Fauna of New Zealand
Ko te Aitanga Pepeke o Aotearoa

INVERTEBRATE SYSTEMATICS ADVISORY GROUP

**Representatives of Landcare Research**

- **Dr D. Choquenot**  
  Landcare Research  
  Private Bag 92170, Auckland, New Zealand

- **Dr T.K. Crosby and Dr R. J. B. Hoare**  
  Landcare Research  
  Private Bag 92170, Auckland, New Zealand

**Representative of Universities**

- **Dr R.M. Emberson**  
  Ecology and Entomology Group  
  Soil, Plant, and Ecological Sciences Division  
  P.O. Box 84, Lincoln University, New Zealand

**Representative of Museums**

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

**Representative of Overseas Institutions**

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

***

**Series Editor**

- **Dr T. K. Crosby**  
  Landcare Research  
  Private Bag 92170, Auckland, New Zealand
Harpalini
(Insecta: Coleoptera: Carabidae: Harpalinae)

A. Larochelle and M.-C. Larivière
Landcare Research, Private Bag 92170, Auckland, New Zealand
LarochelleAndre@hotmail.com
LariviereM@LandcareResearch.co.nz
Class Insecta
Order Coleoptera
Family Carabidae
Subfamily Harpalinae
Tribe Harpalini

Harpaline ground beetles
The tribe Harpalini belongs to the subfamily Harpalinae (Coleoptera: Carabidae), which contains over 19,000 taxa worldwide. Molecular sequence data indicate Harpalinae evolved in the Cretaceous Period (140–65 million years ago).

The Harpalini form a diverse group, including over 240 genera and subgenera, and approximately 2000 species distributed in all biogeographic regions of the world. The present faunal review records 20 genera and 57 species for New Zealand. This should constitute nearly all the fauna.

Compared with larger or warmer regions of the world, e.g., Australia, which has a largely undescribed fauna with over 160 known species, the New Zealand fauna may appear relatively small, but New Zealand is a very special place – a biodiversity ‘hot-spot’ – with 75% of species (42 out of 57 species) and 55% of genera (11 out of 20 genera) found nowhere else in the world. The remaining fauna that are not endemic to this country are made up of overseas species introduced mainly from Australia. No native species is shared with Australia, although three native genera occur on both sides of the Tasman Sea, which suggests the New Zealand harpaline lineages have evolved mostly in isolation following the breakup of eastern Gondwanaland.

Harpalini are rather stout-bodied ground beetles with relatively short mandibles and other appendages, and a body length of 3–20 mm. They are usually darkly coloured, have only one hair-bearing puncture above each eye, no such puncture at the posterior angles of the pronotum, and elytra that are rounded, not twisted, at the sides near the apex. Some species living in caves or exhibiting strong burrowing habits are characterised by paler bodies and reduced eyes.

As observed in many other carabids, harpaline ground beetles are taxonomically diverse, generally abundant in the field, and demonstrate ecological preferences and a flexible set of responses to environmental factors. Because of these features, the relative ease with which their

Illustration / Whakaahua: Lecannerus sharpi (Csiki) (Illustrator / Kaiwhakaahua: D. W. Helmore).

Ngā pītara Harpaline noho papa
Nō te whānau whāiti Harpalinae (Coleoptera: Carabidae) a ngāi Harpalini. Puta noa i te ao, 1900 ohana rōpu. E ai ki ngā raraunga raupapa rāpoi nga, nō te Takiwā Cretaceous tōna kunenga mai (i te 140–65 miriona tau ki muri).

He iwi matahuhua tonu a ngāi Harpalini – he nui ati i te 240 ngā puninga me ngā puninga iti, he āhua 2000 ngā momo, kei ngā takiwā papawhenua-koiora katoa o te ao. I tēnei tirohanga hou, kua tuhia he mauranga mō ngā puninga e 20 me ngā momo e 57 i Aotearoa. Ko te whakaaaro ia, he ruaura noa iho ngā momo kāore i mau i tēnei tatauranga.

Ina whakaritea ki ngā whenua ra hi ake, mahana ake o te ao (hei tauira, arā a Ahitereiria me ōna momo 160 e mōhiotia ana, tae atu ki te maha noa atu kāore anō i whakaahua atu katoa. He iwi māmā hei whenua tātai – he nui atua noho papa noho a Aotearoa. Ngari he whenua ahurei tonu a Aotearoa, inā rā, ko tētahi 75% o ngā momo (e 42 o ngā momo e 57) me tētahi 55% o ngā puninga (11 o ngā puninga e 20) i Aotearoa nei, kāore e kītea i whenua ko. Ko ērā atu momo e hāra nō konei taketake ake, he rāwaho, ko te āhuia i manene mai i Ahitereiria. Karekau he momo māorī o Aotearoa kei Ahitereiria anō e noho ana, engari e toru ngā puninga māorī kei ngā whenua e rua nei. E tohu ana tēnei tērā tonu pea i kuku motuhake mai ngā tātai harpaline o Aotearoa i muri i te wehewehenga o te pito rāwhiti o Te Uri Māroa.

He āhua porotaka ngā tinana o ngā pītara noho papa Harpalini, he āhua poto ngā kauwae me ērā atu wāhanga toro whakawaho o te tinana. Ko te roa o te tinana, mai i te 3 ki te 20 mm. He uruiri te tae o te āhuia, kōrangi anake te mārau whai weu i runga ake o ia karu, kāore he mārau pēnei i ngā koki whakamuri o te papatau pohomua. He āhua kōpuku ngā pūkoro parirau i ngā kaokao, i te takiwā

(continued overleaf)
populations may be sampled by reliable quantitative methods (e.g., pitfall-trapping), and their potential use as bioindicators and biocontrol agents, they represent an attractive study group for biologists investigating evolutionary and ecological hypotheses.

As a result, Harpalini are well represented in New Zealand entomological museums and collections – over 5000 specimens were studied for this project. But despite such high interest, no taxonomic revision of this group has been produced until now.

Before the present revision, 13 genera and 36 species of Harpalini were known from New Zealand, but the authors have found a number of species had been described more than once under different names, and 23 species and 5 genera are new to science.

The geographical distribution of native species was undocumented before this study. We now have a better knowledge of their distribution patterns. The authors have found, for example, that several species are restricted to specific areas of New Zealand – the South Island northwest and the far north of the New Zealand appearing to have been reservoirs, in geological time, of much of the genetic diversity in New Zealand Harpalini, with several species currently restricted to these regions. Of the two main islands of New Zealand, the North Island has the greatest number of species (35 compared with 31 for the South Island), and only 4 native species (Allocinopus sculpticollis, Triplosarus novaezelandiae, Syllectus anomalus, Euthenarus puncticolis) are shared between the two islands. Three genera (Gaioxenus, Parabarbis, and Kupeharpalus) are found only on the North Island, whereas two genera (Hakaharpalus and the cave-dwelling Pholeodytes) are confined to the northwest of the South Island. Two genera are restricted to the Three Kings Islands (Maoriharpalus, Kiwiwarpalrus). There is no genus endemic to the Chatham Islands. Stewart Island also has no endemic taxa, but shares 2 native species: Triplosarus novaezelandiae (with North Island and South Island), Euthenarus brevicollis (with South Island).

Over 50% of native species (25 out of 42 species) are known from 10 populations or fewer. All but one of these very special species are new to science, and all are of potential conservation concern. They are usually taxonomically highly distinctive species with low dispersal power, often geographically localised in threatened habitats, and represented in collections by relatively few specimens collected over many decades, which may indicate rare or highly specialised species.

No formal detailed study of the natural history of individual species of New Zealand Harpalini has ever been conducted, although Larochelle and Larivière (2001, Fauna of New Zealand 43) summarised information available from the literature, material in entomological collections, personal communications from carabid collectors, and their own personal field observations.

Most native species are flightless, having vestigial membranous wings (reduced to small wing buds), and live within the confines of native habitats, mostly forests

(continued overleaf)
(especially along streams) and wet habitats, also tussock grasslands and caves. Most Harpalini species are moisture loving and live at the surface of the soil and in leaf litter; they also live in caves, and occasionally on plants and trees. Dispersal in most native species is achieved by running over the ground; most species are moderate runners, except for the long-legged, fast-running cave species (Syllectus, Pholeodytes). In general, Harpalini have relatively short legs and, sometimes, strongly reduced eyes, indicative of strong burrowing habits.

All adventive species are able to fly, having long or fully developed membranous wings, and live mostly in highly modified environments (often around human dwellings), except for *Haplaster crypticus*, which has also managed to invade native forests.

The collecting season of newly emerged adults suggests Harpalini species may mate in the spring or autumn. For most species, adults are active during all months of the year, but are generally less active during cooler months.

No data are available on the feeding preferences of Harpalini native to New Zealand. Larochelle (1990, *Food of carabid beetles of the World*) showed that on a world basis Harpalini feed on both animal and vegetable matter, but tend to favour the latter. The mandibles of *Hakaharpalus*, *Kiwiharpalus*, *Syllectus*, *Pholeodytes*, and *Maoriharpalus* are unusually long in native Harpalini, which may suggest a specialised type of feeding. In addition, the strongly notched labrum (upper mouth part at base of mandibles) of *Maoriharpalus* is reminiscent of, although not necessarily equivalent to, the condition observed in the tribe Licinini, where species feed on hard-bodied invertebrates, e.g., snails.

This faunal review was written with a wide audience in mind. It aims to provide an inventory of New Zealand taxa, a concise treatment of their taxonomy, easy-to-follow identification keys, and several illustrations and maps, as well as a summary of all available information on species distribution, ecology, biology, and dispersal power. It is one step in the authors’ goal to reach an overall understanding of the carabid fauna within a reasonable time frame, and to make relatively large amounts of information available for practical use by a wide range of end-users. It is hoped this kind of faunal taxonomy will provide both a solid foundation for studies of other types and the baseline information required by systematists, identifiers, ecologists, and other biologists, as well as by biosecurity and conservation managers.

Kāore anō i āta rangahaua ngā hītori māori o tēnā, o tēnā momo o ngāi Harpalini i Aoteaora, engari i whakarāpopotohia e Larochelle rāua ko Larivière (2001, *Fauna of New Zealand* 43) ngā pārongo kua tuhia, ngā rauemi i ngā kohinga pepeke, ngā whakawhitanga kōrero ki ngā kaikohikohi carabid, me ō rāua ake kitenga i te tiaio.

He re re kore te nuinga o ngā momo māori, he tumu parirau noa iho, he mea hanga ki te kiriwhi, e toe mai anā. Ka mu tu, noho ai te nuinga ki ngā ripoinga māori, arā, ki ngā ngahere māori (ko ngā tahataha o ngā kōwai tētahi tino kāinga) tae atu ki ngā kāinga kōreorepo, ngā whenua pātītī tarianu me ō rōtou anā. He pai ki te nuinga tēnei mea te haukā, ā, tēra ka noho ki te mata tonu o te whenua, ki ngā rau popo. Arā anō ētahi ko te ana tō rātou wāhi noho, ā, he torotoro ngā momo ka piri tahi ki ngā rākau me ērā atu tipu. Ko te tikanga tītari a te nuinga o ngā momo māori, ko te takahi i te nuinga o te whenua; he āhua tere te haere a te tītara engari he tere tonu te momo noho anā, waewae roa (*Syllectus, Pholeodytes*). He poto ngā waewae o te nuinga o ngāi Harpalini, ā, he tino ngoiko ngā karu, e tohu anā he kari rua, he noho rua tō rātou māhi.

Katoa ngā momo rāwaho, he mōhio ki te tōrei, ā, he roa, he pakari rānei ō rātou parirau kiriwhi. Noho ai te nuinga ki ngā tiaio kua kaha rawekekia e te ringa tangata (he tahanu e noho tata anā ki ngā whare), āhunga anō te Harpalini. Kua urutomo anō tēnei nā i ngā ngahere māori.

He tēwā e kohikohia ai ngā pilara pakeke kātahi anō ka puta ake ki te ao e tohu anā tēra pea ko te kōanga, ko te ngahuru rānei te wā e whakaputa uri ai a ngāi Harpalini. Mō te nuinga o ngā momo, e oreore anā ngā mea pakeke ai ngā marama katoa o te tau, engari ka āhua ngoiko ake i ngā marama makaniriri ake.

Karekau he rauringa mō ngā kai e pai anā ki ngāi Harpalini māori. Heoi, nā Larochelle (1990, *Food of carabid beetles of the World*) ki whakaatu kai ai ngā Harpalini o te ao i te kiko me te ota, engari ko te ota pea tē rātou tino kai. He roa ake ngā kauwae o *Hakaharpalus*, *Kiwiharpalus*, *Syllectus*, *Pholeodytes*, me *Maoriharpalus* i e tō e nuinga o ngā momo māori, e tohu anā pea he rereke ngā momo kai kainga ai e rātou. I tua atu i tēra, arā ētahi kānīwha nui i te ngutu o runga o *Maoriharpalus*, e āhua rite anā ki tēra e kitea anā i te iwi Licinini. Ko tē tēra ēwi, he kai i ngā āhua tuarā-kore, tinana mārō, pērā i te ngata.

He mea tuhi tēnei tirohanga hou kia mārama ai ngā kōrero ki te tokomaha. E whai anā kia takoto mai he rārangi o ngā rōpū e noho anā ki Aoteaora nei, he whakamārama poto o ō rātou tātari hono, he ara tautohu māmā, he whakaahuha, he mahere, tae atu ki tētahi whakarāpopototanga o ngā pārongo e wātea ana mō te tohanga o ngā momo, te taupuhi kaiaro, te koiora, me te kaha ki te tītari haere i a rātou anō. He takahanga noa tēnei i roto i te whāinga roa a ngā kaitihi kia whānui noa ake te māramatanga ki ngā carabid i roto i te tekau tau pea e tū mai nei, kia hora he pārongo huhua hei āwhina hei ngā tāngata tokomaha i roto i a ō rātou kaupapa maha. Ko te tūmanako ia, kia noho tēnei tūmomo whakarōpūtanga hei tuāpapa (haere tonu)
1986 to 1992, he was honorary curator to the Lyman Entomological Museum and Research Laboratory, McGill University, Québec. In 1992, André moved to New Zealand to work as a research scientist. Currently, he is a Research Associate with the New Zealand Arthropod Collection, Landcare Research, Auckland. André has written over 400 papers on the distribution, ecology, biology, and dispersal power of North American carabids and other insects (including two handbooks on the Heteroptera of Québec). In 1993 he was co-author of a “Catalogue of Carabidae of America north of Mexico”. With his wife, Marie-Claude, he published “A Natural History of Carabidae” for the same region (2003) as well as a catalogue of New Zealand Carabidae (2001) and Heteroptera (2004). His current main research interest is the faunistics and taxonomy of New Zealand ground beetles, which involves a soon-to-be-published identification guide to the tribes and genera of Carabidae from New Zealand.

Contributor Marie-Claude Larivière was born and educated in Québec, graduating with a Ph.D. in systematic entomology from McGill University in 1990. For the following 2 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, and from 1999 to 2004, the Koiora-BioAssist™ project (Biodiversity Assessment using Information Technology and Taxonomy). Marie-Claude is the author of over 70 papers and monographs on the taxonomy, distribution, (continued overleaf)
and natural history of Hemiptera and Carabidae (Coleoptera), including four Fauna of New Zealand contributions (Hemiptera—Cixiidae and Pentatomoidea revisions, catalogues—Carabidae and Heteroptera ). She has also published on North American Orthoptera and Carabidae. Many of her publications were written in collaboration with her husband André with whom she hopes to soon publish new works on New Zealand Hemiptera and Carabidae. Marie-Claude has a keen interest in biodiversity informatics, especially digital taxonomy, computer imaging, interactive identification, and web-publishing.

whakarōpūtanga, te tohanga me te hītori māori o ngā Hemiptera me ngā Carabidae (Coleoptera), tae atu ki ētahi putanga e whā o Te Aitanga Pepeke o Aotearoa. He tuhinga anō kua puta i a ia mō ngā Orthoptera me ngā Carabidae o Amerika ki te Raki. Kua mahi tahi anō rāua ko tana hoa tāne, a André, ki te whakaputa i ngā tuhinga huhua. Ko te tūmanako, taihoa ka puta i a rāua he tuhinga hou mō ngā Hemiptera me ngā Carabidae o Aotearoa. Kei te ngākaunui anō a Marie-Claude ki te pārongo-kōiora, tae atu ki te whakarōpūtanga ā-mati, te tārai whakaahua ki te rorohiko, te tauhohi i runga i te māhi pāhekoheko, me te pānui kōrero ki te pae tukutuku.

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

DEDICATION

“Think where man’s glory most begins and ends
And say my glory was I had such friends”

W. B. Yeats 1865-1939: The Municipal Gallery Re-visited (1939)

We are glad to dedicate this revision to our colleague Barry P. Moore (Research Associate, Australian National Insect Collection, Canberra) in acknowledgement of his continued friendship towards New Zealand coleopterists and his generously provided expertise on New Zealand carabids. Over the years Barry has kindly identified ground-beetles for the New Zealand Arthropod Collection and private collectors, at a time when a large proportion of the fauna remained undescribed. His publications on the carabids of New Zealand (e.g., 1980, Anillina; 1996, Haplanister crypticus) and Australia (e.g., 1987, Australian catalogue) have provided a solid foundation for our New Zealand catalogue (Larochelle & Larivière, 2001) and future taxonomic revisions. In the preparation of the Harpalini revision, Barry has generously given us much encouragement and support in the identification of adventive species as well as useful comments on some difficult taxonomic problems.
Frontispiece: Triplosarus novaezelandiae (Laporte de Castelnau, 1867) (photograph prepared by M.-C. Larivière, Landcare Research)
ABSTRACT


A concise revision of the taxonomy of all taxa is provided. Subtribes, genera, and species are keyed. Descriptions are provided with illustrations emphasising the most important diagnostic features of the external morphology and male genitalia. Information is given on synonymy, type data, material examined, geographic distribution, ecology, biology, dispersal power, and collecting techniques. The composition of the New Zealand Harpalini fauna, with endemism levels of 55% for genera and 75% for species, and its affinities with Australia, New Caledonia, Lord Howe Island, and Norfolk Island are analysed and discussed. Over 50% of native taxa (25 out of 42 species) are known from 10 populations or fewer and may be of potential conservation concern.

Keywords: Coleoptera, Carabidae, Harpalini, new genera, new species, adventive species, taxonomy, keys, distribution, ecology, biology, dispersal power, fauna.


Received: 28 June 2004. Accepted 13 October 2004.
CHICKLIST OF TAXA

Note: Valid taxa are listed alphabetically (A=Adventive, E=Endemic, N=Native, but not endemic to New Zealand).

Family CARABIDAE

Subfamily HARPALINAE

Tribe HARPALINI .................................................. 24

Subtribe ANISODACTYLINA ........................................ 26
Genus Allocinus Broun, 1903 E .................................. 27
angustus Broun, 1912 E .............................................. 29
belli new species E ................................................... 30
bousqueti new species E .............................................. 31
latitarsis Broun, 1911 E .............................................. 32
sculpticollis Broun, 1903 E .......................................... 33
ocularius Broun, 1908 new synonym .................... 33
smithi Broun, 1912 E ............................................... 28
castaneus Broun, 1912 new synonym .................... 31
wardi new species E ................................................... 31

Genus Anisodactylus Dejean, 1829 A ..................... 34
Subgenus Anisodactylus Dejean, 1829 A ............... 35

Genus Gaioxenus Broun, 1910 E .................................. 35

Genus Gnathaphanus Macleay, 1825 A .................. 36

Pachauchenius Macleay, 1864

Miroirus Bates, 1878
meloens Broun, 1867 A .............................................. 41
New Zealand record .............................................. 41
paroensis Laporte de Castelnau, 1867, Harpalus
marginicollis Laporte de Castelnau, 1867, Harpalus
adelae Laporte de Castelnau, 1867, Harpalus
planipennis Macleay, 1871, Harpalus
angustatus Macleay, 1871, Harpalus
aeneonis Macleay, 1871, Harpalus
angustatus Macleay, 1871, Harpalus
atroviridis Macleay, 1871, Harpalus
insulaeus Bates, 1878, Miroirus

Genus Hypharox Macleay, 1825 N ............................. 37
Sagraemorus Redtenbacher, 1868
antarcticus (Laporte de Castelnau, 1867) E ........... 38
australis (Dejean, 1829) A ........................................... 39
inornatus Germar, 1848, Harpalus
cocis Laporte de Castelnau, 1867, Harpalus
abstrusus Bates, 1878 new synonym
paraus Broun, 1894 new synonym

Genus Maoriharps Broun, 1880 E .................................. 40
sutherlandi new species E ........................................... 40

Genus Notiobia Perty, 1830 A ..................................... 41
Subgenus Anisotarsus Chaudoir, 1837 A ............... 41
Diaphoromerus Chaudoir, 1843
Eurytrichus LeConte, 1848
Stibolit (Bou) Casey, 1914
quadricollis (Chaudoir, 1878) A first New Zealand
record .............................................................. 41

Genus Parabaris Broun, 1881 E .................................. 42
atarius Broun, 1881 E .............................................. 43
hoarei new species E ............................................... 44
lesagei new species E ............................................... 43

Genus Triplosus Bates, 1874 E .................................. 45
novaezelandiae (Laporte de Castelnau, 1867) E .. 45
fulvescens Bates, 1874

Genus Tuiharpalus new genus E .................................. 46
clyneae new species E ............................................... 48
crobyi new species E ............................................... 47
gourlayi (Britton, 1964) E new combination ........ 48
ballae new species E ............................................... 49
moorei new species E .............................................. 50

Subtribe HARPALINA .............................................. 50

Genus Harpalus Laporte de Castelnau, 1867 A ........ 51
Subgenus Harpalus Laporte de Castelnau, 1867 A .... 51
Amblystus Motschulsky, 1864
affinis (Schrank, 1871) A .......................................... 51
aeneus Fabricius, 1775, Carabus homonym
tardus (Panzer, 1797) A ............................................. 52

Subgenus (Uncertain)
australiasae Dejean, 1822 A reinstated .............. 53

Subtribe PELMATELLINA ............................................ 54

Genus Hakaharpalus new genus E ................................ 54
cavelli (Broun, 1893) E new combination ............ 57
davidsoni new species E ........................................... 56
maddisoni new species E .......................................... 56
patricki new species E ............................................... 55
rhodae new species E ............................................... 57

Genus Kupharpalus new genus E ................................ 57
barrattae new species E ............................................ 58
embersoni new species E ............................................ 59
johnsi new species E .............................................. 59

Genus Lecanomerus Chaudoir, 1850 N ..................... 60
Thenarotes Bates, 1878
Odonagorum Darlington, 1956
atrice (Macleay, 1871) A ........................................... 62
javanus Jedlička, 1964, Acupalpus
insignis Broun, 1880 E ............................................. 63
fallax Broun, 1880 new synonym
latimanus Bates, 1874 E ........................................... 64
fuliginosus Broun, 1880 new synonym
pallipes Broun, 1894 new synonym
incertus Broun, 1914 new synonym
Fauna of New Zealand 53

CONTENTS

Acknowledgments ...................................................... 13
Introduction ............................................................. 14
Morphology and terminology ..................................... 17
Methods and conventions .......................................... 21
Taxonomic treatments ............................................... 24
  Tribe Harpalini ...................................................... 24
  Key to subtribes of New Zealand Harpalini .................. 25
  Alternative key to genera of New Zealand Harpalini ....... 25
  Subtribe Anisodactylina .......................................... 26
  Subtribe Harpalina ................................................ 50
  Subtribe Pelmatellina ............................................. 54
  Subtribe Stenolphina ............................................. 72
Bibliography ........................................................... 83
Appendix A: Glossary of technical terms ....................... 89
Appendix B: Geographical coordinates of main localities .... 91
Addendum ................................................................... 93
Illustrations ................................................................ 94
Map 1. The New Zealand subregion ............................. 140
Map 2. Area codes and collecting localities from mainland New Zealand: North Island ......................... 141
Map 3. Area codes and collecting localities from mainland New Zealand: South Island and Stewart Island . 142
Map 4. Total number of known taxa by areas .............. 143
Map 5. Number of known New Zealand endemics by areas ................................................................. 144
Map 6. Number of native taxa known to be restricted to single areas .................................................. 145
Map 7. Number of known adventive taxa by areas . 146
Species distribution maps ........................................... 147
Taxonomic index ......................................................... 154

ACKNOWLEDGMENTS


We thank B. P. Moore (Australian National Insect Collection, Canberra) for his help in confirming the identity of adventive species and helpful advice in solving some nomenclatural problems.

We also wish to thank the following referees for their helpful comments and suggestions for improving the manuscript: H. Goulet (Agriculture and Agri-Food Canada, Ottawa), R. L. Palma (Museum of New Zealand Te Papa Tongarewa, Wellington), R. J. B. Hoare and T. K. Crosby (Landcare Research, Auckland), and B. P. Moore (Australian National Insect Collection, Canberra).
Thanks are also extended to B. Rhode (Landcare Research, Auckland) for her help with distribution maps, digital photographs and illustrations, and other technical assistance.

We are grateful to D. W. Helmore for the habitus and frontispiece drawings. Finally, we are most obliged to T. K. Crosby (Landcare Research, Auckland) and O. R. W. Sutherland (former Science Manager, Landcare Research) for their encouragement and for allocating resources towards completion of this work.

Most of the support for this research was provided through a subcontract of the Biosystematics of New Zealand Terrestrial Invertebrates programme (Foundation for Research, Science and Technology Contract no C09X002).

INTRODUCTION

The tribe Harpalini belongs to the subfamily Harpalinae (Coleoptera: Carabidae) which contains over 19 000 taxa. Molecular sequence data indicate that Harpalinae radiated in the Cretaceous Period (Ober 2002).

The Harpalini form a diverse group, including over 240 genera and subgenera, and approximately 2 000 species distributed in all biogeographical regions of the world. The present faunal review records 20 genera and 57 species for New Zealand. This should constitute the near totality of the fauna.

Compared with New Zealand, the Australian Harpalini are more diverse with over 160 species distributed in about 20 genera (Moore et al. 1987), but the fauna remains largely unrevised.

The present work offers a concise faunal taxonomic revision of the New Zealand Harpalini, based on the study of adults contained in local and overseas collections. It represents a first modern attempt to bring together the scattered information dealing with the group.

The goals of this revision are straightforward: to provide an inventory of New Zealand taxa, a concise treatment of their taxonomy, identification keys to genera and species, and a summary of available information on species distribution, ecology, biology, and dispersal power.

It is one step in the authors’ overall goal of attaining an overall understanding of the carabid fauna within a reasonable time frame, and to make relatively large amounts of information available for practical use by a wide range of end-users. The methodology involves less gamma taxonomy but more intensive field work, and it 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.”

It is hoped that this kind of faunal taxonomy will provide solid foundations for studies of other types, much in the same way as the work done by Lindroth between 1961 and 1969 for Canada and Alaska, and Darlington between 1962 and 1968 for New Guinea.

In addition to paper-based publications the authors publish 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, as well as additions and corrections to previous publications.

Taxonomic history

There has been little work done on the faunistics of the New Zealand Harpalini since the earliest descriptions of Hypharpax antarcticus and Triplosarus novaezelandiae by Laporte de Castelnau in 1867. No identification keys or taxonomic overview (except for the catalogue of Larochelle & Larivière 2001 and the checklist of Larochelle et al. 2004) have been published until now, but keys including some native taxa have been published by Sloane (1898 and 1920; Australian taxa), Noonan (1973; world Anisodactylina genera), Moore (1977; Australian taxa), and Matthews (1980; South Australian Carabidae genera).

Prior to this revision 13 genera and 36 species of Harpalini were known from New Zealand. Following the work of Laporte de Castelnau (1867–1868), most indigenous genera and species were described before 1920 by Broun (1880–1914; 3 genera, 15 species) and Bates (1874, 1878; 3 genera, 6 species). Britton (1962, 1964a–b) and Moore (1996) provided the most recent descriptions for 2 genera, Pholeodytes and Haplanister respectively, and 6 species (including 2 in Parabaris and Sylectus). This formed the bulk of the taxonomic work on New Zealand Harpalini until now. No larval descriptions are yet available for this tribe.

If taxonomic progress has been slow until now, the collecting effort has been more intensive from the 1960s onward, so that New Zealand entomological collections and museums are now replete with Harpalini material from all areas of the country. For this reason, it seemed timely to provide a taxonomic revision for this group, one that includes descriptions and keys that take into account this new information.

The main taxonomic works that have contributed to advancing knowledge on world and New Zealand Harpalini are: Sloane (1898, key to Australian genera); Jeannel (1942, revision of France and world classification); Basilewsky (1950 and 1951, African revision); Lindroth (1968, revision of Canada, Alaska, and northern half of U.S.A.), Darlington (1968, revision of New Guinea); Habu (1973, revision of Japan); Noonan (1973, generic revision and classification of world Anisodactylina; and 1976, world catalogue of supraspecific taxa of Harpalini); Goulet (1974, revision of
genus *Pelmatellus*); Moore (1977, key to Australian subtribes); Matthews (1980, key to South Australian genera); Moore *et al.* (1987, Australian catalogue); Bousquet & Larochelle (1993, Nearctic catalogue); Serrano *et al.* (1994, karyotypical study); Ball & Bousquet (2001, key to superspecific taxa, North America); Larochelle & Larivière (2001, catalogue of New Zealand Carabidae); Kataev (2002a, new genus of Australian Anisodactylina); Löbl & Smetana (2003, Palaeartctic catalogue).

**Higher classification**

The monophyly of the subfamily Harpaliinae, to which belongs the tribe Harpalini, has recently been supported by molecular sequence data (Ober 2002) and larval morphology (Arndt 1998).

According to Bousquet & Larochelle (1993) the taxonomic limits of the tribe Harpalini are fairly stable although the monophyly of this taxon remains to be tested. The main contributor to the higher classification of this group was Noonan (1973, 1976) who studied the taxonomy, phylogeny, and zoogeography of the subtribe Anisodactylina and provided a synopsis of supra-specific taxa of the tribe Harpalini.

The supraspecific classification proposed by Noonan, and based on an earlier outline by Emden (1952), grouping genera into 4 subtribes (Anisodactylina, Harpalina, Pelmatellina, and Stenolophina), is generally accepted worldwide although somewhat difficult to apply in certain cases (e.g., taxonomic limits of Pelmatellina). This classification is followed here. The subtribes Harpalina, Pelmatellina, and Stenolophina still need an analysis such as provided by Noonan (1973) for Anisodactylina.

**Subtribe Anisodactylina.** Members of this group are distributed worldwide. About 40 genera are known (Kataev 2002a) from two genus-groups (Notiobii and Anisodactylia). According to Ball & Bousquet (2001), the Notiobii are principally in the Southern Hemisphere, showing a Gondwanan distribution pattern, whereas the Anisodactylia occur mostly in the Afrotopical and Holarctic Regions. Most New Zealand genera have the Notiobii character of the complete transverse suture between mentum and submentum. This represents the pleisiomorphic state in Anisodactylina. Only the endemic *Gaioxenus* has the transverse suture laterally incomplete (mentum and submentum fused only medially). This is usually regarded as a character of the Anisodactylia, but exceptions have been observed by Noonan (1976) in other Southern Hemisphere taxa, e.g., within species of *Anisostichus* and subgenera of the *Notiobia* lineage, and may represent examples of parallel evolution. Noonan (1973) believed that the subtribe Anisodactylina forms a monophyletic group but he was unable to state that the group is defined on the basis of clearly apomorphic character states.

**Subtribe Harpalina.** Representatives of this group occur in all zoogeographical regions, mostly in tropical and temperate areas. Approximately 60 genera are known. The taxa occurring in New Zealand were introduced from Australia and the Holarctic.

**Subtribe Pelmatellina.** Members of this small group exhibit a Gondwanan distribution pattern in Australia, New Zealand, Andean South America, and Central America, with some taxa reaching the southwestern U.S.A. About 8 genera were described before this revision.

Pelmatellina are considered the sister group of Anisodactylina based on the shared spongy pubescent male protarsi (Noonan 1973; Goulet 1974). The current study on New Zealand taxa also agrees with Noonan (1976) that the current limits of the tribe Harpalini are fairly stable although the monophyly of this taxon remains to be tested.

Kupeharpalus is the new genus in Pelmatellina; not strictly endemic and *Euthenarus* is the new genus provides the exception to this rule in having a prosternal lobe apically pubescent but in other respects sharing the characters of *Lecanomerus*. Further elucidation of character evolution in the Pelmatellina will have to wait until all subtribes of Harpalini are revised on a world basis.

**Subtribe Stenolophina.** Most species of this subtribe occur in the warm temperate and tropical regions, with 35 genera or so recorded worldwide. The morphology of New Zealand stenolophine genera, including *Kiwiharpalus* new genus, is consistent with the diagnostic characters provided by Noonan (1976) for this subtribe.

Noonan (1976) recorded two small endemic genera in the Australian Region (*Euthenarus* and *Pholeodytes*), to which the current revision adds the new genus *Kiwiharpalus*. Noonan also indicated that species of several other genera occurring in the Australian Region may be primarily centred in the Oriental Region and spreading only to the outer limit of the Australian Region or are Australian-centred taxa that may have originated from Oriental stock.

Ball & Bousquet (2001) placed the North American stenolophine genera into 2 genus-groups, Stenolophi and Polpochili. According to the literature, one important character defining the genus-group Stenolophi is the ventrally pubescent male protarsi as opposed to the absence of such pubescence in Polpochili. The study of this character in taxa indigenous to New Zealand suggests that species of *Pholeodytes* (endemic) and *Euthenarus* (not
endemic) could belong to the Stenolophini. This character could not be studied in *Kiwiharpalus* which is known only from females. However, an Australian revision and a world reclassification and phylogeny of supra-specific taxa of Stenolophina are needed in order to uncover the true evolutionary history of this subtribe.

**Geographic distribution and faunal composition**

The level of endemism of the New Zealand Harpalini is 75% at the species level (42 out of 57 species) and 55% at the generic level (11 out of 20 genera). The indigenous genera *Hypharpax*, *Lecanomerus*, and *Euthenarus* have representatives in Australia. The genera *Anisodactylus*, *Stenolophina* are needed in order to uncover the true picture (Table 1). However, an Australian revision and a world assessment of these genera is needed to determine their status at the species level. The level of endemism of the New Zealand Harpalini is 75% at the species level (42 out of 57 species) and 55% at the generic level (11 out of 20 genera). The indigenous genera *Hypharpax*, *Lecanomerus*, and *Euthenarus* have representatives in Australia. The genera *Anisodactylus*, *Stenolophina* are needed in order to uncover the true picture (Table 1).

The overall distribution of New Zealand Harpalini is summarised in Table 1.

Species distributions are clearly defined and largely allopatric. Even species of a single genus, occurring in the same general areas of New Zealand are mostly allopatric within these areas (e.g., *Tuiharpalus*, TH–ND; *Kupeharpalus*, ND; *Pholeodytes*, NN; *Hakaharpalus* BR–NN–SD).

Three genera (*Gaioxenus*, 1 species; *Parabarbas*, 3 species; *Kupeharpalus*, 3 species) are confined to the North Island. The genus *Allocinopus* (7 native species) occurs mostly on the North Island, except for 2 species, *A. sculpticollis* which is also found on the South Island, and *A. latitarsis* which is endemic to the Chatham Islands (CH). Two genera (*Hakaharpalus*, 5 species; *Pholeodytes*, 5 cave-dwelling species) are found only on the South Island and are restricted to the NN–SD region. Two genera are restricted to the Three Kings Islands (TH): *Maoriharpalus* (1 species) and *Kiwiharpalus* (1 species). There is no genus endemic to the Chatham Islands (CH).

Thirty-five (35) Harpalini species occur on the North Island, with 16 native species restricted to it. Thirty-one (31) species are distributed on the South Island, with 14 native species restricted to it. Only 4 indigenous species are shared between these two main islands (*Allocinopus sculpticollis*, *Triplosar rus novaezelandiae*, *Syllectus anomalus*, and *Euthenarus puncticollis*). Stewart Island has no endemic taxa, but shares 2 indigenous species: *Triplosar rus novaezelandiae* (with North Island and South Island), *Euthenarus brevicollis* (with South Island). Six (6) species occur on the Three Kings Islands (TH), including 4 endemics (*Maoriharpalus sutherlandi*, *Tuiharpalus crosbyi*, *T. gourlayi*, *Kiwiharpalus townsendi*), 1 adventive, and 1 indigenous species in common with the North Island (*Lecanomerus sharpi*). Seven (7) species occur on the Chatham Islands (CH), including 1 endemic (*Allocinopus latitarsis*), 2 natives in common with the South Island (*Hypharpax antarcticus*, *Lecanomerus latimanus*), and one shared with the North and South Islands (*Euthenarus puncticollis*), and 3 adventives. Harpalini are so far unknown from New Zealand's subantarctic islands.

A total of fourteen (14) adventive species (about 25% of Harpalini) occur throughout New Zealand, mostly in the North Island (Map 7; especially in WN, ND, WI). The majority of adventive species probably originated from Australia apart from 2 *Harpalus* species and *Anisodactylus binotatus* (from the Palearctic Region), and *Haplanister crypticus* (of unknown origin).

The areas of New Zealand so far known to contain the highest diversity (Map 4) are: NN (23 species), ND (21 species), WN (17 species). The areas with the greatest number of New Zealand endemics (Map 5) are: NN (16), ND (13), BP (11).

Some Harpalini are restricted to a single area (Map 6). Currently, the areas with such species are: NN (9), ND (6), TH (4), BR (1), BP (1), CL (1), MC (1), CH (1). The South Island northwest (NN, BR) and the far north of the New Zealand (ND, TH) appear to have been the reservoirs, in geological time, of much of the genetic diversity in New Zealand Harpalini, with several species currently restricted to these regions. This trend is reflected at the generic level with *Hakaharpalus* occurring only in BR–NN–SD, *Pholeodytes* in NN, *Kupeharpalus* in ND, *Maoriharpalus* and *Kiwiharpalus* in TH, and *Tuiharpalus* in TH–ND.

Table 2 shows the genera and species shared with Australia, New Caledonia, Norfolk Island, and Lord Howe Island. Ten (10) species shared with these regions are adventive in New Zealand. Three indigenous genera (*Hypharpax*, *Lecanomerus*, *Euthenarus*) are shared with Australia (eastern Australian mainland and Tasmania).

**Ecology, biology and dispersal power**

No formal detailed study of the natural history of individual species of New Zealand Harpalini has ever been conducted although Larochelle & Larivière (2001) summarised information available from the literature, material in entomological collections, personal communications from carabid collectors, and their own personal field observations.

Native species are mostly subapterous and live within the confines of native habitats, mostly forests (especially along streams) and wet habitats, also tussock grasslands and caves (2 *Syllectus*, 5 *Pholeodytes*). The cave-dwelling species are all troglobitic, except *Syllectus magnus* which is troglophilous, occurring at the entrance of caves. Most Harpalini species are hygrophilous (moisture-loving) living at the surface of the soil and in leaf litter, also in caves
(Syllectus, Pholeodytes), and occasionally on plants and trees. Two native species are typically found along coastal lowlands: Triplosarus novaezelandiae (on beaches and sand dunes), Allocinopus belli (coastal forests). Dispersal in native species is achieved by running over the ground; most species are moderate runners, except for the long-legged, fast-running cave species (Syllectus, Pholeodytes). In general Harpalini have relatively short legs and, sometimes, strongly reduced eyes which are indicative of strong burrowing habits.

All adventive species are macropterous and live mostly in highly modified environments (often around human dwellings), except for Haplanister crypticus which has managed to invade native forests.

The collecting period of teneral individuals suggests that Harpalini species may be either spring-breeders or summer-breeders. For most species adults are active during all months of the year, but are generally less active during cooler months.

There are no data available on the feeding preferences of Harpalini native to New Zealand. Larochelle (1990), in his review of food preferences of the Carabidae of the world, showed representatives of this tribe to be omnivorous, mostly phytophagous species. Ecomorphological adaptations providing further evidence for this feeding-type in adults and larvae have been documented by Sharova (1960, 1981), Acorn & Ball (1991), and Zetto Brandmayr et al. (1998). The mandibles of Hakaharpalus, Kiwiharpalus, Syllectus, Pholeodytes, and Maoriharpalus are unusually long among native Harpalini, which may suggest a specialised type of feeding. In addition, the strongly emarginate labrum of Maoriharpalus is reminiscent of, although not necessarily equivalent to, the condition observed in Licinini which feed on hard-bodied invertebrates, e.g., snails.

**Conservation status**

The Department of Conservation has responsibility for protecting and conserving New Zealand’s native plants and animals. The Department’s Species Priority Ranking System established by Molloy et al. (1994) provides criteria for scoring species according to various levels of threat, so that management and/or recovery plans can be subsequently established. A list of priority invertebrate species for conservation was established in this way by Molloy et al. (1994). McGuinness (2001) developed species profiles for species on the list, providing additional descriptive information to initiate or support key conservation actions. In addition, McGuinness (2001) added a number of invertebrates of potential conservation interest to the original list. No Harpalini species has been listed in these documents.

The Department of Conservation’s Species Ranking System is summarised in Table 3.

When the above criteria are applied, new knowledge brought forward in the present revision suggests that 24 endemic species of Harpalini (over 50% of native species) known from 10 populations or fewer may be of potential conservation concern.

All but two of these species are new to science and all species are taxonomically highly distinctive, have limited dispersal power, are often geographically localised in threatened habitats, and represented in collections by relatively few specimens collected over many decades, which may indicate rare or highly specialised species.


**MORPHOLOGY AND TERMINOLOGY**

The main diagnostic features of Harpalini are: body usually rather stout, with relatively short appendages; head with a single pair of supraorbital setiferous punctures; mandibles usually relatively short, without setae in scrobes; posterior angles of pronotum usually without a setiferous puncture; elytral apex neither truncate nor crossed subapically; median lobe of aedeagus with basal bulb well developed in most taxa, shaft usually strongly arcuate; parameres of aedeagus usually short and broad, conchoid (shell-like) or ovate, similar in shape with right paramere usually smaller.

A more detailed description of the tribe based on New Zealand representatives is available on page 24. Figures 1–31 provide a basic understanding of the morphological structures used to describe and identify Harpalini genera and species. A glossary of technical terms is also provided (Appendix A, p. 89).

<table>
<thead>
<tr>
<th>Species</th>
<th>North Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anisodactylina</td>
<td></td>
</tr>
<tr>
<td>Allocinopus angustulus</td>
<td></td>
</tr>
<tr>
<td>A. belli</td>
<td></td>
</tr>
<tr>
<td>A. bouqueti</td>
<td></td>
</tr>
<tr>
<td>A. latitarsis</td>
<td></td>
</tr>
<tr>
<td>A. sculpticollis</td>
<td></td>
</tr>
<tr>
<td>A. smithi</td>
<td></td>
</tr>
<tr>
<td>A. wardi</td>
<td></td>
</tr>
<tr>
<td>Anisodactylus binotatus*</td>
<td></td>
</tr>
<tr>
<td>Gaioxenus pilipalpis</td>
<td></td>
</tr>
<tr>
<td>Gnathaphanus melbournensis*</td>
<td></td>
</tr>
<tr>
<td>Hypharpax antarcticus</td>
<td></td>
</tr>
<tr>
<td>H. australis*</td>
<td></td>
</tr>
<tr>
<td>Notiobia quadricollis*</td>
<td></td>
</tr>
<tr>
<td>Pararhis sutherlandi</td>
<td></td>
</tr>
<tr>
<td>Notiobia quadricollis*</td>
<td></td>
</tr>
<tr>
<td>Pararhis atratus</td>
<td></td>
</tr>
<tr>
<td>P. hoarei</td>
<td></td>
</tr>
<tr>
<td>P. lesagei</td>
<td></td>
</tr>
<tr>
<td>Triplosarus novaезeländiae</td>
<td></td>
</tr>
<tr>
<td>T. crosbyi</td>
<td></td>
</tr>
<tr>
<td>T. gourlayi</td>
<td></td>
</tr>
<tr>
<td>T. hallae</td>
<td></td>
</tr>
<tr>
<td>T. moorei</td>
<td></td>
</tr>
<tr>
<td>Harpalina</td>
<td></td>
</tr>
<tr>
<td>Harpalus affinis*</td>
<td></td>
</tr>
<tr>
<td>H. australasiae*</td>
<td></td>
</tr>
<tr>
<td>H. tardus*</td>
<td></td>
</tr>
<tr>
<td>Pelmatellina</td>
<td></td>
</tr>
<tr>
<td>Hakaharpalus davidsoni</td>
<td></td>
</tr>
<tr>
<td>H. maddisoni</td>
<td></td>
</tr>
<tr>
<td>H. patricki</td>
<td></td>
</tr>
<tr>
<td>H. rhodeae</td>
<td></td>
</tr>
<tr>
<td>Kupeharpalus barrattae</td>
<td></td>
</tr>
<tr>
<td>K. emersoni</td>
<td></td>
</tr>
<tr>
<td>K. johnsi</td>
<td></td>
</tr>
<tr>
<td>Lecanomerus atriceps*</td>
<td></td>
</tr>
<tr>
<td>L. insignitus</td>
<td></td>
</tr>
<tr>
<td>L. latimanus</td>
<td></td>
</tr>
<tr>
<td>L. marrisi</td>
<td></td>
</tr>
<tr>
<td>L. ogubesulus</td>
<td></td>
</tr>
<tr>
<td>L. sharpi</td>
<td></td>
</tr>
<tr>
<td>L. verticalis*</td>
<td></td>
</tr>
<tr>
<td>L. vestigialis*</td>
<td></td>
</tr>
<tr>
<td>Syllpectus anomalus</td>
<td></td>
</tr>
<tr>
<td>S. gouleti</td>
<td></td>
</tr>
<tr>
<td>S. magnus</td>
<td></td>
</tr>
<tr>
<td>Stenolophina</td>
<td></td>
</tr>
<tr>
<td>Egdadroma picea*</td>
<td></td>
</tr>
<tr>
<td>Euthenurus bicolor*</td>
<td></td>
</tr>
<tr>
<td>E. brevicollis</td>
<td></td>
</tr>
<tr>
<td>E. promptus*</td>
<td></td>
</tr>
<tr>
<td>E. puncticolis</td>
<td></td>
</tr>
<tr>
<td>Haplanister crypticus*</td>
<td></td>
</tr>
<tr>
<td>Kiwiharpalus townsendi</td>
<td></td>
</tr>
<tr>
<td>Pholeodytes cerberus</td>
<td></td>
</tr>
<tr>
<td>P. helmorei</td>
<td></td>
</tr>
<tr>
<td>P. nunni</td>
<td></td>
</tr>
<tr>
<td>P. palmai</td>
<td></td>
</tr>
<tr>
<td>P. townsendi</td>
<td></td>
</tr>
</tbody>
</table>
Table 1 (continued)

<table>
<thead>
<tr>
<th>Species</th>
<th>SD</th>
<th>NN</th>
<th>MB</th>
<th>KA</th>
<th>BR</th>
<th>WD</th>
<th>NC</th>
<th>MC</th>
<th>SC</th>
<th>MK</th>
<th>OL</th>
<th>CO</th>
<th>DN</th>
<th>FD</th>
<th>SL</th>
<th>SI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anisodactylina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allocinus angustulus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. belli</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. bougeti</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. latitarsis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. sculpticollis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. smithi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. wardi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anisodactylus binotatus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gaioxenus pilipalpis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gnathophus melbournensis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. australis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maoriharpalus sutherlandi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haplanister crypticus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pelmatellina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hakaharpalus davidsoni</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. maddisoni</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. patricki</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. rhodeae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kupeharpalus barrattae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. embersoni</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. johnsi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecanomerus atriceps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. insignitus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. latimanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. marrisi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. obesus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. sharpi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. verticalis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. vestigialis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syllebus anomalous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S. gouleti</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S. magnus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stenolophina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egadroma picea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euthenarus bicolor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. brevicollis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. promptus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. puncticollias</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiwiharpalus townsendi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pholeodytes cerberus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P. helmorei</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P. nutni</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P. palmai</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Offshore Islands
Table 2. Taxa shared with Australia, New Caledonia, Norfolk Island, and Lord Howe Island. X = present; [ ] = adventive; — = absent.

<table>
<thead>
<tr>
<th>Species (macropterous)</th>
<th>New Zealand</th>
<th>Australia (mainland)</th>
<th>Tasmania</th>
<th>New Caledonia</th>
<th>Norfolk Island</th>
<th>Lord Howe Island</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anisodactylina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gnathaphalus</td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>[X]</td>
<td>[X]</td>
</tr>
<tr>
<td><em>Gnathaphanus melbournensis</em></td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>[X]</td>
</tr>
<tr>
<td><strong>Hypharpax</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Hypharpax australis</strong></td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>[X]</td>
</tr>
<tr>
<td><strong>Notiobia</strong></td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>[X]</td>
<td>[X]</td>
</tr>
<tr>
<td><strong>Notiobia quadricollis</strong></td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Harpalina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harpalus</td>
<td>[X]</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Harpalus australasiae</td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Pelmatellina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecanomerus</td>
<td></td>
<td></td>
<td>[X]</td>
<td>X</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><em>Lecanomerus atriceps</em></td>
<td>[X]</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>L. verticalis</td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>L. vestigialis</td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Stenolophina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egadroma</td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>[X]</td>
<td>[X]</td>
</tr>
<tr>
<td><em>Egadroma picea</em></td>
<td>[X]</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Euthenarus</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><em>E. bicolor</em></td>
<td>[X]</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>[X]</td>
</tr>
<tr>
<td>E. promptus</td>
<td>[X]</td>
<td>X</td>
<td>—</td>
<td>—</td>
<td>[X]</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 3. Department of Conservation Species Priority Ranking System (Molloy & Davis, 1994; McGuinness, 2001). Designed to categorise threatened species according to their urgency for conservation. (bold = criteria more readily applicable to Harpalini based on current taxonomic and biological knowledge)

Plants and animals are scored using 5 factors, encompassing 17 criteria.

1. **Distinctiveness**: taxonomic distinctiveness.
2. **Status**: number of populations; mean population size; size of largest population; geographic distribution; condition of largest population; and the population decline rate.
3. **Threats**: legal protection of habitat; habitat loss rate; predators/harvest impact; competition; and other factors affecting survival.
4. **Vulnerability**: habitat and/or diet specificity; reproductive and/or behavioural specialisation; and cultivation/captive breeding potential.
5. **Values**: Maori cultural values; Pakeha cultural values.

Invertebrates are then grouped into 3 categories depending on the score they receive from the ranking system.

- **A**: Highest priority threatened species for conservation action.
- **B**: Second priority threatened species for conservation action.
- **C**: Third priority threatened species for conservation action.

In addition, 4 other specialist categories are used:

- **X**: Species that have not been sighted for a number of years and are presumed extinct.
- **I**: Species about which little is known, but based on existing knowledge are considered to be under threat.
- **O**: Species that are threatened in New Zealand but are known to be secure in parts of their range outside New Zealand (no invertebrate so far listed in this category).
- **M**: Species that are [apparently] rare or localised, and of cultural importance to Maori.
METHODS AND CONVENTIONS

Materials
This revision is based on 12 years of extensive field work carried out by the authors in over 500 localities, a survey of the literature up to May 2004, and the recording of information associated with over 5350 adult specimens from the following entomological museums and collections:

AMNZ Auckland Institute and Museum, Auckland, New Zealand.
ANIC Australian National Insect Collection, Canberra, Australia.
BBNZ B. I. P. Barratt private collection, Dunedin, New Zealand.
BMNH The Natural History Museum, London, U.K.
CMNH Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, U.S.A.
CMNZ Canterbury Museum, Christchurch, New Zealand.
FMNH Field Museum of Natural History, Chicago, Illinois, U.S.A.
ITNZ J. I. Townsend private collection, Levin, New Zealand.
JNNZ J. Nunn private collection, Dunedin, New Zealand.
LUNZ Entomology Research Museum, Lincoln University, Lincoln, New Zealand.
MCSN Musei Civico di Storia Naturale, Genova, Italy.
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.
PHNZ P. Howe private collection, Timaru, New Zealand.
UCNZ Department of Zoology, University of Canterbury, Christchurch, New Zealand.

Specimen-based information from NZAC is being databased and will be made available online on the NZAC NZBUGS website (http://www.landcareresearch.co.nz/).

Collecting and preparation
Adults of Harpalini are generally collected by hand by turning ground debris. However, special techniques are used to collect large series or population samples for quantitative studies. These include (in order of decreasing usage): pitfall litter trapping, turning logs and stones, raking or sifting the leaf litter (especially for small species), treading vegetation into water, digging at the base of plants (e.g., *Lupinus*), pouring water over ground, treading soil with the feet, sweeping the vegetation, using Malaise traps, collecting with a head lamp or torch (e.g., in caves; on trees at night), light trapping (especially for adventive species), sifting garden compost, and turning drift shore material. Pitfall trapping, especially in forests (along streams) and in coastal dunes is the most reliable method for assessing the presence, community composition, and locomotory activity of harpalines.

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 (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. It is necessary to relax and dissect male specimens in order to study their genitalia.

Male genitalia can be dissected 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 forceps is used to extract the male genitalia from the abdomen. This is done under the microscope by inserting the forceps into the anus, cutting through the lateral membranes that unite the last two tergites and ventrites, pulling out the aedeagus and associated genital ring, separating these structures from each other, and cleaning the aedeagus from any residues and detaching the parameres. The dissected genital structures are then transferred to a new cavity slide containing glycerol for further study. After examination, the male genitalia are mounted on cards or points and re-attached to original specimens for permanent storage.

Revision 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. Borrowing of adult specimens from all available entomological collections (private and institutional).
2. Labelling of borrowed specimens with the acronyms of the lending collections.
3. Grouping of specimens based on overall similarities and differences in external morphology.
4. Grouping of recognised morphological units by areas of New Zealand (area codes of Crosby et al., 1976 & 1998) from North to South, West to East, and by offshore islands. This facilitates the evaluation of structural variation between and within populations across the geographic range of each putative species.

5. Dissection of male genitalia from at least 5 populations per area. Additional specimens sometimes need to be dissected from some areas (e.g., from WA, WN, SD, NN) where a high degree of variation may be observed between and within populations. About 650 male specimens were dissected in the course of this study.

6. Identification of putative species based on male genitalia and drawing of their genitalic features (lateral and dorsal views of aedeagus).

7. Correlation of results from the genitalia study with characters of the external morphology at the species level (corroborated, when possible, by geographical and biological information).

8. Photography of pronotum and whole insect for each species.

9. Description of taxa based on a character list developed from previously published works, the study of population samples in steps 6 and 7, and the drafting of a description for one species (often the type species) from each described genus. This involves the description of each species in detail followed by the transfer of selected characters from the species descriptions to the generic descriptions.

10. Comparing circumscribed species against the types of already described species and application of existing names or new names.

11. Preparing identification keys from descriptions.

**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 species descriptions are as described in generic descriptions.

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

- Characters with the highest diagnostic value at the species level have been photographed or illustrated, including the most diagnostic aspects of the male genitalia. Most illustrations provided in this work represent the most commonly encountered state of a character. The user must allow some degree of variation when working with individual specimens.

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

Although it is necessary to fully dissect male genitalia within the context of taxonomic revisions, it is often enough to partially pull out the apex of the aedeagus with a pin at the time of mounting specimens in order to see enough of the genitalia for identification.

Parameres of the aedeagus were found to vary little between species and were not illustrated. In the Harpalini, the internal sac of the male aedeagus is either armed (provided with scales, teeth, or spines) or unarmred. These conditions have been stated although not illustrated for each species. Illustrating these characters in detail would have required the eversion of the internal sac, which was beyond the scope of this revision. The female genitalia were not studied either. There was sufficient diagnostic information provided by other characters.

**Identification keys**

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

**Illustrations and digital photographs**

Illustrations (except habitus drawings and Fig. 114–225), including maps, were prepared from pencilled drafts that were digitised, finished, and laid out using the software package CorelDraw graphics suite. Colour photographs of whole insects and pronota were captured through a Leica MZ-12 stereomicroscope, a 3CCD video camera, 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 PhotoShop and CorelDRAW graphics suite.

**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 Harpalini, 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 pro-
vides new hypotheses that will hopefully be tested by
future students of the higher classification of Harpalini;
this must be done on a world basis or at least in an Aus-
tralasian context.

A cladistic analysis, preferably integrating
morphological and genetic information, is needed to
determine the phylogenetic position of New Zealand genera
within the Harpalini. 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.

Species concept
The species concept used here is biological, inferred from
morphological characters (especially male genitalia) hy-
pothesised to constitute barriers to interbreeding and hence
to gene flow between the different species. This is cor-
raborated, when possible, by geographic and biological
information, but is not tested by genetic or ethological
investigations. This species concept requires the assump-
tion that reproductive (genetic) continuity or isolation
among natural populations is evidenced by continuity or
discontinuity in characters of external morphology and
genital structures provided by the study of population
samples.

As generally observed in Carabidae, the most important
characters to discriminate Harpalini species are the male
genital structures, particularly the aedeagus. In the majority
of New Zealand genera, many external characters are found
to vary within species, or the range of their variation
overlaps with that of closely related species, and similarities
or differences in external morphology are not always
congruent with the study of genitalia. Accurate species
identification is generally impossible without an
examination of male aedeagus. Therefore, in most cases,
females can only be reliably identified by association with
males. Fortuitously, identification is facilitated by the fact
that New Zealand species are largely allopatric.

Taxonomic arrangement
Further study of Australasian Harpalini is needed before
phylogenetic relationships can be hypothesised. In this
monograph, subtribes and genera are treated alphabetically
while species are arranged according to their similarity in
male genitalia and external morphology, which may or may
not be indicative of phylogenetic relationships.

Biostatus
This is indicated for all genera and species (A=Adventive;
E=Endemic; N=Native, not endemic). The biostatus cat-
egories used are defined in the Glossary (Appendix A, p.
89). A combination of criteria was used to assess whether
taxa were adventive including: recency of first New Zea-
land 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.

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

Geographic distribution
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. When appropriate, the
extralimital distribution (outside New Zealand and its off-
shore islands) is also included, as well as first New Zea-
land records of adventive species. Full distributional informa-
tion is given for species known from ten (10) localities or
fewer. Appendix B (p. 91) contains a list of the main col-
lecting localities and their geographic coordinates.

Two-letter abbreviations for the area codes of Crosby
et al. (1976, 1998) used in this publication are as follows
(see Maps 1-3):

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

Maps summarising species distributions by areas of
New Zealand are provided on pp. 147-153.
Material examined
This indicates the number of specimens examined and the acronym of their repositories.

Ecology, biology, and dispersal power
The information provided is based on specimen label data, field observations from the authors, and 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 species. The terminology and style of presentation adopted here follows Larochelle & Larivière (2001). Most technical terms are also defined in the glossary (Appendix A, p. 89).

References
Under References, only the most important references are given for each taxon, with an indication of their contents between parentheses.

TAXONOMIC TREATMENTS

Tribe HARPALINI


Description (New Zealand). Body length: 3.0–20 mm. Mostly pigmented and dark in colour, rarely depigmented and testaceous. Generally glabrous and smooth. Body not pedunculate, usually rather stout, with relatively short appendages. Head with a single pair of supraorbital setiferous punctures. Labrum usually transverse; apex straight or slightly emarginate medially, rarely strongly emarginate (Maoriharpalus); anterior margin with 6 setiferous punctures. Clypeus narrower than distance between antennal scapes; apex straight or slightly emarginate medially; each outer distal angle with one setiferous puncture. Mandibles usually relatively short; scrobe without a setiferous puncture. Palpi visibly pubescent, rarely subglabrous; penultimate segment of labial palpi either plurisetose (with 4 setae or more), trisetose (with 3 setae), or bisetose (with 2 setae) on anterior margin. Antennae usually moderately long, reaching pronotal base; pubescence starting generally on antennomere 3, rarely on antennomere 2. Mentum generally with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum usually separated by complete transverse suture. Each pronotal side with a setiferous puncture before middle. Posterior angles of pronotum each without a setiferous puncture. Scutellar striole of elytra usually present, inserted between interneurs 1 and 2. Procoxal cavities uniperforated. Metepimeron visible as a lobe between metepisternum and ventrite 1. Elytra with apex rounded or angulate, not truncate; epipleura simple, not crossed subapically. Abdominal apex hidden from above. Male protarsi and usually mesotarsi laterally dilated and clothed with adhesive setae ventrally; male tarsi either spongily pubescent, biseriately pubescent, or rarely unmodified (i.e., simple as in the female). Aedeagus (i.e., penis, median lobe) usually arcuate in lateral view, either asymmetrical (with ostium deflected laterally) or symmetrical (with ostium dorsal, not deflected laterally) in apical half in dorsal view; basal bulb well developed, feebly elongated. Internal sac with or without armature (scales, teeth, or spines). Parameres short and wide, conchoid or ovate, slightly different in shape, the right paramere being smaller (i.e., almost as long, slightly narrower).

Remarks. Klimaszewski & Watt (1997) provided a key to the subfamilies and tribes of Carabidae occurring in New Zealand.
Key to subtribes of New Zealand Harpalini (mostly based on males)

1 Penultimate segment of labial palpi plurisetose (with 4 setae or more; Fig. 9) on anterior margin .............. 2
   — Penultimate segment of labial palpi trisetose (with 3 setae; Fig. 10) or bisetose (with 2 setae; Fig. 11) on anterior margin ................................................. 3

2(1) Male protarsi biseriately pubescent (with 2 rows of scale-like setae) ventrally (Fig. 13). Aedeagus asymmetrical, with ostium strongly deflected to the left (Fig. 55) ........................................... (p. 50) Harpalina
   — Male protarsi spongily pubescent ventrally (Fig. 12). Aedeagus asymmetrical (with ostium deflected to the right (Fig. 35) or twisted (Fig. 39)) or symmetrical (with ostium dorsal, not deflected laterally (Fig. 32)) ........................................... (p. 26) Anisodactyla (in part)

3(1) Penultimate segment of labial palpi trisetose on anterior margin (Fig. 10) ............................................. 4
   — Penultimate segment of labial palpi bisetose on anterior margin (Fig. 11) ............................................... 5

4(3) Frons without clypeo-ocular prolongations (Fig. 85) ................................................................. (p. 26) Anisodactyla (in part)
   — Frons with clypeo-ocular prolongations (Fig. 107) ................................................................. (p. 54) Pelmatellina (in part)

5(3) Male protarsi dilated laterally and spongily pubescent ventrally (Fig. 12) ........................................ (p. 54) Pelmatellina (in part)
   — Male protarsi dilated laterally and biseriately pubescent ventrally (Fig. 13) or unmodified ................................................................. (p. 72) Stenolophina

Alternative key to genera of New Zealand Harpalini

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

1 Rows of setiferous punctures present on elytral intervals 3, 5, or 7 (Fig. 97, 99), or on interneur 2 (Fig. 98) 2
   — Rows of setiferous punctures absent (Fig. 91) on elytral intervals 3, 5, and 7, and on interneur 2 ............... 3

2(1) Metatarsomere 1 as long as metatarsomeres 2+3 (Fig. 188). Forebody (head and thorax) with sparse setiferous micropores dorsally (Fig. 136). Eyes strongly reduced, rather flat (Fig. 96–99). Tempora inflated (Fig. 96–99) ............................... (p. 46) Tuiharpalus new genus
   — Metatarsomere 1 as long as metatarsomeres 2+3+4 (Fig. 179). Forebody (head and thorax) without sparse setiferous micropores dorsally. Eyes moderately large, convex (Fig. 89). Tempora not inflated (Fig. 89) ....... .............................................. (p. 36) Gnathaphanus Macleay

3(1) Mentum without a tooth medially (Fig. 18) 4
   — Mentum with a tooth medially (Fig. 14) .................... 6

4(3) Eyes reaching buccal fissure ventrally (Fig. 21). Frons with clypeo-ocular prolongations (Fig. 109). Body length 6.5 mm or less ................................................................. (p. 72) Egadroma Motschulsky
   — Eyes separated from buccal fissure ventrally (by 1–2x maximum width of antennal scape) (Fig. 19). Frons without clypeo-ocular prolongations (Fig. 91). Body length 10 mm or more ............... 5

5(4) Mandibles (Fig. 91) and antennal scapes (Fig. 182) very long, about 6x their maximum width. Labrum strongly emarginate apically (Fig. 91). Mentum and submentum separated by transverse suture (Fig. 22). Pronotum suborbicular (Fig. 126). [TH] .................................................. (p. 40) Maoriharpalus new genus
   — Mandibles (Fig. 87) and antennal scapes (Fig. 177) much shorter. Labrum straight or slightly emarginate apically (Fig. 87). Mentum and submentum fused, not separated by transverse suture (Fig. 24). Pronotum rectangular (Fig. 121). [South Island and southern North Island] ........................................... (p. 34) Anisodactylus Dejean

6(3) Segment 4 of protarsi and mesotarsi with 2 membranous laminae (Fig. 25). Forebody (head and thorax) much narrower than elytra (Fig. 211–213, 221–225) ............................................................. 7
   — Segment 4 of protarsi and mesotarsi without membranous laminae (Fig. 26). Forebody (head and thorax) at most moderately narrower than elytra ........................... 8

7(6) Elytral interneurs (Fig. 108) complete, consisting of striae. Mentum with medial tooth as long as lateral lobes (Fig. 16) ........................................ (p. 68) Sylectus Bates
   — Elytral interneurs (Fig. 113) incomplete, consisting of rows of punctures. Mentum with medial tooth longer than lateral lobes (Fig. 15) ............................................ (p. 80) Pholeodytes Britton

8(6) Eyes normally developed (Fig. 110). Mandibles shorter (Fig. 110) ..................................................... 9
   — Eyes strongly reduced, flat or rather flat, consisting of obliterated facets (Fig. 102, 112). Mandibles very long (about 5–6x their maximum width; Fig. 102, 112) .......... 19

9(8) Ventrites 5+6 with numerous short setae, in addition to paired ambulatory setae (Fig. 28) .......................... (p. 73) Euthenarus Bates
   — Ventrites 5+6 without short setae, with paired ambulatory setae only (Fig. 27) ................................. 10
10(9) Elytral interneurs incomplete basally and laterally (Fig. 111). Pronotum suborbicular (Fig. 163) ............. 
(p. 77)... *Haplanister* Moore 
— Elytral interneurs complete (Fig. 104). Pronotum not suborbicular ................................................. 11

11(10) Umbilicate setiferous series of elytral interval 9 separated into 2 major groups (Fig. 107) ............ 12
— Umbilicate setiferous series of elytral interval 9 not separated into 2 major groups (Fig. 93) ............ 17

12(11) Frons with clypeo-ocular prolongations (Fig. 107) ................................................................. 13
— Frons without clypeo-ocular prolongations (Fig. 92) ................................................................. 14

13(12) Apex of prosternal lobe pubescent. Penultimate segment of labial palpi trisetose on anterior margin (Fig. 10). Eyes widely separated from buccal fissure ventrally (by 1.5–2.0x maximum width of antennal scape; Fig. 19). [North Island: ND] ................. 
(p. 57)... *Kupeharpalus* new genus 
— Apex of prosternal lobe glabrous (Fig. 2). Penultimate segment of labial palpi bisetose on anterior margin (Fig. 11). Eyes reaching buccal fissure (Fig. 21) or narrowly separated from it ventrally (by 0.3–0.7x maximum width of antennal scape; Fig. 20). [Throughout New Zealand] ........ (p. 60)... *Lecanomerus* Chaudoir

14(12) Metatarsomere 1 very long, almost as long as metatarsomeres 2+3+4 (Fig. 183) ......................... 
(p. 41)... *Notiobia* Perty 
— Metatarsomere 1 much shorter, at most as long as, or slightly longer than, metatarsomeres 2+3 ........... 15

15(14) Elytra fused along suture; hindwings vestigial. Pronotum not subrectangular (Fig. 114–120). Metafemora with 2 long setae on posterior margin ... 
(p. 27)... *Allocinopus* Broun 
— Elytra free along suture; hindwings fully developed. Pronotum subrectangular (Fig. 124–125, 137–139). Metafemora with 4–10 long setae on posterior margin ................. 
(p. 37)... *Hypharpax* Macleay

16(15) Metatarsomere 5 with 6–8 setae ventrally. Posterior bead of pronotum complete (Fig. 137–139). [Body length 6–12 mm.] .......... 
(p. 51)... *Harpalus* Latreille 
— Metatarsomere 5 with 4 setae ventrally. Posterior bead of pronotum incomplete medially (Fig. 124–125). [Body length 4.5–7.0 mm.] ......................... 
(p. 37)... *Hypharpax* Macleay

17(11) Body shape boat-like, with subtriangular elytra (Fig. 88). Scutellum hidden (Fig. 88). Labrum slightly transverse, almost square, convex apically (Fig. 88) . 
......................................................... 
(p. 35)... *Gaioxenus* Broun — Body shape not boat-like, elytra not subtriangular (Fig. 93–95). Scutellum visible (Fig. 93–95). Labrum strongly transverse, subrectangular, straight or slightly emarginate apically (Fig. 93–95) .......................... 18

18(17) Body dark in colour. Tarsi pubescent dorsally. Metafemora with 2 long setae on posterior margin. Metatarsomere 1 as long as metatarsomeres 2+3 (Fig. 185) ...........................
(p. 42)... *Parabaris* Broun 
— Body pale in colour. Tarsi glabrous dorsally. Metafemora with 5–7 long setae on posterior margin. Metatarsomere 1 shorter than metatarsomeres 2+3 (Fig. 187) 
...................................................
(p. 45)... *Tripolarus* Bates

19(8) Pronotum cordate or subcordate (Fig. 140–143). Antennae widening from base to apex (Fig. 199); pubescence starting on antennomere 2 [NN–SD] ... 
(p. 54)... *Hakaharpalus* new genus 
— Pronotum quadrate (Fig. 164). Antennae not widening from base to apex (Fig. 220); pubescence starting on antennomere 3 [TH] 
...................................................
(p. 79)... *Kiwiharpalus* new genus

**Subtribe ANISODACTYLINA**

**Diagnosis** (New Zealand). Body length: 4.5–20.0 mm. Frons without clypeo-ocular prolongations. Mentum usually with a tooth medially, seldom without a tooth (*Anisodactylus, Gnathaphanus, Macriharpalus*). Mentum and submentum usually separated by a complete transverse suture, seldom by laterally incomplete transverse suture (*Gaioxenus*), or without suture (*Anisodactylus*). Penultimate segment of labial palpi usually plurisetose (with 4 setae or more) on anterior margin, seldom trisetose (with 3 setae; *Allocinopus angustulus, A. smithi, Hypharpax australis, Tuiharpalus clunieae, T. hallae*). Apex of prosternal lobe pubescent. Male protarsi dilated laterally and spongily pubescent ventrally; male mesotarsi usually dilated laterally and spongily pubescent ventrally, seldom unmodified. Metatarsomere 1 of variable length. Umbilicate setiferous series of interval 9 usually continuous, seldom separated into 2 major groups (*Allocinopus, Hypharpax, Notiobia*) with posterior group continuous (not divided further into 2 subgroups). Aedeagus arcuate, asymmetrical (with ostium deflected to the right, twisted or undulated) or symmetrical (with ostium dorsal, not deflected laterally).

**Geographic distribution.** Worldwide.

**References.** Noonan 1973: 266–480 (classification; key to genera) and 1976: 8–15 (taxonomy); Larochelle & Larivière 2001: 122–126 (catalogue).
Key to genera of New Zealand Anisodactylina

1 Rows of setiferous punctures present on elytral intervals 3, 5, or 7 (Fig. 97, 99), or on interneur 2 (Fig. 98). 2
— Rows of setiferous punctures absent (Fig. 91) on elytral intervals 3, 5, and 7, and on interneur 2 .......... 3

2(1) Metatarsomere 1 as long as metatarsomeres 2+3 (Fig. 188). Forebody (head and thorax) with sparse setiferous micropores dorsally (Figs. 136). Eyes strongly reduced, rather flat (Fig. 96–99). Tempora inflated (Fig. 96–99) ...........................................(p. 46). Tuiharpalus new genus
— Metatarsomere 1 longer, as long as metatarsomeres 2+3+4 (Fig. 179). Forebody (head and thorax) without sparse setiferous micropores dorsally. Eyes moderately large, convex (Fig. 89). Tempora not inflated (Fig. 89) .........................................(p. 36). Gnathaphanus Macleay

3(1) Mentum without a tooth medially (Fig. 18) ....... 4
— Mentum with a tooth medially (Fig. 14) ............... 5

4(3) Mandibles (Fig. 91) and antennal scapes (Fig. 182) very long, about 6× their maximum width. Labrum strongly emarginate apically (Fig. 91). Mentum and submentum separated by transverse suture (Fig. 22). Pronotum suborbicular (Fig. 126). [TH] ...........................................(p. 40). Maoriharpalus new genus
— Mandibles (Fig. 87) and antennal scapes (Fig. 177) much shorter. Labrum straight or slightly emarginate apically (Fig. 87). Mentum and submentum fused, not separated by transverse suture (Fig. 24). Pronotum rectangular (Fig. 121). [South Island and southern North Island].......................(p. 34). Anisodactylus Dejean

5(3) Umbilicate setiferous series of elytral interval 9 separated into 2 major groups (Fig. 85) ............ 6
— Umbilicate setiferous series of elytral interval 9 not separated into 2 major groups (Fig. 93) .......... 8

6(5) Elytra fused along suture; hindwings vestigial. Pronotum moderately transverse (Fig. 114–120)...... ..................................................(p. 27). Allocinopus Broun
— Elytra free along suture; hindwings fully developed. Pronotum very transverse (Fig. 124–125, 127) .... 7

7(6) Metatarsomere 1 parallel-sided, very long, almost as long as metatarsomeres 2+3+4 (Fig. 183) ........ ...........................................(p. 41). Notiobia Perty
— Metatarsomere 1 subtriangular, short, only about as long as metatarsomere 2 (Fig. 181) .................. ...........................................(p. 37). Hypharpax Macleay

8(5) Body shape boat-like, with subtriangular elytra (Fig. 88). Scutellum hidden (Fig. 88). Labrum slightly transverse, almost square, convex apically (Fig. 88) . ...................................................(p. 35). Gaioxenus Broun
— Body shape not boat-like, elytra not subtriangular (Fig. 93–95). Scutellum visible (Fig. 93–95). Labrum strongly transverse, straight or slightly emarginate apically (Fig. 93–95) .................................................. 9

9(8) Body pale in colour. Tarsi glabrous dorsally. Metatibiae with 5–7 long setae on posterior margin. Paraglossae as long as ligula (Fig. 31) .................................................. ...........................................................................(p. 45). Triplosarus Bates

Genus Allocinopus Broun, 1903
Allocinopus Broun, 1903: 607. Type species: Allocinopus sculpticollis Broun, 1903, by monotypy.

Description. Body length: 6.0–11.5 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. Head. 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 suture ventrally (by about 2× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from basal third or half of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae as long as or longer than ligula. Palpi with last segment fusiform, seldom truncate apically (latitarsis), with sparse, short or moderately long pubescence; penultimate segment of labial palpi plurisetose or trisetose on anterior margin. Thorax. Pronotum cordate or moderately transverse; base straight, as wide as or moderately narrower than elytral base; lateral beads complete; anterior bead incomplete medially; posterior bead complete or incomplete medially. Scutellum visible. Apex of prosternal lobe pubescent. Legs. Metatibiae with 2 long setae on posterior margin. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous or pubescent (a few or numerous setae) dorsally; metatarsomere 5 pubescent (4-6 setae) ventrally; metatarsomere 1 as long as, shorter or longer than metatarsomeres 2+3. Elytra. Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into two major groups, with posterior group continuous. Abdomen. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without
short setae, with paired ambulatory setae only. **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.

**Geographic distribution.** New Zealand (endemic).


**Remarks.** Apart from variation in the pubescence of the penultimate segment of the labial palpi, *Allocinopus* species show a high degree of similarity in morphological characters, including the male genitalia, suggesting that they form a distinct monophyletic group.

---

**Key to species of Allocinopus**

1. Metatarsomere 1 short, only slightly longer than metatarsomere 2 (Fig. 175). Palpi truncate apically. Male protarsi and mesotarsi strongly dilated laterally (each tarsomere about 2x wider than long; Fig. 175). [Pronotum (Fig. 119). Chatham Islands] ............................................... ...(p. 32) ... *laitaris* Broun
   — Pronotum as long as (Fig. 170) or longer (Fig. 173) than metatarsomeres 2+3. Palpi not truncate apically. Male protarsi and mesotarsi not strongly dilated laterally (Fig. 176) ............................................... 2

2(1) Pronotum cordate (heart-shaped), sides clearly sinuate (Fig. 118, 120). Metepisterna longer than wide ...... 3
   — Pronotum not cordate, sides little or not sinuate (Fig. 114–117). Metepisterna as wide as or wider than long ......................................................... 4

3(2) Pronotum (Fig. 118): punctuation weakly developed basally and laterally; basal foveae deep, much longer than wide. Body brownish. Tarsi pubescent dorsally ............................................... ...(p. 31) ... *wardi* new species
   — Pronotum (Fig. 120): punctuation strongly developed basally and laterally; basal foveae shallow, about as long as wide. Body blackish. Tarsi glabrous dorsally ............................................... ...(p. 33) ... *sculpticollis* Broun

4(2) Penultimate segment of labial palpi trisetose (with 3 setae) on anterior margin (Fig 10). Metepisterna wider than long. Metatarsomere 1 as long as metatarsomeres 2+3 (Fig. 170) ......................................................... 5
   — Penultimate segment of labial palpi plurisetose (with 4 setae or more) on anterior margin (Fig. 9). Metepisterna as wide as long. Metatarsomere 1 longer than metatarsomeres 2+3 (Fig. 173) ......................................................... 6

5(4) Pronotum (Fig. 114): posterior angles subrectangular; sides slightly sinuate. Aedeagus (Fig. 32, lateral view) with apex straight; symmetrical (in dorsal view) [North Island, north of the Central Volcanic Plateau] ............ ...........................................(p. 28) ... *smithi* Broun
   — Pronotum (Fig. 115): posterior angles obtuse; sides almost straight. Aedeagus (Fig. 33, lateral view) with apex deflected dorsally; asymmetrical (in dorsal view) [North Island, south of the Central Volcanic Plateau] ...........................................(p. 29) ... *angustulus* Broun

6(4) Base of pronotum (Fig. 117) much narrower than elytral base; posterior angles obtuse; sides not sinuate. Elytral shoulders rounded (Fig. 117). Aedeagus (Fig. 35, dorsal view) with apical disc broadly spatulate ... ............................................... ...(p. 30) ... *bousqueti* new species
   — Base of pronotum (Fig. 116) slightly narrower than elytral base; posterior angles subrectangular; sides slightly sinuate. Elytral shoulders angulate (Fig. 116). Aedeagus (Fig. 34, dorsal view) with apical disc narrowly spatulate ..... ...(p. 30) ... *belli* new species

---

**Allocinopus smithi** Broun, 1912

Figures 32, 85, 114, 170; Map p. 147


**Description.** Body length: 6.5–7.0 mm. Moderately convex. Reddish black; head darker; lateral margins of pronotum and elytra paler; antennae, palpi, and legs light reddish. Generally glabrous and smooth. Microsculpture isodiametric and strong on head, moderately transverse and weak on pronotum, very transverse (with microlines) and weak on elytra (in males) or very transverse (with microlines) and strong (in females). Shiny, without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex
posteriorly. Labrum with apex slightly emarginate medi-
ally. Eyes moderately large, slightly convex. Antennae
moderately long, reaching pronotal base; antennal scape
about 2× longer than its maximum width; pubescence start-
ing from basal 1/3 of antennomere 3. Paraglossae as long as
ligula. Palpi not truncate apically, with sparse, moderately
long pubescence; penultimate segment of labial palpi
trisetose (with 2 long setae and 1 short seta) on anterior
margin. **Thorax.** Pronotum (Fig. 114) very transverse,
widest before middle; sides slightly converging toward base,
slightly sinuate; base straight, as wide as elytral base; apex
concave; lateral depressions widening posteriorly; poste-
rior bead complete medially; anterior angles strongly de-
veloped, acute; posterior angles strongly developed,
subrectangular; basal foveae shallow, narrow; anterior lat-
eral setiferous puncture not touching lateral beads; punct-
tuation feebly developed. Apex of prosternal lobe with 1–2
long setae and several short setae. Metepisterna widen-
ting from basal 1/3 of antennomere 3. Paraglossae as long as
ligula. Palpi not truncate apically, with sparse, moderately
long pubescence; penultimate segment of labial palpi
trisetose (with 2 long setae and 1 short seta) on anterior
margin. **Elytra.** Widest about middle. Shoulders strongly de-
veloped, angulate, with a tooth. Subapical sinuations feeble.
Sutural apices angulate-rounded. Scutellar striole present.
Interneurs shallow, deepening apically, impunctate. Inte-
rvals sparsely punctate, flat, becoming convex apically.
Interval 3 without setiferous puncture behind middle.
**Aedeagus** (Fig. 32). Lateral view: strongly arcuate; apex
narrowly pointed, straight. Dorsal view: symmetrical (with
ostiun dorsal, not deflected laterally); dorsal membranous
area very wide, extending almost to basal bulb; apex straight
(not deflected laterally) and apical disc present, truncate at
tip, with divergent sides. Internal sac armed.

**Material examined.** 421 specimens, including types
(AMNZ, BMNH, ITNZ, JNNZ, LUNZ, MONZ, NZAC,
UCNZ).

**Geographic distribution** (Map p. 147). North Island:
AK, BP, TK, TO, WO.

**Ecology.** Lowland, montane. Wet forests (broadleaf,
podocarp): along streams, gullies, and mud flats. Shaded
ground; soil covered with dead leaves. Nocturnal; shelter-
ing during the day under stones, in leaf litter, under fallen
branches and logs. Gregarious. **Biology.** Seasonality: Sep-
tember–January, March–April, June, August. Tene-
ralas: September–October, December, March–June. Occasion-
ally infested with fungi (Laboulbeniales). **Dispersal power.**
Elytra fused along suture. Subapterous. Moderate runner.
Good burrower. **Collecting techniques.** Turning stones
and pieces of wood; raking leaf litter; pitfall trapping.

**References.** Hudson, 1934: 37 (distribution, ecology);
Noonan, 1973: 285 (taxonomy); Larochelle & Lariviére,
2001: 123 (including castaneus; taxonomy, distribution,
ecology, biology, dispersal power).

**Remarks.** Broun described smithi from a pair of “muti-
lated specimens”, one of which (a female) is here design-
nated as lectotype. The second specimen represented in
the Natural History Museum, London (BMNH) collect-
on is a perfectly preserved male specimen with label
information fitting the original description; therefore, it is
considered to be the paralectotype. Broun described
castaneus from two females, one of which could be located
in the Natural History Museum, London (BMNH) and is
here designated as lectotype. These two lectotypes are
designated to preserve stability of nomenclature in the
future. The lectotype of castaneus although pale in colour
conforms morphologically with smithi; the two taxa are
believed to be conspecific. Allocinopus smithi resembles
angustulus in its general morphology and its trisetose palpi
(plurisetose in other Allocinopus species). The two spe-
cies are highly variable morphologically (within and be-
tween populations) and the only reliable diagnostic char-
acter between them is the male aedeagus. The geographic
distribution of these two allopatric species may also assist
their identification.

**Allocinopus angustulus** Broun, 1912

Figures 33, 115, 171; Map p. 147

*Allocinopus angustulus* Broun, 1912: 392. Holotype: female
(BMNH) labelled “Type (circular red-bordered label;
typed) / 3179. female. (hand-written) / New Zeal. Broun
Suter.. (hand-written) / Allocinopus angustulus.” Perfect
condition.

**Description.** Body length: 6.0–7.5 mm. Moderately con-
 vex. Reddish black; head darker; lateral margins of pronotum
and elytra, sutural intervals rufous; antennae, palpi, and
legs light reddish. Generally glabrous and smooth.
Microsculpture isodiametric and strong on head, moder-
ately transverse and weak on pronotum, very transverse
(with microlines) on elytra. Shiny, without metallic lustre.
**Head.** Moderately large, narrower across eyes than pronotal
apex; flat anteriorly, slightly convex posteriorly. Labrum
with apex slightly emarginate medially. Eyes moderately
large, slightly convex. Antennae moderately long, reaching
pronotal base; antennal scape about 2× longer than its maxi-
 mum width; pubescence starting from basal third of
antennomere 3. Paraglossae as long as ligula. Palpi not
truncate apically, with sparse, moderately long pubescence;
penultimate segment of labial palpi trisetose (with 2 long
setae and 1 short seta) on anterior margin. **Thorax.**
Pronotum (Fig. 115) strongly transverse, widest before
middle; sides slightly converging toward base, not sinuate,
almost straight; base straight, as wide as elytral base; apex concave; lateral depressions widening posteriorly; posterior bead complete medially; anterior angles strongly developed, acute; posterior angles strongly developed, obtuse; basal foveae deep, narrow; anterior lateral setiferous punctures not touching lateral beads; punctuation feebly developed. Apex of prosternal lobe with 1–2 long setae and several short setae. Metepisterna wider than long. Legs. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. Elytra. Widest about middle. Shoulders strongly developed, angulate, with a tooth. Subapical sinuations feebly. Sutural apices angulate. Scutellar striae present. Intermens shallow, deepening apically, impunctate. Intervals sparsely punctate, flat, becoming convex apically. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 33). Lateral view: strongly arcuate; apex narrowly pointed, slightly deflected dorsally. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area very wide, extending almost to basal bulb; apex deflected to the right and apical disc present, rounded at tip, almost parallel-sided. Internal sac armed.

Material examined. 143 specimens, including type (BMNH, ITNZ, JNNZ, MONZ, NZAC, UCNZ).

Geographic distribution (Map p. 147). North Island: HB, RI, WA, WI, WN.


Remarks. See under A. smithi.

Allocinopus bellii new species

Figures 34, 116, 172; Map p. 147

Allocinopus bellii Larochelle & Larivière, new species.


Paratypes: 1 female (NZAC), 4 males (MONZ; mounted on same card) from the same locality as the holotype, bearing blue paratype labels.

Description. Body length: 7.5–8.0 mm. Moderately convex. Dark brownish; head darker; antennae and legs (except femora) dark reddish; apical half of tibia light yellowish brown; sides of pronotum and apical half of elytra reddish brown. Generally glabrous and smooth. Microsculpture moderately strong, isodiametric on head, moderately transverse on pronotum, and strongly transverse (with microlines) on elytra. Head slightly shiny, pronotum moderately shiny, elytra very shiny and iridescent; without metallic lustre. Head. Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum with apex straight or slightly emarginate medially. Eyes moderately large, slightly convex. Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width; pubescence starting from middle of antennomere 3. Paraglossae longer than ligula. Palpi not truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi plurisetose (with 2–3 long setae and 4 short setae) on anterior margin. Thorax. Pronotum (Fig. 116) strongly transverse, widest before middle; sides slightly converging toward base, slightly sinuate; base straight, slightly narrower than elytral base; apex concave; lateral depressions widening posteriorly; posterior bead complete medially; anterior angles strongly developed, acute; posterior angles strongly developed, subrectangular; basal foveae deep, narrow; anterior lateral setiferous punctures not touching lateral beads; punctuation feebly developed. Apex of prosternal lobe with 2 long setae and several short setae. Metepisterna as wide as long. Legs. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 longer than metatarsomeres 2+3. Elytra. Widest about middle. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations feebly. Sutural apices angulate. Scutellar striae absent or present. Intermens shallow, not deepening apically, impunctate. Intervals impunctate, flat, not convex apically. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 34). Lateral view: strongly arcuate; apex narrowly rounded, slightly deflected dorsally. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area moderately wide, extending almost to basal bulb; apex deflected to the right and apical disc present, narrowly spatulate. Internal sac armed.

Material examined. 13 specimens, including types (BBNZ, ITNZ, LUNZ, NZAC).


Ecology. Lowland (coastal). Wet forests (broadleaf) along streams. Shaded ground; soil covered with dead leaves. Nocturnal; sheltering during the day under stones. Biol-

**Remarks.** This species closely resembles *A. bousqueti* but can be most easily distinguished from it by characters of the male genitalia. In addition, *A. belli* is typically a coastal species whereas *A. bousqueti* is an inland species. This taxon is named after our friend and colleague Ross T. Bell (University of Vermont, Burlington) for his special help and encouragement in our carabid studies.

**Allocinopus bousqueti** new species

Figures 35, 117, 173; Map p. 147

*Allocinopus bousqueti* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “NEW ZEALAND BP Waioeka Gorge Mangapumarumaru Track 100m 25.XI.1997 Larochelle, Larivière (typed) / Moist broadleaf forest; under stones. (typed) / HOLOTYPE [male symbol] *Allocinopus bousqueti* Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 2 males (1 NZAC, 1 MONZ) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body length: 6.5–8.0 mm. Moderately convex. Dark brownish; head darker; antennae and tarsi dark reddish; femora brownish; mandibles mostly brownish; sides of pronotum reddish brown. Generally glabrous and smooth. Microsculpture moderately strong, isodiametric on head, moderately transverse on thorax, and strongly transverse (with microlines) on elytra. Head slightly shiny, pronotum moderately shiny, elytra very shiny and iridescent; without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum with apex straight or slightly emarginate medially. Eyes moderately large, slightly convex. Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width; pubescence starting from middle of antennomere 3. Paraglossae longer than labula. Palpi not truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi plurisetose (with 2–3 long setae and 4 short setae) on anterior margin. **Thorax.** Pronotum (Fig. 117) very transverse, widest before middle; sides slightly converging toward base, not sinuate; base straight, moderately narrower than elytral base; apex concave; lateral depressions widening posteriorly; posterior bead complete medially; anterior angles strongly developed, acute; posterior angles moderately developed, obtuse; basal foveae shallow, narrow; anterior lateral setiferous punctures touching lateral beads; punctuation feebly developed. Apex of prosternal lobe with 2 long setae and several short setae. Metepisterna as wide as long. **Legs.** Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 longer than metatarsomers 2–3. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations absent. Sutural apices rounded. Scutellar striae absent or present. Interneurs shallow, deepening apically, impunctate. Intervals impunctate, flat, not convex apically. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 35). Lateral view: strongly arcuate; apex spatulate, slightly deflected dorsally. Dorsal view: asymmetrical (with ostium moderately deflected to the right); dorsal membranous area moderately wide, extending almost to basal bulb; apex deflected to the right and broadly spatulate; apical disc present. Internal sac armed.

**Material examined.** 16 specimens, including types (JNNZ, LUNZ, NZAC).


**Ecology.** Lowland. Wet or moist forests (broadleaf); along streams and mud flats. Shaded ground; soil covered with dead leaves. Nocturnal; sheltering during the day under logs, fallen branches and epiphyte crowns, and in leaf litter. **Biology.** Seasonality: October–November, January, April. Tenerals: November, April. **Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner. Good burrower. **Collecting techniques.** Turning stones and pieces of wood.

**Remarks.** This taxon is named after our close friend and colleague Yves Bousquet (Agriculture and Agri-Food Canada, Ottawa, Canada) for his special help and encouragement in our carabid studies. See also **Remarks** under *A. belli*.

**Allocinopus wardi** new species

Figures 36, 118, 174; Map p. 147


**Description.** Body length: 5.0 mm (only one specimen seen, head missing). Slightly convex. Brownish; sides of pronotum and elytra reddish brown. Generally glabrous and smooth. Microsculpture strong, very transverse (with microlines) on pronotum and elytra. Very shiny, without metallic lustre. Iridescent. **Head.** [Missing]. **Thorax.** Pronotum (Fig. 118) cordate (heart-shaped), widest before
Allocinopus latitarsis Broun, 1911

**Description.** Body length: 7.5–11.5 mm. Slightly convex. Brownish; head darker; antennae and tarsi reddish or yellowish; apical half of tibiae light yellowish brown; mandibles mostly brownish; sides of pronotum and elytra reddish brown. Generally glabrous and smooth. Microsculpture absent or barely visible on head and pronotum, weak and moderately transverse on male elytra, strong and isodiametric on female elytra. Very shiny, without metallic lustre. **Head.** Moderately large, as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum with apex straight or slightly emarginate medially. Eyes very large and convex. Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width; pubescence starting from middle of antennomere 3. Paraglossae longer than ligula. Palpi truncate apically, with sparse short pubescence; penultimate segment of labial palpi pluriplumose (with 3 long setae and 4 short setae) on anterior margin. **Thorax.** Pronotum (Fig. 119) very transverse, widest before middle; sides strongly converging toward base, not sinuate; base straight, moderately narrower than elytral base; apex concave; lateral depressions widening posteriorly; posterior bead complete; anterior angles moderately developed, obtuse; posterior angles moderately developed, rounded; basal foveae deep, wide; anterior lateral setiferous punctures touching lateral beads; punctuation feebly developed. Apex of prosternal lobe with 2 long setae and several short setae. Metepisterna punctuation feebly developed. Apex of prosternal lobe with 2 long setae and several short setae. Metepisterna longer than wide. **Legs.** Tarsi pubescent (with several setae) dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Widest about middle. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations absent. Sutural apices angulate. Scutellar striae present. Internemes shallow; impunctate. Intervals impunctate, flat, becoming convex apically. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 36). Lateral view: strongly arcuate; apex blunt, sinuate, deflected ventrally. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area moderately wide, extending almost to basal bulb; apex deflected to the right; apical disc present, rounded-triangular. Internal sac armed.

**Material examined.** Holotype (NZAC).

**Geographic distribution** (Map p. 147). North Island: CL–Moehau Range, Fantail Creek.

**Ecology.** Lowland. A wet broadleaf forest: along a stream. Shaded ground; soil stony-gravelly, covered with dead leaves. Found dead under a stone. **Biological Seasonal.** unknown. **Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner (after leg morphology).

**Remarks.** The configuration of the male aedeagus is unique among Allocinopus species. This is the only species so far recorded from the Coromandel and it seems geographically restricted to that region. This species is named after our good friend and colleague John Ward (Canterbury Museum, Christchurch) for his special encouragement toward the establishment of our new life and career in New Zealand.

Allocinopus latitarsis Broun, 1911

Figures 37, 119, 175; Map p. 147


Remarks. The lectotype of *A. latitarsis* is designated to preserve stability of nomenclature in the future. The aedeagus of this species is morphologically close to that of *A. sculpticollis*, but *A. latitarsis* is unique among Allocinopus species in having male protarsi and mesotarsi strongly dilated laterally, and metatarsomer 1 very short. It is also the only Allocinopus species so far recorded from the Chatham Islands and endemic to those islands. The external morphology of this species is highly variable, e.g., body shape and size can vary even within populations.

**Allocinopus sculpticollis** Broun, 1903

Figures 38, 86, 120, 176; Map p. 147


Description. Body length: 9.0–11.0 mm. Moderately convex. Blackish (contrary to other Allocinopus species); antennae, palpi, and legs brownish red; mandibles mostly dark red; head with 1–2 reddish spots on disc (contrary to other Allocinopus species). Generally glabrous and smooth. Microsculpture strong, transverse (North Island) or isodiametric (South Island). Moderately shiny, without metallic lustre. Head. Moderately large, as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum with apex slightly emarginate medi-ally. Eyes moderately large and convex. Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width; pubescence starting from middle of antennomere 3. Paraglossae longer than ligula. Palpi not truncate apically, with sparse short pubescence; penultimate segment of labial palpi plurisetose (with 3 long setae and 4 short setae) on anterior margin. Thorax. Pronotum (Fig. 120) cordate (heart-shaped), widest before middle; sides strongly converging toward base, strongly sinuate; base straight, slightly narrower than elytral base; apex concave; lateral depressions widening posteriorly (more than in other Allocinopus species); posterior bead complete; anterior angles strongly developed, acutely rounded; posterior angles strongly developed, subrectangular; basal fovea shallow, about as long as wide; anterior lateral setiferous punctures touching lateral beads; punctuation strongly developed (basally and laterally). Apex of prosternal lobe with 2 long setae and several short setae. Metepisterna longer than wide. Legs. Tarsi glabrous dorsally; metatarsome 5 pubescent (with 4 setae) ventrally; metatarsomere 1 as long as metatarsomeromes 2+3. Elytra. Widest about middle. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations fee-ble. Sutural apices angulate. Scutellar strile present. Interneurs shallow, deepening apically, impunctate. Intervals impunctate, flat, becoming convex apically. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 38). Lateral view: slightly arcuate; apex narrowly pointed, slightly deflected ventrally. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending almost to basal bulb; apex straight (not deflected laterally); apical disc present, rounded-triangular. Internal sac armed.

Material examined. 422 specimens, including types (AMNZ, BMNH, ITNZ, JNZ, LUNZ, MONZ, NZAC, UCNZ).

Geographic distribution (Map p. 147). North Island: BP, GB, HB, RI, TK, TO, WA, WI, WN. South Island: BR, NN, SD, WD.


**Remarks.** Examination of the holotype of *A. ocularius* revealed it to be conspecific with *A. sculptopicollis*. Body shape and size are highly variable within and between populations, throughout the range of this species. North Island and South Island populations show different types of body microsculpture, but aedeagal characters are constant across all populations examined. See also Remarks under *A. latitarsis*.

**Genus Anisodactylus Dejean, 1829**


**Description** (*Anisodactylus binotatus*). Body length: 10.0–12.7 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles moderately long, slightly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, moderately separated by transverse suture. Paraglossae longer than mentum slightly deflected to the left), twisted at middle; dorsal membrane wide, not extending to basal bulb; apical disc present. Internal sac unarmed.

**Geographic distribution.** North America, Europe, Asia, northern Africa; New Zealand (adventive).


**Subgenus Anisodactylus Dejean, 1829**

**Geographic distribution.** Same as genus.

**Anisodactylus binotatus** (Fabricius, 1787)

*Figures 39, 87, 121, 177; Map p. 147 Carabus 2notatus* Fabricius, 1787: 199. Type locality: Kiel, Germany.

Multiple synonyms exist in the Old World literature for this adventive species.

**Description.** Body length: 10.0–12.7 mm. Moderately convex. Black; antennae (segments 1–2), palpi (in part), and legs rufous; frons with 2 rufous, more or less confluent spots medially. Generally glabrous and smooth; elytra with outermost intervals and apex of other intervals pubescent and punctate. Microsculpture isodiametric (head, elytra), with somewhat transverse meshes (pronotum). Shiny, without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae moderately long, reaching about pronotum base; antennal scape about 2× longer than its maximum width. Penultimate segment of labial palp with 6–7 long setae on anterior margin. **Thorax.** Pronotum (Fig. 121) very transverse, widest about middle; sides converging toward base, not sinuate; apex concave; lateral depressions widening posteriorly; anterior angles strongly developed, rounded; posterior angles strongly developed, subrectangular, with a tooth; basal foveae deep, wide; punctuation strongly developed (basally and laterally). Apex of prosternal lobe with 6–10 long setae and 3–6 short setae. Metepisternae longer than wide. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices rounded. Sutellar striole present. Interneurs shallow, impunctate. Intervals flat; outer intervals and apex of elytra finely and densely punctate. Interval 3 with setiferous puncture behind middle. **Aedeagus** (Fig. 39). Lateral view: slightly arcuate, very long. Dorsal view: asymmetrical (with ostium slightly deflected to the left), twisted at middle; dorsal membranous area wide, divided into two small parts; apical disc present. Internal sac unarmed.

**Material examined.** 31 non-type specimens (AMNZ, ITNZ, JNNZ, LUNZ, MONZ, NZAC, OMNZ).


Genus *Gaioxenus* Broun, 1910

*Gaioxenus* Broun, 1910: 7. Type species: *Gaioxenus pilipalpis* Broun, 1910, by monotypy.

Description. Body length: 8.5–9.0 mm. Boat-shaped (contrary to other Harpalini genera). Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head**. Mandibles moderately long, slightly curved forward, blunt apically. Labrum slightly transverse, almost square; apex curved. Eyes moderately large, convex, widely separated from buccal fissure ventrally (by about 1.5× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from middle of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by laterally incomplete transverse suture. Paraglossae as long as ligula. Palpi with last segment fusiform, not truncate apically, with moderately dense and long pubescence; penultimate segment of labial palpi pluriisetose on anterior margin. **Thorax**. Pronotum transverse; base almost straight, as wide as elytral base; lateral beads complete; anterior bead complete (well defined medially); posterior bead complete. Scutellum hidden (contrary to other Harpalini genera). Apex of prosternal lobe pubescent. **Legs**. Metafemora with 2 long setae on posterior margin. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with numerous setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3.

**Elytra**. Subtriangular (contrary to other Harpalini genera). Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 continuous. **Abdomen**. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus** (Fig. 40). 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.

Geographic distribution. New Zealand (endemic; North Island).


*Gaioxenus pilipalpis* Broun, 1910

Figures 40, 88, 122, 178; Map p. 147


Description. Body length: 8.5–9.0 mm. Slighty convex. Piceous; lateral margins of pronotum piceous reddish; labrum and mandibles reddish; palpi brownish red; antennae, titiae, and tarsi rusty reddish brown; femora sometimes piceous. Generally glabrous and smooth. Microsculpture isodiametric. Dull, without metallic lustre. **Head**. Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae rather long, reaching basal 1/4 of elytra; antennal scape about 2× longer than its maximum width. Penultimate segment of labial palpi with 2 long setae and 2 short setae on anterior margin. **Thorax**. Pronotum (Fig. 122) very transverse, widest at base; sides converging toward apex, not sinuate; apex concave; lateral depressions widens.
ing posteriorly; anterior angles moderately developed, obtuse-rounded; posterior angles strongly developed, subrectangular; basal foveae shallow, narrow; punctuation feebly developed. Apex of prosternal lobe with 3–4 long setae and 7–8 short setae. Metepisterna wider than long. **Elytra.** Widest about middle. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striole present. Intergenae shallow, deepening apically, impunctate. Intervals impunctate, flat, becoming convex apically. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 40). As for genus.

**Material examined.** 169 specimens, including types (AMNZ, BMNH, CMNZ, ITNZ, JNNZ, LUNZ, NZAC, UCNZ).

**Geographic distribution** (Map p. 147). North Island: BP, CL, RI, TK, TO, WI, WN, WO.

**Ecology.** Lowland, montane, subalpine, alpine. Mostly wet forests (beech, broadleaf, podocarp). Also tussock grasslands. Nocturnal; sheltering during the day often in burrows dug under stones and logs, also hiding under fallen branches and epiphyte crowns. Gregarious. **Biology.** Seasonality: September–April. Teneralis: late December–March. Occasionally infested with mites. **Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner. Good burrower. **Collecting techniques.** Turning stones and logs, pitfall trapping.


**Remarks.** Broun described *Gaioxenus pilipalpis* from 5 specimens, 4 of which could be located in the Natural History Museum, London (BMNH). One of these specimens is designated as lectotype to preserve stability of nomenclature in the future. This species is unique among New Zealand Harpalini in having a boat-shaped body. In the northern part of its range, it occurs at higher elevation, more or less following the distribution of southern beeches (*Nothofagus*).

**Genus Gnathaphanus Macleay, 1825**

*Gnathaphanus* Macleay, 1825: 20 (originally proposed with subgeneric rank in *Trechus* Clairville, 1806; first used with generic rank by Chaudoir, 1878: 511). Type species: *Trechus* (*Gnathaphanus*) *vulneripennis* Macleay, 1825, by monotypy.


**Description (Gnathaphanus melbournensis).** Body length: 6.5–7.5 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissure ventrally (by about 1.5x maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from middle of antennomere 3. Mentum without a tooth medially. Mentum and submentum separated by complete transverse suture. Paraglossae longer than ligula. Palpi with last segment fusiform, truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi plurisetose on anterior margin. **Thorax.** Pronotum transverse; base slightly emarginate, as wide as elytral base; lateral beads complete; anterior and posterior beads incompletely medialy. Scutellum visible. Apex of prosternal lobe pubescent. **Legs.** Metamemora with 2 long setae on posterior margin. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3+4. **Elytra.** Interneurs complete. Rows of setiferous punctures present on interval 3, absent on intervals 5 and 7, and on interneur 2. Umbilicate setiferous series of interval 9 continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus** (Fig. 41). 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.

**Geographic distribution.** Australian Region, Oriental Region, and the Pacific Islands to Japan and New Guinea.


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

**Gnathaphanus melbournensis** (Laporte de Castelnau, 1867) first New Zealand record

Figures 41, 89, 123, 179; Map p. 148

*Harpalus melbournensis* Laporte de Castelnau, 1867: 97.

Type locality: Melbourne, Victoria, Australia.

Harpalus marginicollis Laporte de Castelnau, 1867: 103. Type locality: Melbourne, Victoria, Australia. Synonymised by by Chaudoir, 1878: 510.

Harpalus adelaeae Laporte de Castelnau, 1867: 108. Type locality: Adelaide and Port Lincoln (South Australia), and King George Sound (Western Australia), Australia. Synonymised by Chaudoir, 1878: 510.


Harpalus aeneonitens Macleay, 1871: 102. Type locality: Gayndah, Queensland, Australia. Synonymised by Chaudoir, 1878: 510.


Harpalus atroviridis Macleay, 1871: 103. Type locality: Gayndah, Queensland, Australia. Synonymised by Sloane, 1899: 555.


**Description.** Body length: 6.5–7.5 mm. Slightly convex. Dark brown; antennal base, palpi, and tibiae yellowish. Generally glabrous and smooth, except for sparse punctuation on pronotum and a series of setiferous punctures on interval 3. Microsculpture isodiametric, more or less erased on head. Shiny; pronotum and elytra with bronze lustre. Head. Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae moderately long, almost reaching pronotal base; antennal scape about 2× longer than its maximum width. Penultimate segment of labial palpi with 1–2 long setae and 4–5 short setae on anterior margin. Thorax. Pronotum (Fig. 123) very transverse, widest about middle; sides converging toward base, not sinuate; apex concave; lateral depressions widening posteriorly; anterior angles strongly developed, rounded; posterior angles moderately developed, broadly rounded; basal foveae deep, wide; punctuation strongly developed (in basal foveae). Apex of prosternal lobe with 2 long setae and several short setae. Metepisterna longer than wide. Elytra. Widest behind middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striole present. Interneurs shallow, impunctate. Intervals impunctate, flat. Interval 3 with a series of 5–7 deep, rather large setiferous punctures. Aedeagus (Fig. 41). As for genus.

**Material examined.** 14 non-type specimens (ITNZ, LUNZ, NZAC, PHNZ, UCNZ).


**Collecting techniques.** Pitfall trapping, turning logs and stones.


**Remarks.** This introduced species is likely to spread into a wider range of modified habitats.

**Genus Hypharpax Macleay, 1825**

*Hypharpax* Macleay, 1825: 22 (originally proposed with subgeneric rank in *Harpalus* Latreille, 1802; first used with generic rank by Lacordaire, 1854: 282). Type species: *Harpalus (Hypharpax) lateralis* Macleay, 1825, by monotypy.


**Description** (New Zealand). Body length: 4.5–7.0 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. Head. Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissure ventrally (by about 1.5× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting about middle of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae as long as ligula. Palpi with last segment fusiform, truncate or not apically, with sparse, moderately long pubescence; penultimate segment of labial palpi plurisetose or trisetose on anterior margin. Thorax. Pronotum transverse, subrectangular; base straight or slightly convex, as wide as or much narrower than elytral base; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible. Apex of prosternal lobe pubescent. Legs.

**Material examined.** 14 non-type specimens (ITNZ, LUNZ, NZAC, PHNZ, UCNZ).


**Collecting techniques.** Pitfall trapping, turning logs and stones.


**Remarks.** This introduced species is likely to spread into a wider range of modified habitats.
protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 subtriangular, short, only about as long as metatarsomere 2. **Elytra.** Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into two major groups, with posterior group continuous. **Abdomen.** Ventrites 2–3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **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.

**Geographic distribution.** Australia (including Tasmania and Lord Howe Island), New Guinea, Indonesia, New Zealand.


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

---

**Key to species of Hypharpax**

1 Pronotum (Fig. 125): sides moderately convex; posterior angles obtuse; base straight, as wide as elytral base; basal foveae shallow, wide; base finely punctate. Antennomeres 8–10 almost square. Elytra (Fig. 181) shorter (about 2.3× longer than wide). Penultimate segment of labial palpi plurisetose (Fig. 9). Aedeagus (Fig. 43): apex swollen, button-like. Body length usually less than 5.5 mm. [South Island] ... (p. 38)... **antarcticus** (Laporte de Castelnau)

— Pronotum (Fig. 124): sides strongly convex; posterior angles broadly rounded; base slightly convex, much narrower than elytral base; basal foveae deep, rather narrow; base coarsely punctate. Antennomeres 8–10 elongate. Elytra (Fig. 180) longer (about 2.8× longer than wide). Penultimate segment of labial palpi trisetose (Fig. 10). Aedeagus (Fig. 42): apex barely inflated, not button-like. Body length usually over 5.5 mm. [North Island, South Island, Chatham Islands] ... (p. 39)... **australis** (Dejean)

**Hypharpax antarcticus** (Laporte de Castelnau, 1867) €

Figures 43, 125, 181; Map p. 148

**Harpalus antarcticus** Laporte de Castelnau, 1867: 107


**Hypharpax antarcticus**: Bates, 1874: 272.

**Diaphoromerus antarcticus**: Chaudoir, 1878: 485.

**Hypharpax antarcticus**: Hudson, 1934: 37, 177.

**Description.** Body length: 4.5–5.5 mm. Slightly convex. Green or piceous black; base of antennae (segments 1+2) and tibiae (2/3rd) pale, reddish brown. Generally glabrous and smooth. Microsculpture moderately transverse. Somewhat dull, with aeneous or bronze metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae moderately long, reaching about pronotal base; antennal scape about 2× longer than its maximum width; antenomeres 8–10 almost square. Palpi not narrowly truncate apically; penultimate segment of labial palpi plurisetose (with 2 long setae and 2–3 short setae) on anterior margin. **Thorax.** Pronotum (Fig. 125) very transverse, subrectangular, widest about middle; base straight, as wide as elytral base; sides converging toward base, moderately convex, not sinuate; apex straight; lateral depressions absent; anterior angles feebly developed, rounded; posterior angles strongly developed, obtuse; basal foveae shallow, wide; punctuation feebly developed (basally). Apex of prosternal lobe with 3–4 long setae and numerous short setae. Metepisterna longer than wide. **Elytra.** Widest about middle; approximately 2.3× longer than wide. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations feeble. Sutural apices angulate-rounded. Scutellar striole absent or present. Interneurs shallow, impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 43). Lateral view: as for genus; extremity of apex swollen, button-like. Dorsal view: as for genus; ostium strongly deflected to the right.

**Material examined.** 108 specimens, including types (AMNZ, CMNZ, ITNZ, LUNZ, MCSN, NZAC, PHNZ, UCNZ).


**Ecology.** Lowland, montane, subalpine, alpine. Tussock grasslands, cultivated fields (lucerne, Festuca), pastures,
and gardens. Also river banks. Open ground; soil covered with grass or weeds. Mostly diurnal; usually active in the sunshine; sheltering on cloudy days under stones and at the base of tussock clumps. **Biology.** Seasonality: throughout the year. Predators: starlings. **Dispersal power.** Elytra free along suture. Macropterous. Frequent flier. Moderate runner. Regular climber (on plants). StrONGLy favoured by human activities. **Collecting techniques.** Pitfall trapping, turning stones, sweeping plants.


**Remarks.** Twelve syntypes of *Harpalus antarcticus* were obtained from the Castelnau collection in Genova (MCSN), one of which (a male collected from Dunedin) is here designated as a lectotype to preserve stability of nomenclature in the future. This male is the middle specimen of a series of 3 syntypes glued to the same card.

Although morphologically close, *H. antarcticus* and *H. australis* can be easily diagnosed based on external features and male aedeagus. In addition, *H. antarcticus* does not occur in the North Island.

*Hypharpax australis* (Dejean, 1829)*^A^*

Figures 42, 90, 124, 180; Map p. 148

*Harpalus australis* Dejean, 1829: 385. Type locality: Australia (as Nouvelle-Hollande).

*Harpalus inornatus* Germar, 1848: 169. Type locality: Adelaide, South Australia. Synonymised by Chaudoir, 1878: 484.


*Diaphoromerus australis* Chaudoir, 1878: 484.

*Hypharpax australis* Broun, 1880: 51.


*Hypharpax (Harpalus) australis* Blackburn, 1892: 83.

*Hypharpax australis* Hutton, 1904: 351.

**Description.** Body length: 5.5–7.0 mm. Slightly convex. Green or piceous black; base of antennae (segments 1+2) and tibiae (2/3rd) pale, reddish brown. Generally glabrous and smooth. Microsculpture isodiametric. Somewhat dull with aeneous or bronze metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae moderately long, reaching about pronotal base; antennal scape about 2× longer than its maximum width; antennomeres 8–10 elongate. Palpi narrowly truncate apically; penultimate segment of labial palpi trisetose (with 2 long setae and 1 short seta) on anterior margin. **Thorax.** Pronotum (Fig. 124) very transverse, subrectangular, widest before middle; base slightly convex, much narrower than elytral base; sides converging toward base (more so than in *antarcticus*), strongly convex, not sinuate; apex straight; lateral depressions absent; anterior angles feebly developed, rounded; posterior angles moderately developed, broadly rounded; basal foveae deep, rather narrow; punctuation strongly developed (in basal foveae and basally). Apex of prosternal lobe with 3–4 long setae and numerous short setae. Metepisterna longer than wide. **Elytra.** Widest about middle; approximately 2.8× longer than wide. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations feeble. Sutural apices angulate-rounded. Scutellar striae present. Interneurs shallow; impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 42). Lateral view: as for genus; extremity of apex barely inflated dorsally. Dorsal view: as for genus; ostium slightly deflected to the right.

**Material examined.** 502 specimens, including *H. abstrusus* type (AMNZ, BBNZ, ITNZ, JNNZ, LUNZ, MNHN, MONZ, NZAC, OMNZ, PHNZ, UCNZ).


as a colonist. Strongly favoured by human activities. **Collecting techniques.** Pitfall trapping, digging at the base of plants, turning debris, light trapping.


**Remarks.** Bates’ original description was based on “a single pair [male symbol, female symbol]” from “Auckland.” The male syntype was obtained from the Bates’ collection in Paris (MNHN); it is here selected as lectotype to preserve stability of nomenclature in the future. The whereabouts of the female syntype are unknown. This species serve stability of nomenclature in the future. The whereabouts of the female syntype are unknown. This species

**Genus Maoriharpalus new genus**

**Type species.** Maoriharpalus sutherlandi new species, by present designation.

**Description.** Body length: 12.0–13.0 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles very long (about 6× their maximum width), slightly curved forward, blunt apically. Labrum strongly transverse; apex strongly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissure ventrally (by about 2× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from basal third of antennomere 3; antennal scape very long (about 5–6× longer than maximum width; contrary to other Anisodactylina genera). Mentum without tooth medially. Mentum and submentum separated by complete transverse suture. Paraglossae longer than ligula. Palpi with last segment cylindrical, truncate apically, with moderately dense, long pubescence; penultimate segment of labial palpi plurisetose on anterior margin. **Thorax.** Pronotum subbucular; base strongly convex, moderately narrower than elytral base; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible. Apex of prosternal lobe pubescent. **Legs.** Metatibia with 3 long setae on posterior margin. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with numerous setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus** (Fig. 44). 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.

**Geographic distribution.** New Zealand (endemic; Three Kings Islands).

**Remarks.** The generic name is derived from Maori (the Polynesian people who colonised New Zealand) and Harpalus (the type genus of the tribe Harpalini). This very distinctive monotypic taxon is characterised by long mandibles and antennal scapes, a strongly emarginate labrum, relatively small eyes, and a subbucular pronotum.

**Maoriharpalus sutherlandi** new species

**Figures 44, 91, 126, 182; Map p. 148**


**Description.** Body length: 12.0–13.0 mm. Slightly convex. Piceous black; antennae (except segment 1), palpi, and tarsi rufous. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on pronotum, very transverse (with microlines) on elytra. Shiny, without metallic lustre; elytra iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, flat posteriorly. Antennae very long, reaching middle of elytra; antennal scape elongate, about 5–6× longer than its maximum width. Penultimate segment of labial palpi with 5–6 long setae on anterior margin. **Thorax.** Pronotum (Fig. 126) subbucular, widest before middle; sides converging toward base, not sinuate; apex convex; lateral depressions widening posteriorly; anterior angles strongly developed, obtuse; posterior angles feebly developed, broadly rounded; basal foveae deep, nar-
row; punctuation feebly developed. Apex of prosternal lobe with 4-6 long setae. Metepisterna wider than long.

**Elytra.** Widest about middle. Shoulders well developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striole present. Interneurs shallow, impunctate, flat, becoming convex apically. Interval 3 with-out setiferous puncture behind middle. **Aedeagus** (Fig. 44). As for genus.

**Material examined.** 10 specimens, including types (AMNZ, NZAC).


**Remarks.** This species is named after our friend O. R. W. Sutherland (former Science Manager, Landcare Research) for his special help and encouragement in establishing our new life and career in New Zealand. The mouthparts indicate that the species may feed on hard-bodied invertebrates like snails.

**Genre Notiobia Perty, 1830**

*Notiobia* Perty, 1830: 13. Type species: *Notiobia nebrionides* Perty, 1830, by monotypy.

**Description** (*Notiobia quadricollis*). Body length: about 8.0 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles moderately long, slightly curved forward, blunt apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissure ventrally (by about 2× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from middle of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae as long as ligula. Palpi with last segment fusiform, truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi plurisetose on anterior margin. **Thorax.** Pronotum transverse, subrectangular; base straight, as wide as elytral base; lateral beads complete; anterior bead incomplete medially; posterior bead complete. Scutellum visible. Apex of prosternal lobe pubescent. **Legs.** Metememora with 2 long setae on posterior margin. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 parallel-sided, very long, almost as long as metatarsomeres 2+3+4. **Elytra.** Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on internum 2. Umbilicate setiferous series of interval 9 separated into two major groups, with posterior group continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus.** No male seen.

**Subgenus Anisotarsus Chaudoir, 1837**

*Anisotarsus* Chaudoir, 1837: 41. Type species: *Anisotarsus brevicollis* Chaudoir, 1837, designated by Emden, 1953: 519.

*Diaphoromerus* Chaudoir, 1843: 402. Type species: *Diaphoromerus iridipennis* Chaudoir, 1843, by monotypy.


*Stilboides* Casey, 1914: 171. Type species: *Harpalus mexicanus* Dejean, 1829, by original designation.

**Geographic distribution.** As for genus.


**Remarks.** Australian representatives of this genus are in need of revision.
sides converging toward base, not sinuate; apex straight; lateral depressions widening posteriorly; anterior angles moderately developed, obtuse; posterior angles strongly developed, subrectangular; basal foveae deep, moderately wide; punctuation strongly developed (in basal foveae). Apex of prosternal lobe with 3–4 long setae. Metepisterna longer than wide. **Elytra.** Widest about middle. Shoulders well developed, angulate, with a tooth. Subapical situations moderate. Sutural apices angulate. Scutellar striae present. Interneurs shallow, impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. **Aedeagus.** No male seen.

**Material examined.** 1 non-type specimen (NZAC).


**References.** Moore et al., 1987: 236 (synonymy, distribution, ecology, biology, dispersal power).

**Remarks.** Since no additional specimen of this species has been found following the discovery of a single specimen in 1957, it seems unlikely that natural populations of this species have established themselves in New Zealand.

**Genus Parabaris Broun, 1881**

*Parabaris* Broun, 1881: 654. Type species: *Parabaris atratus* Broun, 1881, by monotypy.

**Description.** Body length: 9.5–20.0 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally.

**Head.** Mandibles moderately long, slightly curved forward, blunt apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes moderately large and convex, widely separated from buccal fissure ventrally (by 2–3× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from basal 1/3 of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae longer than ligula. Palpi with last segment fusiform or rather cylindrical, truncate or not apically, with moderately dense and long pubescence; penultimate segment of labial palpi plurisetose on anterior margin. **Thorax.** Pronotum transverse; base straight (*atratus, lesagei*) or emarginate, as wide as or narrower than elytral base; lateral beads complete; anterior bead incomplete medially and ill-defined; posterior bead complete. Scutellum visible. Apex of prosternal lobe pubescent. **Legs.** Metafemora with 2 long setae on posterior margin. Male protarsis dilated laterally and spongily pubescent ventrally. Male mesotarsi dilated laterally and spongily pubescent ventrally (*atratus*) or unmodified (*hoarei, lesagei*). Segment 4 of protarsis and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with numerous setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **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.

**Geographic distribution.** New Zealand (endemic; North Island).


**Remarks.** Although *P. hoarei* appears to be less closely related to *P. atratus* and *P. lesagei* than they are to each other on the basis of morphology, the shared morphological characters defining the genus and the stability of these characters within each species, suggest that they share a common ancestor.

**Key to species of Parabaris**

1 Pronotum (Fig. 130): base emarginate; sides convex, not sinuate. Elytra very iridescent; interval 3 with 2 setiferous punctures subapically. Body dark brown, length 10.5 mm or less ...(p. 44)... *hoarei* new species
— Pronotum (Fig. 128–129): base straight; sides sinuate. Elytra moderately iridescent; interval 3 without setiferous puncture subapically. Body black, length 15.5 mm or more ............................................... 2

2(1) Head narrower across eyes than pronotum apex (Fig. 184). Pronotum (Fig. 128) very transverse. [Body stout, length 16.0–20.0 mm] ...........(p. 43)... *atratus* Broun
— Head as wide across eyes as pronotal apex (Fig. 185). Pronotum (Fig. 129) moderately transverse. [Body slender, length 15.5–16.5 mm] .............................................. (p. 43)... *lesagei* new species
**Parabaris atratus** Broun, 1881

Figures 45, 93, 128, 184; Map p. 148


**Description.** Body stout (compared to *lesagei*), length: 16.0–20.0 mm. Slightly convex. Black; legs piceous black; antennae (except segment 1), palpi, and tarsi rufous. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on thorax, very transverse (with microlines) on elytra. Shiny, without metallic lustre. Elytra moderately iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Eyes widely separated from buccal fissure ventrally (by about 2× maximum width of antennal scape). Antennae moderately long, reaching pronotal base; antennal scape elongate, about 4× longer than its maximum width. Palpi cylindrical, slightly truncate apically; penultimate segment of labial palpi with 4–6 long setae on anterior margin. **Thorax.** Pronotum (Fig. 128) very transverse, widest before middle; sides converging toward base, feebly sinuate; base straight, slightly narrower than elytral base (less so than in *lesagei*); apex concave; lateral beads widening about middle (as in *lesagei*); lateral depressions widening posteriorly; anterior angles strongly developed, acutely rounded; posterior angles strongly developed, rectangular; basal foveae deep, wide; punctuation feebly developed. Apex of prosternal lobe with 8–11 long setae. Metepisterna moderately armed. **Elytra.** Widest before middle. Shoulders strongly developed, angulate, with a tooth. Subapical sinuations strong. Sutural apices angulate. Interneurs moderately deep, impunctate. Intervals impunctate, rather flat in basal half, slightly convex in apical half. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 45). Lateral view: strongly arcuate (including apical 1/2), thinner than in other *Parabaris* species; apex narrowly pointed. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area very wide, extending to basal bulb; apical disc present, rounded-triangular. Internal sac unarmed. **Material examined.** 148 specimens, including type (AMNZ, BBNZ, BMNH, CMNZ, ITNZ, JNNZ, LUNZ, MONZ, NZAC, UCNZ).

**Geographic distribution** (Map p. 148). North Island: AK, BP, CL, GB, ND, TK, WO.

**Ecology.** Lowland, montane. Wet or moist forests (broadleaf, podocarp, beech) and swamp forests: along mud flats, gullies, and streams. Shaded ground; soil covered with dead leaves. Nocturnal; sheltering during the day under logs (mostly) and stones, and in rotten logs. **Biology.** Seasonality: September–June, August. Tenerals: January, April (mostly). Occasionally infested with mites and fungi (Laboulbeniales). **Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner. **Collecting techniques.** Pitfall trapping, turning logs and stones, using yellow pan traps.


**Remarks.** This species and *P. lesagei* are closer morphologically than either is to *P. hoarei*.

---

**Parabaris lesagei new species**

Figures 46, 129, 185; Map p. 148

*Parabaris lesagei* Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “NEW ZEALAND WN Kaitoke Regional Park (Waterworks Rd end) 300m 26.XI.1996 Larochelle, Larivière (typed) / Wet broadleaf forest Along stream banks, under stones. (typed) / HOLOTYPE [male symbol] *Parabaris lesagei* Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 2 males (1 NZAC, 1 MONZ), 1 female (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body slender (compared to *atratus*), length: 15.5–16.5 mm. Slightly convex. Black; legs piceous black; antennae (except segment 1), palpi, and tarsi rufous. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on thorax, and very transverse (with microlines) on elytra. Shiny, without metallic lustre. Elytra moderately iridescent. **Head.** Moderately large, as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Eyes widely separated from buccal fissure ventrally (by about 3× maximum width of antennal scape). Antennae moderately long, reaching pronotal base; antennal scape elongate, about 4× longer than its maximum width. Palpi cylindrical, slightly truncate apically; penultimate segment of labial palpi with 4–6 long setae on anterior margin. **Thorax.** Pronotum (Fig. 129) moderately transverse (less than in *atratus*), widest before middle; sides converging toward base, moderately sinuate; base straight, much narrower than elytral base (more so than in *atratus*); apex concave; lateral beads widening about middle (as in *atratus*); lateral depressions widening posteriorly; anterior angles strongly developed, acutely rounded; posterior angles strongly developed, rectangular; basal foveae deep, wide; punctuation feebly developed. Apex of prosternal lobe with 8–11 long setae. Metepisterna moderately armed. **Elytra.** Widest before middle. Shoulders strongly developed, angulate, with a tooth. Subapical sinuations strong. Sutural apices angulate. Interneurs moderately deep, impunctate. Intervals impunctate, rather flat in basal half, slightly convex in apical half. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 45). Lateral view: strongly arcuate (including apical 1/2), thinner than in other *Parabaris* species; apex narrowly pointed. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area very wide, extending to basal bulb; apical disc present, rounded-triangular. Internal sac unarmed. **Material examined.** 148 specimens, including type (AMNZ, BBNZ, BMNH, CMNZ, ITNZ, JNNZ, LUNZ, MONZ, NZAC, UCNZ).

**Geographic distribution** (Map p. 148). North Island: AK, BP, CL, GB, ND, TK, WO.
as wide as long. **Legs.** Male mesotarsi unmodified, neither dilated laterally nor spongily pubescent ventrally. **Elytra.** Widest before middle (as in *P. atratus*). Shoulders strongly developed, angulate, with a tooth. Subapical sinuations strong. Sutural apices rounded. Scutellar striole present. Interneurs moderately deep, impunctuate. Intervals impunctate, flat in basal half, slightly convex in apical half. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 46). Lateral view: strongly arcuate (with apical half rather straight); apex narrowly pointed, with apical disc partially visible dorsally. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area moderately wide, extending almost to basal bulb; apical disc present, rectangular. Internal sac armed.

**Material examined.** 11 specimens, including types (AMNZ, ITNZ, JNNZ, LUNZ, MONZ, NZAC).


**Remarks.** This species is named after our close friend Laurent LeSage (Agriculture and Agri-Food Canada, Ottawa, Canada) for his special help and encouragement in our life and career. See also **Remarks** under *P. atratus*.

**Parabaris hoarei** new species

**Figures** 47, 94, 130, 186; **Map** p. 148


**Description.** Body length: 9.5–10.5 mm. Slightly convex. Piceous brown; antennae, palpi, and legs rufous. Generally glabrous and smooth. Microsculpture moderately transverse on head and pronotum, very transverse (with microlines) on elytra. Shiny, without metallic lustre. Elytra very iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Eyes widely separated from buccal fissure ventrally (by about 2× maximum width of antennal scape). Antennae moderately long, reaching about pronotal base; antennal scape about 2× longer than its maximum width. Palpi fusiform, not truncate apically; penultimate segment of labial palpi with 2–4 long setae and 1–3 short setae on anterior margin. **Thorax.** Pronotum (Fig. 130) very transverse, widest about middle; sides converging toward base, convex; base emarginate, slightly narrower than elytral base; apex slightly concave; lateral beads not widening about middle; lateral depressions widening posteriorly; anterior angles moderately developed, obtuse; posterior angles moderately developed, rounded; basal foveae deep, wide; punctuation feebly developed. Apex of prosternal lobe with usually 3–4 long setae and several short setae. Metepisterna wider than long. **Legs.** Mesotarsi unmodified, neither dilated laterally nor spongily pubescent ventrally. **Elytra.** Widest about middle. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations feebble. Sutural apices angulate. Scutellar striole absent. Interneurs moderately deep, impunctate. Intervals impunctate, slightly convex. Interval 3 with two setiferous punctures subapically. **Aedeagus** (Fig. 47). Lateral view: strongly arcuate (less so in apical half); apex abruptly narrowed. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area moderately wide, extending to basal bulb; apical disc present, rounded-triangular (shorter than in *P. atratus*). Internal sac armed.

**Material examined.** 15 specimens, including types (MONZ, NZAC, UCNZ).


**Remarks.** The presence of 2 setiferous punctures subapically on the elytral interval 3, the body shape, brownish colour, and very iridescent elytra set this taxon apart from its congeners. This is the only *Parabaris* species so far recorded from and restricted to the tip of the Aupouri Peninsula. This species is named after our friend and colleague R. J. B. Hoare (Landcare Research, Auckland) for his special help and encouragement in our entomological studies and for his special talent and dedication as a manuscript reviewer.
Genus Triplosarus Bates, 1874 E


Description. Body length: 7.5–10.0 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. Head. 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 fissure ventrally (by about 1.3× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from middle of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae as long as ligula. Palpi with last segment fusiform, truncate apically, with sparse, short pubescence; penultimate segment of labial palpi plurisetose on anterior margin. Thorax. Pronotum transverse; base straight, moderately narrower than elytral base; lateral beads complete; anterior bead incomplete medially; posterior bead complete. Scutellum visible. Apex of prosternal lobe pubescent. Bead incomplete medially; posterior bead complete. Row of setiferous punctures shorter than elytral base; lateral beads complete; anterior angles moderately developed, rounded; posterior angles strongly developed, angulate; basal foveae deep, wide; punctuation feebly developed (slightly more so in basal foveae). Apex of prosternal lobe with 4 long setae anteriorly. Elytra. Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 continuous. Abdomen. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. Aedeagus (Fig. 48). Lateral view: strongly arcuate. Dorsal view: asymmetrical (with ostium moderately developed, rounded; posterior angles strongly developed, angulate; basal foveae deep, wide; punctuation feebly developed (slightly more so in basal foveae). Apex of prosternal lobe with 4 long setae and 3–4 short setae. Metepisterna longer than wide. Umbilicate setiferous series of interval 9 continuous. Abdomen. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. Aedeagus (Fig. 48). 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.

Geographic distribution. New Zealand (endemic).


Remarks. This monotypic genus has morphological features not fitting the character complex found in New Zealand Anisodactylina: aedeagus asymmetrical with ostium strongly deflected to the right and pale body colour. It is also the only taxon restricted to coastal sand dune and beach habitats.

Triplosarus novaezelandiae (Laporte de Castelnau, 1867) E

Figures 48, 95, 131, 187; Map p. 148


Triplosarus novae-zealandiae [sic]: Broun, 1881: 659 (mis-spelling).

Description. Body length: 7.5–10.0 mm. Shortly convex. Pale in colour, testaceous, sometimes moderately dark brown; pronotum with light greenish tinge; antennae, mouthparts, and legs pale. Generally glabrous and smooth. Microsculpture isodiametric. Pronotum shiny; and elytra dull; head and pronotum with bronze metallic lustre. Head. Big, although narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Penultimate segment of labial palpi with 4–7 long setae on anterior margin. Thorax. Pronotum (Fig. 131) very transverse, widest before middle; sides converging toward base, not sinuate; apex straight; lateral depressions widening posteriorly; anterior angles moderately developed, rounded; posterior angles strongly developed, angulate; basal foveae deep, wide; punctuation feebly developed (slightly more so in basal foveae). Apex of prosternal lobe with 4 long setae and 3–4 short setae. Metepisterna longer than wide. Elytra. Widest about middle. Shoulders strongly developed, angulate, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae present. Interneurs shallow, more or less punctate. Intervals impunctate, flat. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 48). As for genus.

Material examined. 173 specimens, including type (AMNZ, BBNZ, CMNZ, ITNZ, JNNZ, LUNZ, MCSN, MNHN, MONZ, NZAC, OMNZ, UCNZ).


Remarks. One male specimen of Harpalus novaezelandiae collected from Auckland and labelled “syntypus” was obtained from the Castelnau collection in Genova (MCSN), it is here designated as a lectotype to preserve stability of nomenclature in the future. Bates’ original description of Triplosarus fulvescens was based on an unspecified number of specimens of both sexes (“[male symbol, female symbol]”), which apparently came from collectors based in “Auckland?” and “Christchurch”. Five specimens were obtained from the Bates collection in Paris (MNHN), one of which (a male) was collected in “Canterby [=Canterbury]” N. Zeald (Christchurch’s regional area) and bears a determination label written by Bates; this specimen is here selected as lectotype to preserve stability of nomenclature in the future. The external morphology (including body colour) of this new genus, including T. gourlayi ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae.

Elytra. Interneurs complete. Rows of setiferous punctures present on intervals 3, 5 or 7, or on interneur 2. Umbilicate setiferous series of interval 9 continuous. Abdomen. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. Aedeagus. Lateral view: strongly arcuate. Dorsal view: asymmetrical (with ostium deflected slightly to the right or undulated (clunieae)); dorsal membranous area wide, extending almost to basal bulb; apical disc present or absent. Internal sac armed or unarmed.

Geographic distribution. New Zealand (endemic; Three Kings Islands and North Island).


Remarks. The generic name is derived from tui (a New Zealand honey-eating bird) and Harpalus (the type genus of the tribe Harpalini). The characters unifying the species of this new genus, including T. gourlayi which is transferred from Parabarbis, are: forebody (head and thorax) with sparse setiferous micropores dorsally; rows of setiferous punctures on elytra; pro-, meso-, and metatarsi of both sexes dilated laterally, subtriangular. The strongly reduced, rather flat eyes together with the inflated tempora, suggest that representatives of this genus exhibit subterranean behaviour.

Genus Tuiharpalus new genus

Type species. Tuiharpalus moorei new species, by present designation.

Description. Body length: 8.0–14.0 mm. Forebody (head and thorax) with sparse setiferous micropores dorsally. Head. Mandibles short or moderately long, slightly or strongly curved forward, blunt apically. Labrum moderately transverse or strongly transverse (moorei); apex straight or slightly emarginate medially. Eyes strongly reduced, rather flat, widely separated from buccal fissure ventrally (by 1.5–2× maximum width of antennal scape). Tempora inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from basal half of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae as long as ligula (clunieae, crosbyi, hallae) or longer. Palpi with last segment fusiform, truncate or not apically, with sparse or moderately dense long pubescence; penultimate segment of labial palpi plurisetose or trisetose (clunieae, hallae) on anterior margin. Thorax. Pronotum transverse or suborbicular (clunieae); base emarginate, as wide as or narrower than elytral base; lateral beads complete; anterior bead absent; posterior bead absent or complete. Scutellum visible. Apex of prosternal lobe pubescent. Legs. Metafemora with 2–6 long setae on posterior margin. Pro-, meso-, and metatarsomeres 1–4 of both sexes dilated laterally, and subtriangular (as opposed to Parabarbis, only male pro- and mesotarsi dilated). Male protarsi spongy pubescent ventrally; mesotarsi spongy pubescent or not (moorei) ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with numerous setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. Elytra. Interneurs complete. Rows of setiferous punctures present on intervals 3, 5 or 7, or on interneur 2. Umbilicate setiferous series of interval 9 continuous. Abdomen. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. Aedeagus. Lateral view: strongly arcuate. Dorsal view: asymmetrical (with ostium deflected slightly to the right or undulated (clunieae)); dorsal membranous area wide, extending almost to basal bulb; apical disc present or absent. Internal sac armed or unarmed.
Key to species of *Tuiharpalus*

1 Elytral interval 7 with a row of setiferous punctures (Fig. 99). Pronotum (Fig. 136) with lateral depressions strongly explanate throughout. [Head very large; stout body] ......................... ...(p. 50)...

---

2(1) Elytral internerve 2 with a row of setiferous punctures (Fig. 98); intervals 3 and 5 without rows of setiferous punctures (Fig. 98) .......................... ........(p. 48)...

---

3(2) Pronotum (Fig. 135) very transverse; anterior angles moderately developed, obtusely rounded; posterior angles moderately developed, obtuse. Piceous black ...........................................  2

---

4(2) Pronotum (Fig. 133) very transverse; sides slightly converging toward base, slightly sinuate. Body length 12.5 mm or more .......(p. 48)...

---

*Tuiharpalus crosbyi* new species

Figures 49, 96, 132, 188; Map p. 149


**Description.** Body length: 10.5–11.0 mm. Slightly convex. Black; pronotal margins, labrum, antennae, palpi, and tarsi rufous. Microsculpture isodiametric on head, moderately transverse on pronotum, and very transverse (with microlines) on elytra. Moderately shiny, without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly.

Mandibles moderately long, slightly curved forward. Labrum moderately transverse; apex straight or slightly emarginate medially. Eyes widely separated from buccal fissure ventrally (by at least 2× maximum width of antennal scape). Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae as long as ligula. Palpi broadly truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi plurisetose (with 4–5 long setae and at most 1 short seta) on anterior margin. **Thorax.** Pronotum (Fig. 132) moderately transverse, widest before middle; sides strongly converging toward base (more so than in *gourlayi*), moderately sinuate; base emarginate, moderately narrower than elytral base; apex concave; lateral depressions not explanate; posterior head absent; anterior angles moderately developed, obtusely rounded; posterior angles strongly developed, subrectangular; basal foveae deep, wide; punctuation fine, evenly distributed. Apex of prosternal lobe with 4 long setae and several short setae. Metepisterna wider than long. **Legs.** Metatibiae with 2 long setae on posterior margin. Male mesotarsi spongily pubescent ventrally. **Elytra.** Widest about middle. Shoulders strongly developed, angulate, with a tooth. Subapical sinuations rather strong. Sutural apices angulate. Scutellar striae absent. Interneurs shallow, unevenly impressed, impunctate. Intervals sparsely punctate, flat; intervals 3 and 5 with rows of setiferous punctures. **Aedeagus** (Fig. 49). Lateral view: strongly arcuate; apex broadly triangular. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area very wide, extending almost to basal bulb; apical disc present, broadly triangular; main shaft straight. Internal sac unarmed.

**Material examined.** 7 specimens, including types (AMNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 149). Offshore Islands: TH-Great Island.


**Remarks.** This species is morphologically close to *T. gourlayi* with which it co-occurs on the Three Kings Islands. *T. crosbyi* is named after our colleague Trevor K. Crosby (Landcare Research, Auckland) for his contribution as Editor of the *Fauna of New Zealand* series.
Tuiharpalus gourlayi (Britton, 1964) **new combination**

Figures 50, 97, 133, 189; Map p. 149

*Parabaris gourlayi* Britton, 1964b: 523. Holotype: male (NZAC) labelled “Type (circular red-bordered label; typed) / Great Island Three Kings 1–3.1.63 E. S. Gourlay (hand-written) / HOLOTYPE [male symbol] Parabaris gourlayi mihi (hand-written) E. B. Britton det. 1963 (typed, except for number 3).” Perfect condition. There are 10 paratypes in NZAC and there should be another 3 in BMNH.

**Description.** Body length: 12.5–14.0 mm. Slightly convex. Black; pronotal margins dark reddish brown; antennae and palpi light reddish brown. Microsculpture shallow; isodiametric on head, shallow isodiametric to slightly transverse on pronotum, very transverse (with microlines) on elytra. Shiny (especially elytra), without metallic lustre. Elytra slightly iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles short, strongly curved forward. Labrum moderately transverse; apex slightly emarginate medially. Eyes widely separated from buccal fissure ventrally (by about 2× maximum width of antennal scape). Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae longer than ligula. Palpi broadly truncate apically, with moderately dense and long pubescence; penultimate segment of labial palpi plurisetose (with 4 long setae and 1 short seta) on anterior margin. **Thorax.** Pronotum (Fig. 133) very transverse, widest before middle; sides slightly converging toward base (less so than in *crosbyi*), slightly sinuate; base emarginate, slightly narrower than elytral base; apex concave; lateral depressions strongly explanate posteriorly; posterior bead absent; anterior angles moderately developed, obtusely rounded; posterior angles strongly developed, subrectangular; basal foveae deep, wide; punctuation fine, evenly distributed. Apex of prosternal lobe with 3–5 long setae and several short setae. Metepisterna wider than long. **Elytra.** Widest about middle. Shoulders strongly developed, angulate, with a tooth. Subapical sinuations strong. Sutural apices angulate. Scutellar striae absent. Interneurs shallow, impunctate. Intervals sparsely punctate, flat; intervals 3 and 5 with rows of setiferous punctures. **Aedeagus** (Fig. 50). Lateral view: strongly arcuate; apex narrowly triangular (more so than in *crosbyi*). Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area very wide, extending almost to basal bulb; apical disc present, narrowly triangular; main shaft deflected to the right. Internal sac unarmed.

**Material examined.** 290 specimens, including types (AMNZ, BMNH, CMNZ, LUNZ, NZAC).


**References.** Britton, 1964b: 526 (distribution); Larochelle & Larivière, 2001: 125 (taxonomy, distribution, ecology, biology, dispersal power).

**Remarks.** Examination of the type of *Parabaris gourlayi* revealed it to be congeneric with taxa placed in the new genus *Tuiharpalus*. See also Remarks under *T. crosbyi*.

Tuiharpalus clunieae **new species**

Figures 51, 134, 190; Map p. 149


**Description.** Body length: 9.0–10.0 mm. Forebody (head and thorax) strongly convex; hindbody moderately convex. Reddish (including antennae and palpi). Microsculpture deep, isodiametric on head, moderately transverse on pronotum, and deep, isodiametric on elytra (females) or granulate (males). Shiny, without metallic lustre; elytra dull in males. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles moderately long, slightly curved forward. Labrum moderately transverse; apex straight or slightly emarginate medially. Eyes widely separated from buccal fissure ventrally (by about 1.5× maximum width of antennal scape). Antennae moderately long, reaching about pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae as long as ligula. Palpi moderately dense and long pubescence; penultimate segment of labial palpi plurisetose (with 4 long setae and 1 short seta) on anterior margin. **Thorax.** Pronotum (Fig. 134) strongly convex; hindbody moderately convex; antennal scape almost to basal bulb; sides converging toward base, not sinuate; base emarginate, moderately narrower than elytral base; apex concave; lateral depressions strongly explanate posteriorly; posterior bead present, narrowly triangular; main shaft deflected to the right. Internal sac unarmed.

**Material examined.** 290 specimens, including types (AMNZ, BMNH, CMNZ, LUNZ, NZAC).
feebly developed, broadly rounded; basal foveae shallow, wide; punctuation fine, evenly distributed. Apex of prosternal lobe with 2 long setae and several short setae. Metepisterna as wide as long. Legs. Metatibia with 2 long setae on posterior margin. Male protarsomeres 1–4 unusually wide, 3× wider than mesotarsomeres (contrary to other Tuiharpalus species, except hallae). Male mesotarsi spongily pubescent ventrally. Elytra. Widest about middle. Shoulders well developed, rounded, with a tooth. Subapical sinuations feeble. Sutural apices angular. Scutellar striae absent or present. Interneurs shallow, impunctate, except interneur 2 with a row of setiferous punctures. Intervals sparsely punctate, flat; intervals 3 and 5 without rows of setiferous punctures. Aedeagus (Fig. 51). Lateral view: strongly arcuate; apex narrowly pointed. Dorsal view: asymmetrical (with ostium undulated, slightly deflected to the left about midline and to the right subapically); dorsal membranous area moderately wide, extending almost to basal bulb; apical disc present, triangular; main shaft undulated. Internal sac armed.

Material examined. 5 specimens, including types (AMNZ, NZAC).


Ecology. Lowland. Wet forests (broadleaf, podocarp): along streams. Shaded ground; soil covered with dead leaves. Nocturnal; sheltering during the day under logs.


Remarks. This species is morphologically close to T. hallae. Both taxa occur between Kaitaia and the southernmost limit of the Northland region. This taxon is named after our good friend and colleague Leonie H. Clunie (Landcare Research, Auckland) for her special help in our entomological studies.

Tuiharpalus hallae new species

Figures 52, 98, 135, 191; Map p. 149

Tuiharpalus hallae Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “NEW ZEALAND ND Mangamuka Gorge 4.II.2004 Bob Ward / roadside drainage, under leaves / HOLOTYPE [male symbol] Tuiharpalus hallae Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 3 females (1 CMNH, 1 NZAC, 1 OMNZ) from the same locality as the holotype, bearing blue paratype labels.

Description. Body length: 12.0–12.5 mm. Forebody (head and thorax) strongly convex, hindbody moderately convex. Piceous black; antennae and palpi rufous. Microsculpture deep, isodiametric on head, moderately transverse on pronotum, and deep, isodiametric on elytra (females) or granulate on elytra (males). Shiny, without metallic lustre; elytra dull in males. Head. Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles moderately long, slightly curved forward. Labrum moderately transverse; apex straight or slightly emarginate medially. Eyes widely separated from buccal fissure ventrally (by about 1.5× maximum width of antennal scape). Antennae moderately long, reaching about pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae as long as ligula. Palpi narrowly truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi trisetose (with 2 long and 1 short setae) on anterior margin. Thorax. Pronotum (Fig. 135) very transverse, widest about middle; sides converging toward base, not sinuate; base emarginate, as wide as elytral base; apex concave; lateral depressions moderately explanate throughout; posterior bead absent; anterior angles moderately developed, obtusely rounded; posterior angles moderately developed, obtuse; basal foveae shallow, wide; punctuation fine, evenly distributed. Apex of prosternal lobe with 2 long setae and several sparse short setae. Metepisterna as wide as long. Legs. Metafemora with 2 long setae on posterior margin. Male protarsomeres 1–4 unusually wide, 3× wider than mesotarsomeres (contrary to other Tuiharpalus species, except clunieae). Male mesotarsi spongily pubescent ventrally. Elytra. Widest about middle. Shoulders strongly developed, rounded, with a tooth. Subapical sinuations feeble. Sutural apices angular. Scutellar striae absent or present. Interneurs shallow, impunctate, except interneur 2 with a row of setiferous punctures. Intervals sparsely punctate, flat; intervals 3 and 5 without rows of setiferous punctures. Aedeagus (Fig. 52). Lateral view: strongly arcuate, apex narrowly pointed (more attenuate than in clunieae). Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area moderately wide, extending almost to basal bulb; apical disc absent; main shaft mostly straight, slightly deflected to the right apically. Internal sac armed.

Material examined. 13 specimens, including types (AMNZ, CMNH, NZAC, OMNZ).


Remarks. See under T. clunieae. This species is named after our good friend and colleague Grace Hall (Landcare Research, Auckland) for her special help in our entomological studies and for her warm dedication to making us enjoy our life and career in New Zealand. The holotype and two of the paratypes were graciously provided by R.D. Ward (Tennessee, U.S.A.) and J. Nunn (Dunedin).

Tuiharpalus moorei new species

Figures 53, 99, 136, 192; Map p. 149
Tuiharpalus moorei Larochelle & Larivière, new species.

Description. Body length: 8.0–8.5 mm. Strongly convex. Piceous brown; forebody (head and thorax) light brown; lateral depressions of pronotum, antennae, palpi, and legs rufous. Microsculpture isodiametric and weak on head, moderately transverse and weak on pronotum, very transverse (with microlines) and shallow on elytra. Very shiny, without metallic lustre. Head. Very large, only slightly narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles moderately long, slightly curved forward. Labrum strongly transverse; apex straight of slightly emarginate medially. Eyes widely separated from buccal fissure ventrally (by about 2× maximum width of antennal scape). Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae longer than ligula. Palpi not truncate apically, with moderately dense and long pubescence; penultimate segment of labial palpi plurisetose (with 2–3 long setae, and 1–4 short setae) on anterior margin. Thorax. Pronotum (Fig. 136) very transverse, widest before middle; sides converging toward base, not sinuate; base emarginate, moderately narrower than elytral base; apex concave; lateral depressions strongly explanate throughout; posterior bead absent; anterior angles strongly developed, subtriangular; posterior angles feebly developed, broadly rounded; basal foveae absent; punctuation fine, evenly distributed. Apex of prosternal lobe with 3 long setae and several short setae. Metepisterna wider than long. Legs. Metatibia with 4 long setae on posterior margin. Male mesotarsi not spongily pubescent ventrally.

Elytra. Widest about middle. Shoulders moderately developed, rounded, without a tooth. Subapical sinuations moderate. Sutural apices angulate. Scutellar striole absent. Interneurs moderately deep, evenly impressed, impunctate. Intervals sparsely punctate, slightly convex; intervals 3, 5, 7 with rows of setiferous punctures. Aedeagus (Fig. 53). Lateral view: strongly arcuate; apex obtusely rounded. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area very wide, extending almost to basal bulb; apical disc present, rounded-triangular; main shaft straight, inflated in apical half. Internal sac unarmed.

Material examined. 6 specimens, including types (AMNZ, NZAC).


Remarks. The presence of series of setiferous punctures on elytral intervals 3, 5, and 7, the stout convex body, ovate elytra, and strongly explanate lateral depressions of the pronotum set this taxon apart from its congeners. This is the only species of Tuiharpalus recorded from and restricted to the tip of the Aupouri Peninsula. Tuiharpalus moorei is named after our friend and colleague Barry P. Moore (Research Associate, Australian National Collection, Canberra, Australia) for his special help and encouragement in our carabid studies.

Subtribe HARPALINA

Diagnosis (New Zealand). Body length: 6.0–12.0 mm. Frons without clypeo-ocular prolongations. Mentum with a tooth medially. Mentum and submentum separated by complete transverse suture. Penultimate segment of labial palpi plurisetose (with 4 setae or more) on anterior margin. Apex of prosternal lobe pubescent. Male protarsi and mesotarsi dilated laterally and biseriately pubescent (with 2 rows of scale-like setae) ventrally. Metatarsomere 1 shorter than metatarsomeres 2+3. Umbilicate setiferous series of interval 9 separated into two major groups with posterior group continuous (not divided further into two subgroups). Aedeagus arcuate, asymmetrical with ostium strongly deflected to the left.
Geographic distribution. Worldwide.


Genus Harpalus Latreille, 1802

Harpalus Latreille 1802: 92. Type species: Carabus protetus Paykull, 1790 (= Carabus affinis Schrank, 1781), designated by Andrewes, 1935: 19.

Description (New Zealand). Body length: 6.0–12.0 mm. Forebody (head and thorax) with or without sparse setiferous micropores dorsally. Head. Mandibles short or moderately long, strongly curved forward, blunt apically. Labrum moderately or strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, moderately or widely separated from buccal fissure ventrally (by 1–1.5 × maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from middle of antennomere 3. Mentum with a tooth medially, moderately large, convex, moderately or widely separated from buccal fissure ventrally (by 1–1.5 × maximum width of antennal scape); lateral beads complete; anterior bead incomplete medially; posterior bead complete. Scutellum visible. Apex of prosternal lobe pubescent. Legs. Metemormora with 4–10 long setae on posterior margin. Paraglossae as long as or longer than ligula. Paraglossae longer than ligula. Metemormora with 4 long setae on posterior margin. Body length 7.5 mm or less. [Pronotum (Fig. 139)] .................................. ...(p. 53) ... australasiae Dejean

— Body not greenish dorsally (Fig. 194). Elytra with interval 9 glabrous (except for umbilicate series of setiferous punctures). Microsculpture almost absent on head. Paraglossae as long as ligula (Fig. 31). Metemormora with 8-10 long setae on posterior margin. Body length 8.0 mm or more. [Pronotum (Fig. 138)] ...................................... ...(p. 52) ... tardus (Panzera)

Harpalus (H.) affinis (Schrank, 1781)

Figures 54, 100, 137, 193; Map p. 149

Carabus aeneus Fabricius, 1775: 245. Type locality: Germany. Primary homonym of Carabus aeneus DeGeer, 1774.

Carabus affinis Schrank, 1781: 212 (replacement name for Carabus aeneus Fabricius, 1775). Type locality: Austria. Harpalus affinis: Author of combination uncertain for this European species.

Description. Body length: 8.2–12.0 mm. Moderately convex. Black; antennae and legs either reddish or blackish. Head and pronotum glabrous and smooth; elytra with outer intervals and apex pubescent. Microsculpture isodiametric...
Metepisterna longer than wide. Prosternal lobe with 6–7 long setae and 8–9 short setae. Subapical sinuations strongly developed (basally and laterally). Apex of prosternal lobe with 6–7 long setae and 8–9 short setae. Metepisterna longer than wide. **Legs.** Metafemora with 5 long setae on posterior margin. **Elytra.** Widest behind middle. Shoulders well developed, rounded, without a tooth. Subapical sinuations strong. Sutural apices obtusely angular in males, acutely angular in females. Scutellar striole present. Interneurs shallow, impunctate. Intervals impunctate, flat; elytral apex and outer intervals sparsely pubescent. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 54). Lateral view: as for genus; apex short (more so than in *tardus*), harpoon-like. Dorsal view: as for genus; apical disc not much longer than wide. Internal sac unarmed.

**Material examined.** 70 non-type specimens (AMNZ, ITNZ, JNNZ, MONZ, NZAC, OMNZ, UCNZ).


**Harpalus (H.) tardus** (Panzer, 1797)\(^{A}\)

Figures 55, 138, 194; Map p. 149.

*Carabus* *tardus* Panzer, 1797: 24. Type locality: Germany. Multiple synonyms exist in the Old World literature for this adventive species.

**Description.** Body length: 8.0–11.0 mm. Moderately convex. Black; antennae, palpi, and legs reddish; femora and tarsi brownish black; sides of pronotum paler. Glabrous and smooth, except elytral interval 9 pubescent throughout. Microsculpture isodiametric (stronger in males), almost absent on head; granulate on female elytra. Shiny, without metallic lustre; elytra dull in females. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles moderately long. Labrum strongly transverse; apex straight. Eyes widely separated from buccal fissure ventrally (by about 1.5× maximum width of antennal scape). Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Mentum with medial tooth moderately shorter than lateral lobes. Paraglossae as long as ligula. Pennultimate segment of labial palpi with 2 long setae and 3–4 short setae on anterior margin. **Thorax.** Pronotum (Fig. 137) very transverse, widest about middle; sides converging toward base, not sinuate; base emarginate; anteriorly long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Mentum with medial tooth moderately shorter than lateral lobes. Paraglossae as long as ligula. Pennultimate segment of labial palpi with 2 long setae and 3–4 short setae on anterior margin. **Elytra.** Widest behind middle. Shoulders well developed, rounded, without a tooth. Subapical sinuations strong. Sutural apices obtusely angular in males, acutely angular in females. Scutellar striole present. Interneurs shallow, impunctate. Intervals impunctate, flat; elytral apex and outer intervals sparsely pubescent. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 54). Lateral view: as for genus; apex short (more so than in *tardus*), harpoon-like. Dorsal view: as for genus; apical disc not much longer than wide. Internal sac unarmed.

**Material examined.** 70 non-type specimens (AMNZ, ITNZ, JNNZ, MONZ, NZAC, OMNZ, UCNZ).


55). Lateral view: as for genus; apex long (more so than in *affinis*), harpoon-like (in lateral view). Dorsal view: as for genus; apical disc much longer than wide. Internal sac unarmed.

**Material examined.** 10 non-type specimens (LUNZ, NZAC).


**Ecology.** Lowland. An open rocky spur with loamy soil covered with grass and herbs. Nocturnal and diurnal; active during the day on bare ground, on pavement, and on roadsides, or sheltering under stones and in burrows. Europe: dunes, grasslands, heaths, and cultivated fields; open ground, with rather dry, sandy soil. **Biology.** Seasonality: September–October, December–January, March. Spring breeder and adult overwinterer (Europe). **Dispersal power.** Elytra free along suture. Macropodous, capable of flight. Moderate runner. **Collecting techniques.** Pitfall trapping.

**References.** Lindroth, 1986: 362 (ecology, biology); Emerson, 2004 (distribution, ecology, biology, dispersal power).

Subgenus (Uncertain)

**Harpalus australasiae** Dejean, 1829 reinstatement

Figures 56, 101, 139, 195; Map p. 149

*Harpalus australasiae* Dejean, 1829: 386. Type locality: Australia (as Nouvelle-Hollande).

*Hypharpax australasiae* Bates, 1874: 272.

*Diaphoromerus australasiae* Chaudoir, 1878: 480.


**Description.** Body length: 6.0–7.5 mm. Slightly convex. Black; pronotum and elytra greenish; pronotal margins reddish; base of antennae and tibiae testaceous; remainder of legs and palpi dark brown. Generally glabrous and smooth. Microsculpture deep, strongly isodiametric on head, moderately isodiametric on pronotum, slightly transverse on elytra. Shiny, with bronze metallic lustre (males); duller (females). **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles short. Labrum moderately transverse; apex straight or slightly emarginate medially. Eyes moderately separated from buccal fissure ventrally (by about maximum width of antennal scape). Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Mentum with medial tooth moderately shorter than lateral lobes. Paraglossae longer than ligula. Penultimate segment of labial palpi with 2–3 long setae and 1–5 short setae on anterior margin. **Thorax.** Pronotum (Fig. 139) very transverse, widest in basal 1/2; sides not converging toward base, not sinuate; base straight; apex concave; lateral depressions absent; anterior angles strongly developed, broadly rounded; posterior angles strongly developed, subrectangular; basal foveae shallow, narrow; punctuation feebly developed (almost absent). Apex of prosternal lobe with 3–8 long setae and 6–9 short setae. Metepisterna longer than wide. **Legs.** Metafemora with 4 long setae on posterior margin. **Elytra.** Widest about middle. Shoulders strongly developed, angular, with a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae present. Interneurs shallow, deepening apically, impunctate. Intervals impunctate, flat, becoming convex apically; interval 9 glabrous (except for umbilicate setiferous series). Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 56). Lateral view: as for genus; apex slender, not harpoon-like. Dorsal view: apical disc moderately longer (about 1.5×) than wide. Internal sac armed.

**Material examined.** 198 non-type specimens (AMNZ, ITNZ, JNNZ, LUNZ, MONZ, NZAC, OMNZ).


**References.** Thomson, 1922: 284 (distribution); Pilgrim, 1963: 841 (distribution); Noonan, 1973: 296 and 1976: 10 (taxonomy); Moore et al., 1987: 237 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9, 11, 13 (taxonomy, distribution, ecology); Larochelle & Larivière, 2001: 124 (as *Hypharpax*; taxonomy, distribution, ecology, biology, dispersal power).
Remarks. This species has been previously placed in Anisodactylina, but the presence of biseriately pubescent male tarsi and the aedeagal ostium strongly deflected to the left indicate that it belongs to the Harpalina. The species agrees in other morphological characters with members of the genus Harpalus.

Subtribe PELMATELLINA

Diagnosis (New Zealand). Body length: 3.2–10.0 mm. Frons usually with clypeo-ocular prolongations, seldom without (Syllectus gouleti). 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. Apex of prosternal lobe usually glabrous, seldom pubescent (Kupeharpalus). 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; Kupeharpalus johnsi, Lecanomerus marrisi). Metatarsomere 1 usually as long as metatarsomeres 2+3, rarely shorter (Lecanomerus atriceps, L. latimanus, L. marrisi). Umbilicate setiferous series of interval 9 separated into 2 major groups with posterior group either divided further into 2 subgroups or continuous (Kuhaharpalus, Kupeharpalus, Lecanomerus insignitus). Aedeagus usually arcuate, seldom almost straight (some Syllectus), symmetrical (with ostium dorsal, not deflected laterally).

Geographic distribution. Mostly Neotropical and Australian Regions; also Nearctic Region.


Remarks. All world genera recognised so far within the Pelmatellina have been characterised by the glabrous apex of the prosternal lobe. Kupeharpalus (new genus including 3 species) which is apparently very close to Lecanomerus. Deviates from this taxonomic concept by having the apex of the prosternal lobe pubescent.

Key to genera of New Zealand Pelmatellina

1 Apex of prosternal lobe pubescent. Penultimate segment of labial palpi trisetose on anterior margin (Fig. 10). Eyes widely separated from buccal fissure ventrally (by 1.5–2× maximum width of antennal scape; Fig. 19) [North Island: Northland] .................................................. (p. 57)... Kupeharpalus new genus

2(1) Segment 4 of protarsi and mesotarsi with 2 membranous laminae (Fig. 25). Forebody (head and thorax) much narrower than elytra (Fig. 211–213) ......................... (p. 68) ... Syllectus Bates

2(2) Segment 4 of protarsi and mesotarsi without membranous laminae (Fig. 26). Forebody (head and thorax) at most moderately narrower than elytra (Fig. 196–199, 203–210) ........................................ 3

3(2) Eyes strongly reduced (Fig. 102). Mandibles very long (about 5× their maximum width; Fig. 102). Elytral interneurs absent or incomplete basally (Fig. 102). Pronotum cordate or subcordate (Fig. 140–143) [South Island: NN, SD] ... (p. 54) ... Hakaharpalus new genus

3(3) Eyes normally developed (Fig. 107). Mandibles shorter (Fig. 107). Elytral interneurs complete (Fig. 107). Pronotum neither cordate nor subcordate (Fig. 147–154). [Throughout New Zealand] ......................... ... (p. 60) ... Lecanomerus Chaudoir

Genus Hakaharpalus new genus

Type species. Hakaharpalus rhodeae new species, by present designation.

Description. Body length: 3.7–4.9 mm. Forebody (head and thorax) without sparse setiferous micro pores dorsally. Head. Dorsal surface excavated anteriorly (as in Lecanomerus marrisi). 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 fissure 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 (contrary to other Pelmatellina genera); pubescence starting from antennomere 2. Mentum with a tooth medially, as long as lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae longer than ligula. Palpi hirsute (contrary to other Pelmatellina genera), with last segment very inflated, not truncate but needle-shaped apically, with very dense, moderately long pubescence; penultimate segment of labial palpi bisetose on anterior margin. Thorax. Pronotum subcordate or cordate; base straight, much narrower than elytral base; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible. Apex of prosternal lobe glabrous. Legs. Metafemora
with 5 long setae on posterior margin. Male protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 as long as metatarsomers 2+3.

**Elytra.** Interneres absent or incomplete basally. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into two major groups, with posterior group continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, 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.

**Geographic distribution.** New Zealand (endemic; South Island).

**Remarks.** The generic name is derived from *haka* (traditional Maori chant of defiance accompanied by stylised movements of hands and feet) and *Harpalus* (the type genus of the tribe Harpalini). A very distinctive genus restricted to the BR—NN—SD regions, which is easily recognised by the more or less heart-shaped pronotum, ovate elytra, palpi hirsute, with the last segment very inflated and needle-shaped apically, strongly reduced eyes, and antennae widening from base to apex. The strongly reduced eyes, long pubescence, and slightly convex body suggest subterranean behaviour similar to that of *Anillina* (Bembidini) that live deep in thick leaf litter and/or in soil fissures.

**Key to species of Hakaharpalus**

1 Elytral intervals punctate (Fig. 102) .................. 2
  —Elytral intervals impunctate. .......................... 4

2(1) Elytra (Fig. 197): interneurs deep (strongly impressed).
  [Intervals finely punctate. Aedeagus (Fig. 58): apical half almost straight (in lateral view); apex narrowly rounded (in dorsal view). Pronotum (Fig. 141)] ...........

3(2) Microsculpture absent on pronotum and elytra. Elytral intervals finely punctate. Pronotum (Fig. Addendum) sinuate laterally in front of posterior angle. [Male unknown] .......................... 3

4(1) Elytral interneurs absent (Fig. 199). Pronotum (Fig. 143) cordate, slightly sinuate laterally in front of posterior angles; anterior angles feebly developed, rounded. Microsculpture absent on pronotum. Eyes flat. [Aedeagus (Fig. 60)] ..........................

—Elytral interneurs present, although weakly impressed (Fig. 198). Pronotum (Fig. 142) subcordate, not sinuate laterally in front of posterior angles; anterior angles strongly developed, acute. Microsculpture present on pronotum. Eyes slightly convex. [Aedeagus (Fig. 59)] ..........................

**Hakaharpalus patricki new species**

Figures 57, 102, 140, 196; Map p. 150

**Hakaharpalus patricki** Larochelle & Larivière, new species.

Holotype: male (NZAC) labelled “Mt Domett NN. 1250m Nov-Dec 71 G. Kuschel (typed) / moss (typed) / HOLOTYPE [male symbol] Hakaharpalus patricki Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 2 males (1 OMNZ, 1 NZAC) and 1 female (NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body length: 4.1–4.5 mm. Slightly convex. Blackish brown; margins and sutures of elytra, as well as antennae, palpi, and legs pale yellowish. Generally glabrous. Elytral intervals coarsely punctate; interneurs shallow (weakly impressed), incomplete basally. Microsculpture absent on head, moderately transverse on pronotum, and very transverse (with microlines) on elytra. Shiny, without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, slightly convex posteriorly. Eyes strongly reduced, slightly convex, consisting of obliterated facets, narrowly separated from buccal fissure ventrally (by about 0.7x maximum width of antennal scape). Antennal scape about 3x longer than its maximum width. **Thorax.** Pronotum (Fig. 140) subcordate, widest before middle; sides converging toward base, not sinuate; base straight; apex almost straight behind anterior angles; lateral depressions absent; anterior angles strongly developed, acute; posterior angles moderately developed, obtuse; basal foveae shallow, ill-defined; punctuation feebly developed. Metepisterna wider than long. **Elytra.** Widest about middle. Shoulders feebly developed, rounded, without a tooth. Subapical situations feebie. Sutural apices rounded. Scutellar striole absent. Interneres shallow, impunctate,
incomplete basally. Intervals coarsely punctate, flat. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 57). Lateral view: as for genus; apical half slightly curved. Dorsal view: as for genus; apex broadly rounded.

**Material examined.** 7 specimens, including types (ITNZ, NZAC).


**Ecology.** Montane. Wet forests (beech). Shaded ground. Nocturnal; sheltering during the day in leaf litter and moss.


**Collecting techniques.** Sifting leaf litter and moss.

**Remarks.** This taxon is morphologically close to *H. maddisoni*. It is named after our good colleague Brian H. Patrick (Otago Museum, Dunedin) for his encouragement and special help and encouragement in establishing our new life in New Zealand insect studies.

**Hakaharpalus maddisoni** new species

Figures 58, 141, 197; Map p. 150


**Description.** Body length: 4.2–4.5 mm. Slightly convex. Blackish brown; margins and sutures of elytra, as well as antennae, palpi, and legs pale yellowish. Generally glabrous. Elytral intervals finely punctate; interneurs deep, incomplete basally. Microsculpture absent on head, moderately transverse on pronotum, and very transverse (with microlines) on elytra. Head shiny; pronotum and elytra dull; dorsal surface without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, slightly convex posteriorly. Eyes strongly reduced, slightly convex, consisting of obliterated facets, narrowly separated from buccal fissure ventrally (by about 0.7× maximum width of antennal scape). Antennal scape about 3× longer than its maximum width. **Thorax.** Pronotum (Fig. 141) subcordate, widest before middle; sides converging toward base, not sinuate; base straight; apex almost straight behind anterior angles; lateral depressions absent; anterior angles strongly developed, acute; posterior angles moderately developed, obtuse; basal foveae shallow, ill-defined; punctuation feebly developed. Metepisterna wider than long. **Elytra.** Widest about middle. Shoulders feebly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices rounded. Scutellar striole absent. Interneurs deep, impunctate, incomplete basally. Intervals finely punctate, flat. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 58). Lateral view: as for genus; apical half almost straight. Dorsal view: as for genus; apex narrowly rounded.

**Material examined.** 4 specimens, including types (AMNZ, JNNZ, NZAC).


**Remarks.** This species is named after our good friend Peter A. Maddison (Field Studies, Waitakere City) for his special help and encouragement in establishing our new life and career in New Zealand. J. Nunn (Dunedin) graciously provided the female paratype. See also Remarks under *H. patricki*.

**Hakaharpalus davidsoni** new species

Figures 59, 142, 198; Map p. 149


**Description.** Body length: 3.7–4.9 mm. Slightly convex. Reddish or blackish brown; disc of head, pronotum, and elytra darker; antennae, palpi, and legs pale yellowish. Generally glabrous. Elytral intervals impunctate; interneurs shallow (weakly impressed), incomplete basally. Microsculpture absent on head and elytra; shallow and very transverse (with microlines) on pronotum. Shiny, without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, slightly convex posteriorly. Eyes strongly reduced, slightly convex, consisting of obliterated facets, moderately separated from buccal fissure ventrally (by about maximum width of antennal scape). Antennal scape about 2× longer than its maximum width. **Thorax.** Pronotum (Fig. 142) subcordate, widest before middle; sides converging toward base, not sinuate; base straight; apex almost straight behind anterior angles; lateral depressions absent; anterior angles strongly developed, acute; posterior angles moderately developed, obtuse; basal foveae shallow, ill-defined; punctuation feebly developed. Metepisterna wider than long. **Elytra.** Widest about middle. Shoulders feebly develop-
oped, rounded, without a tooth. Subapical sinuations feeble. Sutural apices rounded. Scutellar striole absent. Interneurs shallow (weakly impressed), impunctate, incomplete basally. Intervals impunctate, flat. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 59). Lateral view: as for genus; apical half strongly curved, wider than in patricki and maddisoni. Dorsal view: as for genus; apex moderately rounded.

**Material examined.** 2 type specimens (NZAC).


**Remarks.** This species is morphologically closer to H. patricki and H. maddisoni than to H. rhodeae. It is named after Robert L. Davidson (Carnegie Museum, Pittsburgh, Pennsylvania), long time friend and colleague of the first author, for special help and encouragement in his carabid research.

**Hakaharpalus cavelli** (Broun, 1893) new combination

See Addendum, page 93.

**Note.** The holotype of the species originally described as Tachys cavelli was examined in early April 2005 in the course of another study. The tribal and generic placement of the species was then discovered. Because this Fauna N.Z. contribution was in an advanced stage of final production the H. cavelli description and notes are in the Addendum.

**Hakaharpalus rhodeae** new species

Figures 60, 143, 199; Map p. 150

*Hakaharpalus rhodeae* Larochelle & Larivière, new species.

Holotype: male (NZAC) labelled “Maitai Valley Nelson 25.5.90 J.I. Townsend (hand-written) / JI Townsend Collection (typed) / HOLOTYPE [male symbol] Hakaharpalus rhodeae Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 2 females (1MONZ, 1 NZAC) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body length: 4.0–4.5 mm. Slightly convex. Reddish brown; disc of head, pronotum, and elytra darker; antennae, palpi, and legs pale yellowish. Generally glabrous. Elytral intervals impunctate; interneurs absent. Microsculpture absent on head and pronotum, very transverse (with microlines) on elytra. Shiny, without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, slightly convex posteriorly. Eyes strongly reduced, flat, consisting of oblitered facets, moderately separated from buccal fissure ventrally (by about maximum width of antennal scape). Antennal scape about 2× longer than its maximum width. **Thorax.** Pronotum (Fig. 143) cordate, widest before middle; sides converging toward base, slightly sinuate; base straight; apex slightly convex; lateral depressions absent; anterior angles feebly developed, rounded; posterior angles moderately developed, obtuse; basal foveae shallow, ill-defined; punctuation feebly developed. Metepisterna wider than long. **Elytra.** Widest about middle. Shoulders feebly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striole absent. Interneurs absent. Intervals impunctate, flat. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 60). Lateral view: as for genus; apical half straight. Dorsal view: as for genus; apex triangular.

**Material examined.** 11 specimens, including types (ITNZ, NZAC).


**Remarks.** The absence of dorsal body microsculpture, the heart-shaped pronotum, and the configuration of the aedeagus set this species apart from its congeners. The species is named after our close friend and colleague Birgit Rhode (Landcare Research, Auckland) for her special help and encouragement in our carabid studies, and for her exceptional dedication as a research assistant to the second author.

**Genus Kupeharpalus** new genus

**Type species.** *Kupeharpalus barrattae* new species, by present designation.

**Description.** Body length: 5.0–8.5 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles moderately long, slightly curved forward, acute apically. Labrum strongly or moderately transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, widely separated from buccal fissure ventrally (by 1.5–2× maximum width of antennal scape). Tempora not inflated. Frons with clypeo-ocular prolongations complete or incomplete toward eyes. Antennal pubescence starting on basal 1/2 of antennal scape.
plete transverse suture. Paraglossae longer than or as long as ligula (johnsi). Palpi with last segment fusiform, not truncate apically, sparsely pubescent (with moderately long setae); penultimate seta of labial palpi trisetose on anterior margin. **Thorax.** Pronotum transverse; base straight or emarginate, moderately narrower than or as wide as elytral base; lateral beads complete; anterior bead complete or incomplete medially; posterior bead incomplete medially or complete. Scutellum visible. Apex of prosternal lobe pubescent. **Legs.** Metafemora with 2 long setae on posterior margin. Male protarsi dilated laterally and spongily pubescent ventrally. Male mesotarsi dilated laterally and spongily pubescent ventrally (with spongy pubescence not uniformly distributed, contrary to *Lecanomerus*). Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae). Metatarsomere 5 pubescent (with 5–8 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into two major groups, with posterior group continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus.** Lateral view: moderately or strongly arcuate. Dorsal view: symmetrical (with microlines) on elytra. Head and pronotum metallic lustre. Elongate and spongily pubescent ventrally. Metatarsomere 5 pubescent (with 5–8 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into two major groups, with posterior group continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus.** Lateral view: moderately or strongly arcuate. Dorsal view: symmetrical (with microlines) on elytra. Head and pronotum moderately shiny; elytra less shiny, iridescent; without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum strongly transverse; apex slightly emarginate. Eyes widely separated from buccal fissure ventrally (by about 1.5× maximum width of antennal scape). Froms with clypeo-ocular prolongations incomplete toward eyes. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae longer than ligula. Penultimate segment of labial palpi with 2 long setae and 1 short seta on anterior margin. **Thorax.** Pronotum (Fig. 145): sides strongly convex. Body length 6.0–6.5 mm. Aedeagus (Fig. 62): apex triangular [Northland: tip of Aupouri Peninsula] ................. ............................................. ... (p. 59) ... **embersoni** new species

— Pronotum (Fig. 144): sides moderately convex. Body length 7.0–8.5 mm. Aedeagus (Fig. 61): apex finger-like [Northland: south of Aupouri Peninsula] ................. ............................................. ... (p. 58) ... **barrattae** new species

**Kupeharpalus barrattae** new species

Figures 61, 103, 144, 200; Map p. 150. **Kupeharpalus barrattae** Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “NEW ZEALAND ND Mangamuka Gorge Wlkwy 625m 351228S 1732640E 17.IX.-16.X.1999 Larivière, Larochelle (typed) / Wet broadleaf forest. Pittraps. (typed) / HOLOTYPE [male symbol] *Kupeharpalus barrattae* Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 1 male (MONZ) from the same locality as the holotype, 3 females (1 MONZ, 2 NZAC) from Puketi Forest, ND, bearing blue paratype labels.

**Description.** Body length: 7.0–8.5 mm. Strongly convex. Piceous brown; antennae, palpi, and legs yellowish. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on pronotum, very transverse (with microlines) on elytra. Head and pronotum moderately shiny; elytra less shiny, iridescent; without metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum strongly transverse; apex slightly emarginate. Eyes widely separated from buccal fissure ventrally (by about 1.5× maximum width of antennal scape). Froms with clypeo-ocular prolongations incomplete toward eyes. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae longer than ligula. Penultimate segment of labial palpi with 2 long setae and 1 short seta on anterior margin. **Thorax.** Pronotum (Fig. 144) very transverse, widest about middle; sides converging toward base, not sinuate, moderately convex; base emarginate, as wide as elytral base; apex slightly concave; lateral depressions widening posteriorly; anterior bead complete; posterior bead incomplete medially; anterior angles moderately developed, rounded; posterior angles strongly developed, broadly rounded; basal foveae shallow, narrow; punctuation feebly developed. Apex of prosternal lobe with 10–20 short setae (without long setae). Metepisterna slightly wider than long, almost square. **Legs.** Male mesotarsi dilated laterally and spongily pubescent ventrally. Metatarsomere 5 pubescent (with 8 setae) ventrally. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar...
Kupeharpalus embersoni new species

Figures 62, 145, 201; Map p. 150

Description. Body length: 6.0–6.5 mm. Strongly convex. Piceous brown; antennae, palpi, and legs yellowish. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on thorax, very transverse (with microlines) on elytra. Head and pronotum moderately shiny; elytra less shiny, iridescent; without metallic lustre. Head. Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum strongly transverse; apex slightly emarginate. Eyes widely separated from buccal fissure ventrally (by about 1.5×maximum width of antennal scape). Frons with clypeo-ocular prolongations incomplete toward eyes. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Paraglossae longer than ligula. Penultimate segment of labial palpi with 2 long setae and 1 short seta on anterior margin. Thorax. Pronotum (Fig. 145) very transverse, widest about middle; sides converging toward base, not sinuate, strongly convex; base emarginate, as wide as elytral base; apex slightly concave; lateral depressions widening posteriorly; anterior bead complete; posterior bead incomplete medially; anterior angles moderately developed, rounded; posterior angles strongly developed, broadly rounded; basal foveae shallow, narrow; punctuation feebly developed. Apex of prosternal lobe with 10–20 short setae (without long setae). Metepisterna slightly wider than long, almost square. Legs. Male mesotarsi dilated laterally and spongily pubescent ventrally. Metatarsomere 5 pubescent (with 8 setae) ventrally. Elytra. Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae absent. Intermes without setiferous puncture behind middle. Aedeagus (Fig. 62). Lateral view: as for genus; moderately arcuate; apex broadly triangular. Dorsal view: as for genus; apical disc present, wide, with convergent sides.

Material examined. 12 specimens, including types (AMNZ, MONZ, NZAC).


Ecology. Lowland. Wet forests (broadleaf, podocarp). Shaded ground; soil covered with dead leaves. Nocturnal; sheltering during the day in leaf litter, under logs and stones.


Remarks. This species is named after Rowan M. Emberson (Lincoln University, Lincoln) for his contribution to the building of important reference collections of New Zealand carabids.

Kupeharpalus johnsi new species

Figures 63, 104, 146, 202; Map p. 150
Kupeharpalus johnsi Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “Kara, Whangarei 16.7.27 (hand-written) / coll. E. Fairburn (hand-written) / HOLOTYPE [male symbol] Kupeharpalus johnsi Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 9 males (1 MONZ, 4 NZAC, 4 CMNZ) and 1 female (CMNZ) from the same locality as the holotype, bearing blue paratype labels.

Genus Lecanomerus Chaudoir, 1850


Description. Body length: 3.2–10.0 mm. Forebody (head and thorax) without sparse setiferous micro pores dorsally. Head. Mandibles short or moderately long, slightly or strongly curved forward, acute apically. Labrum strongly or moderately transverse (atriceps, insignitus, marrisi); apex straight or slightly emarginate medially. Eyes moderately large, convex, narrowly separated from buccal fissure ventrally (by 0.3–0.5× maximum width of antennal scape), or reaching buccal fissure (marrisi, sharpi, verticalis). Tempora not inflated. Frons with clypeo-ocular prolongations complete or incomplete toward eyes (insignitus, marrisi). Antennal pubescence starting on antennomere 3 or 2 (atriceps, vestigialis). Mentum with a tooth medially, moderately shorter, much shorter (atriceps) or about as long as lateral lobes (marrisi). Mentum and submentum separated by complete transverse suture. Paraglossae longer than or as long as ligula (vestigialis). Palpi with last segment fusiform or cylindrical (insignitus), not truncate apically, sparsely pubescent (with very short or moderately long setae), or glabrous (insignitus, marrisi); penultimate segment of labial palpi bisetose on anterior margin. Thorax. Pronotum transverse; base straight, emarginate (insignitus, marrisi) or convex, moderately narrower than or as wide as elytral base; lateral beads complete; anterior bead incomplete medially or complete (insignitus); posterior bead incomplete medially. Scutellum visible. Apex of prosternal lobe glabrous. Legs. Metatibiae with 2 long setae on posterior margin. Male protarsi dilated laterally and spongily pubescent ventrally. Male mesotarsi dilated laterally and spongily pubescent ventrally (with spongy pubescence uniformly distributed, contrary to Kupharpalus) or unmodified (marrisi). Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae or only a few (verticalis)) or glabrous (insignitus, sharpi) dorsally; metatarsosomere 5 pubescent (with 4–8 setae) ventrally; metatarsosomere 1 as long as or shorter than (atriceps,
*latimanus, marrisi*) metatarsomeres 2+3. Elytra. Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umblicate setiferous series of interval 9 separated into two major groups, with posterior group further divided into two subgroups, or, posterior group continuous (insignitus). Abdomen. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, 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.

**Geographic distribution.** New Guinea, New Caledonia, Australia (including Tasmania), New Zealand.

**References.** Hudson, 1934: 176 (list); Noonan, 1976: 7 (taxonomy); Larochelle & Lariviére, 2001: 118–121 (catalogue).

**Remarks.** Sloane (1920: 137) incorrectly synonymised *Lecanomerus* with *Nemaglossa* Solier, 1849, which is a valid genus restricted to Chile (Noonan, 1976: 7). *Lecanomerus* is a highly variable genus which currently includes species with the following combination of characters: eyes reaching buccal fissure or narrowly separated from it; penultimate segment of labial palpi bisetose; apex of prosternal lobe glabrous; clypeo-ocular prolongations incomplete toward eyes (in insignitus, marrisi); umbilicate setiferous series of interval 9 with posterior group further divided into two subgroups, or, posterior group continuous (insignitus). Australian *Lecanomerus* species are diverse and in great need of revision supported by a cladistic analysis; only then will we be able to define the taxonomic limits of this genus and the generic placement of currently described species in New Zealand and the rest of Australasia.

**Key to species of Lecanomerus**

1 Elytra with sides broadly yellowish (Fig. 206–207). 2
   — Elytra with sides not broadly yellowish (Fig. 203–205, 208–210) ................................. 3

2(1) Pronotum (Fig. 151): sides slightly sinuate before strongly developed, acute posterior angles with prominent tooth. Pale outline of elytra somewhat jagged (Fig. 207). [TH, North Island] ...................... ............................................................ (p. 65)... *sharpi* (Csiki)
   — Pronotum (Fig. 150): sides not sinuate before moderately developed, obtusely rounded posterior angles, without tooth. Pale outline of elytra more regular, not jagged (Fig. 206). [CH, South Island] ......................... ...........................................................(p. 64)... *latimanus* Bates

3(1) Pronotum (Fig. 147): reddish brown, contrasting with dark head and elytra (Fig. 203); base much narrower than apex. Slender body, somewhat parallel-sided (Fig. 203). Mentum with medial tooth very small, much shorter than lateral lobes (Fig. 17). Body length 3.5 mm or less .............................. (p. 62)... *atriceps* (Macleay)
   — Pronotum: not reddish brown; base about as wide as apex. Subovate (somewhat egg-shaped) body. Mentum with medial tooth moderately shorter (Fig. 14) than or about as long as lateral lobes (Fig. 16). Body length 4.0 mm or more (usually over 5 mm) .............................. 4

4(3) Pronotum (Fig. 152) sinuate in front of subrectangular posterior angles. Mentum with medial tooth as long as lateral lobes (Fig. 16). Male mesotarsi unmodified (neither dilated laterally (Fig. 208) nor spongily pubescent ventrally) [South Island: Banks Peninsula] ........................................................................ (p. 66)... *marrisi* new species
   — Pronotum not sinuate in front of rounded posterior angles. Mentum with medial tooth moderately shorter than lateral lobes (Fig. 14). Male mesotarsi dilated laterally (Fig. 205) and spongily pubescent ventrally (Fig. 12) ........................................................................ 5

5(4) Elytra fused along suture; membranous wings vestigial (reduced to wing buds) ........................................ 6
   — Elytra not fused along suture; membranous wings fully developed ........................................................................ 7

6(5) Pronotum (Fig. 148): base emarginate; basal foveae shallow, weakly and finely punctate. Frons with clypeo-ocular prolongations incomplete toward eyes (Fig. 105). [North Island: ND] ..................... ...........................................................(p. 63)... *insignitus* Broun
   — Pronotum (Fig. 149): base rather straight; basal foveae deep, strongly and coarsely punctate. Frons with clypeo-ocular prolongations complete (Fig. 1). [South Island] ..................... ...........................................................(p. 63)... *obesusulus* Bates

7(5) Elytra very iridescent, with subapical sinuations strongly developed (Fig. 30). Pronotum (Fig. 153) widest before middle. Appendages entirely pale reddish. Body slightly convex; length 4.7 mm or more .............................. ............................................... (p. 67)... *verticalis* (Erichson)
   — Elytra slightly iridescent, with subapical sinuations weakly developed (Fig. 29). Pronotum (Fig. 154) widest about middle. Appendages partly pale reddish (parts of antennae, tibiae, and tarsi dark brown). Body strongly convex; length 4.3 mm or less .............................. ........................................................(p. 67)... *vestigialis* (Erichson)
**Lecanomerus atriceps** (Macleay, 1871)\(^A\)

Figures 64, 147, 203; Map p. 150

**Trechus atriceps** Macleay, 1871: 113. Type locality: Gayndah, Queensland, Australia.

**Thenarotes atriceps**: Blackburn, 1892: 97.

**Nemaglossa atriceps**: Sloane, 1920: 137.

**Nemaglossa (Thenarotes) atriceps**: Pilgrim, 1963: 844.

**Lecanomerus atriceps**: Moore et al., 1987: 225.


**Description.** Body length: 3.2–3.5 mm. Slender, more or less parallel-sided (more so than other *Lecanomerus* species). Slightly convex. Head black; pronotum reddish brown; elytra dark brown; elytral margins and suture red; antennomeres 1+2, palpi, and legs yellowish; antennomeres 3–11 blackish (contrary to other *Lecanomerus* species). Generally glabrous and smooth. Microsculpture vestigial on forebody (isodiametric on head, moderately transverse on pronotum), and very transverse (with microlines) on elytra. Shiny, without metallic lustre; elytra very iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles short, strongly curved forward. Labrum moderately transverse; apex slightly emarginate medially. Eyes narrowly separated from buccal fissure ventrally (by about 0.3×maximum width of antennal scape). Frons with clypeoocular prolongations complete. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width; pubescence starting from apical 1/2 of antennomere 2. Mentum with a very short tooth medially, much shorter than lateral lobes (only about 0.3× as long). Paraglossae longer than ligula. Palpi with last segment fusiform, with sparse, moderately long pubescence. **Thorax.** Pronotum (Fig. 147) moderately transverse, widest before middle; sides converging toward base, not sinuate; base slightly convex, moderately narrower than elytral base, much narrower than pronotal apex (contrary to other *Lecanomerus* species); apex straight; lateral depressions absent; anterior angles slightly developed, obtuse; posterior angles moderately developed, obtusely rounded; basal foveae shallow, wide; punctuation strongly developed and coarse (in basal foveae). Metepisterna longer than wide. **Legs.** Male mesotarsi dilated laterally and spongily pubescent ventrally. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 shorter than metatarsomeres 2+3. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellum striae present. Interneurs complete, shallow, impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. Umbilicate setiferous series of interval 9 with posterior group divided into 2 subgroups. Aedeagus (Fig. 64). Lateral view: as for genus; strongly arcuate; apex broadly triangular. Dorsal view: as for genus; apical disc absent. Internal sac unarmed. Stouter and smaller than in other *Lecanomerus* species.

**Material examined.** 89 non-type specimens (AMNZ, BMNH, CMNZ, ITNZ, JNNZ, LUNZ, MONZ, UCNZ).


**Ecology.** Lowland. Borders of eutrophic marshes and ponds, and slowly running rivers. Wet pastures, paddocks, and gardens. Open ground; soil inundated, covered with dense tall vegetation (e.g., *Cyperaceae, Typha*) or alligator weed mats, or, when non-inundated, soft, wet, muddy or clayey, covered with similar vegetation, leaf litter or nikau sheaths. Occasional in caves. Nocturnal; sheltering during the day in floating plant mats, at the base of plants, in leaf litter, under nikau sheaths, stones, or clay cakes. Gregarious. **Biological.** Seasonality: throughout the year. Tenebrals: December (rarely), April, June–July. Predacious (Moore et al., 1987: 225). Occasionally infested with mites. **Dispersal power.** Elytra free along suture. Macropterous. Frequent flier. Occasional in seashore drift material, which indicates flight ability. Moderate runner. Occasional climber (on plants). Good burrower. Clearly effective as a colonist. Favoured by human activities. **Collecting techniques.** Treading plant stems or carpets into the water, turning plant debris, sweeping vegetation, light trapping, pitfall trapping.


**Remarks.** The reddish brown pronotum contrasting with the dark head and elytra, and the body shape make this species superficially similar to *Euthenarus bicolor*. Both species have often been confused in the past, but they are easily distinguished based on male tarsal characters (tarsi spongily pubescent ventrally in *L. atriceps*, biseriately pubescent in *E. bicolor*) and ventral pubescence (ventrites 5+6 without setae and setiferous fovea of ventrites 2+3 absent in *L. atriceps*).
Lecanomerus insignitus Broun, 1880

Description. Body length: 5.0–10.0 mm. Strongly convex. Brownish black; pronotal margins, elytral margins, elytral apex, and appendages brownish red. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on pronotum, and very transverse brous and smooth. Microsculpture isodiametric on head, elytral apex, and appendages brownish red. Generally gla.


Remarks. Broun described Lecanomerus fallax from 4 specimens, only 3 of which could be located in the Natural History Museum, London (BMNH). One of these specimens is designated as lectotype to preserve stability of nomenclature in the future. This species may appear superficially similar to Kupharpalus barrattiae and K. embersoni, but the glabrous apex of the prosternal lobe, the bisetose penultimate segments of the labial palpi, and the eyes narrowly separated from the buccal fissure ventrally, clearly place it in Lecanomerus. The body size and external morphology of L. insignitus are highly variable but the configuration of the male genitalia is constant throughout the geographical range of this species.

Lecanomerus obesulus Bates, 1878


Remarks. Bates described Lecanomerus obesulus from 4 specimens, only 3 of which could be located in the Natural History Museum, London (BMNH). One of these specimens is designated as lectotype to preserve stability of nomenclature in the future. This species may appear superficially similar to Kupharpalus barrattiae and K. embersoni, but the glabrous apex of the prosternal lobe, the bisetose penultimate segments of the labial palpi, and the eyes narrowly separated from the buccal fissure ventrally, clearly place it in Lecanomerus. The body size and external morphology of L. insignitus are highly variable but the configuration of the male genitalia is constant throughout the geographical range of this species.

Fauna of New Zealand 53

63
**Description.** Body length: 5.0–5.3 mm. Moderately convex. Black; margins of pronotum and elytra narrowly reddish; antennomeres 1+2 and basal 1/2 of tibiae reddish; femora blackish. Generally glabrous and smooth. Microsculpture vestigial on head and thorax, isodiametric on head, moderately transverse on pronotum, very transverse (with microlines) on elytra. Shiny, with slight brassy metallic lustre on elytra; moderately iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles short, strongly curved forward. Labrum strongly transverse; apex slightly emarginate medially. Eyes narrowly separated from buccal fissure ventrally (by about 0.5× maximum width of antennal scape). Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width; pubescence starting from basal third of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Paraglossae longer than ligula. Palpi with last segment fusiform, with sparse, very short pubescence. **Thorax.** Pronotum (Fig. 149) very transverse, widest before middle; sides converging toward base, not sinuate; base rather straight, moderately narrower than elytral base; apex concave; lateral depressions absent; anterior angles moderately developed, obtusely rounded; posterior angles moderately developed, broadly rounded; basal foveae deep, wide; punctuation strongly developed and coarse basally. Metepisterna longer than wide. **Legs.** Male mesotarsi dilated laterally and spongily pubescent ventrally. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices rounded. Scutellar striole absent. Interneurs shallow, impunctate. Intervals impunctate, flat. Interval 3 without setiferous puncture. Umbilicate setiferous series of interval 9 with posterior group divided into two subgroups. **Aedeagus** (Fig. 66). Lateral view: as for genus; strongly arcuate; apex acute. Dorsal view: as for genus; apical disc absent. Internal sac armed. **Material examined.** 83 specimens, including types (AMNZ, BBNZ, CMNZ, ITNZ, LUNZ, MNHN, MONZ, NZAC, PHNZ, UCNZ). **Geographic distribution** (Map p. 151). South Island: BR, CO, FD, MB, MC, NC, NN, OL, SD, SL, WD. **Ecology.** Lowland, montane. Forests (beech, podocarp, broadleaf) and scrublands (bog pine). Shaded ground. Nocturnal; sheltering during the day in moss carpets, under stones and logs. Gregarious. **Biology.** Seasonality: September–February, April–June. Teneral: February–March. **Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner. **Collecting techniques.** Turning moss carpets, stones, and logs. **References.** Townsend, 1997: 17 (distribution); Larochelle & Larivière, 2001: 119–120 (taxonomy, distribution, ecology, biology, dispersal power). **Remarks.** Bates’ original description was based on “numerous examples” from “West Coast, S. [=South] Island.” Three syntypes were obtained from the Bates collection in Paris (MNHN), one of which (a male specimen) bears a determination label written by Bates; this specimen is here selected as lectotype to preserve stability of nomenclature in the future. See under *L. latimanus.*

**Lecanomerus latimanus** Bates, 1874

**Figures** 67, 150, 206; Map p. 150


Lecanomerus fuliginosus Broun, 1880: 48. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 98. (typed) / [male symbol] (hand-written).” Perfect condition. **New synonym.**

Lecanomerus pallipes Broun, 1894: 379. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 2623. (handwritten) / [male symbol] (hand-written).” Perfect condition. **New synonym.**

Lecanomerus incertus Broun, 1914b: 151. Holotype: male (BMNH) labelled “Type (circular red-bordered label; typed) / 3512 [male symbol] (hand-written).” Perfect condition. **New synonym.**


**Description.** Body length: 4.7–5.9 mm. Slightly convex. Head and pronotum brownish testaceous; elytra blackish with sides broadly yellowish; appendages yellowish. Generally glabrous and smooth. Microsculpture strongly developed, granulate on head, isodiametric on pronotum, and moderately transverse on elytra. Dull; elytra iridescent. **Head.** Moderately large, narrower across eyes than pronotal
apex; flat anteriorly, slightly convex posteriorly. Mandibles short, strongly curved forward. Labrum strongly transverse; apex slightly emarginate medially. Eyes narrowly separated from buccal fissure ventrally (by about 0.5× maximum width of antennal scape). Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width; pubescence starting from basal 1/3 of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Paraglossae longer than ligula. Palpi with last segment fusiform, with sparse, very short pubescence. 

**Thorax.** Pronotum (Fig. 150) very transverse, widest before middle; sides converging toward base, not sinuate; base straight, moderately narrower than elytral base; apex concave; lateral depressions widening posteriorly; anterior angles strongly developed, obtusely rounded; posterior angles moderately developed, obtusely rounded; basal foveae shallow, narrow, linear; punctuation feebly developed basally. Metepisterna longer than wide. Male mesotarsi dilated laterally and spongily pubescent ventrally. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 shorter than metatarsomeres 2+3. 

**Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feebly. Sutural apices angulate. Dorsal view: as for genus; apical disc absent. Inter- 

**Legs.** Male mesotarsi dilated laterally and spongily pubescent ventrally. Tarsi pubescent (with numerous setae) dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 shorter than metatarsomeres 2+3. 

**Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feebly. Sutural apices angulate. Dorsal view: as for genus; apical disc absent. Internervous series of interval 9 with posterior group divided into two subgroups. 

**Aedeagus** (Fig. 67). Lateral view: as for genus; strongly arcuate; apex acute. Dorsal view: as for genus; apical disc absent. Internal sac armed.

**Material examined.** 106 specimens, including types (BMNH, CMNZ, ITNZ, JNNZ, LUNZ, MNHN, NZAC, OMNZ, PHNZ, UCNZ).

**Geographic distribution** (Map p. 150). South Island: CO, DN, KA, MC, SC, SL. Offshore Islands: CH.

**Ecology.** Lowland, upland, subalpine, alpine. Tussock grasslands (mostly), herbfields, farmlands, gardens, river banks, scrubs, forests (beech, broadleaf, podocarp). Open and shaded ground; soil dry or moist, covered with grass or dead leaves. Nocturnal; sheltering during the day at the base of tussock-plants, in moss, mat plants, plant debris, under stones, under and in logs, and in leaf litter. 

**Biology.** Seasonality: September–June. Tenebrosal: May. 

**Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner. 

**Collecting techniques.** Inspecting the base of tussock-plants, turning stones, raking leaf litter, pitfall trapping.

**References.** Barratt & Patrick, 1987: 82 (as *fuliginosus*; distribution, ecology, biology); Townsend, 1997: 17 (as *fuliginosus*; distribution, ecology, biology); Larochelle & Larivière, 2001: 119–120 (including *fuliginosus*, *incertus*, *pallipes*; taxonomy, distribution, ecology, biology, dispersal power).

**Remarks.** Bates’ original description of *Lecanomerus latimanus* was based on “one example from New Zealand.” Five specimens were obtained from the Bates collection in Paris (MNHN), only one of which, a male, matches data in the original description. The authors think that this is the specimen used by him for the description, although not labelled as such by Bates; a red holotype label has thus been added to the MNHN specimen. In some populations the elytral sides may be more narrowly yellowish in basal half, but the configuration of the male genitalia is stable. This species resembles *L. sharpi* in its general shape and broadly yellowish elytral sides. *Lecanomerus latimanus* and *L. obesus* are the most commonly encountered *Lecanomerus* species on the South Island.

**Lecanomerus sharpi** (Csiki, 1932)

**Figures** 68, 151, 207; Map p. 151


*Nemaglossa sharpi* Csiki, 1932: 1059 (replacement name for *Lecanomerus marginatus* Sharp, 1883). 

*Nemaglossa marginata* Sloane, 1920: 137. 


**Description.** Body length: 5.0–6.0 mm. Slightly convex. Piceous brown; sides of pronotum and elytra broadly yellowish; antennomere 1, femora, basal 1/2 of tibiae, and tarsi yellowish. Generally glabrous and smooth. Microsculpture isodiametric on head, transverse on pronotum and elytra. Shiny, without metallic lustre. 

**Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles short, strongly curved forward. Labrum strongly transverse; apex slightly emarginate medially. Eyes reaching buccal fissure ventrally. Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width; pubescence starting from basal 1/2 of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Paraglossae longer than ligula. Palpi with last segment fusiform, with sparse, very short pubescence. 

**Thorax.** Pronotum (Fig. 151) very transverse, widest before middle; sides converging toward base, slightly sinuate; base rather straight, moderately narrower than elytral base; apex concave; lateral depressions widening posteriorly; anterior
angles moderately developed, rounded; posterior angles strongly developed, acute, with a prominent tooth (contrary to other Lecanomerus species); basal foveae shallow, wide; punctuation feebly developed basally. Metepisternum longer than wide. Legs. Male mesotarsi dilated laterally and spongily pubescent ventrally. Tarsi glabrous dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. Elytra. Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striole absent or present. Interners shallow, impunctate. Intervals impunctate, flat. Sutural apices angulate. Scutellar striole absent or present. Intercalary series of interval 9 with posterior group divided into 2 subgroups. Aedeagus (Fig. 68). Lateral view: as for genus; slightly arcuate; apex rounded, inflated. Dorsal view: as for genus; apical disc present, subtriangular. Internal sac unarmed.

Material examined. 327 specimens, including type (AMNZ, CMNZ, FMNH, ITNZ, JNNZ, LUNZ, MONZ, NZAC, OMNZ, UCNZ).

Geographic distribution (Map p. 151). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. Offshore Islands: TH.


Remarks. See under L. latimanus.

Lecanomerus marrisi new species

Figures 69, 106, 152, 208; Map p. 151


Description. Body length: 7.0–7.1 mm. Slightly convex. Dark brown; labrum and clypeus reddish; appendages, pronotal margins, sutures, epipleura, and subapical margins of elytra brownish red. Generally glabrous and punctate. Microsculpture absent on head, very transverse (with microlines) on pronotum and elytra. Shiny, without metallic lustre; pronotum and elytra iridescent. Head. Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, slightly convex posteriorly. Mandibles moderately long, slightly curved forward. Labrum strongly transverse; apex slightly emarginate medi ally. Eyes reaching buccal fissure ventrally. Frons with clypeo-ocular prolongations incomplete toward eyes. Antennae moderately long, reaching about elytral base; antennal scape about 2× longer than its maximum width; pubescence starting on basal 1/3 of antennomere 3. Mentum with a tooth medi ally, as long as lateral lobes. Paraglossae longer than ligula. Palpi with last segment fusiform, glabrous. Thorax. Pronotum (Fig. 152) transverse, widest before middle; sides converging toward base, slightly sinuate; base slightly emarginate, moderately narrower than elytral base; apex concave; lateral depressions widening posteriorly; anterior angles strongly developed, obtusely rounded; posterior angles strongly developed, subrectangular; basal foveae shallow, wide; punctuation strongly developed, fine. Metepisternum longer than wide. Legs. Male mesotarsi unmodified, neither dilated laterally nor spongily pubescent ventrally. Protarso meres 1–4 pubescent; meso- and metatarsomer es 1–4 glabrous; pro-, meso-, and metatarsom eres 5 with 5–6 setae dorsally. Metatarsom er e 5 pubescent (with 5–6 setae) ventrally; metatarsomere 1 short, only about as long as metatarsomere 2. Elytra. Widest about middle. Shoulders strongly developed, rounded, without a tooth. Sides rounded. Subapical sinuations fee ble. Sutural apices rounded. Scutellar st riole present. Intermers shallow, impunctate. Intervals impunctate, flat. Interval 3 without setiferous puncture behind middle. Umbilicate setiferous series of interval 9 with posterior group divided into 2 subgroups. Aedeagus (Fig. 69). Lateral view: as for genus; slightly arcuate; apex rounded, infl ated. Dorsal view: as for genus; apical disc present, subtriangular. Internal sac unarmed.

Material examined. 5 specimens, including types (ITNZ, NZAC, UCNZ).

Geographic distribution (Map p. 151). South Island: MC–Banks Peninsula (Head of Kaituna Valley; Peraki–Mount Bosu Road; Peraki Road Bush).


Remarks. The long mentum tooth, anteriorly excavated.
head, unmodified male mesotarsi, and pronotum shape set this species apart from its congeners. It is also the only species of *Lecanomerus* which is endemic to the Banks Peninsula. *Lecanomerus marrisi* is named after our colleague John M. W. Marris (Lincoln University, Lincoln) for his special help and encouragement in our entomological studies.

*Lecanomerus verticalis* (Erichson, 1842)

Figures 70, 153, 209; Map p. 151

*Harpalus verticalis* Erichson, 1842: 126. Type locality: Tasmania, Australia.


*Lecanomerus verticalis* Sloane, 1911: 835.

*Nemaglossa verticalis* Sloane, 1920: 137.

*Nemaglossa flavicincta* Sloane, 1920: 137.


**Description.** Body length: 4.7–6.5 mm. Slightly convex. Piceous black; sides of pronotum and elytra narrowly pale reddish; appendages pale reddish. Generally glabrous and smooth. Microsculpture strong, isodiametric on head, moderately transverse on pronotum, and very transverse (with microlines) on elytra. Dull, without metallic lustre; elytra very iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles short, strongly curved forward. Labrum strongly transverse; apex slightly emarginate medially. Eyes reaching buccal fissure ventrally. Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width; pubescence starting from apex of antennomere 2. Mentum with a tooth medially, moderately shorter than lateral lobes. Palpi with last segment fusiform, with sparse, very short pubescence. **Thorax.** Pronotum (Fig. 153) very transverse, widest before middle (about middle in *vestigialis*); sides converging toward base, not sinuate; base slowly convex, moderately narrower than elytral base; apex concave; lateral depressions widening posteriorly; anterior angles moderately developed, rounded; posterior angles moderately developed, broadly rounded; basal foveae deep, very wide (touching lateral beads); punctuation developed basally, moderately coarse. Metepisterna longer than wide. **Legs.** Male mesotarsi dilated laterally and spongily pubescent ventrally. Tarsi pubescent (with a few setae) dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Widest about middle; slightly more elongate than in *vestigialis*. Shoulders strongly developed, angulate, with a tooth. Subapical sinuations strongly developed. Sutural apices angulate. Scutellar striole absent. Interneurs shallow, impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. Umbilicate setiferous series of interval 9 with posterior group divided into 2 subgroups. **Aedeagus** (Fig. 70). Lateral view: as for genus; slightly arcuate; basal 1/2 much wider than in *vestigialis*; apex broadly acute. Dorsal view: as for genus; apical disc absent. Internal sac armed.

**Material examined.** 54 non-type specimens (AMNZ, ITNZ, JNNZ, MONZ, NZAC).


**Remarks.** This species is morphologically close to *L. vestigialis* (see characters in key to species).

*Lecanomerus vestigialis* (Erichson, 1842)

Figures 71, 107, 154, 210; Map p. 151

*Harpalus vestigialis* Erichson, 1842: 127. Type locality: Tasmania, Australia.


Lecanomerus mastersii: Sloane, 1911: 836.


Acupalpus (Egadroma) vestigialis: Cski, 1932: 1242.


Description. Body length: 4.0–4.3 mm. Strongly convex (more so than verticalis). Black; appendages mostly reddish; antennomeres 3–11, apex of tibiae, and tarsi dark brown. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on pronotum and elytra. Shiny, without metallic lustre; elytra slightly broader than pronotal apex; flat anteriorly, slightly convex iridescent. Mandibles short, strongly curved forward. Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching pronotal base; antennal scape as long as ligula. Palpi with last segment fusiform, with sparse, very short pubescence. Thorax. Pronotum (Fig. 154) very transverse, widest about middle (before middle in verticalis); sides converging toward base, not sinuate; base rather straight, moderately narrower than elytral base; apex concave; lateral depressions absent; anterior angles moderately developed, obtuse; posterior angles moderately developed, broadly rounded; basal foveae shallow, ill-defined; punctuation feebly developed basally. Metepisterna longer than wide. Legs. Male mesotarsi dilated laterally and spongily pubescent ventrally. Tarsi pubescent (with a few setae) dorsally; metatarsomere 5 pubescent (with 6 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. Elytra. Widest about middle; slightly less elongate than in verticalis. Shoulders strongly developed, angulate, with a tooth. Subapical situations feebly developed. Sutural apices angulate. Scutellar striae absent or present. Intervertebral impunctate. Intervals impunctate, flat. Interval 3 without setiferous puncture behind middle. Umbilicate setiferous series of interval 9 with posterior group divided into two subgroups. Aedeagus (Fig. 71). Lateral view: for genus; slightly arcuate; basal 1/2 much narrower than in verticalis; apex broadly acute. Dorsal view: for genus; apical disc absent. Internal sac armed.

Material examined. 294 specimens, including Broun’s types (AMNZ, BMNH, ITNZ, JNNZ, LUNZ, MONZ, NZAC, PHNZ).


Remarks. See under L. verticalis.

Genus Syllectus Bates, 1878


Description. Body length: 4.7–8.0 mm. Forebody (head and thorax) without sparse setiferous microsxcopes dorsally. Forebody (head and thorax) much narrower than elytra...
(contrary to other Harpalini genera, except Pholeodytes). Antennae and legs very long (contrary to other Harpalini genera, except Pholeodytes). **Head.** Mandibles very long (about 5x 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 fissure ventrally (by about 0.5x maximum width of antennal scape). Tempora not inflated. Frons with or without clypeo-ocular prolongations. Antennal pubescence starting from base of antennomere 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. Paraglossae longer than ligula. Palpi slightly dilated, but not spongily pubescent ventrally. Segments of labial palpi bisetose on anterior margin. **Thorax.** Pronotum quadrate (about as long as wide), subrectangular (slightly longer than wide; Fig. 156). Frons with clypeo-ocular prolongations. Interval 3 without setiferous puncture behind middle; apical disc absent. Interneur 2. Umbilicate setiferous series of interval 9 separated into 2 subgroups. Abdomen. Ventrites 5+6 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 pubescent ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Interneurs complete, consisting of striae (contrary to interneurs incomplete, consisting of rows of punctures in Pholeodytes). Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into 2 major groups, with posterior group further divided into 2 subgroups. **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.

**Geographic distribution.** New Zealand (endemic).


**Remarks.** Although clearly a member of the subtribe Pelmatellina based on male protarsi that are spongily pubescent ventrally, the genus Syllectus superficially resembles the stenolophine genus Pholeodytes in having a forebody much narrower than elytra, very long antennae and legs, and segment 4 of protarsi and mesotarsi with membranous laminae. These characters probably indicate an ecomorphological convergence in these cave-inhabiting taxa.

### Key to species of Syllectus

1. Eyes (Fig. 213) strongly reduced, flat, consisting of obliterated facets. Pronotum (Fig. 157) elongate (about 1.5x longer than wide). Frons without clypeo-ocular prolongations. Interval 3 without setiferous puncture behind middle .......... ...(p. 71)... **gouleti** new species

   — Eyes (Fig. 108) normally developed. Pronotum (Fig. 155) quadrate (about as long as wide) or subrectangular (slightly longer than wide; Fig. 156). Frons with clypeo-ocular prolongations (Fig. 108). Interval 3 with a setiferous puncture behind middle (Fig. 108). ...2

2(1) Body length 6.0 mm or less. Eyes reaching buccal fissure ventrally (Fig. 21). Elytra oblong (Fig. 211). Last segment of palpi pubescent [Pronotum (Fig. 155)] 

   — Body length 7.5 mm or more. Eyes not reaching buccal fissure ventrally (Fig. 20). Elytra elliptical (Fig. 212). Last segment of palpi glabrous [Pronotum (Fig. 156)] 

   ...........................................(p. 70)... **magnus** Bates

**Syllectus anomalus** Bates, 1878

Figures 72, 108, 155, 211; Map p. 151


**Description.** Body length: 4.7–6.0 mm. Slightly convex. Black; antennae, palpi, and legs brownish red. Generally glabrous and smooth. Microsculpture moderately transverse, almost absent on head and pronotum, very transverse (with microlines) on elytra. Shiny, without metallic lustre; elytra iridescent. **Head.** Narrow, although as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum with apex straight. Eyes moderately large, convex, reaching buccal fissure ventrally. Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching elytral base; antennal scape about 2x longer than its maximum width. Last segment of palpi with sparse, moderately long pubescence. **Thorax.**

*Fauna of New Zealand* 53

References...

Geographic distribution...
Pronotum (Fig. 155) quadrate, narrow, widest before middle; sides converging toward base, slightly sinuate; base straight medially, angled forward laterally; apex concave; lateral depressions widening posteriorly; anterior and posterior beads incomplete medially; anterior angles feebly developed, subrectangular; posterior angles strongly developed, subrectangular; basal foveae deep, narrow; punctation feebly developed. Metepisterna longer than wide. Legs. Metametamora with 2 long setae on posterior margin. Tarsi glabrous dorsally; metatarsomere 5 pubescent (with 2 setae) ventrally. **Elytra.** Oblong. Widest behind middle. Shoulders well developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae absent. Interneurs moderately deep, finely punctate. Intervals impunctate, slightly convex. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 72). Lateral view: slightly arcuate; apex broadly triangular; main shaft narrower than in *magnus*. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending almost to basal bulb. Internal sac unarmed. **Material examined.** 181 specimens, including types (AMNZ, CMNZ, ITNZ, JNNZ, LUNZ, MNHN, MONZ, NZAC, UCNZ).

**Geographic distribution** (Map p. 151). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: BR, DN, FD, KA, MB, MC, NC, NN, SD, SL, WD.

**Ecology.** Lowland, montane, subalpine, alpine. Stream banks (brooks, rills, rivers) crossing cool wet forests (beech, broadleaf), tree plantations (pine), and scrublands; seepage edges, swamps, mud flats, screes, gardens; caves (occasionally). Open or shaded ground; wet, clayey, muddy or gravelly soil, bare or sparsely vegetated with grass. Crepuscular or nocturnal; sheltering during the day under small stones (mostly), clay clods, in heaps of dead leaves and mud, and under logs. Gregarious. **Biology.** Seasonality: September–April, July–August. Tenebrosa: February–March. Predators: trout. Occasionally infested with mites.

**Dispersal power.** Elytra free (macrophor) or fused (brachypterous) along suture. **Collecting techniques.** Turning stones, collecting at night with a torch, inspecting heaps of dead leaves and mud, sweeping vegetation, light trapping.


**Remarks.** Bates’ original description was apparently based on specimens from both sexes (“[male symbol] [female symbol]”) from “Auckland, New Zealand.” Two syntypes (1 male, 1 female) were obtained from the Bates collection in Paris (MNHN); the male specimen which bears Bates’ determination label, is here selected as lectotype to preserve stability of nomenclature in the future. This species is more widely distributed than the two other known *Syllectus* species. *Syllectus anomalus* can be found throughout both main islands of New Zealand, mostly outside caves, while the other species are restricted to caves in the Northwest Nelson and Buller areas.

*Syllectus magnus* Britton, 1964 E

Figures 73, 156, 212; Map p. 151


*Syllectus spelaeus* Britton, 1964a: 631. Holotype: male (NZAC) labelled “Type (circular red-bordered label; typed) / Nile River Cave Charleston 27.10.63 P. R. Kettle (hand-written) / HOLOTYPE Syllectus spelaeus mihi (hand-written) E. B. Britton det. 1964 (typed, except for number 4).” Perfect condition. There are 3 paratypes in NZAC.

**New synonym.**

**Description.** Body length: 7.5–8.0 mm. Moderately convex. Brown; head and pronotum reddish brown; elytra entirely dark brown or black with reddish brown sides and sutures; antennae, palpi, and legs pale yellowish brown. Generally glabrous and smooth. Microsculpture well developed, isodiametric on head, moderately transverse on pronotum, and very transverse (with microlines) on elytra. Shiny, without metallic lustre; elytra iridescent. **Head.** Narrow, although as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum with apex slightly convex. Eyes moderately large, convex, narrowly separated from buccal fissure ventrally (by about 0.5× maximum width of antennal scape). Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width. Last segment of palpi glabrous. **Thorax.** Pronotum (Fig. 156) subangular (slightly longer than wide), narrow, widest before middle; sides converging toward base, slightly sinuate; base straight medially, angled forward laterally; apex straight; lateral depressions widening posteriorly; anterior and posterior beads incom-
complete medially; anterior angles feebly developed, obtuse; posterior angles strongly developed, subrectangular; basal foveae deep, ill-defined; punctuation feebly developed. Metepisterna longer than wide. **Legs.** Metafemora with 2 long setae on posterior margin. Pro- and mesotarsi glabrous dorsally, metatarsi pubescent dorsally; metatarsomere 5 glabrous ventrally. **Elytra.** Elliptical. Widest behind middle. Shoulders feebly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices rounded. Scutellar striole absent. Interneurs moderately deep, almost impunctate. Intervals impunctate, slightly convex. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 73). Lateral view: slightly arcuate; apex broadly triangular; wider than in *anomalus.* Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending almost to basal bulb, with a medial swelling subapically. Internal sac armed.

**Material examined.** 51 specimens, including types (BMNH, ITNZ, LUNZ, NZAC, UCNZ).

**Geographic distribution** (Map p. 151). South Island: BR, NN.


**References.** Britton, 1964a: 631 (including *spelaues*; distribution, ecology); Townsend, 1974: 430 (as *spelaeus*; ecology) and 1997: 17–18 (including *spelaues*; distribution, ecology); Larochelle & Larivière, 2001: 121–122 (including *spelaues*; taxonomy, distribution, ecology, biology, dispersal power).

**Remarks.** *Syllectus spelaeus* is synonymised with *S. magnus* on the basis of the male genitalia. *Syllectus magnus* is a taxon that varies somewhat morphologically (especially the pronotum and body colour) within and between populations across its range.

*Syllectus gouleti* new species

Figures 74, 157, 213; Map p. 151

*Syllectus gouleti* Larochelle & Larivière, new species.

Holotype: male (NZAC) labelled “Metro Cave June J.I. Townsend [hand-written] / JI Townsend Collection (typed)/ HOLOTYPE [male symbol] *Syllectus gouleti* Larochelle & Larivière, 2004 (red label; typed).”

Paratypes: 1 male (NZAC) and 1 female (LUNZ) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body length: 6.5–7.5 mm. Slightly convex. Depigmented (appearing pale in colour). Generally glabrous and smooth. Microsculpture almost absent, isodiametric on head, very transverse (with microlines) on pronotum and elytra. Shiny, without metallic lustre; pronotum and elytra iridescent. **Head.** Narrow. Although as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Labrum with apex slightly convex medially. Eyes strongly reduced, flat, consisting of obliterated facets, narrowly separated from buccal fissure ventrally (by about 0.5× maximum width of antennal scape). Frons without clypeo-ocular prolongations. Antennae very long, reaching middle of elytra; antennal scape elongate, about 3× longer than its maximum width. Last segment of palpi glabrous. **Thorax.** Pronotum (Fig. 157) elongate (about 1.5× longer than wide), widest about middle; sides converging toward base, slightly sinuate; base straight throughout; apex prolonged; lateral depressions widening posteriorly; anterior and posterior beads absent; anterior angles feebly developed, rounded; posterior angles strongly developed, subrectangular; basal foveae deep, wide; punctuation feebly developed. Metepisterna longer than wide. **Legs.** Metafemora with 3–4 long setae on posterior margin. Tarsi glabrous dorsally; metatarsomere 5 glabrous ventrally. **Elytra.** Elliptical. Widest behind middle. Shoulders feebly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striole absent. Interneurs moderately deep, impunctate. Intervals impunctate, slightly convex. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 74). Atypical for genus. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area narrow, extending to basal bulb. Internal sac armed.

**Material examined.** 17 specimens, including types (ITNZ, LUNZ, NZAC).


**Remarks.** Although this species superficially resembles members of the genus *Pholeodytes,* it bears the characteristic features of *Syllectus* (principally the ventral pubescence of male tarsi). The aedeagus is however unusual among *Syllectus.* This species is named after our close friend and colleague Henri Goulet (Agriculture and Agri-Food Canada, Ottawa, Canada) for his special help and encouragement in our entomological studies.
Subtribe STENOLOPHINA

Diagnosis (New Zealand). Body length: 3.0–8.3 mm. 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). Apex of prosternal lobe glabrous or pubescent (Egadroma, Euthenarus). Male protarsi dilated laterally and biseriately pubescent ventrally, seldom unmodified (Haplanister). Male mesotarsi dilated laterally and biseriately pubescent ventrally (except 2 adventive Euthenarus and Haplanister). Metatarsomer 1 usually as long as metatarsomeres 2+3, rarely shorter (Haplanister, some Euthenarus species). Umbilicate setiferous series of interval 9 separated into 2 major groups with posterior group divided further into 2 subgroups or continuous. Aedeagus arcuate, usually symmetrical (with ostium dorsal, not deflected laterally), seldom asymmetrical (with ostium slightly deflected to the left; Egadroma).

Geographic distribution. Worldwide.


Remarks. The dilatation and pubescence of the male pro- and mesotarsi could not be studied for the genus Kiwiharpalus which is only known from females.

Key to genera of New Zealand Stenolophina

1 Eyes (Fig. 112–113) strongly reduced, flat, consisting of obliterated facets. Mandibles very long (5–6x their maximum width; Fig.113). Body depigmented (appearing pale in colour; Fig. 220–225) .................. 2

— Eyes (Fig. 109) normally developed. Mandibles shorter (Fig. 109). Body pigmented (appearing dark in colour) ................................................................. 3

2(1) Segment 4 of protarsi and mesotarsi with 2 membranous laminae (Fig. 25). Elytral interneurs incomplete, consisting of rows of punctures (Fig. 113). Forebody (head and thorax) much narrower than elytra (Fig. 113). Body length 6.0 mm or more [Cave beetles. South Island: NN] ... ...(p. 80)... Pholeodytes Britton

— Segment 4 of protarsi and mesotarsi without membranous laminae (Fig. 26). Elytral interneurs complete, consisting of striae (Fig. 112). Forebody (head and thorax) at most moderately narrower than elytra (Fig. 112). Body length 3.5mm or less [Offshore Islands: TH] ... ...(p. 79)... Kiwiharpalus new genus

3(1) Elytral base and side with interneurs incomplete basally and laterally (Fig. 111). Clypeo-ocular prolongations incomplete toward eyes (Fig. 111). Pronotum (Fig. 163) suborbicular. Apex of prosternal lobe glabrous (Fig. 2) ...(p. 77)... Haplanister Moore

— Elytral base and side with interneurs complete (Fig. 109–110). Clypeo-ocular prolongations complete (Fig. 110). Pronotum transverse, not suborbicular. Apex of prosternal lobe pubescent ........................................ 4

4(3) Ventrites 5+6 with numerous short setae, in addition to paired ambulatory setae (Fig. 28). Mentum tooth present (Fig. 14). Ventrites 2+3 of male with a setiferous fovea (Fig. 28) ............ ...(p. 73)... Euthenarus Bates

— Ventrites 5+6 with paired ambulatory setae only (Fig. 27). Mentum tooth absent (Fig. 18). Ventrites 2+3 of male without a setiferous fovea (Fig. 27) ................. ...........................................(p. 72)... Egadroma Motschulsky

Genus Egadroma Motschulsky, 1855


Description (New Zealand). Body length: 5.0–6.5 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. Head. Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex straight or slightly emarginate medially. Eyes moderately large, convex, reaching buccal fissure ventrally. Tempora not inflated. Frons with clypeo-ocular prolongations complete. Antennal pubescence starting from middle of antennomere 2. Mentum without tooth medially. Mentum and submentum separated by complete transverse suture. Paraglossae longer than ligula. Palpi with last segment fusiform, not truncate apically, almost glabrous; penultimate segment of labial palpi bisetose on anterior margin. Thorax. Pronotum transverse; base convex, moderately narrower than elytral base; lateral beads complete; anterior bead incomplete medially; posterior bead absent. Scutellum visible. Apex of prosternal lobe pubescent. Legs. Metatormora with 2 long setae on posterior margin. Male protarsi and mesotarsi dilated laterally and biseriately pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi glabrous dorsally; metatotarsomere 5 pubescent ventrally (with 2 setae); metatarsomere 1 as long as metatarsomeres 2+3. Elytra. Interneurs complete. Rows of setiferous punc- tures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into 2 major groups, with posterior group further divided into 2...
subgroups. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus** (Fig. 75). Lateral view: slightly arcuate. Dorsal view: asymmetrical (with ostium deflected to the left); dorsal membranous area wide, extending almost to basal bulb; apical disc present. Internal sac armed.

**Geographic distribution.** Ethiopian, Australian, Paleartic, and Oriental Regions, the Pacific Islands; New Zealand (adventive).


**Remarks.** Serrano et al., (1994: 56) and Serrano & Galián (1998: 198) separated *Egadroma* from *Stenolophus* Dejean on the basis of chromosome number, meiotic behaviour of chromosomes, and geographic distribution, the latter taxon being restricted to the Holarctic Region. The genus *Egadroma* is in need of revision.

**Egadroma picea** (Guérin-Méneville, 1830) A

Figures 75, 109, 158, 214; Map p. 151

**Acupalpus piceus** Guérin-Méneville, 1830: Plate 1, Figure 12. Type locality: Port Jakson [=Port Jackson], New South Wales, Australia.


**Homalosoma dingo** Gemminger & Harold, 1868: 329.

**Stenolophus politus** Macleay, 1871: 103. Type locality: Gayndah, Queensland, Australia. Synonymised by Moore, in Moore et al., 1987: 242.

**Stenolophus dingo** Chaudoir, 1878: 514.


**Stenolophus piceus**: Cameron & Butcher, 1980: 115.

**Stenolophus (Egadroma) piceus**: Moore et al., 1987: 242.

**Egadroma piceus** [sic]: Serrano et al., 1994: 56.

**Description.** Body length: 5.0–6.5 mm. Slightly convex. Dark brown; pronotum with wide reddish or yellowish margins; elytra with a reddish spot (more or less distinct) on the shoulder; suture with posterior half yellowish red; antennomeres 2–3, palpi, and legs yellow. Generally glabrous and smooth. Microsculpture isodiametric on head, moderately transverse on pronotum, very transverse (with microlines) on male elytra, granulate on female elytra. Shiny, without metallic lustre; elytra iridescent in males, dull in females. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae moderately long, reaching about elytral base; antennal scape about 3× longer than its maximum width. **Thorax.** Pronotum (Fig. 158) very transverse, widest before middle; sides converging toward base, not sinuate; apex concave; lateral depressions raised, moderately large, slightly widening posteriorly; anterior angles moderately developed, rounded; posterior angles feebly developed, broadly rounded; basal foveae shallow, wide, extending to lateral beads; punctuation strongly developed basally (particularly in basal foveae). Apex of prosternal lobe with 5–6 long setae. Metepisterna longer than wide. **Elytra.** Widest behind middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae present. Interears shallow, deepening apically, impunctate. Intervals impunctate, flat, becoming convex apically. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 75). As for genus.

**Material examined.** 23 non-type specimens (AMNZ, JNNZ, LUNZ, NZAC).


**References.** Moore et al., 1987: 242 (distribution, ecology, biology, dispersal power); Cameron & Butcher, 1980: 115–116 (as *Stenolophus piceus*; distribution, ecology, biology); Larochelle & Larivière, 2001: 126 (taxonomy, distribution, ecology, biology, dispersal power).

**Genus Euthenarus** Bates, 1874 N


**Euthenarus:** Csiki, 1932: 1268 (incorrect subsequent spelling).

**Description.** Body length: 3.8–6.0 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles short, slightly curved forward, blunt
Key to species of Euthenarus

1 Eyes reaching buccal fissure ventrally (Fig. 21). Femora pale. Male mesotarsi unmodified ........................ 2
   — Eyes narrowly separated from buccal fissure ventrally (by 0.7× maximum width of antennal scape; Fig. 20).
   Femora dark. Male mesotarsi dilated laterally (Fig. 215) and biseriately pubescent ventrally (Fig. 13) .......... 3

2(1) Body length 4.0 mm or less. Pronotum (Fig. 161): reddish brown, contrasting with dark head and elytra;
   posterior angles rounded; base convex [Aedeagus (Fig. 78)] ................................. (p. 76)...
   bicolor Moore
   — Body length over 4.0 mm. Pronotum (Fig. 162): piceous brown with paler borders, not contrasting with colour
   of head and elytra; posterior angles rectangular; base straight [Aedeagus (Fig. 79)] .................................
   ........................................................... (p. 77)...
   promptus (Erichson)

3(1) Subapical sinuations of elytra feeble (Fig. 29, laterodorsal view). Pronotum (Fig. 159): posterior
   angles obtuse-rounded; base strongly convex. Elytral interneurs shallow, almost erased apically [Aedeagus
   (Fig. 76)] ................................. (p. 74)...
   brevicollis Bates
   — Subapical sinuations of elytra strong (Fig. 30, laterodorsal view). Pronotum (Fig. 160): posterior
   angles almost rectangular; base slightly convex. Elytral interneurs deeper, well impressed apically (Fig. 110)
   [Aedeagus (Fig. 77)] ...........................(p. 75)...
   puncticollis Bates

Euthenarus brevicollis Bates, 1874

Figures 76, 159, 215; Map p. 152
Euthenarus brevicollis Bates, 1874: 273 (redescribed in 1875: 311). Lectotype (here designated): male (MNHN) la-
belled “Canterby N. Zeal (hand-written) / Euthenarus brevicollis Bates (hand-written) / LECTOTYPE
Euthenarus brevicollis Bates, 1878 designated by Larochelle & Larivière 2004 (red label; typed).” Good
condition.

Euthenarus puncticollis: Csiki, 1932: 1268 (incorrect subsequent spelling).

Description. Body length: 5.0–6.0 mm. Moderately convex. Head, thorax, and femora piceous black; elytra dark
brown; pronotal margins, elytral suture, apical 1/3 of interval 9, antennal base, and base and apex of palpi rufous.
Generally glabrous and smooth. Microsculpture isodiametric on head and pronotum, slightly transverse on elytra.
Shiny, with aeneous or coppery lustre; elytra iridescent in males, dull in females. Head. Moderately large, narrower
across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Eyes narrowly separated from
buccal fissure ventrally (by about 0.7× maximum of antennal scape). Antennae moderately long, reaching elytral base;
antennal scape about 2× longer than its maximum width.

apically. Labrum strongly transverse; slightly emarginate medially. Eyes moderately large, convex, reaching or al-
most reaching buccal fissure ventrally. Tempora not inflated. Frons with clypeo-ocular prolongations complete.
Antennal pubescence starting from middle of antennomere 2. Mentum with a tooth medially, moderately shorter than
lateral lobes. Mentum and submentum separated by laterally incomplete transverse suture. Paraglossae longer than
ligula. Palpi with last segment fusiform, not truncate apically, subglabrous; penultimate segment of labial palpi
bisetose on anterior margin. Thorax. Pronotum transverse; base convex or straight, moderately narrower than elytral
base; lateral beads complete; anterior and posterior beads base convex or straight, moderately narrower than elytral

References. Bates, 1874: 273 (taxonomy); Hudson, 1934: 177 (list); Noonan, 1976: 27–28 (taxonomy); Moore, 1985:
252–253 (taxonomy, distribution); Townsend, 1997: 17 (species diagnosis); Larochelle & Larivière, 2001: 126–127
(catalogue).

Remarks. This genus is in need of revision.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.

Geographic distribution. Australia (including Tasmania and Norfolk Island), New Zealand.
**Thorax.** Pronotum (Fig. 159) moderately transverse, subrectangular, widest before middle; sides converging toward base, not sinuate; base strongly convex (more so than in *puncticollis*); apex straight; lateral depressions absent; anterior angles feebly developed, rounded; posterior angles moderately developed, obtuse-rounded; basal foveae moderately deep, wide; punctuation strongly developed (in basal foveae). Apex of prosternal lobe with 5–6 long setae. Metepisterna longer than wide. **Legs.** Male mesotarsi dilated laterally and biseriately pubescent ventrally. Interneurs complete, shallow, almost erased apically, impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 76). Lateral view: strongly arcuate; apex narrowly pointed; apical 1/2 of main shaft narrowly triangular. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending almost to basal bulb; apical disc present, rounded at tip, less than 0.5× as long as wide. Internal sac armed.

**Material examined.** 79 specimens, including type (AMNZ, BBNZ, CMNZ, JNNZ, LUNZ, MNHN, MONZ, NZAC, OMNZ, PHNZ, UCNZ).


**Remarks.** Bates’ original description was based on an unspecified number of specimens of both sexes (“male symbol, female symbol”) from “Lake Coleridge” (situ ated in the Alps in Canterbury), and collected by C. M. Wakefield. Seven specimens of *E. brevicollis* were obtained from the Bates collection in Paris (MNHN), one of which (a male specimen) bears a determination label written by Bates and a locality label reading “Canterbury [=Canterbury] N. Zeal.” The other MNHN specimens were collected in “Christchurch” and do not bear a Bates’ determination label. In addition, two male specimens collected in Oakden’s (near Lake Coleridge) in 1873 were located in the Wakefield material deposited in the Canterbury Museum (CMNZ). The locality labels for the Canterbury specimen (MNHN) and Oakden’s specimens (CMNZ) have been written by different hands, which casts doubts about whether Wakefield was also the collector of the Canterbury specimen (MNHN). On the other hand, it is not clear either that the Oakden’s specimens collected by Wakefield (CMNZ) were part of the syntype series, i.e., they may or may not have been seen by Bates. Because the Canterbury specimen (MNHN) is more likely to have been part of Bates’ original type series — specimens were not always labelled with precise localities in those days — it is here designated as lectotype to preserve stability of nomenclature in the future. This species is morphologically close to *E. puncticollis*, the only endemic Euthenarid.
(in basal foveae). Apex of prosternal lobe with 5–6 long setae. **Legs.** Male mesotarsi dilated laterally and biseriately pubescent ventrally. Metatarsomere 1 shorter than metatarsomeres 2+3. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, with a tooth. Subapical sinuations strong. Sutural apices angulate. Scutellar striae absent. Interneurs shallow, moderately deep apically, impunctate. Intervals impunctate, slightly convex. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 77). Lateral view: strongly arcuate; apex narrowly pointed (more attenuate than in *E. brevicollis*); apical half of main shaft not triangular. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area wide, extending almost to basal bulb; apical disc present, rounded at tip, more than 0.5× as long as wide. Internal sac unarmed.

**Material examined.** 250 specimens, including types (AMNZ, CMNZ, ITNZ, JNNZ, LUNZ, MNHN, MONZ, NZAC, UCNZ).

**Geographic distribution** (Map p. 152). North Island: AK, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: BR, NN, SD, WD. Offshore Islands: CH.

**Ecology.** Lowland, montane, subalpine. Borders of lakes, ponds, flax swamps, slowly running rivers and brooks; mud flats and wet pastures. Open ground; wet, muddy (mostly) or sandy soil with sparse vegetation (e.g., *Juncus*). Nocturnal; sheltering during the day in burrows at the base of plants and under embedded branches and logs (mostly); in soil cracks, leaf litter, and moss. Gregarious. **Biological.** Seasonality: throughout the year. Teneral: October (rarely), February–April, June. Occasionally infested with mites and fungi (Laboulbeniales). **Dispersal power.** Elytra free along suture. Macropterus. Regular in seashore drift material, which indicates flight ability. Moderate runner. Good burrower. Occasional climber (on shrubs and trees).

**Collecting techniques.** Digging at base of *Juncus*-tufts, turning embedded branches and logs, pouring water over ground, using pan traps, turning seashore drift material.


**Remarks.** Bates’ original description was based on specimens from both sexes “[male symbol, female symbol]”, including “several examples” from “Auckland”. Six specimens collected in Auckland were obtained from the Bates collection in Paris (MNHN), two of which (a male and a female) bear a determination label written by Bates; these two specimens are here considered syntypic and labelled as lectotype and paralectotype to preserve stability of nomenclature in the future. See under *E. brevicollis*.

---

**Euthenarus bicolor** Moore, 1985^5 first New Zealand record

Figures 78, 161, 217; Map p. 152

**Euthenarus bicolor** Moore, 1985: 252. **Type locality:** Black Mt., A.C.T., Australia.

**Description.** Body length: 3.8–4.0 mm. Moderately convex. Head black; pronotum reddish brown; elytra dark brown; legs, antennal base, and palpi yellowish. Generally glabrous and smooth. Microsculpture vestigial on head and pronotum, very transverse (with microlines) on elytra. Shiny, without metallic lustre; elytra iridescent. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Eyes reaching buccal fissure ventrally. Antennae moderately long, reaching about elytral base; antennal scape about 2× longer than its maximum width. **Thorax.** Pronotum (Fig. 161) moderately transverse, widest before middle; sides converging toward base, not sinuate; base slightly convex; apex straight; lateral depressions absent; anterior angles feebly developed, rounded; posterior angles feebly developed, rounded; basal foveae shallow, wide; punctuation strongly developed (in basal foveae). Apex of prosternal lobe with 5–6 long setae. Metepisterna longer than wide. **Legs.** Male mesotarsi unmodified. Metatarsomere 1 shorter than metatarsomeres 2+3. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae absent. Interneurs deep, impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 78). Lateral view: moderately arcuate; apex triangular; apical half of main shaft broadly triangular. 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. Much smaller and stouter than in other *Euthenarus* species.

**Material examined.** 144 non-type specimens (AMNZ, LUNZ, NZAC).


**Ecology.** Lowland. Borders of eutrophic marshes and ponds; swamp forests; borders of slowly running rivers and brooks; mud flats, roadside ditches, and wet vacant lots. Open ground; soft, wet, muddy (mostly) or sandy soil with sparse or moderate vegetation (mostly *Juncus*, also *Carex, Typha*, or weeds). Mostly nocturnal; occasionally running during the day in the spring sunshine; usually sheltering during the day in burrows at the base of plants (mostly), in plant debris and leaf litter, under pieces of vegetation.
wood and stones. Gregarious. **Biology.** Seasonality: September–April, August. Omnivorous (Moore et al., 1987). Occasionally infested with mites. **Dispersal power.** Elytra free along suture. Macropterous. Regular flier (to artificial lights at night). Regular in seashore drift material, which also indicates flight ability. Moderate runner. Good burrower. Occasional climber (on rushes and trees). Clearly effective as a colonist. Favoured by human activities. **Collecting techniques.** Pouring water over ground, treading soil with feet, treading vegetation into water, light trapping, sweeping vegetation, turning seashore drift material.

**References.** Moore, 1985: 253 (taxonomy, distribution, dispersal power). Moore et al., 1987: 244 (syonymy, distribution, ecology, biology, dispersal power).

**Remarks.** The reddish brown pronotum contrasting with the dark head and elytra, and the body shape make this species superficially similar to *Lecanomerus atriceps*. Both species have often been confused in the past, but they are easily distinguished based on male tarsal characters (biseriately pubescent ventrally in *E. bicolor*, spongily pubescent in *L. atriceps*) and ventral pubescence (ventrites 2+3 present in *E. bicolor*, such pubescence lacking in *L. atriceps*).

**Euthenarus promptus** (Erichson, 1842) \(^1\) first New Zealand record

Figures 79, 162, 218; Map p. 152

*Harpalus promptus* Erichson, 1842: 126. Type locality: Tasmania, Australia.


**Description.** Body length: 4.0–6.0 mm. Moderately convex. Head, pronotum, and elytra piceous brown; pronotal borders, elytral suture, antennal base, palpi, and legs reddish yellow. Generally glabrous and smooth. Microsculpture strongly transverse dorsally. Shiny, with green metallic lustre. **Head.** Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Eyes reaching buccal fissure ventrally. Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width. **Thorax.** Pronotum (Fig. 162) moderately transverse, subrectangular, widest before middle; sides converging toward base, slightly sinuate; base rather straight; apex straight; lateral depressions absent; anterior angles feebly developed, angular; posterior angles strongly developed, rectangular; basal foveae deep, wide; punctuation strongly developed (in basal foveae). Apex of prosternal lobe with 5–6 long setae. Metepisterna rounded, without a tooth. Subapical sinuations feeble. Sutural sinuations absent. Scutellar striae absent. Interneurs shallow, well impressed apically, impunctate. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. **Aedeagus** (Fig. 79). Lateral view: moderately arcuate; apex narrowly truncate; apical 1/2 of main shaft not triangular, inflated ventrally. Dorsal view: symmetrical (with ostium dorsal, not deflected laterally); dorsal membranous area narrow, extending almost to basal bulbus; apical disc present, triangular. Internal sac armed.


**Genus Haplanister** Moore, 1996 \(^2\)


**Description.** Body length: 3.5–4.1 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex straight medi ally. Eyes moderately large, convex, reaching buccal fissure ventrally. Tempora not inflated. Frons with clypeo-ocular...
prolongations incomplete toward eyes. Antennal pubescence starting from basal third of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae longer than ligula. Palpi with last segment fusiform, not truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi bisetose on anterior margin. Thorax. Pronotum suborbicular; base convex, moderately narrower than elytral base; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible. Apex of prosternal lobe glabrous. Legs. Metatarsomera with 2 long setae on posterior margin. Male protarsi and mesotarsi unmodified, neither dilated laterally nor biseriately pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsal setae long; metatarsomere 5 pubescent (with 2 setae) ventrally; metatarsomere 1 shorter than metatarsomeres 2+3. Elytra. Interneurs incomplete basally and laterally. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into 2 major groups, with posteri group continuous. Abdomen. Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. Aedeagus (Fig. 80). Lateral view: strongly arcuate, especially stout and small (sabot-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.

Geographic distribution. New Zealand (apparently adventive).


Remarks. A highly distinctive genus amongst the Stenolophina, with suborbicular pronotum, incomplete elytral interneurs, and sabot-shaped aedeagus.

Haplanister crypticus Moore, 1996

Figures 80, 111, 163, 219; Map p. 152

Haplanister crypticus Moore, 1996: 98. Type locality: Hastings, HB (although an adventive species).

Description. Body length: 3.5–4.1 mm. Slightly convex. Dark brown; base of antennae, maxillary palpi, femora, and posterior 1/2 of tibiae light red. Generally glabrous and smooth. Microsculpture isodiametric. Shiny; pronotum and elytra with bronze lustre. Head. Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae short, not reaching pronotal base; antennal scape about 2× longer than its maximum width. Thorax. Pronotum (Fig. 163) suborbicular, widest before middle; sides converging toward base, not sinuate; base strongly convex; apex rather straight; lateral depressions absent; anterior angles moderately developed, obtuse; posterior angles feebly developed, broadly rounded; basal foveae shallow, ill-defined; punctuation feebly developed (in basal foveae). Metepisterna longer than wide. Elytra. Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations absent. Sutural apices rounded. Scutellar striae present. Intervals impunctate, flat. Interval 3 with a setiferous puncture behind middle. Aedeagus (Fig. 80). Lateral view: as for genus. Dorsal view: as for genus; dorsal membranous area very wide.

Material examined. 258 non-type specimens (AMNZ, ITNZ, JNNZ, LUNZ, MONZ, NZAC, OMNZ, PHNZ, UCNZ).


**Genus Kiwiharpalus new genus**

*Type species.* Kiwiharpalus townsendi new species, by present designation.

**Description.** Body length: 3.0–3.5 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally. **Head.** Mandibles very long (about 6× 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 fissure ventrally (by about 0.7× maximum width of antennal scape). Tempora not inflated. Frons with clypeo-ocular prolongations incomplete toward eyes. Antennal pubescence starting from basal 1/3 of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae longer than ligula. Palpi with last segment elongate-triangular, not truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi bisetose on anterior margin. **Thorax.** Pronotum quadrate (as wide as long); base rather straight, much narrower than elytral base; lateral beads complete; anterior and posterior beads incomplete medially. Scutellum visible. Apex of prosternal lobe glabrous. **Legs.** Metafemora with 2 long setae on posterior margin. Dilatation and ventral vestiture of male pro- and mesotarsi unknown (only females seen). Segment 4 of protarsi and mesotarsi without membranous laminae. Tarsi glabrous dorsally (except tarsomere 5); metatarsomere 5 pubescent (with 2 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. **Elytra.** Interneurs complete. Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 separated into 2 major groups, with posterior group further divided into 2 subgroups. **Abdomen.** Condition of ventrites 2+3 of male unknown (only females seen). Ventrites 5+6 without short setae, with paired ambulatory setae only. **Aedeagus.** No male seen.

**Geographic distribution.** New Zealand (endemic; Three Kings Islands).

**Remarks.** The generic name is derived from *kiwi* (the most primitive of New Zealand birds and a major national symbol) and *Harpalus* (the type genus of the tribe Harpalini). This monotypic genus appears to be a genetically highly distinctive taxon with its dorsal surface punctate throughout and without microsculpture, its quadrate pronotum, its small body length (3.0–3.5 mm), and its geographic isolation on the Three Kings Islands.

**Kiwiharpalus townsendi new species**

*Figures 112, 164, 220; Map p. 152.*


**Description.** Body length: 3.0–3.5 mm. Moderately convex. Depigmented, testaceous; palpi partly greyish brown. Generally glabrous and punctate (with sparse micropores) dorsally. Microsculpture absent. Shiny, without metallic lustre. **Head.** Big, although narrower across eyes than pronotal apex; flat anteriorly, convex posteriorly. Antennae rather long, reaching basal 1/3 of elytra; antennal scape about 2× longer than its maximum width. **Thorax.** Pronotum (Fig. 164) quadrate (as wide as long), widest before middle; sides converging toward base, not sinuate; apex rather straight; lateral depressions widening posteriorly; anterior angles feebly developed, obtuse; posterior angles moderately developed, rounded; basal foveae deep, wide; punctuation strongly developed. Metepisterna longer than wide. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations rather strong. Sutural apices angulate. Scutellar striae absent. Interneurs shallow, unevenly impressed, impunctate. Intervals sparsely punctate, flat. Interval 3 without setiferous puncture behind middle. **Aedeagus.** No male seen.

**Material examined.** 3 type specimens (AMNZ, NZAC).

**Geographic distribution** (Map p. 152). Offshore Islands: TH–Princes Islands.

**Ecology.** Lowland. In a nest of red-billed gull (*Larus novaehollandiae scopulinus*). **Biology.** Seasonality: November. **Dispersal power.** Elytra fused along suture. Subapterous. Slow runner (inferred from body morphology).

**Remarks.** The strongly reduced eyes, depigmented and flattened body, and long pubescence suggest subterranean behaviour similar to that of *Anillinia* (*Bembidiini*) that live deep in thick leaf litter and/or in soil fissures. This species is named after J. I. Townsend (Levin) for his contribution to the building of important reference collections of New Zealand carabids.
**Genus Pholeodytes Britton, 1962**


**Description.** Body length: 6.0–8.3 mm. Forebody (head and thorax) without sparse setiferous micropores dorsally; much narrower than elytra ( contrary to other Harpalini genera, except *Syllectus*). Antennae and legs very long ( contrary to other Harpalini genera, except *Syllectus*). **Head.** 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 fissure ventrally (by about 0.8× maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from basal 1/4 of antennomere 3. Mentum with a tooth medially, moderately longer than lateral lobes. Mentum and submentum separated by complete transverse suture. Pogonapogonae longer than ligula. Palpi with last segment fusiform, not truncate apically, 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 base; lateral beads complete; anterior and posterior beads absent (as in *Syllectus goutleti*). Scutellum visible. Apex of prosternal lobe glabrous. **Legs.** Metatarsomera dilated laterally and biseriately pubescent ventrally. Male protarsi slightly dilated laterally, not biseriately pubescent ventrally. Segment 4 of protarsi and mesotarsi of both sexes with 2 membranous laminae (projecting laterally and anteriorly to about 2/3 the length of apical segment; as in *Syllectus*). Tarsi pubescent (with few setae) dorsally; metatarsomere 5 pubescent (with 7-8 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3.

**Elytra.** Interneurs incomplete, consisting of rows of punctures ( contrary to other Stenolophina genera). Rows of setiferous punctures absent on intervals 3, 5, and 7, and on interneur 2. Umbilicate setiferous series of interval 9 divided into two major groups, with posterior group continuous. **Abdomen.** Ventrites 2+3 of male without a setiferous fovea. Ventrites 5+6 of both sexes without short setae, with paired ambulatory setae only. **Aedeagus.** Lateral view: strongly arcuate. Dorsal view (Fig. 81–84): 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.

**Geographic distribution.** New Zealand (endemic; South Island).


**Remarks.** In addition to characters of the frons, labrum, mentum, pronotum, and elytra, the presence of 2 genital swellings on the aedeagus of *Pholeodytes* species sets this genus apart from all other Stenolophina genera. This genus only occurs in caves in the Northwest Nelson (NN) region. See also Remarks under *Syllectus*.

**Key to species of Pholeodytes**

1 Elytral interneurs coarsely punctate (Fig. 225). Pronotum (Fig. 169): basal foveae very deep and wide ................ (p. 83).......................... *helmorei* new species .......................... (p. 83)..........................

— Elytral interneurs finely punctate (Fig. 224). Pronotum (Fig. 168): basal foveae moderately deep, ill-defined .......................................................... 2

2(1) Pronotum (Fig. 165): apex much wider than base; anterior angles subrectangular. Elytral interneurs deep between base and apex (Fig. 221). Aedeagus (Fig. 81) with genital swellings hook-like .......................................................... (p. 81).......................... *palmai* new species

— Pronotum (Fig. 168): apex only slightly wider than base; anterior angles rounded. Elytral interneurs shallow (Fig. 224). Aedeagus with genital swellings not hook-like .......................................................... 3

3(1) Pronotum (Fig. 166): posterior angles acute; sides strongly rounded in apical 1/2. Elytra subelliptical (narrower at base; Fig. 222). Aedeagus (Fig. 82) with genital swellings subtriangular .......................................................... (p. 81).......................... *cerberus* Britton

— Pronotum (Fig. 167–168): posterior angles rounded; sides moderately rounded in apical 1/2. Elytra elliptical (base as wide as apex; Fig. 223–224). Aedeagus with genital swellings not subtriangular .................. 4

4(3) Pronotum (Fig. 168): posterior angles obtusely rounded; sides barely sinuate in basal 1/2. Aedeagus (Fig. 84) with genital swellings subelliptical ........................................ (p. 82).......................... *townsendi* Britton

— Pronotum (Fig. 167): posterior angles acutely rounded; sides moderately sinuate in basal 1/2. Aedeagus (Fig. 83): genital swellings subrectangular ........................................ (p. 82).......................... *nunni* new species
Pholeodytes palmai new species

Figures 81, 165, 221; Map p. 153

Pholeodytes palmai Larochelle & Larivière, new species.
Holotype: male (NZAC) labelled “Pluto’s Retreat Cave Kaihoka N.W. Nelson 16.1.75 S.-I. Uéno (hand-written) / HOLOTYPE [male symbol] Pholeodytes palmai Larochelle & Larivière, 2004 (red label; typed).”
Paratype: 1 male (MONZ) from the same locality as the holotype, bearing blue paratype label.

Description. Body length: 6.5–7.0 mm. Slightly convex. Depigmented (appearing pale in colour), pale yellowish (teneral condition). Generally glabrous and smooth. Microsculpture weak, isodiametric on head, very transverse (with microlines) on pronotum and elytra. Shiny, without metallic lustre. Head. Narrow, although as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae very long, reaching middle of elytra; antennal scape elongate, about 3× longer than its maximum width. Thorax. Pronotum (Fig. 165) widest before middle; sides feebly rounded in apical 1/2, slightly sinuate in basal 1/2; base straight, much narrower than elytral base; apex straight, much wider than base (contrary to other Pholeodytes species); lateral depressions widening posteriorly; anterior angles moderately developed, subrectangular; posterior angles strongly developed, subrectangular, not projecting laterally; basal foveae moderately deep, ill-defined; punctuation feebly developed. Metepisterna longer than wide. Elytra. Elliptical (base as wide as apex). Widest about middle. Shoulders feebly developed, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae absent. Intereurs deep between base and apex, finely punctate. Intervals impunctate, slightly convex. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 81). Dorsal view: as for genus; subapical area short; apex moderately wide, rounded; genital swellings hook-like.

Material examined. 9 specimens, including types (ITNZ, MONZ, NZAC).


Remarks. This species is named after our friend and colleague Ricardo L. Palma (Museum of New Zealand Te Papa Tongarewa, Wellington) for his special help and encouragement in our entomological studies.

References. Britton, 1964a: 633 (distribution, ecology); May, 1972: 575 (ecology); Johns, 1991: 20 (distribution); Townsend, 1997: 17 (distribution, ecology); Larochelle &
Pholeodytes nunni new species

**Figures 83, 167, 223; Map p. 152**

**Pholeodytes nunni** Larochelle & Larivière, new species.

Holotype: male (NZAC) labelled “Council Cave Motupipi Takaka 14.6.73 L McRae (hand-written) / HOLOTYPE [male symbol] Pholeodytes nunni Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 7 males (1 CMNZ, 2 LUNZ, 3 NZAC, 1 OMNZ) and 6 females (1 CMNZ, 1 LUNZ, 3 NZAC, 1 OMNZ) from the same locality as the holotype, bearing blue paratype labels.

**Description.** Body length: 7.0–8.0 mm. Slightly convex. Depigmented (appearing pale in colour), reddish brown; antennae, palpi, and legs pale yellow. Generally glabrous and smooth. Microsculpture isodiametric and rather strong on head, very transverse (with microlines) and weak on pronotum and elytra. Shiny, without metallic lustre. **Head.** Narrow, although as wide across eyes as prontal apex; flat anteriorly, slightly convex posteriorly. Antennae very long, reaching middle of elytra; antennal scape elongate, about 3× longer than its maximum width. **Thorax.** Pronotum (Fig. 167) widest before middle; sides moderately rounded in apical 1/2, moderately sinuate in basal 1/2; base straight, narrower than elytral base; apex straight; lateral depressions widening posteriorly; anterior angles feebly developed, rounded; posterior angles strongly developed, acutely rounded, projecting laterally; basal foveae moderately deep, ill-defined; punctuation feebly developed. Metepisterna longer than wide. **Elytra.** Elliptical (base as wide as apex); elytra broader than in cerberus. Widest about middle. Shoulders feebly developed, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellate striae absent. Interneurs shallow, finely punctate. Intervals impunctate, flat. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 83). Dorsal view: as for genus; subapical area long; apex moderately wide, rounded; genital swellings subrectangular.

**Material examined.** 83 specimens, including types (ITNZ, LUNZ, NZAC).


**Remarks.** This new taxon corresponds to Britton’s (1964a) “Pholeodytes cerberus var. A” from Takaka Hill, illustrated and characterised, although not officially described as a subspecies. This species is named after John Nunn (Dunedin) for his contribution to the building of important reference collections of New Zealand carabids.

Pholeodytes townsendi Britton, 1962

**Figures 84, 113, 168, 224; Map p. 153**


There are also 32 paratypes in NZAC (29) and BMNH (3).

**Description.** Body length: 7.0–8.0 mm. Slightly convex. Depigmented (appearing pale in colour), yellowish brown. Generally glabrous and smooth. Microsculpture isodiametric and rather strong on head, very transverse (with microlines) and weak on pronotum and elytra. Shiny, without metallic lustre. **Head.** Narrow, although as wide across eyes as prontal apex; flat anteriorly, slightly convex posteriorly. Antennae very long, reaching middle of elytra; antennal scape elongate, about 3× longer than its maximum width. **Thorax.** Pronotum (Fig. 168) widest before middle; sides moderately rounded in apical 1/2, barely sinuate in basal 1/2; base straight, much narrower than elytral base; apex straight; lateral depressions widening posteriorly; anterior angles feebly developed, rounded; posterior angles strongly developed, obtusely rounded, not projecting laterally; basal foveae moderately deep, ill-defined; punctuation feebly developed. Metepisterna longer than wide. **Elytra.** Elliptical (base as wide as apex). Widest about middle. Shoulders feebly developed, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellate striae absent. Interneurs shallow, finely punctate. Intervals impunctate, flat. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 84). Dorsal view: as for genus; subapical area long; apex very wide, truncate; genital swellings subelliptical.

**Material examined.** 89 specimens, including NZAC types (BMNH, ITNZ, JNNZ, LUNZ, NZAC, UCNZ).

**Geographic distribution** (Map p. 153). South Island: NN–17 caves between Paturau and Heaphy Track areas.
Ecology. Lowland. Caves (troglobitic species): in dry gypsum sand at some distance from dripping or wet areas.


Pholeodytes helmorei new species

Figures 169, 225; Map p. 152

Pholeodytes helmorei Larochelle & Larivière, new species.

Holotype: female (NZAC) labelled “Coal Flat Cave W. of New Creek Buller, 1.11.75 J. I. Townsend (hand-written) / HOLOTYPE [female symbol] Pholeodytes helmorei Larochelle & Larivière, 2004 (red label; typed).”

Paratype: 1 female (NZAC) from the same locality as the holotype, bearing blue paratype labels.

Description. Body length: 8.0–8.3 mm. Slightly convex. Depigmented (appearing pale in colour), reddish; antennae, palpi and legs yellowish brown. Generally glabrous and smooth. Microsculpture isodiametric and rather strong on head, very transverse (with microlines) and weak on pronotum and elytra. Shiny, without metallic lustre. Head. Narrow, although as wide across eyes as pronotal apex; flat anteriorly, slightly convex posteriorly. Antennae very long, reaching middle of elytra; antennal scape elongate, about 3× longer than its maximum width. Thorax. Pronotum (Fig. 169) widest before middle; sides moderately rounded in apical 1/2, not sinuate, obliquely converging in basal 1/2; base straight, much narrower than elytral base; apex straight; lateral depressions widening posteriorly; anterior angles feebly developed, rounded; posterior angles strongly developed, subrectangular, not projecting laterally; basal foveae very deep, wide; punctuation feebly developed. Metepisterna longer than wide. Elytra. Subelliptical (narrower at base). Widest behind middle. Shoulders feebly developed, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae absent. Interneurs moderately deep, coarsely punctate; interneur 8 deeply impressed (more so than in other Pholeodytes species). Intervals impunctate, slightly convex. Interval 3 without setiferous puncture behind middle. Aedeagus. No male seen.

Material examined. 3 specimens, including types (ITNZ, NZAC).

Geographic distribution (Map p. 152). South Island: NN–Coal Flat Cave [=Eggers Cave, J. I. Townsend, personal communication.]


Remarks. This species is named after our friend and colleague Desmond W. Helmore (Landcare Research, Auckland) for supporting our entomological studies and for his exceptional talent and contribution as illustrator of New Zealand insects.

BIBLIOGRAPHY


Larochelle & Larivière (2005): Harpalini (Insecta: Coleoptera: Carabidae)


Broun, T. 1880: Manual of the New Zealand Coleoptera. Government Printer, Wellington. Parts III and IV: 745–973 + XVII. [Species numbers 1322–1345 were described both in 1882 and 1883; species numbers 1634–1644 were described in 1884.]


Hudson, G. V. 1934: New Zealand beetles and their larvae: an elementary introduction to the study of our native Coleoptera. Ferguson and Osborn, Wellington. 236 pp + 18 plates.


Laporte de Castelnau, F.L. 1867: Notes on Australian Coleoptera. Royal Society of Victoria, Melbourne. 139 pp. [Separates available prior to publication in 1867–1868.]


LeConte, J. L. 1848: A descriptive catalogue of the geodaphagous Coleoptera inhabiting the United States east of the Rocky Mountains. Annals of the Lyceum of Natural History of New York 4 (1846–1848): 173–474 [173–374]. [Due to a printing error pages after 233 are numbered 100 too high; so the last page, although numbered 474, is actually the 374th page.]


——— 1981: Life forms of carabids (Coleoptera, Carabidae). Nauka Publishers, Moscow. 359 pp. [In Russian, with English summary.]


Sloane, T. G. 1898: On Carabidae from West Australia, sent by Mr. A. M. Lea (with descriptions of new genera and species, synoptic tables, &c.). Proceedings of the Linnean Society of New South Wales 23: 444–520.


Appendix A. Glossary of technical terms.

**adventive** — not native; an organism carried into a new habitat by natural means, or by man.

**aeneous** — with a copper or brass appearance.

**allopatric** — of or pertaining to taxa occupying different and disjunct geographical areas.

**alpine** — of or pertaining to land located above the subalpine zone, characterised by grasslands, herb fields and screes, and reaching up to the summer snow line.

**ambulatory setae** — specialised pairs of setae occurring ventrally on the abdomen.

**antennomere** — each antennal segment.

**apex** — end or extremity of a structure or organ.

**apical** — related to the apex.

**appendages** — antennae, palpi, and legs together.

**armed** — displaying scales, spines, or teeth.

**attenuate** — gradually tapering toward the apex.

**bead** — a raised border.

**biostatus** — the 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.

**brachypterous** — with abbreviated membranous wings, shorter than those of macropterous species but not vestigial like those of subapterous species; incapable of flight.

**buccal fissure** — lateral mouth opening beneath eye area.

**clypeo-ocular prolongations** — deep lines between the clypeus and the eyes.

**coastal** — of or pertaining to the strip of land within the influence of the sea.

**conchoid** — shell-shaped.

**cordate** — heart-shaped.

**deflected** — turned aside.

**depigmented** — with weak pigmentation (appearing pale in colour).

**disc** — dorsal central area of a body part.

**dispersal power** — capacity of self-dispersal.

**distal** — situated farthest from the centre.

**diurnal** — active during the day.

**emarginate** — having a notched edge.

**endemic** — restricted to a geographic area.

**explanate** — spread and flattened.

**extralimital range** — distribution of an organism outside the limits of a specific geographic area (e.g., outside New Zealand).

**facet** — lens-like division of each compound eye.

**family** — a category in the taxonomic hierarchy, that includes one or more genera or tribes of common phylogenetic origin, separated from other such groups by a decided gap.

**fovea** — a small pit or depression.

**fusiform** — spindly-shaped.

**genus** — a category in the taxonomic hierarchy, that includes one or more phylogenetically related, and morphologically similar species.

**geographic distribution** — distribution related to geography, i.e., districts, regions.

**glabrous** — without hairs or setae (not pubescent).

**granivorous** — eating grains or seeds.

**granulate** (of microsculpture) — appearing covered with small grains.

**gregarious** — living in groups or colonies.

**hirsute** — densely covered with long shaggy 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 the only specimen from which the original description was made.

**hygrophilous** — living in moist or wet environments.

**indigenous** — see native.

**interneur** — a longitudinal stria (impressed line) or row of punctures on the elytron.

**interval** — the space between two interneurs on the elytron.

**iridescent** — displaying a rainbow-effect coloration.

**isodiametric** (of microsculpture) — appearing covered with polygons of equal diameter.

**lamina** — a thin flat scale-like structure.

**lectotype** — type specimen selected from the syntypes by a subsequent author in the absence of a holotype.

**lowland** — of or pertaining to land located below the montane zone and generally reaching up to the limit of rimu (*Dacrydium cupressinum*), e.g., about 500 m in central New Zealand.

**macropterous** — with long or fully developed membranous wings.

**medially** — situated in the middle.

**monophyletic** — referring to a group of taxa containing all descendants from a single hypothetical ancestral taxon.

**monotypy** — the situation when a nominal genus or subgenus is established on the basis of a single species (the type species by monotypy).
montane — of or pertaining to land located above the lowland zone and reaching up to the tree line.

native — occurring naturally in the area under consideration.

nocturnal — active during the night.

omnivorous — feeding on both animal and vegetable matter.

orbicular — circular or spherical.

original designation — the situation when the type of a taxon (genus or subgenus) is designated at the same time as the taxon is established (the type species by original designation).

ostium — membranous opening of the aedeagus.

ovate — egg-shaped.

palpomere — each segment of a palp (palpus).

pedunculate — stalked.

penultimate — next to the last (e.g., penultimate segment, the segment next to the last one).

phytophagous — feeding on plant material.

piceous — pitchy black or black with reddish tinge.

plurisetose — with 4 or more setae.

predacious — eating live animals.

pubescence (adj. pubescent) — covering of hair or setae.

punctate — marked with points or punctures.

quadrate — square or nearly so.

rufous — reddish.

scree — accumulation of loose stones on a slope.

scrobe (of mandible) — a lateral depression in the wall of the mandible.

scrubland — vegetation with dense cover and about 1–2 metres tall.

scutellar striole — short stria on each side of the scutellum.

seasonality — period(s) of the year when an animal is active.

setiferous — bearing seta(e).

shrubland — vegetation with sparse or moderate cover and often taller than 2 metres.

spatulate — spoon-shaped.

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.

stria — elytral interneur in the form of an impressed longitudinal line.

sub- (as a prefix) — rather, almost.

subalpine — of or pertaining to land located above the tree line and characterised by a mountain shrubland (e.g., of Olearia, Brachyglottis, and Dracophyllum).

subapical sinuation — sinuation of the lateral border of each elytron, near its apex.

subapterous — with vestigial membranous wings (reduced to small wing buds).

supraorbital — above the eye.

sutural — related to the suture.

sutural apex, plural apices (of elytron) — inner apex of each elytron.

sutural interval (of elytron) — the first interval next to the suture.

suture (of elytron) — line of contact between the elytra.

synonym — one of two or more scientific names applied to a single taxon.

syntype — any of two or more specimens on which the original description of a taxon was based when a holotype was not designated.

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.

teneral — a new or young adult, recently emerged, sexually immature, with softer or paler exoskeleton.

testaceous — reddish brown.

transverse (of microsculpture) — appearing covered with flattened or sublinear shapes.

trisetose — with three setae.

troglobitic — living exclusively in caves.

troglophilous — living usually, but not exclusively in caves.

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 series** — row of setiferous punctures along interval 9 on the elytron.

**uniperforated** — appearing pierced with one hole.

**valid name** — the name for a particular taxon that is correct according to the provisions of the Code of Zoological Nomenclature.

<table>
<thead>
<tr>
<th>Appendix B. Geographical coordinates of main localities. Coordinates should read as 00°00′S/00°00′E. The two-letter area codes follow Crosby et al. (1976, 1998).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahipara, ND ........................................ 3510/17309</td>
</tr>
<tr>
<td>Auckland, AK ........................................ 3651/17446</td>
</tr>
<tr>
<td>Banks Peninsula, MC ................................ 4340/17245</td>
</tr>
<tr>
<td>Barron Flat, Takaka, NN ................................ 4105/17246</td>
</tr>
<tr>
<td>Belmont, WN .......................................... 4111/17455</td>
</tr>
<tr>
<td>Boulder Lake, NN ..................................... 4054/17235</td>
</tr>
<tr>
<td>Brown Cow, Boulder Lake Track, NN 4045/17234</td>
</tr>
<tr>
<td>Buller River, near Inangahua, BR ........................ 4150/17153</td>
</tr>
<tr>
<td>Bullock Creek, Paparoa National Park, BR ....................... 4206/17124</td>
</tr>
<tr>
<td>Calphurnia Peak, NN .................................... 4054/17234</td>
</tr>
<tr>
<td>Canaan [Road], Takaka, NN ................................ 4057/17254</td>
</tr>
<tr>
<td>Canterbury, NC/MC ..................................... 4330/17200</td>
</tr>
<tr>
<td>Capleston, BR ......................................... 4204/17155</td>
</tr>
<tr>
<td>Charleston, BR ......................................... 4201/17133</td>
</tr>
<tr>
<td>Christchurch, MC ....................................... 4332/17238</td>
</tr>
<tr>
<td>Clarence River mouth, KA ................................ 4209/17355</td>
</tr>
<tr>
<td>Coal Flat, west of New Creek, NN .......................... 4148/17156</td>
</tr>
<tr>
<td>Coroglen, CL ........................................... 3655/17541</td>
</tr>
<tr>
<td>Coromandel Range, CL ................................ 3705/17542</td>
</tr>
<tr>
<td>Donnelly’s Crossing, ND ................................ 3542/17336</td>
</tr>
<tr>
<td>Dunedin, DN ............................................. 4552/17030</td>
</tr>
<tr>
<td>Epsom, AK ................................................ 3654/17446</td>
</tr>
<tr>
<td>Fantail Creek, Moehau Range, CL ................................ 3631/17520</td>
</tr>
<tr>
<td>Forty Mile Bush [Masterton–Woodville], WA ....................... 4035/17541</td>
</tr>
<tr>
<td>Fox River, BR ............................................ 4203/17130</td>
</tr>
<tr>
<td>Glasgow Range, NN ....................................... 4136/17304</td>
</tr>
<tr>
<td>Gorge Creek, Takaka Valley, NN ................................ 4056/17251</td>
</tr>
<tr>
<td>Gowanbridge, Buller Gorge, NN ................................ 4143/17233</td>
</tr>
<tr>
<td>Great Island, TH ......................................... 3410/17208</td>
</tr>
<tr>
<td>Hastings, HB ............................................ 3939/17651</td>
</tr>
<tr>
<td>Heaphy Track, NN ........................................ 4052/17226</td>
</tr>
<tr>
<td>Hikurangi, ND ............................................ 3553/17226</td>
</tr>
<tr>
<td>Honeycomb Hill, east of Karamea Bluff, NN ....................... 4107/17211</td>
</tr>
<tr>
<td>Howick, AK ............................................... 3654/17456</td>
</tr>
<tr>
<td>Inangahua, BR ............................................ 4152/17157</td>
</tr>
<tr>
<td>Kairuka [Lakes], NN ..................................... 4033/17236</td>
</tr>
<tr>
<td>Kaimai Summit [Saddle], BP ................................ 3752/17555</td>
</tr>
<tr>
<td>Kaitoke [Regional Park], WN ................................ 4105/17511</td>
</tr>
<tr>
<td>Kaituna Valley, MC ....................................... 4345/17241</td>
</tr>
<tr>
<td>Kapowairua, Spirits Bay, ND ................................ 3426/17252</td>
</tr>
<tr>
<td>Kara, ND ................................................... 3543/17412</td>
</tr>
<tr>
<td>Karamea, NN ............................................... 4115/17206</td>
</tr>
<tr>
<td>Karamea Bluff, NN ......................................... 4131/17201</td>
</tr>
<tr>
<td>Kohurorangi, ND .......................................... 3429/17250</td>
</tr>
<tr>
<td>Kohwhai River, KA ....................................... 4224/17338</td>
</tr>
<tr>
<td>Lake Coleridge, MC ........................................ 4322/17132</td>
</tr>
<tr>
<td>Lake Ohia, ND ............................................. 3458/17322</td>
</tr>
<tr>
<td>Lincoln, MC ............................................... 4338/17229</td>
</tr>
<tr>
<td>Maitai Valley, NN ......................................... 4116/17317</td>
</tr>
<tr>
<td>Maketu [Stream], Hunua Ranges, AK ................................ 3708/17500</td>
</tr>
<tr>
<td>Manawatu Gorge, RI/WN .................................... 4018/17546</td>
</tr>
<tr>
<td>Mangakahia Valley, ND .................................... 3537/17350</td>
</tr>
<tr>
<td>Mangamuka Gorge, ND ..................................... 3519/17332</td>
</tr>
<tr>
<td>Matakanaka, AK ............................................ 3621/17443</td>
</tr>
<tr>
<td>Maumaupaki, CL .......................................... 3658/17534</td>
</tr>
<tr>
<td>McClean’s Island, MC ..................................... 4328/17228</td>
</tr>
<tr>
<td>Morere Springs Scenic Reserve, GB ............................. 3857/17747</td>
</tr>
<tr>
<td>Motueka, NN ............................................... 4106/17300</td>
</tr>
<tr>
<td>Motupipi, Takaka, NN ...................................... 4051/17251</td>
</tr>
<tr>
<td>Mount Arthur, NN .......................................... 4116/17241</td>
</tr>
<tr>
<td>Mount Bossu, Banks Peninsula, MC 4350/17254</td>
</tr>
<tr>
<td>Mount Domett, NN .......................................... 4104/17219</td>
</tr>
<tr>
<td>Mount Hutt, MC ............................................. 4328/17132</td>
</tr>
<tr>
<td>Mount Messenger, TK ...................................... 3854/17456</td>
</tr>
<tr>
<td>Mount Pleasant, Christchurch, MC 4120/17358</td>
</tr>
</tbody>
</table>

vestigial — strongly reduced, almost obsolete or absent.

**ventrite** — each ventral segment of the abdomen.
<table>
<thead>
<tr>
<th>Location Name</th>
<th>Coordinates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Napier, HB</td>
<td>3930/17654</td>
</tr>
<tr>
<td>Nelson, NN</td>
<td>4113/17317</td>
</tr>
<tr>
<td>New Creek, NN</td>
<td>4147/17201</td>
</tr>
<tr>
<td>Nile River, BR</td>
<td>4156/17128</td>
</tr>
<tr>
<td>North Cape, ND</td>
<td>3425/17303</td>
</tr>
<tr>
<td>North East Island, CH</td>
<td>3408/17210W</td>
</tr>
<tr>
<td>Okaihau, ND</td>
<td>3519/17346</td>
</tr>
<tr>
<td>Okauia, WO</td>
<td>3747/17550</td>
</tr>
<tr>
<td>Omahuta Forest, ND</td>
<td>3514/17337</td>
</tr>
<tr>
<td>Oparara, NN</td>
<td>4113/17209</td>
</tr>
<tr>
<td>Orongorongo Valley, WN</td>
<td>4125/17454</td>
</tr>
<tr>
<td>Otaki Forks [=Gorge], WN</td>
<td>4050/17515</td>
</tr>
<tr>
<td>Palmerston North, WI</td>
<td>4022/17537</td>
</tr>
<tr>
<td>Pandora, ND</td>
<td>3427/17247</td>
</tr>
<tr>
<td>Paparoa National Park [=Paparoa Range], BR</td>
<td>4205/17133</td>
</tr>
<tr>
<td>Papatea, BP</td>
<td>3740/17751</td>
</tr>
<tr>
<td>Parakao, ND</td>
<td>3543/17357</td>
</tr>
<tr>
<td>Parua [Bay], ND</td>
<td>3546/17427</td>
</tr>
<tr>
<td>Paturau [Trig], NN</td>
<td>4042/17229</td>
</tr>
<tr>
<td>Peraki [Saddle], Banks Peninsula, MC</td>
<td>4349/17251</td>
</tr>
<tr>
<td>Pitt Island, CH</td>
<td>4421/17609W</td>
</tr>
<tr>
<td>Pohara, NN</td>
<td>4050/17253</td>
</tr>
<tr>
<td>Port Ligar, SD</td>
<td>4056/17359</td>
</tr>
<tr>
<td>Port Waikato, WO</td>
<td>3724/17444</td>
</tr>
<tr>
<td>Princes Islands, TH</td>
<td>3410/17202</td>
</tr>
<tr>
<td>Puketi Forest, ND</td>
<td>3514/17346</td>
</tr>
<tr>
<td>Punakaiki, BR</td>
<td>4207/17120</td>
</tr>
<tr>
<td>Rangiputa, ND</td>
<td>3452/17318</td>
</tr>
<tr>
<td>Ratapihipihi, TK</td>
<td>3906/17403</td>
</tr>
<tr>
<td>Raurimu, TO</td>
<td>3907/17524</td>
</tr>
<tr>
<td>Redhill, AK</td>
<td>3704/17459</td>
</tr>
<tr>
<td>Rimutaka Forest [=Rimutaka Range], WN</td>
<td>4119/17500</td>
</tr>
<tr>
<td>Rimutaka Hill, WN</td>
<td>4107/17513</td>
</tr>
<tr>
<td>Ruakaka, ND</td>
<td>3554/17427</td>
</tr>
<tr>
<td>Ruatoria State Forest, BP</td>
<td>3747/17812</td>
</tr>
<tr>
<td>Sandy Bay, Te Paki Coastal Park, ND</td>
<td>3426/17242</td>
</tr>
<tr>
<td>South East Island, CH</td>
<td>4420/17610W</td>
</tr>
<tr>
<td>South West Island, TH</td>
<td>3411/17204</td>
</tr>
<tr>
<td>Spirits Bay, ND</td>
<td>3427/17247</td>
</tr>
<tr>
<td>Spreydon, MC</td>
<td>4333/17237</td>
</tr>
<tr>
<td>Swanson, AK</td>
<td>3652/17434</td>
</tr>
<tr>
<td>Taieri, DN</td>
<td>4605/17011</td>
</tr>
<tr>
<td>Takaka, NN</td>
<td>4051/17248</td>
</tr>
<tr>
<td>Takaka Hill, NN</td>
<td>4053/17249</td>
</tr>
<tr>
<td>Takaka Valley, NN</td>
<td>4106/17243</td>
</tr>
<tr>
<td>Tangihua Range, ND</td>
<td>3553/17407</td>
</tr>
<tr>
<td>Tapotupotu Bay, ND</td>
<td>3426/17242</td>
</tr>
<tr>
<td>Tapu, CL</td>
<td>3659/17530</td>
</tr>
<tr>
<td>Te Koau, BP</td>
<td>3735/17819</td>
</tr>
<tr>
<td>Te Paki, ND</td>
<td>3433/17247</td>
</tr>
<tr>
<td>The Sisters, CH</td>
<td>4638/16915W</td>
</tr>
<tr>
<td>Tiropahi Valley, BR</td>
<td>4157/17126</td>
</tr>
<tr>
<td>Titirangi Bay, SD</td>
<td>4101/17409</td>
</tr>
<tr>
<td>Tom Bowling Bay, ND</td>
<td>3426/17257</td>
</tr>
<tr>
<td>Trounson Kauri Park, ND</td>
<td>3544/17339</td>
</tr>
<tr>
<td>Unuwhao, Spirits Bay, ND</td>
<td>3426/17253</td>
</tr>
<tr>
<td>Upper Takaka, NN</td>
<td>4102/17249</td>
</tr>
<tr>
<td>Waiau River, Upper NC</td>
<td>4243/17243</td>
</tr>
<tr>
<td>Waimana Valley, BP</td>
<td>3806/17702</td>
</tr>
<tr>
<td>Waioeka Gorge, BP</td>
<td>3810/17718</td>
</tr>
<tr>
<td>Waipatiki Beach, HB</td>
<td>3917/17658</td>
</tr>
<tr>
<td>Waipoua Forest, ND</td>
<td>3539/17333</td>
</tr>
<tr>
<td>Waipuna Stream, Spirits Bay, ND</td>
<td>3426/17252</td>
</tr>
<tr>
<td>West Haven Inlet, NN</td>
<td>4036/17235</td>
</tr>
<tr>
<td>West Island, TH</td>
<td>3411/17202</td>
</tr>
<tr>
<td>Whanarua Bay, BP</td>
<td>3740/17747</td>
</tr>
<tr>
<td>Whangarei, ND</td>
<td>3543/17419</td>
</tr>
<tr>
<td>Whinray Scenic Reserve, BP</td>
<td>3814/17733</td>
</tr>
<tr>
<td>Woodhill, AK</td>
<td>3644/17425</td>
</tr>
</tbody>
</table>
ADDENDUM

Hakaharpalus cavelli (Broun, 1893) new combination

See Figures opposite.


Description. Body length: 4.9 mm. Slightly convex. Brownish; margins and sutures of elytra, as well as antennae, palpi, and legs pale yellowish. Generally glabrous. Elytral intervals finely punctate; interneurs shallow (weakly impressed), incomplete basally. Microsculpture absent on head, pronotum, and elytra. Head, pronotum, and elytra shiny; dorsal surface without metallic lustre. Head. Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, slightly convex posteriorly. Eyes strongly reduced, slightly convex, consisting of obliterated facets, narrowly separated from buccal fissure ventrally (by about 1× maximum width of antennal scape). Antennal scape about 3× longer than its maximum width. Thorax. Pronotum (Fig. opposite) subcordate, widest before middle; sides converging toward base, sinuate; base straight; apex almost straight behind anterior angles; lateral depressions absent; anterior angles strongly developed, acute; posterior angles moderately developed, obtuse; basal foveae shallow, ill-defined; punctuation feebly developed. Metepisterna wider than long. Elytra. Widest about middle. Shoulders feebly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices rounded. Scutellar striole absent. Interneurs shallow (weakly impressed), impunctate, incomplete basally. Intervals finely punctate, flat. Interval 3 without setiferous puncture behind middle. Aedeagus. No male known.

Material examined. Holotype (BMNH).

Geographic distribution. South Island: BR—Capleston.


Remarks. The tribal and generic placements of this species have remained a mystery for a long time. Examination of the holotype of Tachys (?) cavelli has shown that this taxon belongs neither to the Bembidiini nor to the Zolini as previously thought by a number of carabid workers. Superficially, it may resemble members of the Trechinae genera Oopterus (Zolini) or Molopsida (Tropopterini) but the absence of setiferous puncture in the mandibular scrobe refers it to the Harpalinae. The authors found this taxon to be congeneric with other species of the newly described genus Hakaharpalus, the characteristic features of which are given on p. 54.

Hakaharpalus cavelli (Broun, 1893). Upper: holotype, BMNH (scale line =1 mm.); Lower: pronotum (Photographs: M.-C. Larivière) Holotype photographed with the permission of the Natural History Museum, London.
Fig. 1 Schematic dorsal view of carabid.
Fig. 2 Schematic ventral view of carabid.
Fig. 3, 4 (3) Schematic view of pronotum. (4) Schematic view of right elytron.
Fig. 5–18 (5-8) Schematic view of microsculpture: (5) granulate; (6) isodiametric; (7) moderately transverse; (8) very transverse. (9-11) Pubescence on anterior margin of penultimate segment of labial palpi: (9) plurisetose; (10) trisetose; (11) bisetose. (12-13) Ventral view of male pro- or mesotarsi: (12) spongily pubescent; (13) biseriately pubescent. (14-18) Medial tooth of mentum: (14) moderately long; (15) longer than lateral lobes; (16) as long as lateral lobes; (17) very short; (18) lacking.
Fig. 19–26 (19-21) Eye and buccal fissure, lateral view: (19) widely separated; (20) narrowly separated; (21) touching (eye reaching buccal fissure). (22-24) Transverse suture between mentum and submentum: (22) complete; (23) incomplete laterally; (24) lacking. (25-26) Membranous laminae of pro- and mesotarsomere 4: (25) present; (26) lacking.
Fig. 27–31 (27-28) Pubescence of venter: (27) paired ambulatory setae only; (28) paired ambulatory setae, numerous short setae, and male setiferous fovea. (29-30) Subapical sinuation of right elytron: (29) weak; (30) strong. (31) Ligula as long as paraglossae.
Fig. 32-84 Aedeagus. Lateral view, except when indicated otherwise.
(39) Anisodactylus binotatus  (40) Gaioxenus pilipalpis  (41) Gnathophanus melbournensis

(42) Hypharpax australis  (43) H. antarcticus  (44) Maoriharpalus sutherlandi

(45) Parabaris atratus  (46) P. lesagei  (47) P. hoarei
(48) Triplosarus novaezelandiae  (49) Tuiharpalus crosbyi  (50) T. gourlayi

(51) T. clunicae  (52) T. hallae  (53) T. moorei

(54) Harpalus affinis  (55) H. tardus  (56) H. australasiae
(57) Hakaharapalus patricki
(58) H. maddisoni
(59) H. davidsoni

(60) H. modeae
(61) Kupeharapalus barrattae
(62) K. embersoni

(63) K. johnsi
(64) Lecanomerus atriceps
(65) L. insignitus
Larochelle & Larivièrè (2005): Harpalini (Insecta: Coleoptera: Carabidae)

(66) Lecanomerus obesulus  (67) L. latimanus  (68) L. sharpi

(69) L. marrisi  (70) L. verticalis  (71) L. vestigialis

(72) Syliectus anomalus  (73) S. magnus  (74) S. gouléti
(75) *Egadroma picea*  
(76) *Euthenarus brevicollis*  
(77) *E. puncticollis*  
(78) *E. bicolor*  
(79) *E. promptus*  
(80) *Haplanister crypticus*
(81) *Pholeodytes palmai*

(82) *P. cerberus*

(83) *P. nunni*

(84) *P. townsendi*
(85) Allocinopus smithi

(86) Allocinopus sculpticollis

(87) Anisodactylus binotatus

(88) Gaioxenus pilipalpis

Fig. 85-113 Habit drawings of representatives of Harpalini (Illustrator: D. W. Helmore). Scale lines are 1 mm.
(89) *Gnathaphanus melbournensis*

(90) *Hypharpax australis*

(91) *Maoriharpalus sutherlandi*

(92) *Notiobia quadricollis*
(93) *Parabaris atratus*

(94) *Parabaris hoarei*

(95) *Triplosarus novaezelandiae*

(96) *Tuiharpalus crosbyi*
(101) *Harpalus australasiae*

(102) *Hakaharpalus patricki*

(103) *Kupeharpalus barrantae*

(104) *Kupeharpalus johnsi*
(105) Lecanomerus insignitus

(106) Lecanomerus marri

(107) Lecanomerus vestigialis

(108) Syllectus anomalus
(109) *Egadroma picea*

(110) *Euthenarus puncticollis*

(111) *Haplanister crypticus*

(112) *Kiwiharpalus townsendi*
(113) *Pholeodytes townsendi*
Fig. 114-169 Colour photographs of Harpalini pronota. (Photographer: M.-C. Lariviére).
(126) *Maoriharpalus sutherlandi*

(127) *Notiobia quadricollis*

(128) *Parabaris atratus*

(129) *Parabaris lesagei*

(130) *Parabaris hoarei*

(131) *Triplosarus novaezelandiae*
(132) *Tuiharpalus crosbyi*

(133) *Tuiharpalus gourlayi*

(134) *Tuiharpalus clunieae*

(135) *Tuiharpalus hallae*

(136) *Tuiharpalus moorei*
(165) Pholeodytes palmai

(166) Pholeodytes cerberus

(167) Pholeodytes nunni

(168) Pholeodytes townsendi

(169) Pholeodytes helmorei
Fig. 170–225 Colour photographs of Harpalini. (Photographer: B. E. Rhode, except Fig. 187 M.-C. Larivière). Scale lines are 1 mm.
(174) Allocinopus wardi

(175) Allocinopus latitarsis

(176) Allocinopus sculpticollis

(177) Anisodactylus binotatus
(178) Gaioxenus pilipalpis
(179) Gnathaphanus melbournensis
(180) Hypharpax australis
(181) Hypharpax antarcticus
(182) Maoriharpalus sutherlandi

(183) Notiobia quadricollis

(184) Parabaris atratus

(185) Parabaris lesagei
(190) Tuiharpalus clunieae

(191) Tuiharpalus hallae

(192) Tuiharpalus moorei
(196) *Hakaharpalus patricki*

(197) *Hakaharpalus maddisoni*

(198) *Hakaharpalus davidsoni*

(199) *Hakaharpalus rhodeae*
(200) Kupeharpalus barrattae

(201) Kupeharpalus embersoni

(202) Kupeharpalus johnsi

(203) Lecanomerus atriceps
(204) Lecanomerus insignitus

(205) Lecanomerus obesuslus

(206) Lecanomerus latimanus

(207) Lecanomerus sharpi
(208) Lecanomerus marris

(209) Lecanomerus verticalis

(210) Lecanomerus vestigialis
(214) Egadroma picea

(215) Euthenarus brevicollis

(216) Euthenarus puncticollis

(217) Euthenarus bicolor
(218) Euthenarus promptus
(219) Haplanister crypticus
(220) Kiwiwarpalus townsendi
(221) Pholeodytes palmai
(222) Pholeodytes cerberus

(223) Pholeodytes nunni

(224) Pholeodytes townsendi

(225) Pholeodytes helmorei
Map 1 The New Zealand subregion.
Map 2 Area codes and collecting localities from mainland New Zealand: North Island.
Map 3 Area codes and collecting localities from mainland New Zealand: South Island and Stewart Island.
Map 4 Total number of known taxa by areas.
Map 5 Number of known New Zealand endemics by areas.
Map 6 Number of native taxa known to be restricted to single areas.
**Map 7** Number of known adventive taxa by areas.

**Species distribution maps** (pp. 147-153). Presented in same order as taxa in body of text. Area boundaries follow area codes of Crosby *et al.* (1976, 1998).
abstrusus Bates, Hypharpax 39
adelaideae Laporte de Castelnau, Harpalus 37
aeneonitens Macleay, Harpalus 37
aeneus Fabricius, Carabus 51
affinis (Schrank), Carabus 51
affinis (Schrank), Harpalus 18, 19, 51, 102f, 110f, 119p, 131p, 149m
Allocinopus Broun 16, 25, 26, 27
Amblystus Motschulsky 51
angustatus Macleay, Harpalus 37
angustulus Broun, Allocinopus 18, 19, 26, 28, 29, 37, 100f, 115p, 125p, 147m
Anisodactyli 15
Anisodactylina 15, 18, 19, 20, 25, 26, 27
Anisodactylus Dejean 16, 25, 26, 27, 34
Anisodactylus (Anisodactylus) 34
Anisotarsus Chaudoir 41
anomalus Bates, Syllectus 16, 18, 19, 69, 104f, 112f, 122p, 136p, 151m
antarcticus (Laporte de Castelnau), Hypharpax 14, 16, 18, 19, 38, 101f, 116p, 127p, 148m
atrus Broun, Parabarisi 18, 19, 42, 43, 44, 101f, 109f, 117p, 128p, 148m
atrices (Macleay), Lecanomerus 18, 19, 20, 60, 61, 62, 77, 103f, 120p, 133p, 150m
atrices Macleay, Trechus 62
atroviridis Macleay, Harpalus 37
australasiae Dejean, Harpalus 18, 19, 20, 51, 53, 102f, 111f, 119p, 123p, 131p, 149m
australis Dejean, Harpalus 39
australis (Dejean), Hypharpax 18, 19, 20, 26, 38, 39, 101f, 108f, 116p, 127p, 148m
barrattae Larochelle & Larivière, Kupeharpalus 18, 19, 58, 59, 63, 103f, 111f, 119p, 128p, 133p, 150m
belfi Larochelle & Larivière, Allocinopus 17, 18, 19, 28, 30, 31, 100f, 115p, 125p, 147m
bicolor Moore, Euthenarus 18, 19, 20, 62, 74, 76, 105f, 123p, 137p, 152m
brevicollis Bates, Euthenarus 16, 18, 19, 24, 74, 76, 105f, 122p, 137p, 152m
castaneus Broun, Allocinopus 28
cavelli (Broun), Hakaharpalus 17, 55, 57, 93p
cavelli Broun, Tachys 57, 93
cerberus Britton, Pholeodytes 17, 18, 19, 80, 81, 82, 106f, 124p, 139p, 152m
clunieae Larochelle & Larivière, Tuiharpalus 17, 18, 19, 26, 46, 47, 48, 49, 102f, 118p, 130p, 149m
coxii Laporte de Castelnau, Harpalus 39
crosbyi Larochelle & Larivière, Tuiharpalus 16, 17, 18, 19, 47, 102f, 109f, 118p, 129p, 149m
crypticus Moore, Haplanister 16, 17, 18, 19, 78, 105f, 113f, 123p, 138p, 152m
davidsoni Larochelle & Larivière, Hakaharpalus 17, 18, 19, 55, 56, 103f, 119p, 132p, 149m
Diaphoromerus Chaudoir 41
dingo Laporte de Castelnau, Harpalus 73
Egadroma Motschulsky 16, 20, 25, 72
embersoni Larochelle & Larivière, Kupeharpalus 17, 18, 19, 58, 59, 63, 103f, 120p, 133p, 150m
Eurytrichus LeConte 41
Euthenarus Bates 15, 16, 20, 25, 72, 73
fallax Broun, Lecanomerus 63
flavocinctus Blackburn, Lecanomerus 67
fuliginosus Broun, Lecanomerus 64
fulvescens Bates, Triplosarbus 45, 46
Gaioxenus Broun 16, 25, 26, 27, 35
gayndahensis Macleay, Harpalus 37
Gaixenus Broun 16, 25, 26, 27, 35
gayndahensis Macleay, Harpalus 37
Gnathaphanus Macleay 16, 20, 25, 26, 27, 36
gouleti Larochelle & Larivière, Syllectus 17, 18, 19, 69, 71, 104f, 122p, 136p, 151m
gourlayi Britton, Parabarisi 46, 48
Hakaharpalus Larochelle & Larivière, 15, 16, 17, 25, 54, 93

hallae Larochelle & Larivière, Tuiharpalus 18, 19, 26, 46, 47, 49, 102f, 110f, 118p, 130p, 149m

Haplanister Moore 14, 16, 25, 72, 77

Harpalina 15, 18, 19, 20, 25, 50

Harpalini 24, 25

Harpalus Latreille 16, 20, 25, 51

Harpalus (Harpalus) 51

helmorei Larochelle & Larivière, Pholeodytes 17, 18, 19, 80, 83, 124p, 139p, 152m

hoarei Larochelle & Larivière, Parabaris 17, 18, 19, 42, 43, 44, 101f, 109f, 117p, 129p, 148m

Hypharpax Macleay 16, 20, 25, 26, 27, 37, 38

incertus Broun, Lecanomerus 64

inornatus Germar, Harpalus 39

insidiosus Chaudoir, Lecanomerus 67

insignitus Broun, Lecanomerus 18, 19, 60, 61, 63, 103f, 112f, 120p, 134p, 150m

insularis Bates, Mirocarus 37

javanus Jedlička, Acupalpus 62

johnsi Larochelle & Larivière, Kupeharpalus 17, 18, 19, 58, 59, 103f, 111f, 120p, 133p, 150m

Kiwiwaharpalus Larochelle & Larivière 15, 16, 17, 25, 72, 79

Kupeharpalus Larochelle & Larivière 15, 16, 25, 54, 57, 60

labralis Broun, Lecanomerus 67

latimanus Bates, Lecanomerus 16, 18, 19, 61, 64, 104f, 121p, 134p, 150m

latitarsis Broun, Alloscopus 16, 18, 19, 28, 32, 100f, 115p, 126p, 147m

Lecanomerus Chaudoir 15, 16, 20, 25, 54, 58, 60, 63

lesagei Larochelle & Larivière, Parabaris 17, 18, 19, 42, 43, 101f, 117p, 128p, 148m

maddisoni Larochelle & Larivière, Hakaharpalus 17, 18, 19, 55, 56, 57, 103f, 119p, 132p, 150m

magnus Britton, Syllus 16, 18, 19, 69, 70, 104f, 122p, 136p, 151m

Maoriharpalus Larochelle & Larivière, Lecanomerus 17, 18, 19, 60, 61, 66, 104f, 112f, 121p, 135p, 151m

marrisi Larochelle & Larivière, Lecanomerus 17, 18, 19, 20, 25, 54, 58, 63

mazzarini Larochelle & Larivière, Parabaris 17, 18, 19, 20, 25, 26, 27, 38

marginatus Sharp, Lecanomerus 65

marginicollis Laporte de Castelnau, Harpalus 37

marrisi Larochelle & Larivière, Lecanomerus 17, 18, 19, 60, 61, 66, 104f, 112f, 121p, 135p, 151m

mastersii Macleay, Acupalpus 67

melbournensis (Laporte de Castelnau), Gnaidhapanus 18, 19, 20, 36, 101f, 108f, 116p, 127p, 148m

melbournensis Laporte de Castelnau, Harpalus 36

Mirocarus Bates 36

moorei Larochelle & Larivière, Tuiharpalus 17, 18, 19, 46, 47, 50, 102f, 110f, 118p, 130p, 149m

nitidus Blackburn, Lecanomerus 67

Notioobia Perty 20, 25, 26, 27, 41

Notioobia (Anisotarsus) 41

Notiobil 15

novaezelandiae Laporte de Castelnau, Harpalus 14, 45

novaezelandiae (Laporte de Castelnau), Triposarus 16, 17, 18, 19, 45, 102f, 109f, 117p, 129p, 148m

nunni Larochelle & Larivière, Pholeodytes 17, 18, 19, 80, 82, 106f, 124p, 139p, 152m

obesulus Bates, Lecanomerus 18, 19, 61, 63, 65, 104f, 121p, 134p, 151m

occidentalis Sloane, Lecanomerus 67

ocularius Broun, Alloscopus 33

Odontagonum Darlington 60

Pachauhenius Macleay 36

pallipes Broun, Lecanomerus 64

palmai Larochelle & Larivière, Pholeodytes 17, 18, 19, 80, 81, 106f, 124p, 138p, 153m

Parabaris Broun 14, 16, 25, 27, 42, 46

paroensis Laporte de Castelnau, Harpalus 36

parvus Chaudoir, Hypharpax 39

patricki Larochelle & Larivière, Hakaharpalus 17, 18, 19, 55, 57, 103f, 111f, 119p, 132p, 150m

Pelmatellina 15, 18, 19, 20, 25, 54

Pholeodytes Britton 14, 15, 16, 17, 25, 69, 71, 72, 80

picea (Guérin-Ménéville), Egadra 18, 19, 20, 73, 105f, 113f, 122p, 137p, 151m

piceus Guérin-Ménéville, Acupalpus 73

pilipalpis Broun, Gaioxenus 18, 19, 35, 101f, 107f, 116p, 127p, 147m

planipennis Macleay, Harpalus 37

politus Macleay, Stenolophus 73

Polpochili 15

promptus (Erichson), Euthenarus 18, 19, 20, 74, 77, 105f, 123p, 138p, 152m
Larochelle & Larivière (2005): Harpalini (Insecta: Coleoptera: Carabidae)

promptus Erichson, Harpalus 77
puncticollis Bates, Euthenarus 16, 18, 19, 74, 75, 105f, 113f, 122p, 137p, 152m
quadricollis Chaudoir, Diaphoromerus 41
quadricollis (Chaudoir), Notiobia 18, 19, 20, 41, 108f, 117p, 128p, 148m
rhodeae Larochelle & Larivière, Hakaharpalus 17, 18, 19, 55, 57, 103f, 120p, 132p, 150m
Sagraemerus Redtenbacher 37
sculpticollis Broun, Allocinopus 16, 18, 19, 28, 33, 100f, 107f, 116p, 126p, 147m
sexualis Fauvel, Stenolophus 73
sharpí (Csiki), Lecanomerus 16, 18, 19, 60, 61, 65, 104f, 121p, 134p, 151m
sharpí Csiki, Nemaglossa 65
smithí Broun, Allocinopus 18, 19, 26, 28, 100f, 107f, 115p, 125p, 147m
spelaeus Britton, Syllectus 70, 71
Stenolophí 15
Stenolophína 15, 18, 19, 25, 72
stenopus Broun, Lecanomerus 67
Stillbolidus Casey 41
sutherlandí Larochelle & Larivière, Maoriharpalus 16, 17, 18, 19, 40, 101f, 108f, 117p, 128p, 148m
Syllectus Bates 14, 15, 16, 17, 25, 54, 68, 71, 80
tardus Panzer, Carabus 52
tardus (Panzer), Harpalus 18, 19, 51, 52, 102f, 119p, 131p, 149m
Thenarotes Bates 60
towsendi Larochelle & Larivière, Kiwiharpalus 16, 17, 18, 19, 79, 113f, 123p, 138p, 152m
towsendi Britton, Pholeodytes 18, 19, 80, 82, 106f, 114f, 124p, 139p, 153m
Triplosarus Bates 25, 27, 45
Tuiharpalus Larochelle & Larivière 16, 25, 27, 46
verticalí Erichson, Harpalus 67
verticalí (Erichson), Lecanomerus 18, 19, 20, 60, 61, 67, 68, 104f, 121p, 135p, 151m
vestigialis Erichson, Harpalus 67
vestigialis (Erichson), Lecanomerus 18, 19, 20, 60, 61, 67, 104f, 112f, 121p, 135p, 151m
wardí Larochelle & Larivière, Allocinopus 17, 18, 19, 28, 31, 100f, 115p, 126p, 147m
2notatus Fabricius, Carabus 34
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>ISBN</th>
<th>Date</th>
<th>Pages</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sciapodinae, Medeterinae (Insecta: Diptera) with a generic review of the Dolichopodidae</td>
<td>D.J. Bickel</td>
<td>ISBN 0-477-02627-3</td>
<td>13 Jan 1992</td>
<td>74</td>
<td>$27.95</td>
</tr>
</tbody>
</table>
26 Tenebrionidae (Insecta: Coleoptera): catalogue of types and keys to taxa
   J.C. Watt • ISBN 0-477-02639-7 • 13 Jul 1992 • 70 pp. ................................................... $27.95
27 Antarctoperlinae (Insecta: Plecoptera) • I.D. McLellan
   ISBN 0-477-01644-8 • 18 Feb 1993 • 70 pp. ................................................................. $27.95
28 Larvae of Curculionoidea (Insecta: Coleoptera): a systematic overview
   Brenda M. May • ISBN 0-478-04505-0 • 14 Jun 1993 • 226 pp. ............................... $55.00
29 Cryptorrhynchinae (Insecta: Coleoptera: Curculionidae)
30 Hapalidae (Insecta: Lepidoptera) • J.S. Dugdale
   ISBN 0-478-04524-7 • 1 Mar 1994 • 164 pp. ................................................................. $42.50
31 Talitridae (Crustacea: Amphipoda) • K.W. Duncan
32 Sphicidae (Insecta: Hemiptera: Coccoidea) • A.C. Harris
33 Moranilini (Insecta: Hymenoptera) • J.A. Berry
   ISBN 0-478-04538-7 • 8 May 1995 • 82 pp. ................................................................. $29.95
34 Anthicidae (Insecta: Coleoptera) • F.G. Werner & D.S. Chandler
35 Cydnidae, Acanthosomatidae, and Pentatomidae (Insecta: Heteroptera): systematics, geographical distribution, and bioecology • M.-C. Larivière
   ISBN 0-478-09301-2 • 23 Nov 1995 • 112 pp. ................................................................. $42.50
36 Leptophlebiidae (Insecta: Ephemeroptera) • D.R. Towns & W.L. Peters
38 Naturalised terrestrial Stylommatophora (Mollusca: Gastropoda) • G.M. Barker
39 Molytini (Insecta: Coleoptera: Curculionidae: Molytinae) • R.C. Craw
   ISBN 0-478-09325-X • 4 Feb 1999 • 68 pp. ................................................................. $29.50
40 Cixiidae (Insecta: Hemiptera: Auchenorrhyncha) • M.-C. Larivière
   ISBN 0-478-09334-9 • 12 Nov 1999 • 93 pp. ................................................................. $37.50
41 Coccidae (Insecta: Hemiptera: Coccoidea) • C.J. Hodgson & R.C. Henderson
   ISBN 0-478-09335-7 • 23 Feb 2000 • 264 pp. ................................................................. $72.50
42 Aphodiinae (Insecta: Coleoptera: Scarabaeidae) • Z.T. Stebnicka
   ISBN 0-478-09341-1 • 15 Jun 2001 • 64 pp. ................................................................. $29.50
43 Carabidae (Insecta: Coleoptera): catalogue • A. Larochelle & M.-C. Larivière
44 Lycosidae (Arachnida: Araneae) • C.J. Vink
   ISBN 0-478-09347-0 • 23 Dec 2000 • 94 pp. ................................................................. $37.50
45 Nemonychidae, Belidae, Brentidae (Insecta: Coleoptera: Curculionoidae) • G. Kuschel
   ISBN 0-478-09348-9 • 28 Apr 2003 • 100 pp. ................................................................. $40.00
46 Nesameletidae (Insecta: Coleoptera): Ephemeroptera) • T.R. Hitchings & A.H. Staniczek
   ISBN 0-478-09349-7 • 14 May 2003 • 72 pp. ................................................................. $32.50
47 Erotylidae (Insecta: Coleoptera: Cucujoidae): phylogeny and review • R.A. B. Leschen
   ISBN 0-478-09350-0 • 5 June 2003 • 108 pp. ................................................................. $42.50
48 Scaphidiinae (Insecta: Coleoptera: Staphylinidae) • I. Löbl & R.A. B. Leschen
49 Lithinini (Insecta: Lepidoptera: Geometridae: Ennominae) • J.D. Weintraub & M.J. Scoble
50 Heteroptera (Insecta: Hemiptera): catalogue • M.-C. Larivière & A. Larochelle
   ISBN 0-478-09358-6 • 14 May 2004 • 330 pp. ................................................................. $89.00
52 Raphignathoidea (Acari: Prostigmata) • Qing-Hai Fan & Zhi-Qiang Zhang
   ISBN 0-478-09360-8 • May 2005 • 400 pp. ................................................................. $89.00
53 Harpalini (Insecta: Coleoptera: Carabidae: Harpalinae) • A. Larochelle & M.-C. Larivière
   ISBN 0-478-09369-1 • May 2005 • 160 pp. ................................................................. $55.00

Visit the Manaaki Whenua Press Website at http://www.mwpress.co.nz/ for further information, and to gain access to on-line extracts from these publications.
Taxonomic groups covered in the *Fauna of New Zealand* series

### Coleoptera

**Insecta**

**Family-group review and keys to identification** (*J. Klimaszewski & J.C. Watt, FNZ 37, 1997*)

**Anthribidae** (*B.A. Holloway, FNZ 3, 1982*)

**Anthicidae** (*F.G. Werner & D.S. Chandler, FNZ 34, 1995*)

**Carabidae: catalogue** (*A. Larochelle & M.-C. Larivière, FNZ 43, 2001*)

**Carabidae: Harpalinae: Harpalini** (*A. Larochelle & M.-C. Larivière, FNZ 53, 2005*)

**Curculionidae: Cryptorhynchinae** (*C.H.C. Lyal, FNZ 29, 1993*)

**Curculionidae: Molytinae: Molytini** (*R. C. Craw, FNZ 39, 1999*)

**Curculionoidea: Nemonychidae, Belidae, Brentidae** (*G. Kuschel, FNZ 45, 2003*)

**Curculionoidea larvae: a systematic overview** (*Brenda M. May, FNZ 28, 1993*)

**Erotylidae: phylogeny and review** (*Richard A. B. Leschen, FNZ 47, 2003*)

**Hydraenidae** (*R.G. Ordish, FNZ 6, 1984*)

**Scarabaeidae: Aphodiinae** (*Z. T. Stebnicka, FNZ 42, 2001*)

**Staphylinidae: Osoriinae** (*H. Pauline McColl, FNZ 2, 1982*)

**Staphylinidae: Scaphidiinae** (*I. Löbl & Richard A. B. Leschen, FNZ 48, 2003*)

**Tenebrionidae: catalogue of types and keys to taxa** (*J.C. Watt, FNZ 26, 1992*)

### Diptera

**Bibionidae** (*Roy A. Harrison, FNZ 20, 1990*)

**Calliphoridae** (*James P. Dear, FNZ 8, 1986*)

**Dolichopodidae: Sciapodinae, Medeterinae with a generic review** (*D.J. Bickel, FNZ 23, 1992*)

**Therevidae** (*L. Lyneborg, FNZ 24, 1992*)

### Ephemeroptera

**Leptophlebiidae** (*D.R. Towns & W.L. Peters, FNZ 36, 1996*)

**Nesameletidae** (*Terry R. Hitchings & Arnold H. Staniczek, FNZ 46, 2003*)

### Hemiptera

**Cercopidae** (*K.G.A. Hamilton & C.F. Morales, FNZ 25, 1992*)

**Cixiidae** (*M.-C. Larivière, FNZ 40, 1999*)


**Cydnidae, Acanthosomatidae, and Pentatomidae** (*M.-C. Larivière, FNZ 35, 1995*)

**Heteroptera: catalogue** (*M.-C. Larivière & A. Larochelle, FNZ 50, 2004*)

**Margarodidae** (*C.F. Morales, FNZ 21, 1991*)

**Pseudococcidae** (*J.M. Cox, FNZ 11, 1987*)

### Hymenoptera

**Chalcidoidea: introduction, and review of smaller families** (*J.S. Noyes & E.W. Valentine, FNZ 18, 1989*)

**Diapriidae: Ambositrinae** (*I.D. Naumann, FNZ 15, 1988*)

**Encyrtidae** (*J.S. Noyes, FNZ 13, 1988*)

**Mymaridae** (*J.S. Noyes & E.W. Valentine, FNZ 17, 1989*)

**Pompilidae** (*A.C. Harris, FNZ 12, 1987*)

**Pteromalidae: Eunotinae: Moranilini** (*J.A. Berry, FNZ 33, 1995*)

**Sphecidae** (*A.C. Harris, FNZ 32, 1994*)

### Lepidoptera

**Annotated catalogue, and keys to family-group taxa** (*J. S. Dugdale, FNZ 14, 1988*)


**Hepialidae** (*J.S. Dugdale, FNZ 30, 1994*)

**Nepticulidae** (*Hans Donner & Christopher Wilkinson, FNZ 16, 1989*)

### Mantodea

**with a review of aspects of functional morphology and biology** (*G.W. Ramsay, FNZ 19, 1990*)

### Plecoptera

**Antarctoperlinae** (*I.D. McLellan, FNZ 27, 1993*)

**Notonemouridae** (*I.D. McLellan, FNZ 22, 1991*)

### Protura

**S.L. Tuxen, FNZ 9, 1986**

### Thysanoptera

**Terebrantia** (*Laurence A. Mound & Annette K. Walker, FNZ 1, 1982*)

**Tubulifera** (*Laurence A. Mound & Annette K. Walker, FNZ 10, 1986*)

### Arachnida

#### Acari

**Cryptostigmata – a concise review** (*M. Luxton, FNZ 7, 1985*)

**Eriophyoidea except Eriophyinae** (*D.C.M. Manson, FNZ 4, 1984*)

**Eriophyinae** (*D.C.M. Manson, FNZ 5, 1984*)

**Raphignathoidea** (*Qing-Hai Fan & Zhi-Qiang Zhang, FNZ 52, 2005*)

### Araneae

**Lycosidae** (*C. J. Vink, FNZ 44, 2002*)

### Crustacea

#### Amphiopoda

**Talitridae** (*K.W. Duncan, FNZ 31, 1994*)

#### Mollusca

**Gastropoda**

**Naturalised terrestrial Stylommatophora** (*G.M. Barker, FNZ 38, 1999*)
NOTICES

This series of refereed publications has been established to encourage those with expert knowledge to publish concise yet comprehensive accounts of elements in the New Zealand fauna. The series is professional in its conception and presentation, yet every effort is made to provide resources for identification and information that are accessible to the non-specialist.

Fauna of N.Z. deals with non-marine invertebrates only, since the vertebrates are well documented, and marine forms are covered by the series Marine Fauna of N.Z.

Contributions are invited from any person with the requisite specialist skills and resources. Material from the N.Z. Arthropod Collection is available for study.

Contributors should discuss their intentions with a member of the Invertebrate Systematics Advisory Group or with the Series Editor before commencing work; all necessary guidance will be given.

Subscribers should address inquiries to Fauna of N.Z., Manaaki Whenua Press, Landcare Research, P.O. Box 40, Lincoln 8152, New Zealand.

Subscription categories: ‘A’ – standing orders; an invoice will be sent with each new issue, as soon after publication as possible; ‘B’ – promotional fliers with order forms will be sent from time to time.

Retail prices (see ‘Titles in print’, page 157) include packaging and surface postage. Subscribers in New Zealand and Australia pay the indicated amount in $NZ; GST is included in the price. Other subscribers pay the listed price in $US, or its equivalent.

Back issues of all numbers are available, and new subscribers wishing to obtain a full set or a selection may request a discount. Booksellers and subscription agents are offered a trade discount of ten percent.

NGĀ PĀNUI

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

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

Ka āhei te tangata ki te whakauru tuhituhinga mehemea kei a ia ngā tohungatanga me ngā raumati e tutuki ngā mea noho whenua, kia mō mō ngā raumati e tutuki. Ka hāria i te ngā mea noho moana, koirā te tino kaupapa o te huinga pukapuka Marine Fauna of N.Z.

Me whāki te ka tuhia i ōna whakaaro ki tētahi o te Kāhui Ārahi Whakarōpuātanga Tuarā-Kore, ki te ĝ tītā rānei i mua i te tīmatanga, ā, mā rātou a ia e ārahi mō te wāhi ki tana tuhunga.

Te utu (tirohia “Titles in print”, whārangī 157). Ko te kōpaki me te panu ki tātu rōtī te utu. Ko te ētahi atu me te moni kua tohua, ki ngā tāra Merikana, ko te nui o te moni rānei e rite ana.

E toe ana he pukapuka o ngā putanga katoa o mua. Mehe mea e hiahia ana koe ki te katoa o ngā pukapuka, ki ētahi rānei, tōnoa mai kia whakaheke te utu. Tekau ōrau te heke iho o te utu ki ngā toa hoko pukapuka.