Fauna of New Zealand
Ko te Aitanga Pepeke o Aotearoa

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SERIES EDITOR

Dr T. K. Crosby
Landcare Research
Private Bag 92170, Auckland, New Zealand
Carabidae
(Insecta: Coleoptera):
synopsis of supraspecific taxa

A. Larochelle and M.-C. Larivière
Landcare Research, Private Bag 92170
Auckland, New Zealand
LarochelleAndre@hotmail.com
LariviereM@landcareresearch.co.nz

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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, Larochelle & 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;
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 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 (continued overleaf)
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 Quebec). 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 Carabidae “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.

I whānau mai tētahi o ngā kaitihi, a Andre Laroche, i Quebec. I reira ia e kura ana, ā, nō te tau 1974 ka whakawhiwhia ki tana tohu Brevet d’Enseignement spécialise, mai i te Whare Wānanga o Quebec ki Montreal. Taka mai ki te tau 1990, e whakaako ana ia i te mātāuranga taupuhia kaiao i te Kura Bourget, i Rigaud, Quebec. Kāore i roa e whakaaako ana, ka tupu tana hiahi 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 āna. 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 kaipūtiaao 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 tūhia e Andre mō te horapa, te taupuhia kaiao, te koiora, me te kaha whakapirara o ngā aitanga pepeke o Amerika ki te Raki, otīrā me te aro nui ki ngā carabid (tae atu ki ētahi pukapuka ringa mō ngā Heteroptera o Quebec).

I te tau 1990, ka whakaputainia e ia “Ngā kai a ngā pītara carabid o te ao”; i te tau 1993, ko rāua ko Yves Bousquet ngā kaitihi 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 ngātātaka o Amerika ki te Raki, ki te Raki o Mēhiko” 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.

(continued overleaf)
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 dabbing and digital imaging systems, from 1999 to 2004, the Koiora-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 husband of Aotearoa. E rua ana tuhinga ki Ko te Aitanga Pepeke o Aotearoa ko ia tētahi o ngā kaitihi (ko te Rārangi o ngā 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-tīnana atu ki te taaio ki te āta tirotiro i ngā carabid i ngā takiwā 1000 neke atu, e mārama ake ai ngā whakarōpūtanga, ngā hitoritiori māori, me te papawhenua-koiora o ngā mōmo o Aotearoa.

I whānau mai tērā atu kaitahi, a Marie-Claude Larivière i Quebec. I reira anō ia e rapu ana i te mātāuranga ā, riro noa i a ia tana Tōhu Tākutanga mai i te Whare Wānanga o McGill, i te tau 1990. Ko te kaupapa o taa tuohu, ko te pūnaha whakarōpū i ngā aitanga a Punga. Kātahi ia ka neke ki Agriculture Canada, i Ottawa, mō te rua tau, ki reira whātotoro 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 ārāri Te Tātaitanga o ngā Whakapapa o ngā Aitanga Tuarā-Kore a Tāne, te hanganga o ngā pūnaha pātengi rawaunui, whakahaupā a-mātai mō te Kohinga Angawahō o Aotearoa, ā, mai i te tau 1994 ki te 2004, ko te kaupapa Koiora-BioAssist™ (Te Aromatawai i te Huhuautanga Koiora 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 Hanganga Tuarā-Kore (i Manaaki Whenua, Tāmaki). Me kōrero anō te wāhi ki a ia i a te komiti whakataki i te hautaka Ko te Aitanga Pepeke o Aotearoa (1994–2004, 2007–nāiainen). 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 hitorirō māorī o ngāi Hemiptera me Carabidae (Coleoptera), tae atu ki ētahi tāngia 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 ngāi Hemiptera o Ahitereiria me Te Moana-nui-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 ātawhia, taihoia ka whakaputaina e rāua ētahi kōrero hou mō ngāi Hemiptera me ngāi Carabidae o Aotearoa. Āpiti atu ki tērā, kei te whakahaire 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 koiora, tae atu ki te whakarōpū a-mātai, (haere tonu)
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.

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, Brosolini, 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 Brosolini (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.

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)
Frontispiece *Megadromus antarcticus* (Chaudoir, 1865) © H. Goulet and M.-C. Lariviére
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 Larochelle & 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: Duvaliomimus lamberti Britton, 1960). Three new generic synonymies are made (valid names listed after equal sign): Anchomenus arnaudensis Broun, 1921 = Ctenognathus arnaudensis (Broun, 1921); Anchomenus colensonis White, 1846 = Ctenognathus colensonis (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 sulcitarsis Broun, 1880 = Ctenognathus sulcitarsis (Broun, 1880); Anchomenus xanthomelus Broun, 1893 = Ctenognathus xanthomelus (Broun, 1893); Anomalobroscus 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 Nothobroscina was created by Roig-Jénét (2000) for five New Zealand endemic broscine genera. The subtribal group-name Zolina was established by Roig-Jénét & 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.

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contributions by the second author.
INTRODUCTION

The family Carabidae (including tiger-beetles) is taxonomically diverse, with an estimated total of over 34,000 species in 1,927 genera (Lorenz, 2005). Carabids occupy most terrestrial habitats on nearly all continents. These beetles are abundant in the field and attract attention with their shape and coloration. They are mostly nocturnal and polyphagous predators (Larochelle, 1990) although some are diurnal or phytophagous. Most ground-beetles, in temperate zones at least, live at the surface of the ground, while some species live in the soil (e.g., Anillina), in caves (e.g., Trechini, Harpalini), or on the vegetation (e.g., Zolini, Lebiini). Most New Zealand genera are flightless, which makes their dispersal capacity somewhat limited and their populations morphologically varied, sometimes even aberrant. In 2001, Larochelle & 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 (Larochelle & Larivière, 2003) to assess the biodiversity of ecosystems, indicate the impact of landscape changes, evaluate environmental health, predict the effect of climate changes, classify habitats for nature protection, 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 Larochelle & 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 (Larochelle & 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 Larochelle & 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 Larochelle & 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), Larochelle & 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: Broschini (Britton, 1949; Pawson et al., 2003b, *Oregus*); Bembidini, except Tachynina (Lindroth, 1976, 1980; Moore 1980); Harpalini (Larochelle & Larivière, 2005), Pterostichini (Britton, 1940; Butcher, 1984, *Holcaspis*); Lebini (Britton, 1941); Pentagonini (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, Broschini = Trechinae, Broschini). The tribal nomenclature is now different (Cychrini = Pamborini; Migadopini = Migadopini + Amarotypini; Psydriini = 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 Feroniidae (=Pterostiichi), with the genera *Rhysternus*, *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.
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.

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

<table>
<thead>
<tr>
<th>Present work</th>
<th>Larochelle &amp; Larivière (2001)</th>
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<tr>
<td>Subfamily Cicindelinae</td>
<td>Subfamily Carabinae</td>
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<tr>
<td>Tribe Cicindelini</td>
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<td>Tribe Pamborini</td>
<td>Tribe Migadopini</td>
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<td>Subfamily Migadopinae</td>
<td>Subfamily Broscinae</td>
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<tr>
<td>Tribe Amarotypini</td>
<td>Tribe Broscini</td>
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<td>Tribe Migadopini</td>
<td>Subfamily Psydrinae</td>
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<tr>
<td>Subfamily Scaritinae</td>
<td>Tribe Meccyclothoracin</td>
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<td>Tribe Clivinini</td>
<td>Tribe Meonini</td>
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<tr>
<td>Subfamily Trechinae</td>
<td>Tribe Tropopterini</td>
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<tr>
<td>Tribe Broscini</td>
<td>Tribe Trechini</td>
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<td>Tribe Mecyclothoracini</td>
<td>Tribe Zolini</td>
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<td>Tribe Meonini</td>
<td>Tribe Bembidiini</td>
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<tr>
<td>Tribe Tropopterini</td>
<td>Subfamily Harpalinae</td>
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<tr>
<td>Tribe Trechini</td>
<td>Tribe Pterostichini</td>
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<td>Tribe Zolini</td>
<td>Tribe Licinini</td>
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<td>Tribe Bembidiini</td>
<td>Tribe Harpalini</td>
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<td>Subfamily Harpalinae</td>
<td>Tribe Platynini</td>
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<td>Tribe Pterostichini</td>
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<td>Tribe Licinini</td>
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<td>Tribe Harpalini</td>
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<td>Tribe Platynini</td>
<td>Subfamily Pseudomorphinae</td>
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<td>Tribe Lebiini</td>
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</table>
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 Mackennzie 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 head-lamps 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:

1. 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.

2. 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.

3. Tribal characters gathered from the world literature were assessed for all genera occurring in New Zealand, using the above-mentioned specimen samples.

4. Subfamilial characters were also assessed in the same way as for genera and tribes.

5. 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.

6. Identification keys were built in the same way as descriptions, with emphasis on the most diagnostic characters of the external morphology.

7. Only differential descriptions were prepared for subtribes and subgenera. No keys were prepared for these categories.

8. 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 Nothobroscina 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, S.I. 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 Halipilidae). 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 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 mesocoaxal 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; unguitractor 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 striople present or absent. Sutriae 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 generic 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 & Cicchino 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). Unguictractor 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 secundiform (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) Unguictractor plate long, seta-shaped, visible between tarsal claws (Fig. 224). ... (p. 29) ... Tribe Amarotypini .................................................................................................................. genus Amarotypus (Fig. 4)

—Unguictractor 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 Pentagonini). .................................................................................................................. 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 Trechina (Fig. 28–35)

—Head with dorsal furrows shorter, not extending behind posterior margin of eyes (Fig. 129). ................. (p. 37) ... Tribe Tropopterini .................................................................................................................. genus Molopsida (Fig. 27)
—Elytra with interval 8 not carinate at apex (Fig. 227).

13(12) Tarsi pubescent dorsally (Fig. 189). Labrum moderately emarginate anteriorly (Fig. 151) ............ (p. 37) ... Tribe Meonini

—Mandibles without scrobe on outer side (Fig. 156). Mentum and submentum not separated by a transverse suture (Fig. 161) ................................................................. (p. 85) ... Tribe Lebiini (Fig. 110–116)

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] ...........

—Head with a single supraorbital setiferous puncture on inner side of each eye (Fig. 95) ................. ... 21

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] ...........................................................

—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

—Tribe Platynini

(genus Ctenognathus, in part; Fig. 101)

20(18) Elytra 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

—Antennal pubescence starting from segment 4. Mentum with circular foveae (Fig. 119) ................. (most genera; Fig. 71–73, 75–76, 78–98)

16(15) Scutellum not visible from above, hidden by pronotum (Fig. 74) ............................................. ... 17

—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

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 Harpinae, 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) ...

—Tribe Trenchini, Tribe Broschi

—Tribe Platynini

(genus Oregus (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 Pentagonici (Fig. 108–109)

22(20) Pronotum with 3–16 setiferous punctures on each side (Fig. 74, 77). Palpi with terminal segment setose (Fig. 77). [Antennae moniliform (Fig. 123), submoniliform, or filiform (Fig. 124); body length 8.0–23.0 mm] ...........

—Elytral epipleura simple (without inner fold or plica) near apex (Fig. 235). [Antennae filiform (Fig. 124); body length 6.0 mm or less] ................................................................. ... (p. 36) ... Tribe Mecyclothoracini

—Tribe Mecyclothorax (Fig. 24–25)

23(22) Labrum deeply emarginate anteriorly (Fig. 152) or cleft almost to base (Fig. 153). Clypeus emarginate (Fig. 152–153) .................................................................

—Tribe Licininii (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

—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] ........................................... ... 2

........................ (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), secundiform (Fig. 141), or partially subulate (Fig. 143) ........................................... ... 4

4(3) Unguictactor plate long, seta-shaped, visible between tarsal claws (Fig. 224) ........................................... ... 5

—Unguictactor 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 Zolinii (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 Licinii (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] ........ ........ (p. 37) ... Tribe Tropopoterini

14(13) Elytra with interval 8 carinate at apex (Fig. 227). [Tarsi glabrous dorsally (Fig. 190)] ........ ........ (p. 37) ... Tribe Tropopoterini

15(14) Tarsi pubescent dorsally (Fig. 189). Labrum moderately emarginate anteriorly (Fig. 151) ................ (p. 37) ... Tribe Meonini
—Tarsi glabrous dorsally (Fig. 190). Labrum not emarginate anteriorly (Fig. 24, 126) ................................ (p. 36) ... Tribe Mecyclothoracini

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) ........................................................................... ... (p. 37) ... Tribe Heterostichini

17(16) Elytra with apex transversely (Fig. 116) or obliquely (Fig. 109) truncate. Abdomen with apex visible from above (Fig. 109, 116) ................................................................. (p. 36) ... Tribe Lebini (Fig. 110–116)
—Elytra with apex not truncate (Fig. 82–83). Abdomen with apex not visible from above (Fig. 82–83) ........ (p. 84) ... Tribe Lebini (Fig. 110–116)

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 Pentagonici
—Mandibles without scrobe on outer side (Fig. 156). Mentum and submentum not separated by a transverse suture (Fig. 161) ................................................................. (p. 83) ... Tribe Pentagonici (Fig. 108–109)

19(17) Scutellum not visible from above, hidden by pronotum (Fig. 74) ................................................................. (p. 78) ... Tribe Platynini
—Scutellum visible from above (Fig. 75) ........ (p. 78) ... Tribe Platynini (Fig. 99–100, 102–106)

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
—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 Broschini (genera Bounty (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 Broschini (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 ................................................................. (p. 78) ... Tribe Platynini (except Gaioxenus, genus Ctenognathus, in part; Fig. 101)

22(21) Head with a single supraorbital setiferous puncture on inner side of each eye (Fig. 95) ........ (p. 60) ... Tribe Harpalini (except Gaioxenus, genus Maoriharpalus; Fig. 71–73, 75–76, 78–98)
—Antennal pubescence starting from segment 4. Mentum with circular foveae .................................................... (p. 84) ... Tribe Perigonini (Fig. 107)

23(22) Antennal pubescence starting from segment 2 or 3. Mentum without circular foveae .................................................... (p. 84) ... Tribe Harpalini (except Gaioxenus, genus Maoriharpalus; Fig. 71–73, 75–76, 78–98)
—Antennal pubescence starting from segment 4. Mentum with circular foveae (Fig. 119) ................................................................. (p. 78) ... Tribe Platynini

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
—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
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. Prococaxial cavities closed behind. Mesepisterna reaching mesocoaxial 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); Putchkov & 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; unguitractor 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


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); Larochelle & 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); Larochelle & Larivière, 2001: 35 (catalogue).

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**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 mesepisterna and sternum II. *Legs.* Protibiae isochaetous (with 2 apical spurs); antennal cleaner forming a groove; outer apical prolongation absent. Tarsi glabrous dorsally; claws entire ventrally; unguitractor 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).

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**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).

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**[2] Genus Carabus Linnaeus, 1758**

**Figure 2, Map p. 167**


**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); Larochelle & 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); Larochelle & Larivière, 2001: 34 (catalogue).

3. Tribe Pamborini

**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; unguitractor 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

**Description.** Body length 19.0–21.0 mm. Colour dark violaceous; 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); Larochelle & 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. Mesepimeron 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


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); Larochelle & Larivière, 2001: 40 (catalogue).

Note. This genus is in need of revision.

5. Tribe Migadopini

Figures 5–8


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)


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.


Figures 6–8, Map p. 170


Number of taxa. 5 species, including 2 changed combinations: Loxomerus (Pristancylus) capito Jeannel, 1938, reinstatement; Loxomerus (Pristancylus) 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 (Pristancylus) capito Jeannel, 1938, is reinstated, conforming to Jeannel’s original thinking, and the new combination Loxomerus (Pristancylus) philpotti (Broun, 1914) is made. This genus is in need of further revision.

Subgenus Loxomerus Chaudoir, 1842


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

Subgenus Pristancylus Blanchard, 1853

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

**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).

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

**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 (Bembidini), rarely secundiform (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. Protibiae may be pubescent or not. Abdomen usually visible (between mesepisternum and sternum II). Legs. Protibiae anisochaetous (with 1 apical and 1 subapical spur); antennal cleaner forming a deep emargination. Elytra. Free along suture (hindwings developed) or fused (hindwings vestigial). Striae present (8 or fewer in number) or absent. Apex not trun-

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. Labrum with or without setiferous puncture in scrobe. Labrum not deeply emarginate anteriorly. Clypeus with a very deep emargination. 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 (Bembidini), rarely secundiform (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. Protibiae may be pubescent or not. Abdomen usually visible (between mesepisternum 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 truncated. Abdomen. Apex usually invisible dorsally.

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

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 3. 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] ........................................ 4

4(1) Head (Fig. 175) with 2 supraorbital setiferous punctures on inner side of eyes; vertex with transverse 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); Jeanne, 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).
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)

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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).

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Subtribe Nothobroscina

**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).

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**[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.** Prothoracic 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 striole 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).

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**[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-

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); Larochelle & Larivière, 2001: 45 (catalogue); Larochelle & Larivière, 2001: 44 (catalogue).

Note. This genus is in need of revision.

[10] Genus Diglymma Sharp, 1886

Figure 12, Map p. 168


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 Anomalobroscus new genus and species; taxonomy).

Notes. Several specimens of the same populations studied by Johns (2007) when he proposed the new genus and species Anomalobroscus 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 Anomalobroscus 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.


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. Umbicate 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**

**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 (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. Umbicate 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**

**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 secundiform; 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. Prothorax without outer apical prolongation. Meso- and metathorax not strongly dilated externally towards apex; metathorax 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 striae 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); Larochelle & Larivière, 2001: 60 (catalogue); Pawson & Emberson, 2001 (species differences); Pawson et al., 2003a (species differences), 2003b (revision).

8. Tribe Mecyclothoracini

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. Prothorax without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitractor 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 (Larochelle & 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; posteralateral 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. Metepisternum elongate or short (subquadrate). Elytra. Oblong, depressed or very convex. Basal margin present, complete. Shoulders well developed, rounded. Scutellar setiferous pore present. Scutellar striae present, long or short. Sterna 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); Larochelle & 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 half submoniliform; pubescence starting from segment 4. **Thorax.** Pronotum 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.


**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); Larochelle & 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
References

Mecyclothoracini and Meonini). Other characters as for brous or with only a few setae (numerous setae, paired ambulatory setae only. Abdomen

epipleura twisted (with inner fold or plica) near apex. Radial field without fine dense pubescence. Apex usually invisible dorsally. Sterna IV–VI with paired ambulatory setae only. Other characters as for subfamily.

References. Jeannel, 1941 (description); Moore, 1963 (description; key to Australian taxa); Baehr, 2003b (description; key to Australian taxa); Moore, 1972 (description; key to subtribes; world revision); Lindroth, 1961 (description; key to subtribes; world revision); Casale & Lane, 1982 (description; key to superspecific taxa; world catalogue); Larochelle & Larivière, 2007: 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; unguintractor plate invisible between tarsal claws. Elytra. Fused along suture (hindwings vestigial). Stria 1 recurrent at apex. 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 & Lane, 1982 (description; key to superspecific taxa; world catalogue); Giachino, 2005a (key to New Zealand Trechina genera).

[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 striae 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).
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. 41) ... Kupetrechus new genus (Fig. 33)

3(1) Pronotum (Fig. 32) very transverse, subcordate, 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]............................... (p. 41) ... 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] .............................................. (p. 42) ... 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. 42) ... 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 .................. (p. 43) ... Elytra (Fig. 31, 34–35): apex rounded, abdomen invisible

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).


Figure 28, Map p. 169

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


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

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 striae 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 (epigean, cavernicolous).]

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

Appendix B (Updated checklist of species).
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); Larochelle & Larivièr, 2001: 70 (catalogue); Giachino, 2005a (description of new species).

**Note.** This genus is in need of revision.

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**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 Trechine 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 striae 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 recurring 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); Larochelle & Larivièr, 2001: 72 (catalogue).

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[21] **Genus Kiwitrechus new genus**

**Figures 32, 261, Map p. 170**

**Type species.** Kiwitrechus karenscottae new species.

**Description.** Body length 2.6–3.5 mm. Colour rather pale. Metallic lustre absent; 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 striae 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, recurring 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.
Kiwitrechus karenscottae new species

Figures 32, 259–261

Type data. Kiwitrechus karenscottae 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 karenscottae 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.


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 posteralateral angles, and the elytra with 3 foveate discal setiferous punctures in stria 3.

Kupetrechus lamberti new genus

Figure 33, p. 170

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


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); Larochelle & 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.


Figure 34, Map p. 171

Description. Body length 3.6–3.8 mm. Colour pale. Metallic lustre absent. Dorsal surface mostly glabrous. 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). Mentum tooth bifid. 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 striae 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.


Note. Neanops could comprise two genera.


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 striae 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.

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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.


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; unguitractor plate invisible between tarsal claws. Elytra. Fused along suture (hindwings vestigial). Discal setiferous punctures usually present, rarely absent. Sria 1 recurrent at apex (curving back like a hook; as Trechini and Bembidiini (Tachyina)). Umbilicate series present; 9 setiferous punctures (12–13 punctures in Meccylothoracini, 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 fauna); 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 Zolina over Oopterina.

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


References. Jeannel, 1940b (Oopterini new tribe); Bousquet & Larochelle, 1993 (as Oopterini); Liebherr & 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.


Figures 36–37, Map p. 172


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 subcylindrical, 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 striae 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 Larochelle & 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 and distribution 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); Larochelle & Larivière, 2001: 73–74 (catalogue).

**Notes.** All species of *Oopterus* and *Zolus* listed by Larochelle & 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

**Description.** Body: length 3.0–3.5 mm; ovate, not narrow 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 striae 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); Larochelle & 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 punctures 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; unguitractor 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. Radical 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) ..................

—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) ..................

—Pronotum without an auxiliary tubercle near posterolateral angles (Fig. 179). Palpi with penultimate maxillary segment ovate (Fig. 147) ...........

4(2) Eyes (Fig. 136) present, strongly reduced, consisting of 4–5 facets. Body convex ...........................................

—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) ___________________________.

—Elytral shoulders not serrate (Fig. 55). Pronotum not cordate (Fig. 55). Antennae moniliform, short (Fig. 123) ___________________________.

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) ...........................................

—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 ...........................................

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 ___________________________.

—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)

—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 ___________________________.

—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 ___________________________.

—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 ___________________________.
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 striae 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).

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**[27] Genus Bembidion Latreille, 1802**

**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 present. 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 lateral angle. Scutellum either inserted entirely between elytral bases, or placed partly between and above elytral lateral angle. **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 serratate. Scutellar setiferous pore present. Scutellar striae 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 Zecillenus 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 Zecillenus). 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 Cillenus [=subgenus Zecillenus]; 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 Zecillenus; revision); Larochelle & Larivière, 2001: 79 (catalogue), 85 (as Zecillenus; catalogue); Toledano, 2005 (subgeneric status of Zecillenus; taxonomy of Australian taxa).

**Note.** This genus is in need of further revision.

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**Subgenus Ananotaphus 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); Larochelle & Larivière, 2001: 79 (catalogue); Toledano, 2005 (taxonomy).

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**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 Ananotaphus). **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 Zecillenus 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 Cillenus Samouelle, 1818: 148; key to species); Lindroth, 1980: 182 (as Zecillenus; description; revision); Larochelle & Larivière, 2001: 85 (as Zecillenus; catalogue); Toledano, 2005 (subgeneric status of Zecillenus).

Notes. Toledano (2005) changed the status of Zecillenus Lindroth, 1980, from that of genus to that of subgenus. Consequently, all Zecillenus species have implicitly been recombed 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.


Subgenus Zeperyphodes Lindroth, 1976


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

Subgenus Zeperyphus Lindroth, 1976


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.

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); 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; depressed. 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 (postero-lateral 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. Sternal 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


**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 striae 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 3 discal setiferous punctures (3 punctures in other tachyine genera). Umbilicate series separated into two major groups (4+4), with posterior group divided into 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); JeanneI, 1941 (as Eotachys new genus; description); Britton, 1960a (as Eotachys; description); Lindroth, 1966 (as Eotachys; description); Larochelle & Larivière, 2001: 87 (catalogue).

**[30]** Genus Pericompus LeConte, 1852

Figure 49, Map p. 173

**Description (Pericompus 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 striae 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 Upocompus 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. Mem-
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).


Figure 51, Map p. 169


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.


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 striae absent. Striae as for tribe. **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 technique.** Sifting thick leaf litter.

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

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

**[34] Genus Pelodiaetodes Moore, 1980**

**Figure 53, 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 filiform, short; pubescence starting from segment 2. **Mentum:** median tooth entire; circular foveae absent. 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 striae absent. Striae as for tribe. **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).

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

**[35] Genus Nesamblyops Jeannel, 1937**

**Figure 54, Map p. 172**

**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, oblique, serrate. Scutellar setiferous pore present. Scutellar striae absent. Striae as for tribe. **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 technique.** 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.
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 striae 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 *Pelodictodes*). A single discal setiferous puncture. Umbo of 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 scree, in thick ground litter.

**Collecting technique.** Sifting thick ground litter.

**References.** Jeannel, 1937: 275 (description), 1963 (description; revision); Moore, 1980 (revision); Larochelle & Lariviére, 2001: 90 (catalogue).

**Note.** This genus is in need of further revision.

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**[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 mainly 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 striae 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. Umbo of series separated into two major groups with 1 seta in between (3+1+3), with posterior group divided into two subgroups (2+1); 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); Larochelle & Lariviére, 2001: 90 (catalogue).

**Note.** This genus is in need of further revision.

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**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 generally 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, Gaioxenus, 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 vestigial) 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; unguitractor 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** Motchulsky (Fig. 59–60)

—Elytral interval or stria 7 without a series of discal setiferous punctures (Fig. 249) ... (p. 55) ... **Prosopogmus** Chaudoir (Fig. 64)

2(1) Mentum with circular foveae (Fig. 119) ... (p. 57) ... **Onawea** Johns (Fig. 62)

—Mentum without circular foveae (Fig. 159) ... (p. 56) ... **Neoferonia** Britton (Fig. 61)

3(2) Meso- and metatarsi without a dorsal longitudinal groove on each side (Fig. 222) ... (p. 57) ... **Plocamostethus** Britton (Fig. 63)

—Meso- and metatarsi with a dorsal longitudinal groove on each side (Fig. 219) ... (p. 58) ... **Rhytisternus** Chaudoir (Fig. 66)

4(3) Three terminal abdominal sterna with a transverse groove anteriorly (Fig. 252) ... (p. 59) ... **Zeopoecilus** Sharp (Fig. 67)

—Three terminal abdominal sterna without a transverse groove anteriorly (Fig. 251) ... (p. 56) ... **Holcaspis** Chaudoir (Fig. 58)

5(3) Metepisterna short, subquadrate. Metatarsomere 5 with 3 pairs of setae ventrally. [Elytra free along suture (hindwings vestigial)] ... (p. 55) ... **Holcaspis** Chaudoir (Fig. 58)

—Metepisterna elongate (Fig. 184). Metatarsomere 5 with 2 pairs of setae ventrally. [Elytra fused along suture (hindwings vestigial)] ... (p. 58) ... **Psegmatopterus** 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] ... (p. 57) ... **Neoferonia** Britton (Fig. 189)

7(6) Antennomere 1 subcarinate, hollowed or flattened posteroventrally (Fig. 122). Male metatibiae with inner apical prolongation dorsally (Fig. 205). [Body with metallic lustre] ... (p. 55) ... **Zeopoecilus** Sharp (Fig. 67)

—Antennomere 1 not subcarinate, neither hollowed nor flattened posteroventrally. Male metatibiae without inner apical prolongation dorsally (Fig. 206) ... (p. 55) ...

8(7) Eyes normally developed (Fig. 61–62). Tempora not inflated (Fig. 61–62, 174). Mandibles moderately long (Fig. 61–62) ... (p. 57) ... **Onawea** Johns (Fig. 62)

—Eyes strongly reduced (Fig. 57, 63). Tempora inflated (Fig. 57, 63, 173). Mandibles very long (Fig. 57, 67) ... (p. 57) ...

9(8) Metatarsomere 5 glabrous ventrally (Fig. 190). Body length 9.0 mm or less ... (p. 56) ... **Neoferonia** Britton (Fig. 61)

—Metatarsomere 5 setose ventrally (Fig. 189). Body length 18.0 mm or more ... (p. 57) ... **Onawea** Johns (Fig. 62)

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 glabrous ventrally (as Aulacopodus). **Elytra.** Oblong. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed, obtuse, dentate. Scutellar setiferous pore absent (as Onawe). 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), 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 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 Holcaspis). **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), posterior group continuous; 17–19 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 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.
setiferous pore present. Scutellar striae 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.

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**[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 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 striae 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.

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**[41] Genus Neoferonia Britton, 1940**

*Figure 61, Map p. 171*

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

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


Figure 62, Map p. 172

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

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


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.


Note. This genus is in need of further revision.

[43] Genus Plocamostethus Britton, 1940

Figure 63, Map p. 173


Number of taxa. 2 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); Larochelle & Larivière, 2001: 109 (catalogue).

Note. This genus is in need of further revision.

[44] Genus Prosopogmus Chaudoir, 1865

Figure 64, Map p. 174

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 sternum 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.

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**[46] Genus Rhytisternus Chaudoir, 1865**

Figure 66, Map p. 174


**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 Zeopoecilus 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 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 striae 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); Larochelle & Larivière, 2001: 113 (catalogue); Johns, 2007 (description of a new species).

**Note.** This genus is in need of further revision.

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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; unguitractor 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, 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)

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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

**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; postero-lateral 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. 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.

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[49] Genus Physolaesthus Chaudoir, 1850


**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.

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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 (Kiwiharpalus), 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, anteriorly setiferous puncture on each side. Scutellum between and above elytral bases. Protibiae without outer apical prolongation. Tarsi pubescent or glabrous dorsally; claws entire ventrally; unguitractor 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, biseriately 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); Larochelle & 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 Larochelle & 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 ........................................ 4
   —Penultimate labial palpomere with 3 setae (Fig. 149) or less on anterior margin ................................. 2

2(1) Male protarsi dilated laterally and biseriately 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

2(2) 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)

5(5) Male protarsi dilated laterally and biseriately pubescent ventrally (Fig. 210) .................................. (p. 71) ...
   —Subtribe Pelmattellina (in part)

5(3) Male protarsi dilated laterally and spongily 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

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61
(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) ....... *Tuihartipalus* 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)

(1) Mentum without median tooth (Fig. 166) .... ... 4
—Mentum with a median tooth (Fig. 162–165) .... ... 6

(3) Eye reaching buccal fissure ventrally (Fig. 132). Frons with clypeo-ocular prolongations (Fig. 94). Body length 6.5 mm or less ........................................................... ... 9

—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

(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)

(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

(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)

(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

(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

(9) Elytral striae incomplete basally and laterally (Fig. 96). Pronotum suborbicular (Fig. 96) ........................................... (p. 76) ... *Haplalister* Moore (Fig. 96)

—Elytral striae complete (Fig. 79). Pronotum not suborbicular ................................................................. ... 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

(11) Frons with clypeo-ocular prolongations (Fig. 92) ........................................................... ... 13

—Frons without clypeo-ocular prolongations (Fig. 78) . ........................................................... ... 14

(12) Apex of prosternal lobe setose. Penultimate labial palpmere 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 palpmere 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)

(12) Metatarsomere 1 very long, almost as long as metatarsomers 2+3+4 combined (Fig. 217) ......................... ... (p. 68) ... *Notiobia* Perty (Fig. 78)

—Metatarsomere 1 much shorter, at most as long as metatarsomers 2+3 combined (Fig. 216, 218) ... ... 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) ... Gairoxenus 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) ... Triposarus 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 Larochelle & Larivière (Fig. 87)
—Pronotum quadrate (Fig. 97). Antennae not widening from base to apex; pubescence starting on antennomere 3 ................................................................. ... (p. 77) ...
........ Kiwiharpalus Larochelle & Larivière (Fig. 97)

Subtribe Anisodactylin
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, Gairoxenus, Maoriharpalus). Mentum and submentum usually separated by a complete transverse suture (Fig. 159), seldom by laterally incomplete transverse suture (Fig. 160; Gairoxenus), 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 pubescent. Legs. Metatarsomere 1 of variable length. Elytra. Umbilicate series usually continuous, seldom sepa-
rated into two major groups (Allocinopus, Hypharpax, Notiobla) 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); Larochelle & 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 Larochelle & 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) ... Gairoxenus 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 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)
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) ... Hypharpax 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) ........................... ... (p. 69) ... Triplosarus Bates (Fig. 81)
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) ... Parabarbis Broun (Fig. 79–80)
—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) ... Parabarbis 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.

[51] Genus Anisodactylus Dejean, 1829

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 microptores 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 extending to basal bulb; apical disc present. Internal sac bilicate series continuous; about 20 setiferous punctures. Dorsal view: asymmetrical (with ostium deflected to the left), twisted at middle; dorsal membranous area wide, not truncate apically, with moderately dense and long setae; 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. Metatarsi dilated laterally and spongily pubescent ventrally. Male protarsi and mesotarsi 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); Larochelle & 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); Larochelle & Larivière, 2001: 123 (catalogue), 2005 (description).

[52] Genus Gaioxenus Broun, 1910


Thorax. Pronotum transverse; base almost straight, as wide as elytral bases; lateral beads complete; anterior and posterior beads complete. Scutellum invisible (hidden by pronotum, as Maoriharpalus). Inserted entirely between elytral bases. Apex of prosternal lobe setose. Legs. Metatarsomere 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

**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). 

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**[53] Genus Gnathaphanus Macleay, 1825** 

*Figure 76, Map p. 169*

**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 incomplete 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 basal 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.** Metatibiae 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 striae 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). 

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**[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.** Metapodomera 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 striae present. Sтриуме completely, 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 striae present. Sтриуме completely, 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.

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, seriately pubescent in the latter.

[56] Genus Notiobia Perty, 1830

Figure 78, Map p. 172


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


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

[57] Genus Parabarbis 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 striae 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); Larochelle & 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.** Metatibia 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 striae 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); Larochelle & Larivière, 2001: 125 (catalogue), 2005 (revision).

**[59] Genus Tuiharpalus Larochelle & 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 thorax) without sparse setiferous micropores dorsally.

**Head.** Very wide. Mandibles moderately long, slightly or moderately curved forward, blunt apically. Labrum moderately transverse. 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.** Metatibia 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 striae 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); Larochelle & Larivière, 2001: 125 (catalogue), 2005 (revision).
clypeo-ocular prolongations. Antennae filiform; pubescence starting from segment 3. Mentum with a tooth mediually, 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 plurisetose (4–6 setae) or trisetose on anterior margin. **Thorax.** Pronotum transverse or subbicular; 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.** Metatibia 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. Sterna 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 & Larivièrè, 2005: 46 (description; revision).
between elytral bases. Apex of prosternal lobe setose. **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); Larochelle & Larivièrè, 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 palpmere 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** Larochelle & Larivièrè (Fig. 88–89)

—Apex of prosternal lobe glabrous (Fig. 119). Penultimate labial palpmere 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

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**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); Larochelle & Larivièrè, 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 palpmere 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** Larochelle & Larivièrè (Fig. 88–89)

—Apex of prosternal lobe glabrous (Fig. 119). Penultimate labial palpmere 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

(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 medi ally. 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 pelmatelline 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 pel matelline genera); 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 subcylindrical; 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 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 medi ally. 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 stirole 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. **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 spongily pubescence not uniformly distributed, contrary to *Lecanomerus*). **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; 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. **Abdomen.** Sterna III+IV of male without a setiferous fovea. Sterna IV–VI with pubescence, in addition to paired ambulatory setae.

**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.


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**[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 clupeo-ocular prolongations complete or incomplete toward eyes. Antennae filiform; pubescence starting from segment 2 or 3. Mentum with a tooth mediadly, 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 stirole 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).

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**[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.** Metatibiae 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 striae 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.


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**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 biseriately 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 biseriately 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); Lindroth, 1968 (description); Reichardt, 1977 (key to Neotropical genera); Larochelle & 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) ...................... (p. 77) ... Pholeodytes Britton (Fig. 98)

—Eyes (Fig. 94–96) normally developed. Mandibles shorter (Fig. 94–96). Body pigmented (appearing dark in colour) ......................................................... ... 2

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) ... Haplanister Moore (Fig. 96)

—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) ... Kiwiwharpalus Larochelle & Larivière (Fig. 97)

3(1) Elytral striae incomplete basally and laterally (Fig. 96). Clypeo-ocular prolongations incomplete toward eyes (Fig. 96). Pronotum (Fig. 96) subborbicula. 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 subborbicula. 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

Secondary sexual characters. Male protarsi and mesotarsi dilated laterally and biseriately 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 striae 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 medi ally (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 unarm ed. Other characters as for tribe.

Secondary sexual characters. Male protarsi dilated laterally and biseriately pubescent ventrally; male mesotarsi dilated laterally and biseriately 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).


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

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 biseriately 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.


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**[68]** Genus *Kiwiwarpalus* Larochelle & 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 0.7x 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 palp setose; penultimate segment of labial palp 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; 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* (Bembidini).


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**[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. 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; 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* (Bembidini).

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* (in part)). Tarsi pubescent (with few setae) dorsally; apex of prosternal lobe glabrous. **Elytra.** Elliptical or subelliptical. Basal margin present, complete. Shoulders poorly developed. Scutellar setiferous pore present. Scutellar striae obsolete. 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 biseriately pubescent ventrally. Male mesotarsi slightly dilated laterally, not biseriately 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).
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) ......................................... ... 2

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) ... *Prospodorus* Britton (Fig. 106)

3(1) Laterobasal foveae of pronotum sulciform (shaped as a deep line or furrow; Fig. 100). Scutellar striae 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 striae 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 striae short (Fig. 101–103) .................................................................................................................. ... (p. 82) ... *Ctenognathus* Fairmaire (Fig. 101–103)
   —Eyes touching buccal fissures (Fig. 132). Elytral shoulders broad (Fig. 104–105); scutellar striae 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 *Prospodorus*). **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 striae 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); Larochelle & Lariviére, 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. **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); scutellar striole of elytra absent; metatibiae straight, or almost so. 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 striae absent. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous puncture. **Notes.** This genus is in need of revision. **References.** 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 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); scutellar striole of elytra absent; metatibiae straight, or almost so. 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 striae absent. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous puncture. **Notes.** This genus is in need of revision. **References.** Bonelli, 1810: Tabula Synoptica. New status.

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**[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 rather small, convex, separated from buccal fissures; usually 2 supraorbital 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); usually 2 (rarely 1, anteriorly) setiferous punctures on each side. Scutellar striae absent. Striae complete, generally consisting of impressed lines. Interval 3 without discal setiferous puncture. **Notes.** This genus is in need of revision. **References.** Laporte de Castelnau, 1867: 116 (description); Broun, 1893a (description of *Zabronothus*); Larochelle & Larivière, 2001: 132 (catalogue).

**[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 5.0–18.0 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 striae 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 Larochelle & Larivière (2001): Ctenognathus arnaudensis (Broun, 1921) new combination; C. colensonis (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. libilitus (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. sulcitarsis (Broun, 1880) new combination; C. xanthomelas (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); Larochelle & Larivière, 2001: 133 (catalogue); Liebherr, 2005 (description).

**Notes.** Liebherr (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 Larochelle & Larivière, 2001) – when he recombined “A.” otogoensis Bates, 1878, as Ctenognathus otogoensis 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. xanthomelas (Broun, 1908), which was misspelt as xanthomelus by Larochelle & Larivière (2001). The genus Anchomenus Bonelli, 1810, is thus excluded from the New Zealand fauna. The genus Ctenognathus is in need of revision.

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**[73] Genus Notagonum Darlington, 1952**

**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); Larochelle & 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.
Genus *Platynus* Bonelli, 1810


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 compressed into a vertical ridge. Legs. Protibiae with dorsal longitudinal grooves. Metatibiae straight, or almost so. Tarsi glabrous dorsally; metatarsomeres 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 striae complete in most species differences; Barr, 1965 (classification); Valentine, 1987 (classification); Casale, 1988 (classification); Larochelle & Larivière, 2001: 139 (catalogue). Shoulders narrow, rounded, without tooth. Scutellar setiferous pore present. Scutellar striae complete. Striae 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); Larochelle & Larivière, 2001: 139 (catalogue).

Note. This genus is in need of further revision.

18. Tribe *Perigonini*

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); Larochelle & Larivière, 2001: 140 (catalogue).

**Subgenus Treichicus** 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); Larochelle & 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; unguitractor 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 bifid apically. **Thorax**. Pronotum very transverse, strongly cordate apically; sides strongly convergent posteriorly; base narrower than apex, distinctly 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 stirole present. Striae setiferous, complete, 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); 11–14 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); 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.

[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 stirole 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**. 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.

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 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, *Anomotatus*, *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*); unguitractor 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); Jeanne, 1942 (description; key to subtribes); Hub, 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)  

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)] ............................................................................. ... 3

—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) ... **Philophlaeus** 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 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. 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.** Hub, 1967 (description); Reichardt, 1977 (key to Neotropical genera); Ball & Hilchie, 1983 (description); Shpley & 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 (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 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, 1844: 119 (description), 1869 (description); Britton, 1941 (description); Darlington, 1968 (description); Larochelle & Larivière, 2001: 144 (catalogue).

**Note.** This genus is in need of revision.

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**[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.


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**[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). **Elytra.** Oblong, wide. Fused along suture (hindwings vestigial). Basal margin present, complete. Shoulders well developed. Scutellar setiferous pore present. Scutellar striae 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); Larochelle & 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).

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[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 striae 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); Larochelle & 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 & Lariviére, 2001: 146 (catalogue).

[83] Genus Demetrida White, 1846

Figure 114, Map p. 167


Thorax. Pronotum elongate, subquadrate, or moderately transverse, subquadrate; 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 striae 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 & Lariviére, 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 & Lariviére, 2001: 147 (catalogue).

[84] Genus Trigonothops Macleay, 1864

Figure 115, Map p. 175


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


References. Jeannel, 1942 (description); Habu, 1967 (description); Lindroth, 1969a (description), 1986 (description).

Genus *Dromius* Bonelli, 1810

Figure 116, Map p. 168


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 striae more or less developed.

References. Bonelli, 1810: Tabula Synoptica (description); Jeannel, 1942 (description); Habu, 1967 (description); Lindroth, 1974 (description); Mateu, 1984 (description).
VII. Subfamily Pseudomorphinae

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. Metepisterna not reaching mesocoxal cavities. Metepisterna 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.


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 Pseudomorphini


Thorax. Pronotum without setiferous punctures on each side. Legs. Protibiae without outer apical prolongation. Tarsi glabrous dorsally; claws entire ventrally; unguitractor 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).
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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.
antennomere — each antennal segment.
apical 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.
bend — 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.
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.
edged — 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) — recurred 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.
familly — 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.
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.
opturnal — active during the night.
obliminated — completely removed.
obleng — 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.

dolphyagous — 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.

quadrat — 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.

scutellar — related to the scutellum.

scutellar setiferous pore (of elytron) — seta-bearing pore situated next to the scutellum.

scutellar stirole (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).

unguactor 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 bellii 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) illawarrai (Macleay, 1873) A
Anomotarus (Anomotarus) variegatus Moore, 1967 A
Aulacopodus brouni (Csiki, 1930)
Aulacopodus calathoides (Broun, 1886)
Aulacopodus maerinus (Bates, 1874)
Aulacopodus sharpianus (Broun, 1893)
Bembidion (Zeperyphus) actuarium Broun, 1903
Bembidion (Zecillenus) alacre (Broun, 1921)
Bembidion (Zecillenus) albescens (Bates, 1878)
Bembidion (Zemetallina) anchonodorus Bates, 1878
Bembidion (Notaphus) bruliei Gemminger & Harold, 1868 A
Bembidion (Zeperyphodes) callipeplum Bates, 1878
Bembidion (Zemetallina) chalceipes Bates, 1878
Bembidion (Zecillenus) chalmeri (Broun, 1886)
Bembidion (Zeplataphus) charlie Bates, 1867
Bembidion (Zeplataphus) dehisces Broun, 1893
Bembidion (Zecillenus) embersoni (Lindroth, 1980)
Bembidion (Zeplataphus) granuliferum Lindroth, 1976
Bembidion (Zemetallina) hokitiense 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) solitarius Lindroth, 1976
Bembidion (Zemetallina) stewartense Lindroth, 1976
Bembidion (Zeplataphus) tairuense Bates, 1878
Bembidion (Zemetallina) tekapoense Broun, 1886
Bembidion (Zecillenus) tillyardi (Brookes, 1878)
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) australomontana 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) perhispida campbelli Broun, 1886
Cicindela (Neocicindela) perhispida giveni (Brounerius van Nidek, 1965)
Cicindela (Neocicindela) perhispida perhispida Broun, 1880
Cicindela (Neocicindela) spilleri (Broerius van Nidek, 1965)
Cicindela (Neocicindela) tuberculata Fabricius, 1775
Cicindela (Neocicindela) waiouraensis Broun, 1914
Clivina australasiae Boheman, 1858
Clivina basalis Chaudoir, 1843
Clivina heterogena Putzeys, 1866
Clivina vagans Putzeys, 1866
Clivina (Neocicindela) actochares Broun, 1894
Clivina (Neocicindela) basalis Chaudoir, 1843
Clivina (Neocicindela) heterogena Putzeys, 1866
Clivina (Neocicindela) vagans Putzeys, 1866
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 colensonis (White, 1846)
Ctenognathus deformipes (Broun, 1880)
Ctenognathus edwardsii (Bates, 1874)
Ctenognathus helmsi (Sharp, 1881)
Ctenognathus intermedius (Broun, 1908)
Ctenognathus libitus (Broun, 1886)
Ctenognathus moesta (Broun, 1880)
Ctenognathus montivagus (Broun, 1880)
Ctenognathus munroi Broun, 1893
Ctenognathus nasuta (Broun, 1880)
Ctenognathus obtusum (Broun, 1886)
Ctenognathus parabilis (Broun, 1880)
Ctenognathus perrugithorax (Broun, 1880)
Ctenognathus pictonensis Sharp, 1886
Ctenognathus politulus (Broun, 1880)
Ctenognathus punctulatus (Broun, 1877)
Ctenognathus sandageri (Broun, 1882)
Ctenognathus simmondsi (Broun, 1912)
Ctenognathus sophronitis (Broun, 1908)
Ctenognathus suborbithorax (Broun, 1880)
Ctenognathus sulcitaris (Broun, 1880)
Ctenognathus xanthomelus (Broun, 1908)

Demetrida (Demetrida) dieffenbachii (White, 1843)
Demetrida (Demetrida) lateralis Broun, 1910
Demetrida (Demetrida) lineella White, 1846
Demetrida (Demetrida) moesta atra Broun, 1880
Demetrida (Demetrida) moesta moesta Sharp, 1878
Demetrida (Demetrida) nasuta White, 1846
Hakaharpalus rhodeae Larochelle & Larivière, 2005
Haplanister crypticus Moore, 1996
Harpalus (Harpalus) affinis (Schrank, 1781)
Harpalus australasiae Dejean, 1829
Harpalus (Harpalus) tardus (Panzer, 1797)
Holcaspis abdita Johns, 2003
Holcaspis algida Britton, 1940
Holcaspis angustula (Chaudoir, 1865)
Holcaspis bathana Butler, 1984
Holcaspis bessatica Johns, 2003
Holcaspis bidentella Johns, 2003
Holcaspis brevicula Butler, 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 Butler, 1984
Holcaspis hispida (Broun, 1877)
Holcaspis hudsoni Britton, 1940
Holcaspis impigra Broun, 1886
Holcaspis intermittens (Chaudoir, 1865)
Holcaspis mordax Broun, 1886
Holcaspis mucronata Broun, 1886
Holcaspis obvelata Johns, 2003
Holcaspis odontella (Broun, 1908)
Holcaspis oedicnema Bates, 1874
Holcaspis oedipodina Bates, 1874
Holcaspis ohauensis Butler, 1984
Holcaspis ovatella (Chaudoir, 1865)
Holcaspis placida Broun, 1881
Holcaspis sinuiventris (Broun, 1908)
Holcaspis sternalis Broun, 1881
Holcaspis stewartensis Butler, 1884
Holcaspis subaenea (Guérin-Méneville, 1841)
Holcaspis suteri (Broun, 1893)
Holcaspis tripunctata Butler, 1984
Holcaspis vagenpunctata (White, 1846)
Holcaspis vexata (Broun, 1908)
Hygranillus kuscheli Moore, 1980
Hypharpax antarcticus (Laporte de Castelnau, 1867)
Hypharpax australis (Dejean, 1829)

Kenodactylus audouini (Guérin-Méneville, 1830)
Kiwiwarpalus townsendi Larochelle & Larivière, 2005
Kiwiwachys antarcticus (Bates, 1874)
Kiwiwachys latipennis (Sharp, 1886)
Kiwiwachys karenscottae new genus, new species
Kupeharpalus barrattae Larochelle & Larivière, 2005
Kupeharpalus embersoni Larochelle & Larivière, 2005
Kupeharpalus johnsi Larochelle & Larivière, 2005
Kupetrechus lamberti (Britton, 1960)
Laemostenus (Laemostenus) complanatus (Dejean, 1828)
Lecanomerus atriceps (Macleay, 1871)
Lecanomerus insignitus Broun, 1880
Lecanomerus latimanus Bates, 1874
Lecanomerus marrisi Larochelle & Larivière, 2005
Lecanomerus obesulus Bates, 1878
Lecanomerus sharpi (Csiki, 1932)
Lecanomerus verticalis (Erichson, 1842)
Lecanomerus vestigialis (Erichson, 1842)
Loxomerus (Pristancyclus) brevis (Blanchard, 1843)
Loxomerus (Pristancyclus) capito Jeannel, 1938
Loxomerus (Pristancyclus) huttoni (Broun, 1902)
Loxomerus (Loxomerus) nebroiodes (Guérin-Méneville, 1841)
Loxomerus (Pristancyclus) philpotti (Broun, 1914)

Maoriharpalus sutherlandi Larochelle & Larivière, 2005
Maoripamborus fairburni Brooke, 1944
Maoritrechus rangitotoensis Brooke, 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 hudsoni Townsend, 1965
Mecodema costipenne Broun, 1914
Mecodema crenaticolle Redtenbacher, 1868
Mecodema crenicolle Laporte de Castelnau, 1867
Mecodema curvidens (Broun, 1915)
Mecodema ducale Sharp, 1886
Mecodema dunense Townsend, 1965
Mecodema dux Britton, 1949
Mecodema elongatum Laporte de Castelnau, 1867
Mecodema femorale Broun, 1921
Mecodema florae Britton, 1949
Mecodema fulgidum Broun, 1881
Mecodema gourlayi Britton, 1949
Mecodema hector Britton, 1949
Mecodema howitti Laporte de Castelnau, 1867
Mecodema huttense Broun, 1915
Mecodema impressum Laporte de Castelnau, 1867
Mecodema infimate Lewis, 1902
Mecodema integrum Townsend, 1965
Mecodema laeviceps 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 puiakium Johns & Ewers, 2007
Mecodema punctatum (Laporte de Castelnau, 1867)
Mecodema punctellum Broun, 1921
Mecodema quoinense Broun, 1912
Mecodema rectilineatum Laporte de Castelnau, 1867
Mecodema regulus Britton, 1964
Mecodema rex Britton, 1949
Mecodema rugicollis anomalum Townsend, 1965
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)
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) enysii (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)
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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 (Bates, 1874)
Neoferonia integrata (Bates, 1878)
Neoferonia prasignis (Broun, 1903)
Neoferonia procerula (Broun, 1886)
Neoferonia profixa (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)
Oopterus latifossus Broun, 1917
Oopterus latipennis Broun, 1903
Oopterus lewisi (Broun, 1912)
Oopterus marrineri Broun, 1909
Oopterus minor Broun, 1917
Oopterus nigritulus Broun, 1909
Oopterus ocularius (Broun, 1917)
Oopterus pallidipes Broun, 1893
Oopterus parvulus Broun, 1903
Oopterus patulus (Broun, 1881)
Oopterus plicaticollis Blanchard, 1843
Oopterus probus Broun, 1903
Oopterus puncticeps Broun, 1893
Oopterus pygmeatus Broun, 1907
Oopterus sculpturatus ovinotatus Broun, 1908
Oopterus sculpturatus sculpturatus Broun, 1898
Oopterus sobrinus Broun, 1886
Oopterus strenuus Johns, 1974
Oopterus suavis Broun, 1917
Oopterus 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
Pericompus (Upocompsus) australis (Schaum, 1863) A
Perigona (Trechicus) nigriceps (Dejean, 1831) A
Philophlaeus luculentus (Newman, 1842) A
Pholeodytes cerberus Britton, 1964
Pholeodytes helmorei 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
Prosphodrus occultus Britton, 1960
Prosphodrus waltoni Britton, 1959
Psegmatopterus 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 Larochelle & Larivière, 2005

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<th>Synteratus ovalis Broun, 1909</th>
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<td>Trigonothops (Trigonothops) pacifica (Erichson, 1842)</td>
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<td>Tuiharpalus clunieae Larochelle &amp; Larivière, 2005</td>
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<td>Zeanillus pallidus (Broun, 1884)</td>
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<td>Zeanillus phyllobius (Broun, 1893)</td>
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<td>Zeanillus punctiger (Broun, 1914)</td>
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<td>Zeopoecilus calcaratus (Sharp, 1886)</td>
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<td>Zeopoecilus caperatus Johns, 2007</td>
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<td>Zeopoecilus putus (Broun, 1882)</td>
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Appendix C. Changes subsequent to Larochelle & Larivière (2001)’s Catalogue.

Changes made by Giachino, 2003 (Polyderis), Johns (2003, Holcaspis), Leschen et al. 2003 (Dromius, Trigonocephala), Pawson in Pawson et al. (2003b, Oregus), Emberson, 2004 (Harpalus), Giachino, 2005 (Dactyliomimus), 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 bouqueti Larochelle & Larivière, 2005
[Allocinopus castaneus Broun, 1912, See Allocinopus smithi Broun, 1912] new synonym (Larochelle & Larivière, 2005)
[Allocinopus ocularius Broun, 1908, See Allocinopus sculpicolis 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” colensonis White, 1846, See Ctenognathus colensonis (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” otagensis Bates, 1878, See Ctenognathus otagensis (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” sulcitarsis Broun, 1880, See Ctenognathus sulcitarsis (Broun, 1880)]
[“Anchomenus” xanthomelas Broun, 1890, See Ctenognathus xanthomelas (Broun, 1890)]
[Anomalobroscus seclusus Johns, 2007, See Digyamma 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 giachinii 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 colensonis (White, 1846) new combination
Ctenognathus edwardsii (Bates, 1874) new combination
Ctenognathus helmsi (Sharp, 1881) 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 sulcitarsis (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
[“Duvaliomi mus” lamberti Britton, 1960, See Kupetrechus lamberti (Britton, 1960)]
Duvaliomi mus orientalis Giachino, 2005

Euthenarus bicolor Moore, 1985 first record for New Zealand (Larochelle & Larivière, 2005).
Euthenarus promptus (Erichson, 1842) first record for New Zealand (Larochelle & Larivière, 2005).

Gnathaphanus melbournensis (Laporte de Castelnau, 1867) first record for New Zealand (Larochelle & Larivière, 2005).

Hakaharpalus Larochelle & Larivière, 2005
Hakaharpalus cavelli (Broun, 1893) new combination (Larochelle & Larivière, 2005)
Hakaharpalus davidsoni Larochelle & Larivière, 2005
Hakaharpalus maddisoni Larochelle & Larivière, 2005
Hakaharpalus patricki Larochelle & Larivière, 2005
Hakaharpalus rhodeae Larochelle & Larivière, 2005
Harpalus australasiae Dejean, 1829 reinstatement (Larochelle & 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 (Larochelle & Larivière, 2005)
[Hypharpax australasiae (Dejean, 1829, See Harpalus australasiae Dejean, 1829]

Kiwharpalus Larochelle & Larivière, 2005
Kiwharpalus townsendi Larochelle & Larivière, 2005
Kiwitachys new genus
Kiwitachys antarcticus (Bates, 1874) new combination
Kiwitachys latipennis (Sharp, 1886) new combination
Kiwtrechus new genus
Kiwtrechus karenscoltae new species
Kupeharpalus Larochelle & Larivière, 2005
Kupeharpalus barrattae Larochelle & Larivière, 2005
Kupeharpalus embersoni Larochelle & Larivière, 2005
Kupeharpalus johnsi Larochelle & Larivière, 2005
Kupetrechus new genus
Kupetrechus lamberti (Britton, 1960) new combination

[Lecanomerus fallax Broun, 1880, See Lecanomerus insignitus Broun, 1880] new synonym (Larochelle & Larivière, 2005)
[Lecanomerus fuliginosus Broun, 1880, See Lecanomerus latimanus Bates, 1874] new synonym (Larochelle & Larivière, 2005)
[Lecanomerus incertus Broun, 1914, See Lecanomerus latimanus Bates, 1874] new synonym (Larochelle & Larivière, 2005)
Lecanomerus marrisi Larochelle & Larivière, 2005
Lecanomerus pallipes Broun, 1894, See Lecanomerus latimanus Bates, 1874] new synonym (Larochelle & Larivière, 2005)
Loxomerus (Pristancylus) capito Jeannel, 1938 reinstatement
Loxomerus (Pristancylus) philpotti (Broun, 1914) new combination

Maoriharpalus Larochelle & Larivière, 2005
Maoriharpalus sutherlandi Larochelle & Larivière, 2005
Mecodema persculptum Broun, 1915 reinstatement (Johns, 2005)
Mecodema puikium 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)
Taenarthrus Broun, 1914, See Loxomerus (Pristancylus) capito Jeannel, 1938, See Loxomerus (Pristancylus) philpotti Broun, 1914]

Trigonothops Macleay, 1864 first record for New Zealand (Larochelle & Larivière, 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 goylayi (Britton, 1964) new combination (Larochelle & Larivière, 2005)

Tuiharpalus hallae Larochelle & Larivière, 2005

Tuiharpalus moorei Larochelle & Larivière, 2005

[Zabronothus Broun, 1893, See Cerabilla Laporte de Castelnau, 1867] new synonym

[Zabronothus rufipes Broun, 1893, See Cerabilia rufipes (Broun, 1893)]

[Zabronothus striatulus Broun, 1893, See Cerabilia striatula Broun, 1893]

[Zecillenus Lindroth, 1980, See Bembidion (Zecillenus)]

[Zecillenus Lindroth, 1980, See Bembidion (Zecillenus) alacre (Broun, 1921)]

[Zecillenus albacens (Bates, 1878), See Bembidion (Zecillenus) albacens (Bates, 1878)]

[Zecillenus chalmeri (Broun, 1886), See Bembidion (Zecillenus) chalmeri (Broun, 1886)]

[Zecillenus embersoni Lindroth, 1980, See Bembidion (Zecillenus) embersoni (Lindroth, 1980)]

[Zecillenus tillyardi (Brookes, 1927), See Bembidion (Zecillenus) 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)]
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(5) *Calathosoma rubromarginalum*

(6) *Loxomerus (Loxomerus) nebroides*

(7) *Loxomerus (Pristancylus) brevis*

(8) *Loxomerus (Pristancylus) capito*
(9) *Clivina basalis*

(10) *Bountya insularis*

(11) *Brullea antarctica*

(12) *Diglymma clivinoides*
13) *Mecodema alternans alternans*

14) *Mecodema costellum costellum*

15) *Mecodema curvidens*

16) *Mecodema ducale*
Broscini

(17) *Mecodema fulidum*

(18) *Mecodema infimate*

(19) *Mecodema laterale*

(20) *Mecodema spiniferum*
(21) Mecodema sulcatum

(22) Metaglymma tibiale

(23) Oregus aereus

(24) Mecyclothorax amplpennis amplipennis
(25) Mecyclothorax rotundicollis

(26) Selenochilus syntheticus

Tropopterini

(27) Molopsida seriatoporus

(28) Kenodactylus audouini
Larochelle & Larivière (2007): Carabidae (Insecta: Coleoptera)

Trechini

(29) Maoritreichus rangitotoensis

(30) Duvaliomimus styx

(31) Erebotrichus internus

(32) Kiwitreichus karenscottae
Trechini

(33) *Kupotrechus lamberti*

(34) *Neanops caecus*

Zolini

(35) *Scototrechus orcinus*

(36) *Oopterus olivinoides*
(37) Oopterus femoralis

(38) Synteratus ovalis

(39) Bembidion (Ananotaphus) rotundicolle

(40) Bembidion (Notaphus) bruilei
(41) Bembidion (Z.actedium) musae

(42) Bembidion (Zecillenus) alacre

(43) Bembidion (Z.emetallina) anchonoderus

(44) Bembidion (Zeyerphodes) callipaprum
(45) *Bembidion (Zeperyphus) actuarium*

(46) *Bembidion (Zeplataphus) charlie*

(47) *Kivitchys antarcticus*

(48) *Paratchys crypticola*
(49) Pericompsus (Upcompsus) australis

(50) Polyderis captus

(51) Hygranillus kuscheii

(52) Nesamblyops oreobius
Larochelle & Larivière (2007): Carabidae (Insecta: Coleoptera)

Bembidiini

(53) Pelodiaetodes prominens

(54) Pelodiaetus sulcatipennis

Pterostichini

(55) Zeanillus pallidus

(56) Aulacopodus calathoides
Pterostichini

(57) Gourlayia regia

(58) Holcaspis mordax

(59) Megadromus (Megadromus) antarcticus

(60) Megadromus (Megadromus) capito
Pterostichini

(61) *Neoferonia proceraula*

(62) *Onawa pantomelas*

(63) *Plocamostethus planiusculus*

(64) *Prosopogmus oodiformis*
(65) *Psammopterus politissimus*

(66) *Rhytisternus miser*

(67) *Zeopoecilus calcarius*

(68) *Dicrochila cordicollis*
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(69) *Dicrochilus insignis*

(70) *Physolaesthus insularis*

Harpalini

(71) *Allocinopus sculpticollis*

(72) *Allocinopus smithi*
Harpalini

5 mm

(73) Anisodactylus (Anisodactylus) binotatus

5 mm

(74) Gairoxenus pilipalpis

(75) Gnathaphanus melboumensis

5 mm

(76) Hypharpax australis
Harpalini

(77) Maoriharpalus sutherlandi

(78) Notiobia (Anisotarsus) quadricollis

(79) Parabans atratus

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(86) Harpalus australasiae

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(89) Kupeharpalus johnsi

(90) Lecanomerus insignitus

(91) Lecanomerus marrisi

(92) Lecanomerus vestigialis
Harpalini

(93) Syllectus anomalus

(94) Egadroma picaa

(95) Euthenarus puncticollis

(96) Haplanister crypticus
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(102) *Ctenognathus novaezelandiae*

(103) *Ctenognathus otagoensis*

(104) *Notagonum submetallicum*
(105) *Platynus macropterus*

(106) *Prospodrus waltoni*

(107) *Perigona (Trachicus) nigriceps*

(108) *Pentagonica vittipennis*
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Pentagonidini

Lebiini

(109) Scopodes fossulatus

(110) Agonocheila antipodum

(111) Philophlaeus luculentus

(112) Actenonyx bembidioides
(113) *Anomotarus* (*Anomotarus*) *variegatus*

(114) *Demetnda* (*Demetnda*) *nasuta*

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(116) *Dromius* (*Dromius*) *meridionalis*
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Kua whakatūria tēnei huinga pukapuka hei whakahauhau i ngā tohunga whai mātauranga kia whakaputa i ngā kōrero poto, engari he whaikiko tonu, e pā ana ki ngā aitanga pepeke o Aotearoa. He tōtika tonu te āhua o ngā tuhihui, engari ko te tino whāinga, kia mārama te marea ki ngā tohu tautuhi o ia ngārara, o ia ngārara, me te roanga atu o ngā kōrero mō tēnā, mō tēnā.

He titiro whātūī ūi tēnei pukapuka ki ngā mea noho whenua, kāore he tuari; i pēnei ai i te mea kei te mōhio whānuitia ngā mea whai tuarā, ā, ko ngā mea noho moana, koirā te tino kaupapa o te huinga pukapuka *Marine Fauna of N.Z.*

Ka āhei te tangata ki te whakauru tuhituhinga mehemea kei a ia ngā tohungatanga me ngā rauemi e tutuki pai aia tana mahi. Heoi anō, e wātea ana te Kohinga Angawaho o Aotearoa hei āta tirotiro mā te tangata mehemea he āwhina kei reira.

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E rua ngā tūmomo kaihoko: “A” – kaihoko tūmāo, ka tukua ia pukapuka, ia pukapuka, me te nama, i muri tonu i te tāngā; “B” – ka tukua ngā pānui whakatairanga me ngā puka tono i ōna wā anō.

Te utu (tirohia “Titles in print”, whārangi 185). Ko te kōpaki me te pane kuini kei rōto i te utu. Me utu te hunga e noho ana i Aotearoa me Ahitareiheia 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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