun, Anchomenus 81  
**walkerii brittoni Jeannel, Duvaliomimus 22, 81**, 172m  
**walkerii walkerii (Broun), Duvaliomimus 81**, 161f, 172m  
**watti Britton, Duvaliomimus 81**, 161f, 172m  
**worthyi Townsend, Scototrechus hardingi 83**, 165f, 178m
- Zecicindela Larochelle & Larivière 19, 24, 28, 29**  
**Zolini 18, 19**



Area codes and boundaries used to categorise specimen locality data (after Crosby *et al.* 1976)

Base-map for plotting collection localities; this may be photocopied without copyright release

## FAUNA OF NEW ZEALAND PUBLICATIONS

- 1 **Terebrantia** (Insecta: Thysanoptera). *Laurence A. Mound & Annette K. Walker*. ISBN 0-477-06687-9, 23 December 1982, 120 pp. .... \$29.95
- 2 **Osoriinae** (Insecta: Coleoptera: Staphylinidae). *H. Pauline McColl*. ISBN 0-477-06688-7, 23 December 1982, 96 pp. .... \$18.60
- 3 **Anthribidae** (Insecta: Coleoptera). *B. A. Holloway*. ISBN 0-477-06703-4, 23 December 1982, 272 pp. .... \$41.00
- 4 **Eriophyoidea except Eriophyinae** (Arachnida: Acari). *D. C. M. Manson*. ISBN 0-477-06745-X, 12 November 1984, 144 pp. .... \$29.95
- 5 **Eriophyinae** (Arachnida: Acari: Eriophyoidea). *D. C. M. Manson*. ISBN 0-477-06746-8, 14 November 1984, 128 pp. .... \$29.95
- 6 **Hydraenidae** (Insecta: Coleoptera). *R. G. Ordish*. ISBN 0-477-06747-6, 12 November 1984, 64 pp. .... \$18.60
- 7 **Cryptostigmata** (Arachnida: Acari)—a concise review. *M. Luxton*. ISBN 0-477-06762-X, 8 December 1985, 112 pp. .... \$29.95
- 8 **Calliphoridae** (Insecta: Diptera). *James P. Dear*. ISBN 0-477-06764-6, 24 February 1986, 88 pp. .... \$18.60
- 9 **Protura** (Insecta). *S. L. Tuxen*. ISBN 0-477-06765-4, 24 February 1986, 52 pp. .... \$18.60
- 10 **Tubulifera** (Insecta: Thysanoptera). *Laurence A. Mound & Annette K. Walker*. ISBN 0-477-06784-0, 22 September 1986, 144 pp. .... \$34.65
- 11 **Pseudococcidae** (Insecta: Hemiptera). *J. M. Cox*. ISBN 0-477-06791-3, 7 April 1987, 232 pp. .... \$49.95
- 12 **Pompilidae** (Insecta: Hymenoptera). *A. C. Harris*. ISBN 0-477-02501-3, 13 November 1987, 160 pp. .... \$39.95
- 13 **Encyrtidae** (Insecta: Hymenoptera). *J. S. Noyes*. ISBN 0-477-02517-X, 9 May 1988, 192 pp. .... \$44.95
- 14 **Lepidoptera**—annotated catalogue, and keys to family-group taxa. *J. S. Dugdale*. ISBN 0-477-02518-8, 23 September 1988, 264 pp. .... \$49.95
- 15 **Ambositrinae** (Insecta: Hymenoptera: Diapriidae). *I. D. Naumann*. ISBN 0-477-02535-8, 30 December 1988, 168 pp. .... \$39.95
- 16 **Nepticulidae** (Insecta: Lepidoptera). *Hans Donner & Christopher Wilkinson*. ISBN 0-477-02538-2, 28 April 1989, 92 pp. .... \$22.95
- 17 **Mymaridae** (Insecta: Hymenoptera)—introduction, and review of genera. *J. S. Noyes & E. W. Valentine*. ISBN 0-477-02542-0, 28 April 1989, 100 pp. .... \$24.95
- 18 **Chalcidoidea** (Insecta: Hymenoptera)—introduction, and review of genera in smaller families. *J. S. Noyes & E. W. Valentine*. ISBN 0-477-02545-5, 2 August 1989, 96 pp. .... \$24.95
- 19 **Mantodea** (Insecta), with a review of aspects of functional morphology and biology. *G. W. Ramsay*. ISBN 0-477-02581-1, 13 June 1990, 96 pp. .... \$24.95
- 20 **Bibionidae** (Insecta: Diptera). *Roy A. Harrison*. ISBN 0-477-02595-1, 13 November 1990, 28 pp. .... \$14.95
- 21 **Margarodidae** (Insecta: Hemiptera). *C. F. Morales*. ISBN 0-477-02607-9, 27 May 1991, 124 pp. .... \$34.95
- 22 **Notonemouridae** (Insecta: Plecoptera). *I. D. McLellan*. ISBN 0-477-02518-8, 27 May 1991, 64 pp. .... \$24.95
- 23 **Sciapodinae, Medeterinae** (Insecta: Diptera) with a generic review of the Dolichopodidae. *D. J. Bickel*. ISBN 0-477-02627-3, 13 January 1992, 74 pp. .... \$27.95
- 24 **Therevidae** (Insecta: Diptera). *L. Lyneborg*. ISBN 0-477-02632-X, 4 March 1992, 140 pp. .... \$34.95
- 25 **Cercopidae** (Insecta: Homoptera). *K. G. A. Hamilton & C. F. Morales*. ISBN 0-477-02636-2, 25 May 1992, 40 pp. .... \$17.95
- 26 **Tenebrionidae** (Insecta: Coleoptera): catalogue of types and keys to taxa. *J. C. Watt*. ISBN 0-477-02639-7, 13 July 1992, 70 pp. .... \$27.95
- 27 **Antarctoperlinae** (Insecta: Plecoptera). *I. D. McLellan*. ISBN 0-477-01644-8, 18 February 1993, 70 pp. .... \$27.95
- 28 **Larvae of Curculionoidea** (Insecta: Coleoptera): a systematic overview. *Brenda M. May*. ISBN 0-478-04505-0, 14 June 1993, 226 pp. .... \$55.00
- 29 **Cryptorhynchinae** (Insecta: Coleoptera: Curculionidae). *C. H. C. Lyal*. ISBN 0-478-04518-2, 2 December 1993, 308 pp. .... \$65.00
- 30 **Hepialidae** (Insecta: Lepidoptera). *J. S. Dugdale*. ISBN 0-478-04524-7, 1 March 1994, 164 pp. .... \$42.50
- 31 **Talitridae** (Crustacea: Amphipoda). *K. W. Duncan*. ISBN 0-478-04533-6, 7 October 1994, 128 pp. .... \$36.00
- 32 **Sphecidae** (Insecta: Hymenoptera). *A. C. Harris*. ISBN 0-478-04534-4, 7 October 1994, 112 pp. .... \$33.50
- 33 **Moranilini** (Insecta: Hymenoptera). *J. A. Berry*. ISBN 0-478-04538-7, 8 May 1995, 82 pp. .... \$29.95
- 34 **Anthicidae** (Insecta: Coleoptera). *F. G. Werner & D. S. Chandler*. ISBN 0-478-04547-6, 21 June 1995, 64 pp. .... \$26.50
- 35 **Cydniidae, Acanthosomatidae, and Pentatomidae** (Insecta: Heteroptera): systematics, geographical distribution, and bioecology. *M.-C. Larivière*. ISBN 0-478-09301-2, 23 November 1995, 112 pp. .... \$42.50
- 36 **Leptophlebiidae** (Insecta: Ephemeroptera). *D. R. Towns & W. L. Peters*. ISBN 0-478-09303-9, 19 August 1996, 144 pp. .... \$39.50
- 37 **Coleoptera**: family-group review and keys to identification. *J. Klimaszewski & J. C. Watt*. ISBN 0-478-09312-8, 13 August 1997, 199 pp. .... \$49.50
- 38 **Naturalised terrestrial Stylommatophora** (Mollusca: Gastropoda). *G. M. Barker*. ISBN 0-478-09322-5, 25 January 1999, 253 pp. .... \$72.50
- 39 **Molytini** (Insecta: Coleoptera: Curculionidae: Molytinae). *R. C. Craw*. ISBN 0-478-09325-X, 4 February 1999, 68 pp. .... \$29.50
- 40 **Cixiidae** (Insecta: Hemiptera: Auchenorrhyncha). *M.-C. Larivière*. ISBN 0-478-09334-9, 12 November 1999, 93 pp. .... \$37.50

- 41 Coccidae** (Insecta: Hemiptera: Coccoidea). C. J. Hodgson & R. C. Henderson. ISBN 0-478-09335-7, 23 February 2000, 264 pp. .... \$72.50
- 42 Aphodiinae** (Insecta: Coleoptera: Scarabaeidae). Z. T. Stebnicka. ISBN 0-478-09341-1, 15 June 2001, 64 pp. .... \$29.50
- 43 Carabidae** (Insecta: Coleoptera): catalogue. A. Laroche & M.-C. Larivière. ISBN 0-478-09342-X, 15 June 2001, 285 pp. .... \$72.50
- 44 Lycosidae** (Arachnida: Araneae). C. J. Vink. ISBN 0-478-09347-0, 23 December 2002, 94 pp. .... \$37.50
- 45 Nemonychidae, Belidae, Brentidae** (Insecta: Coleoptera: Curculionoidea). G. Kuschel. ISBN 0-478-09348-9, 28 April 2003, 100 pp. .... \$40.00
- 46 Nesameletidae** (Insecta: Ephemeroptera). Terry R. Hitchings & Arnold H. Staniczek. ISBN 0-478-09349-7, 14 May 2003, 72 pp. .... \$32.50
- 47 Erotylidae** (Insecta: Coleoptera: Cucujoidea): phylogeny and review. R. A. B. Leschen. ISBN 0-478-09350-0, 5 June 2003, 108 pp. .... \$42.50
- 48 Scaphidiinae** (Insecta: Coleoptera: Staphylinidae). I. Löbl & R. A. B. Leschen. ISBN 0-478-09353-5, 18 November 2003, 94 pp. .... \$37.50
- 49 Lithinini** (Insecta: Lepidoptera: Geometridae: Ennominae). J. D. Weintraub & M. J. Scoble. ISBN 0-478-09357-8, 29 April 2004, 48 pp. .... \$24.50
- 50 Heteroptera** (Insecta: Hemiptera): catalogue. M.-C. Larivière & A. Laroche. ISBN 0-478-09358-6, 14 May 2004, 330 pp. .... \$89.00
- 51 Coccidae** (Insecta: Hemiptera: Coccoidea): adult males, pupae and prepupae of indigenous species. C. J. Hodgson & R. C. Henderson. ISBN 0-478-09360-8, 22 June 2004, 228 pp. .... \$65.00
- 52 Raphignathoidea** (Acari: Prostigmata). Qing-Hai Fan & Zhi-Qiang Zhang. ISBN 0-478-09371-3, 20 May 2005, 400 pp. .... \$89.00
- 53 Harpalini** (Insecta: Coleoptera: Carabidae: Harpalinae). A. Laroche & M.-C. Larivière. ISBN 0-478-09369-1, 4 July 2005, 160 pp. .... \$55.00
- 54 Hierodoris** (Insecta: Lepidoptera: Gelechoidea: Oecophoridae), and overview of Oecophoridae. Robert J. B. Hoare. ISBN 0-478-09378-0, 24 December 2005, 100 pp. .... \$40.00
- 55 Criconematina** (Nematoda: Tylenchida). W. M. Wouts. ISBN 0-478-09381-0, 24 March 2006, 232 pp. ... \$65.00
- 56 Tyrophagus** (Acari: Astigmata: Acaridae). Qing-Hai Fan & Zhi-Qiang Zhang. ISBN 978-0-478-09386-5, 4 June 2007, 291 pp. .... \$80.00
- 57 Apoidea** (Insecta: Hymenoptera). B. J. Donovan. ISBN 978-0-478-09389-6, 7 September 2007, 295 pp. \$89.00
- 58 Alysiinae** (Insecta: Hymenoptera: Braconidae). J. A. Berry. ISBN 978-0-478-09390-2, 7 September 2007, 95 pp. .... \$45.00
- 59 Erotylinae** (Insecta: Coleoptera: Cucujoidea: Erotylidae): taxonomy and biogeography. Paul E. Skelley & Richard A. B. Leschen. ISBN 978-0-478-09391-9, 7 September 2007, 59 pp. .... \$30.00
- 60 Carabidae** (Insecta: Coleoptera): synopsis of supraspecific taxa. A. Laroche & M.-C. Larivière. ISBN 978-0-478-09394-0, 21 November 2007, 188 pp. \$54.00
- 61 Lucanidae** (Insecta: Coleoptera). B. A. Holloway. ISBN 978-0-478-09395-7, 21 November 2007, 254 pp. \$75.00
- 62 Trechini** (Insecta: Coleoptera: Carabidae: Trechinae). J. I. Townsend. ISBN 978-0-478-34717-9 (print), 978-0-478-34716-6 (online), 16 June 2010, 101 pp. ... \$49.50
- 63 Auchenorrhyncha** (Insecta: Hemiptera): catalogue. M.-C. Larivière, M. J. Fletcher & A. Laroche. ISBN 978-0-478-34720-3 (print), 978-0-478-34721-0 (online), 16 June 2010, 232 pp. .... \$75.00
- 64 Pisauridae** (Arachnida: Araneae). C. J. Vink & N. Dupérré. ISBN 978-0-478-34722-7 (print), 978-0-478-34723-4 (online), 13 July 2010, 60 pp. .... \$37.50
- 65 Izatha** (Insecta: Lepidoptera: Gelechoidea: Oecophoridae). Robert J. B. Hoare. ISBN 978-0-478-34724-1 (print), 978-0-478-34725-8 (online), 2 September 2010, 201 pp. .... \$75.00
- 66 Diaspididae** (Insecta: Hemiptera: Coccoidea). R. C. Henderson. ISBN 978-0-478-34726-5 (print), 978-0-478-34727-2 (online), 23 May 2011, 275 pp. .... \$89.00
- 67 Peloriidae** (Insecta: Hemiptera: Coleorrhyncha). M.-C. Larivière, D. Burckhardt & A. Laroche. ISBN 978-0-478-34730-2 (print), 978-0-478-34731-9 (online), 14 November 2011, 78 pp. .... \$48.00
- 68 Simuliidae** (Insecta: Diptera). Douglas A. Craig, Ruth E. G. Craig & Trevor K. Crosby. ISBN 978-0-478-34734-0 (print), 978-0-478-34735-7 (online), 29 June 2012, 336 pp. .... \$95.00
- 69 Carabidae** (Insecta: Coleoptera): synopsis of species, Cicindelinae to Trechinae (in part). A. Laroche & M.-C. Larivière. ISBN 978-0-478-34738-8 (print), 978-0-478-34739-5 (online), 7 March 2013, 193 pp. .... \$75.00

Visit the Manaaki Whenua Press Website at:

<http://www.mwpress.co.nz/>

for further information.

To access on-line extracts and PDFs from this series

visit: <http://fnz.landcareresearch.co.nz/>

**Taxonomic groups covered in the  
Fauna of New Zealand series**

**Insecta**

**Coleoptera**

- Family-group review and keys to identification (*J. Klimaszewski & J. C. Watt*, FNZ 37, 1997)
- Anthribidae (*B. A. Holloway*, FNZ 3, 1982)
- Anthicidae (*F. G. Werner & D. S. Chandler*, FNZ 34, 1995)
- Carabidae: catalogue (*A. Laroche & M.-C. Larivière*, FNZ 43, 2001); synopsis of supraspecific taxa (*A. Laroche & M.-C. Larivière*, FNZ 60, 2007); synopsis of species, Cicindelinae to Trechinae (in part) (*A. Laroche & M.-C. Larivière*, FNZ 69, 2013)
- Carabidae: Harpalinae: Harpalini (*A. Laroche & M.-C. Larivière*, FNZ 53, 2005)
- Carabidae: Trechinae: Trechini (*J. I. Townsend*, FNZ 62, 2010)
- Curculionidae: Cryptorhynchinae (*C. H. C. Lyal*, FNZ 29, 1993)
- Curculionidae: Molytinae: Molytini (*R. C. Craw*, FNZ 39, 1999)
- Curculionoidea: Nemonychidae, Belidae, Brentidae (*G. Kuschel*, FNZ 45, 2003)
- Curculionoidea larvae: a systematic overview (*Brenda M. May*, FNZ 28, 1993)
- Erotylidae: phylogeny and review (*Richard A. B. Leschen*, FNZ 47, 2003); Erotylinae: taxonomy and biogeography (*Paul E. Skelley & Richard A. B. Leschen*, FNZ 59, 2007)
- Hydraenidae (*R. G. Ordish*, FNZ 6, 1984)
- Lucanidae (*B. A. Holloway*, FNZ 61, 2007)
- Scarabaeidae: Aphodiinae (*Z. T. Stebnicka*, FNZ 42, 2001)
- Staphylinidae: Osoriinae (*H. Pauline McColl*, FNZ 2, 1982)
- Staphylinidae: Scaphidiinae (*I. Löbl & Richard A. B. Leschen*, FNZ 48, 2003)
- Tenebrionidae: catalogue of types and keys to taxa (*J. C. Watt*, FNZ 26, 1992)

**Diptera**

- Bibionidae (*Roy A. Harrison*, FNZ 20, 1990)
- Calliphoridae (*James P. Dear*, FNZ 8, 1986)
- Dolichopodidae: Sciapodinae, Medeterinae with a generic review (*D. J. Bickel*, FNZ 23, 1992)
- Simuliidae (*Douglas A. Craig, Ruth E. G. Craig, Trevor K. Crosby*, FNZ 68, 2012)
- Therevidae (*L. Lyneborg*, FNZ 24, 1992)

**Ephemeroptera**

- Leptophlebiidae (*D. R. Towns & W. L. Peters*, FNZ 36, 1996)
- Nesameletidae (*Terry R. Hitchings & Arnold H. Staniczek*, FNZ 46, 2003)

**Hemiptera**

- Auchenorrhyncha: catalogue (*M.-C. Larivière, M. J. Fletcher & A. Laroche*, FNZ 63, 2010)
- Cercopidae (*K. G. A. Hamilton & C. F. Morales*, FNZ 25, 1992)
- Cixiidae (*M.-C. Larivière*, FNZ 40, 1999)
- Coccidae (*C. J. Hodgson & R. C. Henderson*, FNZ 41, 2000); adult males, pupae and prepupae of indigenous species (*C. J. Hodgson & R. C. Henderson*, FNZ 51, 2004)
- Cydnidae, Acanthosomatidae, and Pentatomidae (*M.-C. Larivière*, FNZ 35, 1995)
- Diaspididae (*R. C. Henderson*, FNZ 66, 2011)
- Heteroptera: catalogue (*M.-C. Larivière & A. Laroche*, FNZ 50, 2004)
- Margarodidae (*C. F. Morales*, FNZ 21, 1991)

- Pseudococcidae (*J. M. Cox*, FNZ 11, 1987)
- Peloriidae (*M.-C. Larivière, D. Burckhardt & A. Laroche*, FNZ 67, 2011).

**Hymenoptera**

- Apoidea (*B. J. Donovan*, FNZ 57, 2007)
- Braconidae: Alysinae (*J. A. Berry*, FNZ 58, 2007)
- Chalcidoidea: introduction, and review of smaller families (*J. S. Noyes & E. W. Valentine*, FNZ 18, 1989)
- Diapriidae: Ambositrinae (*I. D. Naumann*, FNZ 15, 1988)
- Encyrtidae (*J. S. Noyes*, FNZ 13, 1988)
- Mymaridae (*J. S. Noyes & E. W. Valentine*, FNZ 17, 1989)
- Pompilidae (*A. C. Harris*, FNZ 12, 1987)
- Pteromalidae: Eunotinae: Moranilini (*J. A. Berry*, FNZ 33, 1995)
- Sphecidae (*A. C. Harris*, FNZ 32, 1994)

**Lepidoptera**

- Annotated catalogue, and keys to family-group taxa (*J. S. Dugdale*, FNZ 14, 1988)
- Geometridae: Ennominae: Lithinini (*Jason D. Weintraub & Malcolm J. Scoble*, FNZ 49, 2004)
- Hepialidae (*J. S. Dugdale*, FNZ 30, 1994)
- Nepticulidae (*Hans Donner & Christopher Wilkinson*, FNZ 16, 1989)
- Oecophoridae: *Hierodoris* (*Robert J. B. Hoare*, FNZ 54, 2005); *Izatha* (*Robert J. B. Hoare*, FNZ 65, 2010).

- Mantodea**, with a review of aspects of functional morphology and biology (*G. W. Ramsay*, FNZ 19, 1990)

**Plecoptera**

- Antarctoperlinae (*I. D. McLellan*, FNZ 27, 1993)
- Notonemouridae (*I. D. McLellan*, FNZ 22, 1991)

- Protura** (*S. L. Tuxen*, FNZ 9, 1986)

**Thysanoptera**

- Terebrantia (*Laurence A. Mound & Annette K. Walker*, FNZ 1, 1982)
- Tubulifera (*Laurence A. Mound & Annette K. Walker*, FNZ 10, 1986)

**Arachnida**

**Acari**

- Acaridae: *Tyrophagus* (*Qing-Hai Fan & Zhi-Qiang Zhang*, FNZ 56, 2007)
- Cryptostigmata—a concise review (*M. Luxton*, FNZ 7, 1985)
- Eriophyoidea except Eriophyinae (*D. C. M. Manson*, FNZ 4, 1984)
- Eriophyinae (*D. C. M. Manson*, FNZ 5, 1984)
- Raphignathoidea (*Qing-Hai Fan & Zhi-Qiang Zhang*, FNZ 52, 2005)

**Araneae**

- Lycosidae (*C. J. Vink*, FNZ 44, 2002)
- Pisauridae (*C. J. Vink & N. Dupérré*, FNZ 64, 2010)

**Crustacea**

**Amphipoda**

- Talitridae (*K. W. Duncan*, FNZ 31, 1994)

**Mollusca**

**Gastropoda**

- Naturalised terrestrial Stylommatophora (*G. M. Barker*, FNZ 38, 1999)

**Nematoda**

- Tylenchida: Criconematina (*W. M. Wouts*, FNZ 55, 2006)



## NOTICES

This series of refereed publications has been established to encourage those with expert knowledge to publish concise yet comprehensive accounts of elements in the New Zealand fauna. The series is professional in its conception and presentation, yet every effort is made to provide resources for identification and information that are accessible to the non-specialist.

*Fauna of N.Z.* deals with non-marine invertebrates only, since the vertebrates are well documented, and marine forms are covered by the series *NIWA Biodiversity Memoirs*.

**Contributions** are invited from any person with the requisite specialist skills and resources. Material from the N.Z. Arthropod Collection is available for study.

Contributors should discuss their intentions with a member of the Editorial Board or with the Series Editor before commencing work; all necessary guidance will be given.

**Subscribers** should address enquiries to *Fauna of N.Z.*, Manaaki Whenua Press, Landcare Research, P.O. Box 40, Lincoln 7640, New Zealand.

## NGĀ PĀNUI

Kua whakatūria tēnei huinga pukapuka hei whakahauhau i ngā tohunga whai mātauranga kia whakaputa i ngā kōrero poto, engari he whaikiko tonu, e pā ana ki ngā aitanga pepeke o Aotearoa. He tōtika tonu te āhua o ngā tuhituhi, engari ko te tino whāinga, kia mārama te marea ki ngā tohu tautuhi o ia ngārara, o ia ngārara, me te roanga atu o ngā kōrero mō tēnā, mō tēnā.

He titiro whāiti tā tēnei pukapuka ki ngā mea noho whenua, kāore he tuarā; i pēnei ai i te mea kei te mōhio whānuitia ngā mea whai tuarā, ā, ko ngā mea noho moana, koirā te tino kaupapa o te huinga pukapuka *NIWA Biodiversity Memoirs*.

Ka āhei te tangata ki te **whakauru tuhituhinga** mehemea kei a ia ngā tohungatanga me ngā rauemi e tutuki pai ai tana mahi. Heoi anō, e wātea ana te Kohinga Angawaho o Aotearoa hei āta tiroiro mā te tangata mehemea he āwhina kei reira.

Me whāki te kaituhi i ōna whakaaro ki tētahi o te Kāhui Ārahi Whakarōpūtanga Tuarā-Kore, ki te Ētita rānei i mua i te tīmatanga, ā, mā rātou a ia e ārahi mō te wāhi ki tana tuhinga.

Ko te hunga pīrangī **hoko pukapuka**, me tuhi ki *Fauna of N.Z.*, Manaaki Whenua Press, Manaaki Whenua, Pouaka Poutāpeta 40, Lincoln 7640, Aotearoa.