

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

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Ko te Aitanga Pepeke o Aotearoa

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Carabidae
(Insecta: Coleoptera):
synopsis of supraspecific taxa

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**Manaaki
Whenua
P R E S S**

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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, 21 tribes, 86 genera, and 461 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 fifty genera (58 % 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.

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;

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Illustration / Whakaahua: *Mecodema regulus* Britton, 1964 (Illustrator / Kaiwhakaahua: B. E. Rhode).

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 1,927, 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, 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 Laroche & 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 21 ngā iwi, e 86 ngā puninga, e 461 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 e 50 o ngā puninga o Aotearoa (e 58% o ngā pītara), kāore e kitea ana

(haere tonu)

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 for the first time a review of all New Zealand carabids above the species level, including: comparative descriptions for subfamilies, tribes, subtribes, genera, and subgenera; identification keys for subfamilies, tribes, and genera; habitus (whole body) drawings, geographic range, habitat, and collecting techniques for all genera; the most relevant publications for all included carabids; an updated list of species and a summary of all changes since the 2001 carabid catalogue. Three genera and one species are described as new for science; many new names are introduced to comply with current scientific knowledge.

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.

In addition, the authors edit the New Zealand Carabidae website (<http://www.landcareresearch.co.nz/research/biosystematics/invertebrates/carabid/> or simply <http://www.landcareresearch.co.nz>) which maintains up-to-date information on New Zealand carabids and includes digital images, identification keys, checklists, recent scientific papers, additions and corrections to previous publications.

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

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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 tuia atu 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 huuatanga 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 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 ki ngā carabid o Aotearoa kei runga ake i te karangatanga momo, tae atu ki: ngā kupu whakaahua whakatairiterite mō ngā whānau iti, ngā iwi, ngā puninga, me ngā puninga iti; ngā ara tautohu mō ngā whānau iti, ngā iwi, me ngā puninga; ngā whakaahua o te tinana katoa, te kaha o te horapa ki te whenua, te kāinga noho, ngā tikanga kohikohi mō te nuinga o ngā puninga; ngā tānga kōrero e tino hāngai ana ki ngā pītara noho whenua kua whai wāhi mai, he rārangi hou o ngā

(haere tonu)

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 two *Fauna of New Zealand* contributions (Catalogue of Carabidae, 2001; Revision of tribe Harpalini, 2005). André is a keen provider of electronic information on ground-beetles on the internet via The New Zealand Carabidae website (<http://www.landcareresearch.co.nz/research/biosystematics/invertebrates/carabid/>). Since 1992 he is actively involved in specialised field inventory, surveying carabids in over 1000 localities, to gain a better understanding of the taxonomy, natural history, and biogeography of New Zealand species.



momo, me tētahi whakarāpopototanga o ngā rerekētanga mai i te rārangi i puta i te tau 2001. E toru ngā puninga, kotahi te momo kātahi anō kia uru mai ki te ao pūtaiao; kua tū mai he ingoa hou, e ū ana ki ngā mātauranga pūtaiao o te wā nei.

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.

Āpiti atu ki tērā, ko ngā kaituhi anō ngā ētita o te pae tukutuku o ngā Carabidae o Aotearoa (<http://www.landcareresearch.co.nz/research/biosystematics/invertebrates/carabid/>) ko tēnei noa iho rānei <http://www.landcareresearch.co.nz>) e whakahou ana i ngā pārongo mō ngā pītara noho papa i ōna wā anō. Kei konā anō he whakaahua ā-mati, he ara tautohu, he rārangi hihira, he tuhinga pūtaiao o nakua nei, he kupu tāpiri, me ngā kupu whakatika i ngā tanga o mua atu.

I whānau mai tētahi o ngā kaituhi, a **Andre Larochelle**, i Quebec. I reira ia e kura ana, ā, nō te tau 1974 ka whakawhiwhia ki tana tohu Brevet d'Enseignement specialise, mai i te Whare Wānanga o Quebec ki Montreal. Taka mai ki te tau 1990, e whakaako ana ia i te mātauranga taupuhi kaiao i te Kura Bourget, i Rigaud, Quebec. Kāore i roa e whakaako ana, ka tupu tana hiahia ki te rangahau pītara noho papa, me te poipoi anō a tērā tohunga carabid kua riro nei i te tirohanga kanohi, a Carl H. Lindroth, i tēnei whakaaro ōna. Mai i te 1975 ki te 1979 ko ia tētahi o ngā ētita o ētahi hautaka mātai pepeke, arā, o *Cordulia* me te *Bulletin d'inventaire des insectes du Québec*. Mai i te 1986 ki te 1992, ko ia te kaitiaki utu-kore o te Whare Rokiroki, Rangahau Pepeke o Lyman, i te Whare Wānanga o McGill, i Quebec. I te tau 1992, ka neke mai a Andre ki Aotearoa, ka mahi hei kaipūtaiao rangahau. I tēnei wā, he Kairangahau ia i te Kohinga Angawaho o Aotearoa, i Tāmaki-makau-rau. He nui ake i te 400 ngā kōrero kua tuhia e Andre mō te horapa, te taupuhi kaiao, te koiora, me te kaha whakapirara o ngā aitanga pepeke o Amerika ki te Raki, otirā me te aro nui ki ngā carabid (tae atu ki ētahi pukapuka ringa mō ngā Heteroptera o Quebec).

I te tau 1990, ka whakaputaina e ia “Ngā kai a ngā pītara carabid o te ao”; i te tau 1993, ko rāua ko Yves Bousquet ngā kaituhi i te “Rārangi o ngā Carabidae o Amerika ki te raki o Mēhiko”; i te tau 2001 me te 2003, nā rāua ko tana wahine, a Marie-Claude, i whakaputa ngā “Hitori Māori o ngā tātaka o Amerika ki te Raki, ki te Raki o Mehiko” me ngā “Hitori Māori o ngāi Carabidae”, mō taua rohe anō. Ko te aronga matua o ana mahi rangahau i ēnei rā, ko te āhua me te whakarōpūtanga o te whānau pītara noho papa

(haere tonu)

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Contributor **Marie-Claude Larivière** was born and educated in Québec, graduating with a PhD in systematic entomology from McGill University in 1990. For the following two years she did postdoctoral research at Agriculture Canada, Ottawa. In 1992, Marie-Claude moved to New Zealand to work as a full-time Hemiptera biosystematist with Landcare Research. From 1994 to 1997 she led the Biosystematics of New Zealand Land Invertebrates programme, from 1995 to 2005 the development of New Zealand Arthropod Collection's databasing and digital imaging systems, from 1999 to 2004, the Koiiora-BioAssist™ project (Biodiversity Assessment using Information Technology and Taxonomy), and since July 2007 the Invertebrate Biosystematics research group (Landcare Research, Auckland). Marie-Claude has been an active member of the *Fauna of New Zealand* series committee (1994–2004, 2007–present). She is the author of over 90 papers and monographs on the taxonomy, distribution and natural history of Hemiptera and Carabidae (Coleoptera), including five *Fauna of New Zealand* contributions (Hemiptera – Heteroptera catalogue, Cixiidae and Pentatomoidea revisions; Carabidae – taxonomic catalogue; Harpalini revision). 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 hus-



o Aotearoa. E rua ana tuhinga ki *Ko te Aitanga Pepeke o Aotearoa* ko ia tētahi o ngā kaituhi (ko te Rārangi o ngāi Carabidae, 2001; He whakahoutanga o te iwi Harpalini, 2005). He kaha ia ki te uta kōrero atu e pā ana ki ngā pītara noho papa ki te ipurangi, mā te pae tukutuku mō ngā Carabidae o Aotearoa (<http://www.landcareresearch.co.nz/research/biosystematics/invertebrates/carabid/>). Mai i te tau 1992, kua whakapau kaha ia ki te puta ā-tinana atu ki te taiao ki te āta tiro-tiro i ngā carabid i ngā takiwā 1000 neke atu, e mārāma ake ai ngā whakarōpūtanga, ngā hītori māori, me te papawhenua-koiiora o ngā momo o Aotearoa.

I whānau mai tērā atu kaituhi, a **Marie-Claude Larivière** i Quebec. I reira anō ia e rapu ana i te mātauranga ā, riro noa i a ia tana Tohu Tākututanga mai i te Whare Wānanga o McGill, i te tau 1990. Ko te kaupapa o taua tohu, ko te pūnaha whakarōpū i ngā aitanga a Punga. Kātahi ia ka neke ki Agriculture Canada, i Ottawa, mō te rua tau, ki reira whātoro ai i ētahi atu rangahautanga. Nō te tau 1992, ka neke mai a Marie-Claude ki Aotearoa, ka mahi hei kaitātai i ngā whakapapa o ngāi Hemiptera mā Manaaki Whenua. Mai i te 1994 ki te 1997, nāna i ārahi Te Tātaitanga o ngā Whakapapa o ngā Aitanga Tuarā-Kore a Tāne, te hanganga o ngā pūnaha pātengi raraunga, whakaahua ā-mati mō te Kohinga Angawaho o Aotearoa, ā, mai i te tau 1994 ki te 2004, ko te kaupapa Koiiora-BioAssist™ (Te Aromatawai i te Huhuatanga Koiiora i runga i te Whakamahi i te Hangarau Mōhiohio me te Whakarōpūtanga). Mai i te Hōngongoi 2007, koia anō te kaiārahi o te rōpū rangahau i te Tātaitanga o ngā Whakapapa o ngā Hanga Tuarā-Kore (i Manaaki Whenua, Tāmaki). Me kōrero anō te wāhi ki a ia i te komiti whakataki i te hautaka *Ko te Aitanga Pepeke o Aotearoa* (1994–2004, 2007–nāianeī). He neke atu i te 90 ngā tuhinga kua oti i a ia e pā ana ki te whakarōpūtanga, te kaha o te horapa, me ngā hītori māori o ngāi Hemiptera me Carabidae (Coleoptera), tae atu ki ētahi tānga e 5 mō *Ko te Aitanga Pepeke o Aotearoa* (a Hemiptera – he rārangi Heteroptera, he whakahoutanga mō ngāi Cixiidae me Pentatomoidea; ngā Carabidae – he rārangi whakarōpū; a Harpalini – he whakahoutanga). Kua puta anō i a ia he tuhinga mō ngā Hemiptera o Ahitereiria me Te Moananui-a-Kiwa, tae atu ki ētahi mō ngāi Hemiptera, ngāi Orthoptera, me ngāi Carabidae i Amerika ki te Raki me Amerika Pū. He maha tonu ana tuhinga kua tuhia ngātahitia ki tana hoa tāne, ki a Andre Larochelle, ā, ko tana tūmanako, taihoa ka whakaputaina e rāua ētahi kōrero hou mō ngā Hemiptera me ngā Carabidae o Aotearoa. Āpiti atu ki tērā, kei te whakahaere ia i ētahi rangahautanga mahi tahi ki ētahi atu kaimātai pepeke o te ao, ko ia anō tērā ki te ārahi i ētahi kirimana rangahau arumoni i Aotearoa. Tērā anō tētahi tino kaupapa e whāia ana e Marie-Claude, ko te hangarau pārongo koiiora, tae atu ki te whakarōpū ā-mati, (haere tonu)

(continued overleaf)

band André Larochelle with whom she hopes to soon publish new works on New Zealand Hemiptera and Carabidae. In addition, she conducts international cooperative research and leads a number of New Zealand commercial research contracts. Marie-Claude has a keen interest in biological information technology, especially digital taxonomy, computer imaging, interactive identification, and web-publishing. She maintains electronic information on Hemiptera on The New Zealand Hemiptera website (<http://www.landcareresearch.co.nz/research/biosystematics/invertebrates/hemiptera/>). Since 1992 Marie-Claude is actively involved in specialised field inventory, surveying Hemiptera in over 1000 localities, to gain a better understanding of the taxonomy, natural history, and biogeography of New Zealand species.

te hanga whakaahua ki te rorohiko, te tautohu kōtuitui, me te pānui kōrero ki te pae tukutuku. Ko ia kei te tiaki i ngā kōrero rorohiko mō ngāi Hemiptera i te pae tukutuku mō ngā Hemiptera o Aotearoa. (<http://www.landcareresearch.co.nz/research/biosystematics/invertebrates/hemiptera/>). Mai i te tau 1992, kua whakapau kaha ia ki te puta ā-tinana atu ki te taiao ki te āta tiroiro i ngā Hemiptera i ngā takiwā 1000 neke atu, e mārāma ake ai ngā whakarōpūtanga, ngā hītori māori, me te papawhenua-koiora o ngā momo o Aotearoa.

Translation by **H. Jacob**
Tāmaki-makau-rau / Auckland

DEDICATION

*“What’s riches to him
That has made a great peacock
With the pride of his eye?”*

W.B. Yeats 1865–1939: *The Peacock* (1914)

The authors dedicate this work to the memory of the late Everard Britton (1912–2004), in acknowledgment of his taxonomic revisions on the New Zealand carabid fauna. Between 1940 and 1964, Britton worked at the British Museum of Natural History (London) and provided initial revisionary treatments for about a quarter of New Zealand’s carabid species, from the tribes Pterostichini, Lebiini, Pentagonicini, Broscini, Trechini, Platynini, and Harpalini. His publications, conducted before the great New Zealand insect surveys, are still useful identification tools. He was the first to make sense of T. Broun’s numerous descriptions; two-thirds of Broun’s taxa studied by Britton fell into synonymy. Britton’s revision of the Broscini (1949) constituted a model for the time; despite a huge number of species and their enormous morphological variations, Britton provided good keys and abundant illustrations (outlines of male genitalia; photographs of adults), thus laying a solid taxonomic foundation for the study of the group. In the course of time, Britton’s legacy reached many naturalists, who nowadays are not only able to recognise a *Mecodema* beetle, but even name a few species.



Frontispiece *Megadromus antarcticus* (Chaudoir, 1865) © H. Goulet and M.-C. Larivière

ABSTRACT

A synopsis of the New Zealand supraspecific taxa of Carabidae (Coleoptera) and an updated checklist of species-group taxa are presented.

Descriptions (subfamilies to subgenera), identification keys (subfamilies, tribes, and genera), habitus drawings (genera and subgenera), as well as distributional and ecological information, summaries of collecting techniques, and the most relevant bibliographic references for all genera, are provided. An appendix including a checklist of species updating the catalogue of Laroche & Larivière (2001, *Fauna of New Zealand* 43) is also provided.

The New Zealand carabid fauna currently includes 7 subfamilies, 21 tribes, 86 genera, and 476 species-group taxa (461 species, plus 15 subspecies). Fifty genera (58%) are currently recognised as being endemic; seventeen genera (20%) are native, and nineteen genera (22%) are adventive.

Three new genera and one new species are described: *Kiwitachys* new genus (type species: *Tachys antarcticus* Bates, 1874); *Kiwitrechus* new genus (type species: *Kiwitrechus karenscottae* new species); *Kupetrechus* new genus (type species: *Duvaliomimus lamberti* Britton, 1960). Three new generic synonymies are made (valid names listed after equal sign): *Anomalobrosclus* Johns, 2007 = *Diglymma* Sharp, 1886; *Taenarthrus* Broun, 1914 = *Loxomerus* Chaudoir, 1842; *Zabronothus* Broun, 1893 = *Cerabilia* Laporte de Castelnau, 1867. *Anchomenus* Bonelli, 1810, is excluded from the New Zealand fauna. “*Anchomenus*” sensu White, 1846: 3 (and subsequent authors, especially Broun in many papers), nec Bonelli, 1810, is transferred to *Ctenognathus* Fairmaire, 1843. Twenty-one new combinations are established (valid names listed after equal sign): *Anchomenus arnaudensis* Broun, 1921 = *Ctenognathus arnaudensis* (Broun, 1921); *Anchomenus colenisonis* White, 1846 = *Ctenognathus colenisonis* (White, 1846); *Anchomenus edwardsii* (Bates, 1874) = *Ctenognathus edwardsii* (Bates, 1874); *Anchomenus helmsi* Sharp, 1881 = *Ctenognathus helmsi* (Sharp, 1881); *Anchomenus integratus* Broun, 1908 = *Ctenognathus integratus* (Broun, 1908); *Anchomenus intermedius* Broun, 1908 = *Ctenognathus intermedius* (Broun, 1908); *Anchomenus libitus* Broun, 1914 = *Ctenognathus libitus* (Broun, 1914); *Anchomenus macrocoelis* Broun, 1908 = *Ctenognathus macrocoelis* (Broun, 1908); *Anchomenus oreobius* Broun, 1886 = *Ctenognathus oreobius* (Broun, 1886); *Anchomenus punctulatus* Broun, 1877 = *Ctenognathus punctulatus* (Broun, 1877); *Anchomenus sandageri* Broun, 1882 = *Ctenognathus sandageri* (Broun, 1882); *Anchomenus sophronitis* Broun, 1908 = *Ctenognathus sophronitis* (Broun, 1908); *Anchomenus sulcitaris* Broun, 1880 = *Ctenognathus sulcitaris* (Broun, 1880); *Anchomenus xanthomelus* Broun, 1908 = *Ctenognathus xanthomelus* (Broun, 1908); *Anomalobrosclus seclusus* Johns, 2007 = *Diglymma seclusum* (Johns, 2007); *Duvaliomimus lamberti* Britton, 1960 = *Kupetrechus lamberti* (Britton, 1960); *Tachys antarcticus* Bates, 1874 = *Kiwitachys antarcticus* (Bates, 1874); *Tachys latipennis* Sharp, 1886 = *Kiwitachys latipennis* (Sharp, 1886); *Taenarthrus philpotti* Broun, 1914 = *Loxomerus philpotti* (Broun, 1914); *Zabronothus rufipes* Broun, 1893 = *Cerabilia rufipes* (Broun, 1893); *Zabronothus striatulus* Broun, 1893 = *Cerabilia striatula* (Broun, 1893). The following synonymy is reinstated (valid names listed after equal sign): *Zolus* Sharp, 1886 = *Oopterus* Guérin-Méneville, 1841. Eight combinations are also reinstated (valid name listed after equal sign): *Taenarthrus capito* (Jeannel, 1938) = *Loxomerus capito* Jeannel, 1938; *Zolus atratus* Broun, 1893 = *Oopterus atratus* (Broun, 1893); *Zolus carinatus* (Broun, 1882) = *Oopterus carinatus* Broun, 1882; *Zolus femoralis* Broun, 1894 = *Oopterus femoralis* (Broun, 1894); *Zolus helmsi* Sharp, 1886 = *Oopterus helmsi* (Sharp, 1886); *Zolus labralis* Broun, 1921 =

Oopterus labralis (Broun, 1921); *Zolus ocularius* Broun, 1917 = *Oopterus ocularius* (Broun, 1917); *Zolus subopacus* Broun, 1915 = *Oopterus subopacus* (Broun, 1915). Three adventive taxa are recorded for New Zealand for the first time: *Adelotopus macilentus* Baehr, 1997; *Dromius meridionalis* Dejean, 1825; *Trigonothops pacifica* (Erichson, 1842). The species *Notagonum marginellum* (Erichson, 1842) is deleted from the New Zealand fauna.

Keywords. Coleoptera, Carabidae, New Zealand, supraspecific taxa, keys, classification, distribution, ecology, collecting techniques, species checklist, fauna.

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CHECKLIST OF SUPRASPECIFIC TAXA

Notes. The higher classification follows Arndt *et al.* (2005) for subfamilies, and Larochelle & Larivière (2001) for tribes and genera. The subtribal group-name Nothobroschina was created by Roig-Jünent (2000) for five New Zealand endemic broscine genera. The subtribal group-name Zolina was established by Roig-Jünent & Cicchino (2001) for two genera (one native, one endemic). The biostatus of genus-group names is annotated as follows: A=Adventive; E=Endemic; N=Native, not endemic. An updated list of species is also provided in Appendix B, p. 110.

Family CARABIDAE

| | |
|---|----|
| I. Subfamily CICINDELINAE | 26 |
| 1. Tribe CICINDELINI | 26 |
| Subtribe CICINDELINA | 26 |
| [1] Genus <i>Cicindela</i> Linnaeus, 1758 ^N | 26 |
| Subgenus <i>Neocicindela</i> Rivalier, 1963 ^E | 27 |
| II. Subfamily CARABINAE | 27 |
| 2. Tribe CARABINI | 27 |
| Subtribe CARABINA | 27 |
| [2] Genus <i>Carabus</i> Linnaeus, 1758 ^A | 27 |
| Subgenus <i>Archicarabus</i> Seidlitz, 1887 ^A | 28 |
| 3. Tribe PAMBORINI | 28 |
| [3] Genus <i>Maoripamborus</i> Brookes, 1944 ^E | 28 |

| | |
|--|----|
| III. Subfamily MIGADOPINAE | 28 |
| 4. Tribe AMAROTYPINI | 29 |
| [4] Genus <i>Amarotypus</i> Bates, 1872 ^E | 29 |
| 5. Tribe MIGADOPINI | 29 |
| [5] Genus <i>Calathosoma</i> Jeannel, 1938 ^E | 30 |
| [6] Genus <i>Loxomerus</i> Chaudoir, 1842 ^E | 30 |
| <i>Taenarthrus</i> Broun, 1914 new synonym | |
| Subgenus <i>Loxomerus</i> Chaudoir, 1842 ^E | 30 |
| Subgenus <i>Pristancylus</i> Blanchard, 1853 ^E | 30 |
| IV. Subfamily SCARITINAE | 31 |
| 6. Tribe CLIVININI | 31 |
| Subtribe CLIVININA | 31 |
| [7] Genus <i>Clivina</i> Latreille, 1802 ^A | 31 |
| V. Subfamily TRECHINAE | 32 |
| 7. Tribe BROSCINI | 32 |
| Subtribe CREOBIINA | 33 |
| [8] Genus <i>Bountyia</i> Townsend, 1971 ^E | 33 |
| Subtribe NOTHOBROSCINA | 33 |
| [9] Genus <i>Brullea</i> Laporte de Castelnau, 1867 ^E | 33 |
| [10] Genus <i>Diglymma</i> Sharp, 1886 ^E | 34 |
| <i>Anomalobrosacus</i> Johns, 2007 new synonym | 34 |
| [11] Genus <i>Mecodema</i> Blanchard, 1843 ^E | 34 |
| [12] Genus <i>Metaglymma</i> Bates, 1867 ^E | 35 |
| [13] Genus <i>Oregus</i> Putzeys, 1868 ^E | 35 |
| 8. Tribe MECYCLOTHORACINI | 36 |
| [14] Genus <i>Mecyclothorax</i> Sharp, 1903 ^N | 36 |

| | | | |
|---|----|--|----|
| 9. Tribe MEONINI | 37 | VI. Subfamily HARPALINAE | 53 |
| [15] Genus <i>Selenochilus</i> Chaudoir, 1878 ^E | 37 | 14. Tribe PTEROSTICHINI | 54 |
| 10. Tribe TROPOPTERINI | 37 | Subtribe PTEROSTICHINA | 55 |
| [16] Genus <i>Molopsida</i> White, 1846 ^E | 38 | [37] Genus <i>Aulacopodus</i> Britton, 1940 ^E | 55 |
| 11. Tribe TRECHINI | 38 | [38] Genus <i>Gourlayia</i> Britton, 1964 ^E | 55 |
| Subtribe AEPINA | 39 | [39] Genus <i>Holcaspis</i> Chaudoir, 1865 ^E | 55 |
| [17] Genus <i>Kenodactylus</i> Broun, 1909 ^N | 39 | [40] Genus <i>Megadromus</i> Motschulsky, 1866 ^N | 56 |
| [18] Genus <i>Maoritrechus</i> Brookes, 1932 ^E | 40 | Subgenus <i>Megadromus</i> Motschulsky, 1866 ^E ... | 56 |
| Subtribe TRECHINA | 40 | [41] Genus <i>Neoferonia</i> Britton, 1940 ^E | 56 |
| [19] Genus <i>Duvaliomimus</i> Jeannel, 1928 ^E | 40 | [42] Genus <i>Onawea</i> Johns, 2007 ^E | 57 |
| [20] Genus <i>Erebotrechus</i> Britton, 1964 ^E | 41 | “ <i>Argutor</i> ” sensu Blanchard, 1843, nec Dejean, 1821 | 57 |
| [21] Genus <i>Kiwitrechus</i> new genus ^E | 41 | [43] Genus <i>Plocamostethus</i> Britton, 1940 ^E | 57 |
| [22] Genus <i>Kupetrechus</i> new genus ^E | 42 | [44] Genus <i>Prosopogmus</i> Chaudoir, 1865 ^A | 57 |
| [23] Genus <i>Neanops</i> Britton, 1962 ^E | 43 | [45] Genus <i>Pseggmatopterus</i> Chaudoir, 1878 ^E | 58 |
| [24] Genus <i>Scototrechus</i> Britton, 1962 ^E | 43 | [46] Genus <i>Rhytisternus</i> Chaudoir, 1865 ^A | 58 |
| 12. Tribe ZOLINI | 44 | [47] Genus <i>Zeopocilus</i> Sharp, 1886 ^E | 59 |
| Subtribe ZOLINA | 44 | 15. Tribe LICININI | 59 |
| OOPTERINA | 44 | Subtribe DICROCHILINA | 59 |
| [25] Genus <i>Oopterus</i> Guérin-Méneville, 1841 ^N | 44 | [48] Genus <i>Dicrochile</i> Guérin-Méneville, 1846 ^N | 60 |
| <i>Zolus</i> Sharp, 1886 reinstated synonym | 44 | Subtribe LICININA | 60 |
| [26] Genus <i>Synteratus</i> Broun, 1909 ^E | 45 | [49] Genus <i>Physolaesthus</i> Chaudoir, 1850 ^N | 60 |
| 13. Tribe BEMBIDIINI | 45 | 16. Tribe HARPALINI | 60 |
| Subtribe BEMBIDIINA | 47 | Subtribe ANISODACTYLINA | 63 |
| [27] Genus <i>Bembidion</i> Latreille, 1802 ^N | 47 | [50] Genus <i>Allocinopus</i> Broun, 1903 ^E | 64 |
| Subgenus <i>Ananotaphus</i> Netolitzky, 1931 ^E | 47 | [51] Genus <i>Anisodactylus</i> Dejean, 1829 ^A | 65 |
| Subgenus <i>Notaphus</i> Stephens, 1827 ^A | 47 | Subgenus <i>Anisodactylus</i> Dejean, 1829 ^A | 65 |
| Subgenus <i>Zaectedium</i> Netolitzky, 1931 ^E | 48 | [52] Genus <i>Gaioxenus</i> Broun, 1910 ^E | 65 |
| Subgenus <i>Zecillenus</i> Lindroth, 1980 ^E | 48 | [53] Genus <i>Gnathaphanus</i> Macleay, 1825 ^A | 66 |
| Subgenus <i>Zemetallina</i> Lindroth, 1976 ^E | 48 | [54] Genus <i>Hypharphax</i> Macleay, 1825 ^N | 66 |
| Subgenus <i>Zeperlyphodes</i> Lindroth, 1976 ^E | 48 | [55] Genus <i>Maoriharpalus</i> Laroche & Larivière, | |
| Subgenus <i>Zeperyphus</i> Lindroth, 1976 ^E | 48 | 2005 ^E | 67 |
| Subgenus <i>Zeplataphus</i> Lindroth, 1976 ^E | 48 | [56] Genus <i>Notiobia</i> Perty, 1830 ^A | 68 |
| Subtribe TACHYINA | 49 | Subgenus <i>Anisotarsus</i> Chaudoir, 1837 ^A | 68 |
| [28] Genus <i>Kiwitachys</i> new genus ^E | 49 | [57] Genus <i>Parabaris</i> Broun, 1881 ^E | 68 |
| [29] Genus <i>Paratichys</i> Casey, 1918 ^A | 49 | [58] Genus <i>Triplosarus</i> Bates, 1874 ^E | 69 |
| [30] Genus <i>Pericompsus</i> LeConte, 1852 ^A | 50 | [59] Genus <i>Tuiharpalus</i> Laroche & Larivière, 2005 ^E . | |
| Subgenus <i>Upocompsus</i> Erwin, 1974 ^A | 50 | | 69 |
| [31] Genus <i>Polyderis</i> Motschulsky, 1862 ^A first record | | Subtribe HARPALINA | 70 |
| | 50 | [60] Genus <i>Harpalus</i> Latreille, 1802 ^A | 70 |
| Subtribe ANILLINA | 51 | Subgenus <i>Harpalus</i> Latreille, 1802 ^A | 71 |
| [32] Genus <i>Hygranillus</i> Moore, 1980 ^E | 51 | Subgenus Uncertain (<i>H. australasiae</i> Dejean, | |
| [33] Genus <i>Nesamblyops</i> Jeannel, 1937 ^E | 52 | 1829) | 71 |
| [34] Genus <i>Pelodiaetodes</i> Moore, 1980 ^E | 52 | Subtribe PELMATELLINA | 71 |
| [35] Genus <i>Pelodiaetus</i> Jeannel, 1937 ^E | 52 | [61] Genus <i>Hakaharpalus</i> Laroche & Larivière, 2005 | |
| [36] Genus <i>Zeanillus</i> Jeannel, 1937 ^E | 53 | ^E | 72 |
| | | [62] Genus <i>Kupeharpalus</i> Laroche & Larivière, 2005 | |
| | | ^E | 72 |
| | | [63] Genus <i>Lecanomerus</i> Chaudoir, 1850 ^N | 73 |
| | | [64] Genus <i>Syllectus</i> Bates, 1878 ^E | 74 |

| | |
|--|----|
| Subtribe STENOLOPHINA | 74 |
| [65] Genus <i>Egadroma</i> Motschulsky, 1855 ^A | 75 |
| [66] Genus <i>Euthenarus</i> Bates, 1874 ^N | 76 |
| [67] Genus <i>Haplanister</i> Moore, 1996 ^A | 76 |
| [68] Genus <i>Kiwiharpalus</i> Larochelle & Larivière, 2005 ^E | 77 |
| [69] Genus <i>Pholeodytes</i> Britton, 1962 ^E | 77 |
| 17. Tribe PLATYNINI | 78 |
| Subtribe SPHODRINA | 79 |
| [70] Genus <i>Laemostenus</i> Bonelli, 1810 ^A | 79 |
| Subgenus <i>Laemostenus</i> Bonelli, 1810 ^A | 80 |
| Subtribe PLATYNINA | 80 |
| [71] Genus <i>Cerabilia</i> Laporte de Castelnau, 1867 ^E .. | 80 |
| <i>Zabronothus</i> Broun, 1893 new synonym | 80 |
| [72] Genus <i>Ctenognathus</i> Fairmaire, 1843 ^E | 80 |
| “ <i>Anchomenus</i> ” <i>sensu</i> White, 1846, <i>nec</i> Bonelli, 1810 new status | 80 |
| [73] Genus <i>Notagonum</i> Darlington, 1952 ^N | 81 |
| [74] Genus <i>Platynus</i> Bonelli, 1810 ^N | 82 |
| [75] Genus <i>Prospodrus</i> Britton, 1959 ^E | 82 |
| 18. Tribe PERIGONINI | 82 |
| [76] Genus <i>Perigona</i> Laporte de Castelnau, 1835 ^A .. | 83 |
| Subgenus <i>Trechicus</i> LeConte, 1853 ^A | 83 |
| 19. Tribe PENTAGONICINI | 83 |
| [77] Genus <i>Pentagonica</i> Schmidt-Goebel, 1846 ^N | 84 |
| [78] Genus <i>Scopodes</i> Erichson, 1842 ^N | 84 |
| 20. Tribe LEBIINI | 84 |
| Subtribe PERICALINA | 85 |
| [79] Genus <i>Agonocheila</i> Chaudoir, 1848 ^N | 85 |
| [80] Genus <i>Philophlaeus</i> Chaudoir, 1844 ^A | 86 |
| Subtribe ACTENONYCINA | 86 |
| [81] Genus <i>Actenonyx</i> White, 1846 ^E | 86 |
| Subtribe CALLEIDINA | 87 |
| [82] Genus <i>Anomotarus</i> Chaudoir, 1875 ^A | 87 |
| Subgenus <i>Anomotarus</i> Chaudoir, 1875 ^A | 87 |
| [83] Genus <i>Demetrída</i> White, 1846 ^N | 88 |
| Subgenus <i>Demetrída</i> White, 1846 ^E | 88 |
| [84] Genus <i>Trigonothops</i> Macleay, 1864 ^A | 88 |
| Subgenus <i>Trigonothops</i> Macleay, 1864 ^A | 89 |
| Subtribe DROMIINA | 89 |
| [85] Genus <i>Dromius</i> Bonelli, 1810 ^A | 89 |
| Subgenus <i>Dromius</i> Bonelli, 1810 ^A | 89 |
| VII. Subfamily PSEUDOMORPHINAE | 90 |
| 21. Tribe PSEUDOMORPHINI | 90 |
| [86] Genus <i>Adelotopus</i> Hope, 1834 ^A first record | 90 |

CONTENTS

| | |
|--|-----|
| Acknowledgments | 14 |
| Introduction | 15 |
| Morphology and terminology | 18 |
| Methods and conventions | 18 |
| Taxonomic treatments | 21 |
| Family Carabidae | 21 |
| Key to the New Zealand subfamilies and tribes . | 21 |
| Alternative key to the New Zealand tribes | 24 |
| Descriptions of New Zealand supraspecific taxa and Keys to genera | 26 |
| Bibliography | 91 |
| Appendix A. Glossary of technical terms | 106 |
| Appendix B. Updated checklist of species | 110 |
| Appendix C. Changes subsequent to Larochelle & Larivière (2001)’s Catalogue | 116 |
| Illustrations | 119 |
| Map 1. The New Zealand subregion with area codes 163 | |
| Map 2. Area codes and collecting localities from mainland New Zealand: North Island | 164 |
| Map 3. Area codes and collecting localities from mainland New Zealand: South Island and Stewart Island | 165 |
| Generic distribution maps | 166 |
| Taxonomic index | 176 |

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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 (Larochele, 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 genera are flightless, which makes their dispersal capacity somewhat limited and their populations morphologically varied, sometimes even aberrant. In 2001, Larochele & Larivière's Catalogue (*Fauna of New Zealand* 43) recorded 5 subfamilies, 20 tribes, 78 genera, and 424 species for the fauna, whereas the current work recognises 7 subfamilies, 21 tribes, 86 genera, and 461 species, comprised of 50 endemic (58 % of fauna), 17 native (20 %), and 19 adventive (22%) genera.

As a family, Carabidae exhibit a relatively high degree of morphological uniformity, making them suitable to study 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 (Larochele & 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, 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 for the first time a taxonomic review of all New Zealand supraspecific taxa of Carabidae, including: comparative descriptions for subfamilies, tribes, subtribes, genera, and subgenera; identification keys for subfamilies, tribes, and genera; habitus drawings, distributional and ecological information, and summaries of collecting techniques for all genera; the most relevant bibliographic references for all taxa; an updated checklist of species and a summary of all taxonomic changes since the publication of the catalogue by Larochele & Larivière (2001). Furthermore, this first attempt at providing fully comparative descriptions for all taxa at each level of

classification, is intended to facilitate identification and information retrieval for analysis (e.g., cladistics, ecomorphology, revisions of genera). Finally, the New Zealand carabid fauna is here presented within the context of the most recent developments in the higher classification of this group on a world basis.

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."

The authors have temporarily put on hold their revisionary work on New Zealand carabid species, as started with the Harpalini (Larochele & Larivière, 2005), in order to accelerate the treatment of the overall fauna and to fulfill a taxonomic wish expressed by many. For example, R.T. Bell (2002) in his book review of Larochele & Larivière (2001) wrote: "*I trust that it [the Catalogue] will be soon followed by a volume containing tribal and generic keys, opening the way for generic revisions and accelerating the study of this unique fauna.*"

In addition to paper-based publications such as this one, the authors edit the New Zealand Carabidae website (<http://www.landcareresearch.co.nz>) which maintains up-to-date information on New Zealand carabids, including digital images, recent literature, and additions and corrections to previous publications.

Brief history of New Zealand carabid taxonomy

A more detailed account can be found in Larochele & Larivière (2001); only supraspecific taxa are emphasised here.

The first endemic carabid genus to be described from New Zealand was *Loxomerus* Chaudoir, 1842. The describers of New Zealand's endemic genera have been: Chaudoir (1842–1878, 4 genera), Blanchard (1843, 1 genus), Fairmaire (1843, 1 genus), White (1846, 2 genera), Bates (1867–1874, 4 genera), Laporte de Castelnau (1867, 2 genera), Putzeys (1868, 1 genus), Broun (1881–1910, 6 genera), Sharp (1886, 2 genera), Jeannel (1928–1938, 5 genera), Brookes (1932–1944, 2 genera), Britton (1940–1964, 9 genera), Rivalier (1963, 1 genus), Townsend (1971, 1 genus), Lindroth (1980, 1 genus), Moore (1980, 2 genera), Larochele & Larivière (2005, 5 genera), and Johns (2007, 2 genera). The current monograph adds 3 new endemic genera to the fauna.

Taxonomic revisions were initiated by Jeannel (1937,

Anillina; 1938 Amarotypini, Migadopini, Trechini). Tribes and genera revised afterwards have been: Broscini (Britton, 1949; Pawson *et al.*, 2003b, *Oregus*); Bembidiini, except Tachyina (Lindroth, 1976, 1980; Moore 1980); Harpalini (Larochelle & Larivière, 2005), Pterostichini (Britton, 1940; Butcher, 1984, *Holcaspis*); Lebiini (Britton, 1941); Pentagonocini (Britton, 1941); cave-dwelling Trechini and Harpalini (Britton, 1958–1964).

Identification keys are rare, poorly developed, parsimoniously illustrated, scattered through the world literature, and sometimes written in foreign languages, e.g., French. Britton (1940) provided the first identification key to New Zealand tribes; his key is now outdated.

Klimaszewski & Watt (1997) published keys to subfamilies and tribes. Unfortunately, their keys have some difficulties and are outdated. The subfamilial nomenclature has changed (Scaritinae, Broscini = Trechinae, Broscini). The tribal nomenclature is now different (Cychrini = Pamborini; Migadopini = Migadopini + Amarotypini; Psydrini = Mecyclothoracini + Meonini + Tropopterini; Agonini = Platynini). Two of the characters they use (body pedunculation; position of scutellum relative to peduncle and elytral bases) are somewhat subjective and do not allow the assignment of numerous New Zealand genera to the correct subfamilies and tribes. The term pedunculate (with a peduncle), when referring to the body shape, is a loose concept especially difficult for identifiers to interpret, as it suggests any level of narrowing of the waist, either between the thorax and the abdomen, or at the level of the elytral bases. A more practical approach is taken in the current monograph to allow a more objective recognition of this attribute. Taxa considered to have a pedunculate body have the scutellum placed directly on a visible peduncle (between pronotum and elytra; Fig. 186) or placed partly between and above the elytral bases (Fig. 187). Taxa without a pedunculate body have the scutellum inserted entirely between elytral bases (Fig. 188). In their key to tribes, Klimaszewski & Watt use the number of paired supraorbital setiferous punctures to distinguish between Agonini (=Platynini) and Harpalini. Unfortunately this does not work for all taxa as some *Ctenognathus* species (Platynini) have only a single pair of supraorbital setiferous punctures like members of the tribe Harpalini. Furthermore, the recently introduced tribes Perigonini (genus *Perigona*) and Pseudomorphini (genus *Adelotopus*) have never been included in keys for New Zealand.

At the generic level, the first identification 'table' was provided by Broun (1893a) for the Feronidae (= Pterostichini), with the genera *Rhytisternus*, *Trichosternus*, *Pterostichus*, and *Zeopoecilus*. Matthews' (1980) identification guide to the beetles of South Australia allows

the identification of several of New Zealand's native and adventive genera. However, a key to all described genera has not been available until now.

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. The tribal classification used by Larochelle & Larivière (2001) and kept here, is based mostly on the classification in Erwin (1991) which still receives general acceptance from the scientific community. Table 1 offers a comparison between the higher classification used in the present work and in Larochelle & Larivière (2001).

Identification process

The identification of New Zealand genera can be achieved by specialists or non-specialists using a combination of tools: habitus drawings, comparative descriptions, identification keys, supporting distributional and ecological information, and access to a reference (or synoptic) collection authoritatively identified by a carabid specialist. The New Zealand Arthropod Collection (NZAC, Landcare Research, Auckland) is the largest such authoritative reference collection, containing representatives of most New Zealand genera and species, including type specimens as well as homotypes (specimens compared with types) identified by renowned experts.

When identified to genus by a non-specialist, specimens can be sent to a specialist who will undertake an authoritative identification at the species level (Mayr & Ashlock, 1991). If attempted by non-specialists, species level identification in the context of a largely unrevised fauna like the New Zealand carabids (less than two-thirds having been described) has a high probability of being erroneous. To be absolutely certain of their identifications even specialists have to dissect male genitalia, whether groups have been recently revised (e.g., Harpalini) or not. Consequently, it is imperative that non-specialists always have their identifications confirmed by specialists.

Specimen-based information should never be published or databased unless a carabid specialist has confirmed the identity of genera and species involved.

Revisions and field surveys

Most taxonomic revisions published until now have been based mainly on type material or small collections made before the general national insect surveys of the 1960s and 1970s. More specialised intensive carabid inventories started only in the 1990s.

Table 1. Higher classification. Comparison between subfamilies and tribes used in the present work and in Laroche & Larivière (2001).

| Present work | Laroche & Larivière (2001) |
|-------------------------|----------------------------|
| Subfamily Cicindelinae | Subfamily Carabinae |
| Tribe Cicindelini | Tribe Carabini |
| Subfamily Carabinae | Tribe Pamborini |
| Tribe Carabini | Tribe Cicindelini |
| Tribe Pamborini | Subfamily Scaritinae |
| Subfamily Migadopinae | Tribe Amarotypini |
| Tribe Amarotypini | Tribe Migadopini |
| Tribe Migadopini | Tribe Clivinini |
| Subfamily Scaritinae | Subfamily Broscinae |
| Tribe Clivinini | Tribe Broscini |
| Subfamily Trechinae | Subfamily Psydrinae |
| Tribe Broscini | Tribe Mecyclothoracini |
| Tribe Mecyclothoracini | Tribe Meonini |
| Tribe Meonini | Tribe Tropopterini |
| Tribe Tropopterini | Tribe Trechini |
| Tribe Trechini | Tribe Zolini |
| Tribe Zolini | Tribe Bembidiini |
| Tribe Bembidiini | Subfamily Harpalinae |
| Subfamily Harpalinae | Tribe Pterostichini |
| Tribe Pterostichini | Tribe Licinini |
| Tribe Licinini | Tribe Harpalini |
| Tribe Harpalini | Tribe Platynini |
| Tribe Platynini | Tribe Perigonini |
| Tribe Perigonini | Tribe Pentagoncini |
| Tribe Pentagoncini | Tribe Lebiini |
| Tribe Lebiini | |
| Subfamily Pseudomorphae | |
| Tribe Pseudomorphiini | |

Considering the material currently contained in New Zealand entomological collections and museums, the authors predict a fauna much richer than currently known, likely to reach 800 species-group taxa, once specialised inventory techniques are employed and revisions of all tribes and genera are conducted.

Most New Zealand carabid genera are in need of revision or of further revision. This is indicated in the **Note** section provided under genera in the main text. Various factors have led to such assessment, e.g., monotypic genera that may be polytypic, genera in need of more detailed taxonomic work, genera potentially containing several conspecific entities, genera needing further clarification in the light of overseas treatments, etc.

'Hit-and-run taxonomy' – isolated or random descriptions of new taxa – for groups badly needing thorough taxonomic revisions (most New Zealand tribes and genera)

should be avoided as much as possible. This is a misguided action even when aimed at resolving tag-names for alleged conservation imperatives and for 'iconic' taxa. "The description of isolated new species in poorly known groups of animals is usually a handicap to subsequent workers"; "many more synonyms are created through isolated descriptions than through more substantial revisions" (Mayr & Ashlock, 1991). Isolated species descriptions are rendered even more problematic and frustrating to taxonomists and identifiers when not including illustrations of the male genitalia and comparative diagnostic characters against already described close relatives, and when not presented in the context of previously published revisions and identification keys. To be most relevant species-level taxonomic revisions for a largely undescribed fauna such as that of New Zealand should ideally be carried out at least at the generic level.

Comprehensive revisions can be done only with adequate material from all species of a genus and from all major New Zealand collections and museums. The material under study should be composed of sufficiently long series from the same populations for a proper assessment of intra- and interpopulational variability. Numerous samples from the periphery of the range of each hypothesised species are also essential to resolve the taxonomic limits of taxa. Finally, a number of geographic areas of New Zealand display high species diversity, extremely variable taxa, or aberrant forms, e.g., Whangarei (ND) to Thames (CL), Palmerston North (WI) to Nelson (NN), Picton (SD) and Blenheim (MB), the Canterbury Plains (NC, MC, SC) to the Mackenzie Country (MK). Such material should be given special attention and it is especially important for it to be considered within the wider taxonomic and biogeographic contexts so as not to confuse local variation with true speciation.

MORPHOLOGY AND TERMINOLOGY

A diagnosis and a description of the family Carabidae are available on p. 21. Figures 118–121 provide a basic understanding of the morphological structures used to describe and identify supraspecific taxa. 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). A glossary of technical terms is also provided (Appendix A, p. 106).

The authors used the term *interneur* instead of *stria* in their previous revision of New Zealand Carabidae (Larochelle & Larivière, 2005; revision of the tribe Harpalini) to designate the longitudinal impressed line or row of punctures on the dorsal surface of the elytron. Although the term *interneur* is still in usage the authors adopt the position of Ball & Shpeley (2005) and “bow to the weight of general usage.” Consequently, the term *stria* is used in this synopsis.

The term *ventrite* instead of *sternum*, was also used by the authors to designate the ventral surface of each of the six visible pregenital abdominal segments of the adult. The term *sternum* (plural, *sterna*), however, is more appropriate when dealing with adult carabid morphology and it is of general use in carabid taxonomy. The sternum I in adult Carabidae is hidden internally and not visible. Consequently, the underside of the adult abdomen is divided into six visible *sterna* (II–VII; see Fig. 119), with the sternum II (first visible sternum) interrupted by the metacoxae, visible only laterally.

METHODS AND CONVENTIONS

Materials

This synopsis is based on 15 years of laboratory research and extensive fieldwork carried out in over 1000 localities, an extensive survey of the world literature up to now, 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. |
| CMNZ | Canterbury Museum, Christchurch, New Zealand. |
| LUNZ | Entomology Research Museum, Lincoln University, Lincoln, New Zealand. |
| MONZ | Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand. |
| NZAC | New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand. |
| OMNZ | Otago Museum, Dunedin, New Zealand. |
| UCNZ | Department of Zoology, University of Canterbury, Christchurch, New Zealand. |

Collecting and preparation

Adult ground-beetles are generally collected using the following techniques (in order of decreasing importance): pitfall trapping; turning fallen trees, logs, pieces of wood, stones, moss carpets, and plant rosettes; raking the leaf litter; sifting the leaf litter and moss; sifting soil samples from the base of trees and the underside of big stones; lifting the loose bark of logs and fallen trees; dismantling logs and rotten stumps; breaking branches of fallen trees; digging at the base of plants; using Malaise traps, pan traps, and interception traps; using light traps or headlamps at night; collecting in caves with head-lamps or baited traps; collecting at twilight on dunes and beaches; sweeping or beating the vegetation; fogging the canopy; pyrethrum spraying of the rotten bark of dead standing trees; smoking tree-stumps; sugaring trees; sifting fermented sawdust or garden compost; inspecting soil crevices and the tunnels of small vertebrates; raking loose gravel at the water's edge; pouring water over the ground and treading the soil with feet; throwing dead leaves and fallen fern branches into the water; turning drift material along the seashore, lake shores, or stream banks.

Adult carabids often disappear from the ground surface in the summer; the only way to assess their abundance, breeding period, or overall life cycle is by quantitative pitfall trapping conducted over a period of at least one or two years.

Adults are best preserved dry. All life stages can be collected in 70–75% ethanol. If a molecular study is

intended, adults as well as immatures can be kept in 95–100% ethanol.

All specimens should be labelled with the locality name (including area code: Crosby *et al.* 1976, 1998, and geographical coordinates such as latitude and longitude), collection date, collector's name, and biological data (e.g., general habitat, microhabitat, behaviour).

Most features of the external morphology and the male genitalia can be viewed under an ordinary dissecting microscope. Although the examination of the male genitalia is not necessary to separate most genera, it may be useful in some cases.

Dissections can be performed as follows: Pinned specimens (individually or in batches) are warmed for 5–10 minutes in hot alcohol (70–75% ethanol). Once softened, each specimen is transferred to a cavity slide containing ethanol. A pair of fine forceps is used to extract the male genitalia from the abdomen. This is done under the microscope by inserting the forceps into the rear aperture, cutting through the lateral membranes that unite the last two terga and sterna, pulling out the aedeagus and associated genital ring, separating these structures from each other, and then cleaning the aedeagus of any residues and detaching the parameres. The dissected genitalic structures are then transferred to a new cavity slide containing glycerol for further study. After examination, the male genitalia are mounted on rectangular cards or triangular points, or are put into glycerol-filled microvials, and re-attached to original specimens for permanent storage.

Taxonomic review process

The main steps followed in the course of this study are listed here with the hope that this will help future students of Carabidae:

- Existing descriptions and keys to supraspecific taxa occurring in New Zealand were gathered from the world literature, e.g., Ball & Bousquet (2001) and Arndt *et al.* (2005) for subfamilies, Jeannel (1941–1942) and Lindroth (1961–1969) for tribes, and a wide range of publications for genera.
 - For each tribe, the external morphology of at least 10 specimens belonging to each species within every genus, was examined; character matrices (one per tribe) were built including as many generic characters as possible. This provided the base for generic descriptions and identification keys.
 - Tribal characters gathered from the world literature were assessed for all genera occurring in New Zealand, using the above-mentioned specimen samples.
 - Subfamilial characters were also assessed in the same way as for genera and tribes.
- Character matrices built at each classificatory level (see 2, 3, 4) were used to draft descriptions for each subfamily, tribe, and genus. Writing the final descriptions also involved transferring selected characters from lower to higher ranking categories, when appropriate.
 - Identification keys were built in the same way as descriptions, with emphasis on the most diagnostic characters of the external morphology.
 - Only differential descriptions were prepared for subtribes and subgenera. No keys were prepared for these categories.
 - Illustrative material accompanying descriptions and identification keys was prepared as a final step.

Taxonomically relevant characters

The characters presented in the descriptions are subsets of the totality of adult characters (about 100) studied, and represent the most important differences between, or variation amongst, closely related taxa. Characters or states of characters not mentioned in the generic descriptions are as detailed in tribal descriptions; the same applies to tribes and subfamilies.

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 have been illustrated or photographed. 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.

Characters selected for identification are those generally easily observed, which do not require genitalic dissection.

Illustrations and digital photographs

Illustrations (except habitus drawings and Fig. 118–119), including maps, were prepared and laid out using the software package CorelDRAW® graphics suite. Originals of habitus drawings and Fig. 118–119 were scanned, modified, and laid out using the same software. Photographs were captured through a Leica MZ-12.5 stereomicroscope, a LeicaDC500 digital camera, and the increased-depth-of-field computer system Auto-Montage (Synoptics U.K.). Further photo-processing was done with the software packages Adobe® Photoshop® and CorelDRAW® graphics suite.

Subfamilial and tribal concepts

Already existing world descriptions for subfamilies and tribes were adopted and adapted to the New Zealand situation (see section Taxonomic review process).

Generic concept

A genus should be a monophyletic group composed of one or more species separated from other genera by a decided gap. The phylogenetic framework to study Australasian Carabidae, however, is insufficiently elaborated to test this hypothesis for New Zealand genera. Consequently, existing generic concepts have in general been accepted. In addition, new genera are proposed for species not fitting the correlated character complex of species included in already described genera. Recognition of these generic taxa provides new hypotheses that will hopefully be tested by future students of the higher classification of Carabidae.

A cladistic analysis, preferably integrating morphological and genetic information, is needed to determine the phylogenetic position of New Zealand genera within the family Carabidae. Only then can an attempt be made to decipher the evolutionary history of the New Zealand taxa, e.g., to confirm or reject the hypothesis that certain genera are Gondwana relicts, to reconstruct the sequence of speciation and colonisation events, and to understand their evolution in general or that of their habitat relationships.

Taxonomic arrangement

In this synopsis subfamilies, tribes, and subtribes are arranged phylogenetically. The higher classification follows Arndt *et al.* (2005) for subfamilies, and Larochelle & Larivière (2001) for tribes and genera. The subtribal group-name Nothobroschina was created by Roig-Juñent (2000) for five New Zealand endemic broscine genera. The subtribal group-name Zolina was established by Roig-Juñent & Cicchino (2001) for two genera (one native, one endemic).

Further study of Australasian Carabidae is needed before phylogenetic relationships can be hypothesised for genera. Consequently, genera and subgenera are treated alphabetically within higher categories.

Genus-group names

Synonymies already provided by Larochelle & Larivière (2001) are not repeated here.

Biostatus

This is indicated for all genera (A=Adventive; E=Endemic; N=Native, not endemic), see Checklist of supraspecific taxa (p. 12). The biostatus categories are defined in the Glossary (Appendix A, p. 106). 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

For New Zealand distribution records, the area codes of Crosby *et al.* (1976, 1998) are given in alphabetical order, for the North Island, South Island, Stewart Island, and the Offshore Islands, respectively.

Two-letter abbreviations for the area codes of Crosby *et al.* (1976, 1998) used in this publication are as follows (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 generic distributions are provided on pp. 166–175.

The ecological information provided is based on specimen label data, field and laboratory observations by the authors, and from the literature. In order to eliminate spurious records an effort was made to summarise available information by using the smallest common denominator amongst the greatest number of observations for each taxon. The terminology and style of presentation adopted here follow closely Larochelle & Larivière (2001). Many technical terms are also defined in the Glossary (Appendix A, p. 106).

References

Under References, only the most important taxonomic references are given for each taxon, with an indication of their contents between parentheses. Most references provided by Larochelle & Larivière (2001), dealing mainly with non-taxonomic aspects, are not repeated here.

Type data

Such information is listed for new species, 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. A forward slash already written on a label is indicated between quotation marks ("").

Material examined

For newly-described species, the number of specimens examined and the acronyms of their repositories are indicated.

TAXONOMIC TREATMENTS

Family CARABIDAE

Diagnosis (compared to other beetle families). Body with prominent sensory setae (contrary to Amphizoidae). Thorax without deep longitudinal grooves dorsally (contrary to Rhysodidae). Metacoxae fused to metasternum and entirely dividing sternum II (contrary to suborder Polyphaga), not hiding sternum II (contrary to Haliplidae). Posterior legs without long swimming setae (contrary to Dytiscidae, Gyrinidae, and Noteridae).

Description (New Zealand). Body: length 1.0–39.0 mm; pedunculate or not. Colour dark (usually black or brown), rarely pale (more or less depigmented); elytra rarely spotted. Metallic lustre (e.g., coppery, aeneous) usually absent. Dorsal surface usually mostly glabrous. **Head.** Usually narrower than pronotum. Mandibles usually well developed, generally directed forward, more or less curved, with or without setiferous puncture in scrobe; scrobe rarely absent; inner margins usually without large teeth. Eyes usually present, moderate in size; supraorbital punctures usually present (1–2 in number) on inner side. Labrum transverse, usually straight or slightly emarginate, rarely deeply emarginate anteriorly; 4–8 setiferous punctures present anteriorly; teeth rarely present anteriorly (1 or 3, Cicindelinae). Clypeus usually narrower than distance between antennal sockets (wider, Cicindelinae). Tempora rarely inflated. Antennae with 11 segments (antennomeres), usually filiform or moniliform, sometimes widening from base to apex; scapes usually entirely visible from above and inserted laterally, more or less in line with outer margins of mandibles. Frontal furrows (or sulci) rarely numerous, usually not reaching posterior margin of eyes. Head capsule usually without ventral antennal grooves. Mentum usually deeply emarginate; median tooth usually present anteriorly; circular foveae usually absent. Mentum and submentum with or without transverse suture. Palpi: each maxillary palp with 4 segments (palpomeres); each labial palp with 3 segments (palpomeres); terminal segment (maxillary palpomere 4 or labial palpomere 3) usually fusiform, sometimes conical or subulate, rarely filiform or securiform. **Thorax.** Pronotum usually narrower than elytra, with a pronounced mobility; sides usually rounded; lateral depressions usually present; setiferous punctures usually present (generally 2 in number). Scutellum usually visible, inserted entirely between elytral bases, placed partly between and above elytral bases, or located entirely on peduncle. Procoxal cavities usually closed behind (open, Carabinae). Metacoxae wide, flat, contiguous along median line of metasternum, fused to the latter, and produced backwards. Mesepimera reaching or not reaching mesocoxal cavities. Metepimera visible or not between metepisterna and sternum II. **Legs.** Usually long

and slender, fit for running, sometimes stout and specialised for digging. Protibiae usually anisochaetous (one apical spur, one subapical spur), rarely isochaetous (both spurs in terminal position) or digitate; antennal cleaner usually forming a deep emargination, sometimes a shallow emargination or groove. Tarsi with 5 segments (tarsomeres); male protarsi, and sometimes mesotarsi (e.g., Harpalini) dilated, with ventral adhesive setae; claws usually entire, rarely dentate ventrally; unguitactor plate rarely setiform.

Elytra. Usually fused along suture (hindwings usually vestigial). Basal margin usually present, complete from shoulder to base of stria 1. Shoulders (humeri) usually well developed. Sides generally rounded. Scutellar setiferous pore usually present. Scutellar striae present or absent. Striae usually present (often 8 in number on each elytron); stria 1 usually not recurrent at apex. Intervals usually 9 in number on each elytron; interval 8 rarely carinate at apex. Discal setiferous punctures usually present and restricted to stria or interval 3. Umbilicate series usually present laterally. Radial field rarely with dense pubescence. Epipleura simple or twisted (crossed; with inner fold or plica) near apex. Apex usually rounded or obtuse, rarely truncate. **Abdomen.** Mostly glabrous, except for ambulatory pairs of setiferous punctures on sterna IV–VI; last sternum often with a single pair of ambulatory setae in the male and two pairs in the female; basal sterna coalescent, immobile, with horizontal sutures more or less obsolete. Apex usually invisible dorsally. **Genitalia.** Male copulatory organ consisting of the aedeagus, a tubular intromittent structure analogous to the mammalian penis and usually containing an eversible internal sac, and two usually asymmetrical parameres (lateral lobes) fixed laterally and basally to the aedeagus.

Note. The family Carabidae is here described in its widest sense, i.e., including tiger-beetles (Cicindelinae). Most carabids are recognisable alive by a peculiar way of running on the ground, hence their German nickname “Laufkäfer”, which means “running beetles.”

Key to the New Zealand subfamilies and tribes

A key to the subfamilies and tribes following the natural classification is presented here. If a subfamily contains a single tribe, the tribal name is immediately given; if this tribe happens to contain a single genus, the generic name is also immediately given. Some tribes appear more than once in the key; in such cases the genera concerned are given between parentheses. Additional supporting characters are sometimes included between square brackets.

References (other keys). Sloane 1905 (Australia), 1920a (Tasmania); Jeannel 1941–1942 (world); Britton 1940 (New Zealand); Lindroth 1961–1969 (North America); Habu 1967 (Japan); Darlington 1970 (Micronesia); Reichardt 1977 (Neotropical Region); Matthews 1980 (South Australia); Erwin & Sims 1984 (West Indies); Erwin 1991 (Central America);

Lawrence & Britton 1994 (Australia); Klimaszewski & Watt 1997 (New Zealand); Liebherr & Zimmerman 2000 (Hawaii); Ball & Bousquet 2001 (North America); Roig-Juñent & Cichino 2001 (Neotropical Region).

- 1 Clypeus wider than distance between antennal sockets (Fig. 125). Antennal scapes inserted dorsally on frons, closer to each other than outer margins of mandibles (Fig. 125). Labrum with teeth on anterior margin (Fig. 125). ... (p. 26) ... **Subfamily Cicindelinae**
Anterolateral angles of pronotum, in lateral view, without a forward projection. Elytra with pale markings (p. 26)... **Tribe Cicindelini**
..... **genus Cicindela** (Fig. 1)
- Clypeus narrower than distance between antennal sockets (Fig. 126). Antennal scapes inserted laterally, more or less in line with outer margins of mandibles (Fig. 126). Labrum without teeth on anterior margin (Fig. 126) 2
- 2(1) Antennal scapes not visible from above. Head capsule with deep antennal grooves ventrally. Legs more or less concealed under body, mostly invisible from above (p. 90) ... **Subfamily Pseudomorphinae**
Antennae with lateral margin hirsute, middle glabrous; pronotum without setiferous punctures on each side; umbilicate series present only at elytral shoulder (p. 90) ... **Tribe Pseudomorphini**
..... **genus Adelotopus** (Fig. 117)
- Antennal scapes visible from above (Fig. 118). Head capsule with shallow or without antennal grooves ventrally. Legs visible from above 3
- 3(2) Mesepimera reaching mesocoxal cavities (Fig. 184) 4
- Mesepimera not reaching mesocoxal cavities (Fig. 185) 8
- 4(3) Body pedunculate (with peduncle between pronotum and elytra; Fig. 186). Scutellum placed above elytral bases, on peduncle (Fig. 186). Antennae moniliform (shaped like a necklace of beads; Fig. 123). (p. 31) ... **Subfamily Scaritinae**
Protibiae digitate (finger-like), with outer apical prolongation (Fig. 193). Unguitractor plate long, seta-shaped, visible between tarsal claws (Fig. 224). (p. 31) ... **Tribe Clivinini, genus Clivina** (Fig. 9)
- Body not pedunculate (without peduncle between pronotum and elytra; Fig. 2–8, 188). Scutellum entirely inserted between elytral bases (Fig. 188). Antennae filiform (Fig. 124) 5
- 5(4) Procoxal cavities open behind (Fig. 182). [Palpi with terminal segment securiform (Fig. 141), except maxillary palpi subfusiform in genus *Carabus*; body length 19.0–26.0 mm.] (p. 27) ... **Subfamily Carabinae** ... 6

- Procoxal cavities closed behind (Fig. 183). [Palpi with terminal segment fusiform (Fig. 139); body length 6.0–19.0 mm]... (p. 28) ... **Subfamily Migadopinae** ... 7
- 6(5) Clypeus without setiferous punctures (Fig. 3). Mandibles dentate, in addition to a strong angular process midway between base and apex on inner side (Fig. 167). Protibiae with outer apical prolongation (Fig. 194). (p. 28) ... **Tribe Pamborini**
..... **genus Maoripamborus** (Fig. 3)
- Clypeus with a setiferous puncture on each side (Fig. 126). Mandibles not dentate, without a strong angular process midway between base and apex on inner side. Protibiae without outer apical prolongation. (p. 27) ... **Tribe Carabini**
..... **genus Carabus** (Fig. 2)
- 7(5) Unguitractor plate long, seta-shaped, visible between tarsal claws (Fig. 224). (p. 29) ... **Tribe Amarotypini**
..... **genus Amarotypus** (Fig. 4)
- Unguitractor plate not visible between tarsal claws (Fig. 225). (p. 29) ... **Tribe Migadopini** (Fig. 5–8)
- 8(3) Outer side of mandibles with a setiferous puncture in scrobe (Fig. 154). (p. 32) ... **Subfamily Trechinae**
..... (except some broscine genera). ... 9
- Outer side of mandibles without setiferous puncture in scrobe (Fig. 155) when present (scrobe absent in Tribe Pentagonicipini). **Subfamilies Trechinae** (some broscine genera) and **Harpalinae**. ... 15
- 9(8) Maxillary palpi with penultimate segment setose (Fig. 145) 10
- Maxillary palpi with penultimate segment glabrous (Fig. 140) 11
- 10(9) Maxillary palpi with terminal segment rudimentary, entirely subulate (tapering to a point; Fig. 142). Elytra with stria 1 not recurrent at apex (Fig. 233) (p. 45) ... **Tribe Bembidiini** (Fig. 39–55)
- Maxillary palpi with terminal segment normally developed (not rudimentary), conical (Fig. 140). Elytra with stria 1 recurrent at apex (curving back like a hook; Fig. 230) (p. 44) ... **Tribe Zolini** (Fig. 36–38)
- 11(9) Head with dorsal furrows long, extending behind posterior margin of eyes (Fig. 127–128). [Elytra with stria 1 recurrent at apex (curving back like a hook; Fig. 230).] (p. 38) ... **Tribe Trechini** (Fig. 28–35)
- Head with dorsal furrows shorter, not extending behind posterior margin of eyes (Fig. 129). 12
- 12(11) Elytra with interval 8 carinate (with carina or ridge) at apex (Fig. 226). [Tarsi glabrous dorsally (Fig. 190)] (p. 37) ... **Tribe Tropopterini**
..... **genus Molopsida** (Fig. 27)

- Elytra with interval 8 not carinate at apex (Fig. 227) .
..... 13
- 13(12)** Tarsi pubescent dorsally (Fig. 189). Labrum moderately emarginate anteriorly (Fig. 151)
..... (p. 37) ... **Tribe Meonini**
..... **genus *Selenochilus*** (Fig. 26)
- Tarsi glabrous dorsally (Fig. 190). Labrum truncate (Fig. 11) or slightly emarginate (Fig. 12) anteriorly 14
- 14(13)** Elytral epipleura simple (without inner fold or plica) near apex (Fig. 234). [Antennae moniliform (shaped like a necklace of beads; Fig. 123), submoniliform, or filiform (Fig. 124); body length 8.0–23.0 mm]
..... (p. 32) ... **Tribe Broscini** (genera *Bountya* (Fig. 10) *Diglymma* (Fig. 12), *Oregus* (Fig. 23))
- Elytral epipleura twisted (with inner fold or plica) near apex (Fig. 235). [Antennae filiform (Fig. 124); body length 6.0 mm or less]
..... (p. 36) ... **Tribe Mecyclothoracini**
..... **genus *Mecyclothorax*** (Fig. 24–25)
- 15(8)** Protibiae with outer apical prolongation (Fig. 195). [Antennae moniliform (Fig. 123); pronotum with 3–16 setiferous punctures on each side; body length 14.0–39.0 mm]
..... (p. 32) ... **Tribe Broscini** (genera *Brullea* (Fig. 11) *Mecodema* (Fig. 13–21), *Metaglymma* (Fig. 22))
- Protibiae without outer apical prolongation (Fig. 196) 16
- 16(15)** Scutellum not visible from above, hidden by pronotum (Fig. 74) 17
- Scutellum visible from above (Fig. 75) (p. 53) ...
..... **Subfamily Harpalinae** (most genera). ... 18
- 17(16)** Pronotum with a single setiferous puncture on each side (anteriorly; Fig. 74, 77). Palpi with terminal segment setose (Fig. 77). [Antennae filiform (Fig. 124)] ... (p. 60) ... **Subfamily Harpalinae, Tribe Harpalini**
(genera *Gaioxenus* (Fig. 74), *Maoriharpalus* (Fig. 77))
- Pronotum with 2–11 setiferous punctures on each side (Fig. 10, 23). Palpi with terminal segment glabrous (Fig. 119). [Antennae moniliform (Fig. 123), submoniliform, or filiform (Fig. 124)] (p. 32) ...
..... **Subfamily Trechinae, Tribe Broscini**
..... (genera *Bountya* (Fig. 10), *Oregus* (Fig. 23))
- 18(16)** Elytra transversely (Fig. 116) or obliquely (Fig. 109) truncate at apex. Abdomen with apex visible from above (Fig. 109, 116) 19
- Elytra not truncate at apex (Fig. 82–83). Abdomen with apex not visible from above (Fig. 82–83) 20
- 19(18)** Mandibles with scrobe (deep hollow) on outer side (Fig. 155). Mentum and submentum separated by a transverse suture (Fig. 159)
..... (p. 84) ... **Tribe Lebiini** (Fig. 110–116)
- Mandibles without scrobe on outer side (Fig. 156). Mentum and submentum not separated by a transverse suture (Fig. 161)
..... (p. 83) ... **Tribe Pentagoncini** (Fig. 108–109)
- 20(18)** Head with a single supraorbital setiferous puncture on inner side of each eye (Fig. 95) 21
- Head with 2 supraorbital setiferous punctures on inner side of each eye (Fig. 107) 22
- 21(20)** Antennal pubescence starting from segment 2 or 3. Mentum without circular foveae
..... (p. 60) ... **Tribe Harpalini**
..... (most genera; Fig. 71–73, 75–76, 78–98)
- Antennal pubescence starting from segment 4. Mentum with circular foveae (Fig. 119)
..... (p. 78) ... **Tribe Platynini**
..... (genus *Ctenognathus*, in part; Fig. 101)
- 22(20)** Elytra (Fig. 237): radial field with short dense pubescence, in addition to long setiferous punctures of umbilicate series; striae poorly developed; outermost stria poorly impressed anteriorly, deeply impressed posteriorly; apex rounded. Body length: 2.5 mm or less (p. 82) ... **Tribe Perigonini**
..... **genus *Perigona*** (Fig. 107)
- Elytra (Fig. 246): radial field and remainder of elytra glabrous, except for long setiferous punctures of umbilicate series; striae well developed; outermost stria about equally impressed anteriorly and posteriorly; apex rounded, obtuse or acute. Body length: 4.5 mm or more 23
- 23(22)** Labrum deeply emarginate anteriorly (Fig. 152) or cleft almost to base (Fig. 153). Clypeus emarginate (Fig. 152–153)
..... (p. 59) ... **Tribe Licinini** (Fig. 68–70)
- Labrum straight (Fig. 58) or slightly emarginate (Fig. 99) anteriorly. Clypeus not emarginate (Fig. 58, 100) ... 24
- 24(23)** Elytral epipleura twisted (with inner fold or plica) near apex (Fig. 235). [Body usually stout (forebody broad; appendages short and thick) and more convex] (p. 54) ... **Tribe Pterostichini** (Fig. 56–67)
- Elytral epipleura simple (without inner fold or plica) near apex (Fig. 234). [Body usually slender (forebody narrow; appendages long and thin) and more flattened.] ... (p. 78) ... **Tribe Platynini** (Fig. 99–100, 102–106)

Alternative key to the New Zealand tribes

Notes. Keys based on natural classifications often include characters difficult to examine by non-specialists, e.g., small sclerites on the underside of the body or structures possibly obscured by the position of appendages in dry-mounted specimens. Among carabid tribes some features, e.g., mesepimera, procoxal or mesocoxal cavities, are almost impossible to see in specimens glued onto cards or in pinned specimens with appendages blocking their view. Consequently, a key to the tribes by-passing subfamilies and avoiding hard-to-observe characters is here provided for easier identification. If a tribe contains a single genus, the generic name is immediately given. Some tribes appear more than once in the key; in such cases the genera concerned are given between parentheses. Additional supporting characters are sometimes included between square brackets.

- 1 Clypeus wider than distance between antennal sockets (Fig. 125). [Mandibles with very large teeth along inner margin; elytral striae absent] (p. 26) ... **Tribe Cicindelini** **genus *Cicindela*** (Fig. 1)
- Clypeus narrower than distance between antennal sockets (Fig. 126) 2
- 2(1) Antennal scapes not visible from above (p. 90) ... **Tribe Pseudomorphini** **genus *Adelotopus*** (Fig. 117)
- Antennal scapes visible from above (Fig. 118) 3
- 3(2) Maxillary palpi with terminal segment rudimentary, entirely subulate (tapering to a point; Fig. 142) (p. 45) ... **Tribe Bembidiini** (Fig. 39–55)
- Maxillary palpi with terminal segment normally developed (Fig. 139–140), securiform (Fig. 141), or partially subulate (Fig. 143) 4
- 4(3) Unguitractor plate long, seta-shaped, visible between tarsal claws (Fig. 224) 5
- Unguitractor plate not visible between tarsal claws (Fig. 225) 6
- 5(4) Body pedunculate (with peduncle between pronotum and elytra; Fig. 9, 186). Scutellum placed above elytral bases, on peduncle (Fig. 186). Protibiae digitate (finger-like; Fig. 193). Antennae moniliform (shaped like a necklace of beads; Fig. 123) (p. 31) ... **Tribe Clivinini** **genus *Clivina*** (Fig. 9)
- Body not pedunculate (without peduncle between pronotum and elytra; Fig. 4). Scutellum entirely inserted between elytral bases (Fig. 188). Protibiae normally developed, not digitate (Fig. 196). Antennae filiform (Fig. 124) (p. 29) ... **Tribe Amarotypini** **genus *Amarotypus*** (Fig. 4)
- 6(4) Elytra with stria 1 recurrent at apex (curving back like a hook; Fig. 230) 7
- Elytra with stria 1 not recurrent at apex (Fig. 233) ... 8
- 7(6) Head with dorsal furrows long, extending behind posterior margin of eyes (Fig. 127–128). Maxillary palpi with penultimate segment glabrous (Fig. 140) (p. 38) ... **Tribe Trechini** (Fig. 28–35)
- Head with dorsal furrows shorter, not extending behind posterior margin of eyes (Fig. 129). Maxillary palpi with penultimate segment setose (Fig. 145) (p. 44) ... **Tribe Zolini** (Fig. 36–38)
- 8(6) Protibiae (Fig. 200) with 2 apical spurs; antennal cleaner not emarginate (p. 27) ... **Tribe Carabini** **genus *Carabus*** (Fig. 2)
- Protibiae (Fig. 195, 199) with 1 apical and 1 subapical spur; antennal cleaner emarginate 9
- 9(8) Labrum deeply emarginate anteriorly (Fig. 152) or cleft almost to base (Fig. 153) 10
- Labrum straight (Fig. 58), slightly emarginate (Fig. 99), rarely moderately emarginate (Fig. 151) anteriorly 12
- 10(9) Eyes with 2 supraorbital setiferous punctures on inner side (Fig. 107). Clypeus emarginate (Fig. 152–153). (p. 59) ... **Tribe Licinini** (Fig. 68–70)
- Eyes with a single supraorbital setiferous puncture on inner side (Fig. 95). Clypeus not emarginate (Fig. 3, 77). 11
- 11(10) Clypeus without setiferous punctures (Fig. 3). Protibiae with outer apical prolongation (Fig. 194). Mandibles dentate, in addition to having a strong angular process midway between base and apex on inner side (Fig. 167) (p. 28) ... **Tribe Pamborini** **genus *Maoripamborus*** (Fig. 3)
- Clypeus with a setiferous puncture on each side (Fig. 77). Protibiae without outer apical prolongation (Fig. 196). Mandibles not dentate, without a strong angular process midway between base and apex on inner side (p. 60) ... **Tribe Harpalini** (genus *Maoriharpalus*) (Fig. 77))
- 12(9) Elytral epipleura twisted (with inner fold or plica near apex (Fig. 235) 13
- Elytral epipleura simple (without inner fold or plica near apex (Fig. 234) 16

- 13(12) Outer side of mandibles without setiferous puncture in scrobe (Fig. 155). [Pronotum with 1–6 setiferous punctures on each side; body length 6.5–35.0 mm] ..
..... (p. 54) ... **Tribe Pterostichini** (Fig. 56–67)
- Outer side of mandibles with setiferous puncture in scrobe (Fig. 154). [Body length 3.3–7.5 mm] 14
- 14(13) Elytra with interval 8 carinate (with carina or ridge) at apex (Fig. 226). [Tarsi glabrous dorsally (Fig. 190)]
..... (p. 37) ... **Tribe Tropopterini**
..... **genus Molopsida** (Fig. 27)
- Elytra with interval 8 not carinate at apex (Fig. 227) ..
..... 15
- 15(14) Tarsi pubescent dorsally (Fig. 189). Labrum moderately emarginate anteriorly (Fig. 151)
..... (p. 37) ... **Tribe Meonini**
..... **genus Selenochilus** (Fig. 26)
- Tarsi glabrous dorsally (Fig. 190). Labrum not emarginate anteriorly (Fig. 24, 126)
..... (p. 36) ... **Tribe Mecyclothoracini**
..... **genus Mecyclothorax** (Fig. 24–25)
- 16(12) Pronotum without setiferous punctures on each side (Fig. 5–8)
..... (p. 29) ... **Tribe Migadopini** (Fig. 5–8)
- Pronotum with setiferous punctures on each side (Fig. 120) 17
- 17(16) Elytra with apex transversely (Fig. 116) or obliquely (Fig. 109) truncate. Abdomen with apex visible from above (Fig. 109, 116) 18
- Elytra with apex not truncate (Fig. 82–83). Abdomen with apex not visible from above (Fig. 82–83) 19
- 18(17) Mandibles with scrobe (deep hollow) on outer side (Fig. 155). Mentum and submentum separated by a transverse suture (Fig. 159)
..... (p. 84) ... **Tribe Lebiini** (Fig. 110–116)
- Mandibles without scrobe on outer side (Fig. 156). Mentum and submentum not separated by a transverse suture (Fig. 161)
..... (p. 83) ... **Tribe Pentagonicini** (Fig. 108–109)
- 19(17) Scutellum not visible from above, hidden by pronotum (Fig. 74) 20
- Scutellum visible from above (Fig. 75) 21
- 20(19) Pronotum with a single setiferous puncture on each side (anteriorly; Fig. 74). Palpi with terminal segment setose (Fig. 74). [Antennae filiform (Fig. 124)]
..... (p. 60) ... **Tribe Harpalini**
..... (genus *Gaioxenus* (Fig. 74))
- Pronotum with 2–11 setiferous punctures on each side (Fig. 10, 23). Palpi with terminal segment glabrous (Fig. 119). [Antennae moniliform (shaped like a necklace of beads; Fig. 123), submoniliform, or filiform (Fig. 124)]
..... (p. 32) ... **Tribe Broscini** (genera *Bountya* (Fig. 10)
..... *Diglymma* (Fig. 12), *Oregus* (Fig. 23))
- 21(19) Protibiae with outer apical prolongation (Fig. 195). Pronotum with 3–16 setiferous punctures on each side. [Antennae moniliform (Fig. 123)]
..... (p. 32) ... **Tribe Broscini** (genera *Brullea* (Fig. 11),
..... *Mecodema* (Fig. 13–21), *Metaglymma* (Fig. 22))
- Protibiae without outer apical prolongation (Fig. 196). Pronotum with 1–2 setiferous punctures on each side 22
- 22(21) Head with a single supraorbital setiferous puncture on inner side of each eye (Fig. 95) 23
- Head with 2 supraorbital setiferous punctures on inner side of each eye (Fig. 107) 24
- 23(22) Antennal pubescence starting from segment 2 or 3. Mentum without circular foveae
..... (p. 60) ... **Tribe Harpalini** (except *Gaioxenus*,
..... *Maoriharpalus*; Fig. 71–73, 75–76, 78–98)
- Antennal pubescence starting from segment 4. Mentum with circular foveae (Fig. 119)
..... (p. 78) ... **Tribe Platynini**
..... (genus *Ctenognathus*, in part; Fig. 101)
- 24(22) Elytra (Fig. 237): radial field with short dense pubescence, in addition to long setiferous punctures of umbilicate series; striae poorly developed; outermost stria poorly impressed anteriorly, deeply impressed posteriorly; apex rounded. Body length: 2.5 mm or less (p. 82) ... **Tribe Perigonini**
..... **genus Perigona** (Fig. 107)
- Elytra (Fig. 246): radial field and remainder of elytra glabrous, except for long setiferous punctures of umbilicate series; striae well developed; outermost stria about equally impressed anteriorly and posteriorly; apex rounded, obtuse or acute. Body length: 5.0 mm or more
..... (p. 78) ... **Tribe Platynini** (Fig. 99–100, 102–106)

Descriptions of New Zealand supraspecific taxa and keys to genera

I. Subfamily Cicindelinae

Description (New Zealand). Body: length 7.0–15.0 mm; not pedunculate. **Head.** Mandibles without setiferous puncture in scrobe; 2–4 very large teeth along inner margin (contrary to other subfamilies). Labrum with 4 (usually) or 6 setiferous punctures on anterior margin; 1 or 3 teeth on anterior margin (contrary to other subfamilies). Clypeus wider than distance between antennal sockets (contrary to other subfamilies). Antennae filiform; scapes entirely visible from above, inserted dorsally (on frons), closer to each other than outer margins of mandibles (contrary to other subfamilies); head capsule without antennal grooves ventrally. Palpi with terminal segment filiform. **Thorax.** Scutellum visible, inserted entirely between elytral bases. Procoxal cavities closed behind. Mesepimera reaching mesocoxal cavities. Metepimera invisible between metepisterna and sternum II. **Legs.** Protibiae isochaetous (with two apical spurs); antennal cleaner forming a groove. **Elytra.** Free along suture (hindwings developed) or fused (hindwings vestigial). Striae absent. Apex not truncate. **Abdomen.** Apex invisible dorsally.

References. Horn, 1908, 1910, 1915 (description; keys to world taxa); Jeannel, 1941 (description); Lindroth, 1969b (description); Willis, 1969 (key to world supraspecific taxa); Freitag, 1979 (key to Australian tribes and genera); Matthews, 1980 (key to South Australian genera); Ball & Bousquet, 2001 (description); Arndt *et al.*, 2005 (description); Putschkov & Cassola, 2005 (classification; diagnosis).

1. Tribe Cicindelini

Figure 1

Description (New Zealand). **Head.** Labrum not deeply emarginate anteriorly. Eyes present; 2–3 supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus with or without setiferous punctures. Antennal pubescence sparse on segments 1–4, dense on segments 5–11. Mentum tooth present medially. Mentum-submentum suture absent. Submentum with numerous setae (up to 20). Ligula with 2 apical setae. Palpi with terminal segment glabrous; penultimate maxillary segment setose (1–3 setae); penultimate labial segment setose (numerous scattered setae). **Thorax.** Pronotum with (6–20) or without setiferous punctures on each side; anterolateral angles, in lateral view, without a forward projection (contrary to the tribe Megacephalini, also present in the Australasian Region). **Legs.** Protibiae without outer apical prolongation.

Tarsi pubescent dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Pale markings present (as in some Lebiini). Discal setiferous punctures present or absent. Umbilicate series absent. Radial field without fine dense pubescence. Apex rounded or obtuse. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Sterna IV–VI with or without pubescence, in addition to paired ambulatory setae. Other characters as for subfamily.

References. Willis, 1969 (description); Reichardt, 1977 (key to Neotropical genera); Ball & Bousquet, 2001 (description).

Subtribe Cicindelina

Description. Head, pronotum, pro- and mesosternum, ventral abdominal base or elytral bases pubescent, or, posterior third of elytra with whitish markings on suture or disc.

References. Willis, 1969 (description); Reichardt, 1977 (description).

[1] Genus *Cicindela* Linnaeus, 1758

Figure 1, Map p. 167

Description (New Zealand). Elongate, cylindrical. Forebody (head and pronotum) dark; elytra dark with more or less developed pale areas. Metallic lustre present. Dorsal surface mostly glabrous. Elytra often covered with granules, needle-like processes, or wart-like swellings (contrary to other carabid genera). **Head.** Very wide across eyes. Mandibles very long. Labrum very broad, mostly pale. Eyes strongly developed, convex, semiglobular, with numerous vertical striae or wrinkles (about 20–25) in between. Mentum tooth entire. Maxillary palpi with penultimate segment shorter than terminal segment. **Thorax.** Pronotum subquadrate, cylindrical; base and apex subequal in width. **Legs.** Long and slender, with strong spines. Tarsal claws as long as tarsomere 5 or shorter. **Elytra.** Basal margin absent. Shoulders well developed. Scutellar setiferous pore absent. Scutellar striole absent. Other characters as for tribe.

Number of taxa (New Zealand). 12 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Stewart Island; sandy beaches and dunes, open grasslands and forests, stream banks, and clay banks in fields and along roadsides; mostly active by day.

Collecting techniques. Hunting with a sweeping net.

References. Linnaeus, 1758: 407 (description); Jeannel,

1941 (description); Rivalier, 1963 (description of Australasian taxa); Freitag, 1979 (revision of Australian taxa); Savill, 1999 (description; key to New Zealand taxa); Laroche & Larivière, 2001: 35 (catalogue).

Note. This genus is in need of revision.

Subgenus *Neocicindela* Rivalier, 1963

Description. Genitalia. Aedeagus moderately developed, slightly thickened; internal sac medium-sized, with a slightly curved connecting piece and several scaly basal pieces; flagellum slender, straight and tapered, when well developed enclosed into a finger-like membranous sheath.

References. Rivalier, 1963: 36 (description); Laroche & Larivière, 2001: 35 (catalogue).

II. Subfamily Carabinae

Description (New Zealand). Body: length 19.0–26.0 mm; not pedunculate. **Head.** Mandibles without setiferous puncture in scrobe. Labrum with 5 or 8 setiferous punctures on anterior margin. Clypeus narrower than distance between antennal sockets. Antennae filiform; scapes entirely visible from above, inserted laterally, more or less in line with outer margins of mandibles; head capsule without antennal grooves ventrally. Palpi with terminal segment securiform (except maxillary palpi subfusiform in *Carabus*). **Thorax.** Scutellum visible, inserted entirely between elytral bases. Procoxal cavities open behind. Mesepimera reaching mesocoxal cavities. Metepimera invisible between metepisterna and sternum II. **Legs.** Protibiae isochoetous (with two apical spurs) or anisochaetous (with 1 apical and 1 subapical spur); antennal cleaner forming a groove or a moderately deep emargination. **Elytra.** Fused along suture (hindwings vestigial). Striae present (10 or 16 in number). Apex not truncate. **Abdomen.** Apex invisible dorsally.

References. Jeannel, 1941 (description; key to tribes); Lindroth, 1961 (description); Ball & Bousquet, 2001 (description); Arndt *et al.*, 2005 (description).

2. Tribe Carabini

Figure 2

Description (New Zealand). Body length 22.0–26.0 mm. **Head.** Labrum deeply emarginate or not anteriorly, with 8 setiferous punctures on anterior margin. Eyes present; a single supraorbital setiferous puncture on inner side (posteriorly). Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennal pubescence starting from segment 5. Mentum tooth present medially. Men-

tum-submentum suture present. Submentum without setae. Ligula with 9 apical setae. Palpi with terminal segment subfusiform (maxillary palpi) or securiform (labial palpi); terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum with 2 setiferous punctures on each side. **Legs.** Protibiae isochoetous (with 2 apical spurs); antennal cleaner forming a groove; outer apical prolongation absent. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Each with 16 striae; stria 1 not recurrent at apex. Discal setiferous punctures absent. Umbilicate series absent. Radial field with fine sparse pubescence. Apex rounded. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Jeannel, 1941 (description); Lindroth, 1961 (description); Reichardt, 1977 (key to Neotropical genera).

Subtribe Carabina

Description. Head. Mandibles smooth. Antennae with segment 2 elongate and segment 3 barely longer. Ligula present (barely developed) or absent.

Reference. Jeannel, 1941 (description).

[2] Genus *Carabus* Linnaeus, 1758

Figure 2, Map p. 167

Description (*Carabus nemoralis*). Body: length 22.0–26.0 mm; stout, convex. Colour dark; sides of pronotum and elytra violaceous. Metallic lustre present (bronze or copper). Dorsal surface glabrous. **Head.** Moderately wide. Mandibles moderately long, smooth (not wrinkled dorsally). Eyes convex. Antennae with segment 3 at most 2× longer than segment 2. Mentum tooth entire, unusually short. **Thorax.** Pronotum very transverse, subrectangular; base wider than apex; posterolateral angles produced backwards. **Legs.** Short. **Elytra.** Subovate. Basal margin absent. Shoulders well developed, rounded. Scutellar setiferous pore absent. Scutellar striole absent. Striae almost complete, consisting of impressed lines and rows of punctures. Three rows of small foveae on elytron. Apex rounded. Other characters as for tribe.

Number of taxa (New Zealand). A single species; apparently not established. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (AK);

open forests, parks, and gardens, under stones and pieces of wood (Europe and North America).

Collecting techniques. Pitfall trapping; turning stones and pieces of wood.

References. Linnaeus, 1758: 413 (description); Lindroth, 1961 (description); Laroche & Larivière, 2001: 34 (catalogue).

Subgenus *Archicarabus* Seidlitz, 1887

Description. **Thorax.** Pronotum broad, with lateral depressions widely explanate. **Elytra.** Convex; subapical sinuations absent. **Abdomen.** Sterna furrowed.

References. Seidlitz, 1887: 6 (description); Jeannel, 1941 (description); Laroche & Larivière, 2001: 34 (catalogue).

3. Tribe Pamborini

Figure 3

Description (New Zealand). Body length 19.0–21.0 mm.

Head. Mandibles dentate on inner side (contrary to Carabini). Labrum deeply emarginate anteriorly, with 5 setiferous punctures on anterior margin. Eyes present; a single supraorbital setiferous puncture on inner side (posteriorly). Tempora not inflated. Clypeus without a setiferous puncture on each side. Antennal pubescence starting from segment 5. Mentum tooth obsolete or absent medially. Mentum-submentum suture present. Submentum with 2 setae. Ligula with 6 apical setae. Palpi with terminal segment securiform; terminal and penultimate segments glabrous. **Thorax.** Pronotum with 5–6 setiferous punctures on each side. **Legs.** Protibiae anisochaetous (1 apical and 1 subapical spur); antennal cleaner forming a moderately deep emargination; outer apical prolongation present. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Each with 10 striae; stria 1 not recurrent at apex. Discal setiferous punctures absent. Umbilicate series present; about 30 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Sterna IV–VI glabrous (without paired ambulatory setae or other pubescence). Other characters as for subfamily.

References. Rousseau, 1908 (description); Arndt *et al.*, 2005 (description).

[3] Genus *Maoripamborus* Brookes, 1944

Figure 3, Map p. 170

Description. Body length 19.0–21.0 mm. Colour dark vio-

laceous; sides of pronotum and elytra greenish. Metallic lustre present or absent. Dorsal surface mostly glabrous.

Head. Pedunculate, elongate, narrow (much narrower than pronotum). Mandibles moderately long, strongly developed, with a strong angular process midway between base and apex on inner side (contrary to other carabid genera). Eyes convex. **Thorax.** Pronotum subquadrate, hexagonal (with 6 sides), widest behind middle; base wider than apex. Laterobasal foveae linear. **Elytra.** Ovate. Basal margin absent. Shoulders poorly developed. Scutellar setiferous pore absent. Scutellar striole absent. Striae mostly complete and consisting of impressed lines. Intervals catenulate (shaped like a fine chain), transversely striolate. Apex obtuse. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (ND, AK); forests, under logs and fallen branches.

Collecting techniques. Pitfall trapping; turning logs and fallen branches.

References. Brookes, 1944: 262 (description); Laroche & Larivière, 2001: 35 (catalogue).

Note. This genus is in need of revision.

III. Subfamily Migadopinae

Description (New Zealand). Body: length 6.0–19.0 mm; not pedunculate. **Head.** Mandibles usually with setiferous puncture in scrobe (without, *Loxomerus* (in part)). Labrum with 6 setiferous punctures on anterior margin. Clypeus narrower than distance between antennal sockets. Antennae filiform; scapes entirely visible from above, inserted laterally, more or less in line with outer margins of mandibles; head capsule without antennal grooves ventrally. Palpi with terminal segment fusiform. **Thorax.** Scutellum visible, inserted entirely between elytral bases. Procoxal cavities closed behind. Mesepimera reaching mesocoxal cavities. Metepimera invisible between metepisterna and sternum II. **Legs.** Protibiae anisochaetous (with 1 apical and 1 subapical spur); antennal cleaner forming a moderately deep emargination. **Elytra.** Fused along suture (hindwings vestigial), rarely free (hindwings rather well developed, *Amarotypus*). Striae present (9 in number). Scutellar striole present, very long, continuous from base to apex of elytra (contrary to other subfamilies). Apex not truncate. **Abdomen.** Apex visible or invisible dorsally.

References. Sloane, 1915 (key to Australian genera); Jeannel, 1938b (world revision), 1941 (description); Arndt *et al.*, 2005 (description).

4. Tribe *Amarotypini*

Figure 4

Description. Body length 6.0–6.7 mm. **Head.** Mandibles with setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Eyes present; a single supraorbital setiferous puncture on inner side (posteriorly). Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennal pubescence starting from segment 5. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 2 setae. Ligula with 4 apical setae (Fig. 171). Palpi with terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum without setiferous punctures on each side. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate visible between tarsal claws, long, setiform (seta-shaped). **Elytra.** Free along suture (hindwings rather well developed). Stria 1 not recurrent at apex. Discal setiferous punctures present. Umbilicate series present, rather continuous; about 15 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

Reference. Erwin, 1985 (description).

[4] Genus *Amarotypus* Bates, 1872

Figure 4, Map p. 166

Description. Body: length 6.0–7.0 mm; ovate. Colour dark. Metallic lustre present (coppery, aeneous). Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long. Eyes convex, almost touching pronotal apex. Mentum tooth deeply bifid apically. **Thorax.** Pronotum very transverse, trapezoidal; base wider than apex. Anterior bead incomplete. Anterolateral angles obtuse. Posterolateral angles obtusely rounded, not projecting laterally. Metepisterna short, subquadrate. **Legs.** Mesotibiae without group of apical setae. **Elytra.** Oblong. Free along suture (hindwings rather well developed, 65–75% of elytral length). Basal margin present, complete. Shoulders well developed, rectangular. Scutellar setiferous pore present. Striae complete, mostly consisting of rows of punctures; stria 3 with 3 setiferous punctures. Intervals uneven or smooth. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island, South Island, and Stewart Island; forests, on trees and shrubs.

Collecting techniques. Beating trees and shrubs.

References. Bates, 1872: 50 (description); Jeannel, 1938b (description); Laroche & Larivière, 2001: 40 (catalogue).

Note. This genus is in need of revision.

5. Tribe *Migadopini*

Figures 5–8

Description (New Zealand). Body length 9.5–19.0 mm. **Head.** Mandibles usually with setiferous puncture in scrobe (without, *Loxomerus* (in part)). Labrum not deeply emarginate anteriorly. Eyes present; a single supraorbital setiferous puncture on inner side (posteriorly). Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennal pubescence starting from segment 5. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 2 setae. Ligula with 2 apical setae (Fig. 169). Palpi with terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum without setiferous punctures on each side. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Fused along suture (hindwings vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures absent. Umbilicate series present; about 12–15 setiferous punctures. Radial field without fine dense pubescence. Apex rounded or obtuse. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex visible or invisible dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Sloane, 1915 (Australian taxa), 1920a (revision); Jeannel, 1938b (revision); Johns, 1974 (key to Subantarctic Islands taxa); Reichardt, 1977 (key to Neotropical genera); Baehr, 1999 (description of Falklands taxa); Moret, 1999 (description of new genus and new species from Ecuador).

Key to the New Zealand genera of *Migadopini*

- 1 Pronotum (Fig. 5) very transverse, trapezoidal, with base wider than apex. Elytra (Fig. 5) oblong, depressed; shoulders well developed
 (p. 30) ... *Calathosoma* Jeannel (Fig. 5)
 —Pronotum (Fig. 6–8) moderately transverse, cordate (heart-shaped), with base narrower than apex. Elytra (Fig. 6–8) ovate, convex; shoulders poorly developed
 (p. 30) ... *Loxomerus* Chaudoir (Fig. 6–8)

[5] Genus *Calathosoma* Jeannel, 1938

Figure 5, Map p. 167

Description. Body: length 9.5–11.0 mm; ovate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long, with setiferous puncture in scrobe. Eyes convex. Mentum tooth entire apically. **Thorax.** Pronotum very transverse, trapezoidal; base wider than apex. Metepisterna about as wide as long, subtriangular. **Legs.** Mesotibiae with a group of apical setae. **Elytra.** Oblong, depressed. Basal margin absent. Shoulders well developed. Scutellar setiferous pore present. Striae almost complete, mostly consisting of impressed lines. Intervals smooth, even. Umbilicate series rather continuous; about 12 setiferous punctures. Apex rounded. **Abdomen.** Apex invisible dorsally. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. Subantarctic Islands (AU); open scrublands, under fallen branches and stones.

Collecting techniques. Pitfall trapping; turning fallen branches and stones.

References. Jeannel, 1938b: 18 (description); Johns, 1974 (description); Larochelle & Larivière, 2001: 40–41 (catalogue).

[6] Genus *Loxomerus* Chaudoir, 1842

Figures 6–8, Map p. 170

Taenarthrus Broun, 1914a: 85. **New synonym.**

Description. Body: length 10.0–19.0 mm; subovate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long, with (usually) or without setiferous puncture in scrobe. Eyes convex. Mentum tooth entire or bifid apically. **Thorax.** Pronotum moderately transverse, cordate (heart-shaped); base narrower than apex. Metepisterna about as wide as long, subquadrate. **Legs.** Mesotibiae with or without a group of apical setae. **Elytra.** Ovate, convex. Basal margin absent. Shoulders poorly developed. Scutellar setiferous pore present. Striae almost complete, mostly consisting of impressed lines. Intervals smooth, even. Umbilicate series rather continuous; about 12–15 setiferous punctures. Apex rounded or obtuse. **Abdomen.** Apex visible or invisible dorsally. Other characters as for tribe.

Number of taxa. 5 species, including 2 changed combinations: *Loxomerus (Pristancylyus) capito* Jeannel, 1938, reinstatement; *Loxomerus (Pristancylyus) philpotti* (Broun, 1914), new combination. See Appendix B (Updated checklist of species).

General distribution and ecology. Subantarctic Islands (AU), in forests and fields, under stones and pieces of wood; South Island, along edges of rills and seepages running through forests and open places, under well embedded stones.

Collecting techniques. Pitfall trapping; turning stones and pieces of wood.

References. Broun, 1914a: 85 (description of *Taenarthrus*); Chaudoir, 1842: 851 (description); Jeannel, 1938b (revision); Johns, 1974 (key to species); Larochelle & Larivière, 2001: 41 (catalogue).

Notes. The genus *Taenarthrus* Broun, 1914, is here synonymised with *Loxomerus* Chaudoir, 1842, on the basis of morphology. The two species previously recognised under *Taenarthrus* (see Larochelle & Larivière, 2001) fit the morphological definition of the genus *Loxomerus*: pronotum moderately transverse, cordate, with base narrower than elytra; the latter ovate, convex, with poorly developed shoulders; similar configuration of male genitalia. The examination of extensive collection material brings the authors to concur with Jeannel (1938b) that neither the character of the mentum dentation (variously bifid), nor the character of the abdominal apex (exposed or not dorsally), are valid generic characters, i.e. variations within and between species fall within the limits recognised in *Loxomerus*. Broun (1914) also characterised *Taenarthrus* by the presence of “numerous spiniform setae” on the tibiae. This character is highly variable; the presence or absence of such setae can be seen in both *Loxomerus* species and species until now attributed to *Taenarthrus*. Consequently the two genera are synonymised and the combination *Loxomerus (Pristancylyus) capito* Jeannel, 1938, is reinstated, conforming to Jeannel’s original thinking, and the new combination *Loxomerus (Pristancylyus) philpotti* (Broun, 1914) is made. This genus is in need of further revision.

Subgenus *Loxomerus* Chaudoir, 1842

Description. Head. Mandibles without setiferous puncture in scrobe. **Elytra.** Striae 2+3 without common trunk basally (not fused basally).

References. Chaudoir, 1842: 851 (description); Jeannel, 1938b (description); Larochelle & Larivière, 2001: 41 (catalogue).

Subgenus *Pristancylyus* Blanchard, 1853

Description. Head. Mandibles with setiferous puncture in scrobe. **Elytra.** Striae 2+3 with a common trunk basally (fused basally).

References. Blanchard, 1853: 22 (description); Jeannel, 1938b (description); Laroche & Larivière, 2001: 41 (catalogue).

IV. Subfamily Scaritinae

Description (New Zealand). Body: length 5.0–10.0 mm; pedunculate. **Head.** Mandibles with setiferous puncture in scrobe. Labrum with 6 setiferous punctures on anterior margin. Clypeus narrower than distance between antennal sockets. Antennae moniliform; scapes partly visible from above, inserted laterally, more or less in line with outer margins of mandibles; head capsule with antennal grooves located ventrolaterally under a frontal plate. Palpi with terminal segment fusiform. **Thorax.** Scutellum visible, placed above elytral bases (on distinct peduncle). Procoxal cavities closed behind. Mesepimera reaching mesocoxal cavities. Metepimera visible between metepisterna and sternum II. **Legs.** Protibiae anisochaetous (with 1 apical and 1 subapical spur); antennal cleaner forming a very deep emargination. **Elytra.** Free along suture (hindwings developed). Striae present (8 in number). Apex not truncate. **Abdomen.** Apex invisible dorsally.

References. Jeannel, 1941 (description); Lindroth, 1961 (description); Reichardt, 1977 (key to Neotropical subtribes); Matthews, 1980 (key to South Australian genera); Erwin & Sims, 1984 (key to tribes and subtribes); Ball & Bousquet, 2001 (description); Arndt *et al.*, 2005 (description).

6. Tribe Clivinini

Figure 9

Description (New Zealand). **Head.** Labrum not deeply emarginate anteriorly. Eyes present; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennal pubescence starting from segment 3. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 4 setae. Ligula with 2 apical setae. Palpi with terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum with 2 setiferous punctures on each side. **Legs.** Protibiae digitate (finger-like; contrary to other tribes), with outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate visible between tarsal claws, long, setiform (seta-shaped). **Elytra.** Stria 1 not recurrent at apex. Discal setiferous punctures present. Umbilicate series present; about 30 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. Epipleura simple (without inner fold or plica) near apex.

Abdomen. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Jeannel, 1941 (description); Erwin & Sims, 1984 (description); Ball & Bousquet, 2001 (description).

Subtribe Clivinina

Description (New Zealand). **Head.** Antennal scapes with subapical setiferous puncture. Palpi with terminal segment similar in both sexes. **Elytra.** Umbilicate series continuous or almost so.

References. Jeannel, 1941 (description); Erwin & Sims, 1984 (description).

[7] Genus *Clivina* Latreille, 1802

Figure 9, Map p. 167

Description (New Zealand). Body: length 5.0–10.0 mm; elongate, cylindrical, flattened dorsally. Colour dark or pale, or forebody dark with elytra paler. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes convex. Frons with or without central fovea. Mentum tooth entire apically. **Thorax.** Pronotum subquadrate; base wider than apex; lateral beads prolonged behind posterolateral setiferous punctures. Scutellum placed at middle of pedunculate mesonotum. **Legs.** Pro- and mesotibiae strongly dilated and spiny, the latter with a long subapical spine. **Elytra.** Elongate, narrow; sides parallel. Basal margin absent. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole absent. Striae complete or almost so, mostly consisting of impressed lines; stria 3 with 4 discal setiferous punctures. Umbilicate series rather continuous; about 30 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa (New Zealand): 4 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; wet or moist areas, e.g., edges of bodies of water, wet meadows, roadside ditches; in burrows.

Collecting techniques. Pitfall trapping; turning plant debris and stones.

References. Latreille, 1802: 96 (description); Sloane, 1896a, 1905 (description; key to species); Jeannel, 1941 (description); Lindroth, 1961 (description); Laroche & Larivière, 2001: 42 (catalogue).

Note. This genus is in need of revision.

V. Subfamily Trechinae

Description (New Zealand). Body: length 1.0–39.00 mm; pedunculate or not. **Head.** Mandibles usually with setiferous puncture in scrobe (with or without, Broscini). Labrum with 6 setiferous punctures on anterior margin. Clypeus narrower than distance between antennal sockets. Antennae filiform or moniliform; scapes entirely visible from above, inserted laterally, more or less in line with outer margins of mandibles; head capsule without antennal grooves ventrally. Palpi with terminal segment usually fusiform, sometimes conical or subulate (Bembidiini), rarely securiform (Broscini, *Oregus*). **Thorax.** Scutellum usually visible (invisible, *Bountya*, *Diglymma*, *Oregus*, some *Molopsida*), placed either above elytral bases, partly between and above elytral bases, or entirely between elytral bases. Procoxal cavities closed behind. Mesepimera not reaching mesocoxal cavities. Metepimera visible between metepisterna and sternum II. **Legs.** Protibiae anisochaetous (with 1 apical and 1 subapical spur); antennal cleaner forming a very deep emargination. **Elytra.** Free along suture (hindwings developed) or fused (hindwings vestigial). Striae present (8 or fewer in number) or absent. Apex not truncate. **Abdomen.** Apex usually invisible dorsally.

References. Ball & Bousquet, 2001 (description); Arndt *et al.*, 2005 (description).

7. Tribe Broscini

Figures 10–23

Description (New Zealand). Body: length 8.0–39.0 mm; pedunculate or not. **Head.** Mandibles with or without setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Eyes present; 1–2 supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennae usually moniliform, rarely submoniliform or filiform; pubescence variable, starting from segments 3–6 (segment 3 partly pubescent). Mentum tooth present medially. Mentum-submentum suture present. Submentum with 2–8 setae. Ligula with (2 or 4) or without apical setae. Palpi with terminal segment fusiform (usually) or securiform; terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2–4 setae on anterior margin. **Thorax.** Pronotum with 2–11 setiferous punctures on each side. Scutellum invisible (concealed under prothorax) or visible (placed partly between and above elytral bases). **Legs.** Protibiae with or without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Fused along suture (hindwings vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures present or absent. Umbilicate

series present; 4–16 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with or without pubescence, in addition to paired ambulatory setae. **Genitalia.** Internal sac of aedeagus with (Fig. 4–5 in Townsend, 1971) or without sclerites X and Y. Spermatheca with (2–6) or without setae. Other characters as for subfamily.

References. Sloane, 1920a (key to Tasmanian genera); Jeannel, 1941 (description; key to tribes); Britton, 1949 (revision of New Zealand taxa); Matthews, 1980 (key to South Australian genera); Roig-Juñent, 1995 (revision of South American Creobiina); Davidson & Ball, 1998 (key to New World subtribes and genera); Roig-Juñent, 2000 (keys to subtribes and genera); Johns, 2005 (identification guide to selected taxa).

Key to the New Zealand genera of Broscini

- 1 Protibiae with outer apical prolongation (Fig. 195). Elytral interval or stria 7 with a series of setiferous punctures (Fig. 20). Scutellum visible (Fig. 11) 2
 - Protibiae without outer apical prolongation (Fig. 196). Elytral interval or stria 7 without a series of setiferous punctures (Fig. 12). Scutellum not visible, concealed under pronotum (Fig. 12) 4
- 2(1) Metatibiae (Fig. 201) triangular in cross-section, strongly curved, densely punctate externally, apical spur reaching middle of tarsomere 3. Ligula without apical setae (Fig. 168)
 - ... (p. 33) ... *Brullea* Laporte de Castelnau (Fig. 11)
 - Metatibiae (Fig. 202) round in cross-section, straight or almost so, not densely punctate externally, apical spur not reaching beyond middle of tarsomere 2. Ligula with apical setae (Fig. 169–170) 3
- 3(2) Abdominal sternum VI with 6–20 setae, including ambulatory setae (Fig. 253). Antennae: segments 4–11 glabrous with apical setiferous ring only. [Pronotum with 5–7 setiferous punctures on each side]
 - (p. 35) ... *Metaglymma* Bates (Fig. 22)
 - Abdominal sternum VI usually with 2–6 setae, including ambulatory setae (Fig. 254), rarely without setae. Antennae: segments 5(6)–11 pubescent throughout (segments 3, 4, sometimes 5, with apical setiferous ring only). [Pronotum with 4–16 setiferous punctures on each side]
 - (p. 34) ... *Mecodema* Blanchard (Fig. 13–21)
- 4(1) Head (Fig. 175) with 2 supraorbital setiferous punctures on inner side of eyes; vertex with transverse

- line of 1–5 setiferous punctures on each side. Pronotum with 6–11 setiferous punctures on each side
 (p. 35) ... *Oregus* Putzeys (Fig. 23)
- Head (Fig. 10, 12) with a single supraorbital setiferous puncture on inner side of eyes; vertex without transverse line of setiferous punctures on each side. Pronotum with 2–4 setiferous punctures on each side (Fig. 10, 12) 5
- 5(4) Pronotum (Fig. 10) elongate, subcylindrical, with sides barely constricted basally. Ligula with 4 apical setae (Fig. 170) ... (p. 33) ... *Bountya* Townsend (Fig. 10)
- Pronotum (Fig. 12) shorter, not subcylindrical, with sides moderately (although distinctly) constricted basally. Ligula with 2 apical setae (Fig. 169)
 (p. 34) ... *Diglymma* Sharp (Fig. 12)

Subtribe Creobiina

Description (New Zealand). Body length 13.0–13.5 mm. **Head.** Ligula with 4 apical setae. **Genitalia.** Internal sac of aedeagus without sclerites X and Y. Spermatheca without basal sclerite.

References. Roig-Juñent, 1995 (revision of South American taxa), 2000 (description; key to world genera).

[8] Genus *Bountya* Townsend, 1971

Figure 10, Map p. 167

Description. Body: length 13.0–13.5 mm; pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long, with or without setiferous puncture in scrobe. Eyes convex; a single supraorbital setiferous puncture on inner side (posteriorly), bearing 1 or 2 setae. Antennae moniliform; dense pubescence starting from apical third of segment 3. Mentum tooth entire apically. Submentum with 8 setae. Ligula with 4 apical setae. Palpi with terminal segment fusiform; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum elongate, subcylindrical, widest about middle; sides barely constricted basally, not crenulate; base and apex subequal in width; 2 setiferous punctures on each side. Scutellum invisible, concealed under pronotum. **Legs.** Protibiae without outer apical prolongation. Meso- and metatibiae not strongly dilated externally towards apex; metatibiae straight, apical spur not reaching beyond middle of tarsomere 2. **Elytra.** Elongate-subovate. Basal margin present, incomplete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striae present. Striae incomplete, generally consisting of impressed lines. Interval 7 without a series of setiferous

punctures. Umbilicate series separated into two major groups (1+3), with posterior group continuous; 4 setiferous punctures. Apex rounded, without a group of accessory setiferous punctures. **Abdomen.** Sterna IV–VI with paired ambulatory setae only. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. Subantarctic Islands (BO); penguin and albatross colonies, in burrows, bird nests, and under stones.

Collecting techniques. Examining bird nests; pitfall trapping; turning stones.

References. Townsend, 1971: 180 (description); Roig-Juñent, 2000 (description); Larochelle & Larivière, 2001: 44 (catalogue).

Subtribe Nothobroschina

Description (New Zealand). Body length 8.0–39.0 mm. **Head.** Ligula usually with 2 apical setae, rarely glabrous. **Genitalia.** Internal sac of aedeagus with sclerites X and Y. Spermatheca with a basal sclerite.

Reference. Roig-Juñent, 2000 (description; key to genera).

[9] Genus *Brullea* Laporte de Castelnau, 1867

Figure 11, Map p. 167

Description. Body: length 21.0–25.0 mm; pedunculate. Colour pale. Metallic lustre absent. Dorsal surface mostly glabrous, sparsely pubescent on apical third of elytra. **Head.** Very wide. Mandibles very long, without setiferous puncture in scrobe. Eyes convex; a single supraorbital setiferous puncture on inner side (about middle), bearing more than 1 seta. Antennae moniliform; moderate to dense pubescence starting from segment 6 (segments 3–5 with apical setiferous ring only). Mentum tooth bifid apically. Submentum with 6 setae. Ligula without apical setae. Palpi with terminal segment fusiform; penultimate labial segment with 4 setae on anterior margin. **Thorax.** Pronotum very transverse, very cordate (heart-shaped); sides strongly constricted basally, not crenulate; base narrower than apex; 3–4 setiferous punctures on each side. Scutellum visible. **Legs.** Protibiae with outer apical prolongation. Meso- and metatibiae triangular in cross-section (strongly dilated externally towards apex; contrary to other broscine genera), densely punctate externally; metatibiae strongly curved (contrary to other broscine genera), apical spur reaching middle of tarsomere 3. **Elytra.** Ovate. Basal margin absent. Shoulders poorly developed. Scutellar setiferous pore ab-

sent. Scutellar striole present. Striae almost complete, generally consisting of impressed lines. Interval 7 with a series of setiferous punctures. Umbilicate series usually rather continuous; 10–11 setiferous punctures. Apex rounded, with a group of accessory setiferous punctures. **Abdomen.** Sterna IV–VI with 2–22 accessory setae, in addition to paired ambulatory setae; sternum VI with 18–24 setae altogether. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; coastal sandy beaches and dunes, in burrows (usually), under logs and fallen trees.

Collecting techniques. Pitfall trapping; turning logs and fallen trees; collecting with a torch or headlamp at night.

References. Laporte de Castelnau, 1867: 79 (description); Britton, 1949 (description); Roig-Juñent, 2000 (description); Larochelle & Larivière, 2001: 44 (catalogue).

Note. This genus is in need of revision.

[10] Genus *Diglymma* Sharp, 1886

Figure 12, Map p. 168

Anomalobrosacus Johns, 2007: 1. **New synonym.**

Description. Body: length 8.0–17.0 mm; not pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long, with setiferous puncture in scrobe. Eyes convex; a single supraorbital setiferous puncture on inner side (posteriorly), bearing 1 seta. Antennae moniliform (usually) or submoniliform; dense pubescence starting from segment 4. Mentum tooth bifid or entire apically. Submentum with 2–4 setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum variously shaped, slightly to moderately cordate or not cordate; sides moderately constricted basally, rarely slightly crenulate; base narrower than apex; 2–4 setiferous punctures on each side. Scutellum invisible, concealed under pronotum. **Legs.** Protibiae without outer apical prolongation. Meso- and metatibiae not strongly dilated externally towards apex; metatibiae straight or almost so, apical spur not reaching beyond middle of tarsomere 2. **Elytra.** Elongate-subovate. Basal margin absent or present (incomplete). Shoulders poorly or well developed. Scutellar setiferous pore present or absent. Scutellar striole present or absent. Striae usually complete, generally consisting of impressed lines. Interval 7 without a series of setiferous punctures. Umbilicate series usually rather continuous; 7–10 setiferous punctures. Apex rounded, without a group of accessory setiferous punctures. **Abdomen.** Sterna IV–VI usually with

paired ambulatory setae only, rarely with another 2 accessory setae on sternum VI. Other characters as for tribe.

Number of taxa. 5 species, including the new combination *Diglymma seclusum* (Johns, 2007). See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (WA, WN) and South Island, Subantarctic Islands (SN); forests, in burrows, under logs and stones.

Collecting techniques. Pitfall trapping; turning logs and stones.

References. Sharp, 1886: 360 (description); Britton, 1949 (revision); Roig-Juñent, 2000 (description); Larochelle & Larivière, 2001: 45 (catalogue); Johns, 2007 (as *Anomalobrosacus* new genus and species; taxonomy).

Notes. Several specimens of the same populations studied by Johns (2007) when he proposed the new genus and species *Anomalobrosacus seclusus* were examined by the authors who found this species to be congeneric with *Diglymma* according to the generic description provided above, including the following diagnostic characters: eyes with a single supraorbital setiferous puncture on inner side (posteriorly); vertex of head without transverse line of setiferous punctures on each side; pronotum with 2–4 setiferous punctures on each side; pronotal sides moderately (although distinctly) constricted basally; ligula with 2 apical setae.

Consequently, the new combination *Diglymma seclusum* is made here. By this action *Anomalobrosacus* Johns, 2007, becomes a junior subjective synonym of the genus *Diglymma*. The description of *Diglymma* provided here as well as those previously supplied by Britton (1949) and Roig-Juñent (2000) accommodate *D. seclusum* without problems. Johns (2007) used the unfortunate practice of combining species and generic attributes within a single description, hence not providing a clear differentiation between what constitutes reliable generic or specific characters. From the overall description *D. seclusum* appears to be a morphologically highly variable species and a hint of what Johns (2007) considers to be diagnostic generic characters is given in the accompanying remarks. Unfortunately, the attributes provided all fall within categories of characters generally ascribed to species rather than genera within the Broscini. The genus *Diglymma* is in need of further revision.

[11] Genus *Mecodema* Blanchard, 1843

Figures 13–21, Map p. 171

Description. Body: length 14.0–39.0 mm; pedunculate. Colour dark. Metallic lustre present or absent. Dorsal surface mostly glabrous, sparsely pubescent on apical third

of elytra. **Head.** Very wide. Mandibles very long, without setiferous puncture in scrobe. Eyes convex; a single supraorbital setiferous puncture on inner side (posteriorly), bearing more than 1 seta. Antennae moniliform; dense pubescence starting from segment 5 or 6 (segments 3, 4, sometimes 5, with apical setiferous rings only). Mentum tooth usually bifid apically. Submentum with 4–8 setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum variously shaped, often cordate (heart-shaped); sides often constricted basally, crenulate or not; base narrower than apex; 4–16 setiferous punctures on each side. Scutellum visible. **Legs.** Protibiae with outer apical prolongation. Meso- and metatibiae usually not strongly dilated externally towards apex; metatibiae straight, or almost so, apical spur not reaching beyond middle of tarsomere 2. **Elytra.** Subovate. Basal margin usually absent, rarely present (incomplete). Shoulders poorly developed. Scutellar setiferous pore usually absent. Scutellar striole present. Striae complete or incomplete, usually consisting of impressed lines, rarely of rows of punctures. Stria 7 (rarely interval 7) with a series of setiferous punctures. Umbilicate series usually rather continuous; 10–16 setiferous punctures. Apex rounded, sometimes with a group of accessory setiferous punctures. **Abdomen.** Sterna IV–VI without or with 2–4 accessory setae, in addition to paired ambulatory setae; sternum VI usually with 2–6 setae altogether, rarely without any setae. Other characters as for tribe.

Number of taxa. 60 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North, South and Stewart Islands, Offshore Islands (CH, SN, TH); forests and fields, in burrows, under pieces of wood and stones.

Collecting techniques. Pitfall trapping; turning pieces of wood and stones.

References. Blanchard, 1843: Plate 2, Figure 14 (description); Britton, 1949 (revision), 1964b (revision of *Mecodema curvidens* group); Townsend, 1965 (descriptions of new species); Roig-Juñent, 2000 (description); Larochelle & Larivière, 2001: 46 (catalogue); Johns, 2007 (description of a new species).

Notes. Britton's (1949) and Johns' (2005) species groups are for convenience only and bear no formal taxonomic value. The artificiality of Britton's groups is further evidenced by the fact that a number of species appear in more than one group in his keys, e.g. *M. howittii* Laporte de Castelnau, *M. pluto* Britton, *M. rectolineatum* Laporte de Castelnau, *M. sculpturatum* Blanchard. This genus is in need of further revision. Reliable species identification can only be achieved by examination of the male genitalia.

[12] Genus *Metaglymma* Bates, 1867

Figure 22, Map p. 171

Description. Body: length 14.0–21.0 mm; pedunculate. Colour dark. Metallic lustre present or absent. Dorsal surface mostly glabrous, sparsely pubescent on apical third of elytra. **Head.** Very wide. Mandibles very long, without setiferous puncture in scrobe. Eyes convex; a single supraorbital setiferous puncture on inner side (about middle), bearing more than 1 seta. Antennae moniliform; segments 1–3 glabrous, segments 4–11 with apical setiferous ring. Mentum tooth bifid or entire apically. Submentum with 5–6 setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum very transverse, subcordate; sides strongly constricted basally, not or barely crenulate; base narrower than apex; 5–7 setiferous punctures on each side. Scutellum visible. **Legs.** Protibiae with outer apical prolongation. Meso- and metatibiae strongly dilated externally towards apex; metatibiae straight, or almost so, apical spur not reaching beyond middle of tarsomere 2. **Elytra.** Subovate. Basal margin absent. Shoulders poorly developed. Scutellar setiferous pore absent. Scutellar striole present. Striae almost complete, generally consisting of impressed lines. Stria 7 with a series of setiferous punctures. Umbilicate series usually rather continuous; 12–15 setiferous punctures. Apex rounded, with a group of accessory setiferous punctures. **Abdomen.** Sterna IV–VI with 4–18 accessory setae, in addition to paired ambulatory setae; sternum VI with 6–20 setae altogether. Other characters as for tribe.

Number of taxa. 3 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island; fields, in burrows, under stones and pieces of wood.

Collecting techniques. Pitfall trapping; turning stones and pieces of wood.

References. Bates, 1867: 78 (description); Britton, 1949 (revision); Roig-Juñent, 2000 (description); Larochelle & Larivière, 2001: 59 (catalogue).

Note. This genus is in need of further revision.

[13] Genus *Oregus* Putzeys, 1868

Figure 23, Map p. 172

Description. Body: length 14.0–23.0 mm; not pedunculate. Colour dark. Metallic lustre present. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles very long, with or without setiferous puncture in scrobe. Eyes convex; 2 supraorbital setiferous punctures on inner side, each bearing 1 seta. Vertex with transverse line of 1–5 setiferous

punctures on each side (contrary to other broscine genera). Antennae moniliform, submoniliform, or filiform; dense pubescence starting from apical third of segment 4 (segment 3 with apical setiferous ring only). Mentum tooth bifid apically. Submentum with 4 setae. Ligula with 2 apical setae. Palpi with terminal segment securiform; penultimate labial segment with 3 setae on anterior margin. **Thorax.** Pronotum subquadrate, not cordate; sides slightly constricted basally, not crenulate; base narrower than apex; 6–11 setiferous punctures on each side, the most posterior puncture moderately removed from posterolateral angle (greatly removed in other broscine genera). Scutellum invisible, concealed under pronotum. **Legs.** Protibiae without outer apical prolongation. Meso- and metatibiae not strongly dilated externally towards apex; metatibiae straight, or almost so, apical spur not reaching beyond middle of tarsomere 2. **Elytra.** Subovate. Basal margin absent. Shoulders poorly developed. Scutellar setiferous pore present. Scutellar striole present. Striae incomplete, generally consisting of rows of punctures. Interval 7 without a series of setiferous punctures. Umbilicate series rather continuous; 11–14 setiferous punctures. Apex rounded, without a group of accessory setiferous punctures. **Abdomen.** Sterna IV–VI with paired ambulatory setae only. Other characters as for tribe.

Number of taxa. 4 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island; forests and fields, in burrows, under stones and logs.

Collecting techniques. Pitfall trapping; turning stones and logs.

References. Putzeys, 1868: 326 (description); Britton, 1949 (revision); Roig-Juñent, 2000 (description); Laroche & Larivière, 2001: 60 (catalogue); Pawson & Emberson, 2001 (species differences); Pawson *et al.*, 2003a (species differences), 2003b (revision).

8. Tribe Mecyclothoracini

Figures 24–25

Description (New Zealand). Body: length 3.3–6.0 mm; pedunculate or not. **Head.** Mandibles with setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly (truncate, Mecyclothoracini; moderately emarginate, Meonini; truncate or slightly emarginate, Tropopterini). Eyes present; 1 (posteriorly) or 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennae filiform; pubescence starting from segment 4. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 4 setae. Ligula truncate apically (as Tropopterini);

conical, Meonini); 2 apical setae. Palpi with terminal segment fusiform; terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum with 1 (anteriorly) or 2 setiferous punctures on each side. Scutellum visible, inserted entirely between elytral bases, or partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Free along suture (hindwings developed) or fused (hindwings vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures present. Interval 8 not carinate apically (as Meonini; carinate, Tropopterini). Umbilicate series present; 12–13 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. Epipleura twisted (with inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. **Genitalia.** Parameres with numerous setae (as Meonini). Other characters as for subfamily.

References. Moore, 1963 (description; key to Australian genera); Matthews, 1980 (key to South Australian genera).

Notes. The tribes Mecyclothoracini, Meonini, and Tropopterini are closely related and sometimes assigned to the subfamily Psydrinae (Laroche & Larivière, 2001), hence they are often referred to as the ‘southern psydrines’. See Jeannel (1941), Moore (1963), and Baehr (2004) for identification keys to the above three tribes.

[14] Genus Mecyclothorax Sharp, 1903

Figures 24–25, Map p. 171

Description (New Zealand). Body: length 3.3–6.0 mm; pedunculate or not; subovate, convex. Colour dark or pale. Metallic lustre present or absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Labrum with anterior marginal setae equidistant. Eyes normally developed, convex; 2 supraorbital setiferous punctures or a single puncture (posteriorly) on inner side. Mentum weakly depressed, not excavated on each side; inner margins of lateral lobes angular apically; median tooth entire. Paraglossae glabrous. **Thorax.** Pronotum very transverse, suborbicular or subrectangular, slightly convex; base and apex subequal in width; 2 setiferous punctures or a single puncture (anteriorly) on each side; posterolateral angles obtuse or rectangular; laterobasal foveae present, moderately or very deep, not linear. Scutellum placed partly between and above elytral bases or inserted entirely between elytral bases. Metepisterna elongate or short (subquadrate). **Elytra.** Oblong, depressed or very convex. Basal margin present, complete. Shoulders well developed, rounded. Scutellar setiferous pore present. Scutellar striole present, long or short. Striae complete or incomplete, con-

sisting of rows of punctures or impressed lines. Interval 3 with 1 (anterior) or 2 discal setiferous punctures. Umbilicate series separated into two major groups (7+5(6)), with posterior group continuous. Apex rounded. Other characters as for tribe.

Number of taxa (New Zealand). 5 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH, KE, TH); forests (mostly), fields, and dunes, in leaf litter (mostly) and under fallen branches.

Collecting techniques. Pitfall trapping; raking or sifting leaf litter; lifting fallen branches.

References. Sharp, 1903: 243 (description); Britton, 1948 (revision of Hawaiian taxa); Moore, 1963 (description); Perrault, 1978, 1984, 1992 (description); Moore, 1984 (species differences); Baehr, 1995a (revision of New Guinean taxa); Laroche & Larivière, 2001: 61 (catalogue); Baehr, 2002b, 2003b (description of Queensland taxa).

Note. This genus is in need of revision.

9. Tribe Meonini

Figure 26

Description (New Zealand). Body: length 6.0–7.5 mm; pedunculate. **Head.** Mandibles with setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Eyes present; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennae widening from base to apex (apical half submoniliform); pubescence starting from segment 4. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 4 setae. Ligula conical apically (truncate, Mecyclothoracini, Tropopterini); 2 apical setae. Palpi with terminal segment fusiform, setose (microscopic setae); penultimate maxillary segment glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum with 2 setiferous punctures on each side. Scutellum visible, placed partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi pubescent dorsally; claws entire ventrally; unguitractor plate invisible between tarsal claws. **Elytra.** Fused along suture (hindwings vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures absent. Interval 8 not carinate apically (as Mecyclothoracini; carinate, Tropopterini). Umbilicate series present; 12 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. Epipleura twisted (with inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. **Genitalia.** Parameres with numerous setae. Other characters as for subfamily.

References. Jeannel, 1941 (description); Moore, 1963 (description; key to Australian genera); Matthews, 1980 (key to South Australian genera); Baehr, 2003b (description of Queensland taxa).

Note. See under Mecyclothoracini.

[15] Genus *Selenochilus* Chaudoir, 1878

Figure 26, Map p. 174

Description. Body: length 6.0–7.5 mm; elongate, depressed. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long. Labrum with anterior marginal setae not equidistant (4 setae grouped medially). Eyes normally developed, convex. Mentum deeply depressed, excavated on each side; inner margins of lateral lobes rounded apically; median tooth entire. Paraglossae setose. **Thorax.** Pronotum moderately transverse, subrectangular; base and apex subequal in width; posterolateral angles rectangular; laterobasal foveae present, deep and linear. Metepisterna short, subquadrate. **Elytra.** Elongate; sides subparallel. Basal margin present, incomplete. Shoulders well developed, rectangular. Scutellar setiferous pore present. Scutellar striae absent. Striae complete, consisting partly of impressed lines, partly of rows of punctures. Interval 3 without discal setiferous puncture. Umbilicate series separated into two major groups (5+5), with posterior group continuous. Apex rounded. Other characters as for tribe.

Number of taxa. 6 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island, South Island (northern half); forests, under pieces of wood and logs.

Collecting techniques. Pitfall trapping; turning pieces of wood and logs.

References. Chaudoir, 1878b: 21 (description); Laroche & Larivière, 2001: 63 (catalogue).

Note. This genus is in need of revision.

10. Tribe Tropopterini

Figure 27

Description (New Zealand). Body: length 4.0–6.5 mm; not pedunculate. **Head.** Mandibles with setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Eyes present; 2 supraorbital setiferous punctures on inner side, rarely with a single puncture (posteriorly). Tempora usually not inflated. Clypeus with a setiferous puncture on each side. Antennae widening from base to apex (apical half submoniliform); pubescence starting from segment 4. Mentum tooth present medially. Mentum-submentum

suture present. Submentum with 4 setae. Ligula truncate apically (as Mecyclothoracini; conical, Meonini); 2 apical setae. Palpi with terminal segment fusiform (Fig. 139) or conical (Fig. 140); terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum usually with 2 (rarely 1) or seldom without setiferous punctures on each side. Scutellum barely visible, rarely entirely concealed by pronotal base, inserted entirely between elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Fused along suture (hindwings vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures present or absent. Interval 8 carinate apically (contrary to Mecyclothoracini and Meonini). Umbilicate series present; 13 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. Epipleura twisted (with inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. **Genitalia.** Parameres glabrous or with only a few setae (numerous setae, Mecyclothoracini and Meonini). Other characters as for subfamily.

References. Jeannel, 1941 (description); Moore, 1963 (description; key to Australian taxa); Baehr, 2003b (description of Queensland taxa).

Note. See under Mecyclothoracini.

[16] Genus *Molopsida* White, 1846

Figure 27, Map p. 171

Description. Body: length 4.0–6.5 mm; subovate, convex. Colour dark or pale. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles very long. Labrum with anterior marginal setae equidistant. Eyes normally developed or reduced, convex or depressed. Mentum weakly depressed, not excavated on each side; inner margins of lateral lobes rounded apically; median tooth entire. Paraglossae glabrous. **Thorax.** Pronotum moderately transverse, subcordate; base narrower than or as wide as apex; posterolateral angles rectangular; laterobasal foveae absent or present, not deep, rarely linear. Metepisterna short, subquadrate. **Elytra.** Ovate. Basal margin present, complete. Shoulders well developed, obtuse. Scutellar setiferous pore present. Scutellar striole absent. Striae complete or incomplete, usually consisting of rows of punctures, sometimes of impressed lines. Interval 3 usually without discal setiferous puncture, rarely with 1–3 punctures (may instead be in stria 3). Umbilicate series separated into two major groups (7+6), with posterior group continuous. Apex rounded. Other characters as for tribe.

Number of taxa. 28 species. See Appendix B (Updated

checklist of species).

General distribution and ecology. North and South Islands; forests, in leaf litter and under pieces of wood.

Collecting techniques. Pitfall trapping; raking or sifting leaf litter; turning pieces of wood.

References. White, 1846: 6 (description); Larochelle & Larivière, 2001: 64 (catalogue).

Note. This genus is in need of revision.

11. Tribe Trechini

Figures 28–35

Description (New Zealand). Body: length 1.0–9.0 mm; pedunculate. **Head.** Mandibles with setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Eyes usually present, rarely absent (*Neanops*); usually 2 supraorbital setiferous punctures on inner side (3–4 punctures, *Neanops*). Tempora inflated or not. Frontal furrows well developed, long, extended behind posterior margin of eyes (short, not extended behind posterior margin of eyes in other Trechinae tribes). Clypeus with at least one setiferous puncture on each side. Antennae usually filiform, rarely submoniliform; dense pubescence starting from segment 2 (rarely segment 4). Mentum tooth present medially. Mentum-submentum suture usually present, rarely absent (*Erebotrechus*). Submentum with 6 setae. Ligula with 8 apical setae. Palpi with terminal segment conical (Fig. 140) or fusiform (Fig. 139); terminal and penultimate maxillary segments glabrous; penultimate labial segment with 4 setae (2 on anterior margin, 2 elsewhere). **Thorax.** Pronotum with 1 (anteriorly) or 2 setiferous punctures on each side. Scutellum visible, placed partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi pubescent dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Fused along suture (hindwings vestigial). Stria 1 recurrent at apex (curving back like a hook, as in Zolini and Bembidiini (*Tachyina*)). Discal setiferous punctures present. Umbilicate series present; 8 setiferous punctures. Radial field without fine dense pubescence. Apex usually rounded, rarely subtruncate or obtuse. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex invisible or visible (*Kenodactylus*, *Maoritrechus*) dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Jeannel, 1926, 1927, 1928, 1941, 1962 (description; key to subtribes; world revision); Lindroth, 1961 (description); Moore, 1972 (description; key to subtribes; revision of Australian taxa); Casale & Laneyrie, 1982 (description; key to supraspecific taxa; world catalogue); Giachino, 2005a (key to New Zealand Trechina genera).

Key to the New Zealand genera of Trechini

- 1 Pronotum with a single setiferous puncture on each side anteriorly (Fig. 30, 33) 2
- Pronotum with 2 setiferous punctures on each side (Fig. 31–32) 3
- 2(1) Elytra (Fig. 30) with 2 discal setiferous punctures in stria 3, and one in stria 2; stria 1 recurving apically toward stria 5. Mandibles bidentate (with 2 teeth), without a premolar between the molar and retinaculum (Fig. 157) (p. 40) ... *Duvaliomimus* Jeannel (Fig. 30)
- Elytra (Fig. 33) with 3 discal setiferous punctures in stria 3, none in stria 2; stria 1 recurving apically toward stria 8. Mandibles tridentate (with 3 teeth), with a premolar between the molar and retinaculum (Fig. 158) (p. 42) ... *Kupetrechus* new genus (Fig. 33)
- 3(1) Pronotum (Fig. 32) very transverse, suborbicular, with sides strongly convergent basally and posterolateral angles poorly developed. Elytral stria 3 (Fig. 32) with discal setiferous punctures foveate (p. 41) ... *Kiwitrechus* new genus (Fig. 32)
- Pronotum not as above. Elytral stria 3 (Fig. 29) without foveate discal setiferous punctures 4
- 4(3) Elytra (Fig. 28–29): apex subtruncate, abdomen visible dorsally; stria 1 interrupted apically before recurving. Tempora strongly inflated (Fig. 28–29). [Intertidal or epilittoral insects] 5
- Elytra (Fig. 31, 34–35): apex rounded, abdomen invisible dorsally; stria 1 not interrupted apically before recurving. Tempora not inflated (Fig. 31, 34–35). [Cavernicolous insects] 6
- 5(4) Elytra (Fig. 28): 4 discal setiferous punctures (3 punctures in stria 3, one on interval 5); striae poorly impressed; apex with prominent apical lobe. [Body length 4.6 mm or more] (p. 39) ... *Kenodactylus* Broun (Fig. 28)
- Elytra (Fig. 29): 3 discal setiferous punctures in stria 3 only; striae well impressed; apex without prominent apical lobe. [Body length about 2.7 mm] (p. 40) ... *Maoritrechus* Brookes (Fig. 29)
- 6(4) Frons and genae without accessory setae (Fig. 35). Mandibles bidentate, without a premolar between the molar and retinaculum (Fig. 157). Body length about 9 mm (p. 43) ... *Scototrechus* Britton (Fig. 35)
- Frons and genae with accessory setae (Fig. 31, 34). Mandibles tridentate, with a premolar between the molar and retinaculum (Fig. 158). Body length less than 7 mm 7

- 7(6) Eyes present (Fig. 138), strongly reduced (to a single facet). Head with narrow neck (Fig. 31). Pronotum (Fig. 31) elongate, subcylindrical, with base and apex subequal in width. Body length 6 mm or more (p. 41) ... *Erebotrechus* Britton (Fig. 31)
- Eyes absent (Fig. 34). Head with moderately wide neck (Fig. 34). Pronotum (Fig. 34) subquadrate, cordate (heart-shaped), with base narrower than apex. Body length less than 4 mm (p. 43) ... *Neanops* Britton (Fig. 34)

Subtribe Aepina

Description (New Zealand). Body length 2.7–5.8 mm. **Legs.** Protibiae with an external spur. [Intertidal or epilittoral insects.]

References. Jeannel, 1926, 1941, 1962 (description); Casale and Laneyrie, 1982 (description; key to genera).

[17] Genus *Kenodactylus* Broun, 1909

Figure 28, Map p. 169

Description. Body length 4.6–5.8 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide, moderately long. Mandibles moderately long, tridentate (with a premolar between the molar and the retinaculum). Eyes present, strongly reduced, depressed; 2 supraorbital setiferous punctures on inner side. Genae without accessory setae. Tempora strongly inflated. Frons without accessory setae; frontal furrows semicircular, incomplete near posterior supraorbital puncture. Neck very wide. Antennae moderately long, submoniliform; pubescence starting from segment 2. Mentum tooth entire. Mentum-submentum suture present. **Thorax.** Pronotum moderately transverse, subcordate; base narrower than apex; lateral depressions well defined; posterolateral angles well developed, obtuse; 2 setiferous punctures on each side. **Legs.** Protibiae without longitudinal groove on outer side; apex glabrous on inner side; external spur present. **Elytra.** Ovate, shortened apically. Basal margin absent. Shoulders moderately developed, rounded. Scutellar setiferous pore present. Scutellar striole present or absent. Four discal setiferous punctures (contrary to other trechine genera): 3 punctures in stria 3, one on interval 5. Striae incomplete, generally consisting of poorly impressed rows of punctures; stria 1 poorly impressed, interrupted apically before recurving toward stria 5, with 2 apical setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Apex subtruncate; apical lobe prominent (contrary to *Maoritrechus*). **Abdomen.** Apex visible dorsally. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. Subantarctic Islands (AN, AU, CA, SN), South Island (DN), and Stewart Island; in penguin and seal colonies, under stones, algae, and in rock fissures.

Collecting techniques. Examining penguin nests and seal colonies; turning stones and algae; examining rock fissures at low tide.

References. Broun, 1909b: 90 (description); Jeannel, 1938a (description); Johns, 1974 (description); Larochelle & Larivière, 2001: 69 (catalogue).

[18] Genus *Maoritrechus* Brookes, 1932

Figure 29, Map p. 171

Description. Body length 2.7 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide, moderately long. Mandibles moderately long, tridentate (with a premolar between the molar and the retinaculum). Eyes present, strongly reduced, depressed; 2 supraorbital setiferous punctures on inner side. Genae without accessory setae. Tempora strongly inflated. Frons without accessory setae; frontal furrows semicircular, complete. Neck very wide. Antennae moderately long, submoniliform; dense pubescence starting from segment 2. Mentum tooth entire. Mentum-submentum suture present. **Thorax.** Pronotum moderately transverse, subcordate; base narrower than apex; lateral depressions well defined; posterolateral angles well developed, obtuse; 2 setiferous punctures on each side. **Legs.** Protibiae with longitudinal groove on outer side; apex glabrous on inner side; external spur present. **Elytra.** Ovate, shortened apically (as *Kenodactylus*). Basal margin absent. Shoulders poorly developed, rounded. Scutellar setiferous pore present. Scutellar striole present. Three discal setiferous punctures in stria 3. Striae mostly incomplete, generally consisting of well impressed rows of punctures; stria 1 well impressed, interrupted apically before recurving toward stria 5, with a single apical setiferous puncture. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Apex subtruncate; apical lobe not prominent. **Abdomen.** Apex visible dorsally. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (AK?), South Island (KA); seashores, in deep gravel, under stones, and under algae.

Collecting techniques. Raking gravel; turning stones and algae; sifting loam.

References. Brookes, 1932: 27 (description); Jeannel, 1938a, 1940b, 1964 (as *Temnostega* Enderlein, 1905: 719; description); Casale & Laneyrie, 1982 (as *Temnostega*; description); Larochelle & Larivière, 2001: 70 (catalogue).

Note. This genus is in need of revision.

Subtribe *Trechina*

Description (New Zealand). Body length 2.6–9.0 mm. **Legs.** Protibiae without external spur. [Terrestrial insects (epigeal, cavernicolous).]

References. Jeannel, 1926, 1941, 1962 (description); Moore, 1972 (revision of Australian taxa); Casale & Laneyrie, 1982 (description; key to genera).

[19] Genus *Duvaliomimus* Jeannel, 1928

Figure 30, Map p. 168

Description. Body length 5.1–8.5 mm. Colour dark or pale. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately to very wide or long. Mandibles moderately or very long, bidentate (without a premolar between the molar and the retinaculum; as *Scototrechus*). Eyes present, strongly reduced (small or almost absent), convex or depressed; 2 supraorbital setiferous punctures on inner side. Genae without accessory setae. Tempora inflated or not. Frons without accessory setae; frontal furrows complete (semicircular) or incomplete (straight). Neck moderately wide or narrow. Antennae moderately or very long, filiform; dense pubescence starting from segment 2 (segment 1 with 1–4 setae only). Mentum tooth bifid. Mentum-submentum suture present. **Thorax.** Pronotum elongate or moderately transverse, more or less cordate; base narrower than apex; lateral depressions well defined; posterolateral angles well developed, acute; a single setiferous puncture on each side (anteriorly; as *Kupetrechus*). **Legs.** Protibiae with longitudinal groove on outer side; apex pubescent on inner side; external spur absent. **Elytra.** Ovate, not shortened apically. Basal margin present (incomplete) or absent. Shoulders moderately developed, rounded or oblique. Scutellar setiferous pore present. Scutellar striole present or absent. Three discal setiferous punctures; 2 punctures in stria 3, one in stria 2. Striae incomplete, generally consisting of impressed lines or rows of punctures; stria 1 well impressed, recurving apically toward stria 5, with 2 apical setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Apex rounded. **Abdomen.** Apex invisible dorsally. Other characters as for tribe.

Number of taxa. 8 species. See Appendix B (Updated

checklist of species).

General distribution and ecology. North and South Islands; stream banks (under small stones and in piles of plant debris) and caves.

Collecting techniques. Turning stones; sifting plant debris; throwing plant debris into water; collecting with a torch or headlamp; using baited pitfall traps.

References. Jeannel, 1928: 82 (description); Britton, 1958 (description), 1964a (key to species); Laroche & Larivière, 2001: 70 (catalogue); Giachino, 2005a (description of new species).

Note. This genus is in need of revision.

[20] Genus *Erebotrechus* Britton, 1964

Figure 31, Map p. 168

Description. Body length 6.7–7.0 mm. Colour pale. Metallic lustre absent. Dorsal surface mostly glabrous; head setose (with about 20 accessory setae). **Head.** Moderately wide, very long. Mandibles very long, tridentate (with a premolar between the molar and the retinaculum). Eyes present, strongly reduced (almost absent, reduced to a single facet); 2 supraorbital setiferous punctures on inner side. Genae with accessory setae. Tempora not inflated. Frons with 6–8 accessory setae; frontal furrows incomplete, straight. Neck narrow. Antennae moderately long, filiform; dense pubescence starting from segment 2 (segment 1 with 1–9 setae only). Mentum tooth bifid. Mentum-submentum suture absent (contrary to other Trechini genera). **Thorax.** Pronotum elongate, subcylindrical (contrary to other trechine genera); base and apex subequal in width; lateral depressions incomplete (contrary to other trechine genera), present basally only; posterolateral angles moderately developed, obtusely rounded; 2 setiferous punctures on each side. **Legs.** Protibiae with longitudinal groove on outer side; apex glabrous on inner side; external spur absent. **Elytra.** Subelliptical, not shortened apically. Basal margin absent. Shoulders poorly developed, oblique. Scutellar setiferous pore present. Scutellar striole absent. Three discal setiferous punctures: 2 punctures in stria 3, one on interval 4. Striae incomplete (except stria 1); stria 1 well impressed as an impressed line recurving apically toward stria 5, with 2 apical setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Radial field widening towards base (as *Scototrechus*). Apex rounded. **Abdomen.** Apex invisible dorsally. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (BR); caves.

Collecting techniques. Collecting with a headlamp or torch; using baited pitfall traps.

References. Britton, 1964a: 625 (description); Laroche & Larivière, 2001: 72 (catalogue).

[21] Genus *Kiwitrechus* new genus

Figures 32, 261, Map p. 170

Type species. *Kiwitrechus karenscoottae* new species.

Description. Body length 2.6–3.5 mm. Colour rather pale. Metallic lustre absent. Dorsal surface mostly glabrous; head setose (with 30–40 accessory setae). **Head.** Very wide, moderately long. Mandibles moderately long, tridentate (with a premolar between the molar and the retinaculum). Eyes present, strongly reduced, convex; 2 supraorbital setiferous punctures on inner side. Genae with accessory setae. Tempora strongly inflated. Frons with 14–18 accessory setae; frontal furrows complete, semicircular. Neck moderately wide. Antennae moderately long, filiform; dense pubescence starting from segment 2 (segment 1 sparsely pubescent). Mentum tooth entire. Mentum-submentum suture present. **Thorax.** Pronotum very transverse and suborbicular (contrary to other trechine genera); sides strongly convergent basally (contrary to other trechine genera); base narrower than apex; lateral depressions well defined; posterolateral angles poorly developed (contrary to other trechine genera); 2 setiferous punctures on each side. **Legs.** Protibiae with longitudinal groove on outer side; apex pubescent on inner side; external spur absent. **Elytra.** Ovate, not shortened apically. Basal margin present, incomplete. Shoulders moderately developed, rounded. Scutellar setiferous pore present. Scutellar striole present. Three foveate discal setiferous punctures (not foveate in other trechine genera) in stria 3. Striae incomplete, generally consisting partly of impressed lines, partly of rows of punctures; stria 1 well impressed, unusually short, recurving apically toward stria 5, with 2 apical setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Apex rounded. **Abdomen.** Apex invisible dorsally. **Aedeagus** (Fig. 259–260). Dorsal view: apical orifice opening between 2 lateral apophyses. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (BR, NN); forests, in humus, leaf litter and mat plants.

Collecting technique. Sifting humus, leaf litter and mat plants.

Reference. Uéno, 1977 (as “an undescribed humicolous genus”; classification).

Notes. The generic name is derived from *Kiwi* (the vernacular name of an ancient group of New Zealand birds; also a major national symbol) and *Trechus* (the type genus of the tribe Trechini). This monotypic genus appears to be a genetically highly distinctive taxon among New Zealand trechines, with the aedeagal orifice opening dorsally between two lateral apophyses, the very setose head (30–40 accessory setae), the very transverse suborbicular pronotum with strongly convergent sides basally and poorly developed posterolateral angles, and the elytra with 3 foveate discal setiferous punctures in stria 3.

Kiwitrechus karenscoottae new species

Figures 32, 259–261

Type data. *Kiwitrechus karenscoottae* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “Mt Domett NN. 1463 m 1 Dec 71 J.S. Dugdale (typed) / 71 “/” 181 (handwritten) / [male symbol] (typed) / HOLOTYPE [male symbol] *Kiwitrechus karenscoottae* Larochelle & Larivière, 2007 (red label; typed).” Paratypes: 5 males (2 MONZ, 3 NZAC) and 4 females (2 MONZ, 2 NZAC) from the same locality as the holotype, bearing blue paratype labels.

Description. Slightly convex. Somewhat depigmented, generally yellowish brown with head, sides of pronotum and legs paler. Microsculpture transverse (with microlines), feeble on head and pronotum, strong on elytra. Shiny. **Head.** Wider across eyes than pronotal apex. **Thorax.** Pronotum widest before middle; base straight; apex straight behind the moderately developed, rounded anterior angles; basal foveae moderately deep, ill-defined; punctation absent. Metepisterna subquadrate. **Legs.** Femora inflated, sparsely pubescent. **Elytra.** Widest about middle. Shoulders without a tooth. Subapical sinuations feeble. Sutural apices rounded. Intervals punctate, depressed. **Aedeagus** (Fig. 259–260). Median lobe short and thick. Lateral view: strongly arcuate; wide basally; abruptly narrowed and slightly deflected dorsally at apex. Dorsal view: inflated subapically; apical orifice opening between 2 lateral apophyses. Parameres short, very broad, and subequal in size.

Material examined. 29 specimens, including types (MONZ, NZAC).

Geographic distribution (Map 00). South Island: BR–Mount Dewar. Stoney Creek (W. Inangahua). NN–Denniston Saddle. Heaphy Track, MacKay Hut. Karamea (9 miles North). Karamea Bluff. Mount Augustus. Granity. Mount Domett. Oparara. Pupu Valley.

Ecology. Lowland to alpine. Wet forests (beech). Shaded ground. Nocturnal; sheltering during the day in humus, thick leaf litter and mat plants. **Biology.** Seasonality: November–March, May. Occasionally infested with fungi (Laboulbeniales) and mites. **Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner.

Remarks. The strongly reduced eyes, depigmented and depressed body, head pubescence, and long marginal setae on pronotum and elytra indicate subterranean behaviour similar to that of Anillina (Bembidiini) living in deep leaf litter. This species is named after our excellent colleague Karen Scott (Webmaster, Landcare Research, Lincoln) for her contribution to the New Zealand Carabidae and Hemiptera websites, and for her enthusiasm and unflinching support toward the internet delivery of our taxonomic research.

[22] Genus *Kupetrechus* new genus

Figure 33, Map p. 170

Type species. *Duvaliomimus lamberti* Britton, 1960b: 34.

Description. Body length 6.5–7.2 mm. Colour pale. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles very long, tridentate (with a premolar between the molar and the retinaculum). Eyes present, strongly reduced (almost absent, reduced to 6 facets), depressed; 2 supraorbital setiferous punctures on inner side. Genae without accessory setae. Tempora not inflated. Frons without accessory setae; frontal furrows incomplete, straight. Neck narrow. Antennae moderately long, filiform; dense pubescence starting from segment 2 (segment 1 with 1–3 setae only). Mentum tooth bifid. Mentum-submentum suture present. **Thorax.** Pronotum subquadrate, not cordate; base narrower than apex; lateral depressions well defined; posterolateral angles well developed, obtusely rounded; a single setiferous puncture on each side (anteriorly; as *Duvaliomimus*). **Legs.** Protibiae with longitudinal groove on outer side; apex pubescent on inner side; external spur absent. **Elytra.** Ovate, not shortened apically. Basal margin absent. Shoulders moderately developed, oblique. Scutellar setiferous pore present. Scutellar striole present. Three discal setiferous punctures in stria 3. Striae incomplete, generally consisting of rows of punctures; stria 1 well impressed, recurving apically toward stria 8, with 2 apical setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Apex obtuse. **Abdomen.** Apex invisible dorsally. Other characters as for tribe.

Number of taxa. A single species, *Kupetrechus lamberti*

(Britton, 1960) new combination. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (NN); caves.

Collecting techniques. Collecting with a headlamp or torch; using baited pitfall traps.

References. Britton, 1960b (as *Duvaliomimus lamberti*); Uéno, 1977 (as “*Duvaliomimus*” *lamberti*; classification); Casale & Laneyrie, 1982 (as “*Duvaliomimus*” *lamberti*; classification); Townsend, 1997 (as “*Duvaliomimus*” *lamberti*; classification); Laroche & Larivière, 2001: 70 (as “*Duvaliomimus*” *lamberti*; catalogue).

Notes. The generic name is derived from *Kupe* (the legendary Polynesian navigator to whom is attributed the discovery of New Zealand) and *Trechus* (the type genus of the tribe Trechini). This new monotypic genus is erected to accommodate *Duvaliomimus lamberti* Britton, 1960. *Kupetrechus* superficially resembles *Duvaliomimus*, but can be separated from the latter by the following characters: mandibles tridentate (with a premolar between the molar and the retinaculum); pronotum subquadrate, not cordate; elytra with 3 discal setiferous punctures in stria 3, and stria 1 recurving apically toward stria 8.

[23] Genus *Neanops* Britton, 1962

Figure 34, Map p. 171

Description. Body length 3.6–3.8 mm. Colour pale. Metallic lustre absent. Dorsal surface mostly glabrous; head setose (with 10–15 accessory setae). **Head.** Moderately wide, very long. Mandibles very long, tridentate (with a premolar between the molar and the retinaculum). Eyes absent (contrary to other Trechini genera); 3–4 setiferous punctures on inner side. Genae with accessory setae. Tempora not inflated. Frons with 2 accessory setae; frontal furrows complete, semicircular. Neck moderately wide. Antennae moderately long, filiform; dense pubescence starting from segment 2 (segment 1 with 1–4 setae only) or from segment 4 (segments 1–3 with 1–4 setae only). Mentum tooth entire. Mentum-submentum suture present. **Thorax.** Pronotum subquadrate, cordate (heart-shaped); base narrower than apex; lateral depressions well defined; posterolateral angles well developed, obtuse or acute; 2 setiferous punctures on each side. **Legs.** Protibiae without longitudinal groove on outer side; apex pubescent or glabrous on inner side; external spur absent. **Elytra.** Ovate, not shortened apically. Basal margin absent. Shoulders moderately developed, oblique. Scutellar setiferous pore present. Scutellar striole present. Three discal setiferous punctures in stria 3. Striae incomplete, consisting partly of

impressed lines, partly of rows of punctures; stria 1 well impressed, recurving apically toward stria 3, with 2 apical setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Apex rounded. **Abdomen.** Apex invisible dorsally. Other characters as for tribe.

Number of taxa. 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (WO, TK); caves.

Collecting techniques. Collecting with a headlamp or torch; using baited pitfall traps.

References. Britton, 1962: 672 (description); Uéno, 1977 (description); Valentine, 1987 (description; species differences); Laroche & Larivière, 2001: 72 (catalogue).

Note. *Neanops* could comprise two genera.

[24] Genus *Scototrechus* Britton, 1962

Figure 35, Map p. 174

Description. Body length 9.0 mm. Colour pale. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide, very long. Mandibles very long, bidentate (without a premolar between the molar and the retinaculum; as *Duvaliomimus*). Eyes present, strongly reduced, depressed; 2 supraorbital setiferous punctures on inner side. Genae without accessory setae. Tempora not inflated. Frons without accessory setae; frontal furrows incomplete, straight. Neck moderately wide. Antennae very long (as long as body; contrary to other trechine genera), filiform; dense pubescence starting from segment 2 (segment 1 with 1–4 setae only). Mentum tooth bifid. Mentum-submentum suture present. **Thorax.** Pronotum subquadrate, subcordate; base and apex subequal in width; lateral depressions well defined; posterolateral angles well developed, acute; 2 setiferous punctures on each side. **Legs.** Protibiae without longitudinal groove on outer side; apex pubescent on inner side; external spur absent. **Elytra.** Subovate, not shortened apically. Basal margin absent. Shoulders moderately developed, somewhat rounded. Scutellar setiferous pore present. Scutellar striole present. Three discal setiferous punctures; 2 punctures in stria 3, one in stria 2. Striae incomplete, consisting partly of impressed lines, partly of rows of punctures; stria 1 well impressed, recurving apically toward stria 5, with a single apical setiferous puncture. Umbilicate series separated into two major groups (4+4), with posterior group divided into 2 subgroups (2+2). Radial field widening near base (as *Erebotrechus*). Apex rounded. **Abdomen.** Apex invisible dorsally. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (NN); caves.

Collecting techniques. Collecting with a headlamp or torch; using baited pitfall traps.

References. Britton, 1962: 670 (description); Larochelle & Larivière, 2001: 72 (catalogue).

12. Tribe Zolini

Figures 36–38

Description (New Zealand). Body: length 3.0–9.0 mm; not pedunculate. **Head.** Mandibles with setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Eyes present; 1 (posteriorly)—2 supraorbital setiferous punctures on inner side, rarely without any puncture. Tempora rarely inflated. Clypeus with a setiferous puncture on each side. Antennae widening from base to apex (apical half subfiliform or submoniliform); dense pubescence starting from segment 3 (segment 1 glabrous, segment 2 glabrous or almost so, segment 3 glabrous in basal half). Mentum tooth present medially. Mentum-submentum suture present. Submentum with 4 setae. Ligula with 2 apical setae. Palpi with terminal segment conical (Fig. 140), glabrous; penultimate maxillary segment setose (with numerous, rather long setae; as *Bembidiini*); penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum with 1 (anteriorly), 2, or without setiferous punctures on each side. Scutellum usually well visible, sometimes barely visible, inserted entirely between elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi pubescent dorsally; protarsi (Fig. 207) asymmetrical, segments 1 and 2 in male dentate and dilated on inner side (contrary to *Mecyclothoracini*, *Meonini*, *Tropopterini* (Fig. 208)); claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Fused along suture (hindwings vestigial). Discal setiferous punctures usually present, rarely absent. Stria 1 recurrent at apex (curving back like a hook; as *Trechini* and *Bembidiini* (*Tachyina*)). Umbilicate series present; 9 setiferous punctures (12–13 punctures in *Mecyclothoracini*, *Meonini*, *Tropopterini*; 12–27 punctures in *Harpalini*). Radial field without fine dense pubescence. Apex rounded. Epipleura twisted (with inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Sloane, 1920a (key to Australian genera); Jeannel, 1941 (description); Johns, 1974 (key to Subantarctic Islands taxa); Deuve, 1977 (description of

new genus and new species from China); Roig-Juñent & Cicchino, 2001 (description; key to subtribes); Baehr, 2002a (description of Australian taxa).

Note. See Roig-Juñent & Cicchino (2001) for comments on the priority of the subtribal name *Zolini* over *Oopterini*.

Key to the New Zealand genera of Zolini

- 1 Body (Fig. 38) ovate, not narrowed around bases of pronotum and elytra; pronotum trapezoidal; elytra oblong. [Body length 3.0–3.5 mm]
 (p. 45) ... *Synteratus* Broun (Fig. 38)
- Body (Fig. 36–37) not ovate, narrowed around bases of pronotum and elytra; pronotum not trapezoidal. [Body length 3.5–9.0 mm]
 ... (p. 44) ... *Oopterus* Guérin-Méneville (Fig. 36–37)

Subtribe Zolina

Description (New Zealand). Body length: 3.0–9.0 mm. **Head.** Ligula with 2 apical setae medially. **Genitalia.** Aedeagus with base closed dorsally.

References. Jeannel, 1940b (*Oopterini* new tribe); Bousquet & Larochelle, 1993 (as *Oopterini*); Liebher & Will, 1998 (as *Oopterina*); Larochelle & Larivière, 2001 (as *Oopterina*; catalogue); Roig-Juñent & Cicchino, 2001 (as *Zolina*; description).

Note. See Roig-Juñent & Cicchino (2001) for comments on the priority of the subtribal name *Zolina* over *Oopterina*.

[25] Genus *Oopterus* Guérin-Méneville, 1841

Figures 36–37, Map p. 172

Zolus Sharp, 1886: 371. **Reinstated synonym.**

Description (New Zealand). Body: length 3.5–9.0 mm; not ovate, narrowed around bases of pronotum and elytra. Colour dark or pale. Metallic lustre usually absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately or very long. Eyes more or less convex (rarely depressed); 2 supraorbital setiferous punctures on inner side, rarely with a single puncture (posteriorly) or without puncture. Tempora rarely inflated. Antennae usually strongly widening from base to apex (apical half usually submoniliform), rarely slightly widening from base to apex (apical half subfiliform). Mentum tooth entire. Ligula with 2 apical setae medially, fused for most of their length. **Thorax.** Pronotum often subcordate, rarely subquadrate; base narrower (usually) or wider than apex; posterolateral carinae present or absent; setiferous punctures present (usually 2, rarely 1) or absent on each side. Scutellum

clearly visible. **Elytra.** Subovate or ovate. Basal margin present, usually incomplete. Shoulders poorly developed, rounded. Scutellar setiferous pore present. Scutellar striole present. Discal setiferous punctures usually 3 (rarely 4, 2, or 0) in stria 3. Striae usually incomplete, generally consisting of poorly impressed rows of punctures or lines; stria 1 recurving apically toward stria 5 or 6. Umbilicate series separated into two major groups (4+5), with posterior group rather continuous. Apex rounded. Other characters as for tribe.

Number of taxa (New Zealand). 32 species, including 7 changed combinations (all previously in *Zolus*, see Laroche & Larivière (2001)): *Oopterus atratus* (Broun, 1893), reinstatement; *O. carinatus* Broun, 1882, reinstatement; *O. femoralis* (Broun, 1894), reinstatement; *O. helmsi* (Sharp, 1886), reinstatement; *O. labralis* (Broun, 1921), reinstatement; *O. ocularius* (Broun, 1917), reinstatement; *O. subopacus* (Broun, 1915), reinstatement. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Subantarctic Islands (AN, AU, CA, SN); forests (usually) and fields, in leaf litter, moss, rotten branches, under loose bark of fallen trees, under logs and stones during the day, on trees at night.

Collecting techniques. Sifting dead leaves; throwing plant debris into water; lifting moss carpets and loose bark of fallen trees; breaking rotten branches; examining standing trees with a headlamp or torch at night; pitfall trapping.

References. Guérin-Méneville, 1841a: 123 (description); Sharp, 1886: 371 (description of *Zolus*); Jeannel, 1940b (classification); Darlington, 1964a (as *Pseudoopterus* Csiki, 1928: 225; description; key to Campbell Island species); Johns, 1974 (key to Subantarctic Island species); Laroche & Larivière, 2001: 73–74 (catalogue).

Notes. All species of *Oopterus* and *Zolus* listed by Laroche & Larivière (2001) were studied morphologically and found to be congeneric with *Oopterus* to which they are now assigned. This view conforms with Jeannel's (1940b) previous synonymy of these genera based on his examination of the type species. The authors could not find any character separating *Zolus* from *Oopterus*; all described species conform with the generic description provided above for *Oopterus*. Furthermore, features traditionally perceived to be useful by some workers to differentiate these two genera are highly variable and of no diagnostic value: the laterobasal carinae of the pronotum may be absent or present, and varying greatly in their degree of development; a groove may be absent or present between lateral beads and laterobasal carinae, and varying greatly in depth. This genus is in need of revision.

[26] Genus *Synteratus* Broun, 1909

Figure 38, Map p. 174

Description. Body: length 3.0–3.5 mm; ovate, not narrowed around bases of pronotum and elytra. Colour dark. Metallic lustre present. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long. Eyes convex; a single supraorbital setiferous puncture on inner side (posteriorly). Tempora not inflated. Antennae strongly widening from base to apex (apical half submoniliform). Mentum tooth entire. Ligula with 2 apical setae medially, fused for most of their length; 4 additional apical short setae laterally. **Thorax.** Pronotum very transverse, trapezoidal; base wider than apex; posterolateral carinae absent; setiferous punctures absent on each side. Scutellum not clearly visible, partly or entirely hidden behind pronotal base. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed, rectangular. Scutellar setiferous pore present. Scutellar striole present. Three discal setiferous punctures in stria 3. Striae complete, generally consisting of well impressed rows of punctures; stria 1 recurving apically toward stria 5 or 6. Umbilicate series separated into two major groups (4+5), with posterior group continuous. Apex rounded. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. Offshore Islands (SN); forests, in plant debris.

Collecting techniques. Raking or sifting leaf litter; turning fallen branches and logs; pitfall trapping.

References. Broun, 1909b: 84 (description); Laroche & Larivière, 2001: 77 (catalogue).

13. Tribe Bembidiini

Figures 39–55

Description (New Zealand). Body: length 1.3–9.2 mm; pedunculate or not. **Head.** Mandibles with setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Eyes present (usually; Fig. 135–136) or absent (Fig. 137); 2 supraorbital setiferous punctures on inner side. Tempora inflated or not. Clypeus with at least one setiferous puncture on each side. Antennae filiform or moniliform; pubescence starting from segment 2 (usually) or 3. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 4–10 setae. Ligula with 2 or 4 apical setae. Palpi with terminal segment rudimentary, entirely subulate (tapering to a point, contrary to other tribes), glabrous; penultimate segment fusiform or ovate; penultimate maxillary segment setose (with numerous, rather long

setae; as Zolini); penultimate labial segments with 2–8 scattered setae. **Thorax.** Pronotum with 1 (anteriorly) or 2 setiferous punctures on each side. Scutellum visible, inserted entirely between elytral bases, or partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi pubescent dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Free along suture (hindwings fully or half developed) or fused (hindwings vestigial). Stria 1 recurrent (Tachyina) or not at apex. Discal setiferous punctures present. Umbilicate series present; 7–9 setiferous punctures. Radial field with or without fine dense pubescence. Apex usually obtuse or rounded, rarely subtruncate (*Hygranillus*). Epipleura twisted (usually with weak inner fold or plica) near apex. **Abdomen.** Apex usually invisible dorsally. Sterna IV–VI with or without pubescence, in addition to paired ambulatory setae. Other characters as for subfamily.

References. Sloane, 1920a (key to Tasmanian genera); Jeannel, 1937, 1941, 1962, 1963 (description; key to subtribes); Lindroth, 1961 (description; revision of North American taxa), 1969b (key to North American genera); Erwin, 1974a (key to New World Tachyina genera); Lindroth, 1976, 1980 (revision of New Zealand Bembidiina); Reichardt, 1977 (key to Neotropical subtribes); Moore, 1980 (revision of New Zealand Anillina); Matthews, 1980 (key to South Australian genera); Erwin & Sims, 1984 (key to subtribes).

Key to the New Zealand genera of Bembidiini

- 1 Dorsal surface mostly pubescent (Fig. 51–55)
 (Subtribe *Anillina*) ... (p. 51) ... 2
 —Dorsal surface mostly glabrous (Fig. 39–50) 6
- 2(1) Elytra with oblique longitudinal sulcus (Fig. 53–54, 238) 3
 —Elytra without oblique longitudinal sulcus (Fig. 51–52, 55) 4
- 3(2) Pronotum with an auxiliary tubercle near posterolateral angles (Fig. 178). Palpi with penultimate maxillary segment fusiform (Fig. 146)
 (p. 52) ... *Pelodiaetodes* Moore (Fig. 53)
 —Pronotum without an auxiliary tubercle near posterolateral angles (Fig. 179). Palpi with penultimate maxillary segment ovate (Fig. 147)
 (p. 52) ... *Pelodiaetus* Jeannel (Fig. 54)
- 4(2) Eyes (Fig. 136) present, strongly reduced, consisting of 4–5 facets. Body convex
 (p. 52) ... *Nesamblyops* Jeannel (Fig. 52)
 —Eyes (Fig. 137) absent. Body depressed 5
- 5(4) Elytral shoulders serrate (saw-toothed; Fig. 239). Pronotum cordate (heart-shaped; Fig. 51). Antennae filiform, long (Fig. 124)
 (p. 51) ... *Hygranillus* Moore (Fig. 51)
 —Elytral shoulders not serrate (Fig. 55). Pronotum not cordate (Fig. 55). Antennae moniliform, short (Fig. 123)
 (p. 53) ... *Zeanillus* Jeannel (Fig. 55)
- 6(1) Elytra with stria 1 recurrent at apex (curving back like a hook; Fig. 47–50, 231–232). Protibiae obliquely truncate on outer side at apex (Fig. 197). Mentum with circular foveae (Fig. 119)
 (p. 49) ... (Subtribe *Tachyina*) ... 7
 —Elytra with stria 1 not recurrent at apex (not curving back like a hook; Fig. 39–46, 233). Protibiae not obliquely truncate on outer side at apex (Fig. 198). Mentum without circular foveae
 (p. 47) ... (Subtribe *Bembidiina*)
 *Bembidion* Latreille (Fig. 39–46)
- 7(6) Elytra (Fig. 47) ovate, convex; umbilicate series with setiferous punctures of anterior group equidistant (Fig. 242). Pronotum (Fig. 47) subquadrate, with base straight or almost so
 (p. 49) ... *Kiwitachys* new genus (Fig. 47)
 —Elytra (Fig. 48–50) oblong, subparallel, depressed; umbilicate series with setiferous punctures of anterior group not equidistant (Fig. 243). Pronotum (Fig. 48–50) very transverse, with base oblique laterally ... 8
- 8(7) Elytra (Fig. 50, 232): stria 1 forming a short hook apically; umbilicate series with 9 setiferous punctures, with posterior group divided into 2 subgroups (2+3)
 (p. 50) ... *Polyderis* Motschulsky (Fig. 50)
 —Elytra (Fig. 48–49, 231): stria 1 forming a long hook apically; umbilicate series with 8 setiferous punctures, with posterior group divided into 2 subgroups (2+2) 9
- 9(8) Pronotal base with a transverse line of coarse punctures (Fig. 49). Elytra (Fig. 49): shoulders serrate (saw-toothed); interval 3 with 3 discal setiferous punctures; stria 8 complete, deeper in apical half
 (p. 50) ... *Pericompsus* LeConte (Fig. 49)
 —Pronotal base smooth, without a transverse line of coarse punctures (Fig. 48). Elytra (Fig. 48): shoulders not serrate; interval 3 with 2 discal setiferous punctures; stria 8 incomplete, only apical third present
 (p. 49) ... *Paratachys* Casey (Fig. 48)

Subtribe *Bembidiina*

Description (New Zealand). Body length 2.8–9.2 mm. Dorsal surface mostly glabrous. **Head.** Eyes present, normally developed. Mentum without circular foveae. **Legs.** Protibiae not obliquely truncate on outer side at apex. **Elytra.** Scutellar striole present. Striae well or poorly developed; stria 1 not recurrent at apex.

References. Jeannel, 1941 (description); Lindroth, 1980 (key to genera); Erwin, 1982 (revision of Central American taxa); Emberson, 1993a (key to genera).

[27] Genus *Bembidion* Latreille, 1802

Figures 39–46, Map p. 166

Description (New Zealand). Body: length: 2.8–9.2 mm; pedunculate or not; depressed or convex. Colour dark or forebody dark with paler elytra. Metallic lustre usually present (often strong; aeneous, coppery). Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes present, normally developed, convex. Tempora not inflated. Antennae usually filiform and long, rarely moniliform and short; pubescence starting from segment 2 or 3. Mentum: median tooth usually entire, rarely bifid; circular foveae absent. Submentum usually with 6 (rarely 4) setae. Ligula with 2 apical setae. Palpi with penultimate segment fusiform; penultimate labial segment with 2–8 scattered setae. **Thorax.** Pronotum variously shaped, often cordate (heart-shaped); base narrower than apex; posterolateral angles acute or obtuse; 1 (usually anteriorly) or 2 setiferous punctures on each side (if present, posterolateral puncture close to or removed from posterolateral angle). Scutellum either inserted entirely between elytral bases, or placed partly between and above elytral bases. **Legs.** Long. Protibiae not obliquely truncate on outer side at apex. **Elytra.** Oblong or subovate. Free along suture (hindwings usually fully developed, seldom reduced) or rarely fused along suture (hindwings vestigial). Basal margin absent or present (incomplete). Shoulders well or poorly developed, rounded or oblique, not serrate. Scutellar setiferous pore present. Scutellar striole present. Striae complete or incomplete, generally consisting of well developed punctate lines (outer striae sometimes less developed); stria 8 present, usually complete and more deeply impressed than other striae; stria 1 not recurrent at apex. Oblique longitudinal sulcus absent. Interval or stria 3 with 2–5 discal setiferous punctures; interval 5 with or without 2 discal setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided in two subgroups (2+2); 8 setiferous punctures. Radial field without fine dense pubescence. Subapical sinuations present. Apex usually obtuse, rarely broadly rounded. Epipleura twisted (with strong inner fold or plica) near

apex (weak inner fold, subgenus *Zecillen* and other *Bembidiini* genera). **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. **Male genitalia.** Internal sac of aedeagus with a brush sclerite (absent in subgenus *Zecillen*). Other characters as for tribe.

Number of taxa (New Zealand). 26 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Stewart Island, Offshore Islands (AU, CH); borders of streams (sometimes coastal), usually among gravel and under stones, sometimes in burrows in the sand, at the base of plants on clay soil, or under pieces of wood on loamy soil.

Collecting techniques. Raking the loose gravel, turning stones, pouring water over the ground; treading the soil with the feet.

References. Latreille, 1802: 82 (description); Andrewes, 1938 (as *Cillen* [=subgenus *Zecillen*]; key to species); Darlington, 1962a (revision of Australian taxa); Lindroth, 1963 (description; revision of North American taxa), 1976 (revision of New Zealand taxa), 1980 (as *Zecillen*; revision); Laroche & Larivière, 2001: 79 (catalogue), 85 (as *Zecillen*; catalogue); Toledano, 2005 (subgeneric status of *Zecillen*; taxonomy of Australian taxa).

Note. This genus is in need of further revision.

Subgenus *Anatotaphus* Netolitzky, 1931

Description. Body: length 3.8–4.5 mm; not unicolorous dark; elytra without variegated colour pattern; legs unicolorous dark or bicoloured. Microsculpture present. **Head.** Frontal furrows not prolonged upon clypeus. Antennae filiform. **Thorax.** Pronotum without carina outside laterobasal fovea; setiferous puncture present near posterolateral angle (as in *Notaphus*). **Elytra.** Stria 3 with 2 discal setiferous punctures. Interval 5 without discal setiferous punctures.

References. Netolitzky, 1931: 181 (description); Lindroth, 1976 (description); Laroche & Larivière, 2001: 79 (catalogue); Toledano, 2005 (taxonomy).

Subgenus *Notaphus* Stephens, 1827

Description. Body: length 5.2–6.5 mm; not unicolorous dark; elytra with variegated colour pattern; legs unicolorous pale. Microsculpture present. **Head.** Frontal furrows prolonged upon clypeus (contrary to other subgenera). Antennae filiform. **Thorax.** Pronotum with strong carina outside laterobasal fovea; setiferous puncture present near posterolateral angle (as in *Anatotaphus*). **Elytra.** Interval

3 with 2 discal setiferous punctures; interval 5 without discal setiferous punctures.

References. Stephens, 1827: 51 (description); Lindroth, 1976 (description); Larochelle & Larivière, 2001: 80 (catalogue); Toledano, 2005 (taxonomy).

Subgenus *Zeactedium* Netolitzky, 1931

Description. Body: length 6.0–7.5 mm; not unicolorous dark; elytra with or without variegated colour pattern; legs unicolorous pale. Microsculpture present. **Head.** Frontal furrows not prolonged upon clypeus. Antennae filiform. **Thorax.** Pronotum without carina outside laterobasal fovea; setiferous puncture absent near posterolateral angle. **Elytra.** Interval 3 with 2 discal setiferous punctures; interval 5 without discal setiferous punctures.

References. Netolitzky, 1931: 182 (description); Lindroth, 1976 (description); Larochelle & Larivière, 2001: 81 (catalogue); Toledano, 2005 (description of new subspecies; taxonomy).

Subgenus *Zecillen* Lindroth, 1980

Description. Body: length 3.7–5.5 mm; not unicolorous dark; elytra without variegated colour pattern; legs unicolorous pale. Microsculpture present. **Head.** Frontal furrows not prolonged upon clypeus. Antennae moniliform (contrary to other subgenera). **Thorax.** Pronotum without carina outside laterobasal fovea; setiferous puncture present near posterolateral angle, greatly removed from it (close to or slightly removed when present, other subgenera). **Elytra.** Interval 3 with 3–4 discal setiferous punctures; interval 5 without discal setiferous punctures. **Genitalia.** Internal sac of aedeagus without brush sclerite (present in other subgenera).

References. Andrewes, 1938 (as *Cillen* Samouelle, 1818: 148; key to species); Lindroth, 1980: 182 (as *Zecillen*; description; revision); Larochelle & Larivière, 2001: 85 (as *Zecillen*; catalogue); Toledano, 2005 (subgeneric status of *Zecillen*).

Notes. Toledano (2005) changed the status of *Zecillen* Lindroth, 1980, from that of genus to that of subgenus. Consequently, all *Zecillen* species have implicitly been recombined by this author. See Appendix B (Updated checklist of species).

Subgenus *Zemetallina* Lindroth, 1976

Description. Body: length 2.8–5.3 mm; unicolorous dark; elytra without variegated colour pattern; legs unicolorous pale or bicoloured. Microsculpture present (usually) or

absent. **Head.** Frontal furrows not prolonged upon clypeus. Antennae filiform. **Thorax.** Pronotum without carina outside laterobasal fovea; setiferous puncture absent near posterolateral angle. **Elytra.** Stria 3 with 3 discal setiferous punctures. Interval 5 without discal setiferous punctures.

References. Lindroth, 1976: 184 (description); Larochelle & Larivière, 2001: 81 (catalogue); Toledano, 2005 (taxonomy).

Subgenus *Zeperyphodes* Lindroth, 1976

Description. Body: length 3.7–4.9 mm; not unicolorous dark; elytra without variegated colour pattern; legs unicolorous pale. Microsculpture present. **Head.** Frontal furrows not prolonged upon clypeus. Antennae filiform. **Thorax.** Pronotum without carina outside laterobasal fovea; setiferous puncture absent near posterolateral angle. **Elytra.** Stria 3 with 3 discal setiferous punctures. Interval 5 without discal setiferous punctures.

References. Lindroth, 1976: 180 (description); Larochelle & Larivière, 2001: 83 (catalogue); Toledano, 2005 (taxonomy).

Subgenus *Zeperyphus* Lindroth, 1976

Description. Body: length 3.8–4.3 mm; unicolorous dark; elytra without variegated colour pattern; legs unicolorous pale. Microsculpture present or absent. **Head.** Frontal furrows not prolonged upon clypeus. Antennae filiform. **Thorax.** Pronotum without carina outside laterobasal fovea; setiferous puncture absent near posterolateral angle. **Elytra.** Stria 3 with 2 discal setiferous punctures. Interval 5 without discal setiferous punctures.

References. Lindroth, 1976: 182 (description); Larochelle & Larivière, 2001: 83 (catalogue).

Subgenus *Zeplataphus* Lindroth, 1976

Description. Body: length 3.8–9.2 mm; unicolorous dark; elytra without variegated colour pattern; legs unicolorous dark or bicoloured. Microsculpture present (usually) or absent. Antennae filiform. **Head.** Frontal furrows not prolonged upon clypeus. **Thorax.** Pronotum with weak carina outside laterobasal fovea; setiferous puncture absent near posterolateral angle. **Elytra.** Interval 3 with 3–5 discal setiferous punctures; interval 5 with 2 (rarely 1 or 3) discal setiferous punctures.

References. Lindroth, 1976: 169 (description); Larochelle & Larivière, 2001: 84 (catalogue); Toledano, 2005 (taxonomy).

Subtribe Tachyina

Description (New Zealand). Body length 1.4–2.8 mm. Dorsal surface mostly glabrous. **Head.** Eyes present, usually well developed, sometimes poorly developed. Mentum with circular foveae. **Legs.** Protibiae obliquely truncate on outer side at apex. **Elytra.** Scutellar striae absent. Striae poorly developed; stria 1 recurrent at apex (curving back like a hook; as Zolini and Trechini).

References. Sloane, 1896b (as *Tachys* Stephens, 1828; key to Australian taxa); Jeannel, 1941 (description; key to European genera); Lindroth, 1966 (as *Tachys*; description; key to North American subgenera); Erwin, 1973 (revision of Neotropical taxa), 1974b (elytral morphology; key to New World genera), 1975 (revision of genus *Tachyta* Kirby, 1837; key to subgenera); Reichardt, 1977 (key to Neotropical genera); Erwin & Sims, 1984 (key to West Indian genera); Baehr, 1987, 1990 (revision of Australian taxa); Erwin, 1990 (key to New World genera); Hürka, 1996 (elytral morphology; key to European genera); Ball & Bousquet, 2001 (key to North American genera); Sciaky & Vigna Taglianti, 2003 (descriptions; key to world genera).

[28] Genus *Kiwitachys* new genus

Figure 47, Map p. 170

Type species. *Tachys antarcticus* Bates, 1874: 274.

Description. Body: length 2.0–2.5 mm; not pedunculate; convex. Colour pale, testaceous (reddish-brown). Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles very long. Eyes present, strongly reduced, depressed. Tempora inflated (contrary to other tachyine genera). Antennae moniliform, short; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae present. Submentum with 6 setae. Ligula with 4 apical setae (2 long, median, more or less fused setae between 2 shorter lateral setae). Palpi with penultimate segment fusiform; penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum subquadrate, cordate (heart-shaped); base narrower than apex, straight or almost so (oblique laterally, other tachyine genera); posterolateral angles acute; 2 setiferous punctures on each side (posterolateral puncture close to posterolateral angle). Scutellum inserted entirely between elytral bases. **Legs.** Short. Protibiae obliquely truncate on outer side at apex. **Elytra.** Ovate (contrary to other tachyine genera). Fused along suture (hindwings vestigial). Basal margin present, incomplete. Shoulders poorly developed, rounded, not serrate. Scutellar setiferous pore present. Scutellar striae absent. Striae more or less complete, consisting of 3 impressed lines near suture and 3 poorly impressed rows of punctures

externally; stria 8 present, complete (as *Polyderis*), more deeply impressed than other striae; stria 1 recurrent at apex. Oblique longitudinal sulcus absent. Interval 3 with 3 discal setiferous punctures. Umbilicate series separated into two major groups (4+4), with anterior group made up of equidistant setiferous punctures (contrary to other tachyine genera) and posterior group divided in two subgroups (2+2); 8 setiferous punctures. Radial field with fine sparse pubescence externally. Subapical sinuations absent. Apex rounded. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa. 2 species: *Kiwitachys antarcticus* (Bates, 1874) new combination and *K. latipennis* (Sharp, 1886) new combination. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; forests, in rotten wood from the upper surface of fallen trees.

Collecting technique. Examining rotten wood from fallen trees

Reference. Laroche & Larivière, 2001: 88 (as *Tachys antarcticus* Bates, 1874 and *T. latipennis* Sharp, 1886; catalogue).

Notes. The generic name is derived from *Kiwi* (the vernacular name of an ancient group of New Zealand birds; also a major national symbol) and *Tachys* (the type genus of the subtribe Tachyina). This new genus is created to accommodate two taxa: *Tachys antarcticus* Bates, 1874, and *T. latipennis* Sharp, 1886. *Kiwitachys* appears to be a genetically highly distinctive taxon among New Zealand tachyines and its members share the following characters: body convex, not pedunculate; eyes strongly reduced, depressed; tempora inflated; pronotum subquadrate, cordate with nearly straight base; elytra ovate with poorly developed shoulders and anterior group of umbilicate series made up of equidistant setiferous punctures. This genus is in need of revision.

[29] Genus *Paratachys* Casey, 1918

Figure 48, Map p. 172

Description (*Paratachys crypticola*). Body: length 2.7–2.8 mm; pedunculate; depressed. Colour pale, testaceous (reddish-brown). Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles very long. Eyes present, normally developed, convex. Tempora not inflated. Antennae filiform, long; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae present. Submentum with 6 setae. Ligula with 4 apical setae (2 long, median, more or less fused setae between 2

shorter lateral setae). Palpi with penultimate segment fusiform; penultimate labial segment with 4–8 scattered setae.

Thorax. Pronotum very transverse, cordate (heart-shaped); base narrower than apex; posterolateral angles obtuse; 2 setiferous punctures on each side (posterolateral puncture close to posterolateral angle). Scutellum placed partly between and above elytral bases. **Legs.** Long. Protibiae obliquely truncate on outer side at apex. **Elytra.** Oblong, subparallel. Free along suture (hindwings fully developed). Basal margin present, incomplete. Shoulders well developed, obtusely rounded, not serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae incomplete, consisting of 2 impressed lines near suture and 5 poorly impressed rows of punctures externally; stria 8 present in apical third only, more deeply impressed than other striae; stria 1 recurrent at apex. Oblique longitudinal sulcus absent. Interval 3 with 2 discal setiferous punctures (3 punctures in other tachyine genera). Umbilicate series separated into two major groups (4+4), with posterior group divided in two subgroups (2+2); 8 setiferous punctures. Radial field without fine dense pubescence. Subapical sinuations absent. Apex obtuse. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island; gardens, in leaf litter and compost.

Collecting techniques. Sifting leaf litter and compost heaps.

References. Casey, 1918: 174 (description); Jeannel, 1941 (as *Eotachys* new genus; description); Britton, 1960a (as *Eotachys*; description); Lindroth, 1966 (as *Eotachys*; description); Larochelle & Larivière, 2001: 87 (catalogue).

[30] Genus *Pericompsus* LeConte, 1852

Figure 49, Map p. 173

Description (*Pericompsus australis*). Body: length 1.7–2.4 mm; pedunculate; depressed. Colour pale, testaceous (reddish-brown). Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles very long. Eyes present, normally developed, convex. Tempora not inflated. Antennae moniliform, short; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae present. Submentum with 6 setae. Ligula with 4 apical setae (2 long, median, more or less fused setae between 2 shorter lateral setae). Palpi with penultimate segment fusiform; penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum very transverse, cordate (heart-shaped); base narrower than apex, with a transverse

line of coarse punctures (smooth in other tachyine genera); posterolateral angles acute; 2 setiferous punctures on each side (posterolateral puncture close to posterolateral angle). Scutellum placed partly above and between elytral bases. **Legs.** Long. Protibiae obliquely truncate on outer side at apex. **Elytra.** Oblong, subparallel. Free along suture (hindwings fully developed). Basal margin present, incomplete. Shoulders well developed, rounded, serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae incomplete, consisting of 5 rows of poorly impressed punctures (stria near suture becoming an impressed line apically); stria 8 present, complete, deeper in apical half (contrary to other tachyine genera), more deeply impressed than other striae; stria 1 recurrent at apex. Oblique longitudinal sulcus absent. Interval 3 with 3 discal setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group divided in two subgroups (2+2); 8 setiferous punctures. Radial field with fine sparse pubescence externally. Subapical sinuations present, feeble. Apex obtuse. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island and South Island (NN); wet and moist places, in soil fissures and under soil clods.

Collecting techniques. Pouring water over the ground; examining soil fissures; breaking soil clods.

References. LeConte, 1852: 191 (description); Darlington, 1963a (as *Tachys australis* group; description; key to species); Erwin, 1974b (description; revision); Larochelle & Larivière, 2001: 87 (catalogue).

Subgenus *Upocompsus* Erwin, 1974

Description. **Elytra.** Stria 8 forming a series of punctures in basal two-thirds.

References. Erwin, 1974b: 11 (description; revision); Larochelle & Larivière, 2001: 87 (catalogue).

[31] Genus *Polyderis* Motschulsky, 1862

Figure 50, Map p. 173

Description (*Polyderis captus*). Body: length 1.4–1.5 mm; pedunculate; depressed. Colour dark, brownish. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long. Eyes present, normally developed, convex. Tempora not inflated. Antennae moniliform, short; pubescence starting from segment 2. Men-

tum: median tooth entire; circular foveae present. Submentum with 6 setae. Ligula with 4 apical setae (2 long, median, more or less fused setae between 2 shorter lateral setae). Palpi with penultimate segment fusiform; penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum very transverse, cordate (heart-shaped); base narrower than apex; posterolateral angles obtuse; 2 setiferous punctures on each side (posterolateral puncture close to posterolateral angle). Scutellum placed partly between and above elytral bases. **Legs.** Short. Protibiae obliquely truncate on outer side at apex. **Elytra.** Oblong, subparallel. Free along suture (hindwings fully developed). Basal margin present, incomplete. Shoulders well developed, rounded, not serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae incomplete (2 in number), consisting of 1 impressed line partly made up of poorly impressed punctures posteriorly and 1 row of punctures near suture; stria 8 absent (contrary to other tachyine genera); stria 1 interrupted apically before recurving, forming a short hook (longer hook, other tachyine genera). Oblique longitudinal sulcus absent. Interval 3 with 3 discal setiferous punctures; interval 5 with 2 discal setiferous punctures. Umbilicate series separated into two major groups (4+5), with posterior group divided in two subgroups (2+3); 9 setiferous punctures (contrary to other tachyine genera). Radial field with fine sparse pubescence externally. Subapical sinuations absent. Apex obtuse. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa (New Zealand). A single species.

General distribution and ecology. North Island (AK, ND); damp situations, under small branches and stones.

Collecting technique. Lifting small branches and stones.

References. Motschulsky, 1862: 27 (description); Sloane, 1920a (as *Tachys captus* Blackburn, 1888a); Jeannel, 1941 (description); Larochelle & Larivière, 2001: 88 (as *Tachys captus*); Giachino, 2003 (as *Polyderis captus*, new combination); Sciaky & Vigna Taglianti, 2003 (description).

Subtribe Anillina

Description (New Zealand). Body length 1.3–3.2 mm. Dorsal surface mostly pubescent. **Head.** Eyes usually absent (present and vestigial, *Nesamblyops*). Mentum without circular foveae. **Legs.** Protibiae not obliquely truncate on outer side at apex. **Elytra.** Scutellar striole absent. Striae absent (usually) or present (poorly developed); stria 1, when present, not recurrent at apex.

References. Jeannel, 1937, 1941, 1963 (description; revision); Moore, 1980 (description; revision of New Zealand taxa); Erwin, 1982 (revision of Central American taxa); Giachino, 2005b (revision of Australian taxa).

[32] Genus *Hygranillus* Moore, 1980

Figure 51, Map p. 169

Description. Body: length 2.2 mm; not pedunculate; depressed. Colour pale, testaceous (reddish-brown). Metallic lustre absent. Dorsal surface mostly pubescent. **Head.** Very wide. Mandibles very long. Eyes absent. Tempora inflated. Antennae filiform, long; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae absent. Submentum with 8 setae. Ligula with 2 apical setae. Palpi with penultimate segment fusiform; penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum subquadrate, cordate (heart-shaped); base narrower than apex; posterolateral angles acute; 2 setiferous punctures on each side (posterolateral puncture somewhat removed from posterolateral angle). Scutellum inserted entirely between elytral bases. **Legs.** Long. Protibiae not obliquely truncate on outer side at apex. **Elytra.** Subovate. Fused along suture (hindwings vestigial). Basal margin absent. Shoulders moderately developed, oblique, serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae incomplete, generally consisting of rows of punctures; stria 8 present subapically, deep, more deeply impressed than other striae; stria 1 not recurrent at apex. Oblique longitudinal sulcus absent. Interval 3 with 3 discal setiferous punctures (interval 3 absent in other anilline genera). Umbilicate series separated into two major groups (4+5), with posterior group continuous; 9 setiferous punctures. Radial field with fine dense pubescence. Subapical sinuations present, oblique. Apex subtruncate. **Abdomen.** Apex visible dorsally (female). Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (NN); “From a pipe descending vertically through a concrete floor” (Moore, 1980).

Collecting techniques. Uncertain; see Note.

References. Moore, 1980: 404 (description); Larochelle & Larivière, 2001: 89 (catalogue).

Note. Morphological features suggest that the species lives in deep fissures of the soil, in flaxlands, swamp-forests, or other wet habitats.

[33] Genus *Nesamblyops* Jeannel, 1937

Figure 52, Map p. 171

Description. Body: length 1.3–1.6 mm; not pedunculate; convex. Colour dark or pale reddish. Metallic lustre absent. Dorsal surface mostly pubescent. **Head.** Very wide. Mandibles very long. Eyes present, strongly reduced, consisting of 4–5 facets. Tempora inflated. Antennae filiform, long; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae absent. Submentum with 4 setae. Ligula with 2 apical setae. Palpi with penultimate segment subovate (labial) or fusiform (maxillary); penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum very transverse, not cordate; base and apex subequal in width; posterolateral angles rounded; 2 setiferous punctures on each side (posterolateral puncture close to posterolateral angle). Scutellum inserted entirely between elytral bases. **Legs.** Short. Protibiae not obliquely truncate on outer side at apex. **Elytra.** Ovate. Fused along suture (hindwings vestigial). Basal margin absent. Shoulders poorly developed, rounded, not serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae mostly absent (if present, incomplete and consisting of rows of punctures); stria 8, when present, obsolete; stria 1, when present, incomplete, not recurrent at apex. Oblique longitudinal sulcus absent. Three discal setiferous punctures. Umbilicate series separated into two major groups (4+4), with posterior group continuous; 8 setiferous punctures. Radial field with fine dense pubescence. Subapical sinuations absent. Apex rounded. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa. 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; forests, in thick leaf litter.

Collecting techniques. Sifting thick leaf litter.

References. Jeannel, 1937: 279 (description), 1963 (description; revision); Moore, 1980 (revision); Larochelle & Larivière, 2001: 89 (catalogue).

Note. This genus is in need of further revision.

[34] Genus *Pelodiaetodes* Moore, 1980

Figure 53, Map p. 172

Description. Body: length 1.6–1.8 mm; pedunculate; convex. Colour pale, testaceous (reddish-brown). Metallic lustre absent. Dorsal surface mostly pubescent. **Head.** Very wide. Mandibles very long. Eyes absent. Tempora inflated. Antennae moniliform, short; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae ab-

sent. Submentum with 6 setae. Ligula with 2 apical setae. Palpi with penultimate segment fusiform; penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum moderately transverse, subcordate; base narrower than apex; each posterolateral angle acute behind an auxiliary tubercle (contrary to other anilline genera); 2 setiferous punctures on each side (posterolateral puncture greatly removed from posterolateral angle). Scutellum placed partly between and above elytral bases. **Legs.** Short. Protibiae not obliquely truncate on outer side at apex. **Elytra.** Subovate. Fused along suture (hindwings vestigial). Basal margin absent. Shoulders poorly developed, oblique, serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae absent. Oblique longitudinal sulcus present (as *Pelodiaetus*). Three discal setiferous punctures. Umbilicate series separated into two major groups with 1 seta in between (3+1+5), with posterior group divided into two subgroups (2+3); 9 setiferous punctures. Radial field with fine dense pubescence. Subapical sinuations absent. Apex rounded. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (ND, CL); forests, in thick leaf litter.

Collecting technique. Sifting thick leaf litter.

References. Moore, 1980: 404 (description); Larochelle & Larivière, 2001: 90 (catalogue).

Notes. This genus is very close to *Pelodiaetus* and could be synonymous with it. This genus is in need of further revision.

[35] Genus *Pelodiaetus* Jeannel, 1937

Figure 54, Map p. 172

Description. Body: length 1.4–1.6 mm; pedunculate; convex. Colour pale, testaceous (reddish-brown). Metallic lustre absent. Dorsal surface mostly pubescent. **Head.** Very wide. Mandibles very long. Eyes absent. Tempora inflated. Antennae moniliform, short; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae absent. Submentum with 4 setae. Ligula with 2 apical setae. Palpi with penultimate segment fusiform (labial) or ovate (maxillary); penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum moderately transverse, subcordate; base narrower than apex; each posterolateral angle acute, without an auxiliary tubercle (contrary to *Pelodiaetodes*); 2 setiferous punctures on each side (posterolateral punctures greatly removed from posterolateral

angle). Scutellum placed partly between and above elytral bases. **Legs.** Short. Protibiae not obliquely truncate on outer side at apex. **Elytra.** Subovate. Fused along suture (hindwings vestigial). Basal margin absent. Shoulders poorly developed, obliquely rounded, serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae usually absent; if stria 1 present, consisting of an incomplete row of punctures and not recurrent at apex. Oblique longitudinal sulcus present (as *Pelodiaetodes*). A single discal setiferous puncture. Umbilicate series separated into two major groups with 1 seta in between (3+1+3), with posterior group divided into two subgroups (2+1); 7 setiferous punctures. Radial field with fine dense pubescence. Subapical sinuations absent. Apex rounded. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa. 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (CO, DN); forests, grasslands, and screes, in thick ground litter.

Collecting technique. Sifting thick ground litter.

References. Jeannel, 1937: 275 (description), 1963 (description; revision); Moore, 1980 (revision); Laroche & Larivière, 2001: 90 (catalogue).

Note. This genus is in need of further revision.

[36] Genus *Zeanillus* Jeannel, 1937

Figure 55, Map p. 175

Description. Body: length 1.5–2.0 mm; pedunculate; depressed. Colour pale, testaceous (reddish-brown). Metallic lustre absent. Dorsal surface mostly pubescent. **Head.** Very wide. Mandibles very long. Eyes absent. Tempora inflated. Antennae moniliform, short; pubescence starting from segment 2. Mentum: median tooth entire; circular foveae absent. Submentum with 10 setae. Ligula with 2 apical setae. Palpi with penultimate segment fusiform (labial) or ovate (maxillary); penultimate labial segment with 4–8 scattered setae. **Thorax.** Pronotum subquadrate, not cordate; base narrower than apex; posterolateral angles obtuse; 2 setiferous punctures on each side (posterolateral puncture close to posterolateral angle). Scutellum placed partly between and above elytral bases. **Legs.** Short. Protibiae not obliquely truncate on outer side at apex. **Elytra.** Subovate. Fused along suture (hindwings vestigial). Basal margin absent. Shoulders poorly developed, rounded, not serrate. Scutellar setiferous pore present. Scutellar striole absent. Striae mostly absent (if present, consisting of incomplete rows of punctures); stria 8 present on anterior two-thirds only, deeper along middle; stria 1, when

present, not recurrent at apex. Oblique longitudinal sulcus absent. Two discal setiferous punctures. Umbilicate series separated into two major groups with 1 seta in between (3+1+5), with posterior group divided into two subgroups (2+3); 9 setiferous punctures (punctures 7+8 not in line with series). Radial field with fine dense pubescence. Subapical sinuations absent. Apex rounded. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa. 3 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island; fields, grasslands, and forests, in thick leaf litter.

Collecting technique. Sifting thick leaf litter, carpets of moss and cushion plants.

References. Jeannel, 1937: 277 (description), 1963 (description; revision); Moore, 1980 (revision); Laroche & Larivière, 2001: 90 (catalogue).

Note. This genus is in need of further revision.

VI. Subfamily Harpalinae

Description (New Zealand). Body: length 2.0–35.0 mm; usually not pedunculate. **Head.** Mandibles without setiferous puncture in scrobe (mandibular scrobe absent, Pentagonicini). Labrum with 6 setiferous punctures on anterior margin. Clypeus narrower than distance between antennal sockets. Antennae filiform or moniliform; scapes entirely visible from above, inserted laterally, more or less in line with outer margins of mandibles; head capsule without antennal grooves ventrally. Palpi with terminal segment usually fusiform or subcylindrical, rarely subapically subulate (*Hakaharpalus*) or securiform (labial palpi, *Anomotarus*, *Trigonothops*). **Thorax.** Scutellum usually visible (invisible, *Gaixenus*, *Maoriharpalus*), either inserted entirely between elytral bases or placed partly between and above elytral bases. Procoxal cavities closed behind. Mesepimera not reaching mesocoxal cavities. Metepimera visible between metepisterna and sternum II. **Legs.** Protibiae anisochaetous (with 1 apical and 1 subapical spur); antennal cleaner forming a very deep emargination. **Elytra.** Free along suture (hindwings developed) or fused (hindwings usually vestigial). Striae present (8 or fewer in number). Apex not truncate (except Pentagonicini, Lebiini). **Abdomen.** Apex usually invisible dorsally.

References. Ball & Bousquet, 2001 (description); Arndt *et al.*, 2005 (description).

14. Tribe Pterostichini

Figures 56–67

Description (New Zealand). Body: length 6.5–35.0 mm; not pedunculate. **Head.** Labrum not deeply emarginate anteriorly (straight or slightly emarginate). Eyes present; 2 supraorbital setiferous punctures on inner side. Tempora inflated or not. Clypeus with a setiferous puncture on each side. Antennae usually filiform, rarely submoniliform (*Holcaspis*, in part); pubescence starting from segment 4. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 2 or 4 setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform; terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum with 1–6 setiferous punctures on each side. Scutellum visible, inserted entirely between elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Free along suture (hindwings developed) or fused (hindwings vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures present or absent. Umbilicate series present; usually 12–24 setiferous punctures (about 40 punctures, *Plocamostethus* (in part)). Radial field without fine dense pubescence. Apex usually rounded (obtuse, *Gourlayia*). Epipleura twisted near apex (with inner fold or plica; epipleura simple, other Harpalinae tribes). **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Sloane, 1895 (key to Australian genera); Britton, 1940 (description; revision of New Zealand taxa); Jeannel, 1942 (description; key to subtribes); Moore, 1965 (description; key to genera of Australia and New Zealand); Lindroth, 1966 (description); Straneo, 1979 (key to South American supraspecific taxa); Matthews, 1980 (key to South Australian genera); Bousquet, 1999 (description; key to North American supraspecific taxa); Johns, 2005 (identification guide to selected taxa).

Key to the New Zealand genera of Pterostichini

- 1 Elytral interval or stria 7 with a series of 4–10 discal setiferous punctures (Fig. 248). [Body often with metallic lustre, length 16.0 mm or more]
 ... (p. 56) ... *Megadromus* Motschulsky (Fig. 59–60)
 —Elytral interval or stria 7 without a series of discal setiferous punctures (Fig. 249) 2
 2(1) Mentum with circular foveae (Fig. 119) 3
 —Mentum without circular foveae (Fig. 159) 6
 3(2) Meso- and metatarsi with a dorsal longitudinal groove on each side (Fig. 222) 4

- Meso- and metatarsi without a dorsal longitudinal groove on each side (Fig. 219) 5
 4(3) Three terminal abdominal sterna with a transverse groove anteriorly (Fig. 252)
 (p. 57) ... *Prosopognus* Chaudoir (Fig. 64)
 —Three terminal abdominal sterna without a transverse groove anteriorly (Fig. 251)
 (p. 55) ... *Aulacopodus* Britton (Fig. 56)
 5(3) Metepisterna short, subquadrate. Metatarsomere 5 with 2 pairs of setae ventrally. [Elytra fused along suture (hindwings vestigial)]
 (p. 55) ... *Holcaspis* Chaudoir (Fig. 58)
 —Metepisterna elongate (Fig. 184). Metatarsomere 5 with 3 pairs of setae ventrally. [Elytra free along suture (hindwings well developed)]
 (p. 58) ... *Pseगतopterus* Chaudoir (Fig. 65)
 6(2) Proepisterna striate or wrinkled transversely (Fig. 180). [Fields and dunes]
 (p. 58) ... *Rhytisternus* Chaudoir (Fig. 66)
 —Proepisterna neither striate nor wrinkled transversely (Fig. 181). [Forests] 7
 7(6) Antennomere 1 subcarinate, hollowed or flattened posterodorsally (Fig. 122). Male metatibiae with inner apical prolongation dorsally (Fig. 205). [Body with metallic lustre]
 (p. 59) ... *Zeopocilus* Sharp (Fig. 67)
 —Antennomere 1 not subcarinate, neither hollowed nor flattened posterodorsally. Male metatibiae without inner apical prolongation dorsally (Fig. 206) 8
 8(7) Eyes normally developed (Fig. 61–62). Tempora not inflated (Fig. 61–62, 174). Mandibles moderately long (Fig. 61–62) 9
 —Eyes strongly reduced (Fig. 57, 63). Tempora inflated (Fig. 57, 63, 173). Mandibles very long (Fig. 57, 63) 10
 9(8) Metatarsomere 5 glabrous ventrally (Fig. 190). Body length 9.0 mm or less
 (p. 57) ... *Onaweа* Johns (Fig. 62)
 —Metatarsomere 5 setose ventrally (Fig. 189). Body length 18.0 mm or more
 (p. 56) ... *Neoferonia* Britton (Fig. 61)
 10(8) Elytra produced into a semi-circular apical lobe (Fig. 57). Pronotum with a single setiferous puncture on each side, posteriorly (Fig. 57)
 (p. 55) ... *Gourlayia* Britton (Fig. 57)
 —Elytra not produced into a semi-circular apical lobe (Fig. 63). Pronotum with 2 setiferous punctures on each side (Fig. 63)
 (p. 57) ... *Plocamostethus* Britton (Fig. 63)

Subtribe Pterostichina

Description (New Zealand). **Head.** Antennae with 3 basal segments glabrous. **Legs.** Protibiae moderately dilated apically.

References. Jeannel, 1942 (key to subtribes); Moore, 1965 (description); Straneo, 1979 (key to South American supraspecific taxa).

[37] Genus *Aulacopodus* Britton, 1940

Figure 56, Map p. 166

Description. Body length 7.0–12.0 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous.

Head. Moderately wide. Mandibles moderately long. Eyes normally developed, convex. Tempora not inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae present. Submentum with 4 setae. **Thorax.** Pronotum moderately transverse or subquadrate; base and apex subequal in width; pronotal base about as wide as elytral base; usually 2 setiferous punctures on each side (rarely a single one anteriorly). Metepisterna either short (subquadrate) or elongate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi with dorsal longitudinal groove on each side. Metatarsomere 5 with 2–5 pairs of setae ventrally. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed, obtuse, dentate. Scutellar setiferous pore absent (as *Onaweia*). Scutellar striole present. Striae complete, generally consisting of lines, well impressed laterally. Interval 3 with 1–3 or without discal setiferous punctures; interval 5 without discal setiferous puncture. Umbilicate series separated into two major groups (6+8 with 1 or 2 setae in between), with posterior group continuous; 15–16 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa (New Zealand). 4 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island, South Island (MC); forests, under logs, stones, and in leaf litter.

Collecting techniques. Pitfall trapping; turning logs and stones; raking leaf litter.

References. Britton, 1940: 491 (description; revision); Larochelle & Larivière, 2001: 92 (catalogue).

Note. This genus is in need of further revision.

[38] Genus *Gourlayia* Britton, 1964

Figure 57, Map p. 169

Description. Body length 22.0–25.0 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous.

Head. Moderately wide. Mandibles very long. Eyes strongly reduced, depressed. Tempora inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae absent. Submentum with 2 setae. **Thorax.** Pronotum subquadrate; base and apex subequal in width; pronotal base narrower than elytral base; a single setiferous puncture on each side, posteriorly (contrary to other New Zealand pterostichine genera). Metepisterna short, subquadrate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 glabrous ventrally (as *Onaweia*). **Elytra.** Oblong. Fused along suture (hindwings vestigial); sides strongly constricted subapically, produced into a semicircular apical lobe (contrary to other pterostichine genera). Basal margin present, complete. Shoulders well developed, somewhat rounded, not dentate. Scutellar setiferous pore present. Scutellar striole present. Striae nearly complete, generally consisting of lines, poorly impressed laterally. Interval 3 without discal setiferous puncture; interval 5 without discal setiferous puncture. Umbilicate series separated into two major groups (6+9 with 2 setae in between or 8+8 with 1 additional seta at the end), with posterior group continuous; 17–19 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. Offshore Islands (TH); forests, under large stones.

Collecting techniques. Pitfall trapping; turning large stones.

References. Britton, 1964b: 521 (description); Larochelle & Larivière, 2001: 93 (catalogue).

[39] Genus *Holcaspis* Chaudoir, 1865

Figure 58, Map p. 169

Description. Body length 10.0–26.0 mm. Colour dark. Metallic lustre absent (usually) or present (weak). Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes normally developed, convex. Tempora not inflated. Antennae filiform or submoniliform. Mentum: median tooth bifid; circular foveae present. Submentum with 4 setae. **Thorax.** Pronotum subquadrate; base and apex usually subequal in width; pronotal base about as wide as elytral base; 2–6 setiferous punctures on each side. Metepisterna short, subquadrate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 with 2 pairs of setae ventrally. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed, obtuse, dentate. Scutellar

setiferous pore present. Scutellar striole absent or vestigial. Striae complete or incomplete, generally consisting of lines, well impressed laterally. Interval 3 without or with 1–6 discal setiferous punctures; interval 5 without discal setiferous punctures. Umbilicate series separated into two or three major groups; 13–23 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa. 35 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North, South, and Stewart Islands; forests (mostly) and fields, under logs and stones.

Collecting techniques. Pitfall trapping; turning logs and stones.

References. Chaudoir, 1865b: 101 (description); Britton, 1940 (revision); Butcher, 1984 (revision); Larochelle & Larivière, 2001: 93 (catalogue); Johns, 2003 (description of new species; identification table).

Notes. Butcher's (1984) species groups bear no formal taxonomic value and are too numerous for convenience. This genus is in need of further revision. Reliable species identification can only be achieved through examination of the male genitalia.

[40] Genus *Megadromus* Motschulsky, 1866

Figures 59–60, Map p. 171

Description (New Zealand). Body length 16.0–35.0 mm. Colour dark. Metallic lustre often present (coppery, bronze, green) or sometimes absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long. Eyes usually normally developed and convex, rarely reduced and depressed. Tempora inflated or not. Antennae filiform. Mentum: median tooth bifid; circular foveae absent. Submentum with 4 setae. **Thorax.** Pronotum usually very transverse; base and apex usually subequal in width; pronotal base about as wide as elytral base; 2–5 setiferous punctures on each side. Metepisterna short, subquadrate. Apex of prosternum glabrous or setose. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 with 2–5 pairs of setae ventrally. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed, obtuse, dentate. Scutellar setiferous pore present. Scutellar striole present, weak. Striae complete or incomplete, generally consisting of lines, well impressed laterally. Interval 3 with 1–8 (usually 3–4) discal setiferous punctures or rarely without punctures; interval 5 without (usually) or with 1–6 discal setiferous punctures; interval or stria 7 setose (contrary to other pterostichine genera), with a series of 4–10 discal setiferous punctures. Umbilicate series

rather continuous; 18–25 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa (New Zealand). 26 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North, South (mostly), and Stewart Islands; forests and fields, in soil burrows, under logs, fallen trees, and stones.

Collecting techniques. Pitfall trapping; examining soil burrows and holes; turning logs, fallen trees, and stones.

References. Motschulsky, 1866: 249 (description); Britton, 1940 (revision); Moore, 1965 (description); Larochelle & Larivière, 2001: 101 (catalogue); Johns, 2007 (description of new species).

Notes. This genus is in need of further revision. Reliable species identification can only be achieved through examination of the male genitalia.

Subgenus *Megadromus* Motschulsky, 1866

Description. Body stout. **Elytra.** Fused along suture; shoulders strongly dentate.

References. Motschulsky, 1866: 249 (description); Moore, 1965 (description); Larochelle & Larivière, 2001: 101 (catalogue).

[41] Genus *Neoferonia* Britton, 1940

Figure 61, Map p. 171

Description. Body length 18.0–21.0 mm. Colour dark. Metallic lustre present (coppery, bronze). Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes normally developed, convex. Tempora not inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae absent. Submentum with 4 setae. **Thorax.** Pronotum very transverse; base and apex usually subequal in width; pronotal base narrower than elytral base, or about as wide; 2 setiferous punctures on each side. Metepisterna short, subquadrate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 with 4 pairs of setae ventrally. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders poorly developed, somewhat rounded, dentate. Scutellar setiferous pore present. Scutellar striole absent or vestigial. Striae complete, generally consisting of lines, well impressed laterally. Interval 3 without discal setiferous puncture; interval 5 without discal setiferous puncture. Umbilicate series rather continuous; 19 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa. 9 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island; forests, under logs and stones.

Collecting techniques. Pitfall trapping; turning logs and stones.

References. Britton, 1940: 504 (description; revision); Laroche & Larivière, 2001: 109 (catalogue).

Notes. This genus is in need of further revision. Reliable species identification can only be achieved through examination of the male genitalia.

[42] Genus *Onawea* Johns, 2007

Figure 62, Map p. 172

“*Argutor*” *sensu* Blanchard, 1843, *nec* Dejean, 1821: 11.

Type species. *Argutor pantomelas* Blanchard, 1843: Plate 2, Figure 6.

Description. Body length 8.0–9.0 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes normally developed, convex. Tempora not inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae absent. Submentum with 4 setae. **Thorax.** Pronotum subquadrate; base wider than apex; pronotal base about as wide as elytral base; 2 setiferous punctures on each side. Metepisterna short, subquadrate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 glabrous ventrally (as *Gourlayia*). **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, almost complete. Shoulders well developed, obtuse, dentate. Scutellar setiferous pore absent (as *Aulacopodus*). Scutellar striae absent. Striae complete, generally consisting of lines, well impressed laterally. Interval 3 without discal setiferous puncture; interval 5 without discal setiferous puncture. Umbilicate series separated into two major groups (6+8 with 1 seta in between), with posterior group continuous; 15 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (MC, Banks Peninsula); forests, under pieces of wood or under stones.

Collecting techniques. Pitfall trapping; turning pieces of wood or stones.

References. Britton, 1940 (as *Holcaspis* Chaudoir, 1865; taxonomy); Laroche & Larivière, 2001: 91 (as “*Argutor*” Dejean, 1821; catalogue); Johns, 2007 (exclusion of *Argutor* Dejean, 1821 from the New Zealand fauna; taxonomy of *Onawea*).

[43] Genus *Plocamostethus* Britton, 1940

Figure 63, Map p. 173

Description. Body length 18.0–29.0 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles very long. Eyes strongly reduced, convex. Tempora inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae absent. Submentum with 2 or 4 setae. **Thorax.** Pronotum moderately transverse; base and apex subequal in width; pronotal base about as wide as elytral base; 2 setiferous punctures on each side. Metepisterna subquadrate or elongate. Apex of prosternum setose. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 with 3–4 pairs of setae ventrally. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed, dentate. Scutellar setiferous pore present. Scutellar striae absent or vestigial. Striae incomplete basally, generally consisting of impressed lines. Interval 3 without discal setiferous puncture; interval 5 without discal setiferous puncture. Umbilicate series continuous; about 22–24 or 40 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa. 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; forests, under logs, fallen branches, and stones.

Collecting techniques. Pitfall trapping; turning logs, fallen branches, and stones.

References. Britton, 1940: 503 (description; revision); Laroche & Larivière, 2001: 111 (catalogue); Johns, 2007 (description of a new species).

Note. This genus is in need of further revision.

[44] Genus *Prosopogmus* Chaudoir, 1865

Figure 64, Map p. 174

Description (New Zealand). Body length 6.5–7.0 mm. Colour dark. Metallic lustre present (coppery, bronze). Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes normally developed, convex. Tempora inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae present. Submentum with 2 setae. **Thorax.** Pronotum very transverse; base wider than apex; pronotal base about as wide as elytral base; 2 setiferous punctures on each side. Metepisterna elongate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi with dorsal longitudinal groove on each side. Metatarsomere 5 with 2 pairs of setae ventrally. **Elytra.** Oblong. Free along suture (hindwings well developed). Basal margin present, complete. Shoulders well developed, obtuse, dentate. Scutellar setiferous pore present. Scutellar

striole present. Striae complete, generally consisting of lines, well impressed laterally; stria 2 with 2–3 discal setiferous punctures; stria 3 with a single discal setiferous puncture anteriorly. Interval 5 without discal setiferous puncture. Umbilicate series separated into two major groups (7+8), with posterior group continuous; 15 setiferous punctures. Apex rounded. **Abdomen.** Three terminal sterna with a transverse groove anteriorly (without groove, other pterostichine genera). Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island; cultivated fields and sand dunes, under dead leaves and in soil burrows.

Collecting techniques. Pitfall trapping; raking leaf litter; examining soil burrows; digging sand.

References. Chaudoir, 1865b: 92 (description); Moore, 1965 (description); Larochelle & Larivière, 2001: 112 (catalogue).

Note. This genus is in need of revision.

[45] Genus *Pseggmatopterus* Chaudoir, 1878

Figure 65, Map p. 174

Description. Body length 13.0–15.0 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes normally developed, convex. Tempora not inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae present. Submentum with 4 setae. **Thorax.** Pronotum very transverse, subcordate; base and apex subequal in width; pronotal base narrower than elytral base; 2 setiferous punctures on each side. Metepisterna elongate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 with 3 pairs of setae ventrally. **Elytra.** Oblong. Free along suture (hindwings well developed). Basal margin present, complete. Shoulders poorly developed, rounded, dentate. Scutellar setiferous pore present. Scutellar striole present. Striae incomplete, generally consisting of lines, well impressed laterally. Interval 3 without discal setiferous puncture; interval 5 without discal setiferous puncture. Umbilicate series separated into two major groups (6+8 with 2 setae in between), with posterior group continuous; 16 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island, South Island (upper third); vicinity of bodies of water, under well embedded stones, logs, and fallen branches; also in

burrows at the base of plants.

Collecting techniques. Pitfall trapping; turning well embedded stones, logs, and fallen branches; digging at the base of plants.

References. Chaudoir, 1878b: 57 (description); Britton, 1940 (description); Larochelle & Larivière, 2001: 112 (catalogue).

Note. This genus is in need of revision.

[46] Genus *Rhytisternus* Chaudoir, 1865

Figure 66, Map p. 174

Description (New Zealand). Body length 10.0–17.0 mm. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes normally developed, convex. Tempora not inflated. Antennae filiform. Mentum: median tooth bifid; circular foveae absent. Submentum with 2 setae. **Thorax.** Pronotum moderately transverse, subcordate; base and apex subequal in width; pronotal base about as wide as elytral base; 2 setiferous punctures on each side. Proepisterna striate or wrinkled transversely (smooth, other pterostichine genera). Metepisterna elongate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Metatarsomere 5 with 2–3 pairs of setae ventrally. **Elytra.** Oblong. Free along suture (hindwings fully developed). Basal margin present, complete. Shoulders well developed, obtuse, dentate. Scutellar setiferous pore present. Scutellar striole absent. Striae incomplete, generally consisting of lines, poorly impressed laterally. Interval 3 without discal setiferous puncture; interval 5 without discal setiferous puncture. Umbilicate series separated into two major groups (6+7), with posterior group continuous; 13 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa (New Zealand). 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island, Offshore Islands (TH); cultivated fields and pastures, under stones, pieces of wood, logs, dry cow dung, and in burrows.

Collecting techniques. Pitfall trapping; turning stones, pieces of wood, logs, dry cow dung; examining burrows in the soil.

References. Chaudoir, 1865b: 106 (description); Sloane, 1895 (key to species); Britton, 1940 (description; species differences); Moore, 1965 (description); Larochelle & Larivière, 2001: 113 (catalogue).

Note. This genus is in need of revision.

[47] Genus *Zeopocilus* Sharp, 1886

Figure 67, Map p. 175

Description. Body length 20.0–24.0 mm. Colour dark. Metallic lustre present (bronze, coppery). Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long. Eyes normally developed, convex. Tempora not inflated. Antennae filiform; segment 1 subcarinate, hollowed or flattened dorsally (non-carinate, convex dorsally, other pterostichine genera). Mentum: median tooth bifid; circular foveae absent. Submentum with 4 setae. **Thorax.** Pronotum very transverse, cordate (heart-shaped); base and apex usually subequal in width; pronotal base about as wide as elytral base; 2 setiferous punctures on each side. Metepisterna short, subquadrate. Apex of prosternum glabrous. **Legs.** Meso- and metatarsi without dorsal longitudinal groove on each side. Male metatibiae with inner apical prolongation (without prolongation, other pterostichine genera). Metatarsomere 1 of male compressed (not compressed, other pterostichine genera). Metatarsomere 5 with 3–4 pairs of setae ventrally. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed, obtuse, dentate. Scutellar setiferous pore present. Scutellar striole present, more or less impressed. Striae complete, generally consisting of lines, well impressed laterally. Interval 3 without discal setiferous puncture; interval 5 without discal setiferous puncture. Umbilicate series continuous; 17–22 setiferous punctures. Apex rounded. Other characters as for tribe.

Number of taxa. 3 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (upper third); forests, under logs and stones.

Collecting techniques. Pitfall trapping; turning logs and stones.

References. Sharp, 1886: 365 (description); Britton, 1940 (revision); Laroche & Larivière, 2001: 113 (catalogue); Johns, 2007 (description of a new species).

Note. This genus is in need of further revision.

15. Tribe Licinini

Figures 68–70

Description (New Zealand). Body: length 4.5–12.0 mm; pedunculate or not. **Head.** Labrum deeply emarginate or almost cleft to base. Eyes present; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus emarginate (contrary to other carabid tribes), with a setiferous puncture on each side. Antennae filiform; pubescence starting from segment 4. Mentum tooth absent medially. Mentum-submentum suture present. Submentum

with 2 setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform (except labial palpi swollen, *Physolaesthus*), glabrous or setose (with numerous setae); penultimate maxillary segment glabrous or setose; penultimate labial segment with 2, 4, or 5 setae on anterior margin. **Thorax.** Pronotum with 1 (anteriorly) or 2 setiferous punctures on each side. Scutellum visible, either inserted entirely between elytral bases, or placed partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Free along suture (hindwings developed) or fused (hindwings vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures present. Umbilicate series present; 13–16 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse or rounded. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Sloane, 1898 (key to Australian genera), 1920a (key to Tasmanian genera); Jeannel, 1942 (description); Darlington, 1968 (key to New Guinean genera); Lindroth, 1969a–b (description; revision of North American taxa); Reichardt, 1977 (key to Neotropical and Mexican genera); Matthews, 1980 (key to South Australian genera); Ball, 1992 (key to subtribes).

Key to the New Zealand genera of Licinini

- 1 Right mandible with prominent dorsal boss and deep lateral notch on inner margin (Fig. 153). Labrum (Fig. 153) almost cleft to base. Body length 5.0 mm or less (p. 60) ... *Physolaesthus* Chaudoir (Fig. 70)
- Right mandible without prominent dorsal boss or deep lateral notch on inner margin (Fig. 152). Labrum (Fig. 152) deeply emarginate, but not almost cleft to base. Body length 8.0 mm or more (p. 60) ... *Dicrochile* Guérin-Méneville (Fig. 68–69)

Subtribe Dicrochilina

Description (New Zealand). Body length 8.0–12.0 mm. **Head.** Mandibles more or less symmetrical. Mentum with or without circular foveae. Palpi: penultimate maxillary segment shorter than or subequal to terminal segment; penultimate labial segment with 2, 4 or 5 setae on anterior margin.

Reference. Ball, 1992 (description).

[48] Genus *Dicrochile* Guérin-Méneville, 1846

Figures 68–69, Map p. 168

Description (New Zealand). Body: length 8.0–12.0 mm; not pedunculate. Colour dark, rarely with paler pronotum and elytra. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long; right mandible without prominent dorsal boss and deep lateral notch on inner margin. Labrum deeply emarginate. Eyes convex or depressed. Mentum with or without circular foveae. Palpi: terminal segment fusiform, usually glabrous; penultimate maxillary segment setose (with numerous setae), shorter than or subequal to terminal segment; penultimate labial segment usually with 4–5 setae (rarely with 2 setae) on anterior margin. **Thorax.** Pronotum usually very transverse, rarely cordate; base narrower than apex; posterolateral angles usually rounded, rarely acute; 1 (anteriorly) or 2 setiferous punctures on each side. Scutellum inserted entirely between elytral bases. **Legs.** Tarsi: longitudinal grooves present on each side, absent along middle dorsally; metatarsomere 5 setose ventrally. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed, rounded. Scutellar setiferous pore present. Scutellar striole present. Striae incomplete, generally consisting of impressed lines. Interval 3 with 2 discal setiferous punctures. Umbilicate series rather continuous; 13–16 setiferous punctures. Apex obtuse or rounded. Other characters as for tribe.

Number of taxa (New Zealand). 15 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; edges of streams, marshes, and eutrophic lakes, wet areas in forests, under well embedded logs and stones, in leaf litter and other plant debris, in soil burrows.

Collecting techniques. Turning logs and well embedded stones; treading the vegetation into the water; examining soil burrows and fissures; raking leaf litter and other plant debris.

References. Guérin-Méneville, 1846a: CIII (description); Moore, 1985 (description); Larochelle & Larivière, 2001: 114 (catalogue).

Note. This genus is in need of revision.

Subtribe *Licinina*

Description (New Zealand). Body length 4.5–5.0 mm. **Head.** Mandibles strongly asymmetrical. Mentum without circular foveae. Palpi: maxillary palpi with penultimate segment shorter than terminal segment; penultimate labial segment with 2 setae on anterior margin.

References. Jeannel, 1942 (description); Ball, 1992 (description).

[49] Genus *Physolaesthus* Chaudoir, 1850

Figure 70, Map p. 173

Description (New Zealand). Body: length 4.5–5.0 mm; pedunculate. Colour dark. Metallic lustre present (coppery, bronze). Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long; right mandible with prominent dorsal boss and deep lateral notch on inner margin. Labrum almost cleft to base. Eyes convex. Mentum without circular foveae. Palpi: terminal maxillary segment fusiform, glabrous; terminal labial segment swollen, externally dilated, ending in an acute angle, setose; penultimate maxillary segment glabrous, shorter than terminal segments; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum very transverse, not cordate; base and apex subequal in width; posterolateral angles obtuse; 2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. **Legs.** Tarsi: longitudinal grooves present on each side and along middle dorsally; metatarsomere 5 glabrous ventrally. **Elytra.** Oblong. Free along suture (hindwings fully developed). Basal margin present, complete. Shoulders well developed, rounded. Scutellar setiferous pore present. Scutellar striole present. Striae incomplete, generally consisting of impressed lines. Interval 3 with 2 discal setiferous punctures. Umbilicate series separated into two major groups (5+8 with 1 seta in between), with posterior group continuous; 14 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa (New Zealand). 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; edges of coastal streams and marshes, at the base of *Carex*-plants and among *Typha*-vegetation.

Collecting technique. Treading the soil and the vegetation into water.

References. Chaudoir, 1850: 411 (description); Larochelle & Larivière, 2001: 118 (catalogue).

Note. This genus is in need of revision.

16. Tribe *Harpalini*

Figures 71–98

Description (New Zealand). Body: length 3.0–20.0 mm; usually not pedunculate. **Head.** Labrum not deeply emarginate anteriorly (except *Maoriharpalus*). Eyes present; a single supraorbital setiferous puncture on inner side (medially or posteriorly). Tempora not inflated (except *Tuiharpalus*). Clypeus with a setiferous puncture on each side. Antennae usually filiform, rarely widening from base to apex (apical half submoniliform, *Hakaharpalus*) or with subapical and apical segments subquadrate

(*Hypharpax*, in part); pubescence starting from segment 3 (usually) or segment 2 (rarely). Mentum tooth present (usually) or absent medially. Mentum-submentum suture usually present (absent, *Anisodactylus*). Submentum usually with 4 setae, rarely with only 2 or more than 4 setae. Ligula with 2 apical setae. Palpi with terminal segment usually fusiform, sometimes subcylindrical, rarely subulate (*Hakaharpalus*) or elongate-triangular (*Kiwiarpalus*), usually setose; penultimate segment usually setose, rarely glabrous; penultimate labial segment with at least 2–4 long setae on anterior margin. **Thorax.** Pronotum with 1 (anteriorly) setiferous puncture on each side. Scutellum usually visible (invisible, *Gaioxenus*, *Maoriarpalus*), usually inserted between elytral bases, rarely placed partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi pubescent or glabrous dorsally; claws entire ventrally; unguis tractor plate invisible between tarsal claws. **Elytra.** Free along suture (hindwings developed) or fused (hindwings usually vestigial). Stria 1 not recurrent at apex. Discal setiferous punctures present or absent. Umbilicate series present; 12–27 setiferous punctures. Radial field usually without fine dense pubescence. Apex mostly obtuse, sometimes rounded. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with or without pubescence, in addition to paired ambulatory setae. Other characters as for subfamily.

Secondary sexual characters. Male protarsi and usually mesotarsi dilated laterally and with ventral adhesive setae; male tarsi either spongily pubescent, biserially pubescent, or rarely unmodified (i.e. simple as in the female).

References. Sloane, 1898 (key to Australian genera), 1920a (key to Tasmanian genera); Jeannel, 1942 (description; key to subtribes); Basilewsky, 1950, 1951 (description; key to subtribes; revision of taxa from Africa and Madagascar); Darlington, 1968 (revision of New Guinean taxa); Lindroth, 1968 (description); Habu, 1973 (revision of Japanese taxa); Noonan, 1973 (description; key to genera), 1976 (description); Moore, 1977 (key to Australian subtribes); Reichardt, 1977 (key to Neotropical subtribes); Matthews, 1980 (key to South Australian genera); Laroche & Larivière, 2005 (revision of New Zealand taxa).

Notes. *Hakaharpalus* and *Bembidiini* have terminal maxillary segments somewhat similarly structured. In the former, however, terminal maxillary segments are partially subulate (tapering to a point subapically only) while in the latter they are entirely subulate. The following descriptions and keys have been extracted from Laroche & Larivière (2005), with some minor modifications. Reliable species identification can only be achieved through examination of the male genitalia.

Key to the New Zealand subtribes of Harpalini

(mostly based on males)

- 1 Penultimate labial palpomere with 4 setae (Fig. 148) or more on anterior margin 2
 - Penultimate labial palpomere with 3 setae (Fig. 149) or with 2 setae (Fig. 150) on anterior margin 3
- 2(1) Male protarsi dilated laterally and biserially pubescent (with two rows of scale-like setae) ventrally (Fig. 209). Aedeagus asymmetrical, with ostium strongly deflected to the left (Fig. 256) (p. 70) ... **Subtribe Harpalina** **genus Harpalus** (Fig. 85–86)
 - Male protarsi dilated laterally and spongily pubescent ventrally (Fig. 210). Aedeagus asymmetrical (with ostium deflected to the right (Fig. 257) or twisted (Fig. 258)), or symmetrical (with ostium dorsal, not deflected laterally (Fig. 255)) (p. 63) ... **Subtribe Anisodactylina** (in part)
- 3(1) Penultimate labial palpomere with 3 setae on anterior margin (Fig. 149) 4
 - Penultimate labial palpomere with 2 setae on anterior margin (Fig. 150) 5
- 4(3) Frons without clypeo-ocular prolongations (Fig. 72) (p. 63) ... **Subtribe Anisodactylina** (in part)
 - Frons with clypeo-ocular prolongations (Fig. 92) (p. 71) ... **Subtribe Pelmatellina** (in part)
- 5(3) Male protarsi dilated laterally and spongily pubescent ventrally (Fig. 210) (p. 71) ... **Subtribe Pelmatellina** (in part)
 - Male protarsi dilated laterally and biserially pubescent ventrally (Fig. 209) or unmodified (p. 74) ... **Subtribe Stenolophina**

Artificial key to the New Zealand genera of Harpalini

Note. The key to the subtribes provided above and keys to the genera within each subtribe allow the identification of all harpaline genera, but because the key to the subtribes is mainly based on males, an artificial key to the genera, one by-passing the subtribes, is here provided for easier identification.

- 1 Rows of setiferous punctures present on elytral intervals 3, 5 or 7 (Fig. 75, 82, 84), or in stria 2 (Fig. 83) ... 2
 - Rows of setiferous punctures absent (Fig. 74, 81) on elytral intervals 3, 5 or 7, or in stria 2 3

- 2(1) Metatarsomere 1 as long as metatarsomeres 2+3 combined (Fig. 216). Forebody (head and thorax) with sparse setiferous micropores dorsally. Eyes strongly reduced, rather depressed (Fig. 82–84). Tempora inflated (Fig. 82–84) (p. 69) *Tuiharpalus* Larochelle & Larivière (Fig. 82–84)
- Metatarsomere 1 as long as metatarsomeres 2+3+4 combined (Fig. 217). Forebody (head and thorax) without sparse setiferous micropores dorsally. Eyes normally large, convex (Fig. 75). Tempora not inflated (Fig. 75) (p. 66) ... *Gnathaphanus* Macleay (Fig. 75)
- 3(1) Mentum without median tooth (Fig. 166) 4
- Mentum with a median tooth (Fig. 162–165) 6
- 4(3) Eye reaching buccal fissure ventrally (Fig. 132). Frons with clypeo-ocular prolongations (Fig. 94). Body length 6.5 mm or less (p. 75) ... *Egadroma* Motschulsky (Fig. 94)
- Eye separated from buccal fissure ventrally (by 1–2× maximum width of antennal scape) (Fig. 130–131). Frons without clypeo-ocular prolongations (Fig. 77). Body length 10 mm or more 5
- 5(4) Mandibles and antennal scapes very long, about 6× their maximum width (Fig. 77). Labrum strongly emarginate apically (Fig. 77). Mentum and submentum separated by transverse suture (Fig. 159). Pronotum suborbicular (Fig. 77) (p. 67) ... *Maoriharpalus* Larochelle & Larivière (Fig. 77)
- Mandibles and antennal scapes much shorter (Fig. 73). Labrum straight (Fig. 73) or slightly emarginate apically. Mentum and submentum fused, not separated by transverse suture (Fig. 161). Pronotum rectangular (Fig. 73) (p. 65) ... *Anisodactylus* Dejean (Fig. 73)
- 6(3) Segment 4 of protarsi and mesotarsi with 2 membranous laminae (Fig. 211). Forebody (head and thorax) much narrower than elytra (Fig. 93, 98) 7
- Segment 4 of protarsi and mesotarsi without membranous laminae (Fig. 212). Forebody (head and thorax) at most moderately narrower than elytra ... 8
- 7(6) Elytral striae (Fig. 93) well developed, complete, consisting of impressed lines. Mentum with medial tooth as long as lateral lobes (Fig. 163) (p. 74) ... *Syllectus* Bates (Fig. 93)
- Elytral striae (Fig. 98) poorly developed, incomplete, consisting of rows of punctures. Mentum with medial tooth longer than lateral lobes (Fig. 164) (p. 77) ... *Pholeodytes* Britton (Fig. 98)
- 8(6) Eyes strongly reduced, depressed or rather flat, consisting of obliterated facets (Fig. 87, 97). Mandibles very long (about 5–6× their maximum width; Fig. 87, 97) 19
- Eyes normally developed (Fig. 95). Mandibles shorter (Fig. 95) 9
- 9(8) Abdominal sterna VI+VII with numerous short setae, in addition to paired ambulatory setae (Fig. 250) (p. 76) ... *Euthenarus* Bates (Fig. 95)
- Abdominal sterna VI+VII without numerous short setae, with paired ambulatory setae only (Fig. 251) 10
- 10(9) Elytral striae incomplete basally and laterally (Fig. 96). Pronotum suborbicular (Fig. 96) (p. 76) ... *Haplanister* Moore (Fig. 96)
- Elytral striae complete (Fig. 79). Pronotum not suborbicular 11
- 11(10) Umbilicate series of elytral interval 9 separated into two major groups (Fig. 246) 12
- Umbilicate series of elytral interval 9 not separated into two major groups (Fig. 247) 17
- 12(11) Frons with clypeo-ocular prolongations (Fig. 92) 13
- Frons without clypeo-ocular prolongations (Fig. 78) 14
- 13(12) Apex of prosternal lobe setose. Penultimate labial palpomere with 3 setae on anterior margin (Fig. 149). Eye widely separated from buccal fissure ventrally (by 1.5–2.0× maximum width of antennal scape; Fig. 130) (p. 72) *Kupeharpalus* Larochelle & Larivière (Fig. 88–89)
- Apex of prosternal lobe glabrous (Fig. 119). Penultimate labial palpomere with 2 setae on anterior margin (Fig. 150). Eye reaching buccal fissure (Fig. 132) or narrowly separated from it ventrally (by 0.3–0.7× maximum width of antennal scape; Fig. 131) (p. 73) ... *Lecanomerus* Chaudoir (Fig. 90–92)
- 14(12) Metatarsomere 1 very long, almost as long as metatarsomeres 2+3+4 combined (Fig. 217) (p. 68) ... *Notiobia* Perty (Fig. 78)
- Metatarsomere 1 much shorter, at most as long as metatarsomeres 2+3 combined (Fig. 216, 218) ... 15
- 15(14) Metafemora with 2 long setae on posterior margin (Fig. 191). Elytra fused along suture (hindwings vestigial). [Pronotum (Fig. 71–72)] (p. 64) ... *Allocinopus* Broun (Fig. 71–72)
- Metafemora with 4–10 long setae on posterior margin (Fig. 192). Elytra free along suture (hindwings fully developed). [Pronotum (Fig. 76, 85–86)] 16

- 16(15) Metatarsomere 5 with 6–8 setae ventrally. Posterior bead of pronotum complete (Fig. 85–86). [Body length 6–12 mm] ... (p. 70) ... *Harpalus* Latreille (Fig. 85–86)
- Metatarsomere 5 with 4 setae ventrally. Posterior bead of pronotum incomplete medially (Fig. 76). [Body length 4.5–7.0 mm] (p. 66) ... *Hypharpax* Macleay (Fig. 76)
- 17(11) Body shape boat-like, with subtriangular elytra (Fig. 74). Scutellum not visible (Fig. 74). Labrum moderately transverse, almost square, convex apically (Fig. 74) (p. 65) ... *Gaioxenus* Broun (Fig. 74)
- Body shape not boat-like, without subtriangular elytra (Fig. 79–81). Scutellum visible (Fig. 79–81). Labrum strongly transverse, subrectangular, straight (Fig. 80–81) or slightly emarginate apically (Fig. 79) 18
- 18(17) Body pigmented (appearing dark in colour). Tarsi pubescent dorsally (Fig. 189). Metafemora with 2 long setae on posterior margin (Fig. 191). Metatarsomere 1 as long as metatarsomeres 2+3 combined (Fig. 216). Paraglossae longer than ligula (p. 68) ... *Parabaris* Broun (Fig. 79–80)
- Body depigmented (appearing pale in colour). Tarsi glabrous dorsally (Fig. 190). Metafemora with 5–7 long setae on posterior margin (Fig. 192). Metatarsomere 1 shorter than metatarsomeres 2+3 combined (Fig. 218). Paraglossae as long as ligula (Fig. 168) (p. 69) ... *Triplosarus* Bates (Fig. 81)
- 19(8) Pronotum cordate or subcordate (Fig. 87). Antennae widening from base to apex (apical half submoniliform); pubescence starting on antennomere 2 ... (p. 72) ... *Hakaharpalus* Laroche & Larivière (Fig. 87)
- Pronotum quadrate (Fig. 97). Antennae not widening from base to apex; pubescence starting on antennomere 3 (p. 77) ... *Kiwiharpalus* Laroche & Larivière (Fig. 97)

Subtribe Anisodactylina

Description (New Zealand). Body length 4.5–20.0 mm. **Head.** Frons without clypeo-ocular prolongations. Mentum usually with a tooth medially, seldom without a tooth (*Anisodactylus*, *Gnathaphanus*, *Maoriharpalus*). Mentum and submentum usually separated by complete transverse suture (Fig. 159), seldom by laterally incomplete transverse suture (Fig. 160; *Gaioxenus*), or without suture (Fig. 161; *Anisodactylus*). Penultimate segment of labial palpi usually plurisetose (with 4–8 setae) on anterior margin, seldom trisetose (with 3 setae). **Thorax.** Apex of prosternal lobe setose. **Legs.** Metatarsomere 1 of variable length. **Elytra.** Umbilicate series usually continuous, seldom sepa-

rated into two major groups (*Allocinopus*, *Hypharpax*, *Notiobia*) with posterior group continuous (Fig. 245; not divided further into two subgroups). **Genitalia.** Aedeagus arcuate, asymmetrical (with ostium deflected to the right, twisted or undulated) or symmetrical (with ostium dorsal, not deflected laterally).

Secondary sexual characters. Male protarsi dilated laterally and spongily pubescent ventrally; male mesotarsi usually dilated laterally and spongily pubescent ventrally, seldom unmodified.

References. Jeannel, 1942 (description); Basilewsky, 1950 (description); Lindroth, 1968 (description); Habu, 1973 (description; key to Japanese taxa); Noonan, 1973 (description; key to genera), 1976 (description); Reichardt, 1977 (key to Neotropical genera); Laroche & Larivière, 2005 (revision of New Zealand taxa).

Key to the New Zealand genera of Anisodactylina

- 1 Rows of setiferous punctures present on elytral intervals 3, 5 or 7 (Fig. 75, 82, 84), or in stria 2 (Fig. 83) ... 2
- Rows of setiferous punctures absent (Fig. 74, 81) on elytral intervals 3, 5 or 7, or in stria 2 3
- 2(1) Metatarsomere 1 as long as metatarsomeres 2+3 combined (Fig. 216). Forebody (head and thorax) with sparse setiferous micropores dorsally. Eyes strongly reduced, rather depressed (Fig. 82–84). Tempora inflated (Fig. 82–84) (p. 69) ... *Tuiharpalus* Laroche & Larivière (Fig. 82–84)
- Metatarsomere 1 longer, as long as metatarsomeres 2+3+4 combined (Fig. 217). Forebody (head and thorax) without sparse setiferous micropores dorsally. Eyes normal, larger and more convex (Fig. 75). Tempora not inflated (Fig. 75) (p. 66) ... *Gnathaphanus* Macleay (Fig. 75)
- 3(1) Mentum without tooth medially (Fig. 166) 4
- Mentum with a tooth medially (Fig. 162–165) 5
- 4(3) Mandibles and antennal scapes very long, about 6× their maximum width (Fig. 77). Labrum strongly emarginate apically (Fig. 77). Mentum and submentum separated by transverse suture (Fig. 159). Pronotum suborbicular (Fig. 77) (p. 67) ... *Maoriharpalus* Laroche & Larivière (Fig. 77)
- Mandibles and antennal scapes much shorter (Fig. 73). Labrum straight (Fig. 73) or slightly emarginate apically. Mentum and submentum fused, not separated by transverse suture (Fig. 161). Pronotum rectangular (Fig. 73) (p. 65) ... *Anisodactylus* Dejean (Fig. 73)

- 5(3) Umbilicate series separated into two major groups (Fig. 246) 6
 —Umbilicate series not separated into two major groups (Fig. 247) 8
- 6(5) Metatarsomere 1 very long, almost as long as metatarsomeres 2+3+4 combined (Fig. 217)
 (p. 68) ... *Notiobia* Perty (Fig. 78)
 —Metatarsomere 1 much shorter (Fig. 216, 218) 7
- 7(6) Metafemora each with 4–6 setae on posterior margin (Fig. 192). Elytra free along suture (hindwings fully developed). [Pronotum very wide (Fig. 76)]
 (p. 66) ... *Hypharpace* Macleay (Fig. 76)
 —Metafemora each with 2 setae on posterior margin (Fig. 191). Elytra fused along suture (hindwings vestigial). [Pronotum moderately wide (Fig. 71–72)]
 (p. 64) ... *Allocinopus* Broun (Fig. 71–72)
- 8(5) Body shape boat-like, with subtriangular elytra (Fig. 74). Scutellum not visible (Fig. 74). Labrum moderately transverse, almost square, convex apically (Fig. 74) .
 (p. 65) ... *Gaioxenus* Broun (Fig. 74)
 —Body shape not boat-like, without subtriangular elytra (Fig. 79–81). Scutellum visible (Fig. 79–81). Labrum strongly transverse, straight (Fig. 80–81) or slightly emarginate apically (Fig. 79) 9
- 9(8) Body depigmented (appearing pale in colour). Tarsi glabrous dorsally (Fig. 190). Metafemora with 5–7 long setae on posterior margin (Fig. 192). Paraglossae as long as ligula (Fig. 168)
 (p. 69) ... *Triplosarus* Bates (Fig. 81)
 —Body pigmented (appearing dark in colour). Tarsi pubescent dorsally (Fig. 189). Metafemora with 2 long setae on posterior margin (Fig. 191). Paraglossae longer than ligula ... (p. 68) ... *Parabaris* Broun (Fig. 79–80)

[50] Genus *Allocinopus* Broun, 1903

Figures 71–72, Map p. 166

Description. Body: length 6.0–11.5 mm; not pedunculate. Colour dark; elytra often paler. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles moderately long, slightly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, slightly to strongly convex, widely separated from buccal fissures ventrally (by about 2× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially,

moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae as long as or longer than ligula. Palpi with terminal segment fusiform, seldom truncate apically, with sparse, short or moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (4 setae) or trisetose on anterior margin. **Thorax.** Pronotum cordate or moderately transverse; base straight, as wide as or moderately narrower than elytral bases; lateral beads complete; anterior bead incomplete medially; posterior bead complete or incomplete medially. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous or pubescent (a few or numerous setae) dorsally; metatarsomere 5 with 4–6 setae ventrally; metatarsomere 1 as long as, shorter or longer than metatarsomeres 2+3. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 usually without a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (6(7)+8(12) with or without 1 seta in between), with posterior group continuous; 14–20 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: slightly or strongly arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally) or asymmetrical (with ostium deflected to the right); dorsal membranous area wide, extending almost to basal bulb; apical disc present. Internal sac armed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa. 7 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH); forests (in wet areas and along streams), under logs and stones.

Collecting techniques. Pitfall trapping; turning logs and stones.

References. Broun, 1903: 607 (description); Noonan, 1973 (description); Larochelle & Larivière, 2001: 122 (catalogue), 2005 (revision).

[51] Genus *Anisodactylus* Dejean, 1829

Figure 73, Map p. 166

Description (*Anisodactylus binotatus*). Body: length 10.0–12.7 mm; not pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. Outer elytral intervals and apices of remaining intervals pubescent. **Head.** Moderately wide. Mandibles moderately long, slightly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, moderately separated from buccal fissures ventrally (by about maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum without a tooth medially. Mentum and submentum fused, not separated by transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform, not truncate apically, with sparse, short setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (6–7 setae) on anterior margin. **Thorax.** Pronotum transverse, rectangular; base straight, as wide as elytral bases; lateral beads complete; anterior and posterior beads complete. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 3–4 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous (except metatarsomeres 1+2 with 3–6 setae) dorsally; metatarsomere 5 with 8 setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 with 1–8 discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series continuous; about 20 setiferous punctures. Radial field with fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: slightly arcuate. Dorsal view: asymmetrical (with ostium deflected to the left), twisted at middle; dorsal membranous area wide, not extending to basal bulb; apical disc present. Internal sac unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (WN), South Island; fields, under logs, stones, plant debris, and in

soil burrows.

Collecting techniques. Pitfall trapping; turning logs and stones; examining plant debris and soil burrows.

References. Dejean, 1829: 4 (description); Jeannel, 1942 (description); Lindroth, 1968 (description); Habu, 1973 (description); Noonan, 1973 (description); Laroche & Larivière, 2001: 123 (catalogue), 2005 (description).

Subgenus *Anisodactylus* Dejean, 1829

Description (New Zealand). **Head.** Clypeus with a single setiferous puncture on each side. **Legs.** Protibiae with apical spur simple (not trifid).

References. Dejean, 1829: 4 (description); Jeannel, 1942 (description); Noonan, 1973 (description); Hürka, 1996 (description); Noonan, 1996 (description); Laroche & Larivière, 2001: 123 (catalogue), 2005 (description).

[52] Genus *Gaioxenus* Broun, 1910

Figure 74, Map p. 168

Description. Body: length 8.5–9.0 mm; not pedunculate. Colour dark. Boat-shaped (contrary to other harpaline genera). Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles moderately long, slightly curved forward, blunt apically. Labrum slightly transverse, almost square; apex curved. Eyes moderately large, convex, widely separated from buccal fissures ventrally (by about 1.5× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by laterally incomplete transverse suture. Submentum with 4 setae. Paraglossae as long as ligula. Palpi with terminal segment fusiform, not truncate apically, with moderately dense and long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (4 setae) on anterior margin. **Thorax.** Pronotum transverse; base almost straight, as wide as elytral bases; lateral beads complete; anterior bead complete (well defined medially); posterior bead complete. Scutellum invisible (hidden by pronotum, as *Maoriharpalus*), inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 with numerous setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Subtriangular (contrary to

other harpaline genera). Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series continuous; 15–17 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending to basal bulb; apical disc present. Internal sac unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island; forests, in burrows dug under stones, logs, and fallen branches.

Collecting techniques. Pitfall trapping; turning stones, logs, and fallen branches.

References. Broun, 1910: 7 (description); Larochelle & Larivière, 2001: 123 (catalogue), 2005 (description).

[53] Genus *Gnathaphanus* Macleay, 1825

Figure 75, Map p. 168

Description (*Gnathaphanus melbournensis*). Body: length 6.5–7.5 mm; not pedunculate. Colour dark. Metallic lustre present. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally.

Head. Moderately wide. Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissures ventrally (by about 1.5× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum without a tooth medially. Mentum and submentum separated by complete transverse suture. Submentum with 2 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform, truncate apically, with sparse, moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (5–6 setae) on anterior margin. **Thorax.** Pronotum transverse; base slightly emarginate, as wide as elytral bases; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe

setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 with 6 setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3+4. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Rows of setiferous punctures present on interval 3, absent on intervals 5 and 7, and in stria 2. Umbilicate series continuous; about 19 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area wide, extending almost to basal bulb; apical disc present. Internal sac armed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (HB) and South Island; fields and riverbanks, under embedded logs.

Collecting techniques. Pitfall trapping; turning embedded logs.

References. Macleay, 1825: 20 (description); Sloane, 1899 (key to species); Habu, 1973 (description); Noonan, 1973 (description); Kataev, 2005 (*Phyrometus* Basilewsky, 1946: 253, new synonym); Larochelle & Larivière, 2005 (description).

[54] Genus *Hypharpax* Macleay, 1825

Figure 76, Map p. 169

Description (New Zealand). Body: length 4.5–7.0 mm; not pedunculate. Colour dark, green or blackish. Metallic lustre present. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Very wide. Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissures ventrally (by about 1.5× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform or with subapical and apical segments subquadrate; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum sepa-

rated by complete transverse suture. Submentum with 4 setae. Paraglossae as long as ligula. Palpi with terminal segment fusiform, truncate or not apically, with sparse, moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (4–5 setae) or trisetose on anterior margin. **Thorax.** Pronotum transverse, subrectangular; base straight or slightly convex, as wide as or much narrower than elytral bases; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 4–6 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 with 4 setae ventrally; metatarsomere 1 subtriangular, short, only about as long as metatarsomere 2. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 with or without a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (5(6)+8), with posterior group continuous; 13–14 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view: asymmetrical (with ostium deflected to the right); dorsal membranous area wide, extending to basal bulb; apical disc present. Internal sac armed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa (New Zealand). 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH, TH); fields, sand dunes, and river banks, in burrows at the base of plants, and under stones.

Collecting techniques. Pitfall trapping; examining burrows at the base of plants; turning stones.

References. Macleay, 1825: 22 (description); Noonan, 1973 (description); Larochelle & Larivière, 2001: 124 (catalogue), 2005 (revision of New Zealand taxa).

[55] Genus *Maoriharpalus* Larochelle & Larivière, 2005

Figure 77, Map p. 170

Description. Body: length 12.0–13.0 mm; not pedunculate. Colour dark. Metallic lustre absent. Dorsal surface

mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles very long (about 6x their maximum width), slightly curved forward, blunt apically. Labrum strongly transverse; apex strongly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissures ventrally (by about 2× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3; antennal scape very long (about 5–6x longer than maximum width; contrary to other *Anisodactylina* genera). Mentum without tooth medially. Mentum and submentum separated by complete transverse suture. Submentum with 2 long setae and numerous short setae. Paraglossae longer than ligula. Palpi with terminal segment cylindrical, truncate apically, with moderately dense, long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (5–6 setae) on anterior margin. **Thorax.** Pronotum suborbicular; base strongly convex, moderately narrower than elytral bases; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum invisible (hidden by pronotum, as *Gaioxenus*), inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 3 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 with numerous setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series continuous; about 19 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: slightly arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending almost to basal bulb; apical disc absent. Internal sac unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. Offshore Islands (TH); forests, under stones.

Collecting techniques. Pitfall trapping; turning stones.

Reference. Larochelle & Larivière, 2005: 40 (description).

Note. *Maoriharpalus* (Harpalini) and *Dicrochile* (Licinini) are similar and share the deeply emarginate labrum and the general shape, but male protarsi are ventrally spongily pubescent in the former, seriatly pubescent in the latter.

[56] Genus *Notiobia* Perty, 1830

Figure 78, Map p. 172

Description (*Notiobia quadricollis*). Body: length about 8.0 mm; not pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Very wide. Mandibles moderately long, slightly curved forward, blunt apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissures ventrally (by about 2× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae as long as ligula. Palpi with terminal segment fusiform, truncate apically, with sparse, moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (6–8 setae) on anterior margin. **Thorax.** Pronotum transverse, subrectangular; base straight, as wide as elytral bases; lateral beads complete; anterior bead incomplete medially; posterior bead complete. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 with 4 setae ventrally; metatarsomere 1 parallel-sided, very long, almost as long as metatarsomeres 2+3+4. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 with a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (6+8 with 1 seta in between), with posterior group continuous; 15 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with paired ambulatory setae only. **Aedeagus.** No male seen. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally

(Noonan, 1973).

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (ND); fields.

Collecting technique. Unknown; probably pitfall trapping.

References. Perty, 1830: 13 (description); Noonan, 1973 (description); Larochelle & Larivière, 2005 (description).

Subgenus *Anisotarsus* Chaudoir, 1837

Description (New Zealand). **Head.** Frontal fovea small or obsolete. Eyes moderately large. **Thorax.** Pronotum subrectangular.

References. Chaudoir, 1837: 41 (description); Emden, 1953 (description); Noonan, 1973 (description); Larochelle & Larivière, 2005 (description).

[57] Genus *Parabaris* Broun, 1881

Figures 79–80, Map p. 172

Description. Body: length 9.5–20.0 mm; not pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles moderately long, slightly curved forward, blunt apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes moderately large and convex, widely separated from buccal fissures ventrally (by 2–3× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform or rather cylindrical, truncate or not apically, with moderately dense and long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (4–7 setae) on anterior margin. **Thorax.** Pronotum transverse; base straight or emarginate, as wide as or narrower than elytral bases; lateral beads complete; anterior bead incomplete medially and ill-defined; posterior bead complete. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 with numerous setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Oblong. Basal margin

present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present or absent. Striae complete, generally consisting of impressed lines. Interval 3 with (subapically) or without discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series continuous; 19–21 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally) or asymmetrical (with ostium deflected slightly to the right); dorsal membranous area wide, extending to basal bulb or almost; apical disc present. Internal sac armed or unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi dilated laterally and spongily pubescent ventrally. Male mesotarsi dilated laterally and spongily pubescent ventrally or unmodified.

Number of taxa. 3 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island; forests, under stones and logs.

Collecting techniques. Pitfall trapping; turning stones and logs.

References. Broun, 1881: 654 (description); Britton, 1964b (description); Laroche & Larivière, 2001: 125 (catalogue), 2005 (revision).

[58] Genus *Triplosarus* Bates, 1874

Figure 81, Map p. 175

Description. Body: length 7.5–10.0 mm; not pedunculate. Colour pale, testaceous (reddish-brown). Metallic lustre present. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally.

Head. Very wide. Mandibles moderately long, strongly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissures ventrally (by about 1.3× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae as long as ligula. Palpi with terminal segment fusiform, truncate apically, with sparse, short setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (4–7 setae) on

anterior margin. **Thorax.** Pronotum transverse; base straight, moderately narrower than elytral bases; lateral beads complete; anterior bead incomplete medially; posterior bead complete. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 5–7 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 with 6 setae ventrally; metatarsomere 1 shorter than metatarsomeres 2+3. **Elytra.** Oblong, wide. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 with a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series continuous; 22–23 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view: asymmetrical (with ostium strongly deflected to the right); dorsal membranous area very wide, not extending to basal bulb; apical disc present. Internal sac armed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North, South and Stewart Islands; coastal sandy beaches and dunes, in burrows (mostly) and under *Ammophila*-plants.

Collecting techniques. Pitfall trapping; collecting with a headlamp or torch at night; examining burrows in sand.

References. Bates, 1874: 270 (description); Noonan, 1973 (description); Laroche & Larivière, 2001: 125 (catalogue), 2005 (revision).

[59] Genus *Tuiharpalus* Laroche & Larivière, 2005

Figures 82–84, Map p. 175

Description. Body: length 8.0–14.0 mm; not pedunculate. Colour dark or pale. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and pronotum) with sparse setiferous micropores dorsally (contrary to other anisodactyline genera). **Head.** Very wide. Mandibles short or moderately long, slightly or strongly curved forward, blunt apically. Labrum moderately transverse or strongly transverse; apex straight or slightly emarginate medially. Eyes strongly reduced, rather flat, widely separated from buccal fissures ventrally (by 1.5–2× maximum width of antennal scape). Tempora inflated. Frons without

clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae as long as ligula or longer. Palpi with terminal segment fusiform, truncate or not apically, with sparse or moderately dense long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (4–6 setae) or trisetose on anterior margin. **Thorax.** Pronotum transverse or suborbicular; base emarginate, as wide as or narrower than elytral bases; lateral beads complete; anterior bead absent; posterior bead absent or complete. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2–6 long setae on posterior margin. Pro-, meso-, and metatarsomeres 1–4 of both sexes dilated laterally, and subtriangular (as opposed to *Parabaris*, only male pro- and mesotarsi dilated). Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 with numerous setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Usually oblong, rarely subovate; wide. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole usually present, rarely vestigial or absent. Striae complete, generally consisting of impressed lines. Rows of setiferous punctures present on intervals 3, 5 or 7, or in stria 2. Umbilicate series continuous; 20–27 setiferous punctures. Radial field without fine dense pubescence. Apex rounded or obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view: asymmetrical (with ostium deflected slightly to the right or undulated); dorsal membranous area wide, extending almost to basal bulb; apical disc present or absent. Internal sac armed or unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi spongily pubescent ventrally; mesotarsi spongily pubescent or not ventrally.

Number of taxa. 5 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (ND), Offshore Islands (TH); forests, under stones, logs, and in leaf litter.

Collecting techniques. Pitfall trapping; turning stones and logs; raking or sifting leaf litter.

Reference. Larochelle & Larivière, 2005: 46 (description; revision).

Subtribe Harpalina

Description (New Zealand). Body length 6.0–12.0 mm. **Head.** Frons without clypeo-ocular prolongations. Mentum with a tooth medially. Mentum and submentum separated by complete transverse suture. Penultimate segment of labial palpi plurisetose (with 5–9 setae) on anterior margin. **Thorax.** Apex of prosternal lobe setose. **Legs.** Metatarsomere 1 shorter than metatarsomeres 2+3. **Elytra.** Umbilicate series separated into two major groups with posterior group continuous (Fig. 245; not divided further into two subgroups). **Genitalia.** Aedeagus arcuate, asymmetrical with ostium strongly deflected to the left.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and biserially pubescent (with 2 rows of scale-like setae) ventrally.

References. Jeannel, 1942 (description); Basilewsky, 1950, 1951 (description); Lindroth, 1968 (description); Habu, 1973 (description; key to Japanese genera); Noonan, 1976 (description); Moore, 1977 (key to Australian genera); Reichardt, 1977 (key to Neotropical and Mexican genera); Larochelle & Larivière, 2005 (revision of New Zealand taxa).

[60] Genus *Harpalus* Latreille, 1802

Figures 85–86, Map p. 169

Description (New Zealand). Body: length 6.0–12.0 mm; not pedunculate. Colour dark. Metallic lustre present or absent. Dorsal surface mostly glabrous; forebody (head and thorax) with or without sparse setiferous micropores dorsally. Outer elytral intervals glabrous or pubescent.

Head. Very wide. Mandibles short or moderately long, strongly curved forward, blunt apically. Labrum moderately or strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, moderately or widely separated from buccal fissures ventrally (by 1–1.5× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately or much shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 2 or 4 long setae, with or without numerous short setae. Paraglossae as long as or longer than ligula. Palpi with terminal segment fusiform, not truncate apically, with sparse, moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi plurisetose (5–9 setae) on anterior margin. **Thorax.** Pronotum very transverse; base straight or emarginate, as wide as elytral bases; lateral beads complete; anterior bead incomplete medially; posterior bead complete. Scutellum visible, inserted entirely

between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 4–10 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous (at least tarsomeres 1–4) dorsally; metatarsomere 5 with 6–8 setae ventrally; metatarsomere 1 much shorter than metatarsomeres 2+3 (slightly longer than metatarsomere 2). **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 with or without 1–10 discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (6(7)+6(8)), with posterior group continuous; 12–15 setiferous punctures. Radial field with or without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: moderately arcuate. Dorsal view: asymmetrical (with ostium strongly deflected to the left); dorsal membranous area very wide, extending only in apical half (stopping well before basal bulb); apical disc present. Internal sac armed or unarmed. Other characters as for tribe.

Number of taxa (New Zealand). 3 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH); fields, in burrows at the base of plants, under stones and plant debris.

Collecting techniques. Pitfall trapping; digging at the base of plants; turning stones and plant debris; light trapping.

References. Latreille, 1802: 92 (description); Jeannel, 1942 (description); Basilewsky, 1951 (description); Lindroth, 1968 (description); Habu, 1973 (description); Noonan, 1991 (description); Laroche & Larivière, 2001: 128 (catalogue), 2005 (description).

Subgenus *Harpalus* Latreille, 1802

Description (New Zealand). **Legs.** Metatarsi with segment 1 much shorter than segments 2+3 combined.

References. Latreille, 1802: 92 (description); Jeannel, 1942 (description); Lindroth, 1974 (description); Hürka, 1996 (description); Laroche & Larivière, 2001: 128 (catalogue), 2005 (description).

Subgenus Uncertain (for *H. australasiae* Dejean, 1829)

Description. **Legs.** Metatarsi with segment 1 slightly shorter than segments 2+3 combined.

Reference. Laroche & Larivière, 2005: 53 (revision).

Subtribe Pelmatellina

Description (New Zealand). Body length 3.2–10.0 mm. **Head.** Frons usually with clypeo-ocular prolongations, seldom without. Mentum with a tooth medially. Mentum and submentum separated by complete transverse suture. Penultimate segment of labial palpi usually bisetose (with 2 setae), seldom trisetose (with 3 setae, *Kupeharpalus*) on anterior margin. **Thorax.** Apex of prosternal lobe usually glabrous, seldom setose (*Kupeharpalus*). **Legs.** Metatarsomere 1 usually as long as metatarsomeres 2+3, rarely shorter (*Lecanomerus* (in part)). **Elytra.** Umbilicate series separated into two major groups with posterior group either divided further into two subgroups (Fig. 244) or continuous (*Hakaharpalus*, *Kupeharpalus*, *Lecanomerus* (in part); Fig. 245). **Genitalia.** Aedeagus usually arcuate, seldom almost straight (some *Syllectus*), symmetrical (with ostium dorsal, not deflected laterally).

Secondary sexual characters. Male protarsi dilated laterally and spongily pubescent ventrally; male mesotarsi usually dilated laterally, spongily pubescent ventrally (except *Syllectus*), seldom unmodified (neither dilated nor spongily pubescent).

References. Jeannel, 1942 (description); Lindroth, 1968 (description); Goulet, 1974 (revision of North and Middle American genus *Pelmatellus* Bates, 1832); Noonan, 1976 (description); Reichardt, 1977 (key to Neotropical genera); Laroche & Larivière, 2005 (revision of New Zealand taxa).

Notes. All world genera recognised so far within the Pelmatellina have been characterised by the glabrous apex of the prosternal lobe. *Kupeharpalus* (recently described genus including 3 species) which is apparently very close to *Lecanomerus*, deviates from this character state by having the apex of the prosternal lobe setose.

Key to the New Zealand genera of Pelmatellina

- 1 Apex of prosternal lobe setose. Penultimate labial palpomere with 3 setae on anterior margin (Fig. 149). Eyes widely separated from buccal fissure ventrally (by 1.5–2× maximum width of antennal scape; Fig. 130) (p. 72) *Kupeharpalus* Laroche & Larivière (Fig. 88–89)
- Apex of prosternal lobe glabrous (Fig. 119). Penultimate labial palpomere with 2 setae on anterior margin (Fig. 150). Eye reaching buccal fissure (Fig. 132) or narrowly separated from it ventrally (by 0.3–1× maximum width of antennal scape; Fig. 131)

- 2(1) Segment 4 of protarsi and mesotarsi with 2 membranous laminae (Fig. 211). Forebody (head and thorax) much narrower than elytra (Fig. 93) ... (p. 74) ... *Syllectus* Bates (Fig. 93)
- Segment 4 of protarsi and mesotarsi without membranous laminae (Fig. 212). Forebody (head and thorax) at most moderately narrower than elytra (Fig. 87, 90–92) 3
- 3(2) Eyes strongly reduced (Fig. 87). Mandibles very long (about 5× their maximum width; Fig. 87). Elytral striae absent or incomplete, poorly developed (Fig. 87). Pronotum cordate or subcordate (Fig. 87)... (p. 72) ... *Hakaharpalus* Larochelle & Larivière (Fig. 87)
- Eyes normally developed (Fig. 90–92). Mandibles shorter (Fig. 90–92). Elytral striae complete, well developed (Fig. 90–92). Pronotum neither cordate nor subcordate (Fig. 90–92) (p. 73) ... *Lecanomerus* Chaudoir (Fig. 90–92)

[61] Genus *Hakaharpalus* Larochelle & Larivière, 2005

Figure 87, Map p. 169

Description. Body: length 3.7–4.9 mm; pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Dorsal surface excavated anteriorly (as in *Lecanomerus* (in part)). Mandibles very long (about 5× their maximum width), slightly curved forward, acute apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes strongly reduced, flat or slightly convex, consisting of obliterated facets, narrowly separated from buccal fissures ventrally (by 0.7–1× maximum width of antennal scape). Tempora not inflated. Frons with clypeo-ocular prolongations incomplete toward eyes. Antennae widening from base to apex, apical half submoniliform (contrary to other pematelline genera); pubescence starting from segment 2. Mentum with a tooth medially, as long as lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi hirsute (contrary to other pematelline genera), with terminal segment very inflated, not truncate but subulate (tapering to a point) apically, with very dense, moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum subcordate or cordate; base straight, much narrower than elytral bases; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible, placed partly between and above elytral bases. Apex of prosternal lobe glabrous. **Legs.** Metafemora with 5 long

setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 with 4 setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Subovate. Basal margin present, complete. Shoulders poorly developed. Scutellar setiferous pore present. Scutellar striae absent or vestigial. Striae absent or present (incomplete, generally consisting of more or less impressed lines). Interval 3 without discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (5+9 with 1 seta in between), with posterior group continuous; 15 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with paired ambulatory setae only. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area wide, extending to basal bulb; apical disc absent. Internal sac unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally.

Number of taxa. 5 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (BR, NN, SD); forests, in leaf litter and moss carpets.

Collecting techniques. Sifting or raking leaf litter; lifting or sifting moss.

Reference. Larochelle & Larivière, 2005: 54 (description; revision).

[62] Genus *Kupeharpalus* Larochelle & Larivière, 2005

Figures 88–89, Map p. 170

Description. Body: length 5.0–8.5 mm; not pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles moderately long, slightly curved forward, acute apically. Labrum strongly or moderately transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissures ventrally (by 1.5–2× maximum width of antennal scape). Tempora not inflated. Frons with clypeo-ocular prolongations complete or incomplete toward eyes. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than or as long as ligula. Palpi with terminal segment

fusiform, not truncate apically, sparsely setose (with moderately long setae); penultimate segment of maxillary palpi setose; penultimate segment of labial palpi trisetose on anterior margin. **Thorax.** Pronotum transverse; base straight or emarginate, moderately narrower than or as wide as elytral bases; lateral beads complete; anterior bead complete or incomplete medially; posterior bead incomplete medially or complete. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 with 5–8 setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole absent. Striae complete, generally consisting of impressed lines. Interval 3 with or without 1–2 discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (6+9(11)), with posterior group continuous; 15–17 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: moderately or strongly arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending almost to basal bulb; apical disc present or absent. Internal sac armed or unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi dilated laterally and spongily pubescent ventrally. Male mesotarsi dilated laterally and spongily pubescent ventrally (with spongy pubescence not uniformly distributed, contrary to *Lecanomerus*) or unmodified.

Number of taxa. 3 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island; forests, in leaf litter.

Collecting techniques. Pitfall trapping; sifting or raking leaf litter.

Reference. Larochelle & Larivière, 2005: 57 (description; revision).

[63] Genus *Lecanomerus* Chaudoir, 1850

Figures 90–92, Map p. 170

Description. Body: length 3.2–10.0 mm; not pedunculate. Colour usually dark; elytra sometimes paler. Metallic lustre present or absent. Dorsal surface mostly glabrous;

forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles short or moderately long, slightly or strongly curved forward, acute apically. Labrum strongly or moderately transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, narrowly separated from buccal fissures ventrally (by 0.3–0.5× maximum width of antennal scape), or reaching buccal fissures. Tempora not inflated. Frons with clypeo-ocular prolongations complete or incomplete toward eyes. Antennae filiform; pubescence starting from segment 2 or 3. Mentum with a tooth medially, moderately shorter, much shorter or about as long as lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than or as long as ligula. Palpi with terminal segment fusiform or cylindrical, not truncate apically, sparsely setose (with very short or moderately long setae), or glabrous; penultimate segment of maxillary palpi setose or glabrous; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum transverse; base straight, emarginate or convex, moderately narrower than or as wide as elytral bases; lateral beads complete; anterior bead incomplete medially or complete; posterior bead incomplete medially. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe glabrous. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae or only a few) or glabrous dorsally; metatarsomere 5 with 4–8 setae ventrally; metatarsomere 1 as long as or shorter than metatarsomeres 2+3. **Elytra.** Usually oblong, rarely elongate. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole absent. Striae complete, generally consisting of impressed lines. Interval 3 with or without a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (5(6)+7(8)), with posterior group further divided into two subgroups (3+4, 4+3, 4+4), or, posterior group continuous; 12–14 setiferous punctures. Radial field without fine dense pubescence. Apex rounded or obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with paired ambulatory setae only. **Aedeagus.** Lateral view: slightly to strongly arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area wide, extending almost to basal bulb; apical disc absent or present. Internal sac armed or unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi dilated laterally and spongily pubescent ventrally. Male mesotarsi dilated laterally and spongily pubescent ventrally (with

spongy pubescence uniformly distributed, contrary to *Kupeharpalus*) or unmodified.

Number of taxa (New Zealand). 8 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH, TH); forests, fields, sand dunes, and gardens, in leaf litter, burrows at base of plants, under stones and pieces of wood.

Collecting techniques. Pitfall trapping; sifting or raking leaf litter, examining burrows at base of plants; turning stones and pieces of wood; light trapping.

References. Chaudoir, 1850: 446 (description); Darlington, 1968 (description; revision of New Guinean taxa); Larochelle & Larivière, 2001: 118 (catalogue), 2005 (revision of New Zealand taxa).

[64] Genus *Syllectus* Bates, 1878

Figure 93, Map p. 174

Description. Body: length 4.7–8.0 mm; pedunculate. Colour dark or pale. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally; much narrower than elytra (contrary to other harpaline genera, except *Pholeodytes*). Antennae and legs very long (contrary to other harpaline genera, except *Pholeodytes*). **Head.** Narrow. Mandibles very long (about 5× their maximum width), slightly curved forward, acute apically. Labrum moderately transverse; apex straight or slightly convex. Eyes moderately large and convex, reaching eyes, or, strongly reduced and flat, consisting of obliterated facets and narrowly separated from buccal fissures ventrally (by about 0.5× maximum width of antennal scape). Tempora not inflated. Frons with or without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, as long as lateral lobes (contrary to a longer medial tooth in *Pholeodytes*). Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform, not truncate apically, glabrous or with sparse, moderately long setae; penultimate segment of maxillary palpi glabrous or setose; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum quadrate (about as long as wide), subrectangular (slightly longer than wide) or elongate (about 1.5× longer than wide); base straight, much narrower than elytral bases; lateral beads complete; anterior bead incomplete medially or absent; posterior bead incomplete medially or absent. Scutellum visible, placed partly between and above elytral bases. Apex of prosternal lobe glabrous. **Legs.** Metafemora with 2–4 long setae on posterior margin. Segment 4 of protarsi and

mesotarsi of both sexes with 2 membranous laminae (projecting laterally and anteriorly, as in *Pholeodytes*). Tarsi glabrous or with metatarsi partially pubescent dorsally; metatarsomere 5 glabrous or setose ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Oblong or subovate. Basal margin present, complete. Shoulders poorly or well developed. Scutellar setiferous pore present. Scutellar striole absent. Striae complete, generally consisting of impressed lines (contrary to striae incomplete, consisting of rows of punctures in *Pholeodytes*). Interval 3 with a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (6+8), with posterior group further divided into two subgroups (4+4); 14 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: slightly arcuate or almost straight. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area wide or narrow, extending to basal bulb or almost; apical disc absent. Internal sac armed or unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi dilated laterally and spongily pubescent ventrally; mesotarsi slightly dilated, but not spongily pubescent ventrally.

Number of taxa. 3 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; dark, cool, bare habitats such as caves, edges of seepages and rills, under logs and stones.

Collecting techniques. Hunting with a headlamp or torch (in caves); turning stones and logs.

References. Bates, 1878b: 191 (description); Larochelle & Larivière, 2001: 121 (catalogue), 2005 (revision).

Subtribe *Stenolophina*

Description (New Zealand). Body length 3.0–8.3 mm. **Head.** Frons usually with clypeo-ocular prolongations, seldom without (*Pholeodytes*). Mentum usually with a tooth medially, seldom without (*Egadroma*). Mentum and submentum usually separated by complete transverse suture, seldom by laterally incomplete transverse suture (*Euthenarus*). Penultimate segment of labial palpi bisetose (with 2 setae). **Thorax.** Apex of prosternal lobe glabrous or setose (*Egadroma*, *Euthenarus*). **Legs.** Male protarsi dilated laterally and biserially pubescent ventrally, seldom unmodified (*Haplanister*). Metatarsomere 1 usually as long as metatarsomeres 2+3, rarely shorter (*Haplanister*, some *Euthenarus* species). **Elytra.** Umbilicate series sepa-

rated into two major groups with posterior group divided further into two subgroups (Fig. 244) or continuous (Fig. 245). **Genitalia.** Aedeagus arcuate, usually symmetrical (with ostium dorsal, not deflected laterally), seldom asymmetrical (with ostium slightly deflected to the left; *Egadroma*).

Secondary sexual characters. Male mesotarsi dilated laterally and biserially pubescent ventrally (except 2 adventive *Euthenarus* and *Haplanister*).

References. Jeannel, 1942 (description); Basilewsky, 1951 (description); Lindroth, 1968 (description); Habu, 1973 (description; key to Japanese genera); Noonan, 1976 (description); Reichardt, 1977 (key to Neotropical genera); Laroche & Larivière, 2005 (revision of New Zealand taxa).

Key to the New Zealand genera of Stenolophina

- 1 Eyes (Fig. 97–98) strongly reduced, flat, consisting of obliterated facets. Mandibles very long (5–6× their maximum width; Fig. 97–98). Body depigmented (appearing pale in colour) 2
- Eyes (Fig. 94–96) normally developed. Mandibles shorter (Fig. 94–96). Body pigmented (appearing dark in colour) 3
- 2(1) Segment 4 of protarsi and mesotarsi with 2 membranous laminae (Fig. 211). Elytral striae poorly developed, incomplete, consisting of rows of punctures (Fig. 98). Forebody (head and thorax) much narrower than elytra (Fig. 98). Body length 6.0 mm or more (p. 77) ... *Pholeodytes* Britton (Fig. 98)
- Segment 4 of protarsi and mesotarsi without membranous laminae (Fig. 212). Elytral striae well developed, complete, consisting of impressed lines (Fig. 97). Forebody (head and thorax) at most moderately narrower than elytra (Fig. 97). Body length 3.5 mm or less (p. 77) ... *Kiwiharpalus* Laroche & Larivière (Fig. 97)
- 3(1) Elytral striae incomplete basally and laterally (Fig. 96). Clypeo-ocular prolongations incomplete toward eyes (Fig. 96). Pronotum (Fig. 96) suborbicular. Apex of prosternal lobe glabrous (Fig. 119) (p. 76) ... *Haplanister* Moore (Fig. 96)
- Elytral striae complete (Fig. 94–95). Clypeo-ocular prolongations complete (Fig. 94–95). Pronotum (Fig. 94–95) transverse, not suborbicular. Apex of prosternal lobe setose 4
- 4(3) Abdominal sterna VI+VII with numerous short setae, in addition to paired ambulatory setae (Fig. 250). Mentum tooth present (Fig. 162). Abdominal sterna

III+IV of male with a setiferous fovea medially (Fig. 250) (p. 76) ... *Euthenarus* Bates (Fig. 95)

- Abdominal sterna VI+VII with paired ambulatory setae only (Fig. 251). Mentum tooth absent (Fig. 166). Abdominal sterna III+IV of male without setiferous fovea (Fig. 251) (p. 75) ... *Egadroma* Motschulsky (Fig. 94)

[65] Genus *Egadroma* Motschulsky, 1855

Figure 94, Map p. 168

Description (New Zealand). Body: length 5.0–6.5 mm; not pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, reaching buccal fissures ventrally. Tempora not inflated. Frons with clypeo-ocular prolongations complete. Antennae filiform; pubescence starting from segment 2. Mentum without tooth medially. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform, not truncate apically, almost glabrous; penultimate segment of maxillary palpi barely setose; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum transverse; base convex, moderately narrower than elytral bases; lateral beads complete; anterior bead incomplete medially; posterior bead absent. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 with 2 setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of impressed lines. Interval 3 with a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (4+8 with 1 seta in between), with posterior group further divided into two subgroups (4+4); 13 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: slightly arcuate. Dorsal view: asymmetrical (with ostium deflected to the left); dorsal membranous area wide, extending almost to basal bulb; apical disc present. Internal sac armed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and biserially pubescent ventrally.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (upper part); sandy fields and dunes, in soil burrows, at the base of plants and under logs.

Collecting techniques. Digging at the base of plants; turning logs.

References. Motschulsky, 1855: 43 (description); Basilewsky, 1951 (description); Habu, 1973 (description); Larochelle & Larivière, 2001: 126 (catalogue), 2005 (description).

[66] Genus *Euthenarus* Bates, 1874

Figure 95, Map p. 168

Description. Body: length 3.8–6.0 mm; not pedunculate. Colour dark; pronotum sometimes paler. Metallic lustre present or absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles short, slightly curved forward, blunt apically. Labrum strongly transverse; slightly emarginate medially. Eyes moderately large, convex, reaching or almost reaching buccal fissures ventrally. Tempora not inflated. Frons with clypeo-ocular prolongations complete. Antennae filiform; pubescence starting from segment 2. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by laterally incomplete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform, not truncate apically, subglabrous; penultimate segment of maxillary palpi glabrous; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum transverse; base convex or straight, moderately narrower than elytral bases; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible, inserted entirely between elytral bases. Apex of prosternal lobe setose. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 glabrous ventrally; metatarsomere 1 shorter than or as long as metatarsomeres 2+3. **Elytra.** Oblong. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole absent or vestigial. Striae complete, generally consisting of impressed lines. Interval 3 with a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into

two major groups (5+8 with 1 seta in between), with posterior group continuous; 14 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. **Abdomen.** Sterna III+IV of male with a setiferous fovea medially (contrary to other harpaline genera). Sterna IV–VI with pubescence, in addition to paired ambulatory setae. **Aedeagus.** Lateral view: strongly or moderately arcuate. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area wide or narrow (*E. promptus*), extending almost to basal bulb; apical disc present or absent. Internal sac armed or unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi dilated laterally and biserially pubescent ventrally; male mesotarsi dilated laterally and biserially pubescent ventrally or unmodified.

Number of taxa (New Zealand). 4 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North, South and Stewart Islands, Offshore Islands (CH); vicinity of bodies of water, wet meadows, in soil burrows at the base of plants.

Collecting technique. Digging the soil at base of plants (cf. *Juncus*).

References. Bates, 1874: 272 (description); Larochelle & Larivière, 2001: 126 (catalogue), 2005 (revision of New Zealand taxa).

Note. In species of this genus the subapical sinuation of elytra is either feebly (Fig. 228) or strongly (Fig. 229) developed.

[67] Genus *Haplanister* Moore, 1996

Figure 96, Map p. 169

Description. Body: length 3.5–4.1 mm; pedunculate. Colour dark. Metallic lustre present. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex straight medially. Eyes moderately large, convex, reaching buccal fissures ventrally. Tempora not inflated. Frons with clypeo-ocular prolongations incomplete toward eyes. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform, not truncate apically, with sparse, moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum

suborbicular; base convex, moderately narrower than elytral bases; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible, placed partly between and above elytral bases. Apex of prosternal lobe glabrous. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 with 2 setae ventrally; metatarsomere 1 shorter than metatarsomeres 2+3. **Elytra.** Oblong-elongate. Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae incomplete basally and laterally, generally consisting of impressed lines. Interval 3 with a discal setiferous puncture. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (6+7), with posterior group rather continuous; 13 setiferous punctures. Radial field without fine dense pubescence. Apex rounded. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with paired ambulatory setae only. **Aedeagus.** Lateral view: strongly arcuate, especially stout and small (shoe-shaped). Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area wide, extending almost to basal bulb; apical disc absent. Internal sac unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi and mesotarsi unmodified, neither dilated laterally nor biserially pubescent ventrally.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH); fields, gardens, and open forests, in leaf litter, moss carpets, compost heaps, piles of decaying grass, and under the loose bark of fallen trees.

Collecting techniques. Raking and sifting leaf litter; turning moss carpets; sifting compost heaps and piles of decaying grass; lifting the loose bark of fallen trees.

References. Moore, 1996: 97 (description); Laroche & Larivière, 2001: 127 (catalogue), 2005 (description).

[68] Genus *Kiwiharpalus* Laroche & Larivière, 2005

Figure 97, Map p. 169

Description. Body: length 3.0–3.5 mm; pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Moderately wide. Mandibles very long (about 6x their maximum width), slightly curved forward, acute apically. Labrum moderately transverse; apex straight medially. Eyes strongly reduced, flat, consisting of obliterated facets, narrowly separated from buccal fissures ventrally (by about 0.7× maximum width of antennal scape). Tempora not inflated. Frons with clypeo-ocular prolongations incomplete toward eyes. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment elongate-triangular, not truncate apically, with sparse, moderately long setae; penultimate segment of maxillary palpi setose; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum quadrate (as wide as long); base rather straight, much narrower than elytral bases; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible, placed partly between and above elytral bases. Apex of prosternal lobe glabrous. **Legs.** Metafemora with 2 long setae on posterior margin. Segment 4 of protarsi and mesotarsi without membranous laminae. Tarsi glabrous dorsally (except tarsomere 5); metatarsomere 5 with 2 setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Subovate. Basal margin present, complete. Shoulders poorly developed. Scutellar setiferous pore present. Scutellar striole absent. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series separated into two major groups (5+7 with 1 seta in between), with posterior group further divided into two subgroups (3+4); 13 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. **Abdomen.** Condition of sterna III+IV of male unknown (only females seen). Sterna IV–VI with paired ambulatory setae only.

Aedeagus. No male seen. Other characters as for tribe.

Secondary sexual characters. Dilatation and ventral vestiture of male pro—and mesotarsi unknown.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. Offshore Islands (TH); in a bird nest.

Collecting techniques. Examining gull nests; probably fissures in the soil, as suggested by morphological features shared with *Anillina* (*Bembidiini*).

Reference. Laroche & Larivière, 2005: 79 (description).

[69] Genus *Pholeodytes* Britton, 1962

Figure 98, Map p. 173

Description. Body: length 6.0–8.3 mm; pedunculate. Colour usually pale testaceous (reddish-brown), sometimes brownish. Metallic lustre absent. Dorsal surface mostly

glabrous; forebody (head and thorax) without sparse setiferous micropores dorsally, much narrower than elytra (contrary to other harpaline genera, except *Syllectus*). Antennae and legs very long (contrary to other harpaline genera, except *Syllectus*). **Head.** Narrow. Mandibles very long (about 5× their maximum width), slightly curved forward, acute apically. Labrum moderately transverse; apex convex medially. Eyes strongly reduced, flat, consisting of obliterated facets, narrowly separated from buccal fissures ventrally (by about 0.8× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth medially, moderately longer than lateral lobes. Mentum and submentum separated by complete transverse suture. Submentum with 4 setae. Paraglossae longer than ligula. Palpi with terminal segment fusiform, not truncate apically, glabrous; penultimate segment of maxillary palpi glabrous; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum very long (almost 2× longer than wide); base straight, much narrower than elytral bases; lateral beads complete; anterior and posterior beads absent (as in *Syllectus* (in part)). Scutellum visible, placed partly between and above elytral bases. Apex of prosternal lobe glabrous. **Legs.** Metafemora with 3–4 long setae on posterior margin. Segment 4 of protarsi and mesotarsi of both sexes with 2 membranous laminae (projecting laterally and anteriorly to about 2/3 the length of apical segment; as in *Syllectus*). Tarsi pubescent (with few setae) dorsally; metatarsomere 5 with 7–8 setae ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Elliptical or subelliptical. Basal margin present, complete. Shoulders poorly developed. Scutellar setiferous pore present. Scutellar striae absent. Striae incomplete, generally consisting of rows of punctures (contrary to other stenolophine genera). Interval 3 without discal setiferous punctures. Rows of setiferous punctures absent on intervals 5 and 7, and in stria 2. Umbilicate series divided into two major groups (5(6)+7(8) with 1 seta in between), with posterior group rather continuous; 13–15 setiferous punctures. Radial field without fine dense pubescence. Apex rounded or obtuse. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with paired ambulatory setae only. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view (Fig. 00): symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area wide (with 2 genital swellings), not extending to basal bulb; apical disc absent. Internal sac unarmed. Other characters as for tribe.

Secondary sexual characters. Male protarsi dilated laterally and biserially pubescent ventrally. Male mesotarsi slightly dilated laterally, not biserially pubescent ventrally.

Number of taxa. 5 species. See Appendix B (Updated checklist of species).

General distribution and ecology. South Island (NN); caves.

Collecting techniques. Hunting with a headlamp or torch; using baited traps.

References. Britton, 1962: 665 (description); Larochelle & Larivière, 2001: 127 (catalogue), 2005 (revision).

17. Tribe Platynini

Figures 99–106

Description (New Zealand). Body: length 5.0–18.0 mm; pedunculate or not. **Head.** Labrum not deeply emarginate anteriorly (straight or slightly emarginate). Eyes present; 2 supraorbital setiferous punctures on inner side (rarely with a single puncture (posteriorly), *Ctenognathus* (in part)). Tempora not inflated (except *Prospodrus*, *Ctenognathus* (in part)). Clypeus with a setiferous puncture on each side. Antennae filiform; pubescence starting from segment 4. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 2–12 (usually 4) setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform; terminal and penultimate maxillary segments glabrous; penultimate labial segment with 2 setae on anterior margin. **Thorax.** Pronotum with usually 2 (rarely 1, anteriorly) setiferous punctures on each side. Scutellum visible, either inserted entirely between elytral bases, or placed partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally (pubescent, *Laemostenus*); claws entire ventrally (serrate, *Laemostenus*); unguittractor plate invisible between tarsal claws. **Elytra.** Usually fused along suture (hindwings vestigial), rarely free (hindwings developed). Stria 1 not recurrent at apex. Discal setiferous punctures present or absent. Umbilicate series present; 15–25 setiferous punctures. Radial field without fine dense pubescence. Apex obtuse. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI usually with paired ambulatory setae only. Other characters as for subfamily.

References. Sloane, 1920a (key to Tasmanian genera); Jeannel, 1942 (description; key to subtribes); Darlington, 1952 (description; revision of New Guinean taxa), 1956 (key to Australian genera); Moore, 1965 (description); Lindroth, 1966 (revision of North American taxa); Habu, 1978 (description; key to subtribes; revision of Japanese taxa); Matthews, 1980 (key to South Australian genera); Basilewsky, 1985 (description; key to subtribes; revision of Madagascan taxa); Liebherr, 1986 (key to North American genera); Casale, 1988 (description; key to subtribes);

Hürka, 1996 (key to European genera); Liebherr & Zimmerman, 2000 (revision of Hawaiian taxa); Ball & Bousquet, 2001 (key to North American genera); Liebherr, 2005 (revision of Vanuatu taxa).

Key to the New Zealand genera of Platynini

- 1 Meso- and metatarsomeres 1 smooth dorsally (Fig. 219) 2
- Meso- and metatarsomeres 1 carinate or grooved dorsally (Fig. 220–223) 3
- 2(1) Tarsi (Fig. 189) pubescent dorsally, with claws serrate ventrally. Tempora not inflated (Fig. 99) (p. 79) ... *Laemostenus* Bonelli (Fig. 99)
- Tarsi (Fig. 190) glabrous dorsally, with claws entire ventrally. Tempora inflated (Fig. 106) (p. 82) ... *Prospodrus* Britton (Fig. 106)
- 3(1) Laterobasal foveae of pronotum sulciform (shaped as a deep line or furrow; Fig. 100). Scutellar striole of elytra absent (Fig. 100). Metatibiae curved (Fig. 203) ... (p. 80) ... *Cerabilia* Laporte de Castelnau (Fig. 100)
- Laterobasal foveae of pronotum not sulciform (Fig. 101–105). Scutellar striole of elytra present (Fig. 101–105). Metatibiae straight, or almost so (Fig. 204) 4
- 4(3) Eyes separated from buccal fissures (Fig. 130). Elytral shoulders narrow (Fig. 101–103); scutellar striole short (Fig. 101–103) (p. 80) ... *Ctenognathus* Fairmaire (Fig. 101–103)
- Eyes touching buccal fissures (Fig. 132). Elytral shoulders broad (Fig. 104–105); scutellar striole longer than above (Fig. 104–105) 5
- 5(4) Meso- and metatarsomeres 1 dorsally grooved and carinate (Fig. 221). Body without metallic lustre. Pronotum moderately transverse, cordate (heart-shaped), narrow relative to elytral width (Fig. 105). [Body length 12.0–15.0 mm] (p. 82) ... *Platynus* Bonelli (Fig. 105)
- Meso- and metatarsomeres 1 dorsally grooved only, not carinate (Fig. 222). Body with metallic lustre (bronze or coppery). Pronotum very transverse, not cordate, wide relative to elytral width (Fig. 104). [Body length 6.0–10.0 mm] (p. 81) ... *Notagonum* Darlington (Fig. 104)

Subtribe Sphodrina

Description (New Zealand). Body length 13.0–16.0 mm. **Thorax.** Prosternal lobe carinate and compressed into a vertical ridge between procoxae. **Legs.** Protibiae without dorsal longitudinal sulci. Tarsal claws serrate (toothed) or

pectinate (comb-like) ventrally. **Genitalia.** Basal segment of female gonocoxae glabrous basally.

References. Jeannel, 1942 (description); Habu, 1978 (description); Basilewsky, 1985 (description); Casale, 1988 (description; world revision).

[70] Genus *Laemostenus* Bonelli, 1810

Figure 99, Map p. 170

Description (New Zealand). Body: length 13.0–16.0 mm; not pedunculate. Colour dark; elytra bluish. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes rather small, convex, separated from buccal fissures; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Mentum: median tooth bifid; circular foveae absent. Submentum with 4 setae. **Thorax.** Pronotum moderately transverse, subrectangular; base narrower than apex; lateral depressions present; 2 setiferous punctures on each side. Scutellum inserted entirely between elytral bases. Prosternal lobe compressed into a vertical ridge (as *Prospodrus*). **Legs.** Protibiae without dorsal longitudinal grooves. Metatibiae straight, or almost so. Tarsi pubescent dorsally (contrary to other platynine genera); metatarsomere 5 setose ventrally; meso- and metatarsomeres 1 neither carinate nor grooved dorsally; tarsal claws serrate ventrally (contrary to other platynine genera). **Elytra.** Oblong; sides subparallel. Free along suture (hindwings fully developed). Basal margin present, complete. Shoulders broad, rounded, without tooth. Scutellar setiferous pore present. Scutellar striole present, long. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous puncture. Umbilicate series rather continuous; 17–18 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CA, CH); gardens, vicinity of houses, pastures, fields, under rubbish, stones, logs, and pieces of wood.

Collecting techniques. Pitfall trapping; turning rubbish, stones, logs, and pieces of wood.

References. Bonelli, 1810: Tabula Synoptica (description); Jeannel, 1942 (description); Lindroth, 1966 (description); Casale, 1988 (description; key to subgenera; revision); Ball & Bousquet, 2001 (key to subgenera); Laroche & Larivière, 2001: 128 (catalogue).

Subgenus *Laemostenus* Bonelli, 1810

Description (New Zealand). **Legs.** Metatibiae without patch of short setae on apical half.

References. Bonelli, 1810: Tabula Synoptica (description); Casale, 1988 (description); Larochelle & Larivière, 2001: 129 (catalogue).

Subtribe Platynina

Description (New Zealand). Body length 5.0–20.0 mm. **Thorax.** Prosternal lobe usually thick (not carinate) and rounded, rarely compressed into a vertical ridge (*Prospodrus*). **Legs.** Protibiae with dorsal longitudinal sulci. Tarsal claws entire ventrally. **Genitalia.** Basal segment of female gonocoxae setose basally.

References. Jeannel, 1942 (description); Lindroth, 1966 (description); Habu, 1978 (description); Basilewsky, 1985 (description; revision of taxa from Africa and Madagascar); Casale, 1988 (description).

[71] Genus *Cerabilia* Laporte de Castelnau, 1867

Figure 100, Map p. 167

Zabronothus Broun, 1893a: 1327. **New synonym.**

Description. Body: length 5.0–11.0 mm; not pedunculate; stout (slender, other platynine genera). Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes very small, convex, separated from buccal fissures; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Mentum: median tooth entire; circular foveae present, small. Submentum with 4 setae. **Thorax.** Pronotum very or moderately transverse, trapezoidal or rectangular; base wider than apex, or base and apex subequal in width; lateral depressions absent; laterobasal foveae sulciform (shaped as a deep line or furrow; contrary to other platynine genera); usually 2 (rarely 1, anteriorly) setiferous punctures on each side. Scutellum inserted entirely between elytral bases. Prosternal lobe not compressed into a vertical ridge. **Legs.** Protibiae with dorsal longitudinal grooves. Metatibiae curved (contrary to other platynine genera). Tarsi glabrous dorsally; metatarsomere 5 glabrous ventrally; meso- and metatarsomeres 1 dorsally grooved, not carinate. **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders broad, obtuse, with a strong tooth. Scutellar setiferous pore absent. Scutellar striole absent. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous puncture. Umbilicate series separated into two major groups (6(7)+7(9) with 2 setae in between), with

posterior group continuous; 15–18 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa. 6 species, including 2 new combinations (*Cerabilia rufipes* (Broun, 1893) and *C. striatula* (Broun, 1893)). See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (RI, WA, WN) and South Island; forests, under stones and logs.

Collecting techniques. Pitfall trapping; turning stones and logs.

References. Laporte de Castelnau, 1867: 116 (description); Broun, 1893a (description of *Zabronothus*); Larochelle & Larivière, 2001: 132 (catalogue).

Notes. The two species of *Zabronothus* Broun, 1893 (*Z. rufipes* Broun, 1893, and *Z. striatulus* Broun, 1893) were studied morphologically and found to share the following characters here considered diagnostic for *Cerabilia*: laterobasal foveae of pronotum sulciform (shaped as a deep line or furrow); scutellar striole of elytra absent; metatibiae curved. Consequently, *Zabronothus* is here synonymised with *Cerabilia*. This genus is in need of revision.

[72] Genus *Ctenognathus* Fairmaire, 1843

Figures 101–103, Map p. 167

“Anchomenus” sensu White, 1846: 3 (and subsequent authors, especially Broun in many papers), *nec* Bonelli, 1810: Tabula Synoptica. **New status.**

Description. Body: length 9.0–18.0 mm; pedunculate or not. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately or very long. Eyes rather small, convex, separated from buccal fissures; usually 2 supraorbital setiferous punctures on inner side (rarely with a single puncture posteriorly). Tempora not inflated. Mentum: median tooth entire or bifid; circular foveae present, small to large. Submentum with 2 or 4 setae. **Thorax.** Pronotum variously shaped; base narrower than apex, or base and apex subequal in width; lateral depressions present; 1 (anteriorly) or 2 setiferous punctures on each side. Scutellum either inserted entirely between elytral bases, or placed partly between and above elytral bases. Prosternal lobe not compressed into a vertical ridge. **Legs.** Protibiae with dorsal longitudinal grooves. Metatibiae straight, or almost so. Tarsi glabrous dorsally; metatarsomere 5 usually setose ventrally; meso- and metatarsomeres 1 dorsally carinate or not, grooved; tarsal claws entire ventrally. **Elytra.** Subovate or oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders narrow, rounded, without tooth. Scutellar setiferous pore usually present. Scutellar striole present, short. Striae complete or incomplete, generally consisting of impressed lines. Interval 3

with or without 1–3 discal setiferous punctures. Umbilicate series rather continuous; 19–25 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa. 34 species, including 14 new combinations (all previously in “*Anchomenus*”, see Laroche & Larivière (2001): *Ctenognathus arnaudensis* (Broun, 1921) new combination; *C. colenonis* (White, 1846) new combination; *C. edwardsii* (Bates, 1874) new combination; *C. helmsi* (Sharp, 1881) new combination; *C. integratus* (Broun, 1908) new combination; *C. intermedius* (Broun, 1908) new combination; *C. libitus* (Broun, 1914) new combination; *C. macrocoelis* (Broun, 1908) new combination; *C. oreobius* (Broun, 1886) new combination; *C. punctulatus* (Broun, 1877) new combination; *C. sandageri* (Broun, 1882) new combination; *C. sophronitis* (Broun, 1908) new combination; *C. sulcitaris* (Broun, 1880) new combination; *C. xanthomelus* (Broun, 1908) new combination. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island, South Island; mostly forests, along streams and wet areas, under logs, fallen branches, and stones during the day; climbing tree-trunks at night.

Collecting techniques. Pitfall trapping; lifting logs, fallen branches, and stones; collecting with a torch or headlamp at night.

References. Fairmaire, 1843: 13 (description); Chaudoir, 1878c (as *Colpodes* Macleay, 1825; key to species); Sharp, 1886 (description); Watt, 1961 (key to Auckland Region species); Laroche & Larivière, 2001: 133 (catalogue); Lieberr, 2005 (description).

Notes. Lieberr (2005a) partially resolved the nomenclatural problem of the New Zealand “*Anchomenus*” – *Anchomenus* in the sense of White, 1846, not the sense of Bonelli, 1810 (see also Laroche & Larivière, 2001) – when he recombined “*A.*” *otagoensis* Bates, 1878, as *Ctenognathus otagoensis* on the basis of two obvious synapomorphies (eyes small; shoulders narrow). The present authors have studied the external morphology of all remaining “*Anchomenus*”, including the above characters, and have found the species to be congeneric with *Ctenognathus*. This results in the transfer of 14 species from “*Anchomenus*” to *Ctenognathus*, including *C. xanthomelus* (Broun, 1908) which was misspelt as *xanthomelas* by Laroche & Larivière (2001). The genus *Anchomenus* Bonelli, 1810, is thus excluded from the New Zealand fauna. The genus *Ctenognathus* is in need of revision.

[73] Genus *Notagonum* Darlington, 1952

Figure 104, Map p. 172

Description (New Zealand). Body: length 6.0–10.0 mm; pedunculate. Colour dark. Metallic lustre present (contrary to other platynine genera), bronze or coppery. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes large, convex, touching buccal fissures; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Mentum: median tooth entire; circular foveae present, small. Submentum with 4 setae. **Thorax.** Pronotum very transverse; base and apex subequal in width; lateral depressions present; 2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. Prosternal lobe not compressed into a vertical ridge. **Legs.** Protibiae with dorsal longitudinal grooves. Metatibiae straight, or almost so. Tarsi glabrous dorsally; metatarsomere 5 glabrous or microscopically setose ventrally; meso- and metatarsomeres 1 dorsally grooved, not carinate; tarsal claws entire ventrally. **Elytra.** Oblong; sides subparallel. Free along suture (hindwings fully developed) or fused (hindwings half developed). Basal margin present, complete. Shoulders broad, rounded, without tooth. Scutellar setiferous pore present. Scutellar striae present, long. Striae complete, generally consisting of impressed lines. Interval 3 with 3 discal setiferous punctures. Umbilicate series separated into two major groups (6(7)+9 with 1 seta in between), with posterior group continuous; 16–17 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa (New Zealand). 4 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH, TH); wet habitats, usually near water, in leaf litter, at the base of plants, under stones, in burrows.

Collecting techniques. Pitfall trapping; raking leaf litter; looking at the base of plants; turning stones; examining burrows in the soil.

References. Darlington, 1952: 127 (description; revision of New Guinean taxa), 1963b (key to Australian species), 1970 (description); Moore, 1985 (description; key to Norfolk Island taxa); Laroche & Larivière, 2001: 137 (catalogue).

Notes. After long and fruitless searching in entomological collections, and through further discussions with Barry Moore (Canberra, Australia), no evidence of the establishment of *Notagonum marginellum* (Erichson, 1842) in New Zealand could be found. Consequently, the species is removed from the New Zealand inventory. This genus is in need of revision.

[74] Genus *Platynus* Bonelli, 1810

Figure 105, Map p. 173

Description (New Zealand). Body: length 12.0–15.0 mm; pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head**. Moderately wide. Mandibles moderately long. Eyes large, convex, touching buccal fissures; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Mentum: median tooth entire; circular foveae present, small. Submentum with 4 setae. **Thorax**. Pronotum moderately transverse, cordate (heart-shaped), narrow relative to elytral width (more so than in other platynine genera); base and apex subequal in width; lateral depressions present; 2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. Prosternal lobe not compressed into a vertical ridge. **Legs**. Protibiae with dorsal longitudinal grooves. Metatibiae straight, or almost so. Tarsi glabrous dorsally; metatarsomere 5 glabrous ventrally; meso- and metatarsomeres 1 dorsally carinate and grooved; tarsal claws entire ventrally. **Elytra**. Oblong; sides subparallel. Free along suture (hindwings fully developed) or fused (hindwings half developed). Basal margin present, complete. Shoulders broad, rounded, without tooth. Scutellar setiferous pore present. Scutellar striole present, long. Striae complete, generally consisting of impressed lines. Interval 3 with 3 discal setiferous punctures. Umbilicate series rather continuous; 15–19 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; forests, under logs and stones.

Collecting techniques. Pitfall trapping; turning logs and stones.

References. Bonelli, 1810: Tabula Synoptica (description); Lindroth, 1966 (description); Habu, 1978 (description); Lieberr, 1987, 1991, 1992, 1998 (description; revision of New World taxa); Laroche & Larivière, 2001: 138 (catalogue).

[75] Genus *Prospodrus* Britton, 1959

Figure 106, Map p. 174

Description. Body: length 15.0–18.0 mm; pedunculate. Colour dark. Metallic lustre absent. Dorsal surface mostly glabrous. **Head**. Very wide relative to pronotal width (more so than in other platynine genera). Mandibles very long (longer than in other platynine genera). Eyes very small, convex, separated from buccal fissures; 2 supraorbital setiferous punctures on inner side. Tempora inflated. Mentum: median tooth bifid; circular foveae present, very large.

Submentum with 4 or 8 setae. **Thorax**. Pronotum very transverse, cordate (heart-shaped); base narrower than apex; lateral depressions present; 2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. Prosternal lobe compressed into a vertical ridge (as *Laemostenus*). **Legs**. Protibiae with dorsal longitudinal grooves. Metatibiae straight, or almost so. Tarsi glabrous dorsally; metatarsomere 5 glabrous ventrally; meso- and metatarsomeres 1 neither carinate nor grooved dorsally; tarsal claws entire ventrally. **Elytra**. Ovate. Fused along suture (hindwings vestigial). Basal margin present, incomplete (complete, other platynine genera). Shoulders narrow, rounded, without tooth. Scutellar setiferous pore present. Scutellar striole present, short. Striae complete or incomplete, generally consisting of impressed lines. Interval 3 with 3 discal setiferous punctures (very small, sometimes partially missing on one side). Umbilicate series rather continuous; 17–20 setiferous punctures. Apex obtuse. Other characters as for tribe.

Number of taxa. 2 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island; dark, cool, bare habitats such as edges of rills, seepages, and brooks running through wet forests, under embedded stones.

Collecting techniques. Pitfall trapping; turning well embedded stones.

References. Britton, 1959: 106 (description), 1960a (species differences); Barr, 1965 (classification); Valentine, 1987 (classification); Casale, 1988 (classification); Laroche & Larivière, 2001: 139 (catalogue).

Note. This genus is in need of further revision.

18. Tribe Perigonini

Figure 107

Description (New Zealand). Body: length 2.0–2.5 mm; pedunculate. **Head**. Labrum not deeply emarginate anteriorly. Eyes present; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennae moniliform; pubescence starting from segment 2. Mentum tooth present medially. Mentum-submentum suture present. Submentum with 2 setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform; terminal and penultimate segments setose; penultimate labial segment also with 2 long setae on anterior margin. **Thorax**. Pronotum with 2 setiferous punctures on each side. Scutellum visible, placed partly between and above elytral bases. **Legs**. Protibiae without outer apical prolongation. Tarsi pubescent dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra**. Free along suture (hindwings developed).

Stria 1 not recurrent at apex. Discal setiferous punctures present. Striae poorly developed; outermost stria poorly impressed anteriorly, very deep posteriorly (contrary to other Harpalinae tribes). Umbilicate series present; 14 setiferous punctures. Radial field entirely covered with short dense pubescence, in addition to umbilicate series (contrasting with remainder of elytra, which is glabrous; contrary to other tribes). Apex rounded. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex invisible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for subfamily.

References. Jeannel, 1942 (description); Lindroth, 1968 (description).

[76] Genus *Perigona* Laporte de Castelnau, 1835

Figure 107, Map p. 173

Description (*Perigona nigriceps*). Body length 2.0–2.5 mm. Colour pale brownish yellow, with head and elytral apex darker. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles very long. Eyes strongly developed, convex. Mentum tooth entire. **Thorax.** Pronotum very transverse, subrectangular; base narrower than apex; posterolateral angles obtuse. **Elytra.** Oblong, wide. Basal margin present, incomplete. Shoulders well developed, rounded. Scutellar setiferous pore present. Scutellar striole absent. Striae incomplete, generally consisting of rows of punctures. Interval 3 with 2 discal setiferous punctures. Umbilicate series separated into two major groups (5(6)+8 with or without 1 seta in between), with posterior group divided into two subgroups (3+5). Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (AK); parks and gardens, in compost heaps and piles of grass.

Collecting techniques. Examining or sifting compost heaps and piles of grass; light trapping.

References. Laporte de Castelnau, 1835: 15 (description); Jeannel, 1942 (description); Darlington, 1964b (key to subgenera and species), 1968 (description); Lindroth, 1968 (description); Perrault, 1988 (description; key to subgenera); Laroche & Larivière, 2001: 140 (catalogue).

Subgenus *Trechicus* LeConte, 1853

Description (New Zealand). **Elytra.** Umbilicate series with middle group of setiferous punctures not in line, forming a triangle.

References. LeConte, 1853: 386 (description); Jeannel, 1942 (description); Laroche & Larivière, 2001: 140 (catalogue).

19. Tribe Pentagonicini

Figures 108–109

Description (New Zealand). Body: length 3.5–6.0 mm; pedunculate. **Head.** Mandibular scrobe absent (present, other carabid tribes). Labrum not deeply emarginate anteriorly. Tempora inflated or not. Eyes present; 2 supraorbital setiferous punctures on inner side. Clypeus with a setiferous puncture on each side. Antennae filiform (*Pentagonica*) or submoniliform (*Scopodes*); pubescence starting from segment 1 or 2. Mentum tooth absent medially. Mentum-submentum suture absent. Submentum with 2 setae. Ligula with 2 apical setae. Palpi with terminal segment fusiform; terminal and penultimate segments setose; penultimate labial segment also with 2 long setae on anterior margin. **Thorax.** Pronotum with 1 (anteriorly) or 2 setiferous punctures on each side. Scutellum visible, placed partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi pubescent dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Free along suture (hindwings developed, *Pentagonica*) or fused (hindwings vestigial, *Scopodes*). Stria 1 not recurrent at apex. Discal setiferous punctures present or absent. Umbilicate series present; 12–14 setiferous punctures. Radial field without fine dense pubescence. Apex obliquely truncate. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex visible dorsally. Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for subfamily.

References. Sloane, 1898 (key to Australian genera), 1920a (key to Tasmanian genera); Britton, 1941 (revision of New Zealand taxa); Jeannel, 1942 (description); Habu, 1967 (description; revision of Japanese taxa); Darlington, 1968 (description; key to genera; revision of New Guinean taxa); Reichardt, 1968 (revision of New World taxa); Lindroth, 1969a (description; revision of North American taxa).

Key to the New Zealand genera of Pentagonicini

- 1 Eyes strongly developed (almost globose), reaching base of head (Fig. 133). Pronotum with sides not strongly convergent posteriorly (Fig. 176). Umbilicate series with setiferous punctures not in line near apex (Fig. 240) (p. 84) ... *Scopodes* Erichson (Fig. 109)
- Eyes normally developed, not reaching base of head (Fig. 134). Pronotum with sides strongly convergent posteriorly (Fig. 177). Umbilicate series with setiferous punctures in line near apex (Fig. 241) (p. 84) ... *Pentagonica* Schmidt-Goebel (Fig. 108)

[77] Genus *Pentagonica* Schmidt-Goebel, 1846

Figure 108, Map p. 173

Description (New Zealand). Body length 4.5–5.0 mm. Forebody dark; elytra yellowish medially, darker laterally. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long. Eyes normally developed, convex, not reaching base of head. Frontal carinae absent between eyes. Tempora inflated. Antennae filiform; pubescence starting from segment 2. Ligula entire apically. **Thorax.** Pronotum very transverse, strongly cordate (heart-shaped); sides strongly convergent posteriorly; base narrower than apex, distinctly pedunculate; anterolateral angles acute; a single setiferous puncture on each side (anteriorly). **Elytra.** Free along suture (hindwings developed); oblong, wide. Basal margin present, complete. Shoulders well developed, rounded. Scutellar setiferous pore present. Scutellar striae present, fused with stria 1. Striae complete or incomplete, generally consisting of rows of punctures. Interval 3 without discal setiferous puncture. Umbilicate series separated into two major groups (5(6)+8 with or without 1 seta in between), with posterior group divided into two subgroups (3+5); 13–14 setiferous punctures, in line subapically. Apex obliquely truncate. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH); forests, in leaf litter, also on trees and shrubs.

Collecting techniques. Raking or sifting leaf litter.

References. Schmidt-Goebel, 1846: 47 (description); Chaudoir, 1877 (description); Dupuis, 1913 (description); Britton, 1949 (description); Habu, 1967 (description; revision of Japanese taxa); Reichardt, 1968 (revision of New World taxa); Lindroth, 1969a (description; revision of North American taxa); Bell, 1985 (revision of West Indian taxa); Larochelle & Larivière, 2001: 140 (catalogue).

Note. This genus is in need of further revision.

[78] Genus *Scopodes* Erichson, 1842

Figure 109, Map p. 174

Description (New Zealand). Body length 3.5–6.0 mm. Forebody dark; elytra black, green, blue, or cupreous. Metallic lustre usually present. Dorsal surface mostly glabrous. **Head.** Very wide. Mandibles moderately long. Eyes strongly developed and convex (almost globose), reaching base of head. Frontal carinae present (up to about 30) or absent between eyes. Tempora not inflated. Antennae submoniliform; pubescence starting from segment 1. Ligula bifid apically. **Thorax.** Pronotum moderately transverse

or subquadrate, subcordate or not; sides not strongly convergent posteriorly; base narrower than apex, not pedunculate; anterolateral angles acute, obtuse, or rounded; 1 (anteriorly) or 2 setiferous punctures on each side. **Elytra.** Fused along suture (hindwings vestigial); oblong, wide. Basal margin present, complete. Shoulders well developed, rounded. Scutellar setiferous pore present. Scutellar striae present, fused with stria 1. Striae complete or incomplete, generally consisting of rows of punctures or broken lines. Interval 3 usually with 3 discal setiferous punctures (foveate or not), rarely without puncture. Umbilicate series separated into two major groups (5(6)+6(7) with or without 1 seta in between), with posterior group divided into two subgroups (2(3)+4); 11–13 setiferous punctures, not in line subapically. Apex obliquely truncate. Other characters as for tribe.

Number of taxa (New Zealand). 11 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands, Offshore Islands (CH); wet places, stream banks, fields, forest openings; active in the daytime in open bare areas, along plants, on moss carpets and cushion plants.

Collecting techniques. Hand collecting in the sunshine; sifting ground moss; pitfall trapping.

References. Erichson, 1842: 123 (description); Sloane, 1903 (key to Australian taxa); Britton, 1941 (revision); Darlington, 1968 (description; revision of New Guinean taxa); Bell & Bell, 1989 (description); Baehr, 1994, 1995b (description; revision of New Guinean taxa); Larochelle & Larivière, 2001: 141 (catalogue).

Note. This genus is in need of further revision.

20. Tribe Lebiini

Figures 110–116

Description (New Zealand). Body: length 5.0–9.0 mm; usually pedunculate. **Head.** Labrum not deeply emarginate anteriorly. Eyes present; 2 supraorbital setiferous punctures on inner side (2–6 punctures, *Actenonyx*). Tempora not inflated (except *Anomotarus*). Clypeus with at least one setiferous puncture on each side. Antennae filiform; pubescence starting from segment 1 or 4. Mentum tooth usually present medially (absent, *Dromius*). Mentum-submentum suture present. Submentum with 2 setae. Ligula with 2, 4, 6, or 8 apical setae. Palpi with terminal segment fusiform (labial palpi securiform, *Anomotarus*, *Trigonothops*); terminal and penultimate segments setose; penultimate labial segment also with 2 long setae on anterior margin. **Thorax.** Pronotum with 2 setiferous punctures on each side (without or with a single puncture,

Actenonyx). Scutellum visible, either inserted entirely between elytral bases (usually), or placed partly between and above elytral bases. **Legs.** Protibiae without outer apical prolongation. Tarsi usually pubescent dorsally (glabrous, *Anomotarus*, *Trigonothops*); claws usually dentate (toothed) ventrally (entire, *Actenonyx*); unguitactor plate invisible between tarsal claws. **Elytra.** Pale markings sometimes present (as in tribe Cicindelini). Fused along suture (hindwings vestigial) or free (hindwings developed). Stria 1 not recurrent at apex. Discal setiferous punctures present. Umbilicate series present; 11–16 setiferous punctures (25 punctures, *Actenonyx*). Radial field with or without fine dense pubescence. Apex transversely or obliquely truncate. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Apex visible dorsally. Sterna IV–VI with or without pubescence, in addition to paired ambulatory setae. Other characters as for subfamily.

References. Sloane, 1898 (key to Australian genera), 1920a (key to Tasmanian genera); Britton, 1941 (revision of New Zealand taxa); Jeannel, 1942 (description; key to subtribes); Habu, 1967 (description; key to subtribes; revision of Japanese taxa); Darlington, 1968 (key to New Guinean genera); Lindroth, 1969a (description); Matthews, 1980 (key to South Australian genera); Ball & Hilchie, 1983 (description; key to subtribes).

Key to the New Zealand genera of Lebiini

- 1 Metatarsomere 4 bilobed apically (Fig. 213) 2
 —Metatarsomere 4 not bilobed apically (Fig. 214–215)
 3
- 2(1) Tarsi pubescent dorsally (Fig. 189). Pronotum narrow, neither very transverse nor subrectangular (Fig. 114). Eyes moderately developed, convex (Fig. 114)
 (p. 88) ... *Demetrida* White (Fig. 114)
 —Tarsi glabrous dorsally (Fig. 190). Pronotum wide, very transverse, subrectangular (Fig. 115). Eyes larger, strongly convex (Fig. 115)
 (p. 88) ... *Trigonothops* Macleay (Fig. 115)
- 3(1) Tempora inflated (Fig. 113). Tarsi glabrous dorsally (Fig. 190)... (p. 87) ... *Anomotarus* Chaudoir (Fig. 113)
 —Tempora not inflated (Fig. 110). Tarsi pubescent dorsally (Fig. 189) 4
- 4(3) Dorsal surface mostly pubescent (Fig. 110–111)... 5
 —Dorsal surface mostly glabrous (Fig. 112, 116) 6
- 5(4) Palpi with penultimate and terminal labial segments subequal in length (Fig. 144). Ligula (Fig. 172) with 8 apical setae (including 2 long median ones). [Each elytron with only 2 small pale spots in New Zealand species (Fig. 110)]
 (p. 85) ... *Agonocheila* Chaudoir (Fig. 110)

—Palpi with penultimate and terminal labial segments unequal in length (Fig. 145). Ligula (Fig. 169) with 2 apical setae. [Each elytron broadly pale in New Zealand species (Fig. 111)]
 (p. 86) ... *Philophaeus* Chaudoir (Fig. 111)

6(4) Pronotum (Fig. 116) with 2 setiferous punctures on each side. Tarsal claws dentate ventrally (Fig. 189). Elytral stria 6 with a series of 6 setiferous punctures (Fig. 236). [Body, including appendages, not entirely black] (p. 89) ... *Dromius* Bonelli (Fig. 116)

—Pronotum (Fig. 112) without or with a single setiferous puncture on each side. Tarsal claws entire, not dentate ventrally (Fig. 190). Elytral stria 6 without a series of setiferous punctures (Fig. 112). [Body, including appendages, entirely black]
 (p. 86) ... *Actenonyx* White (Fig. 112)

Subtribe Pericalina

Description (New Zealand). Body length 5.0–6.7 mm. Dorsal surface mostly pubescent. **Head.** Mandibles moderately widened near base; outer sides moderately rounded. Labrum transverse. Eyes with suborbital setiferous punctures. **Legs.** Metatarsomere 4 not bilobed apically. **Elytra.** Umbilicate series with setiferous punctures in line or not apically.

References. Habu, 1967 (description); Reichardt, 1977 (key to Neotropical genera); Ball & Hilchie, 1983 (description); Shpeley & Ball, 2000 (revision of Western Hemisphere taxa).

[79] Genus *Agonocheila* Chaudoir, 1848

Figure 110, Map p. 166

Description (New Zealand). Body: length 5.0–6.0 mm; pedunculate. Head and elytra dark brown, the latter with a long pale patch; pronotum paler. Metallic lustre absent. Dorsal surface mostly pubescent. **Head.** Moderately wide. Mandibles moderately long; outer sides moderately rounded. Eyes strongly convex; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Antennal pubescence starting from segment 1. Mentum tooth bifid. Ligula with 8 apical setae (including 2 long median ones). Palpi with terminal segment fusiform; penultimate and terminal labial segments subequal in length. **Thorax.** Pronotum very transverse, subcordate; base and apex subequal in width; lateral depressions present, wide; 2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. **Legs.** Tibiae with longitudinal ridges dorsally. Tarsi pubescent dorsally; metatarsomere 4 not bilobed apically; tarsal claws dentate ventrally. **Elytra.** Oblong, wide. Free along suture (hindwings fully devel-

oped). Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striae absent. Striae incomplete, generally consisting of rows of punctures, poorly impressed; stria 2 with 2 discal setiferous punctures posteriorly; stria 3 with a single discal setiferous puncture anteriorly. Umbilicate series separated into two major groups (5(6)+8), with posterior group rather continuous; 13–14 setiferous punctures, not in line apically. Radial field with fine dense pubescence. Apex obliquely truncate. **Abdomen.** Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Secondary sexual characters. Male protarsi with basal segments slightly dilated and with ventral adhesive setae (not in 2 rows); male mesotarsi with 2–3 basal segments neither dilated nor with ventral adhesive setae (contrary to *Philophlaeus*).

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; forests, under the loose bark of trees and logs (mostly), in leaf litter.

Collecting techniques. Lifting the loose bark of trees and logs; raking or sifting leaf litter.

References. Chaudoir, 1848: 119 (description), 1869 (description); Britton, 1941 (description); Darlington, 1968 (description); Larochelle & Larivière, 2001: 144 (catalogue).

Note. This genus is in need of revision.

[80] Genus *Philophlaeus* Chaudoir, 1844

Figure 111, Map p. 173

Description (*Philophlaeus luculentus*). Body: length 5.5–6.7 mm; pedunculate. Head and pronotum pale; elytra brown, somewhat paler medially. Metallic lustre present or absent. Dorsal surface mostly pubescent. **Head.** Moderately wide. Mandibles moderately long; outer sides moderately rounded. Eyes strongly convex; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Antennal pubescence starting from segment 1. Mentum tooth bifid. Ligula with 2 apical setae. Palpi with terminal segment fusiform; penultimate and terminal labial segments not subequal in length. **Thorax.** Pronotum very transverse, subrectangular; base and apex subequal in width; lateral depressions present, wide; 2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. **Legs.** Tibiae with longitudinal ridges dorsally. Tarsi pubescent dorsally; metatarsomere 4 not bilobed apically; tarsal claws dentate ventrally. **Elytra.** Oblong, wide. Free along suture (hindwings fully developed). Basal margin present, complete. Shoulders well developed. Scutellar

setiferous pore present. Scutellar striae absent. Striae incomplete, generally consisting of rows of punctures, poorly impressed; stria 2 with 2 discal setiferous punctures posteriorly; stria 3 with a single discal setiferous puncture anteriorly. Umbilicate series separated into two major groups (6+8), with posterior group continuous; 14 setiferous punctures, not in line apically. Radial field with fine dense pubescence. Apex obliquely truncate. **Abdomen.** Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Secondary sexual characters. Male protarsi with segments subfiliform; male mesotarsi with 2–3 basal segments dilated and with ventral adhesive setae (contrary to *Agonocheila*).

Number of taxa (in New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island; similar ecology as *Agonocheila*.

Collecting techniques. Lifting the loose bark of trees and logs; raking or sifting leaf litter.

References. Chaudoir, 1844: 472 (description), 1869 (description); Sloane, 1898 (key to Australian taxa); Larochelle & Larivière, 2001: 145 (catalogue).

Note. This genus is in need of revision.

Subtribe *Actenonycina*

Description. Body length 7.0–9.0 mm. Dorsal surface mostly glabrous. **Head.** Mandibles moderately widened near base; outer sides moderately rounded. Labrum transverse. Eyes with suborbital setiferous punctures. **Legs.** Metatarsomere 4 not bilobed apically. **Elytra.** Umbilicate series with setiferous punctures in line apically.

Reference. Bates, 1871b (description).

[81] Genus *Actenonyx* White, 1846

Figure 112, Map p. 166

Description. Body: length 7.0–9.0 mm; pedunculate. Colour entirely black, including appendages (contrary to other lebiine genera). Metallic lustre present. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long; outer sides moderately rounded. Eyes moderately convex; 2–6 supraorbital setiferous punctures on inner side (contrary to other lebiine genera). Tempora not inflated. Antennal pubescence starting from segment 1. Mentum tooth bifid. Ligula with 2 apical setae inserted between 2 or 4 lateral setae. Palpi with terminal segment fusiform; penultimate and terminal labial segments not subequal in length. **Thorax.** Pronotum subquadrate,

subcylindrical, very narrow relative to elytral width (contrary to other lebiine genera); base narrower than apex; lateral depressions absent; without or with a single setiferous puncture on each side (2 punctures, other lebiine genera). Scutellum placed partly between and above elytral bases. Proepisterna visible from above beside lateral beads (invisible, other lebiine genera). **Legs.** Tibiae with longitudinal ridges dorsally. Tarsi pubescent dorsally; metatarsomere 4 not bilobed apically; tarsal claws entire, not dentate ventrally (contrary to other lebiine genera). **Elytra.** Oblong, wide. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of lines, well impressed; stria 2 with 2 discal setiferous punctures posteriorly; stria 3 with a single discal setiferous puncture anteriorly. Umbilicate series continuous (contrary to other lebiine genera); about 25 setiferous punctures, in line apically. Radial field with fine sparse pubescence posteriorly. Apex obliquely truncate. **Abdomen.** Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa. A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; gravelly-stony stream banks, at certain distance from water; active in the sunshine on bare sandy areas; sheltering under stones on cloudy days.

Collecting techniques. Hand collecting in the sunshine; turning stones on cloudy days

References. White, 1846: 2 (description); Britton, 1941 (description); Ball *et al.*, 1995 (description); Laroche & Larivière, 2001: 145 (catalogue).

Note. This genus is in need of revision.

Subtribe *Calleidina*

Description (New Zealand). Body length 5.0–9.0 mm. Dorsal surface mostly glabrous. **Head.** Mandibles strongly widened near base; outer sides strongly rounded. Labrum transverse. Eyes without suborbital setiferous puncture. **Legs.** Metatarsomere 4 bilobed or not apically. **Elytra.** Umbilicate series with setiferous punctures in line apically.

References. Jeannel, 1942 (description); Habu, 1967 (description); Reichardt, 1977 (key to Neotropical genera); Ball & Hilchie, 1983 (description); Casale, 1998 (biogeography, phylogeny).

[82] Genus *Anomotarus* Chaudoir, 1875

Figure 113, Map p. 166

Description (New Zealand). Body: length 5.5–8.0 mm; pedunculate. Colour dark; elytra with paler patches. Metallic lustre present. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles short; outer sides strongly rounded. Eyes moderately convex; 2 supraorbital setiferous punctures on inner side. Tempora inflated. Antennal pubescence starting from segment 4. Mentum tooth entire. Ligula with 2 apical setae. Palpi with terminal maxillary segment fusiform; terminal labial segment securiform (as *Trigonothops*); penultimate and terminal labial segments subequal in length. **Thorax.** Pronotum moderately transverse, subcordate; base and apex subequal in width; lateral depressions present, narrow; 2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. **Legs.** Tibiae with longitudinal ridges dorsally. Tarsi glabrous dorsally (as *Trigonothops*); metatarsomere 4 not bilobed apically; tarsal claws dentate ventrally. **Elytra.** Oblong, wide. Free along suture (hindwings fully developed). Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of lines, well impressed. Interval 3 with 2 discal setiferous punctures. Umbilicate series separated into two major groups (6+7), with posterior group continuous; 13 setiferous punctures, in line apically. Radial field without fine dense pubescence. Apex obliquely truncate. **Abdomen.** Sterna IV–VI with paired ambulatory setae only. Other characters as for tribe.

Number of taxa (New Zealand). Two species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island, South Island (MB, NN); forests and fields, on trees and plants, in leaf litter, and at the base of plants.

Collecting techniques. Beating the vegetation; raking or sifting leaf litter; pitfall trapping; looking at the base of plants.

References. Chaudoir, 1875: 48 (description); Habu, 1967 (description); Darlington, 1968 (description); Ball & Hilchie, 1983 (key to subgenera); Laroche & Larivière, 2001: 146 (catalogue); Baehr, 2003a (revision of Oriental, New Guinean, and Pacific taxa).

Note. This genus is in need of revision.

Subgenus *Anomotarus* Chaudoir, 1875

Description (New Zealand). **Elytra.** Hindwings with oblongum cell narrow; wedge cell absent or present (small). **Genitalia.** Internal sac of aedeagus without sclerites.

References. Chaudoir, 1875: 48 (description); Ball & Hilchie, 1983 (description); Larochelle & Larivière, 2001: 146 (catalogue).

[83] Genus *Demetrida* White, 1846

Figure 114, Map p. 167

Description (New Zealand). Body: length 5.0–8.0 mm; pedunculate. Colour pale brownish, with or without paler patches on elytra. Metallic lustre absent. Dorsal surface usually glabrous, rarely pubescent. **Head.** Moderately wide. Mandibles short; outer sides strongly rounded. Eyes moderately convex; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Antennal pubescence starting from segment 1. Mentum tooth entire. Ligula with 4 or 6 apical setae. Palpi with terminal segment fusiform; penultimate and terminal labial segments subequal in length. **Thorax.** Pronotum elongate, subquadrate, or moderately transverse, subcordate; base narrower than apex; lateral depressions present, narrow; 1–2 setiferous punctures on each side. Scutellum placed partly between and above elytral bases. **Legs.** Tibiae without longitudinal ridges dorsally (contrary to other lebiine genera). Tarsi pubescent dorsally; metatarsomere 4 bilobed apically (as *Trigonothops*); tarsal claws dentate ventrally. **Elytra.** Oblong, wide; strongly broadening from base to apex (contrary to other lebiine genera). Fused along suture (hindwings vestigial). Basal margin present, incomplete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of lines, well impressed. Interval 3 with 1–3 discal setiferous punctures. Umbilicate series separated into two major groups (6(7)+5(7) with or without 1 seta in between), with posterior group continuous; 11–15 setiferous punctures, in line apically. Radial field with or without fine dense pubescence. Apex obliquely or transversely truncate. **Abdomen.** Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa (New Zealand). 6 species. See Appendix B (Updated checklist of species).

General distribution and ecology. North and South Islands; forests and fields, under the loose bark of trees and logs, under stones, and on the vegetation.

Collecting techniques. Lifting the loose bark of trees and logs; turning stones; pitfall trapping; beating the vegetation.

References. White, 1846: 2 (description); Britton, 1941 (revision); Moore, 1967 (description of Australian taxa); Darlington, 1968 (description); Larochelle & Larivière, 2001: 146 (catalogue).

Note. This genus is in need of further revision.

Subgenus *Demetrida* White, 1846

Description. **Head.** Mentum with large, blunt median tooth; ligula with 4–6 apical setae. **Legs.** Tarsi: dorsal pubescence present; metatarsomere 4 deeply bilobed; claws dentate. **Elytra.** Widening from base to apex, mostly glabrous. Intervals with faint, sparse punctures; interval 3 with 1–3 discal setiferous punctures.

References. White, 1846: 2 (description); Britton, 1941 (description); Larochelle & Larivière, 2001: 147 (catalogue).

[84] Genus *Trigonothops* Macleay, 1864

Figure 115, Map p. 175

Description (*Trigonothops pacifica*). Body: length 7.5–9.0 mm; not pedunculate. Head and pronotum pale; elytra brown with paler patches. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles short; outer sides strongly rounded. Eyes strongly convex; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Antennal pubescence starting from segment 4. Mentum tooth entire. Ligula with 4 apical setae. Palpi with terminal maxillary segment fusiform; terminal labial segment securiform (as *Anomotarus*); penultimate and terminal labial segments subequal in length. **Thorax.** Pronotum very transverse, subrectangular; base wider than apex; lateral depressions present, wide; 2 setiferous punctures on each side. Scutellum inserted entirely between elytral bases. **Legs.** Tibiae with longitudinal ridges dorsally. Tarsi glabrous dorsally (as *Anomotarus*); metatarsomere 4 bilobed apically (as *Demetrida*); tarsal claws dentate ventrally. **Elytra.** Oblong, wide. Free along suture (hindwings fully developed). Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striole present. Striae complete, generally consisting of lines, well impressed. Interval 3 with 2 discal setiferous punctures close to stria 2. Umbilicate series rather continuous; 14–15 setiferous punctures, in line apically. Radial field without fine dense pubescence. Apex rather obliquely truncate. **Abdomen.** Sterna IV–VI with paired ambulatory setae only. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (AK); forests, under the loose bark of eucalypt trees.

Collecting techniques. Lifting the loose bark of standing trees.

References. Macleay, 1864: 110 (description); Chaudoir, 1877 (description); Darlington, 1968 (description); Ball & Hilchie, 1983 (description; key to subgenera).

Notes. Leschen *et al.* (2003) recorded this genus for New Zealand for the first time, without naming any species or providing any collecting data. This is the first record of the Australian species *T. pacifica* (Erichson, 1842) for New Zealand, based on material collected by S.E. Thorpe and deposited in AMNZ (3 specimens, Mt Albert (AK), 9 December 2001, under bark of *Eucalyptus* trees). This Australian genus is in need of revision.

Subgenus *Trigonothops* Macleay, 1864

Description (New Zealand). **Legs.** Metatarsomere 4 cleft apically, with large lobes and modified setae ventrally.

References. Macleay, 1864: 110 (description); Ball & Hilchie, 1983 (description).

Subtribe *Dromiina*

Description (New Zealand). Body length 5.5–6.5 mm. Dorsal surface mostly glabrous. **Head.** Mandibles moderately widened near base; outer sides moderately rounded. Labrum transverse. Eyes without suborbital setiferous puncture. **Legs.** Metatarsomere 4 not bilobed apically. **Elytra.** Umbilicate series with setiferous punctures in line apically.

References. Jeannel, 1942 (description); Habu, 1967 (description); Ball & Hilchie, 1983 (description).

[85] Genus *Dromius* Bonelli, 1810

Figure 116, Map p. 168

Description (*Dromius meridionalis*). Body: length 5.5–6.5 mm; not pedunculate. Colour dark brown; elytra sometimes paler at base. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide. Mandibles moderately long; outer sides moderately rounded. Eyes moderately convex; 2 supraorbital setiferous punctures on inner side. Tempora not inflated. Antennal pubescence starting from segment 4. Mentum tooth absent (contrary to other lebiine genera). Submentum with 2 setae. Ligula with 6 apical setae. Palpi with terminal segment fusiform; penultimate and terminal labial segments subequal in length. **Thorax.** Pronotum moderately transverse, subrectangular; base and apex subequal in width; lateral depressions present, wide; 2 setiferous punctures on each side. Scutellum inserted entirely between elytral bases. **Legs.** Tibiae with longitudinal ridges dorsally. Tarsi pubescent dorsally; metatarsomere 4 not bilobed apically; tarsal claws dentate ventrally. **Elytra.** Oblong, wide. Free along suture (hindwings fully developed). Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore absent. Scutellar striole present. Striae incomplete, gener-

ally consisting of lines, poorly impressed laterally; stria 3 with a single discal setiferous puncture anteriorly; stria 6 with a series of 6 discal setiferous punctures (contrary to other lebiine genera). Interval 3 with 1 discal setiferous puncture subapically. Umbilicate series separated into two major groups (6+9 setae); 15 setiferous punctures, in line apically. Radial field without fine dense pubescence. Apex rather obliquely truncate. **Abdomen.** Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (AK, WN) and South Island (MC); forests and parks, under the loose bark of trees.

Collecting techniques. Lifting the loose bark of standing trees.

References. Bonelli, 1810: Tabula Synoptica (description); Jeannel, 1942 (description); Habu, 1967 (description); Lindroth, 1969a (description), 1986 (description).

Notes. Leschen *et al.* (2003) recorded this genus for New Zealand for the first time, without naming any species or providing any collecting data. First New Zealand record for *Dromius meridionalis* Dejean, 1825: 242: WN Mt Victoria, 15 October 1975, J. Nunn, a single specimen (determination B.P. Moore; NZAC). This Palaearctic species is now well established on the North and South Islands. Also known from: AK Auckland (2004; AMNZ), Devonport (2001; AMNZ), Henderson (2006; S.E. Thorpe, personal communication), and Long Bay Regional Park (2002; AMNZ); MC Lincoln (1997; LUNZ) and Travis Swamp (2001; LUNZ). Found on tree-trunks at night in February, May, September to November. In Scandinavia, the species occurs mostly on dead branches of deciduous trees (Lindroth, 1986).

Subgenus *Dromius* Bonelli, 1810

Description (New Zealand). Body wide. **Head.** Transverse. **Thorax.** Pronotum wider than long; lateral margins more or less explanate. **Elytra.** Broad. Basal margin present, complete. Scutellar striole more or less developed.

References. Bonelli, 1810: Tabula Synoptica (description); Jeannel, 1942 (description); Habu, 1967 (description); Lindroth, 1974 (description); Mateu, 1984 (description).

VII. Subfamily Pseudomorphae

Description (New Zealand). Body: length 3.8–4.6 mm; not pedunculate. **Head.** Mandibles without setiferous puncture in scrobe. Labrum with 4 setiferous punctures on anterior margin. Clypeus narrower than distance between antennal sockets. Antennae moniliform; scapes invisible from above (contrary to other subfamilies), inserted laterally, more or less in line with outer margins of mandibles; head capsule with deep antennal grooves ventrally (absent or shallow in other subfamilies). Palpi with terminal segment fusiform (maxillary palpi) or securiform (labial palpi). **Thorax.** Scutellum visible, inserted entirely between elytral bases. Procoxal cavities closed behind. Mesepimera not reaching mesocoxal cavities. Metepimera invisible between metepisterna and sternum II. **Legs.** More or less concealed under body in dorsal view (contrary to other subfamilies). Protibiae anisochaetous (with one apical and one subapical spur); antennal cleaner forming a very deep emargination. **Elytra.** Free along suture (hindwings developed). Striae absent. Apex transversely truncate. **Abdomen.** Apex visible dorsally.

References. Matthews, 1980 (key to South Australian genera); Baehr, 1997 (revision of taxa from the Australian Region); Ball & Bousquet, 2001 (description); Arndt *et al.*, 2005 (description).

21. Tribe Pseudomorhini

Figure 117

Description (New Zealand). **Head.** Labrum not deeply emarginate anteriorly. Eyes present, without supraorbital setiferous punctures on inner side. Tempora not inflated. Clypeus with a setiferous puncture on each side. Antennae with lateral margin hirsute, middle glabrous. Mentum tooth present medially. Mentum-submentum suture absent. Submentum without setae. Ligula with 16 apical setae. Palpi with terminal segment setose (numerous setae); penultimate segment with 2 setae. **Thorax.** Pronotum without setiferous punctures on each side. **Legs.** Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitactor plate invisible between tarsal claws. **Elytra.** Discal setiferous punctures absent. Umbilicate series present (only at shoulder); 5 setiferous punctures. Radial field without fine dense pubescence. Epipleura simple (without inner fold or plica) near apex. **Abdomen.** Sterna IV–VI with pubescence, in addition to paired ambulatory setae. Other characters as for subfamily.

Note. Because of their special characteristics, members of this group have been considered as a family, a subfamily, and a tribe.

Reference. Baehr, 1997 (revision of taxa from the Australian Region).

[86] Genus *Adelotopus* Hope, 1834 first record

Figure 117, Map p. 166

Description (*Adelotopus macilentus*). Body: length 3.8–4.6 mm; elongate, depressed. Colour mostly dark; elytra with a small reddish triangular spot in basal half. Metallic lustre absent. Dorsal surface mostly glabrous. **Head.** Moderately wide, deeply embedded in pronotum, directed downward. Mandibles short. Eyes strongly developed, convex. Mentum tooth entire. **Thorax.** Pronotum very transverse, subrectangular; base wider than apex; sides slightly rounded; lateral depressions present, wide. **Legs.** Short. Femora and tibiae compressed; femora deeply grooved. **Elytra.** Subrectangular. Basal margin present, incomplete. Shoulders well developed. Scutellar setiferous pore absent. Scutellar striole absent. Apex transversely truncate. Other characters as for tribe.

Number of taxa (New Zealand). A single species. See Appendix B (Updated checklist of species).

General distribution and ecology. North Island (GB); forests, under the loose bark of trees.

Collecting techniques. Lifting the loose bark of trees.

References. Hope, 1834: 11 (description); Baehr, 1997 (revision).

Notes. First New Zealand record for *Adelotopus macilentus* Baehr, 1997: 305: GB Gisborne, 4 March 2002, B. Johnston, a single specimen (determination M. Baehr; AMNZ). The establishment of natural populations of this Australian species remains to be confirmed. In Australia, the species occurs under the loose bark of eucalypt trees (Baehr, 1997).

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Appendix A. Glossary of technical terms.

- adhesive setae** (of male tarsi) — ventral setae fit to adhere to surfaces.
- adventive** — not native; an organism carried into a new habitat by natural means, or by man.
- aedeagus** — the tubular intromittent structure of the male genitalia, analogous to the mammalian penis and usually containing an eversible internal sac.
- aeneous** — with a copper or brass appearance.
- allopatric** — of or pertaining to taxa occupying different and disjunct geographical areas.
- ambulatory setae** (of abdomen) — specialised pairs of setae occurring ventrally on the abdomen.
- anisochaetous** (of protibia) — with one apical and one subapical spur.
- antennal cleaner** (of protibia) — comb-like structure situated on the inner side of the protibia and used to clean an antenna.
- antennal grooves** (of head) — pair of grooves situated ventrally on each side of the head, each used to receive an antenna.
- antennal scape** — see scape.
- antennal socket** — cavity in which each antenna is set.
- antennomere** — each antennal segment.
- anterior bead** (of pronotum) — raised transverse border situated at the apex of the pronotum, close to the head.
- anterolateral angles** (of pronotum) — angles situated at the front of and on each side of the pronotum.
- 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.
- armed** — displaying scales, spines, or teeth.
- attenuate** — gradually tapering toward the apex.
- auxiliary** — additional.
- 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 in 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.
- biseriately** — disposed in two rows.
- bisetose** — with two setae.
- buccal fissure** — a lateral mouth opening beneath the eye area.
- carina** (plural, **carinae**) — a keel or ridge.
- carinate** — keeled; ridged.
- catenulate** — shaped like a fine chain.
- cavernicolous** — living in caves.
- circular foveae** (of mentum) — paired eye-like foveae situated on the mentum.
- cleft** — divided longitudinally.
- closed** (of procoxal cavities or procoxae) — completely surrounded by the prosternum posteriorly.
- clypeo-ocular prolongations** — deep lines situated between the clypeus and the eyes.
- coalescent** — united; combined.
- compressed** — flattened as though subjected to lateral pressure.
- constricted** — narrowed.
- contiguous** — next to each other or touching each other.
- convergent** — approaching each other.
- cordate** — shaped like a heart.
- crenulate** — finely scalloped; with fine rounded teeth.
- deflected** — turned abruptly downward.
- dentate** — toothed.
- depigmented** — with weak pigmentation (appearing pale in colour).
- depressed** — flattened as though subjected to dorsal pressure.
- diagnosis** — the most important characters separating a taxon from other taxa.
- digitate** — shaped like a finger.
- dilated** — widened; expanded.
- disc** — the dorsal central area of a body part.
- discal** — related to the disc.
- discal setiferous punctures** (of elytron) — seta-bearing punctures usually inserted on interval or stria 3, rarely on 2, 5, 7.
- diurnal** — active during the day.
- dorsal** — pertaining to the upperside of a part or structure.
- elliptical** — with the ends equally rounded.
- elytral** — related to the elytron.
- emarginate** — having a notched or concave (inwardly curved) edge.

- emargination** — notched edge; sharp cut.
- endemic** — restricted to a geographic area.
- 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** — spread and flattened.
- facet** — lens-like division of each compound segment.
- 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** — small pit or depression.
- foveate** — with fovea(e).
- free** — not fused; mobile.
- 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).
- globose** — shaped like a sphere or ball.
- gonocoxae** (singular, **gonocoxa**) — paired terminal segments of the female genitalia.
- groove** — long narrow channel or depression.
- grooved** — with groove(s).
- head capsule** — the fused sclerites of the head.
- hindwings** — posterior wings.
- hirsute** — shaggy; with coarse, stiff long hairs or setae.
- 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.
- impressed** — well marked (as being produced by pressure).
- indigenous** — see native.
- inflated** — swollen; distended.
- inner** — situated close to the center.
- inserted** (of a moveable part) — attached to a point.
- intertidal** — living between the low and high tide levels.
- interval** (of elytron) — space between two striae.
- iridescent** — displaying a rainbow-effect colour.
- isochaetous** (of protibia) — with two spurs in terminal position.
- lamina** — thin flat scale-like structure.
- lateral beads** (of pronotum) — paired longitudinal raised beads, situated on the outer side of the pronotum.
- lateral depressions** (of pronotum) — paired longitudinal widened depressions situated on each 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.
- lectotype** — type specimen selected from the syntypes by a subsequent author in the absence of a holotype.
- 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 500m in central New Zealand.
- medially** — situated in the middle.
- mere** (as a suffix) — segment.
- metallic lustre** — a reflection like polished metal (e. g. , brassy, bronze, coppery, aeneous).
- micropore** — microscopic hole or depression.
- moniliform** — shaped like a necklace composed of beads.
- monophyletic** — derived from the same ancestral taxon.
- 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.
- nocturnal** — active during the night.
- obliterated** — completely removed.
- oblong** — longer than wide; with longitudinal diameter more than twice the transverse one.
- obsolete** — indistinct, almost absent.

- open** (procoxal cavities or procoxae) — not completely surrounded by the prosternum posteriorly.
- orbicular** — circular or spherical.
- ostium** — the membranous opening of the aedeagus.
- outer** — situated on the outside or far from the center.
- outer apical prolongation** (of protibia) — prolongation situated at the tip, along the outer side.
- ovate** — shaped like an egg.
- palpomere** — each segment of a palp or palpus.
- 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.
- plica** — fold.
- 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.
- posterolateral carinae** (of pronotum) — carinae situated behind and on each side of the pronotum, near the posterolateral angles.
- predaceous** — eating live animals.
- produced** — prolonged.
- prominent** — standing out.
- prosternal lobe** — posterior prolongation of the prosternum between the anterior legs.
- pubescence** — covering of hairs or setae.
- pubescent** — covered with hairs or setae.
- punctate** — marked with punctures or points.
- puncture** — microscopic pit similar to that made by a needle.
- quadrate** — square or nearly so.
- radial field** (of elytron) — the outer area extending from the lateral margin to, and including, the interval bearing the umbilicate series of setiferous punctures (usually interval 9).
- recurrent** (of stria 1) — curving back like a hook at the tip of the elytron.
- reinstatement** — the act of restoring a taxonomic name to a previous status.
- rudimentary** — imperfectly developed; represented by a vestige.
- scape** — the first segment of the antenna or antennomere 1.
- sclerite** — a hardened plate surrounded by sutures.
- scree** — accumulation of loose stones on a slope.
- scrobe** (of mandible) — lateral longitudinal depression in the wall of the mandible.
- scrubland** — vegetation unit with dense cover and 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. See peduncle.
- secondary sexual characters** — characters owned by one sex, not the other sex.
- securiform** — shaped like an axe or hatchet.
- semi**—(as a prefix) — half.
- serrate** — toothed like a saw.
- 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.
- shoulder** (of elytron) — the outer anterior angle.
- simple** — not modified.
- sinuation** — a wavy form.
- socket** — opening in which something is set.

- 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.
- spongily** — in a sponge-like formation.
- spur** — large spine, articulated at its base.
- sternum** (plural, **sterna**) — the ventral surface of each segment of the abdomen.
- stria** (plural, **striae**) — longitudinal impressed line or row of punctures on the dorsal surface of the elytron.
- striate** — with stria(e).
- striolate** — with striole(s).
- striole** — a short stria.
- sub**—(as a prefix) — rather, almost; part of.
- subapical** — situated near the apex.
- subapical sinuation** (of elytron) — sinuation of the side, near the apex.
- subequal** — almost or rather equal in shape, size, or length.
- suborbital** — situated beneath the eye.
- subulate** — linear at base and attenuate at the apex; tapering to a point.
- sulci** (singular, **sulcus**) — furrows; grooves.
- sulciform** — shaped like a sulcus.
- supraorbital** — situated above the eye.
- 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.
- tarsomere** — each segment of a tarsus.
- taxon** (plural, **taxa**) — a taxonomic grouping of any rank (e. g. , a family, a genus, a species) including all its subordinate groups.
- terminal** — situated at the tip or extremity; last in a series.
- testaceous** — reddish brown.
- transverse** — wider than long; in a crosswise direction.
- 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.
- 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 elytron) — row of seta-bearing punctures situated along the outermost interval (usually interval 9).
- unguitractor plate** — ventral sclerite (usually short) arising between the claws and bearing their tendon and muscle.
- unicolorous** — with a single colour throughout.
- valid name** — the name for a particular taxon that is correct according to the provisions of the Code of Zoological Nomenclature.
- variegated** — varied in colour, with different coloured markings.
- ventral** — pertaining to the underside of the abdomen or of another part or structure.
- vestigial** — represented only by a remnant or vestige; rudimentary.
- violaceous** — violet-coloured, with a mixture of blue and red.

Appendix B. Updated checklist of species.

Larochelle & Larivière (2001)'s Catalogue listed 438 species-group taxa (424 species and 14 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 476 species-group taxa (461 species, plus 15 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 this synopsis can be found in the 2001 Catalogue and in Appendix C. Taxonomic changes made subsequently to the 2001 Catalogue are also given in Appendix C.

Actenonyx bembidioides White, 1846
Adelotopus macilentus Baehr, 1997^A
Agonocheila antipodum (Bates, 1867)^N
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 Dejean, 1829^A
Anomotarus (Anomotarus) illawarrae (Macleay, 1873)^A
Anomotarus (Anomotarus) variegatus Moore, 1967^A
Aulacopodus brouni (Csiki, 1930)
Aulacopodus calathoides (Broun, 1886)
Aulacopodus maorinus (Bates, 1874)
Aulacopodus sharpianus (Broun, 1893)

Bembidion (Zeperyphus) actuarium Broun, 1903
Bembidion (Zecillenus) alacre (Broun, 1921)
Bembidion (Zecillenus) albescens (Bates, 1878)
Bembidion (Zemetallina) anchonoderus Bates, 1878
Bembidion (Notaphus) brullei Gemminger & Harold, 1868^A
Bembidion (Zeperyphodes) callipeplum Bates, 1878
Bembidion (Zemetallina) chaldeipes Bates, 1878
Bembidion (Zecillenus) chalmeri (Broun, 1886)
Bembidion (Zeplataphus) charile Bates, 1867
Bembidion (Zeplataphus) dehiscens Broun, 1893
Bembidion (Zecillenus) 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 (Zecillenus) 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)
Carabus (Archicarabus) nemoralis Müller, 1764^A
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)
Cicindela (Neocicindela) austromontana Bates, 1878
Cicindela (Neocicindela) brevilunata Horn, 1926
Cicindela (Neocicindela) dunedensis Laporte de Castelnau, 1867
Cicindela (Neocicindela) feredayi Bates, 1867
Cicindela (Neocicindela) hamiltoni Broun, 1921
Cicindela (Neocicindela) helmsi Sharp, 1886
Cicindela (Neocicindela) latecincta White, 1846
Cicindela (Neocicindela) parryi White, 1846
Cicindela (Neocicindela) perhispidia campbelli Broun, 1886
Cicindela (Neocicindela) perhispidia giveni (Brouerius van Nidek, 1965)

- Cicindela (Neocicindela) perhispidata perhispidata* Broun, 1880
Cicindela (Neocicindela) spilleri (Brouerius van Nidek, 1965)
Cicindela (Neocicindela) tuberculata Fabricius, 1775
Cicindela (Neocicindela) waiouraensis Broun, 1914
Clivina australasiae Boheman, 1858^A
Clivina basalis Chaudoir, 1843^A
Clivina heterogena Putzeys, 1866^A
Clivina vagans Putzeys, 1866^A
Ctenognathus actochares Broun, 1894
Ctenognathus adamsi (Broun, 1886)
Ctenognathus arnaudensis (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)
- Demetrída (Demetrída) dieffenbachii* (White, 1843)
Demetrída (Demetrída) lateralis Broun, 1910
Demetrída (Demetrída) lineella White, 1846
Demetrída (Demetrída) moesta atra Broun, 1880
Demetrída (Demetrída) moesta moesta Sharp, 1878
Demetrída (Demetrída) nasuta White, 1846
- Demetrída (Demetrída) sinuata maculata* Britton, 1941
Demetrída (Demetrída) sinuata sinuata Broun, 1917
Dicrochile anchomenoides Guérin-Ménéville, 1846
Dicrochile anthracina Broun, 1893
Dicrochile aterrima Bates, 1874
Dicrochile cephalotes Broun, 1894
Dicrochile cordicollis Broun, 1903
Dicrochile fabrii Guérin-Ménéville, 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^A
Duvaliomimus brittoni Jeannel, 1938
Duvaliomimus mayae Britton, 1958
Duvaliomimus orientalis Giachino, 2005
Duvaliomimus orpheus Britton, 1962
Duvaliomimus pluto Britton, 1964
Duvaliomimus styx Britton, 1959
Duvaliomimus walkeri (Broun, 1903)
Duvaliomimus watti Britton, 1958
- Egadroma picea* (Guérin-Ménéville, 1830)^A
Erebotrechus infernus Britton, 1964
Euthenarus bicolor Moore, 1985^A
Euthenarus brevicollis Bates, 1874
Euthenarus promptus (Erichson, 1842)^A
Euthenarus puncticollis Bates, 1874
- Gaioxenus pilipalpis* Broun, 1910
Gnathaphanus melbournensis (Laporte de Castelnau, 1867)^A
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* Laroche & Larivière, 2005
- Haplanister crypticus* Moore, 1996^A
- Harpalus (Harpalus) affinis* (Schrank, 1781)^A
- Harpalus australasiae* Dejean, 1829^A
- Harpalus (Harpalus) tardus* (Panzer, 1797)^A
- 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 oediconema* 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, 1884
- 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)^A
- Kenodactylus audouini* (Guérin-Méneville, 1830)^N
- Kiwiharpalus townsendi* Laroche & Larivière, 2005
- Kiwitachys antarcticus* (Bates, 1874)
- Kiwitachys latipennis* (Sharp, 1886)
- Kiwitrechus karenscottae* new genus, new species
- Kupeharpalus barrattae* Laroche & Larivière, 2005
- Kupeharpalus embersoni* Laroche & Larivière, 2005
- Kupeharpalus johnsi* Laroche & Larivière, 2005
- Kupetrechus lamberti* (Britton, 1960)
- Laemostenus (Laemostenus) complanatus* (Dejean, 1828)^A
- Lecanomerus atriceps* (Macleay, 1871)^A
- 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)^A
- Lecanomerus vestigialis* (Erichson, 1842)^A
- Loxomerus (Pristancylus) brevis* (Blanchard, 1843)
- Loxomerus (Pristancylus) capito* Jeannel, 1938
- Loxomerus (Pristancylus) huttoni* (Broun, 1902)
- Loxomerus (Loxomerus) nebrionides* (Guérin-Méneville, 1841)
- Loxomerus (Pristancylus) philpotti* (Broun, 1914)
- Maoriharpalus sutherlandi* Laroche & Larivière, 2005
- Maoripamborus fairburni* Brookes, 1944
- Maoritrechus rangitotoensis* Brookes, 1932
- Mecodema allani* Fairburn, 1945
- Mecodema alternans alternans* Laporte de Castelnau, 1867
- Mecodema alternans hudsoni* Broun, 1909
- Mecodema angustulum* Broun, 1914
- Mecodema atrox* Britton, 1949
- Mecodema brittoni* Townsend, 1965
- Mecodema bullatum* Lewis, 1902
- Mecodema chiltoni* Broun, 1917
- 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 florum* Britton, 1949
- Mecodema fulgidum* Broun, 1881
- Mecodema gourlayi* Britton, 1949
- Mecodema hector* Britton, 1949

- Mecodema howitti* Laporte de Castelnau, 1867
Mecodema huttense Broun, 1915
Mecodema impressum Laporte de Castelnau, 1867
Mecodema infimate Lewis, 1902
Mecodema integratum Townsend, 1965
Mecodema laeviceps Broun, 1904
Mecodema laterale Broun, 1917
Mecodema litoreum Broun, 1886
Mecodema longicolle Broun, 1923
Mecodema lucidum Laporte de Castelnau, 1867
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 pavidum Townsend, 1965
Mecodema persculptum Broun, 1915
Mecodema pluto Britton, 1949
Mecodema politanum Broun, 1917
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 rectolineatum 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 validum Broun, 1923
Mecyclothorax ambiguus (Erichson, 1842)^A
Mecyclothorax amplipennis amplipennis (Broun, 1912)
Mecyclothorax amplipennis labralis (Broun, 1912)
Mecyclothorax epicatus (Broun, 1923)
Mecyclothorax placens (Broun, 1880)
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)
Metaglymma aberrans Putzeys, 1868
Metaglymma moniliferum Bates, 1867
Metaglymma tibiale (Laporte de Castelnau, 1867)
Molopsida alpinalis (Broun, 1893)
Molopsida antarctica (Laporte de Castelnau, 1867)
Molopsida carbonaria (Broun, 1908)
Molopsida cincta (Broun, 1893)
Molopsida convexa (Broun, 1917)
Molopsida cordipennis (Broun, 1912)

- Molopsida debilis* (Sharp, 1886)
Molopsida diversa (Broun, 1917)
Molopsida dubia (Broun, 1894)
Molopsida fovealis (Broun, 1917)
Molopsida fuscipes (Broun, 1923)
Molopsida halli (Broun, 1917)
Molopsida longula (Broun, 1917)
Molopsida marginalis (Broun, 1882)
Molopsida optata (Broun, 1917)
Molopsida oxygona (Broun, 1886)
Molopsida phyllocharis (Broun, 1812)
Molopsida polita White, 1846
Molopsida pretiosa (Broun, 1910)
Molopsida propinqua (Broun, 1917)
Molopsida puncticollis (Sharp, 1883)
Molopsida robusta (Broun, 1921)
Molopsida seriatoporus (Bates, 1874)
Molopsida simplex (Broun, 1903)
Molopsida simulans (Broun, 1894)
Molopsida southlandica (Broun, 1908)
Molopsida strenua (Broun, 1894)
Molopsida sulcicollis (Bates, 1874)
- Neanops caecus* (Britton, 1960)
Neanops pritchardi Valentine, 1987
Neoferonia ardua (Broun, 1893)
Neoferonia edax (Chaudoir, 1878)
Neoferonia fossalis (Broun, 1914)
Neoferonia integrata (Bates, 1878)
Neoferonia prasignis (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)^N
Notiobia (Anisotarsus) quadricollis (Chaudoir, 1878)^A
- Onawea pantomelas* (Blanchard, 1843)
Oofterus atratus (Broun, 1893)
Oofterus basalis Broun, 1915
Oofterus carinatus Broun, 1882
Oofterus clivinooides Guérin-Méneville, 1841
Oofterus collaris Broun, 1893
Oofterus femoralis (Broun, 1894)
Oofterus frontalis Broun, 1908
Oofterus fulvipes Broun, 1886
Oofterus helmsi (Sharp, 1886)
Oofterus labralis (Broun, 1921)
Oofterus laevicollis Bates, 1871
Oofterus laevigatus Broun, 1912
Oofterus laeviventris (Sharp, 1883)
- Oofterus latifossus* Broun, 1917
Oofterus latipennis Broun, 1903
Oofterus lewisi (Broun, 1912)
Oofterus marrineri Broun, 1909
Oofterus minor Broun, 1917
Oofterus nigrutilus Broun, 1908
Oofterus ocularius (Broun, 1917)
Oofterus pallidipes Broun, 1893
Oofterus parvulus Broun, 1903
Oofterus patulus (Broun, 1881)
Oofterus plicaticollis Blanchard, 1843
Oofterus probus Broun, 1903
Oofterus puncticeps Broun, 1893
Oofterus pygmeatus Broun, 1907
Oofterus sculpturatus ovinotatus Broun, 1908
Oofterus sculpturatus sculpturatus Broun, 1908
Oofterus sobrinus Broun, 1886
Oofterus strenuus Johns, 1974
Oofterus suavis Broun, 1917
Oofterus subopacus (Broun, 1915)
Oregus aereus (White, 1846)
Oregus crypticus Pawson, 2003
Oregus inaequalis (Laporte de Castelnau, 1867)
Oregus septentrionalis Pawson, 2003
- Parabaris atratus* Broun, 1881
Parabaris hoarei Larochelle & Larivière, 2005
Parabaris lesagei Larochelle & Larivière, 2005
Paratachys crypticola (Britton, 1960)^A
Pelodiaetodes prominens Moore, 1980
Pelodiaetus lewisi Jeannel, 1937
Pelodiaetus sulcatipennis Jeannel, 1937
Pentagonica vittipennis Chaudoir, 1877^N
Pericompsus (Upocompsus) australis (Schaum, 1863)^A
Perigona (Trechicus) nigriceps (Dejean, 1831)^A
Philophlaeus luculentus (Newman, 1842)^A
Pholeodytes cerberus Britton, 1964
Pholeodytes helmerei Larochelle & Larivière, 2005
Pholeodytes nunni Larochelle & Larivière, 2005
Pholeodytes palmai Larochelle & Larivière, 2005
Pholeodytes townsendi Britton, 1962
Physolaesthus insularis Bates, 1878
Physolaesthus limbatus (Broun, 1880)^N
Platynus macropterus (Chaudoir, 1879)
Plocamostethus planiusculus (White, 1846)
Plocamostethus scribae Johns, 2007
Polyderis captus (Blackburn, 1888)^A
Prosopogmus oodiformis (Macleay, 1871)^A
Prospodrus occultus Britton, 1960
Prospodrus waltoni Britton, 1959
Pseggmatopterus politissimus (White, 1846)
- Rhytisternus liopleurus* (Chaudoir, 1865)^A
Rhytisternus miser (Chaudoir, 1865)^A

- 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 orcinus Britton, 1962
Selenochilus fallax (Broun, 1893)
Selenochilus frontalis (Broun, 1917)
Selenochilus oculator (Broun, 1893)
Selenochilus piceus (Blanchard, 1843)
Selenochilus ruficornis (Broun, 1842)
Selenochilus syntheticus (Sharp, 1886)
Syllectus anomalus Bates, 1878
Syllectus gouleti Laroche & Larivière, 2005
- Syllectus magnus* Britton, 1964
Synteratus ovalis Broun, 1909
- Trigonothops (Trigonothops) pacifica* (Erichson, 1842)^A
Triplosarus novaezelandiae (Laporte de Castelnau, 1867)
Tuiharpalus clunieae Laroche & Larivière, 2005
Tuiharpalus crosbyi Laroche & Larivière, 2005
Tuiharpalus gourlayi (Britton, 1964)
Tuiharpalus hallae Laroche & Larivière, 2005
Tuiharpalus moorei Laroche & Larivière, 2005
- Zeanillus pallidus* (Broun, 1884)
Zeanillus phyllobius (Broun, 1893)
Zeanillus punctiger (Broun, 1914)
Zeopoecilus calcaratus (Sharp, 1886)
Zeopoecilus caperatus Johns, 2007
Zeopoecilus putus (Broun, 1882)

Appendix C. Changes subsequent to Larochelle & Larivière (2001)'s Catalogue.

Changes made by Giachino, 2003 (*Polyderis*), Johns (2003, *Holcaspis*), Leschen *et al.* 2003 (*Dromius*, *Trigonothops*), Pawson in Pawson *et al.* (2003b, *Oregus*), Emberson, 2004 (*Harpalus*), Giachino, 2005 (*Duvaliomimus*), Johns, 2005 (*Mecodema*, *Megadromus*), Larochelle & Larivière (2005, Harpalini), Liebherr (2005, "*Anchomenus*"), Toledano (2005, *Bembidion*, subgenera *Zeactedium* and *Zecillenus*), Johns (2007, *Anomalobroscus*, *Mecodema*, *Megadromus*, *Onawea*, *Plocamostethus*, *Zeopoecilus*), 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**

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

["*Anchomenus*" *sensu* White, 1846, *nec* Bonelli, 1810, See *Ctenognathus* Fairmaire, 1843] **new combinations**

[*Anchomenus* Bonelli, 1810, is excluded from the New Zealand fauna]

["*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)]

[*Anomalobroscus* Johns, 2007, See *Diglymma* Sharp, 1886] **new synonymy**

[*Anomalobroscus seclusus* Johns, 2007, See *Diglymma seclusum* (Johns, 2007)]

["*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* 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)

Cerabilia rufipes (Broun, 1893) **new combination**

Cerabilia striatula (Broun, 1893) **new combination**

Ctenognathus arnaudensis (Broun, 1921) **new combination**

Ctenognathus colenisonis (White, 1846) **new combination**

Ctenognathus edwardsii (Bates, 1874) **new combination**

Ctenognathus helmsi (Sharp, 1881) **new combination**

Ctenognathus integratus (Broun, 1908) **new combination**

Ctenognathus intermedius (Broun, 1908) **new combination**

Ctenognathus libitus (Broun, 1914) **new combination**

Ctenognathus macrocoelis (Broun, 1908) **new combination**

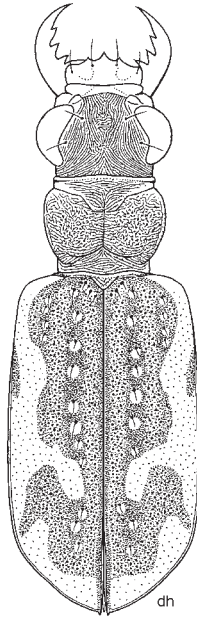
- Ctenognathus oreobius* (Broun, 1886) **new combination**
- Ctenognathus otagoensis* (Bates, 1878) new combination (Liebherr, 2005)
- Ctenognathus punctulatus* (Broun, 1877) **new combination**
- Ctenognathus sandageri* (Broun, 1882) **new combination**
- Ctenognathus sophronitis* (Broun, 1908) **new combination**
- Ctenognathus sulcitorsis* (Broun, 1880) **new combination**
- Ctenognathus xanthomelus* (Broun, 1908) **new combination**
- Diglymma seclusum* (Johns, 2007) **new combination**
- Dromius* Bonelli, 1810 first record for New Zealand (Leschen *et al.* 2003)
- Dromius* (*Dromius*) *meridionalis* Dejean, 1825 **first record for New Zealand**
- [“*Duvaliomimus*” *lamberti* Britton, 1960, See *Kupetrechus lamberti* (Britton, 1960)]
- Duvaliomimus orientalis* Giachino, 2005
- 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 reinstatement (Laroche & Larivière, 2005).
- Harpalus* (*Harpalus*) *tardus* (Panzer, 1797) first record for New Zealand (Emerson, 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]
- Kiwiharpalus* Laroche & Larivière, 2005
- Kiwiharpalus townsendi* Laroche & Larivière, 2005
- Kiwitachys* **new genus**
- Kiwitachys antarcticus* (Bates, 1874) **new combination**
- Kiwitachys latipennis* (Sharp, 1886) **new combination**
- Kiwitrechus* **new genus**
- Kiwitrechus karenscottae* **new species**
- Kupeharpalus* Laroche & Larivière, 2005
- Kupeharpalus barrattae* Laroche & Larivière, 2005
- Kupeharpalus emersoni* Laroche & Larivière, 2005
- Kupeharpalus johnsi* Laroche & Larivière, 2005
- Kupetrechus* **new genus**
- Kupetrechus lamberti* (Britton, 1960) **new combination**
- [*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 (Laroche & Larivière, 2005)
- Lecanomerus marrisi* Laroche & Larivière, 2005
- [*Lecanomerus pallipes* Broun, 1894, See *Lecanomerus latimanus* Bates, 1874] new synonym (Laroche & Larivière, 2005)
- Loxomerus* (*Pristancylus*) *capito* Jeannel, 1938 **reinstatement**
- Loxomerus* (*Pristancylus*) *philpotti* (Broun, 1914) **new combination**
- Maoriharpalus* Laroche & Larivière, 2005
- Maoriharpalus sutherlandi* Laroche & Larivière, 2005
- Mecodema persculptum* Broun, 1915 reinstatement (Johns, 2005)
- Mecodema puakium* Johns & Ewers, 2007 (Johns, 2007)
- 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*) *walkeri* (Broun, 1903) resurrection from synonymy with *Megadromus* (*M.*) *enysi* (Broun, 1882) (Johns, 2005)

- [*Notagonum marginellum* (Erichson, 1842)]
deletion from fauna
- Notiobia (Anisotarsus) quadricollis* (Chaudoir, 1878) first record for New Zealand (Larochelle & Larivière, 2005)
- Onawea* Johns, 2007
Onawea pantomelas (Blanchard, 1843) (Johns, 2007)
- Oopterus atratus* (Broun, 1893) **reinstatement**
Oopterus carinatus (Broun, 1882) **reinstatement**
Oopterus femoralis (Broun, 1894) **reinstatement**
Oopterus helmsi (Broun, 1886) **reinstatement**
Oopterus labralis (Broun, 1921) **reinstatement**
Oopterus ocularius (Broun, 1917) **reinstatement**
Oopterus subopacus (Broun, 1915) **reinstatement**
Oregus crypticus Pawson, 2003 (Pawson et al., 2003b)
- Oregus septentrionalis* Pawson, 2003 (Pawson et al., 2003b)
- [*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 palmi Larochelle & Larivière, 2005
Plocamostethus scribae Johns, 2007
Polyderis Motschulsky, 1862 **first record for New Zealand**
- Polyderis captus* (Blackburn, 1888) new combination (Giachino, 2003)
- 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**
- [*Taenarthrus (Pristancylus) capito* (Jeannel, 1938), See *Loxomerus (Pristancylus) capito* Jeannel, 1938]
[*Taenarthrus philpotti* Broun, 1914, See *Loxomerus (Pristancylus) philpotti* (Broun, 1914)]
Trigonothops Macleay, 1864 first record for New Zealand (Leschen et al. 2003)
Trigonothops (Trigonothops) pacifica (Erichson, 1842) **first record for New Zealand**
Tuiharpalus Larochelle & Larivière, 2005
Tuiharpalus cluniaeae 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
- [*Zabronothus* Broun, 1893, See *Cerabilia* Laporte de Castelnau, 1867] **new synonym**
[*Zabronothus rufipes* Broun, 1893, See *Cerabilia rufipes* (Broun, 1893)]
[*Zabronothus striatulus* Broun, 1893, See *Cerabilia striatula* (Broun, 1893)]
[*Zecillen* Lindroth, 1980, See *Bembidion (Zecillen)*]
[*Zecillen* *alacris* (Broun, 1921), See *Bembidion (Zecillen)* *alacre* (Broun, 1921)]
[*Zecillen* *albescens* (Bates, 1878), See *Bembidion (Zecillen)* *albescens* (Bates, 1878)]
[*Zecillen* *chalmeri* (Broun, 1886), See *Bembidion (Zecillen)* *chalmeri* (Broun, 1886)]
[*Zecillen* *embersoni* Lindroth, 1980, See *Bembidion (Zecillen)* *embersoni* (Lindroth, 1980)]
[*Zecillen* *tillyardi* (Brookes, 1927), See *Bembidion (Zecillen)* *tillyardi* (Brookes, 1927)]
Zeopoecilus caperatus Johns, 2007
[*Zolus* Sharp, 1886, See *Oopterus* Guérin-Méneville, 1841] **reinstated synonymy**
[*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

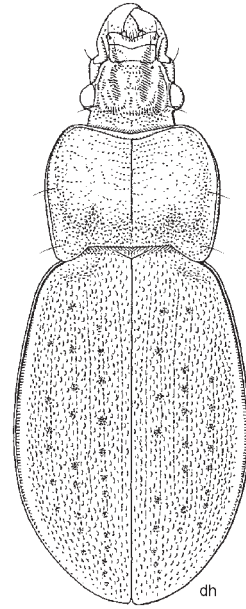
Cicindelini

5 mm

(1) *Cicindela (Neocicindela) tuberculata*

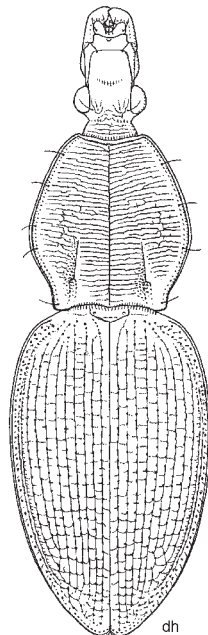
Carabini

10 mm

(2) *Carabus (Archicarabus) nemoralis*

Pamborini

10 mm

(3) *Maoripamborus fairburni*

Amarotypini

10 mm

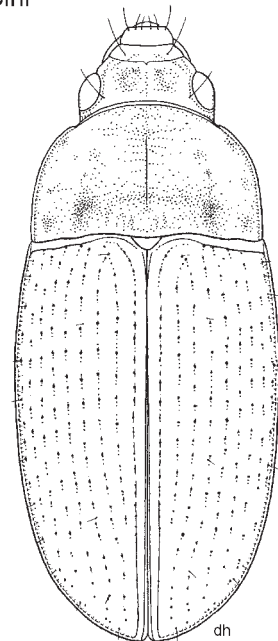
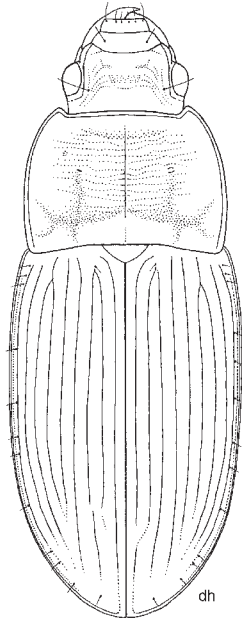
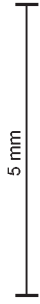
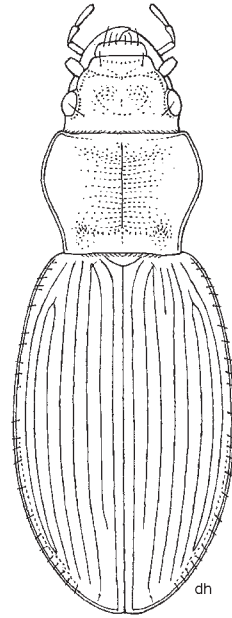
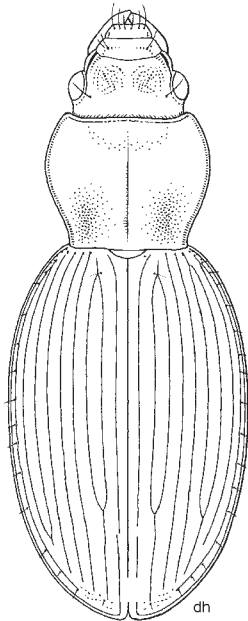
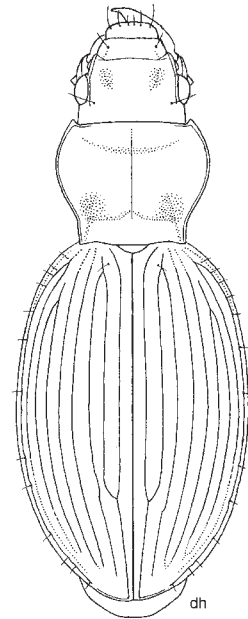
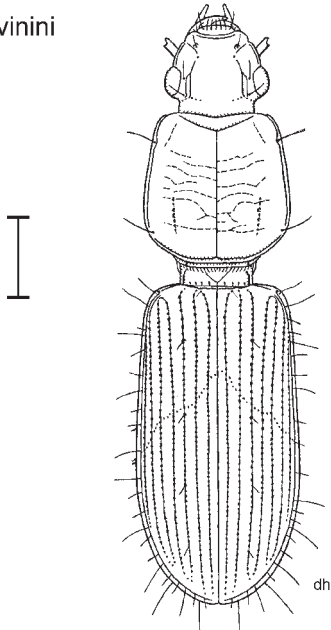
(4) *Amarotypus edwardsii*

Fig. 1–117 (1–116) Habitus drawings of genera and subgenera of Carabidae (Illustrated by D. W. Helmore, with modifications by the authors). (117) Habitus drawing of *Adelotopus macilentus* (Provided by M. Baehr). Scale lines are 1 mm.

Migadopini

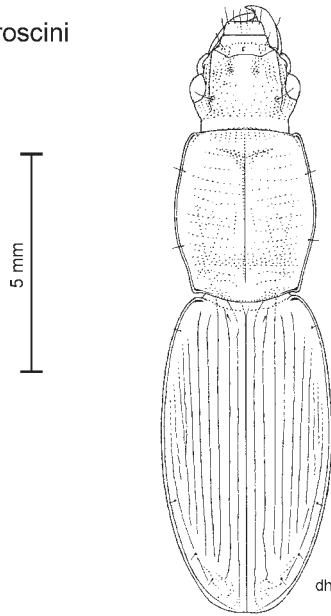
(5) *Calathosoma rubromarginatum*(6) *Loxomerus (Loxomerus) nebrionides*(7) *Loxomerus (Pristancylus) brevis*(8) *Loxomerus (Pristancylus) capito*

Clivinini

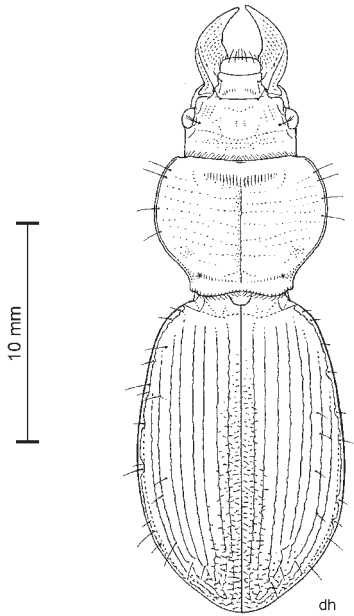


(9) *Clivina basalis*

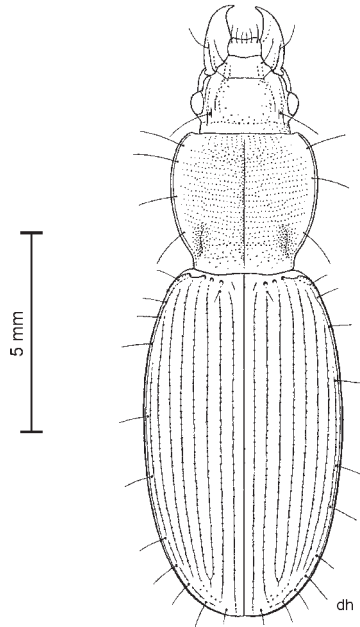
Broschini



(10) *Bountya insularis*



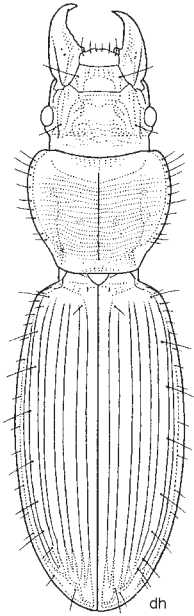
(11) *Brullea antarctica*



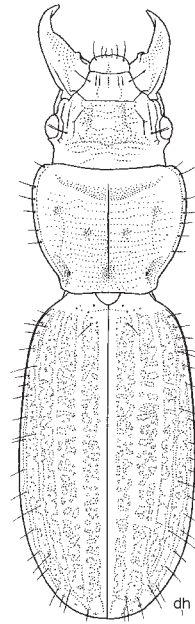
(12) *Diglymma clivinooides*

Broscini

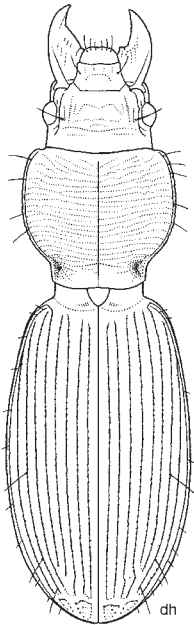
10 mm

(13) *Mecodema alternans alternans*

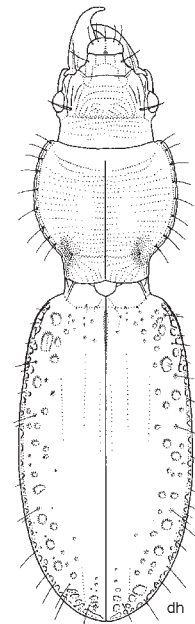
10 mm

(14) *Mecodema costellum costellum*

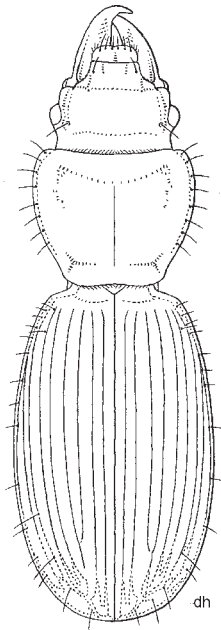
10 mm

(15) *Mecodema curvidens*

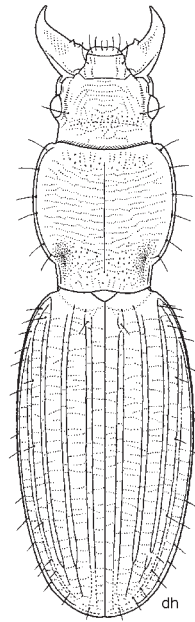
10 mm

(16) *Mecodema ducale*

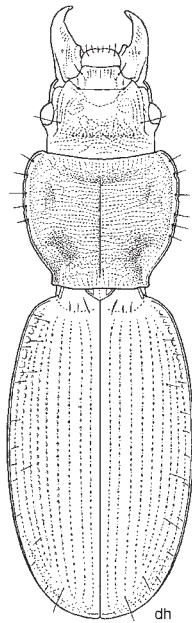
Broschini



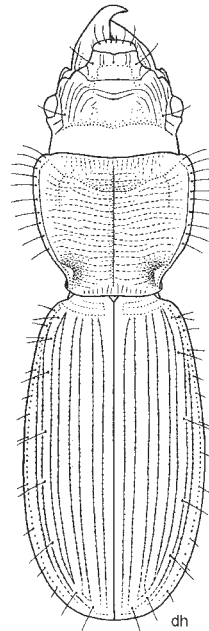
(17) *Mecodema fulgidum*



(18) *Mecodema infimate*



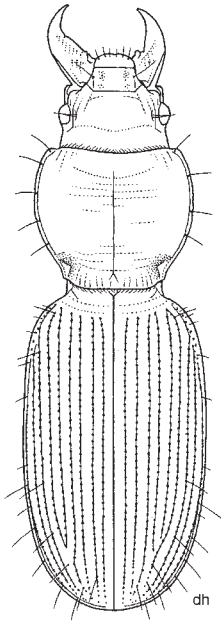
(19) *Mecodema laterale*



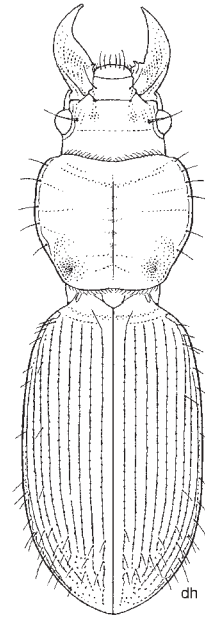
(20) *Mecodema spiniferum*

Broschini

10 mm

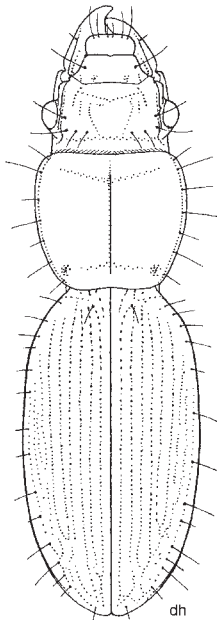
(21) *Mecodema sulcatum*

10 mm

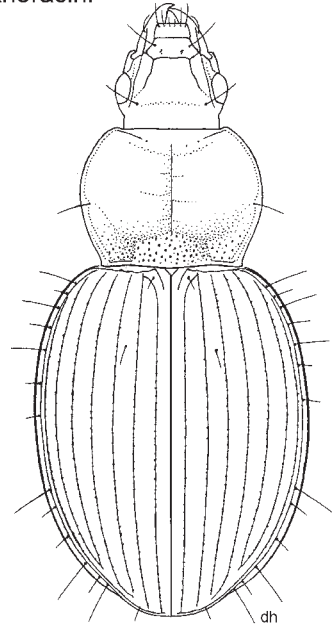
(22) *Metaglymma tibiale*

Mecyclothoracini

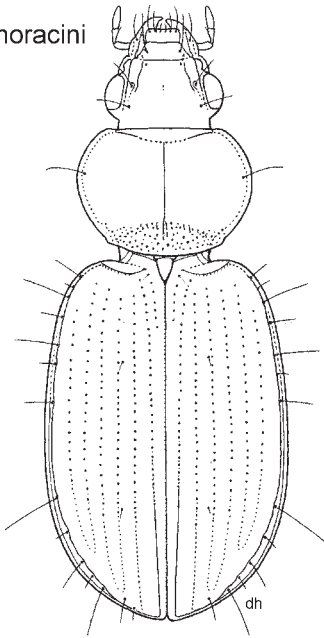
5 mm

(23) *Oregus aereus*

5 mm

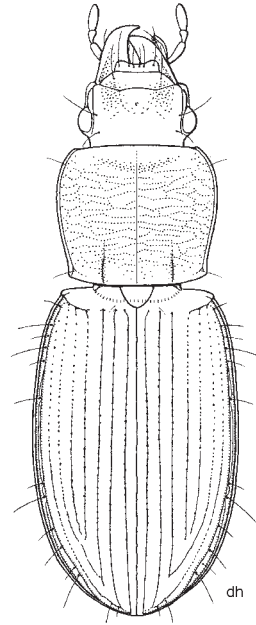
(24) *Mecyclothorax amplipennis amplipennis*

Mecyclothoracini



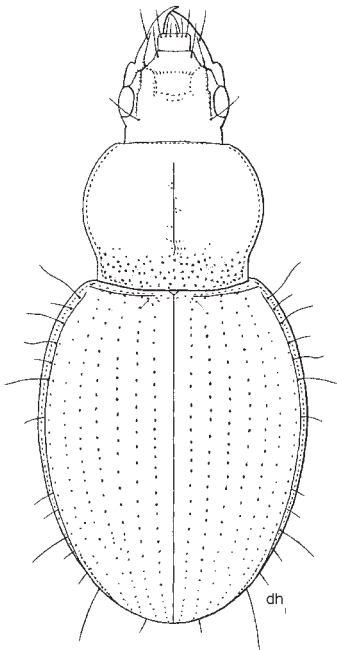
(25) *Mecyclothorax rotundicollis*

Meonini



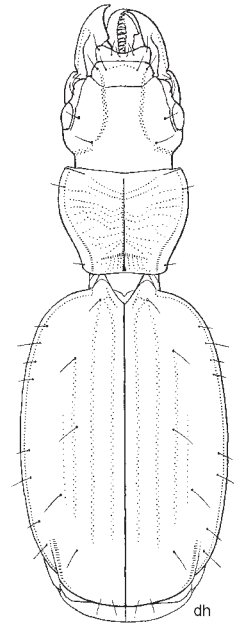
(26) *Selenochilus syntheticus*

Tropopterini



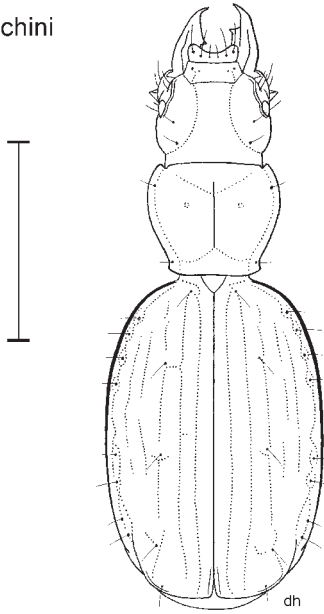
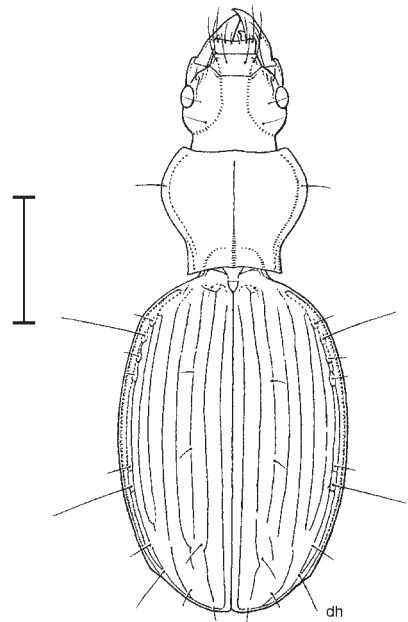
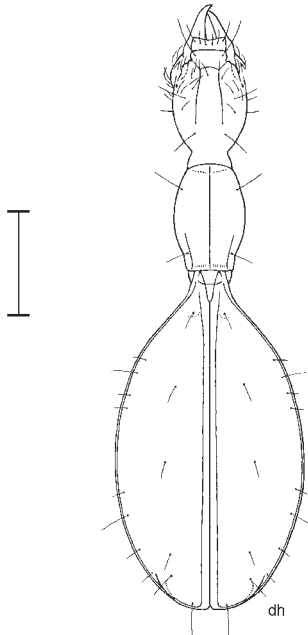
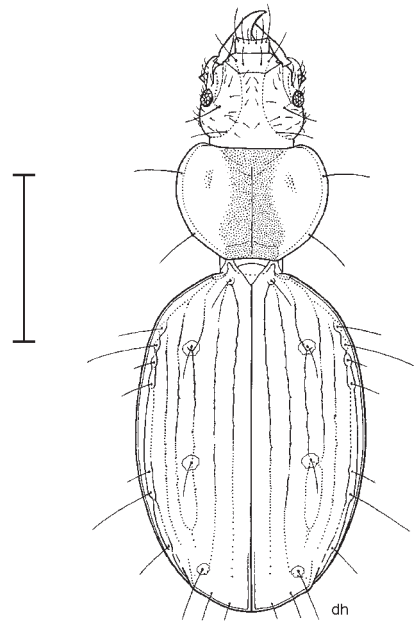
(27) *Molopsida seriatoporus*

Trechini

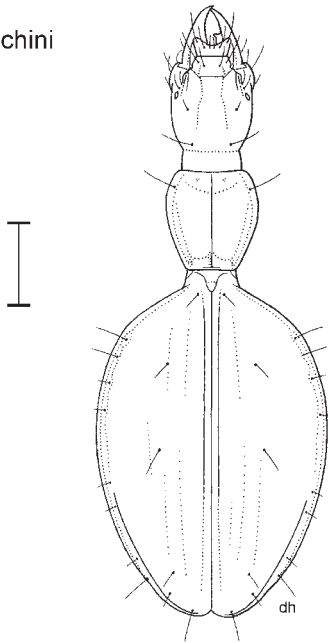


(28) *Kenodactylus audouini*

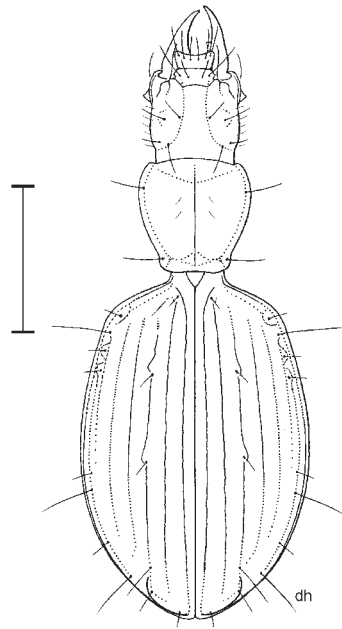
Trechini

(29) *Maoritrechus rangitotoensis*(30) *Duvaliomimus styx*(31) *Erebotrechus infernus*(32) *Kiwitrechus karencottae*

Trechini

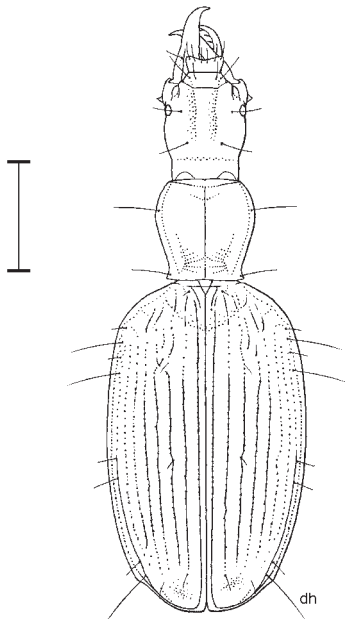


(33) *Kupetrechus lamberti*

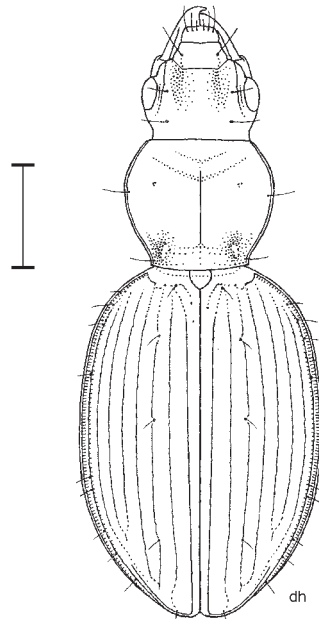


(34) *Neanops caecus*

Zolini



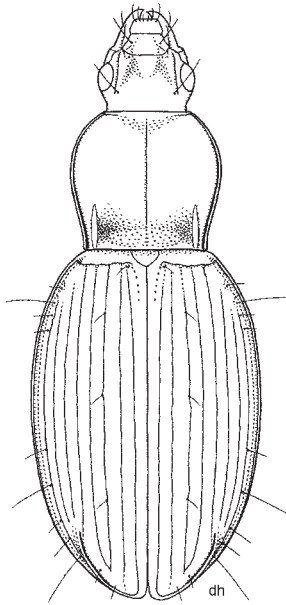
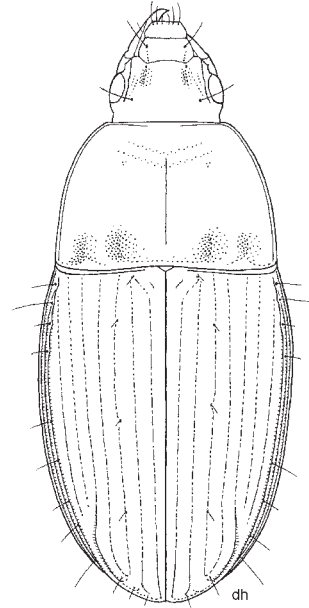
(35) *Scototrechus orcinus*



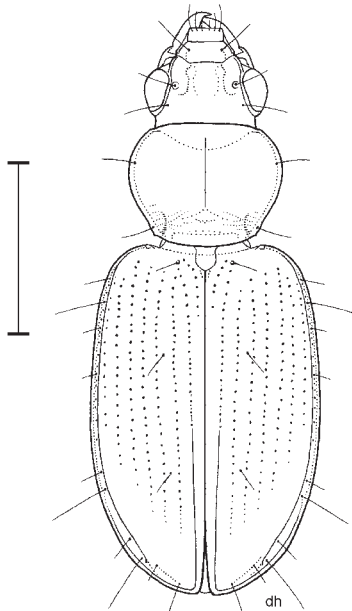
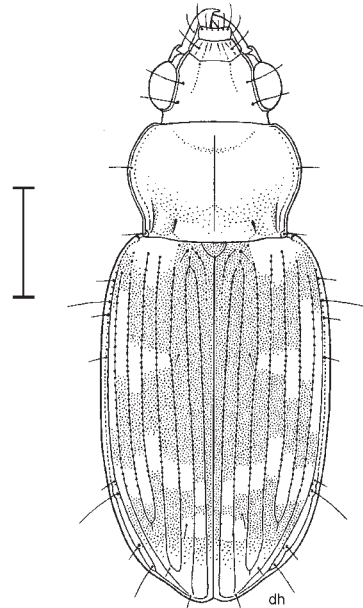
(36) *Oopterus clivinooides*

Zolini

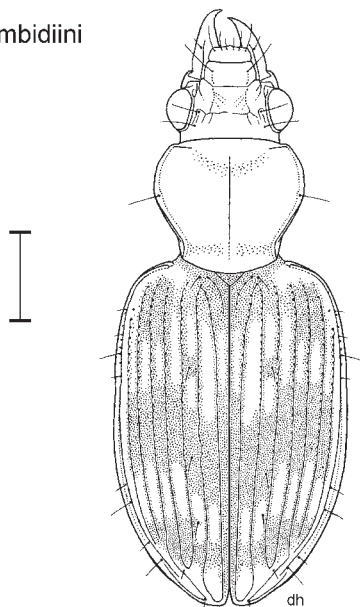
5 mm

(37) *Oopterus femoralis*(38) *Synteratus ovalis*

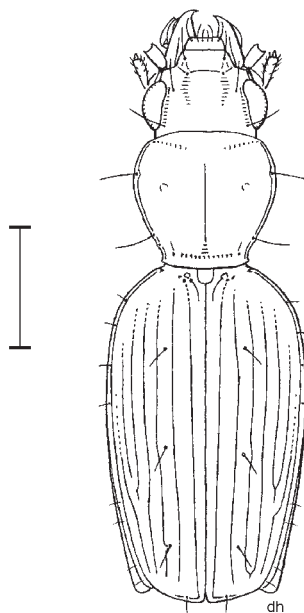
Bembidiini

(39) *Bembidion (Ananotaphus) rotundicolle rotundicolle*(40) *Bembidion (Notaphus) brullei*

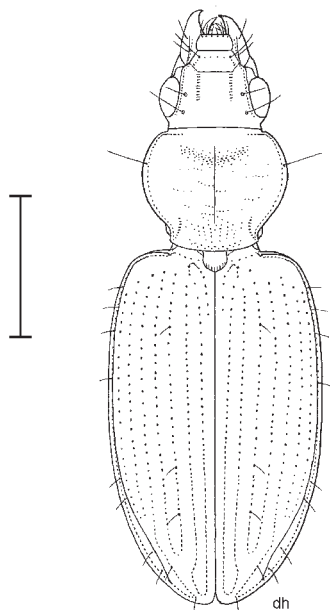
Bembidiini



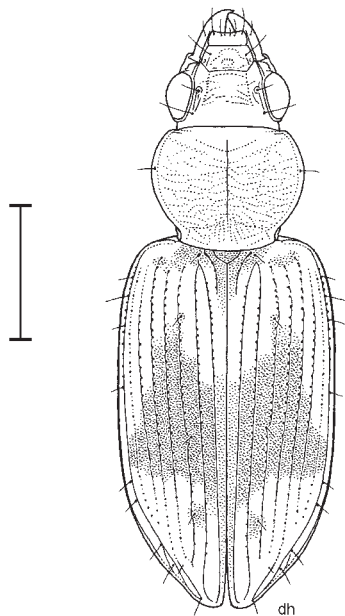
(41) *Bembidion (Zeactedium) musae*



(42) *Bembidion (Zecillenus) alacre*

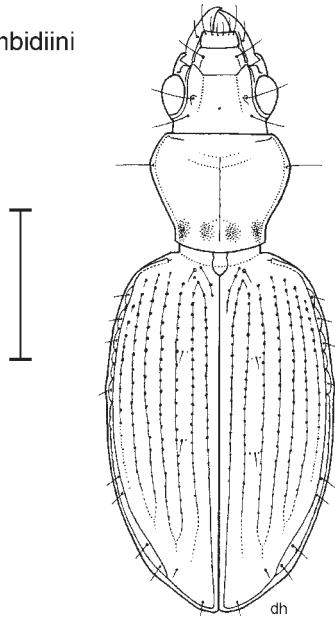
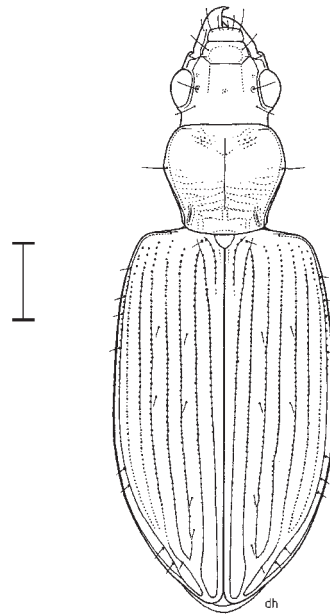
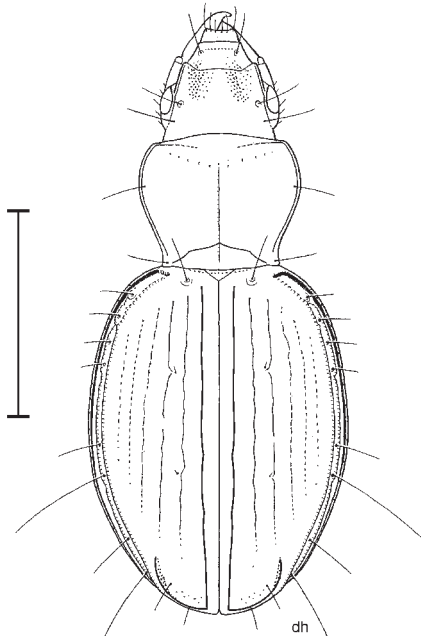
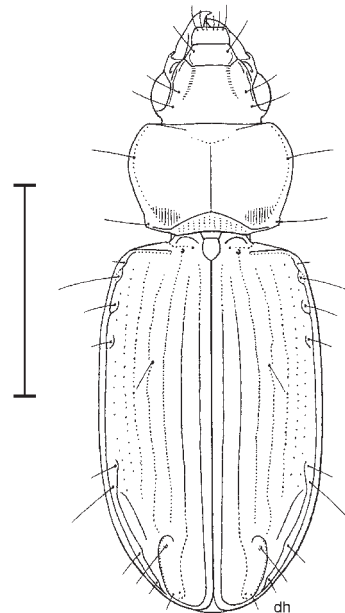


(43) *Bembidion (Zemetallina) anchonoderus*

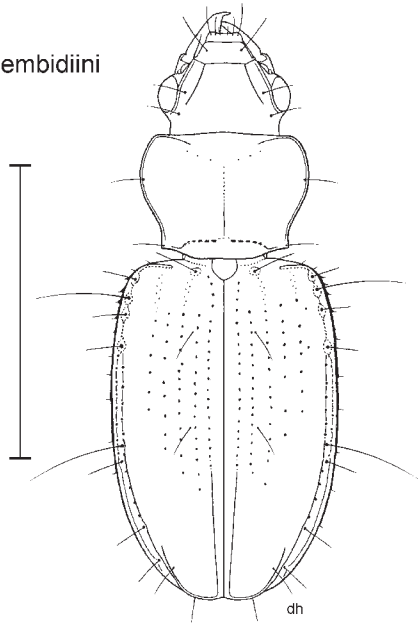


(44) *Bembidion (Zeperyphodes) callipeplum*

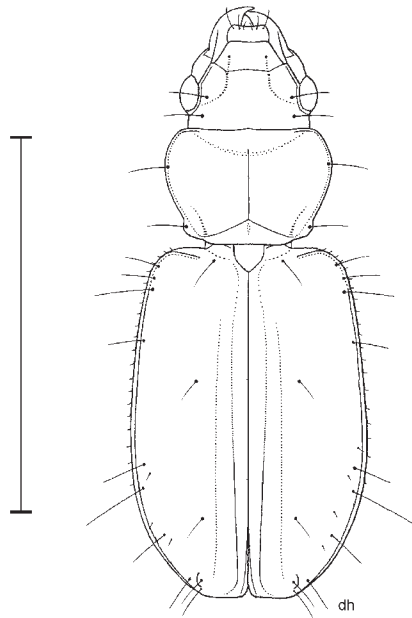
Bembidiini

(45) *Bembidion (Zeperyphus) actuarium*(46) *Bembidion (Zeplataphus) charile*(47) *Kiwitachys antarcticus*(48) *Paratachys crypticola*

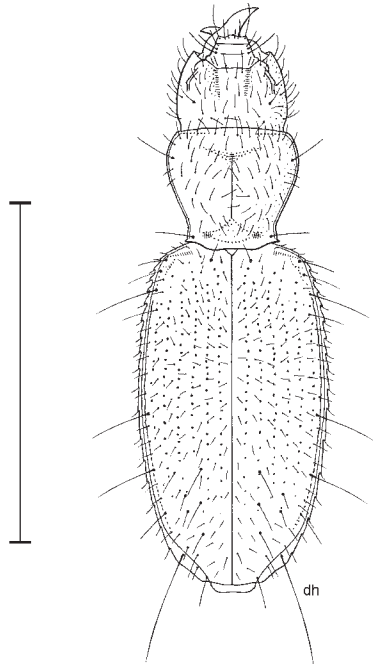
Bembidiini



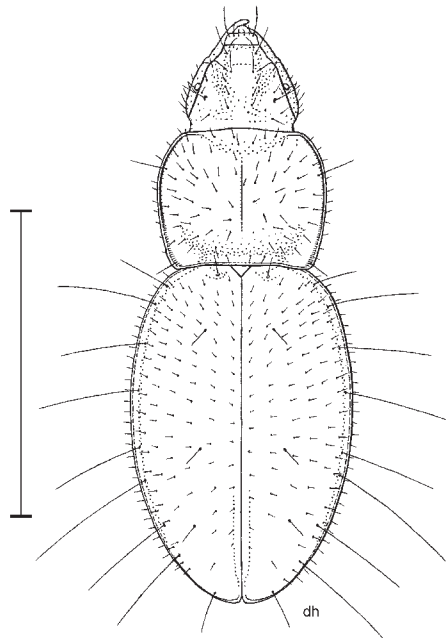
(49) *Pericompsus (Upocompsus) australis*



(50) *Polyderis captus*

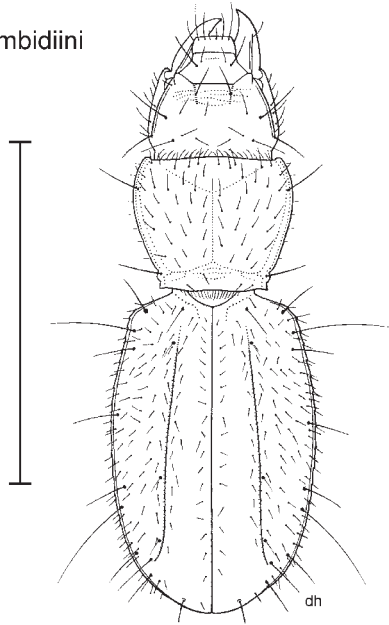
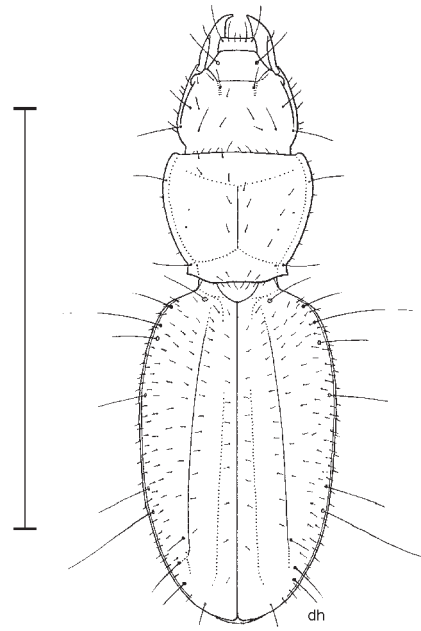


(51) *Hygranillus kuscheli*

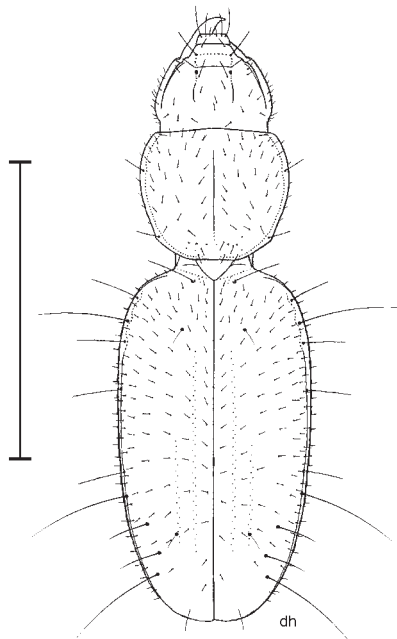
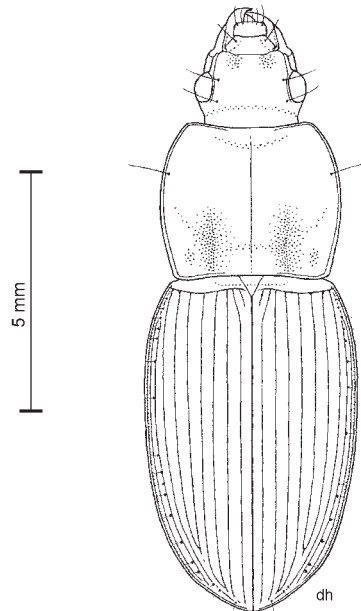


(52) *Nesamblyops oreobius*

Bembidiini

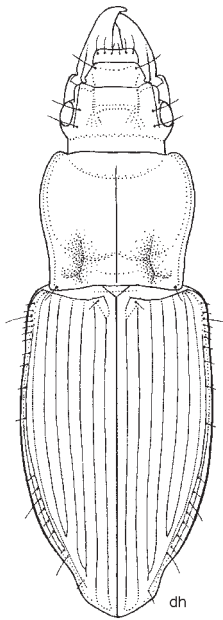
(53) *Pelodiaetodes prominens*(54) *Pelodiaetus sulcatipennis*

Pterostichini

(55) *Zeanillus pallidus*(56) *Aulacopodus calathoides*

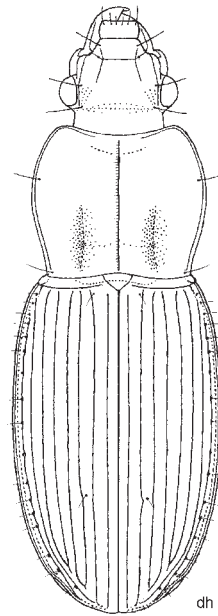
Pterostichini

10 mm



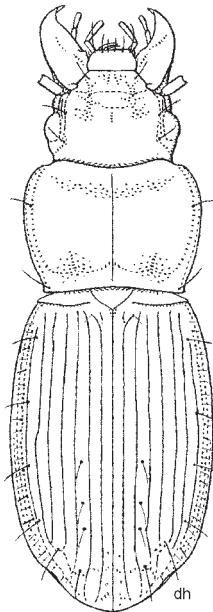
(57) *Gourlayia regia*

5 mm



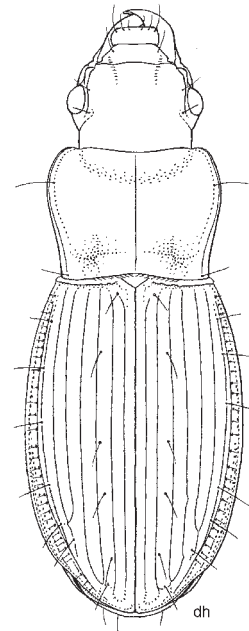
(58) *Holcaspis mordax*

10 mm



(59) *Megadromus (Megadromus) antarcticus*

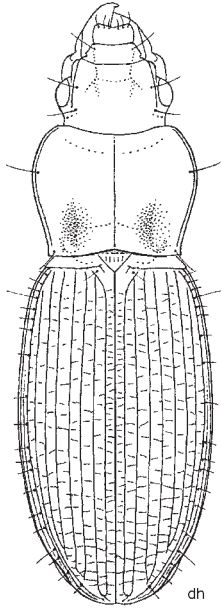
10 mm



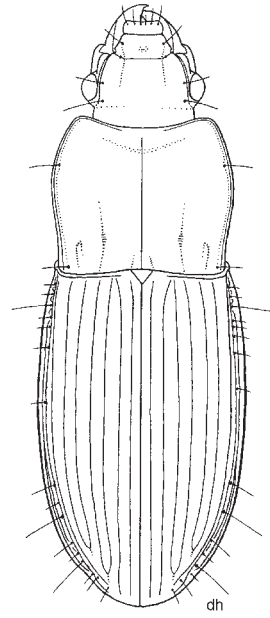
(60) *Megadromus (Megadromus) capito*

Pterostichini

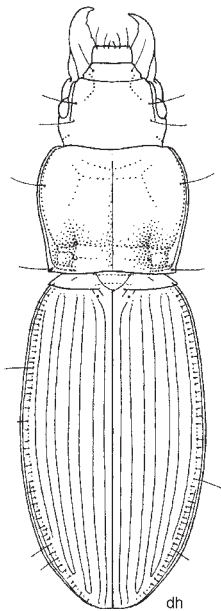
10 mm

(61) *Neoferonia procerula*

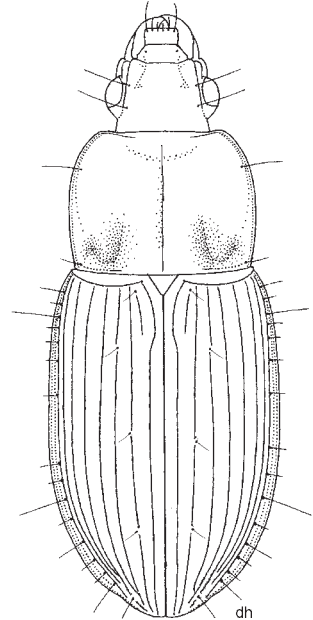
5 mm

(62) *Onawea pantomelas*

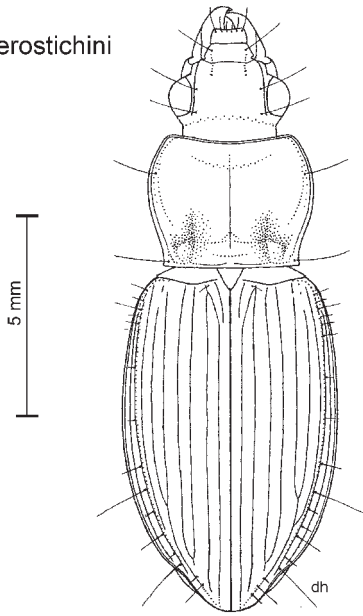
10 mm

(63) *Plocamostethus planiusculus*

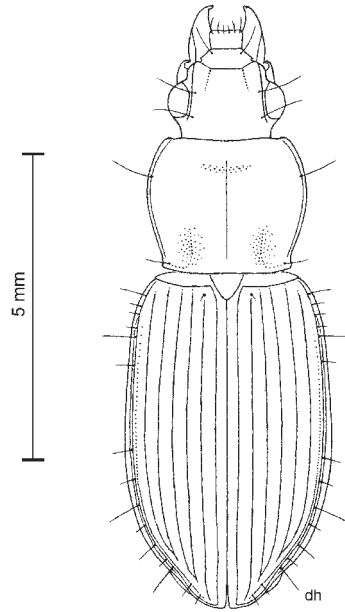
5 mm

(64) *Prosopogmus oodiformis*

Pterostichini

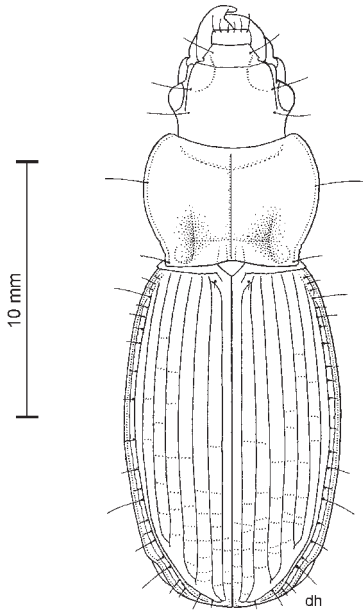


(65) *Psegmatopterus politissimus*

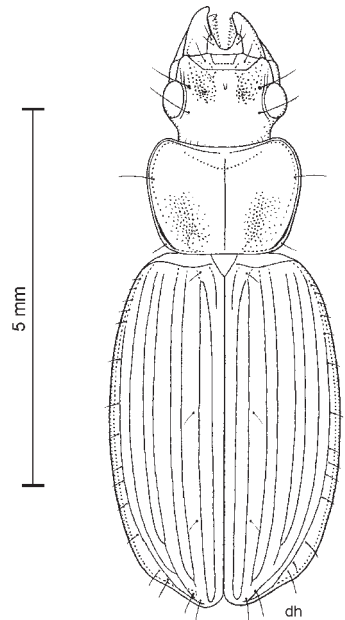


(66) *Rhytisternus miser*

Licinini



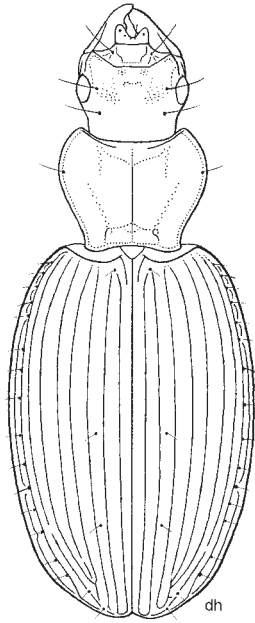
(67) *Zeopoecilus calcaratus*



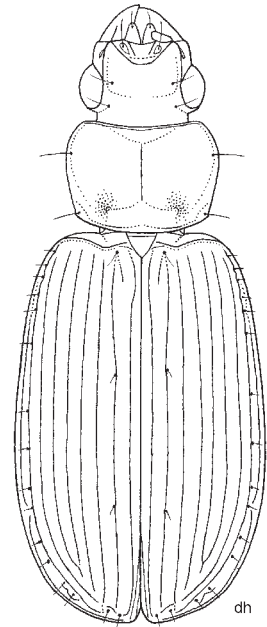
(68) *Dicrochile cordicollis*

Licinini

5 mm

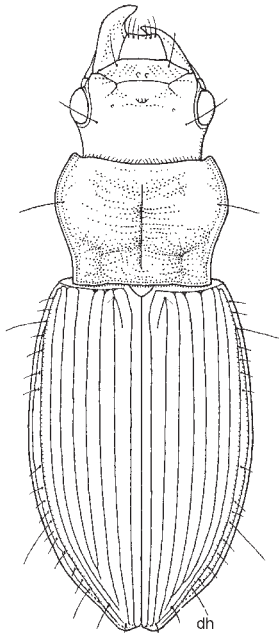
(69) *Dicrochile insignis*

5 mm

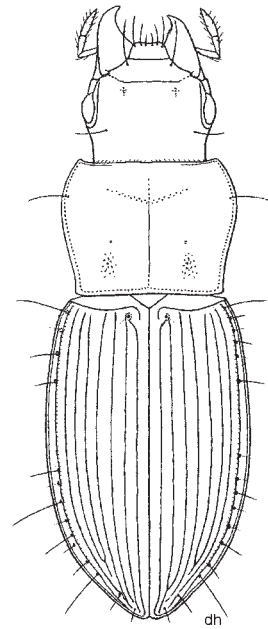
(70) *Physolaesthus insularis*

Harpalini

10 mm

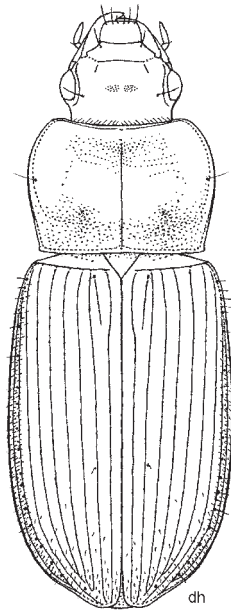
(71) *Allocinopus sculpticollis*

10 mm

(72) *Allocinopus smithi*

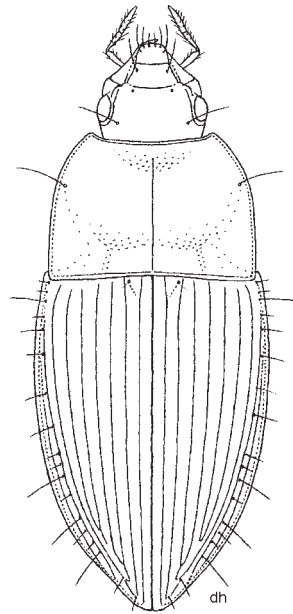
Harpalini

5 mm



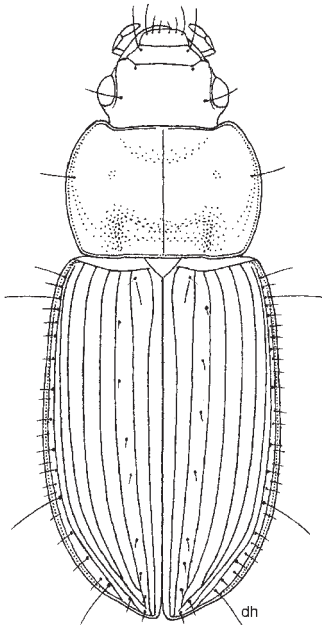
(73) *Anisodactylus (Anisodactylus) binotatus*

5 mm



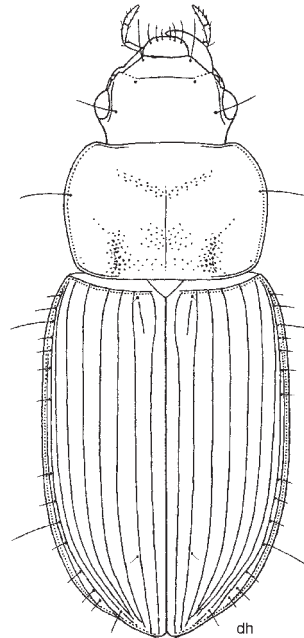
(74) *Gaioxenus pilipalpis*

5 mm



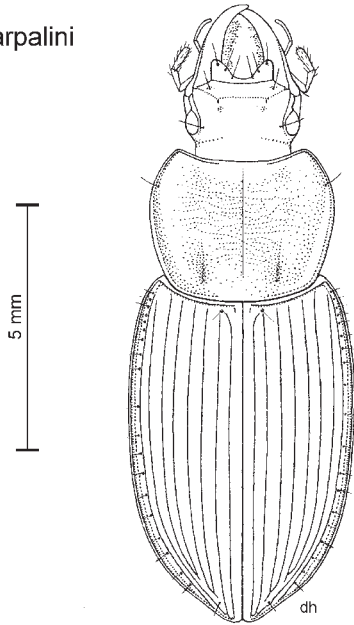
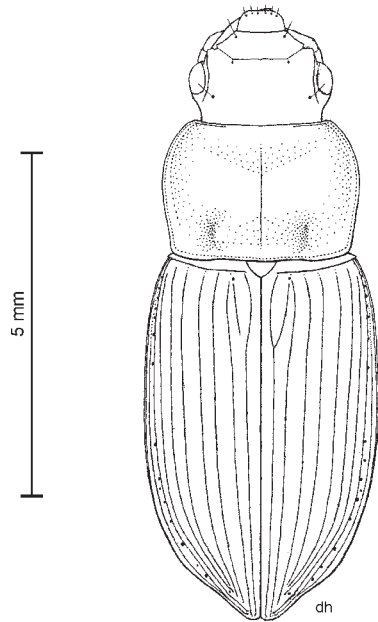
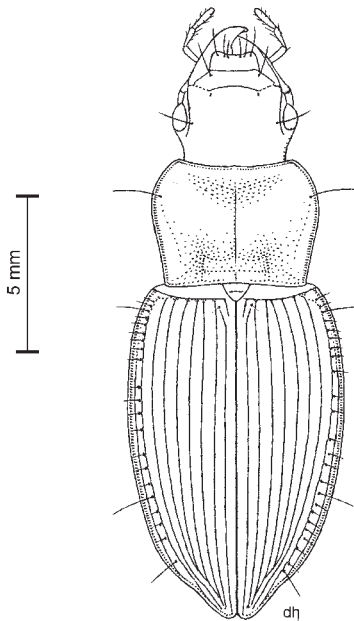
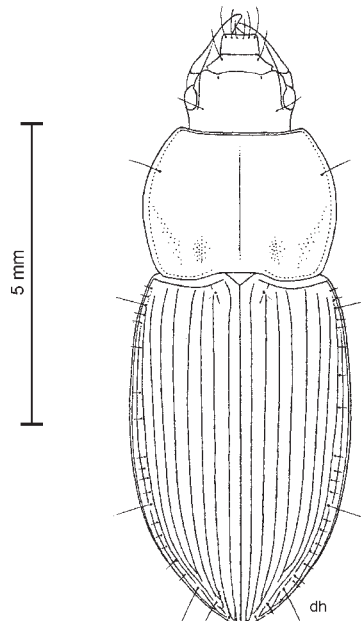
(75) *Gnathaphanus melbournensis*

5 mm

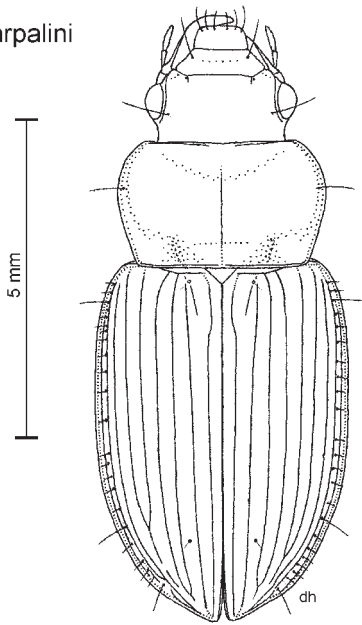


(76) *Hypharpax australis*

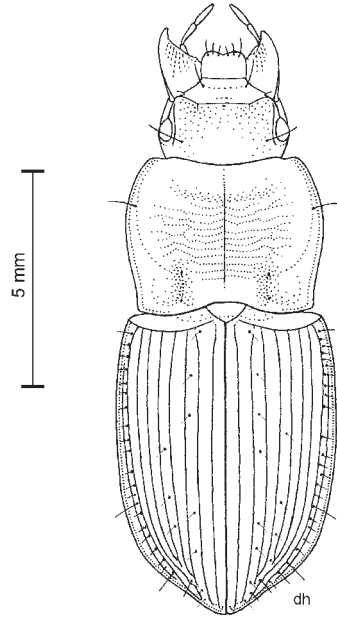
Harpalini

(77) *Maoriharpalus sutherlandi*(78) *Notiobia (Anisotarsus) quadricollis*(79) *Parabaris atratus*(80) *Parabaris hoarei*

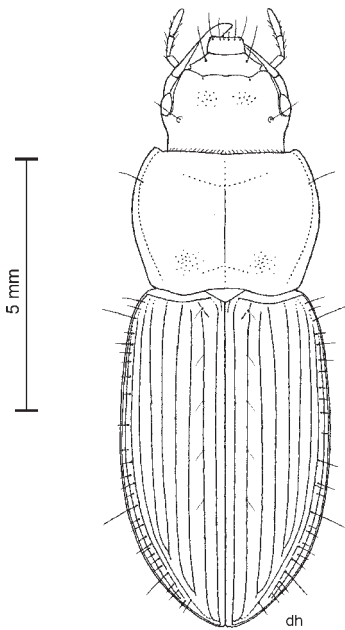
Harpalini



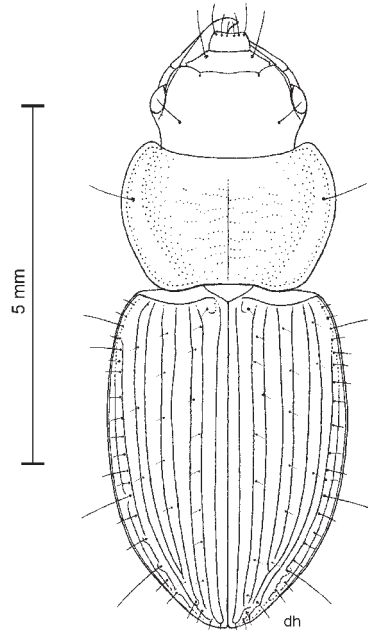
(81) *Triplosarus novaezelandiae*



(82) *Tuiharpalus gourlayi*



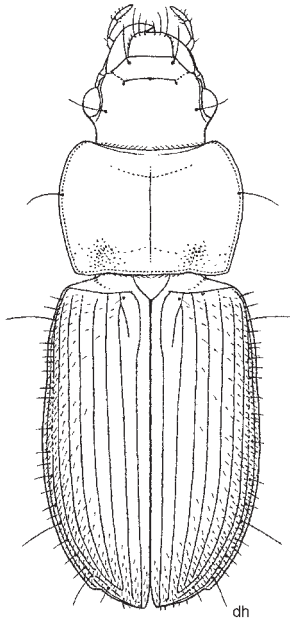
(83) *Tuiharpalus hallae*



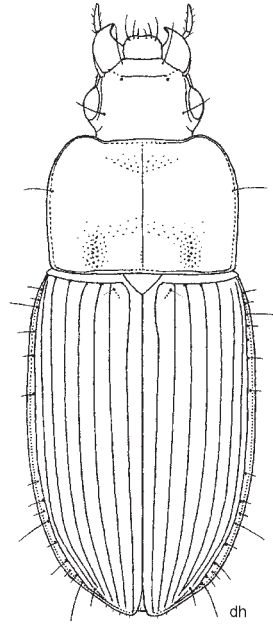
(84) *Tuiharpalus moorei*

Harpalini

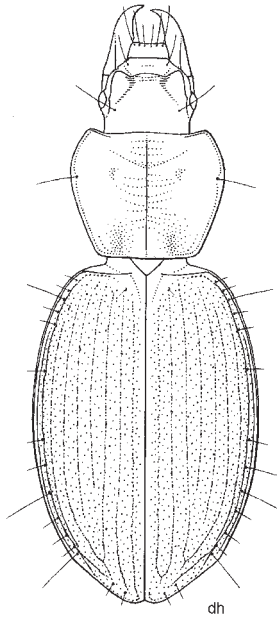
5 mm

(85) *Harpalus (Harpalus) affinis*

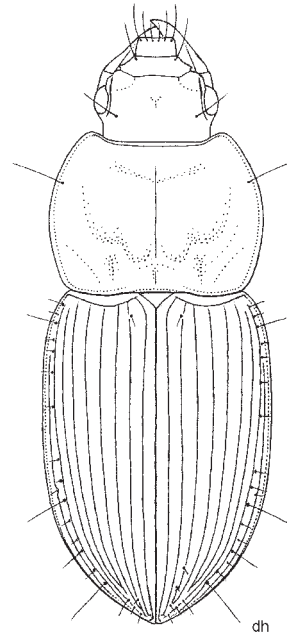
5 mm

(86) *Harpalus australasiae*

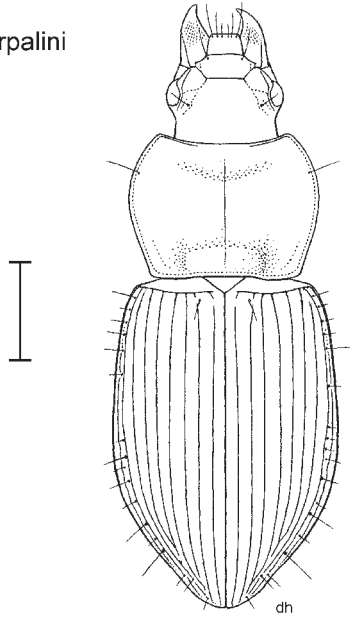
5 mm

(87) *Hakaharpalus patricki*

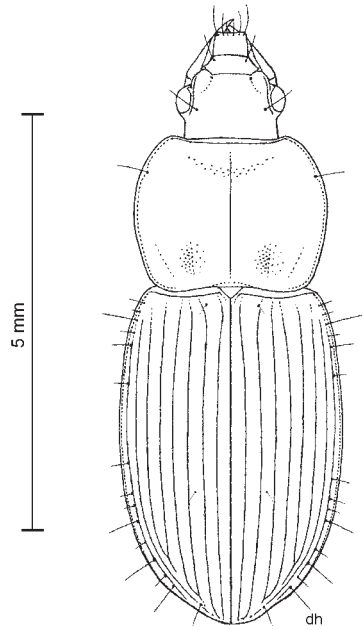
5 mm

(88) *Kupeharpalus barrattae*

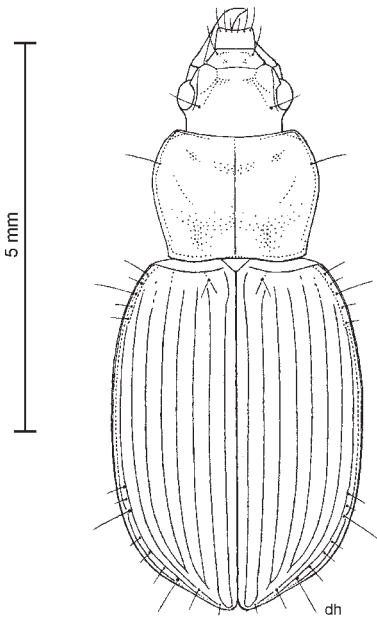
Harpalini



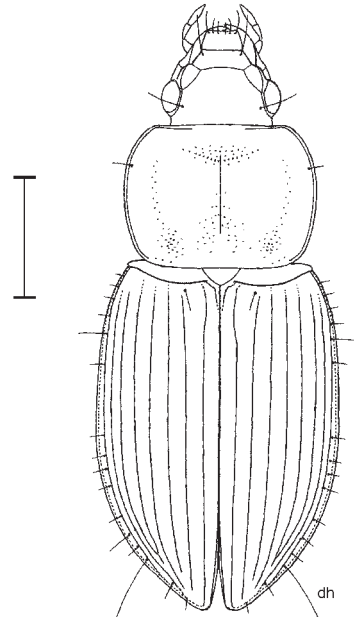
(89) *Kupeharpalus johnsi*



(90) *Lecanomerus insignitus*

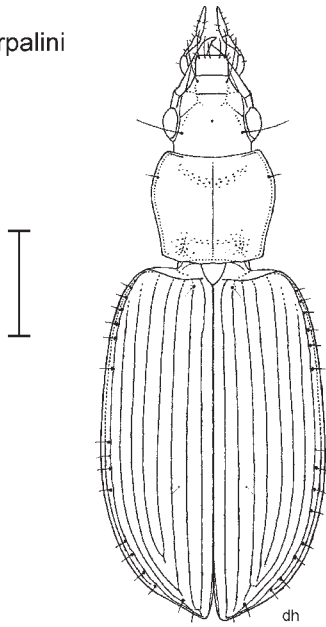
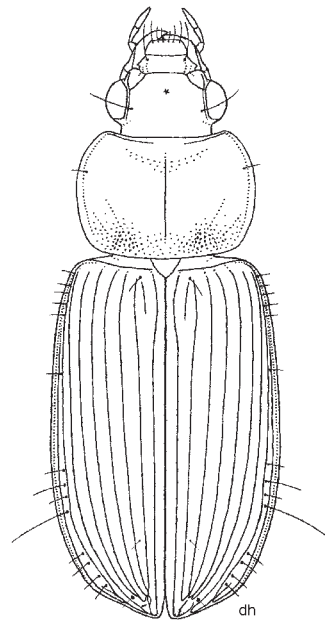
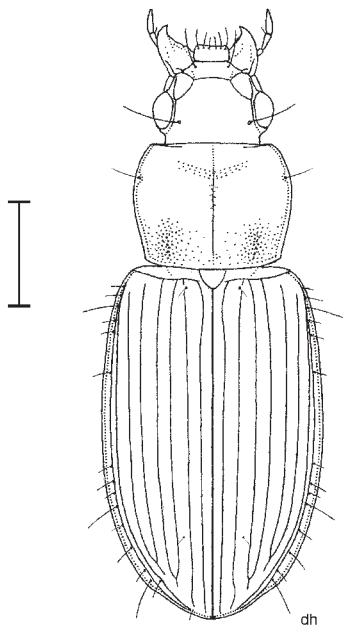
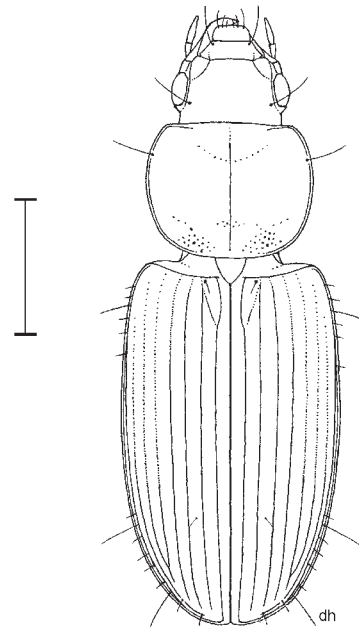


(91) *Lecanomerus marrisi*

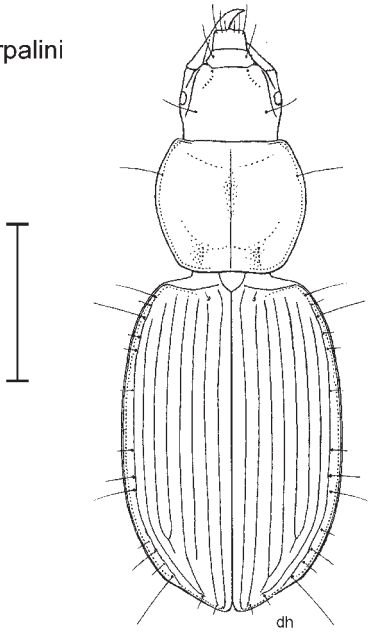


(92) *Lecanomerus vestigialis*

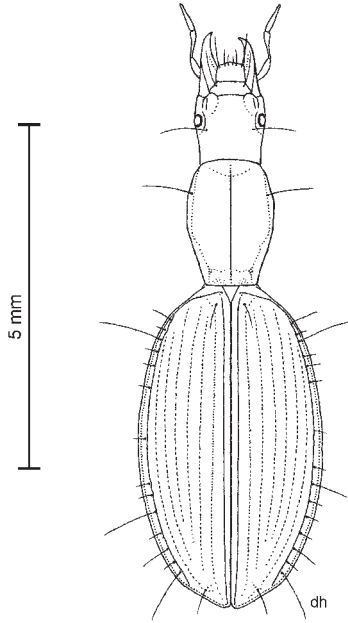
Harpalini

(93) *Syllectus anomalus*(94) *Egadroma picea*(95) *Euthenarus puncticollis*(96) *Haplanister crypticus*

Harpalini

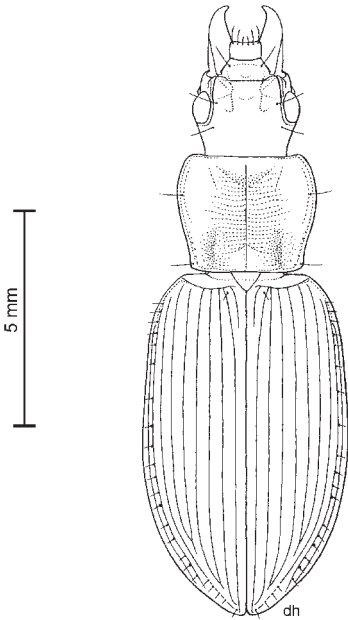


(97) *Kiwiharpalus townsendi*

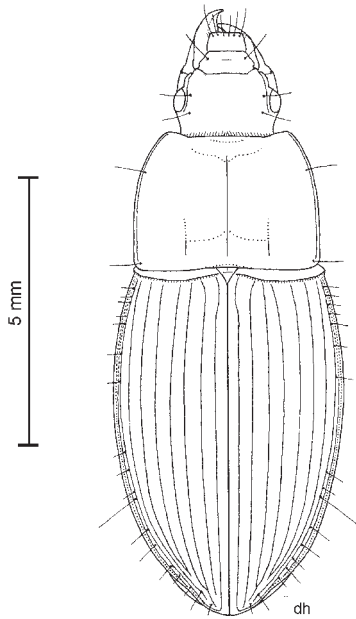


(98) *Pholeodytes townsendi*

Platynini



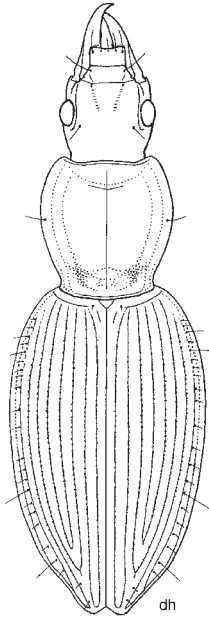
(99) *Laemostenus (Laemostenus) complanatus*



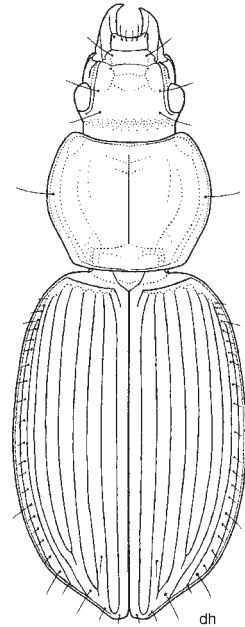
(100) *Cerabilia major*

Platynini

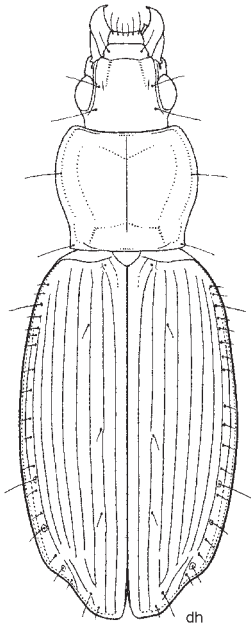
10 mm

(101) *Ctenognathus crenatus*

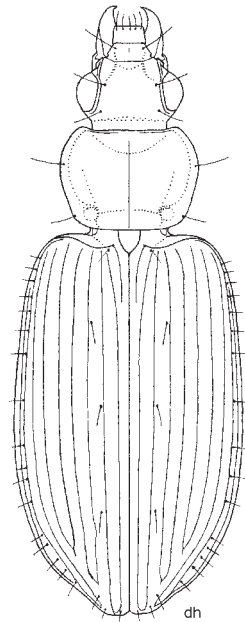
5 mm

(102) *Ctenognathus novaezelandiae*

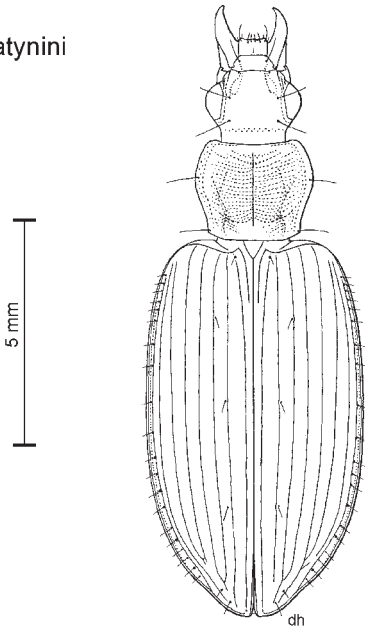
5 mm

(103) *Ctenognathus otagoensis*

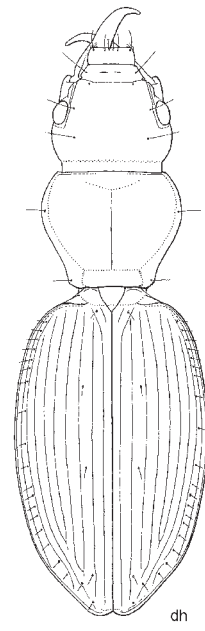
5 mm

(104) *Notagonum submetallicum*

Platynini

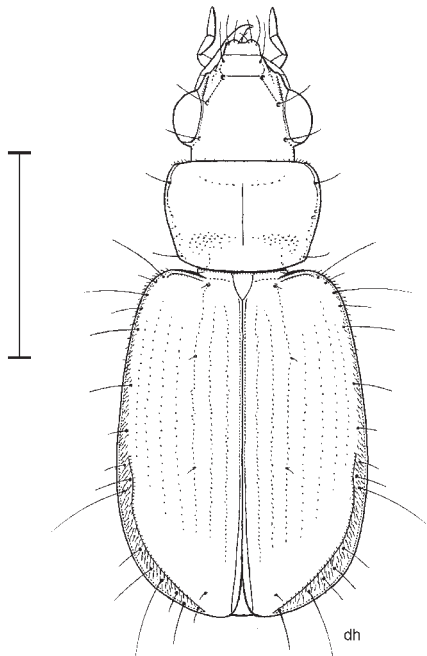


(105) *Platynus macropterus*



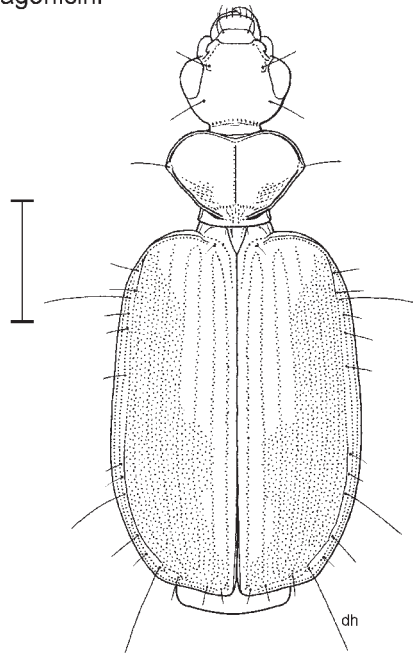
(106) *Prospodrus waltoni*

Perigonini



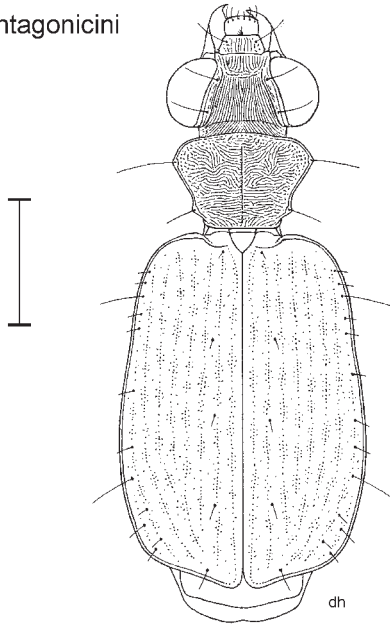
(107) *Perigona (Trechicus) nigriceps*

Pentagonicini

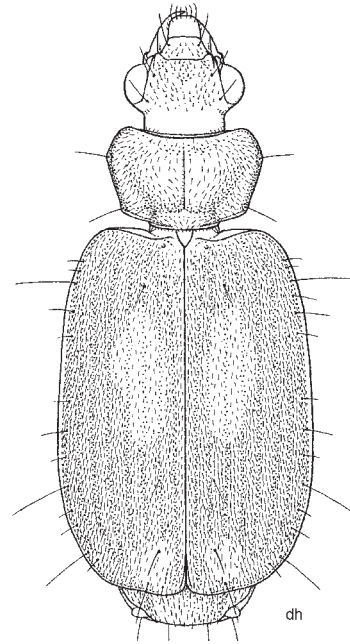
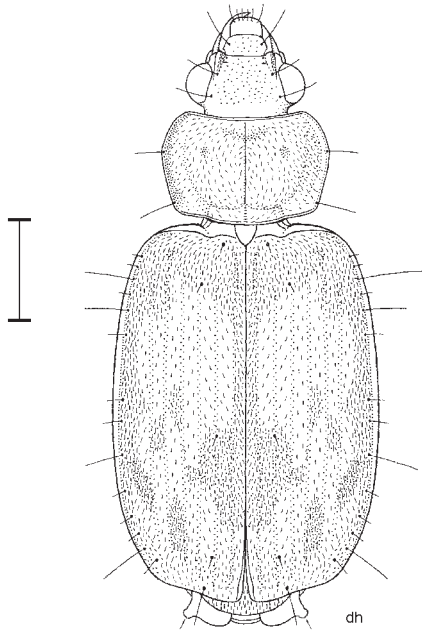
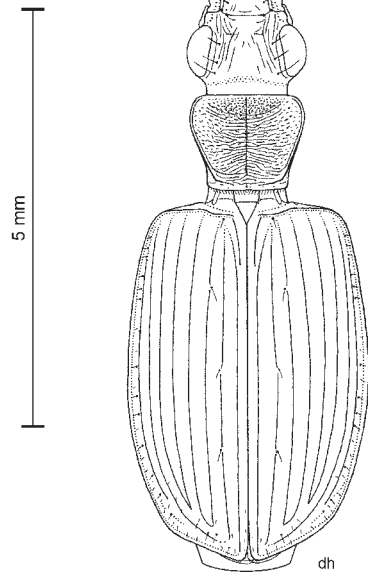


(108) *Pentagonica vittipennis*

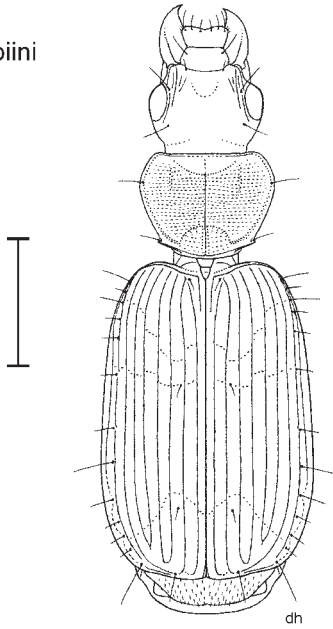
Pentagonicini

(109) *Scopodes fossulatus*

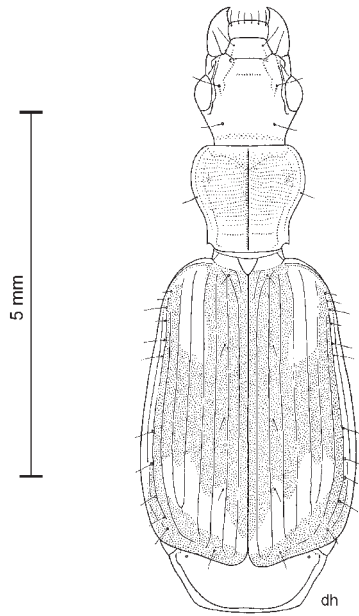
Lebiini

(110) *Agonocheila antipodum*(111) *Philoplaeus luculentus*(112) *Actenonyx bembidioides*

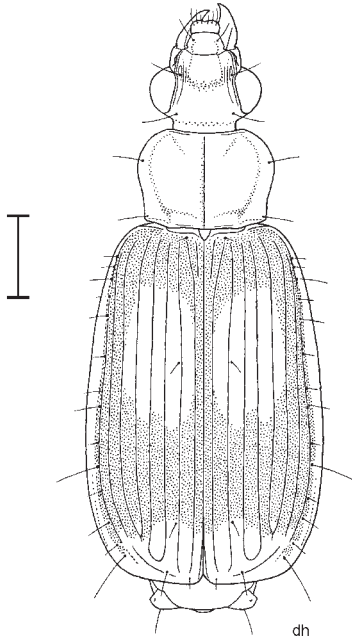
Lebiini



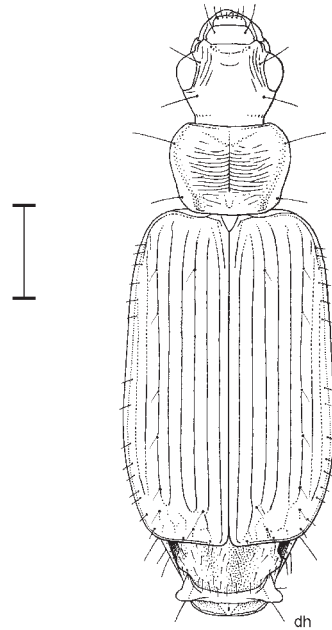
(113) *Anomotarus (Anomotarus) variegatus*



(114) *Demetrida (Demetrida) nasuta*

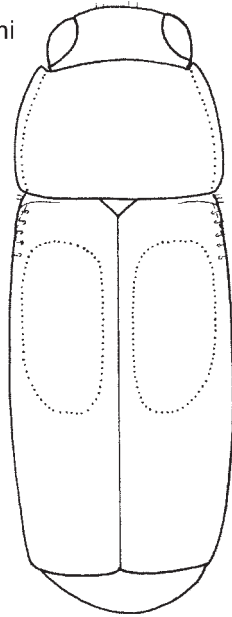


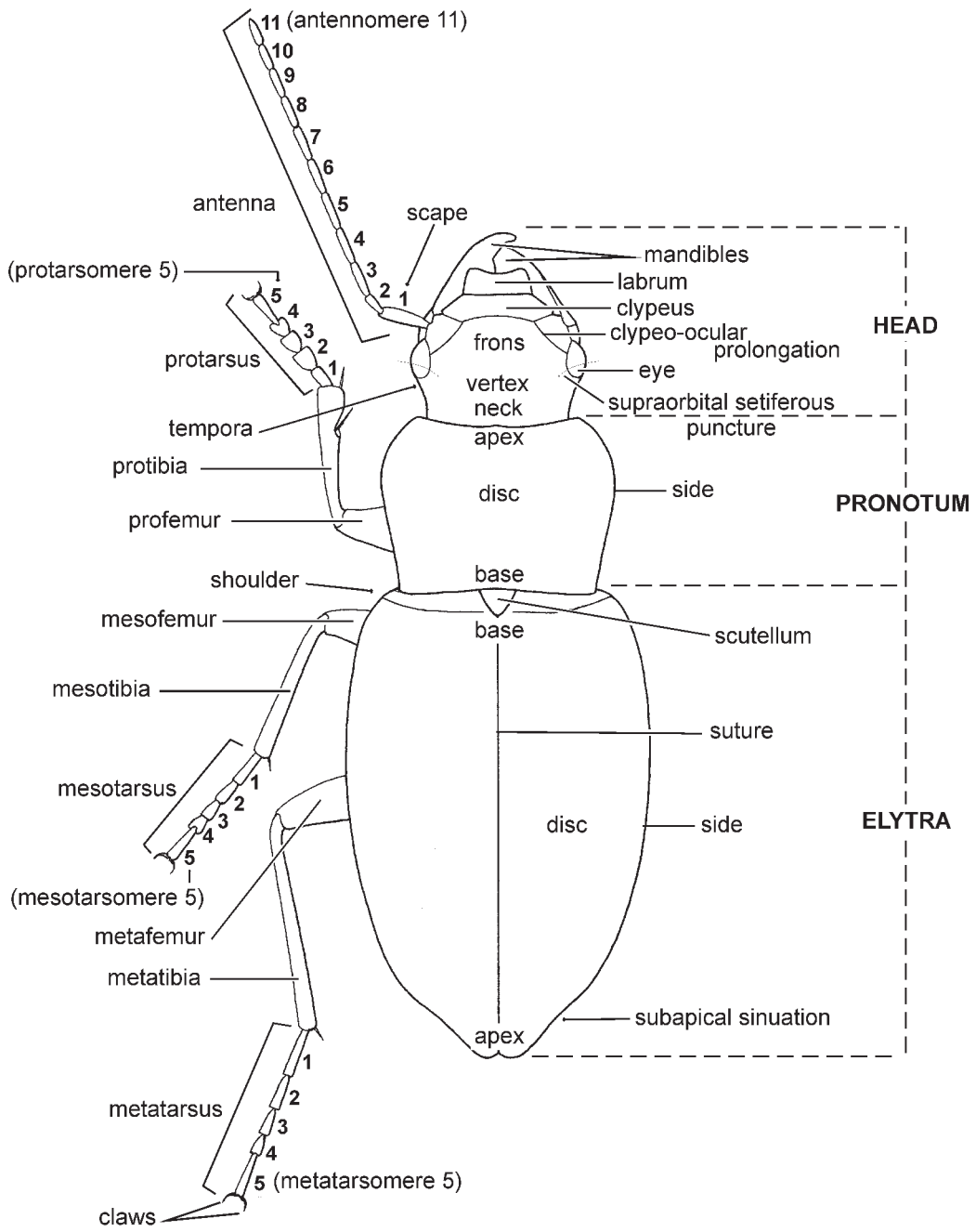
(115) *Trigonothops (Trigonothops) pacifica*



(116) *Dromius (Dromius) meridionalis*

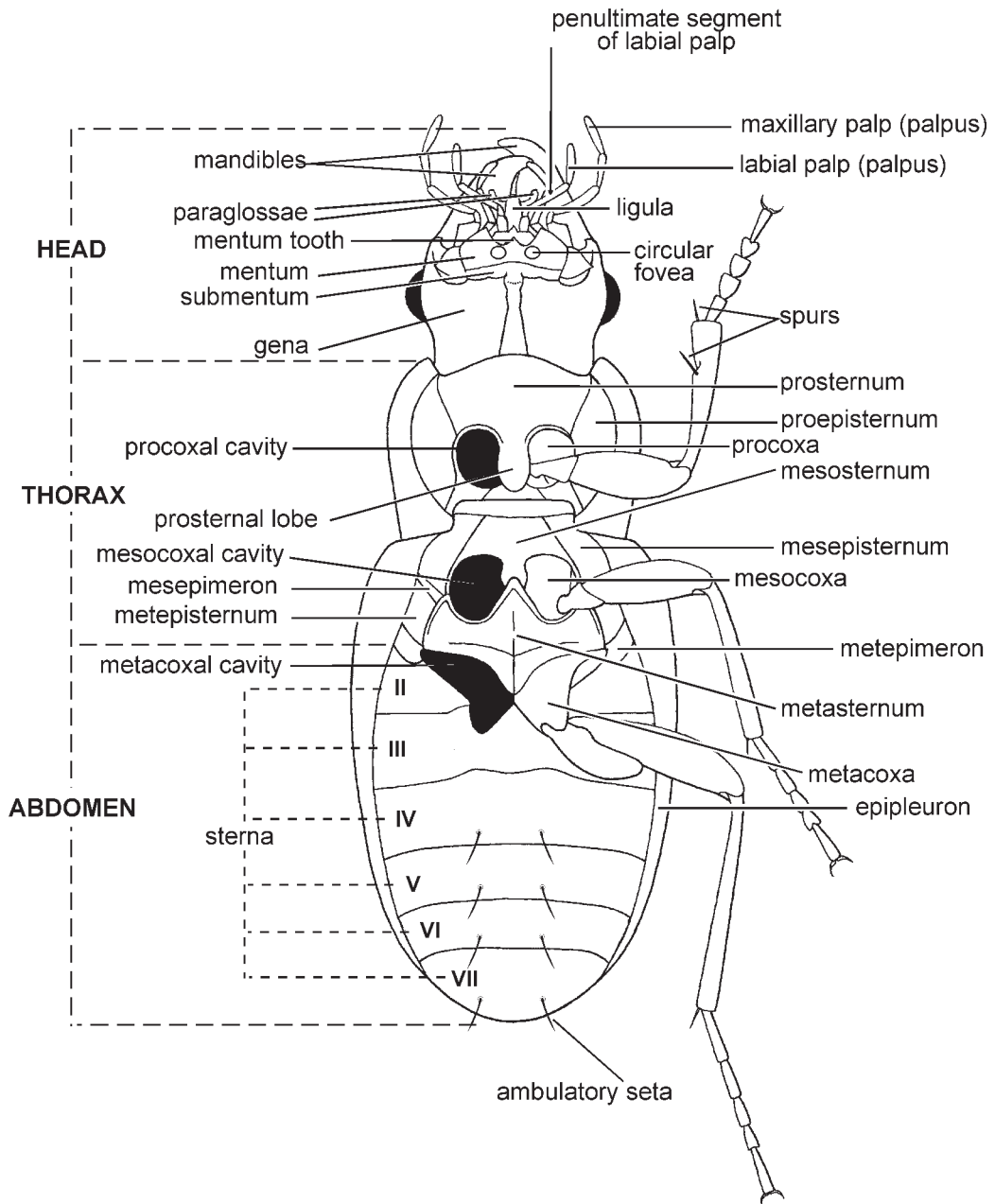
Pseudomorphini

(117) *Adelotopus macilentus*



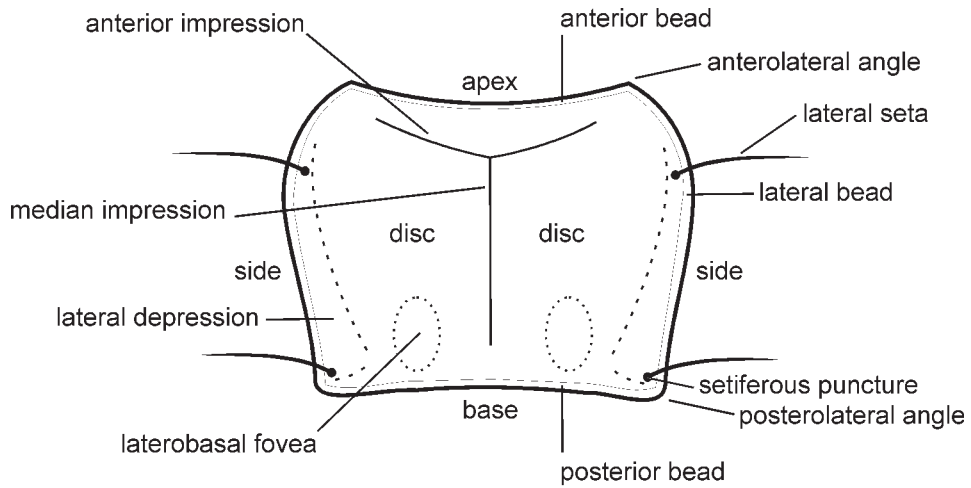
(118)

Fig. 118 Schematic dorsal view of carabid.

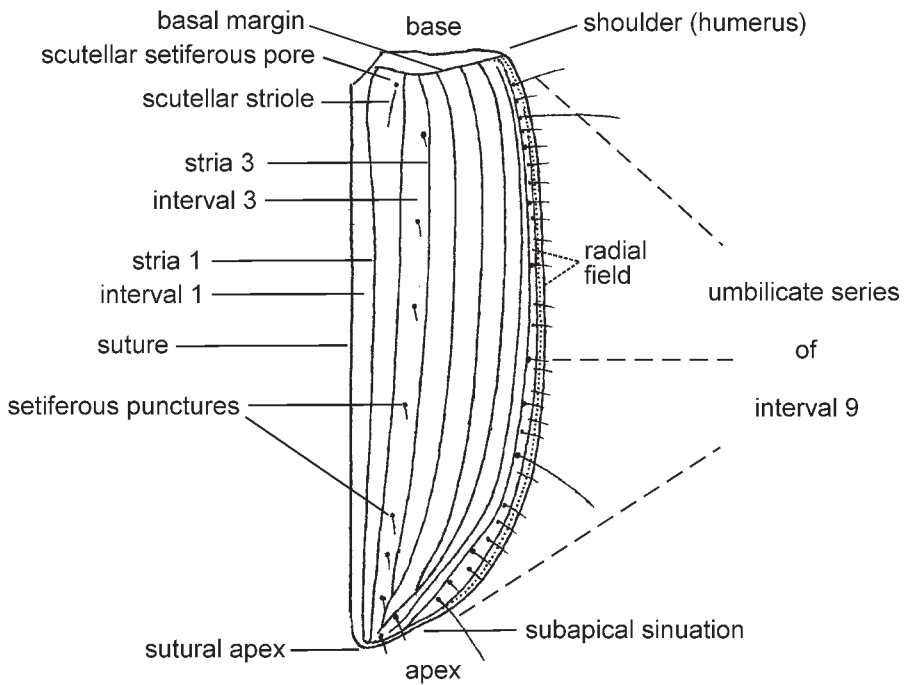


(119)

Fig. 119 Schematic ventral view of carabid.



(120)



(121)

Fig. 120–121 Schematic view: (120) pronotum; (121) right elytron.

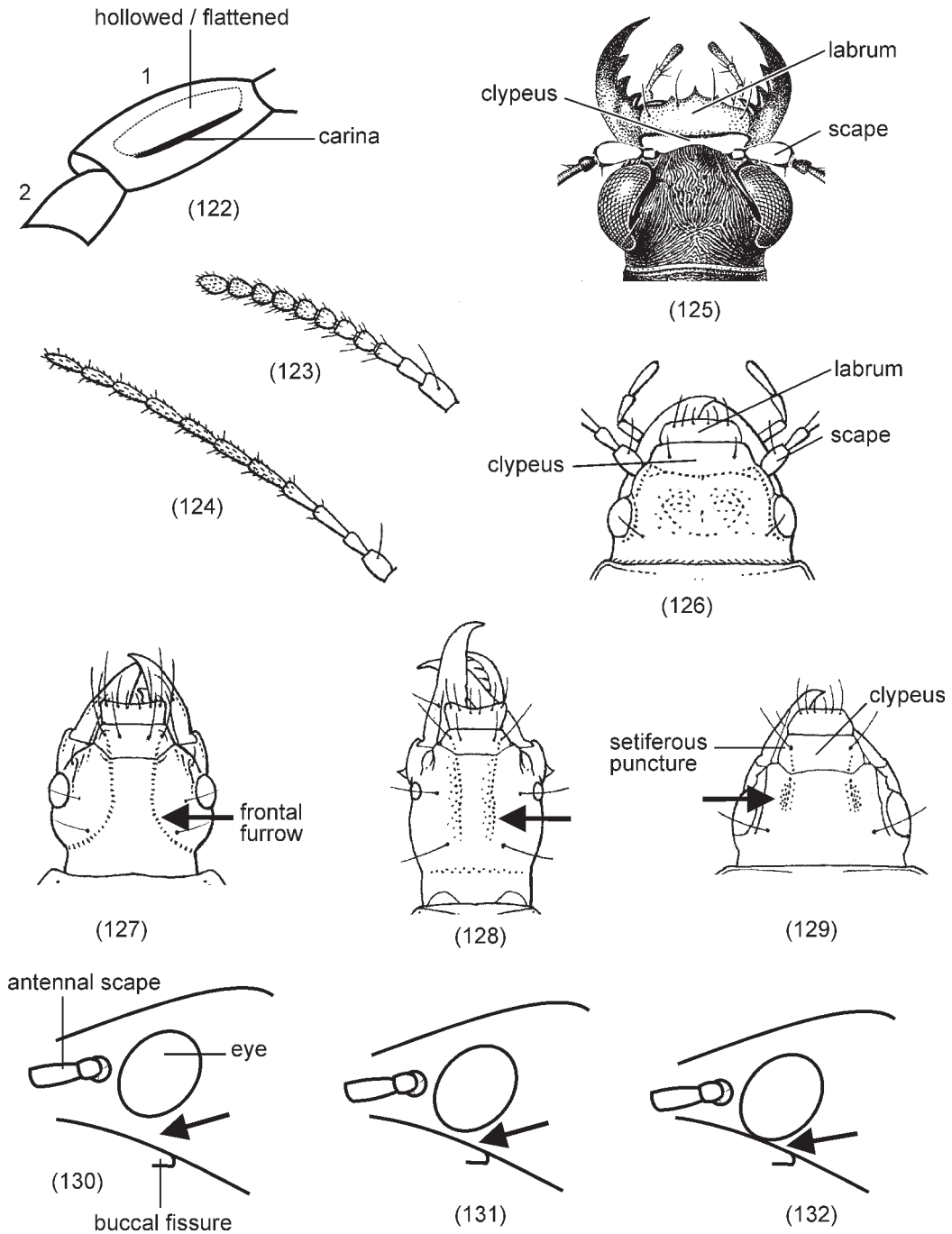


Fig. 122–132 (122) Left antenna, posterodorsal view: antennomere 1 subcarinate, hollowed or flattened dorsally. (123–124) Antennal shape: (123) moniliform; (124) filiform. (125–126) Head, dorsal view: labrum, clypeus, and right antennal scape. (127–129) Frontal furrows: (127–128) long; (129) short. (130–132) Eye and buccal fissure, lateral view: (130) widely separated; (131) narrowly separated; (132) touching (eye reaching buccal fissure).

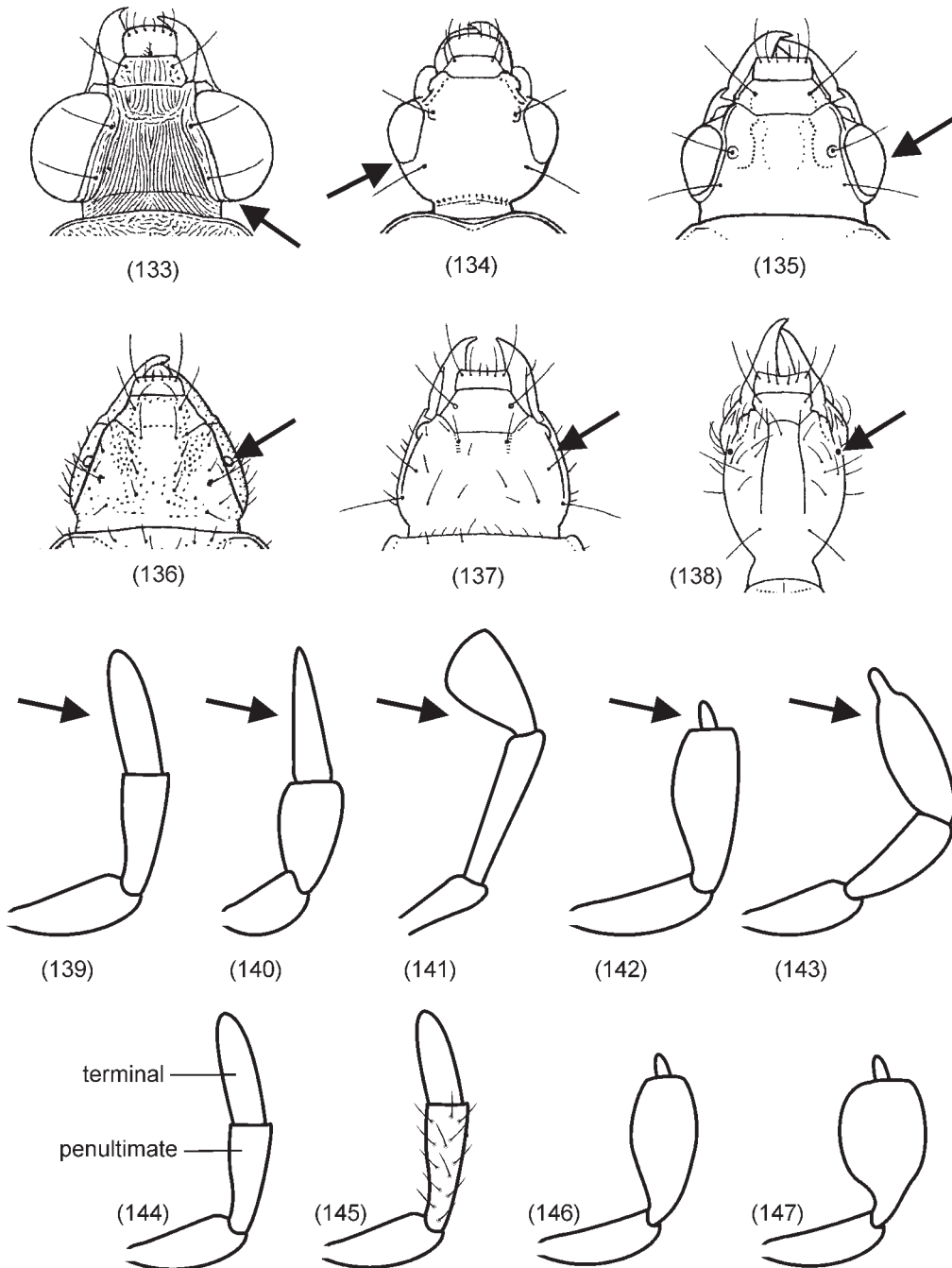


Fig. 133–147 (133–138) Eyes: (133) strongly developed; (134–135) normally developed; (136, 138) strongly reduced; (137) absent. (139–143) Maxillary palpi with terminal segment: (139) fusiform; (140) conical; (141) securiform; (142) entirely subulate; (143) partially subulate. (144–145) Palpi with penultimate and terminal segments: (144) subequal in length; (145) unequal in length. (146–147) Maxillary palpi with penultimate segment: (146) fusiform; (147) ovate.

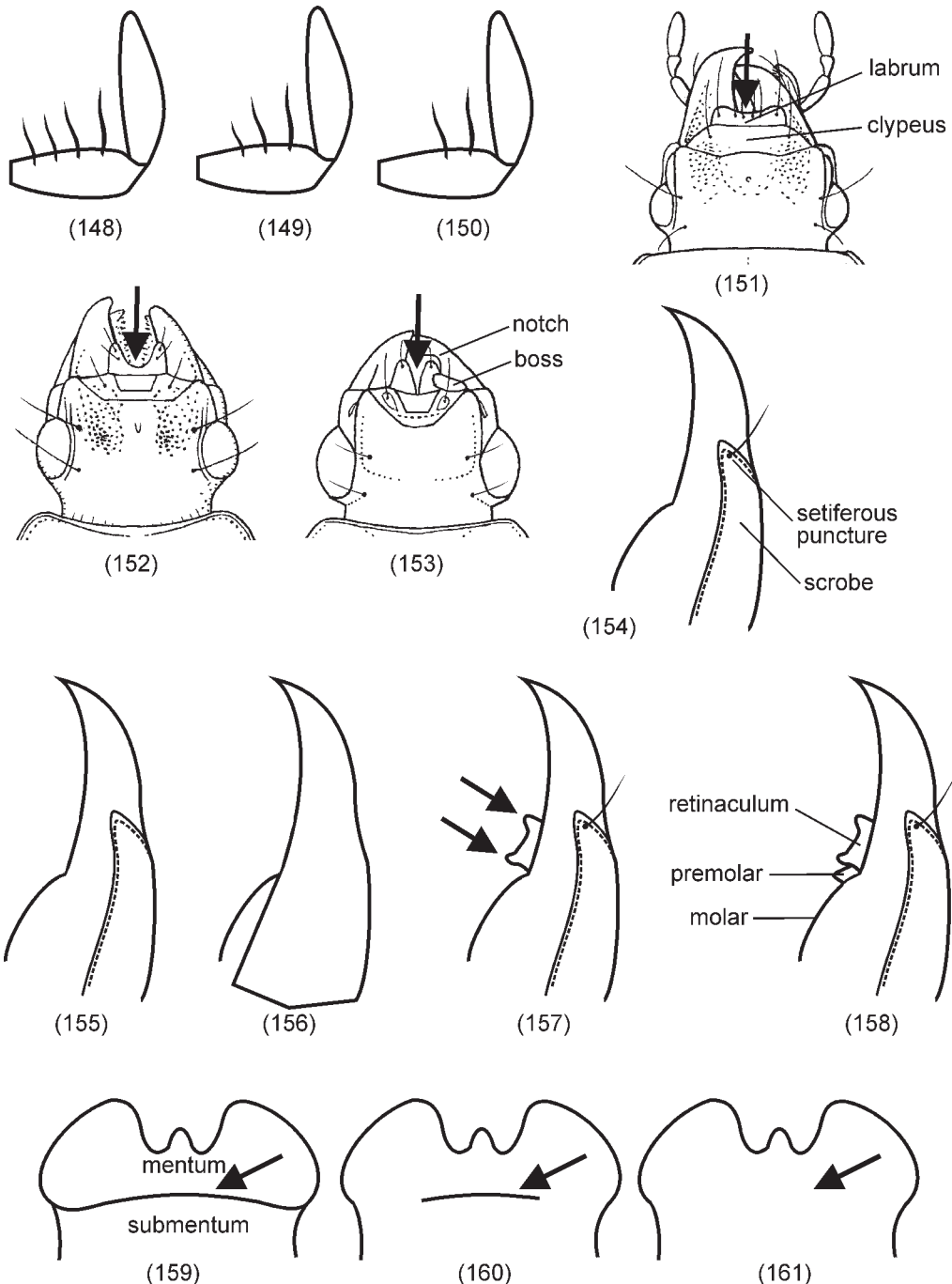


Fig. 148–161 (148–150) Pubescence on anterior margin of penultimate segment of labial palpi: (148) plurisetose; (149) trisetose; (150) bisetose. (151–153) Labrum, anteriorly: (151) moderately emarginate; (152) deeply emarginate; (153) cleft almost to base. (154–158) Right mandible, laterodorsal view: (154) with setiferous puncture in scrobe; (155) without setiferous puncture in scrobe; (156) without setiferous puncture and scrobe; (157) bidentate (without premolar); (158) tridentate (with premolar). (159–161) Transverse suture between mentum and submentum: (159) complete; (160) incomplete laterally; (161) lacking.

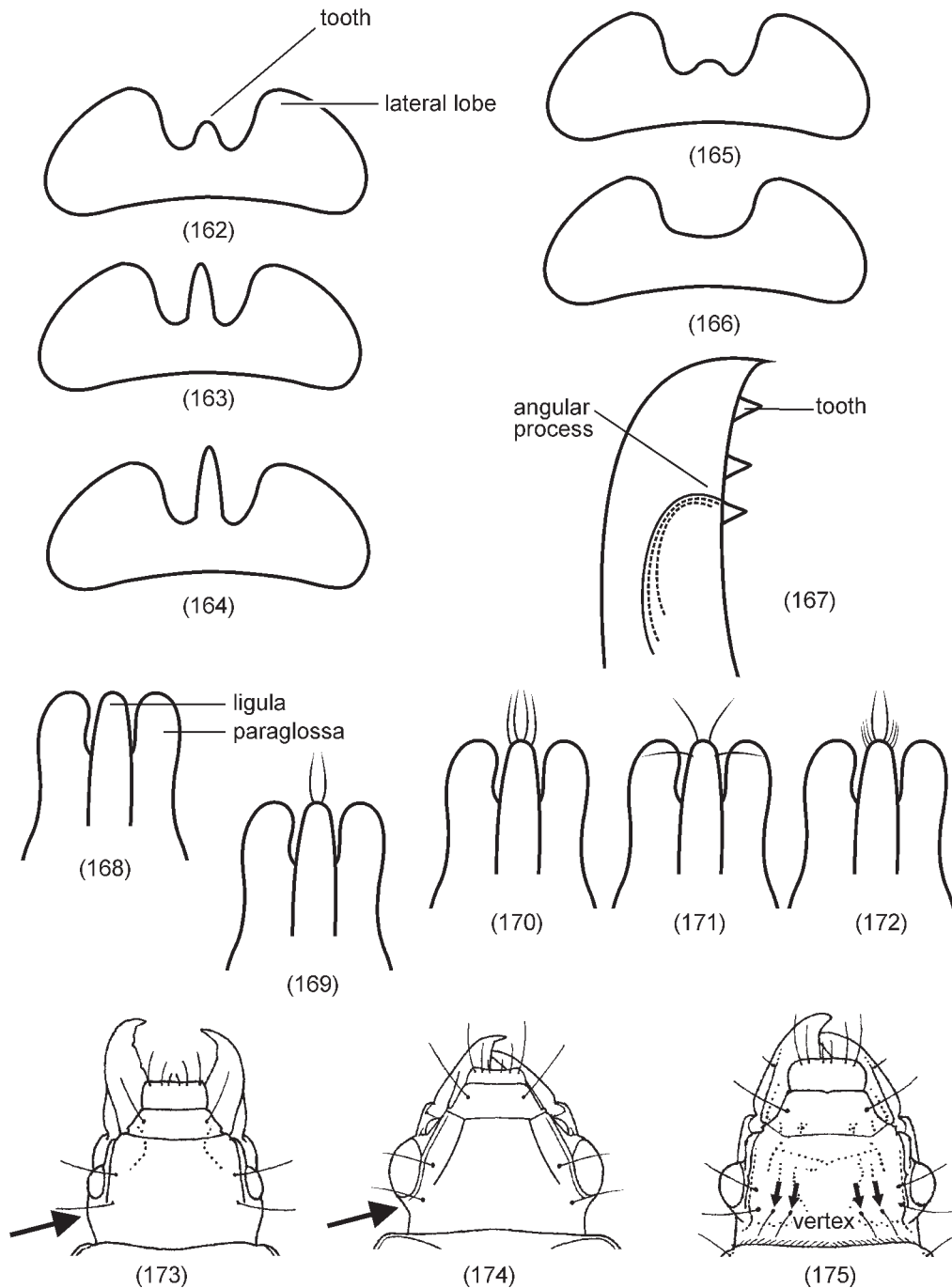


Fig. 162–175 (162–166) Medial tooth of mentum: (162) moderately long; (163) as long as lateral lobes; (164) longer than lateral lobes; (165) very short; (166) lacking. (167) Left mandible, dorsal view: teeth and angular process. (168–172) Ligula: (168) as long as paraglossae; (169) with 2 setae; (170–171) with 4 setae; (172) with 8 setae. (173–175) Head, dorsal view: (173) tempora inflated; (174) tempora not inflated; (175) vertex with line of setiferous punctures.

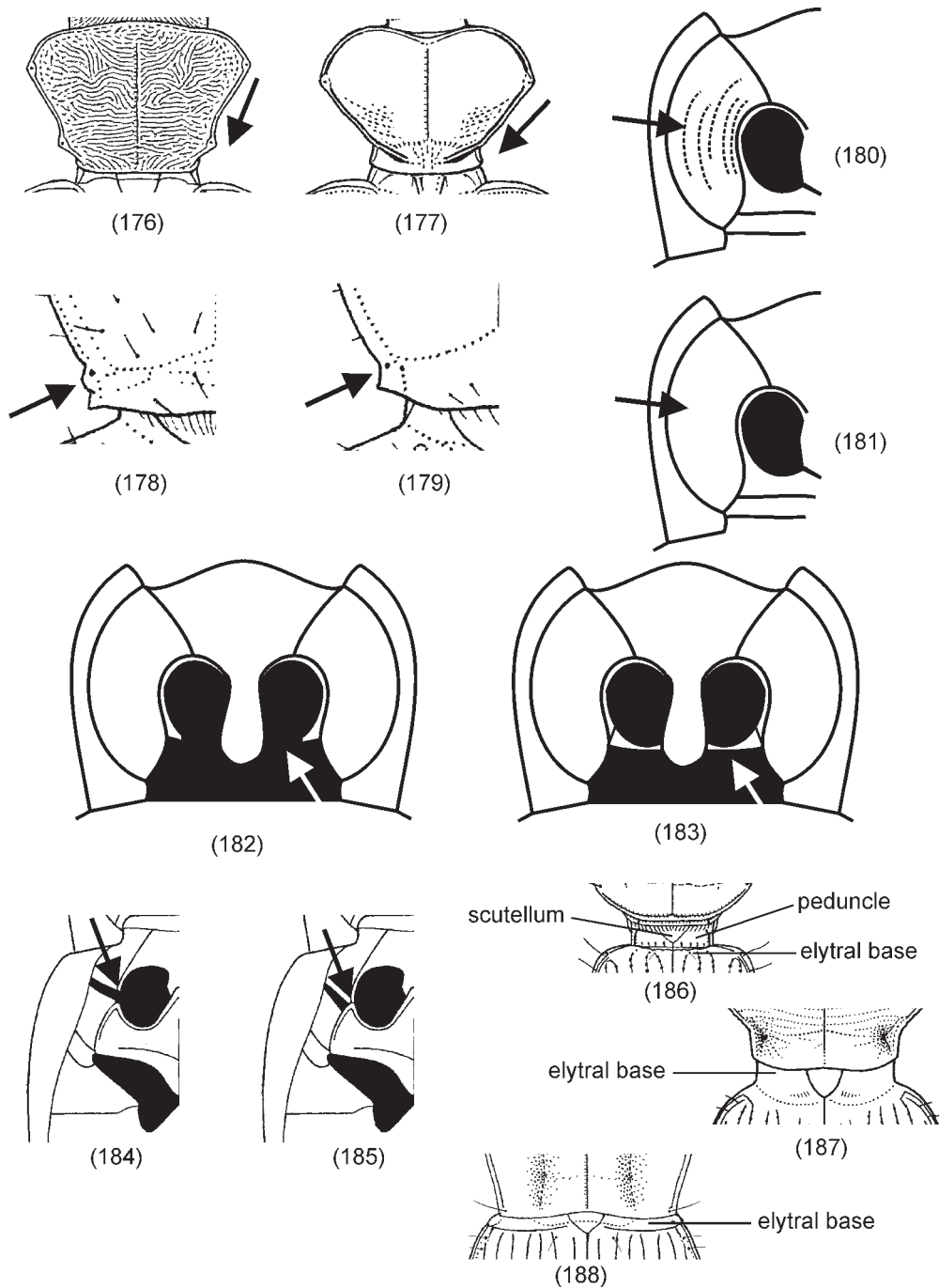


Fig. 176–188 (176–177) Pronotal sides, posteriorly: (176) not strongly convergent; (177) strongly convergent. (178–179) Pronotal auxiliary tubercle: (178) present; (179) lacking. (180–181) Right proepisternum: (180) striate; (181) not striate. (182–183) Procoxal cavities, posteriorly: (182) open; (183) closed. (184–185) Right mesepimeron: (184) reaching mesocoxal cavity; (185) not reaching mesocoxal cavity. (186–188) Body, dorsal view: (186–187) pedunculate; (188) not pedunculate.

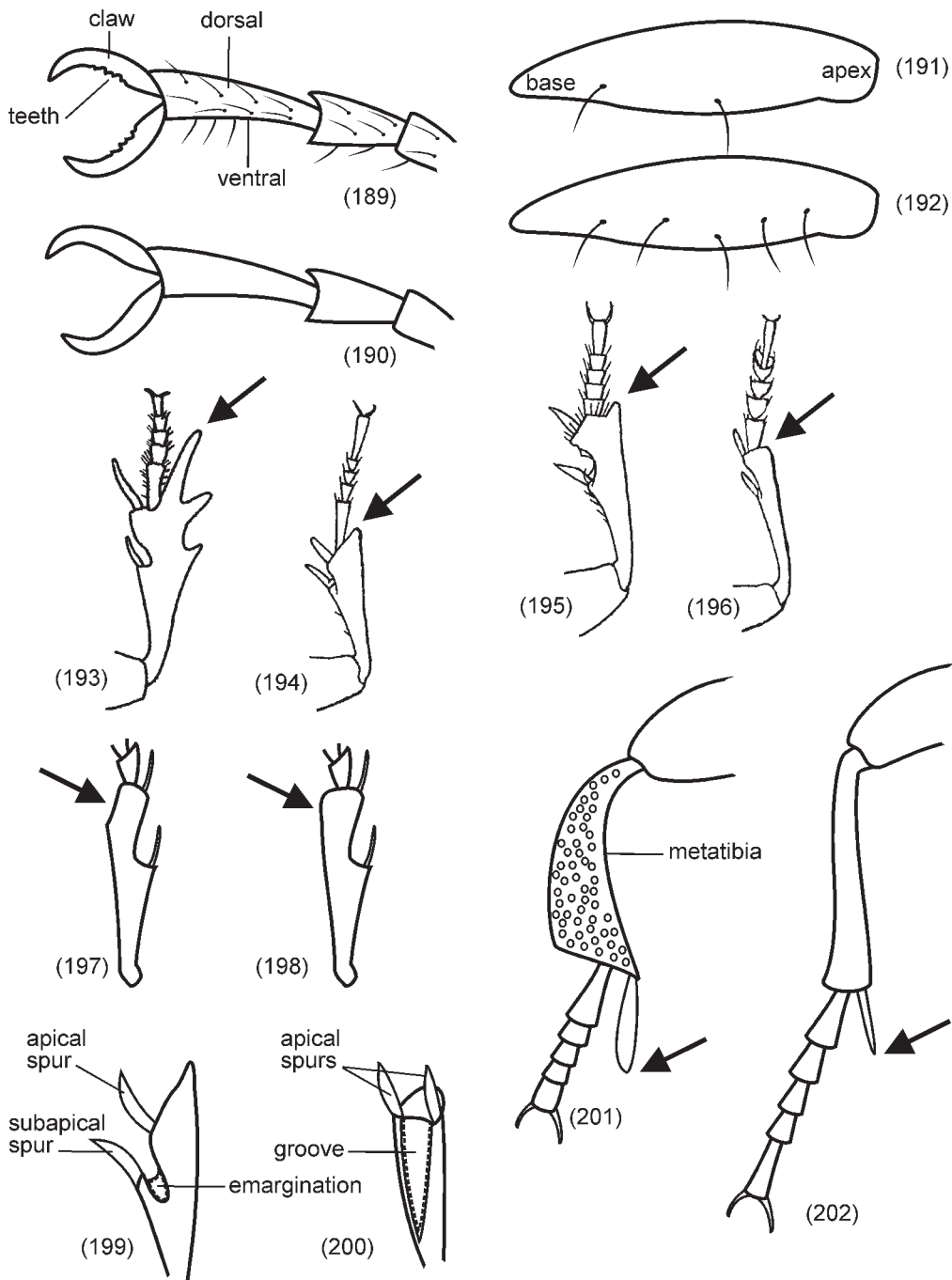


Fig. 189-202 (189-190) Tarsi, lateral view: (189) claws serrate, pubescence present dorsally and ventrally; (190) claws not serrate, pubescence lacking. (191-192) Metafemora, posterior view: (191) with 2 setae; (192) with 5 setae. (193-196) Outer apical prolongation of protibia, anterior view: (193-195) present; (196) absent. (197-198) Protibia, anterior view: (197) obliquely truncate; (198) not obliquely truncate. (199-200) Protibia, posterior view: (199) spurs apical and subapical, antennal cleaner emarginate; (200) spurs terminal, antennal cleaner grooved. (201-202) Metatibia: (201) triangular and strongly curved, apical spur long; (202) straight or almost so, apical spur short.

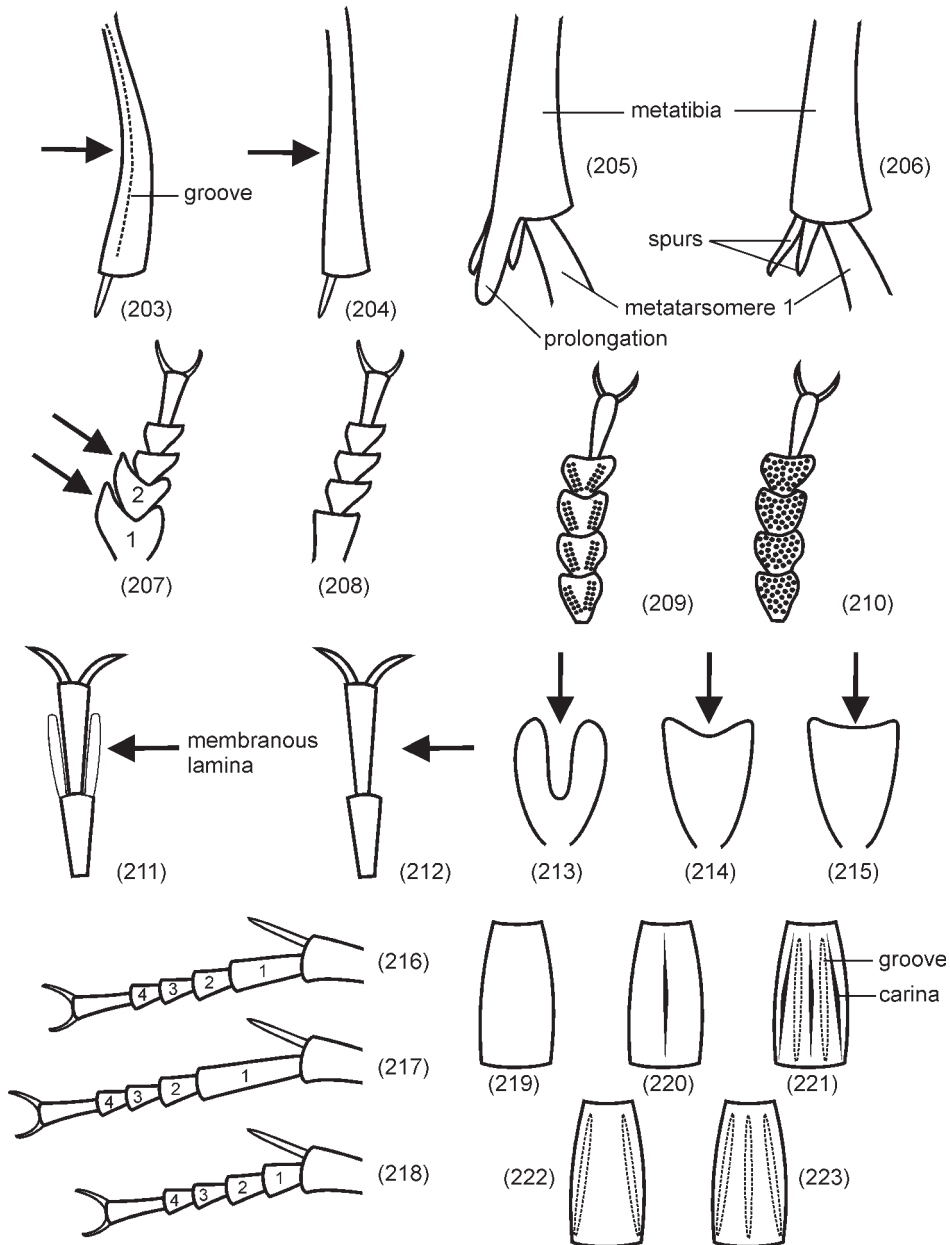


Fig. 203–223 (203–206) Metatibia, posterior view: (203) curved and grooved; (204) straight or almost so, not grooved; (205) with inner apical prolongation; (206) without inner apical prolongation. (207–208) Segments 1 and 2 of male protarsi, dorsal view: (207) asymmetrical, dentate and dilated on inner side; (208) symmetrical, neither dentate nor dilated on inner side. (209–210) Male protarsi, ventral view: (209) biserially pubescent; (210) spongily pubescent. (211–212) Membranous laminae of pro- and mesotarsomeres 4: (211) present; (212) lacking. (213–215) Metatarsomere 4, anteriorly: (213) bilobed; (214–215) not bilobed. (216–218) Metatarsomere 1: (216) as long as metatarsomeres 2+3 combined; (217) as long as metatarsomeres 2+3+4 combined; (218) about as long as metatarsomere 2. (219–223) Meso- and metatarsomeres 1, dorsal view: (219) neither carinate, nor grooved; (220) with one carina; (221) with three carinae and two grooves; (222) with two grooves; (223) with three grooves.

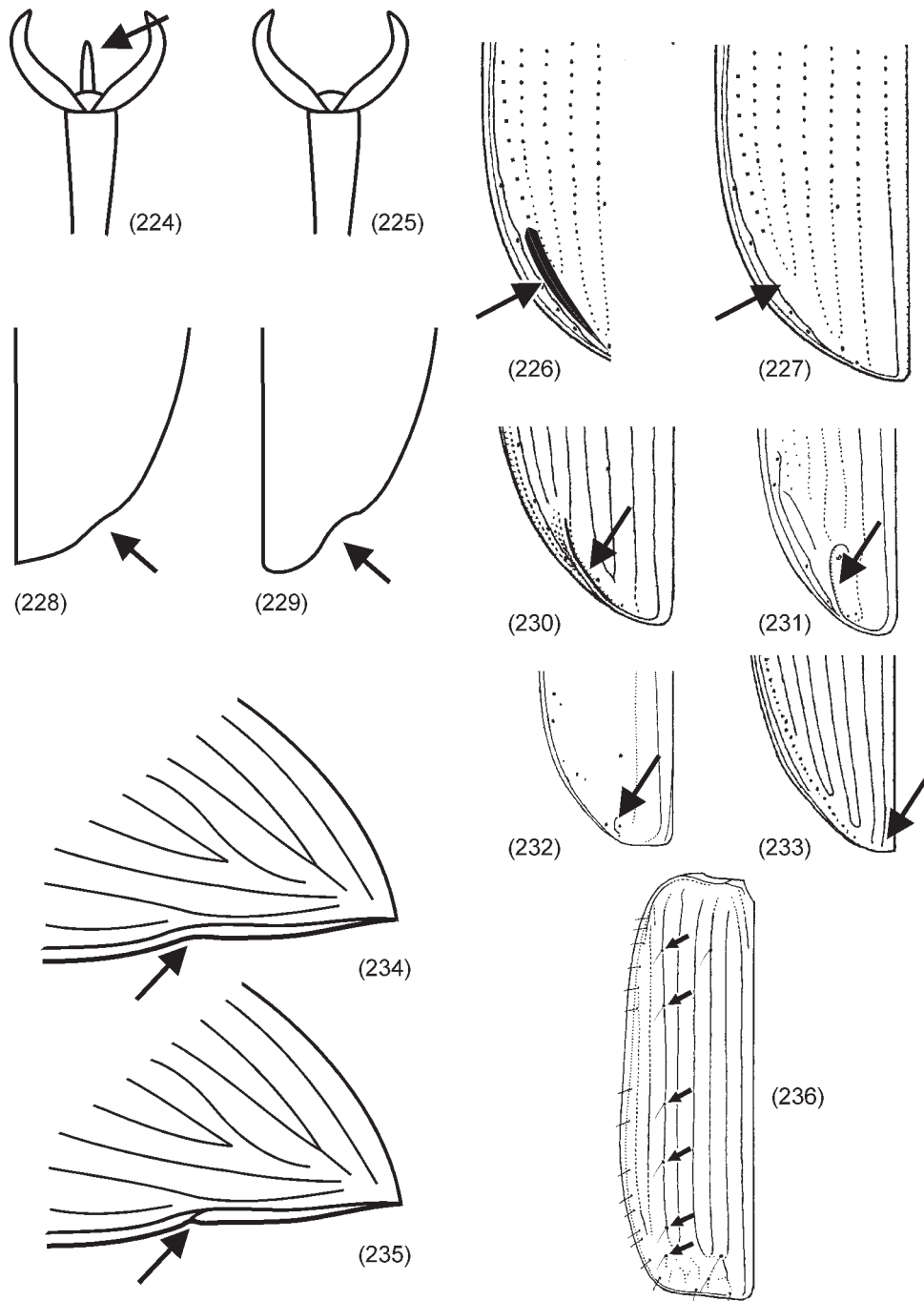


Fig. 224–236 (224–225) Unguitractor plate: (224) visible, long; (225) invisible. (226–227) Penultimate outer interval of left elytron, apical view: (226) carinate; (227) not carinate. (228–229) Subapical situation of right elytron: (228) weak; (229) strong. (230–233) Stria 1 of left elytron, apically: (230–232) recurrent; (233) not recurrent. (234–235) Epipleuron of left elytron, dorsolateral view: (234) simple near apex; (235) twisted near apex. (236) Stria 6 of left elytron with 6 setiferous punctures.

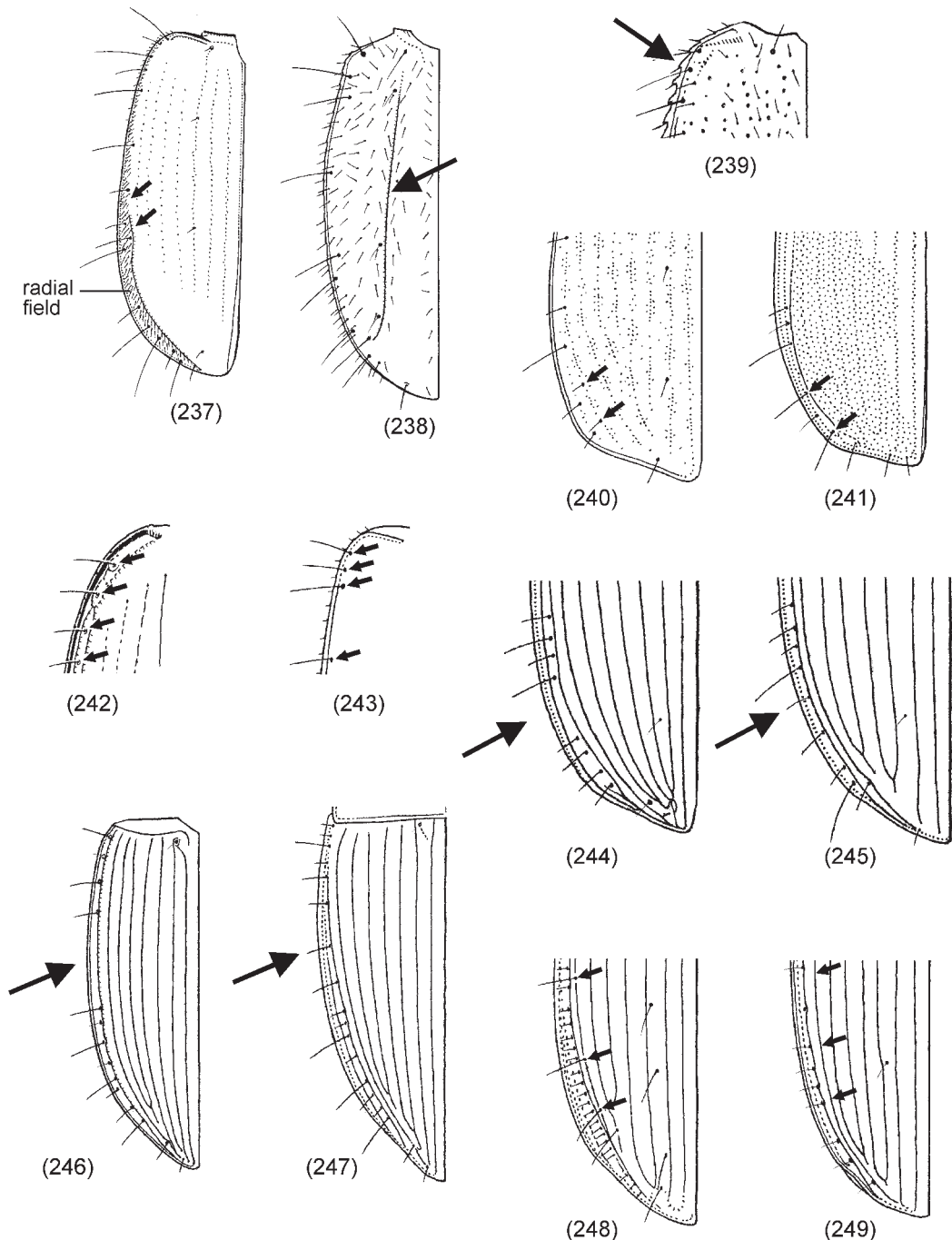


Fig. 237–249 (237–239) Left elytron: (237) radial field with short dense pubescence, outermost stria poorly impressed anteriorly; (238) with oblique longitudinal sulcus; (239) with serrate shoulder. (240–247) Umbilicate series of elytron: (240) with setiferous punctures not in line near apex, (241) in line near apex; (242) with setiferous punctures of anterior group equidistant, (243) not equidistant; (244) with setiferous punctures of posterior group divided into two subgroups, (245) not divided into two subgroups; (246) with setiferous punctures divided into two groups, (247) not divided into two groups. (248–249) Elytral interval or stria 7: (248) with a series of setiferous punctures; (249) without setiferous punctures.

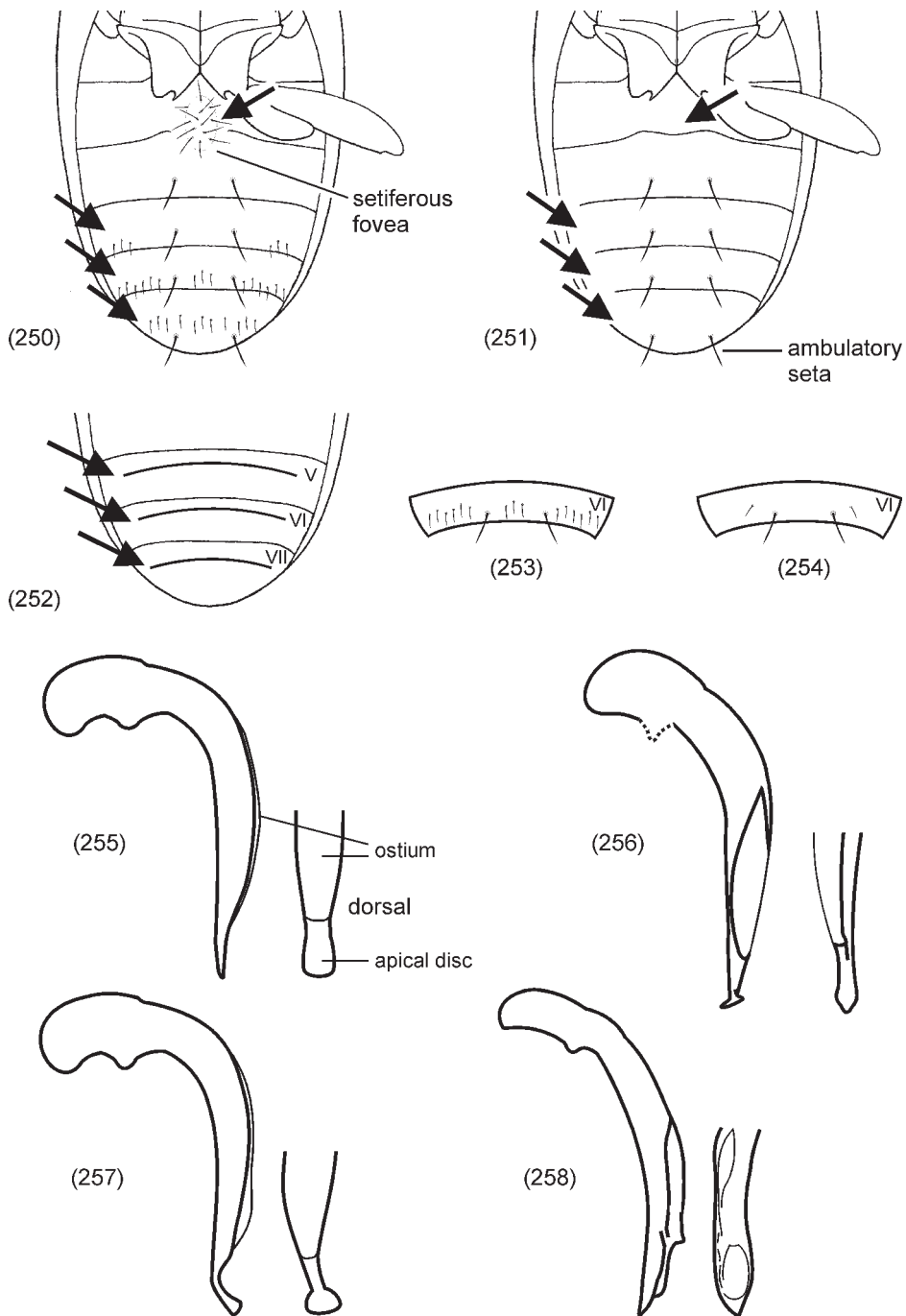
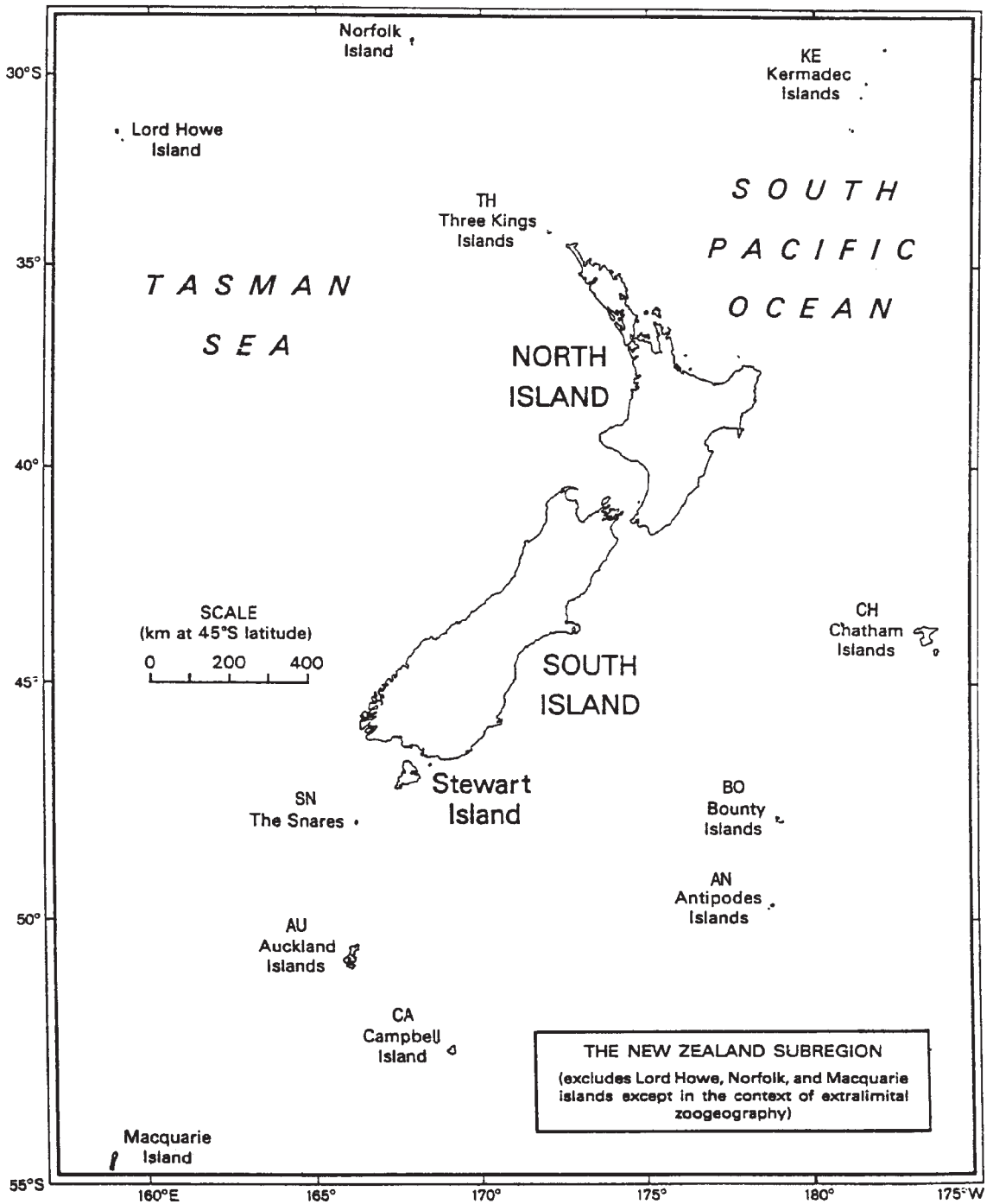


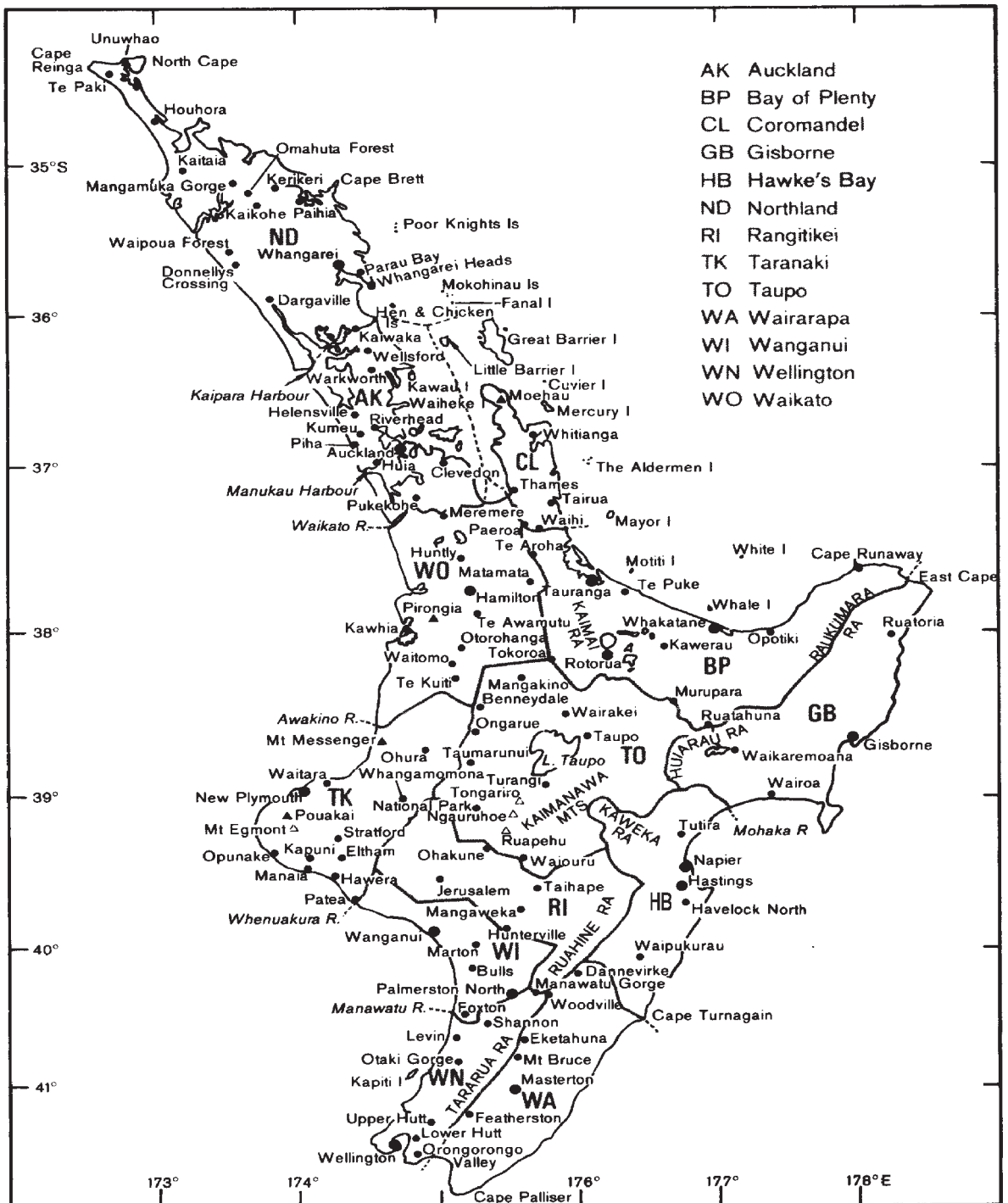
Fig. 250–258 (250–251) Pubescence of venter: (250) paired ambulatory setae, numerous short setae, and male setiferous fovea; (251) paired ambulatory setae only. (252) Abdominal sterna V–VII transversely grooved anteriorly. (253–254) Abdominal sternum VI: (253) with 6–20 setiferous punctures; (254) with 4 setiferous punctures. (255–258) Aedeagus, lateral and dorsal views: (255) symmetrical, with ostium dorsal; (256) asymmetrical, with ostium deflected to the left; (257) asymmetrical, with ostium deflected to the right; (258) asymmetrical, twisted.



Fig. 259–261 (*Kiwitrechus karenscoottae* new species) Aedeagus, lateral (259) and dorsal (260) views. Habitus photo (261).

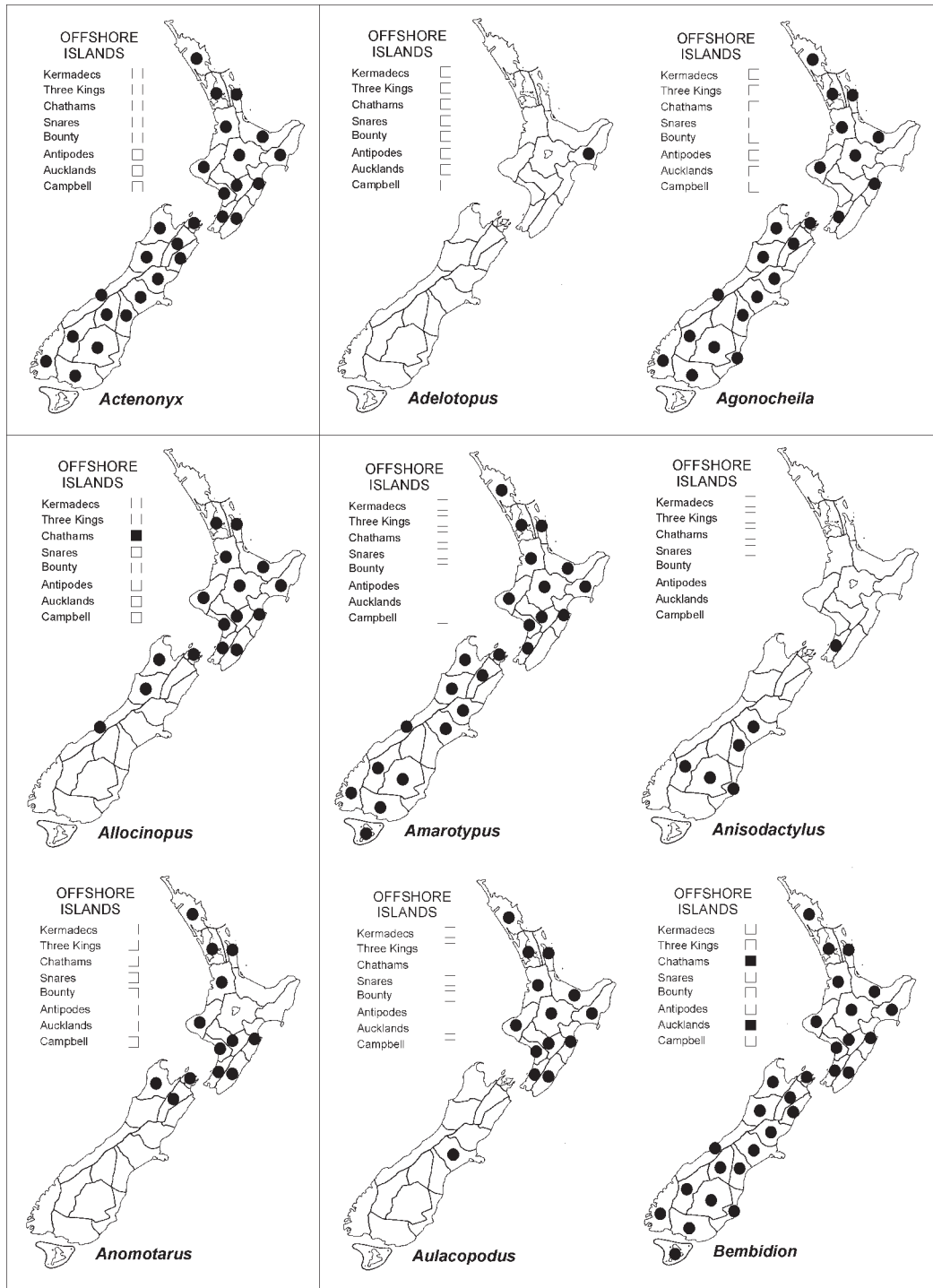


Map 1 The New Zealand subregion with area codes.

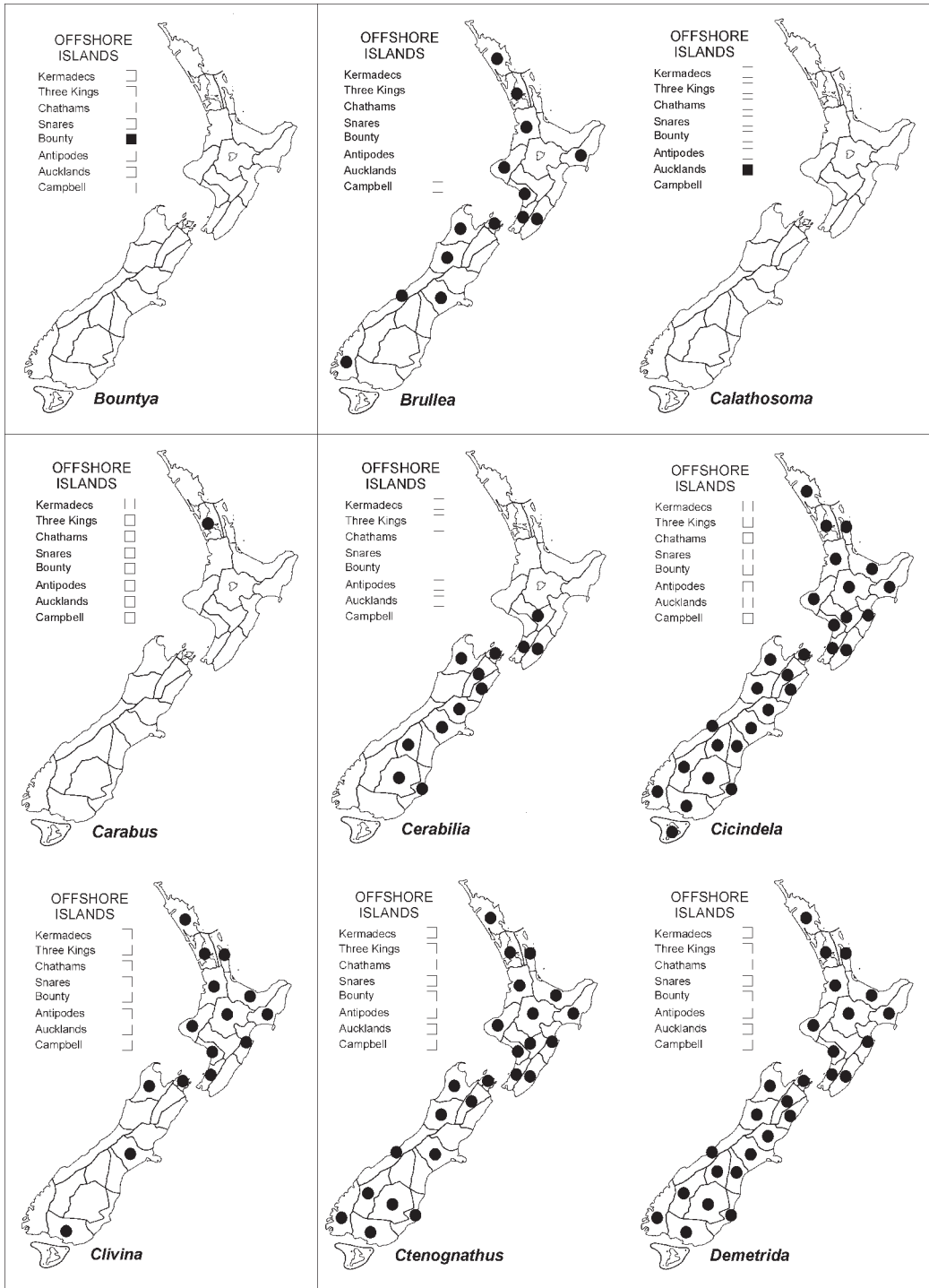


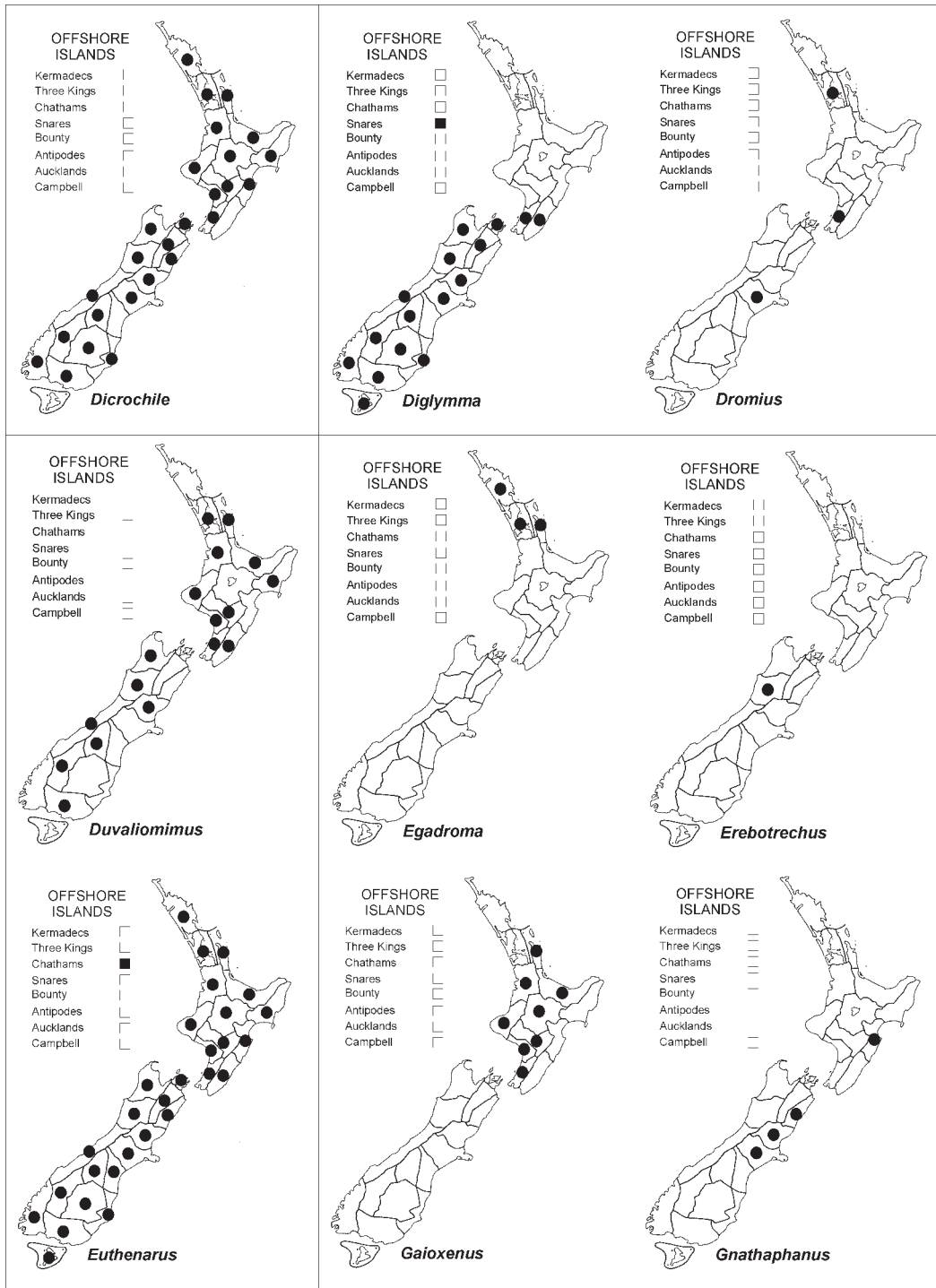


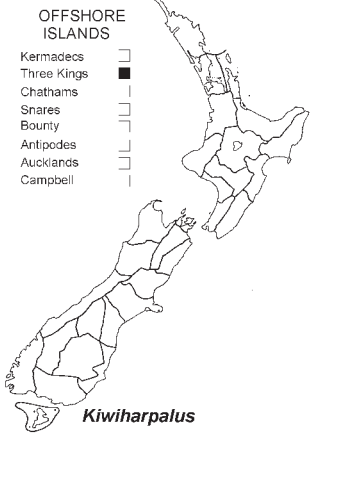
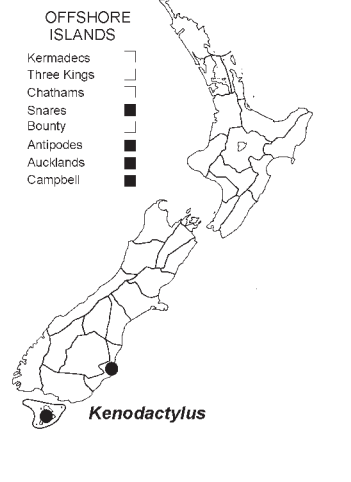
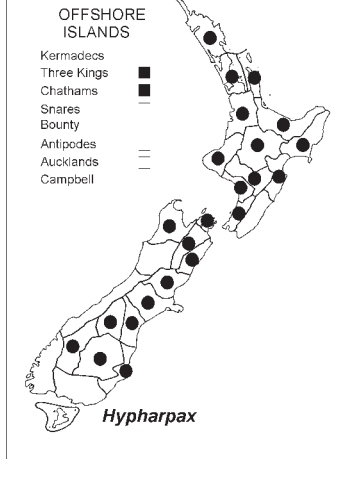
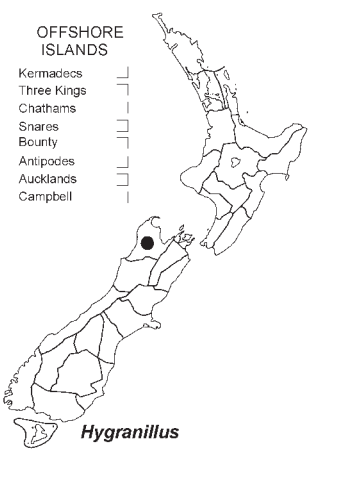
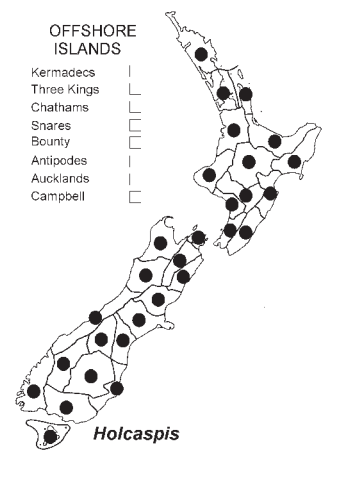
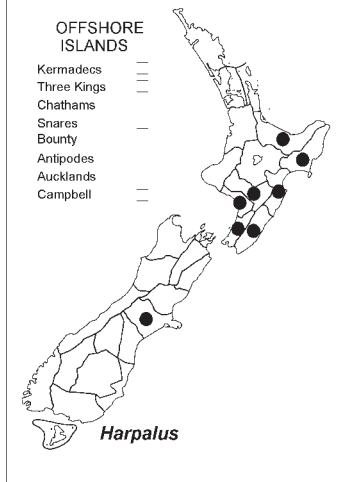
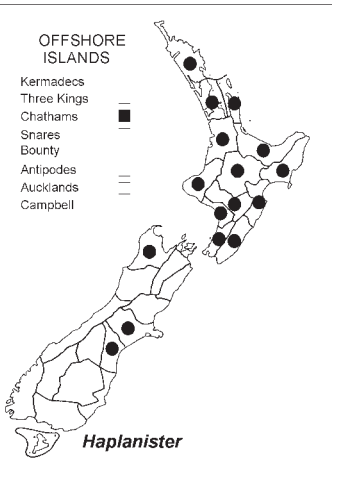
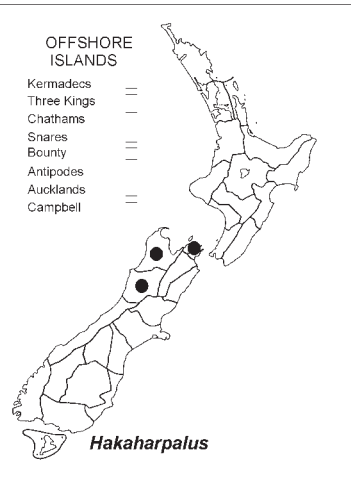
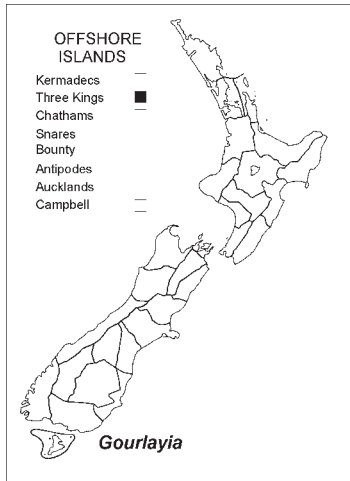
Map 3 Area codes and collecting localities from mainland New Zealand: South Island and Stewart Island.

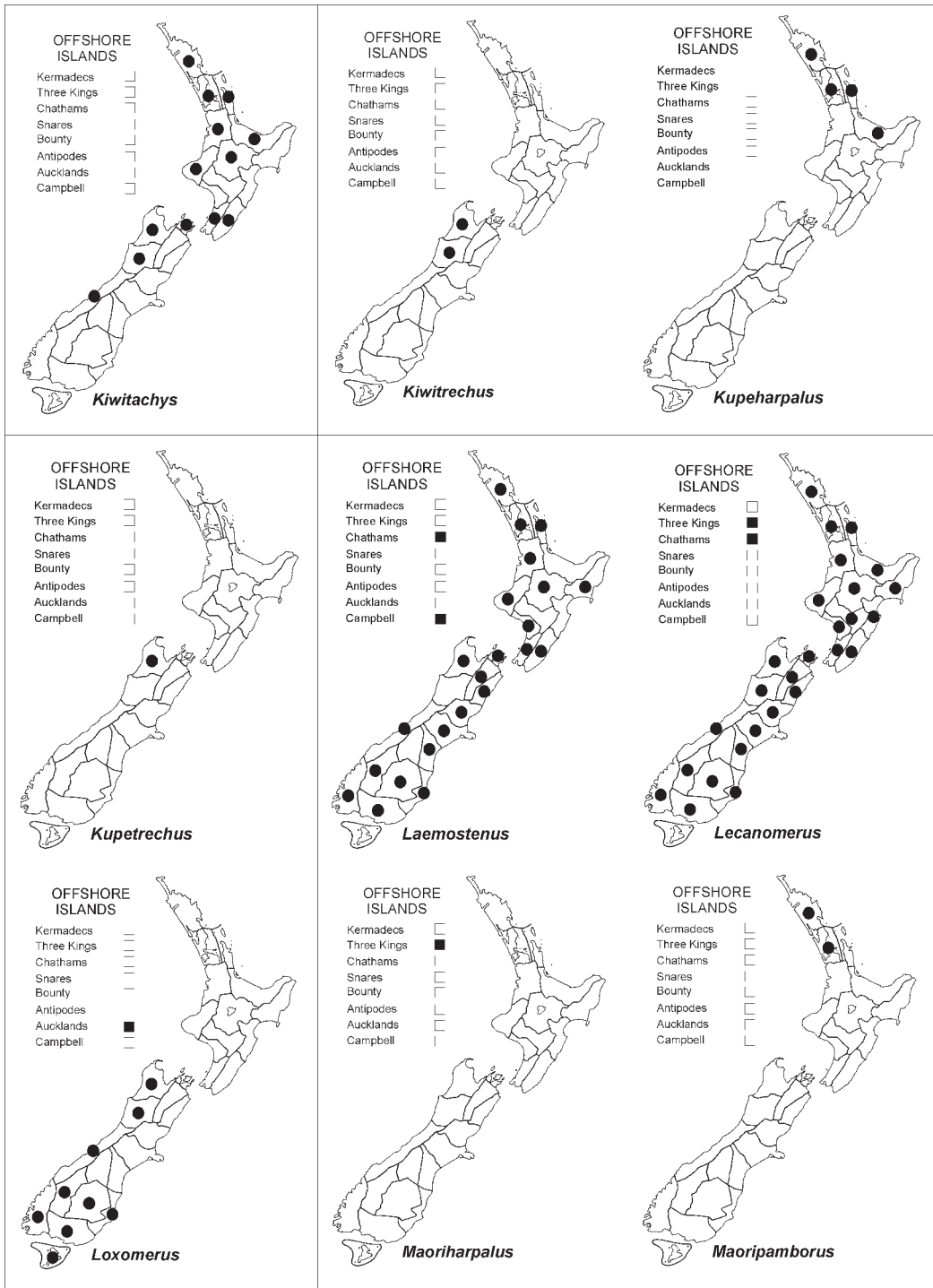


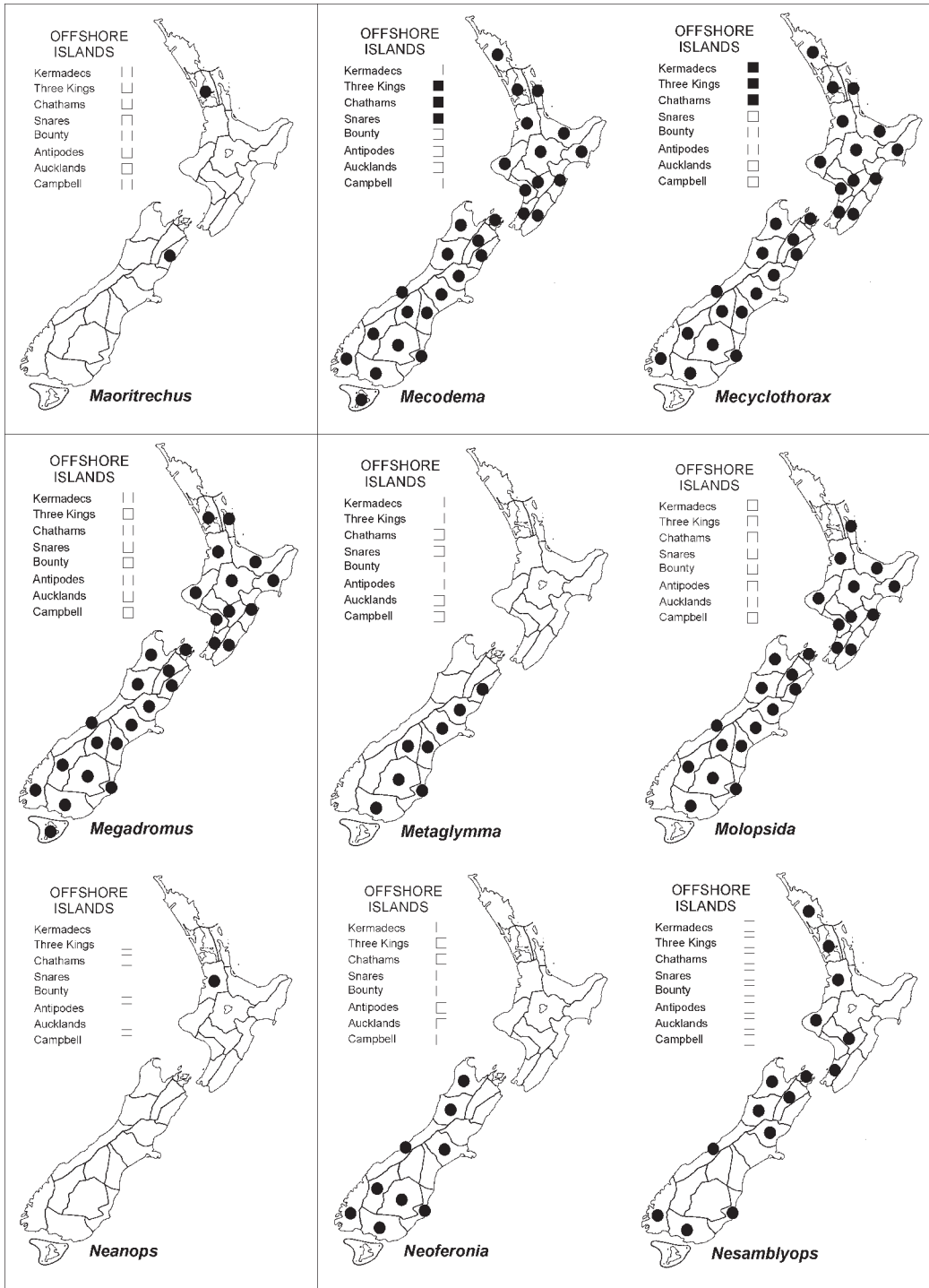
Generic distribution maps (pp. 166-175). Presented in alphabetical order by genera. Area boundaries follow area codes of Crosby *et al.* (1976, 1998).

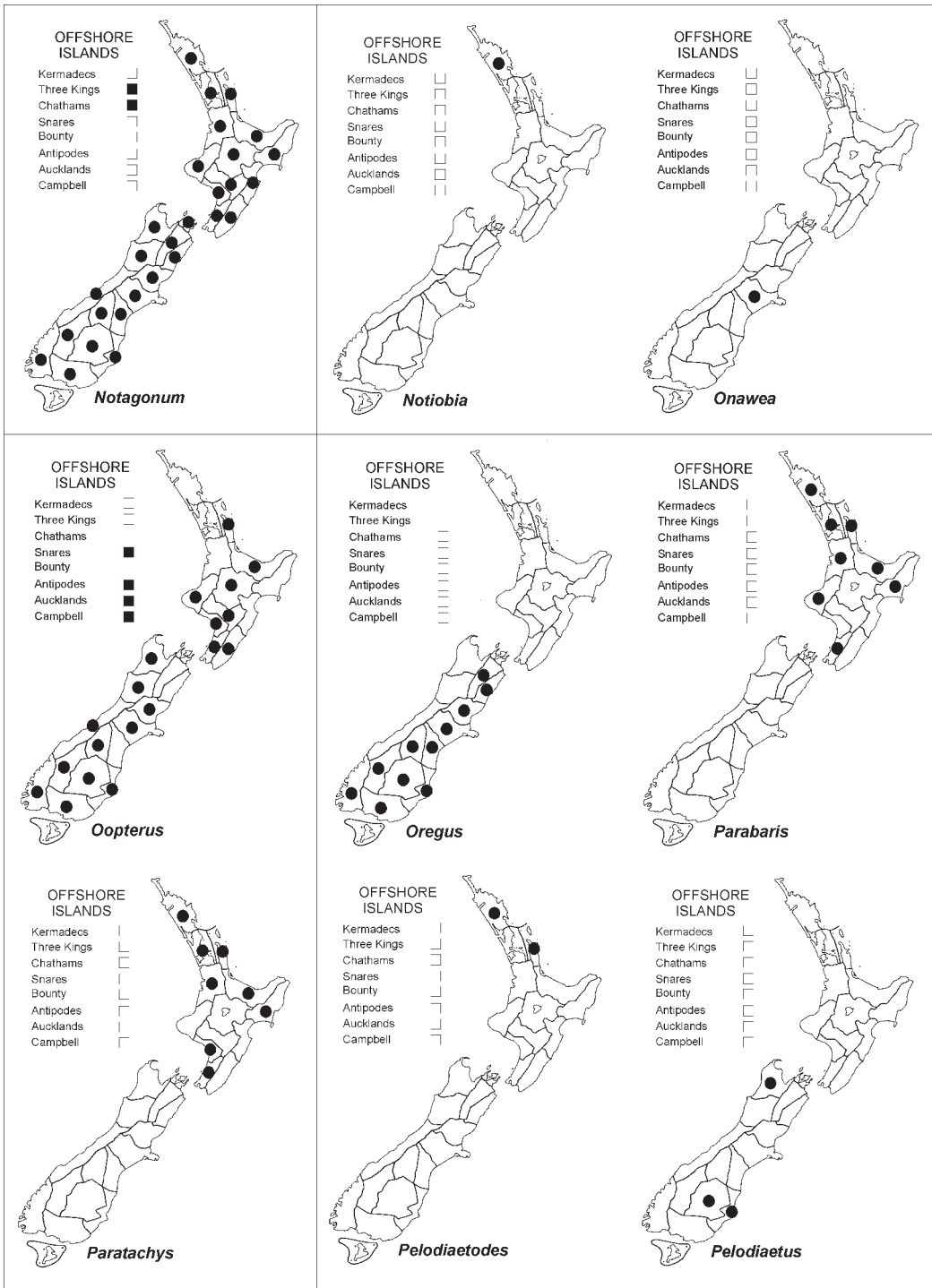


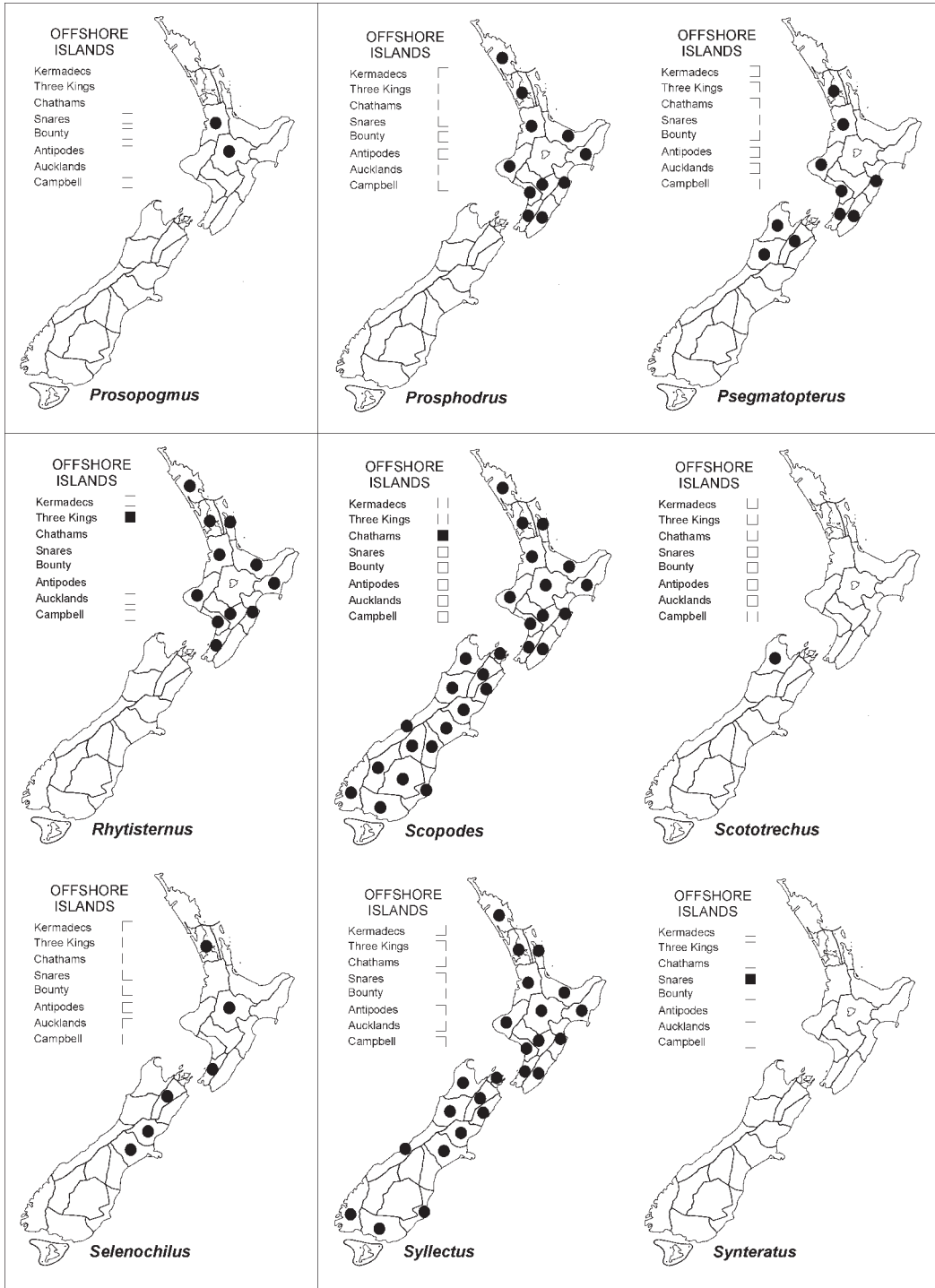


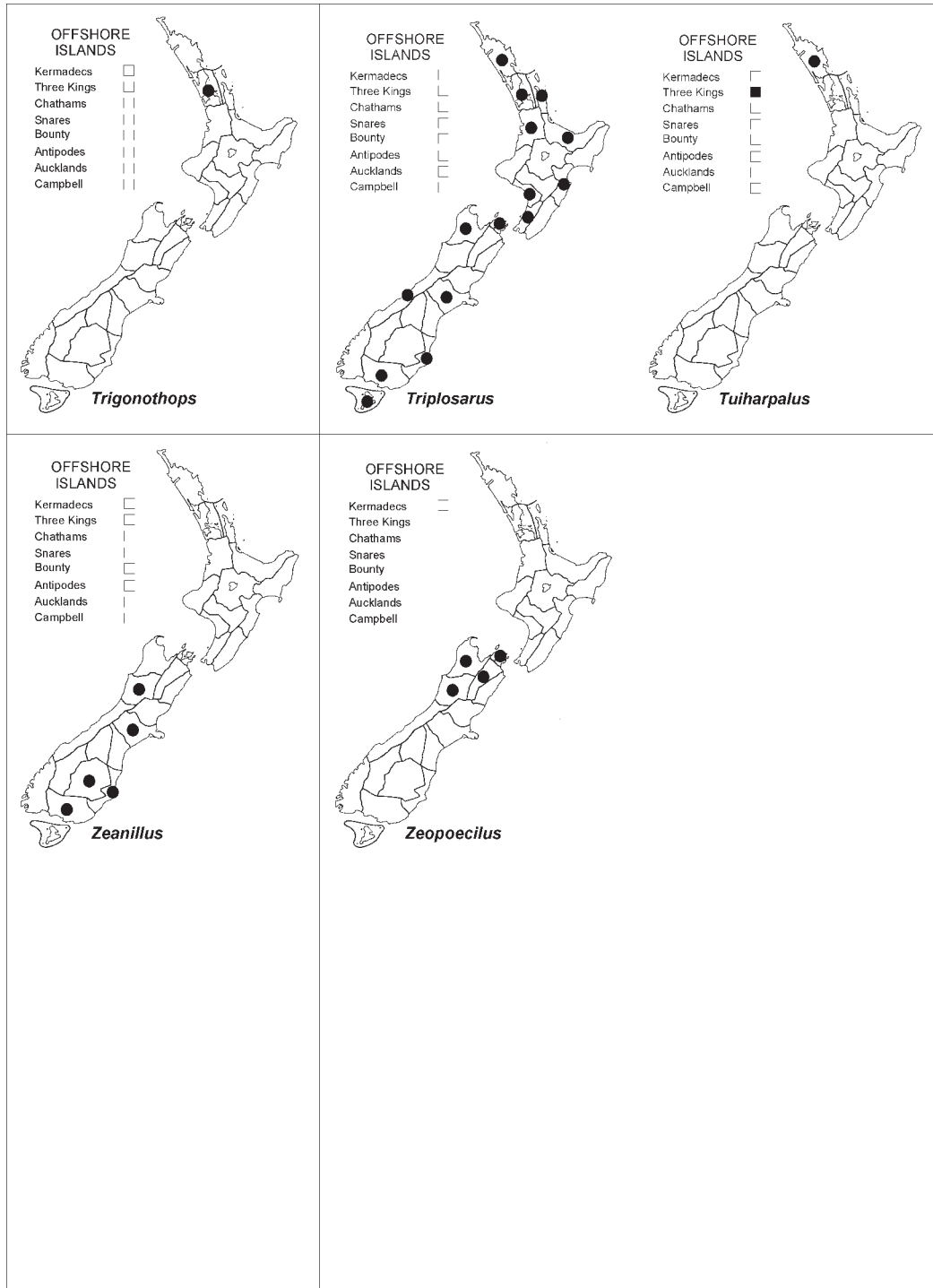












TAXONOMIC INDEX

This index covers the nominal taxa mentioned in the text, regardless of their current status in taxonomy. Taxa in **bold** indicate valid taxa. Page numbers in **bold** indicate main synopsis entries. The letter “f” after a page indicates a **figure**. The letter “m” indicates a **distribution map**. The Figures and Distribution maps are on the following pages: **Figures**, pages 119–148; **Distribution maps**, pages 166–175.

- abdita** Johns, **Holcaspis** 112, 117
aberrans Putzeys, **Metaglymma** 113
 abstrusus Bates, **Hypharpax** 117
Actenonycina 86
Actenonyx White 84, 85, **86**, 166m
actochares Broun, **Ctenognathus** 111
actuarium Broun, **Bembidion** 110, 130f
adamsi (Broun), **Ctenognathus** 111
Adelotopus Hope 16, 22, 24, **90**, 166m
Aepina 39
aereus (White), **Oregus** 114, 124f
affinis (Schrank), **Harpalus** 112, 140f
Agonini 16
Agonocheila Chaudoir **85**, 86, 166m
alacre (Broun), **Bembidion** 110, 116, 129f
 alacris (Broun), **Zecillenus** 118
albescens (Bates), **Bembidion** 110, 116
 albescens (Bates), **Zecillenus** 118
algida Britton, **Holcaspis** 112
allani Fairburn, **Mecodema** 112
Allocinopus Broun 62, 63, **64**, 166m
alpinalis (Broun), **Molopsida** 113
alternans alternans Laporte de Castelnau, **Mecodema** 112, 122f
alternans hudsoni Broun, **Mecodema** 112
alternus (Broun), **Megadromus** 113
Amarotypini 16, 17, 22, 24, **29**, 119f
Amarotypus Bates 22, 24, 28, **29**, 166m
ambiguus (Erichson), **Mecyclothorax** 113
amplipennis amplipennis (Broun), **Mecyclothorax** 113, 124f
amplipennis labralis (Broun), **Mecyclothorax** 113
Ananotaphus Netolitzky 47
anchomenoides Guérin-Méneville, **Dicrochile** 111
Anchomenus Bonelli 80, 116
 “Anchomenus” *sensu* White 80, 81, 116
anchonoderus Bates, **Bembidion** 110, 129f
angustula (Chaudoir), **Holcaspis** 112
angustulum Broun, **Mecodema** 112
angustulus Broun, **Allocinopus** 110
Anillina 46, 51
Anisodactylina 61, **63**
Anisodactylus Dejean 62, 63, **65**, 166m
Anisodactylus (Anisodactylus) **65**
Anisotarsus Chaudoir **68**
 Anomalobroscus Johns 34, 116
anomalum Townsend, **Mecodema rugiceps** 113
anomalus Bates, **Syllectus** 115, 142f
Anomotarus Chaudoir 53, 84, 85, **87**, 88, 166m
Anomotarus (Anomotarus) **87**
antarctica Laporte de Castelnau, **Brullea** 110, 121f
antarctica (Laporte de Castelnau), **Molopsida** 113
antarcticus (Laporte de Castelnau), **Hypharpax** 112
antarcticus (Chaudoir), **Megadromus** 10, 113, 133f
antarcticus (Bates), **Kiwitachys** 49, 117, 130f
 antarcticus Bates, **Tachys** 49, 118
anthracina Broun, **Dicrochile** 111
antipodum (Bates), **Agonocheila** 110, 146f
aphela (Broun), **Cerabilia** 110
Archicarabus Seidlitz **28**
ardua (Broun), **Neoferonia** 114
Argutor Dejean 57, 116
 “Argutor” *sensu* Blanchard 57, 116
 arnaudensis Broun, “Anchomenus” 116
arnaudensis (Broun), **Ctenognathus** 81, 111, 116
asperatus (Broun), **Megadromus** 113
aterrima Bates, **Dicrochile** 111
atra Broun, **Demetrida moesta** 111
atratus (Broun), **Oopterus** 45, 114, 118
atratus Broun, **Parabaris** 114, 138f
 atratus Broun, **Zolus** 118
atriceps (Macleay), **Lecanomerus** 112
atrox Britton, **Mecodema** 112
audouini (Guérin-Méneville), **Kenodactylus** 112, 125f
Aulacopodus Britton 54, **55**, 57, 166m
australasiae Boheman, **Clivina** 111
australasiae Dejean, **Harpalus** 71, 117, 140f
 australasiae (Dejean), **Hypharpax** 112, 117
australis (Dejean), **Hypharpax** 112, 137f
australis (Schaum), **Pericompso** 50, 114, 131f
austromontana Bates, **Cicindela** 110
barrattae Larochelle & Larivière, **Kupeharpalus** 112, 117, 140f
basalis Chaudoir, **Clivina** 111, 121f
basalis Broun, **Oopterus** 114
basalis Broun, **Scopodes** 115
bathana Butcher, **Holcaspis** 112
belli Larochelle & Larivière, **Allocinopus** 110, 116
Bembidiina 45, 46, 47
Bembidiini 17, 22, 24, 38, 44, **45**, 46, 61, 128–132f

- bembidioides White, Actenonyx** 110, 146f
Bembidion Latreille 46, 47, 166m
Bembidion (Ananotaphus) 47
Bembidion (Notaphus) 47
Bembidion (Zeactedium) 48
Bembidion (Zecillenus) 48, 116
Bembidion (Zemetallina) 48
Bembidion (Zeperyphodes) 48
Bembidion (Zeperyphus) 48
Bembidion (Zeplataphus) 48
bessatica Johns, Holcaspis 112, 117
bicolor Moore, Euthenarus 111, 117
bidens (Chaudoir), Ctenognathus 111
bidentella Johns, Holcaspis 112, 117
binotatus (Fabricius), Anisodactylus 65, 110, 137f
Bountya Townsend 23, 25, 32, 33, 167m
bousqueti Laroche & Larivière, Allocinopus 110, 116
brevicollis Bates, Euthenarus 111
brevicula Butcher, Holcaspis 112
brevilunata Horn, Cicindela 110
brevis (Blanchard), Loxomerus 112, 120f
brittoni Jeannel, Duvaliomimus 111
brittoni Townsend, Mecodema 112
Broscinae 17
Broscini 16, 17, 23, 25, 32, 121–124f
brouni (Csiki), Aulacopodus 110
brouniana (Sharp), Holcaspis 112
Brullea Laporte de Castelnau 23, 25, 32, 33, 167m
brullei Gemminger & Harold, Bembidion 110, 128f
bryophilus Broun, Scopodes 115
bucolicus (Broun), Megadromus 113
bullatum Lewis, Mecodema 112
bullatus (Broun), Megadromus 113

caecus (Britton), Neanops 114, 127f
calathoides (Broun), Aulacopodus 110, 132f
Calathosoma Jeannel 29, 30, 167m
calcaratus (Sharp), Zeopoecilus 115, 135f
Calleidina 87
callipeplum Bates, Bembidion 110, 129f
campbelli Broun, Cicindela perhispidata 110
caperatus Johns, Zeopoecilus 115, 118
capito Jeannel, Loxomerus 30, 112, 117, 120f
capito (White), Megadromus 113, 133f
capito (Jeannel), Taenarthrus 118
captus (Blackburn), Polyderis 50, 114, 118, 131f
captus Blackburn, Tachys 51, 118
Carabina 27
Carabinae 17, 21, 22, 27
Carabini 17, 22, 24, 27, 119f

Carabus Linnaeus 22, 24, 27, 167m
Carabus (Archicarabus) 28
carbonaria (Broun), Molopsida 113
cardiophorus (Chaudoir), Ctenognathus 111
carinatus Broun, Oopterus 45, 114, 118
carinatus (Broun), Zolus 118
castaneus Broun, Allocinopus 116
castigatum Broun, Diglymma 111
catenulata Broun, Holcaspis 112
cavelli (Broun), Hakaharpalus 111, 117
cavelli Broun, "Tachys" 118
cephalotes Broun, Dicrochile 111
Cerabilia Laporte de Castelnau 79, 80, 167m
cerberus Britton, Pholeodytes 114
chalceipes Bates, Bembidion 110
chalmeri (Broun), Bembidion 110, 116
chalmeri (Broun), Zecillenus 118
charile Bates, Bembidion 110, 130f
chathamense (Broun), Notagonum 114
cheesemani (Broun), Ctenognathus 111
chiltoni Broun, Mecodema 112
Cicindela Linnaeus 22, 24, 26, 167m
Cicindela (Neocicindela) 27
Cicindelina 26
Cicindelinae 17, 21, 22, 26
Cicindelini 17, 22, 24, 26, 119f
cincta (Broun), Molopsida 113
Clivina Latreille 22, 24, 31, 167m
Clivinina Latreille 31
Clivinini 17, 22, 24, 31, 121f
clivinoides (Laporte de Castelnau), Diglymma 111, 121f
clivinoides Guérin-Méneville, Oopterus 114, 127f
clunieae Laroche & Larivière, Tuiharpalus 115, 118
cognatus Broun, Scopodes 115
colenisonis White, "Anchomenus" 116
colenisonis (White), Ctenognathus 81, 111, 116
collaris Broun, Oopterus 114
complanatus (Dejean), Laemostenus 112, 143f
compressus (Sharp), Megadromus 113
convexa (Broun), Molopsida 114
cordicollis Broun, Dicrochile 111, 135f
cordipennis (Broun), Molopsida 114
costellum costellum Broun, Mecodema 112, 122f
costellum gordonense, Mecodema 112
costellum lewisi Broun, Mecodema 112
costellum obesum Townsend, Mecodema 112
costipenne Broun, Mecodema 112
crenaticolle Redtenbacher, Mecodema 112
crenatus (Chaudoir), Ctenognathus 111, 144f

- crenicolle Laporte de Castelnau, Mecodema** 112
Creobiina 33
crosbyi Larochelle & Larivière, Tuiharpalus 115, 118
crypticola (Britton), Paratachys 49, 114, 130f
crypticus Moore, Haplanister 112, 142f
crypticus Pawson, Oregus 114, 118
Ctenognathus Fairmaire 16, 23, 25, 78, 79, 80, 167m
curtulus (Broun), Megadromus 113
curvidens (Broun), Mecodema 112, 122f
Cychrini 16
- davidsoni Larochelle & Larivière, Hakaharpalus** 111, 117
debilis (Sharp), Molopsida 114
deformipes (Broun), Ctenognathus 111
dehiscens Broun, Bembidion 110
delator (Broun), Holcaspis 112
Demetrida White 85, 88, 167m
Demetrida (Demetrida) 88
dentifera (Broun), Holcaspis 112
Dicrochilina 59
Dicrochile Guérin-Méneville 59, 60, 168m
dieffenbachii (White), Demetrida 111
Diglymma Sharp 23, 25, 32, 33, 34, 168m
diversa (Broun), Molopsida 114
Dromiina 89
Dromius Bonelli 85, 89, 117, 168m
Dromius (Dromius) 89
dubia (Broun), Molopsida 114
ducale Sharp, Mecodema 112, 122f
dunedensis Laporte de Castelnau, Cicindela 110
dunense Townsend, Mecodema 112
Duvaliomimus Jeannel 39, 40, 42, 43, 168m
dux Britton, Mecodema 112
- edax (Chaudoir), Neoferonia** 114
edwardsii Bates, Amarotypus 5, 110, 119f
edwardsii (Bates), "Anchomenus" 116
edwardsii (Bates), Ctenognathus 81, 111, 116
edwardsii Bates, Scopodes 115
Egadroma Motschulsky 62, 74, 75, 168m
egregialis (Broun), Holcaspis 112
elongatum Laporte de Castelnau, Mecodema 112
elongella (White), Holcaspis 112
embersoni (Lindroth), Bembidion 110, 116, 117
embersoni Larochelle & Larivière, Kupeharpalus 112, 117
embersoni Lindroth, Zecillenus 118
enysi (Broun), Megadromus 113
eplicatus (Broun), Mecyclothorax 113
- Erebotrechus Britton** 38, 39, 41, 43, 168m
eustictum Bates, Bembidion rotundicolle 110
Euthenarus Bates 62, 74, 75, 76, 168m
- fabrii Guérin-Méneville, Dicrochile** 111
fairburni Brookes, Maoripamborus 112, 119f
falcis Butcher, Holcaspis 112
fallax Broun, Lecanomerus 117
fallax (Broun), Selenochilus 115
femorale Broun, Mecodema 112
femoralis (Broun), Oopterus 45, 114, 118, 128f
femoralis Broun, Zolus 118
feredayi Bates, Cicindela 110
feredayi (Bates), Notagonum 114
flavipes Broun, Dicrochile 111
florae Britton, Mecodema 112
fossalis (Broun), Neoferonia 114
fossulatus (Blanchard), Scopodes 115, 146f
fovealis (Broun), Molopsida 114
frontalis Broun, Oopterus 114
frontalis (Broun), Selenochilus 115
fulgidum Broun, Mecodema 112, 123f
fuliginosus Broun, Lecanomerus 117
fultoni (Broun), Megadromus 113
fulvipes Broun, Oopterus 114
fuscipes (Broun), Molopsida 114
- Gaixenus Broun** 23, 25, 53, 61, 63, 64, 65, 67, 168m
giachinoi Toledano, Bembidion orbiferum 110, 116
giveni (Brouerius van Nidek), Cicindela perhispidata 110
Gnathaphanus Macleay 62, 63, 66, 168m
gordonense Broun, Mecodema costellum 112
gouletti Larochelle & Larivière, Syllectus 115, 118
gourlayi Britton, Mecodema 113
gourlayi Britton, Parabaris 118
gourlayi (Britton), Tuiharpalus 115, 118, 139f
Gourlayia Britton 54, 55, 57, 169m
granuliferum Lindroth, Bembidion 110
guerinii (Chaudoir), Megadromus 113
- Hakaharpalus Larochelle & Larivière** 53, 60, 61, 63, 71, 72, 117, 169m
hallae Larochelle & Larivière, Tuiharpalus 115, 118, 139f
halli (Broun), Molopsida 114
hamiltoni Broun, Cicindela 110
Haplanister Moore 62, 74, 75, 76, 169m
haplopus (Broun), Megadromus 113
Harpalina 61, 70
Harpalinae 17, 22, 23, 53

- Harpalini** 16, 17, 21, 23, 25, 44, **60**, 136–143f
Harpalus Latreille 61, 63, **70**, 169m
Harpalus (Harpalus) 71
hector Britton, Mecodema 113
helmorei Laroche & Larivière, Pholeodytes 114, 118
helmsi Sharp, "Anchomenus" 116
helmsi Sharp, Cicindela 110
helmsi (Sharp), Ctenognathus 81, 111, 116
helmsi (Sharp), Oopterus 45, 114, 118
helmsi Sharp, Zolus 118
heterogena Putzeys, Clivina 111
hispidata (Broun), Holcaspis 112
hoarei Laroche & Larivière, Parabaris 114, 118, 138f
hokitikense Bates, Bembidion 110
Holcaspis Chaudoir 54, **55**, 169m
howittii Laporte de Castelnau, Mecodema 35, 113
hudsoni Britton, Holcaspis 112
hudsoni Broun, Mecodema alternans 112
huttense Broun, Mecodema 113
huttoni (Broun), Loxomerus 112
Hygranillus Moore 46, **51**, 169m
Hypharpax Macleay 63, 64, **66**, 169m
- illawarrae (Macleay), Anomotarus** 110
impigra Broun, Holcaspis 112
implica Butcher, Holcaspis 112
impressum Laporte de Castelnau, Mecodema 113
inaequalis (Laporte de Castelnau), Oregus 114
incertus Broun, Lecanomerus 117
infernus Britton, Erebotrechus 111, 126f
infimate Lewis, Mecodema 113, 123f
insignis Broun, Dichrochile 111, 136f
insignitus Broun, Lecanomerus 112, 141f
insularis Townsend, Bountya 110, 121f
insularis Bates, Physolaesthus 114, 136f
integrata (Bates), Neoferonia 114
integratum Townsend, Mecodema 113
integratus Broun, "Anchomenus" 116
integratus (Broun), Ctenognathus 81, 111, 116
intermedius Broun, "Anchomenus" 116
intermedius (Broun), Ctenognathus 81, 111, 116
intermittens (Chaudoir), Holcaspis 112
- johnsi Laroche & Larivière, Kupeharpalus** 112, 117, 141f
- karenscoottae Laroche & Larivière, Kiwitrechus** 41, **42**, 112, 117, 126f
Kenodactylus Broun 38, **39**, 40, 169m
- Kiwiarpalus Laroche & Larivière** 61, 63, 75, **77**, 117, 169m
Kiwitachys new genus 46, **49**, 117, 170m
Kiwitrechus new genus 39, **41**, 117, 170m
Kupeharpalus Laroche & Larivière 62, 71, **72**, 117, 170m
Kupetrechus new genus 39, 40, **42**, 117, 170m
kuscheli Moore, Hygranillus 112, 131f
- labralis (Broun), Mecyclothorax ampliennis** 113
labralis (Broun), Oopterus 45, 114, 118
labralis Broun, Zolus 118
Laemostenus Bonelli 78, **79**, 170m
Laemostenus (Laemostenus) 80
laeviceps Broun, Mecodema 113
laevicollis Bates, Oopterus 114
laevigatus Broun, Oopterus 114
laevigatus Broun, Scopodes 115
laeviventris (Sharp), Oopterus 114
lamberti Britton, "Duvaliomimus" 42, 117
lamberti (Britton), Kupetrechus 42, 117, 127f
latecincta White, Cicindela 110
laterale Broun, Mecodema 113, 123f
lateralis Broun, Demetrida 111
latifossus Broun, Oopterus 114
latimanus Bates, Lecanomerus 112
latipennis (Sharp), Kiwitachys 49, 112, 117
latipennis Broun, Oopterus 114
latipennis Sharp, Tachys 49, 118
latitarsis Broun, Allocinopus 110
lawsoni (Bates), Notagonum 114
Lebiini 17, 23, 25, 53, **84**, 146–147f
Lecanomerus Chaudoir 62, 71, 72, **73**, 170m
lesagei Laroche & Larivière, Parabaris 114, 118
levatum Lindroth, Bembidion maorinum 110
levistriatus Broun, Scopodes 115
lewisi Broun, Mecodema costellum 112
lewisi (Broun), Oopterus 114
lewisi Jeannel, Pelodiaetus 114
libitus Broun, "Anchomenus" 116
libitus (Broun), Ctenognathus 81, 111, 116
Licinina 60
Licinini 17, 23, 24, **59**, 135–136f
limbatus (Broun), Physolaesthus 114
lineella White, Demetrida 111
liopleurus (Chaudoir), Rhytisternus 114
litoreum Broun, Mecodema 113
littorellus Broun, Ctenognathus 111
lobipes (Bates), Megadromus 113
longicollis Broun, Mecodema 113
longula (Broun), Molopsida 114

- Loxomerus* Chaudoir 15, 28, 29, **30**, 170m
Loxomerus (*Loxomerus*) **30**
Loxomerus (*Pristancylus*) **30**
lucidum Laporte de Castelnau, *Mecodema* 113
lucifugus (Broun), *Ctenognathus* 111
luculentus (Newman), *Philophaeus* 86, 114, 146f

macilentus Baehr, *Adelotopus* 90, 110, 116, 148f
macrocoelis Broun, "Anchomenus" 116
macrocoelis (Broun), *Ctenognathus* 81, 111, 116
macropterus (Chaudoir), *Platynus* 114, 145f
maculata Britton, *Demetrida sinuata* 111
maddisoni Larochelle & Larivière, *Hakaharpalus* 111, 117
magnus Britton, *Syllectus* 115
major (Broun), *Cerabilia* 110, 143f
maori Laporte de Castelnau, *Cerabilia* 110
Maoriharpalus Larochelle & Larivière 23, 24, 25, 53, 60, 61, 62, 63, 65, **67**, 117, 170m
maorinum levatum Lindroth, *Bembidion* 110
maorinum maorinum Lindroth, *Bembidion* 110
maorinus (Bates), *Aulacopodus* 110
Maoripamborus Brookes 22, 24, **28**, 170m
Maoritrechus Brookes 38, 39, **40**, 171m
marginale Broun, *Diglymma* 111
marginalis (Broun), *Molopsida* 114
marginellum (Erichson), *Notagonum* 81, 118
marrineri Broun, *Oopterus* 114
marrisi Larochelle & Larivière, *Lecanomerus* 112, 117, 141f
maura Broun, *Dicrochile* 111
mayae Britton, *Duvaliomimus* 111
Mecodema Blanchard 23, 25, 32, **34**, 171m
Mecyclothoracini 16, 17, 23, 25, **36**, 44, 124–125f
Mecyclothorax Sharp 23, 25, **36**, 171m
Megadromus Motschulsky 54, **56**, 171m
Megadromus (*Megadromus*) **56**
melbournensis (Laporte de Castelnau), *Gnathaphanus* 66, 111, 117, 137f
memes (Broun), *Megadromus* 113
Meonini 16, 17, 23, 25, 36, **37**, 44, 125f
meridionalis Dejean, *Dromius* 89, 115, 117, 147f
meritus (Broun), *Megadromus* 113
Metaglymma Bates 23, 25, 32, **35**, 171m
metallicum Sharp, *Mecodema* 113
Migadopinae 17, 22, **28**
Migadopini 16, 17, 22, 25, **29**, 120f
minax Britton, *Mecodema* 113
minor Broun, *Oopterus* 114
miser (Chaudoir), *Rhytisternus* 114, 135f
moesta atra Broun, *Demetrida* 111

moesta moesta Sharp, *Demetrida* 111
Molopsida White 22, 25, 32, **38**, 171m
moniliferum Bates, *Metaglymma* 113
montivagus (Broun), *Ctenognathus* 111
moorei Larochelle & Larivière, *Tuiharpalus* 115, 118, 139f
mordax Broun, *Holcaspis* 112, 133f
morio (Laporte de Castelnau), *Mecodema* 113
mucronata Broun, *Holcaspis* 112
multipunctatus Bates, *Scopodes* 115
munroi Broun, *Ctenognathus* 111
musae Broun, *Bembidion* 110, 129f

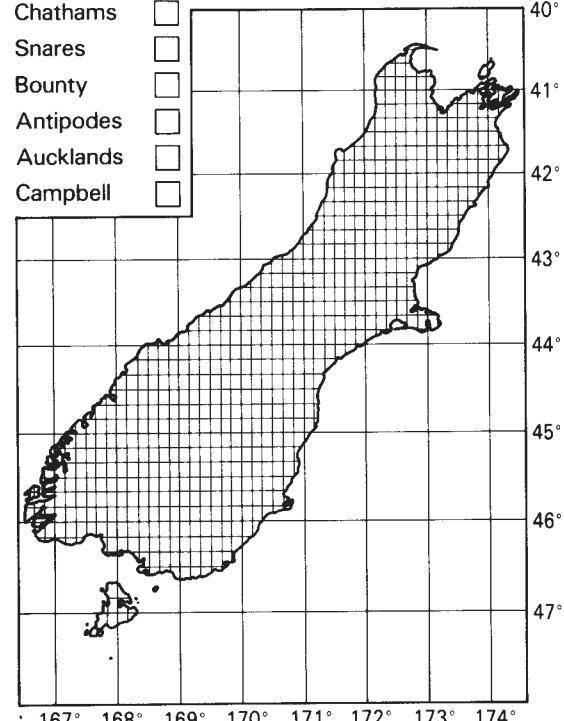
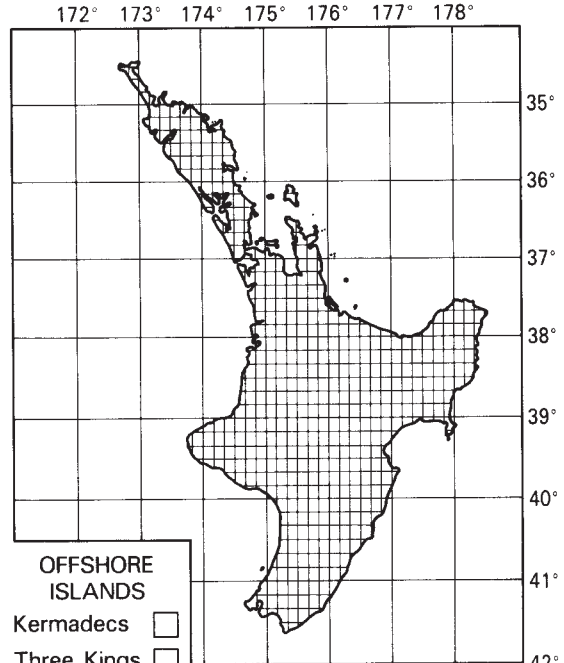
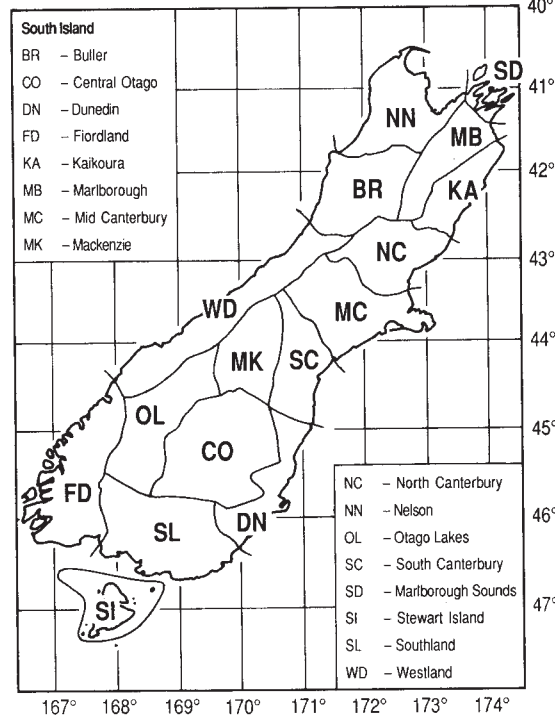
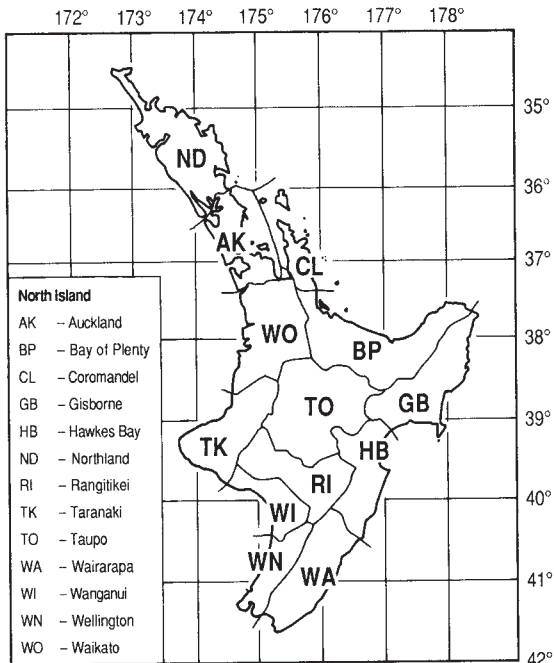
nasuta White, *Demetrida* 111, 147f
Neanops Britton 38, 39, **43**, 171m
nebrioides (Guérin-Méneville), *Loxomerus* 112, 120f
nemoralis O. F. Müller, *Carabus* 27, 110, 119f
Neocicindela Rivalier **27**
Neoferonia Britton 54, **56**, 171m
neozelandicus (Chaudoir), *Ctenognathus* 111
Nesamblyops Jeannel 46, 51, **52**, 171m
nigriceps (Dejean), *Perigona* 82, 114, 145f
nigritulus Broun, *Oopterus* 114
nitida Broun, *Dicrochile* 111
nitidum Broun, *Mecodema* 113
Notagonum Darlington 79, **81**, 172m
Notaphus Stephens **47**
Nothobroscina 20, **33**
Notiobia Perty 62, 63, 64, **68**, 172m
Notiobia (*Anisotarsus*) **68**
novaezelandiae (Fairmaire), *Ctenognathus* 111, 144f
novaezelandiae (Laporte de Castelnau), *Dicrochile* 111
novaezelandiae (Laporte de Castelnau), *Triplosarus* 115, 139f
nunni Larochelle & Larivière, *Pholeodytes* 114, 118

obesulus Bates, *Lecanomerus* 112
obesum Townsend, *Mecodema costellum* 112
oblonga (Broun), *Cerabilia* 110
oblongum (Broun), *Mecodema* 113
obtusum (Broun), *Diglymma* 111
obelata Johns, *Holcaspis* 112, 117
occiputale Broun, *Mecodema* 113
occultus Britton, *Prospheodus* 114
oconnori Broun, *Mecodema* 113
ocularius Broun, *Allocinopus* 116
ocularius (Broun), *Oopterus* 45, 114, 118

- ocularius Broun, Zolus 118
 oculator (Broun), Selenochilus 115
 odontella (Broun), Holcaspis 112
 oedicnema Bates, Holcaspis 112
 ohauensis Butcher, Holcaspis 112
 omaramae Johns, Megadromus 113, 117
 Onawea Johns 54, 55, 57, 118, 172m
 oodiformis (Macleay), Prosopogmus 114, 134f
 Oopterina 44
 Oopterini 44
 Oopterus Guérin-Ménéville 44, 45, 172m
 optata (Broun), Molopsida 114
 orbiferum giachinoi Toledano, Bembidion 110, 116
 orbiferum orbiferum Bates, Bembidion 110, 116
 orcinus Britton, Scototrechus 115, 127f
 oregoides (Broun), Mecodema 113
 Oregus Putzeys 23, 25, 32, 33, 35, 172m
 oreobius Broun, "Anchomenus" 116
 oreobius (Broun), Ctenognathus 81, 111, 117
 oreobius (Broun), Nesamblyops 114, 131f
 orientalis Giachino, Duvaliomimus 111, 117
 orpheus Britton, Duvaliomimus 111
 otagoensis Bates, "Anchomenus" 81, 116
 otagoensis (Bates), Ctenognathus 81, 111, 117, 144f
 ovalis Broun, Synteratus 115, 128f
 ovatella (Chaudoir), Holcaspis 112
 ovinotatus Broun, Oopterus sculpturatus 114
 oxygona (Broun), Molopsida 114
- pacifica (Erichson), Trigonothops 88, 115, 118, 147f
 pallidipes Broun, Oopterus 114
 pallidus (Broun), Zeanillus 115, 132f
 pallipes Broun, Lecanomerus 117
 palmai Laroche & Larivière, Pholeodytes 114, 118
 Pamborini 16, 17, 22, 24, 28, 119f
 pantomelas (Blanchard), Argutor 57, 116
 pantomelas (Blanchard), Onawea 114, 118, 134f
 Parabaris Broun 62, 63, 64, 68, 172m
 parabilis (Broun), Ctenognathus 111
 Paratachys Casey 46, 49, 172m
 parryi White, Cicindela 110
 parviceps Bates, Bembidion 110
 parvulus Broun, Oopterus 114
 patricki Laroche & Larivière, Hakaharpalus 111, 117, 140f
 patulus (Broun), Oopterus 114
 pavidum Townsend, Mecodema 113
 Pelmatellina 61, 71
 Pelodiaetodes Moore 46, 52, 53, 172m
 Pelodiaetus Jeannel 46, 52, 172m
 Pentagonica Schmidt-Goebel 83, 84, 173m
 Pentagonicini 17, 23, 25, 53, 83, 145–146f
 perhispida campbelli Broun, Cicindela 110
 perhispida giveni (Brouerius van Nidek), Cicindela 110
 perhispida perhispida Broun, Cicindela 111
 Pericalina 85
 Pericompsus LeConte 46, 50, 173m
 Pericompsus (Upocompsus) 50
 Perigona Laporte de Castelnau 16, 23, 25, 83, 173m
 Perigona (Trechicus) 83
 Perigonini 17, 23, 25, 82, 145f
 perrugithorax (Broun), Ctenognathus 111
 persculptum Broun, Mecodema 113, 117
 Philophaeus Chaudoir 85, 86, 173m
 philpotti (Broun), Loxomerus 30, 112, 117
 philpotti Broun, Taenarthrus 118
 Pholeodytes Britton 62, 74, 75, 77, 173m
 phyllobius (Broun), Zeanillus 115
 phyllocharis (Broun), Molopsida 114
 Physolaesthus Chaudoir 59, 60, 173m
 picea (Guérin-Ménéville), Egadroma 111, 142f
 piceus (Blanchard), Selenochilus 115
 pictonensis Sharp, Ctenognathus 111
 pilipalpis Broun, Gaioxenus 111, 137f
 placens (Broun), Mecyclothorax 113
 placida Broun, Holcaspis 112
 planiusculus (White), Plocamostethus 114, 134f
 Platynina 80
 Platynini 16, 17, 23, 25, 78, 79, 143–145f
 Platynus Bonelli 79, 82, 173m
 plicaticollis Blanchard, Oopterus 114
 Plocamostethus Britton 54, 57, 173m
 pluto Britton, Duvaliomimus 111
 pluto Britton, Mecodema 35, 113
 polita White, Molopsida 114
 politanum Broun, Mecodema 113
 politissimus (White), Pseggmatopterus 114, 135f
 politulus (Broun), Ctenognathus 111
 Polyderis Motschulsky 46, 49, 50, 118, 173m
 prassignis (Broun), Neoferonia 114
 prasinus Bates, Scopodes 115
 pretiosa (Broun), Molopsida 114
 Pristancylus Blanchard 30
 pritchardi Valentine, Neanops 114
 probus Broun, Oopterus 114
 procerula (Broun), Neoferonia 114, 134f
 proluxa (Broun), Neoferonia 114

- prominens** Moore, *Pelodiaetodes* 114, 132f
promptus (Erichson), *Euthenarus* 76, 111, 117
propinqua (Broun), *Molopsida* 114
Prosopogmus Chaudoir 54, 57, 174m
Prospodrus Britton 78, 79, 80, 82, 174m
proximum Britton, *Mecodema* 113
Psegmatopterus Chaudoir 54, 58, 174m
Pseudomorphinae 17, 22, 90
Pseudomorphini 17, 22, 24, 90, 148f
Pseudoopterus Csiki 45
Psydrinae 17, 36
Psydrini 16
Pterostichina 55
Pterostichini 16, 17, 22, 23, 25, 54, 132–135f
puiakium Johns & Ewers, *Mecodema* 113, 117
pulchellum Townsend, *Mecodema* 113
punctatum (Laporte de Castelnau), *Mecodema* 113
punctellum Broun, *Mecodema* 113
puncticeps Broun, *Oopterus* 114
puncticolle Broun, *Mecodema sculpturatum* 113
puncticollis Bates, *Euthenarus* 111, 142f
puncticollis (Sharp), *Molopsida* 114
punctiger (Broun), *Zeanillus* 115
punctulatus Broun, "Anchomenus" 116
punctulatus (Broun), *Ctenognathus* 81, 111, 117
pustulatus Broun, *Scopodes* 115
putus (Broun), *Zeopoecilus* 115
pygmeatus Broun, *Oopterus* 114
- quadricollis** (Chaudoir), *Notiobia* 114, 118, 138f
quinense Broun, *Mecodema* 113
- rangitotoensis** Brookes, *Maoritrechus* 112, 126f
rectalis (Broun), *Megadromus* 113
rectangulus (Chaudoir), *Megadromus* 113
rectolineatum Laporte de Castelnau, *Mecodema* 35, 113
regia Britton, *Gourlayia* 111, 133f
regulus Britton, *Mecodema* 113
rex Britton, *Mecodema* 113
rhodeae Larochelle & Larivière, *Hakaharpalus* 112, 117
Rhytisternus Chaudoir 16, 54, 58, 174m
robusta (Broun), *Molopsida* 114
rotundicolle eustictum Bates, *Bembidion* 110
rotundicolle rotundicolle Bates, *Bembidion* 110, 128f
rotundicollis (White), *Mecyclothorax* 113, 125f
rubromarginatum (Blanchard), *Calathosoma* 110, 120f
- ruficornis** (Broun), *Selenochilus* 115
rufipes (Broun), *Cerabilia* 80, 110, 116
rufipes Broun, *Zabronothus* 80, 118
rugiceps anomalum Townsend, *Mecodema* 113
rugiceps rugiceps Sharp, *Mecodema* 113
rugicollis Broun, *Dicrochile* 111
- sandageri* Broun, "Anchomenus" 116
sandageri (Broun), *Ctenognathus* 81, 111, 117
sandageri (Broun), *Megadromus* 113
Scaritinae 17, 22, 31
Scopodes Erichson 83, 84, 174m
Scototrechus Britton 39, 40, 41, 43, 174m
scribae Johns, *Plocamostethus* 114, 118
sculpticollis Broun, *Allocinopus* 110, 136f
sculpturatum puncticolle Broun, *Mecodema* 113
sculpturatum sculpturatum Blanchard, *Mecodema* 35, 113
sculpturatus ovinotatus Broun, *Oopterus* 114
sculpturatus sculpturatus Broun, *Oopterus* 114
seclusum (Johns), *Diglymma* 33, 111, 117
seclusus Johns, *Anomalobroscus* 33, 116
Selenochilus Chaudoir 23, 25, 37, 174m
septentrionalis Pawson, *Oregus* 114, 118
seriatoporus (Bates), *Molopsida* 114, 125f
sharpi (Csiki), *Lecanomerus* 112
sharpianus (Broun), *Aulacopodus* 110
simmondsi Broun, *Ctenognathus* 111
simplex Laporte de Castelnau, *Mecodema* 113
simplex (Broun), *Molopsida* 114
simulans (Broun), *Molopsida* 114
sinuata maculata Britton, *Demetriida* 111
sinuata sinuata Broun, *Demetriida* 111
sinuiventris (Broun), *Holcaspis* 112
smithi Broun, *Allocinopus* 110, 136f
sobrinus Broun, *Oopterus* 114
solitarium Lindroth, *Bembidion* 110
sophronitis Broun, "Anchomenus" 116
sophronitis (Broun), *Ctenognathus* 81, 111, 117
southlandica (Broun), *Molopsida* 114
speciosus Johns, *Megadromus* 113, 117
spelaeus Britton, *Syllectus* 118
Sphodrina 79
spilleri (Brouerius van Nidek), *Cicindela* 111
spiniferum Broun, *Mecodema* 113, 123f
Stenolophina 61, 74
sternalis Broun, *Holcaspis* 112
stewartense Lindroth, *Bembidion* 110
stewartensis Butcher, *Holcaspis* 112
straneoi Britton, *Neoferonia* 114

- strenua (Broun), Molopsida** 114
strenuus Johns, Oopterus 114
striatula (Broun), Cerabilia 80, 110, 116
 striatulus Broun, Zabronothus 80, 118
striatum Broun, Mecodema 113
strictum Britton, Mecodema 113
styx Britton, Duvaliomimus 111, 126f
suavis Broun, Oopterus 114
subaenea (Guérin-Ménéville), Holcaspis 112
subcaecus (Sharp), Nesamblyops 114
submetallicum (White), Notagonum 114, 144f
subopaca Bates, Dicrochile 111
subopacus (Broun), Oopterus 45, 114, 118
 subopacus Broun, Zolus 118
suborbithorax (Broun), Ctenognathus 111
sulcatipennis Jeannel, Pelodiaetus 114, 132f
sulcatum (Sharp), Mecodema 113, 124f
sulcicollis (Bates), Molopsida 114
 sulcitaris Broun, "Anchomenus" 116
sulcitaris (Broun), Ctenognathus 81, 111, 117
suteri (Broun), Holcaspis 112
sutherlandi Laroche & Larivière, Maoriharpalus
 112, 117, 138f
Syllectus Bates 62, 71, 72, 74, 78, 174m
Synteratus Broun 44, 45, 174m
syntheticus (Sharp), Selenochilus 115, 125f
- Tachyina** 38, 44, 46, 49
Tachys Dejean 49, 118
 Taenarthrus Broun 30, 118
tairuense Bates, Bembidion 110
tardus (Panzer), Harpalus 112, 117
tekapoense Broun, Bembidion 110
Temnostega Enderlein 40
temukensis (Bates), Megadromus 113
thoracica Broun, Dicrochile 111
tibiale (Laporte de Castelnau), Metaglymma 113,
 124f
tillyardi (Brookes), Bembidion 110, 116
 tillyardi (Brookes), Zecillenus 118
townsendi Lindroth, Bembidion 110
townsendi Laroche & Larivière, Kiwiharpalus
 112, 117, 143f
townsendi Britton, Pholeodytes 114, 143f
Trechicus LeConte 83
Trechina 40
Trechinae 17, 22, 23, 32
Trechini 17, 22, 24, 38, 39, 44, 125–127f
Trigonothops Macleay 53, 84, 85, 87, 88, 118, 175m
Trigonothops (Trigonothops) 89
- Triplosarus Bates** 63, 64, 69, 175m
tripunctata Butcher, Holcaspis 112
Tropopterini 16, 17, 22, 25, 36, 37, 44, 125f
truncatula (Broun), Neoferonia 114
tuberculata Fabricius, Cicindela 111, 119f
Tuiharpalus Laroche & Larivière 60, 62, 63, 69,
 118, 175m
turgidiceps (Broun), Megadromus 113
- Upocompsus Erwin** 50
urewerense Lindroth, Bembidion 110
- vagans Putzeys, Clivina** 111
 vagans (Broun), Megadromus 117
vagepunctata (White), Holcaspis 112
validum Broun, Mecodema 113
variegatus Moore, Anomotarus 110, 147f
versicolor Bates, Scopodes 115
verticalis (Erichson), Lecanomerus 112
vestigialis (Erichson), Lecanomerus 112, 141f
vexata (Broun), Holcaspis 112
vigil (White), Megadromus 113
virens (Broun), Megadromus 113
vittipennis Chaudoir, Pentagonica 114, 145f
- waiouraensis Broun, Cicindela** 111
walkeri (Broun), Duvaliomimus 111
walkeri (Broun), Megadromus 113, 117
wallacei (Broun), Megadromus 113
waltoni Britton, Prospodrus 114, 145f
wanakense Lindroth, Bembidion 110
wardi Laroche & Larivière, Allocinopus 110, 116
watti Britton, Duvaliomimus 111
whitei (Csiki), Dicrochile 111
- xanthomelas Broun, "Anchomenus" 81
 xanthomelus Broun, "Anchomenus" 116
xanthomelus (Broun), Ctenognathus 81, 111, 117
- Zabronothus Broun 80, 118
Zeactedium Netolitzky 48
Zeanillus Jeannel 46, 53, 175m
Zecillenus Lindroth 47, 48, 116, 118
Zemetalina Lindroth 48
Zeopoecilus Sharp 16, 54, 59, 175m
Zeperyphodes Lindroth 48
Zeperyphus Lindroth 48
Zeplataphus Lindroth 48
Zolina 20, 44
Zolini 17, 22, 24, 38, 44, 46, 127–128f
 Zolus Sharp 44, 45, 118



Area codes and boundaries used to categorise specimen locality data (after Crosby *et al.* 1976)

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Te utu (tirohia “Titles in print”, whārangi 185). Ko te kōpaki me te pane kuini kei roto i te utu. Me utu te hunga e noho ana i Aotearoa me Ahitereiria ki ngā tāra o Aotearoa. Ko ētahi atu me utu te moni kua tohua, ki ngā tāra Merikana, ki te nui o te moni rānei e rite ana.

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