Fauna of New Zealand
Ko te Aitanga Pepeke o Aotearoa
INVERTEBRATE SYSTEMATICS ADVISORY GROUP

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Harpalini
(Insecta: Coleoptera: Carabidae: Harpalinae)

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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, New Zealand, 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 are not endemic to this country are made up of overseas species introduced mainly from Australia.

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 features, the relative ease with which their

**Ngā pītara Harpaline noho papa**
Nō te whānau whāiti Harpalinae (Coleoptera: Carabidae) a ngā Harpalini. Puta noa i te ao, 1900 őna rōpū. E ā ki ngā raraunga raupapa rāpoī ngōta, nō te Takiwā Cretaceous tōna kunenga mai (i te 140–65 miriona tau ki muri).

He iwi matahuhua tonu a ngā Harpalini – he nui atu i te 240 ngā puninga me ngā puninga iti, he āhua 2000 ngā momo, kei ngā takiwā papawhenua-kōioira 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 whakaaro ia, he ruuraa noa iho ngā momo kāore i mai i tēnei tatauranga.

Ina whakaritea ki ngā whenua rahiri ake, mahana ake o te ao (hei tauri, arā a Ahitereiria me ōna momo 160 e mōhiotia ana, tae atu ki te maha noa atu kāore anō i whakaahuatia ā-kupu) tērā ka whakaahoroia he torotoro noa iho ngā momo o Aotearoa. Engari 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 kitea i whenua kē. Ko ērā atu momo eharā nō konei taketake ake, he rāwaho, ko te nuinga o kauwae me ngā mora kei Ahitereiria. Karekau he momo māori o Aotearoa kei Ahitereiria anō e noho ana, engari e toru ngā puninga māori kei ngā whenua e rua nei. E tohu ana tēnei tērā tonu pea i kukune 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 whakawhao o te tinana. Ko te roa o te tinana, mai i te 3 ki te 20 mm. He ururi te tae o te nuinga, kotahi 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

Illustration / Whakahaua: Lecanomerus sharpi (Csiki) (Illustrator / Kaiwhakaahua: D. W. Helmore).
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 now 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 sculptocollis, Triplusaros novaezelandiae, Sylecticus anomalous, Euthenarus puncticollis) are shared between the two islands. Three genera (Gaiexenus, Parabaris, 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 (Maoriharapalus, Kiiwharpalus). There is no genus endemic to the Chatham Islands. Stewart Island also has no endemic taxa, but shares 2 native species: Triplusaros 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 of te pito, käore e kōrino. Heoi, arā ētahi mōno noho ana, kari rau rānei käore e tino uriuri ngā tinana, he iti ake anō hoki ngā karu.

Pērā anō i te maha tonu on ngā carabid, he matahuha ngā whakarōpūtanga o ngā pītara noho papa harpaline, he huhua anō tā rātou noho ki te tiaho. Hērēkē ngā kāinga noho e pai ana ki tēnā, ki tēnā, he tāwāriwari anō tē āhua o tā rātou aro atu ki ngā āhuatanga tiaho. Nā ēnēi āhuatanga, nā te māmā anō ki te tipāko i ngā taupori i runga i ngā tikanga ē-rahī tōtika (pēnei i te hopu ki te tōmo), me tō rātou pai anō pēa hei tohu koiora, hei kaipatu koiora rānei, he rōpū tēnei e arohia nuiita ana e ngā tohunga koiora e whakamātāu ana i ngā whakapae mō te kunenga me te taupuhi kiaio.

Me te aha, he autaia tonu te maha o ngā Harpalini e puritia ana ki ngā whare pepeke me ngā kōhinga pepeke i Aotearoa – he nui ake i te 5000 ngā tauira i āta tirohia mō tēnei rangahautanga. Engari ahakoa te aro nui ki tēnei iwi, kātahi anō ka tirohia anō te whakarōpūtanga o ngā hanga nei.

I mua i tēnei o ngā tirohanga, 13 ngā puninga, e 36 ngā mōno i mōhiotia i Aotearoa nei. Engari ko tā ngā kaitahi i kite ai, arā ētahi mōno i tapaina ki ngā ingoa e rua, neke atu rānei, me ōna anō kupu whakahua i te taha. Ā, e 23 ngā mōno, e 5 ngā puninga kāore i mōhiotia i te ao puteia o mua atu i tēnei.

Waihoki, kāore i tuhia te tohanga o ngā mōno māori i mua atu i tēnei rangahautanga. Nā tēnei māhi rangahau kua kaha ake te mōhio ki o rātou tauira tohataho. Hei tauira, i kitea arā ētahi mōno maha tonu e noho motuhake anai ki ētahi rohe whāiti o Aotearoa – ko te uru-mā-raki o Te Waipounamu me Muriwhenua ētahi tino mātāpuna, ā-wā papawhenua nei, o te matawhuautanga o te huinga ira o ngā Harpalini o Aotearoa. He maha hoki ngā mōno kāore e kītea i waho atu e ēnei takiwā. He maha ake ngā mōno i Te Ika a Māui (e 35 ngā mōno), tēnā i Te Waipounamu (e 31 ngā mōno), ā, e 4 anake ngā mōno māori (*Allocinopus sculptocollis, Triplusaros novaezelandiae, Sylecticus anomalous, Euthenarus puncticollis*) kei ngā mōtoure e rua nei. E 3 ngā puninga (*Gaiexenus, Parabaris me Kupeharpalus*) kei Te Ika a Māui anake, e 2 (*Hakaharpalus me Pholeodytes*) he mōno noho ana) kei te uru-mā-raki o Te Waipounamu anake. E 2 ngā puninga kāore e kītea i waho atu o Manawa-tāwhi (*Maoriharapalus, Kiiwharapalus*). Karekau he puninga e kītea anai i Rēkohu anake. Waihoki, kāore he rōpū e kītea anai i Rakiura anake, engari e 2 ōna mōno māori, ko: *Triplusaros novaezelandiae* (kei Rēkohu, kei Te Ika a Māui me Te Waipounamu), me *Euthenarus brevicollis* (kei Rēkohu me Te Waipounamu).

He nui ake i te 50% o ngā mōno māori (e 25 o ngā mōno e 42), nō roto i ngā taupori 10, īti ake rānei. E 24 o ēnei mōno, kātahi anō ka mōhiotia i te ao pūtiaia, ā, ko te katoa me āta tiaki ka tika kei korēhāhā haere. Ko te nuinga, he māmā ki te whewehewe, tētahi i tētahi, i te nui o ngā rerekētanga, kāore e kāha te marara haere, e noho whāiti ana ki ngā ripoina mōreaere, ā, he rurua ngā tauira o tēnā, o tēnā kua kohia i roto i ngā tekau tau, e tohu ana he mōno onge tonu pea, he tino whāiti rānei ō rātou kāinga noho.
(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 Haplanister crypticus, which has also managed to invade native forests.

The collecting season of newly emerged adults suggests Harpalini species may mate in the spring and 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, of strong burrowing habits. short legs and, sometimes, strongly reduced eyes, indicative of carabid i roto i te tekau tau pea e ture tonu te momo noho ana, waewae roa (Syllectus, Pholeodytes). He poto ngō waewae o te nuinga o ngā Harpalini, ā, he tino ngoikore ngā karu, e tohu ana he kari rua, he noho rua tā rātou mahi.

Katoa ngā mōro rāwaho, he mōhio ki te tere, ā, he roa, he pakari rānei o rātou parirau kirihou. Noho ai te nuinga ki ngā tiaio kua kaha rawekehia e te ringa tangata (he maha e noho tata ana ki ngā whare), hāunga anō te Haplanister crypticus. Kua urutomo anō tenei nā i ngāhore māori.

Kore hīnā e kohihokia ai ngā pītara pakeke kātahi anō ka puta ake ki te ao e tohu ana tērā pea ko te kōanga, ko te ngahuru rānei te wā e whakaputa uri ai a ngāi Harpalini. Mō te nuinga o ngā mōro, e oreore ana ngā mea pakei e ngā marama kātutu a te tau, engari ka āhau ngoikore ake i ngā marama makariri ake.

Karekau he rarauanga mō ngā kai e pai ana ki ngā Harpalini māori. Heoi, nā Larochelle (1990, Food of carabid beetles of the World) i whakatūtū kai ai ngāi Harpalini o te ao i te kiko me te ota, engari ko te ota pea tā rātou tino kai. He roa ake ngā kauwae o Hakaharpalus, Kiwiharpalus, Syllectus, Pholeodytes, me Maoriharpalus i ērā o te nuinga o ngā mōro māori, e tohu ana pea he rerekā ngā momo kai kaininga ai e rātou. I tua atu i tērā, arā ētahi kāniwaha nui i te ngutu o runga o Maoriharpalus, e āhū rite ana ki tērā e kitea anai i te iwi Larochelle. Ko tā tērā āwi, he kai i ngā hanga turā-kore, tinana mārō, pērā i te ngata.

He mea tuhi tenei tirohanga hou kia mārama ai ngā kōrero ki te tokohama. E whai ana kia takoto mai he rārangi o ngā rōpū e noho ana ki Aotearoa nei, he whakamārama poto o ō rātou tātai hono, he ara tautou māmā, he whakaahua, he mahere, tae atu ki tētahi whakarā-popototanga o ngā pārongo e wētea anā mō te tohanga o ngā mōro, me taupuhi kaiao, me te koirā kia te tītāri haere i a rātou anō. He takahanga noa tenei 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 heī āwhina i ngā tāngata tokohama i roto i ā rātou kaupapa maha. Ko te tūmanako ia, kia noho tenei tūmomo whakarōpūtanga hei tuūpapa

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Contributor André Larochelle was born and educated in Québec, graduating in 1974 with a Brevet d’Enseignement spécialisé from the Université du Québec à Montréal. He taught ecology at the Collège Bourget, Rigaud, Québec, up to 1990. With the encouragement of the late carabid specialist Carl H. Lindroth, André very quickly becomes interested to the study of ground beetles. From 1975 to 1979 he was the co-editor of two entomological journals, Cordulia and Bulletin d’inventaire des insectes du Québec. From

(continued overleaf)
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, mō ngā mahi rangahau i ētahi atu pepeke, hei puna kōrero hoki mā ngā kaitātai whakapapa, ngā kaitautouhu, ngā tohunga taupuhi kaiao, me ētahi atu ringa koiora, tae atu ki ngā kaiwhakahaire haumaru koiora, tiaki taiao.


I whānau mai a Marie-Claude Larivière i Québec. I reira anō ia e rapu ana i te mātāuranga a, ri roa no ia i a tana Tohu Tākutatanga mai te Whare Wānanga o McGill, i te tau 1990, ko ngā whakapapa pepeke te kaupapa. Mō te rua tau i muri mai, kei Agriculture Canada, i Ottowa, ia e whāwhā ana i ētahi atu rangahautanga. I te tau 1992, ka neke mai a Marie-Claude ki Aotearoa, ka mahi hei kaitātai i ngā whakapapa o ngāi Hemiptera i Manaaki Whenua. Nāna i ārāhi Te Tātanga o ngā Whakapapa o ngā Aitanga Tuarā-Kore a Tāne mai i te tau 1994 ki te 1997, me te kaupapa Koiora-BioAssist™ (Te Aromatawai i ngā Koiora i runga i te Whakamahi i te Hangarau Mōhioho me te Whakarōpūtanga) mai i te tau 1999 ki te 2004. He neke atu i te 70 ngā tuhinga kua puta i a ia e pā ana ki te (haere tonu)
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-koiora, tae atu ki te whakarōpūtanga ā-mati, te tārai whakaahua ki te rorohiko, te tautohu i runga i te māhi pāhekoheko, me te pānui kōrero ki te pae tukutuku.

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 & Larière, 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.

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


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CHECKLIST OF TAXA

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

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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 biogeographic 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, Pholeodyles and Haplanister respectively, and 6 species (including 2 in Parabarisi and Sylcoetus). 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 Anisodactylica; 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 supraspecific taxa, North America); Larochelle & Larivière (2001, catalogue of New Zealand Carabidae); Kataev (2002a, new genus of Australian Anisodactylina); Löbl & Smetana (2003, Palaeartic catalogue).

**Higher classification**

The monophyly of the subfamily Harpalinae, 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 the earlier work of van Emden (1953), 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 Anisodactylii). According to Ball & Bousquet (2001), the Notiobii are principally in the Southern Hemisphere, showing a Gondwanan distribution pattern, whereas the Anisodactylii occur mostly in the Afrotropical and Holarctic Regions. Most New Zealand genera have the Notiobii character of the complete transverse suture between mentum and submentum. This represents the plesiomorphic 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 Anisodactylii, 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 spongily pubescent male protarsi (Noonan 1973; Goulet 1974). The current study on New Zealand taxa also agrees with Noonan (1976) on the character of the penultimate segment of the labial palpi which is bisetose (most genera) or trisetose (*Kupeharpalus* new genus) in Pelmatellina; not strictly bisetose as suggested by Goulet (1974). Both Noonan (1973, 1976) and Goulet (1974) indicated that pelmatelline genera differ from anisodactyline genera by the glabrous apex of the prosternal lobe. Four pelmatelline genera are now known from New Zealand, three of which share this character (*Lecanomerus, Syllectus, and Hakaharpalus* new genus). *Kupeharpalus* 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 Stenolophi. 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*, *Gnathaphanus*, *Notiobia*, *Harpalus*, *Egadroma*, and *Haplanister* are adventive.

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; *Parabaris*, 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*, *Triplosarbus novaezelandiae*, *Syllectus anomalus*, and *Euthenarus puncticollis*). Stewart Island has no endemic taxa, but shares 2 indigenous species: *Triplosarbus 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 still 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 troglophic, 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: Triplosarbus novaeflandiae (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 Haplantipus 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 usually 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).

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<td><strong>Anisodactylus binotatus</strong></td>
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Table 1 (continued)
Table 2. Taxa shared with Australia, New Caledonia, Norfolk Island, and Lord Howe Island. X = present; [ ] = adventive; — = absent.

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<th>Species (macropterous)</th>
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<th>Australia (mainland)</th>
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<th>New Caledonia</th>
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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 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 fine 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 genitalic 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 unarmed. 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 provides 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 Australasian 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) hypothesised to constitute barriers to interbreeding and hence to gene flow between the different species. This is corroborated, when possible, by geographic and biological information, but is not tested by genetic or ethological investigations. This species concept requires the assumption 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 categories used are defined in the Glossary (Appendix A, p. 89). A combination of criteria was used to assess whether taxa were adventurous including: recency of first New Zealand record in the literature and collections; fit of current geographical and ecological distribution with recognised natural patterns, or similarity of such distribution with that of other adventive arthropods; and dispersal ability, especially in relation to flightlessness and distance from the nearest overseas populations.

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 offshore islands) is also included, as well as first New Zealand records of adventive species. Full distributional information is given for species known from ten (10) localities or fewer. Appendix B (p. 91) contains a list of the main collecting 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 medianly, 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 elbowed. 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 right (Fig. 35) or twisted (Fig. 39)) or symmetrical (with ostium dorsal, not deflected laterally (Fig. 32)) ........................................... (p. 26)... **Anisodactylina** (in part)
  — Male protarsi spongily pubescent ventrally (Fig. 12). Aedeagus asymmetrical (with ostium deflected to the left (Fig. 55) .................. (p. 50)... **Harpalina**

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)... **Anisodactylina** (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 ................................. (p. 72)...

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) ................................. (p. 80)... **Pholeodytes** Britton
  — Segment 4 of protarsi and mesotarsi without membranous laminae (Fig. 26). Forebody (head and thorax) at most moderately narrower than elytra ................................. (p. 80)...

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) ................................. (p. 73)... **Euthenarus** Bates

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) ................................. (p. 73)...
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 1.5–2.0× 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 0.3–0.7× 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 ................................................................. 16

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)... *Paraharapis* 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)... *Triplosarus* 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)... *Kiwihearpalus* 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, Maoriharpalus*). Mentum and submentum usually separated by 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.

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 (Fig. 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 (Fig. 188). 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 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

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) ....
   — 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. Metafemora with 5–7 long setae on posterior margin. Paraglossae as long as ligula (Fig. 31) ...................
     ...........................................(p. 45)...... *Triplosarus* Bates
   — Body dark in colour. Tarsi pubescent dorsally. Metafemora with 2 long setae on posterior margin. Paraglossae longer than ligula ...................
     ...........................................(p. 42)...... *Parabaris* Broun

Genus *Allocinopus* Broun, 1903

*Allocinopus* Broun, 1903: 607. Type species: *Allocinopus sculpcticollis* 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 slightly emarginate medially. Eyes moderately large, slightly to strongly convex, widely separated from buccal fissure ventrally (by about 2x 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.** 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 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 2× wider than long; Fig. 175). [Pronotum (Fig. 119), Chatham Islands] ...........................................(p. 32)... *latitarsis* Broun

2. Pronotum not cordate (heart-shaped), sides clearly sinuate (Fig. 118, 120). Metepisterna longer than wide ..... 3

3. Metepisterna as wide as or wider than long; Fig. 175). Palpi truncate apically. Male protarsi and mesotarsi not strongly dilated laterally (Fig. 176) ...........................................(p. 31)... *wardi* new species

4. Pronotum (Fig. 118): punctuation weakly developed basally and laterally; basal foveae deep, much longer than wide. Body brownish. Tarsi pubescent dorsally ...........................................(p. 31)... *sculpticollis* Broun

5. 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) ...........................................(p. 31)... *angustulus* Broun

6. 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. 31)... *bousqueti* new species

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**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 starting 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 trisete (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; posterior bead complete medially; anterior angles strongly developed, acute; posterior angles strongly developed, subrectangular; basal fooveae shallow, narrow; anterior lateral setiferous puncture not touching lateral beads; punctu-ation 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 feeble. Sutural apices angulate-rounded. Scutellar striole present. Interneurs shallow, deepening apically, impunctate. Intervals sparsely punctate, flat, becoming convex apically. Interv-als shallow, deepening apically, impunctate. Internal sac armed. **Material examined.** 421 specimens, including types.

**References.** Hudson, 1934: 37 (distribution, ecology); Noonan, 1973: 285 (taxonomy); Larochelle & Larivière, 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 designated as lectotype. The second specimen represented in the Natural History Museum, London (BMNH) collection 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 species are highly variable morphologically (within and between populations) and the only reliable diagnostic character between them is the male aedeagus. The geographic distribution of these two allopatric species may also assist their identification.

**Allocinopus angustulus** Broun, 1912

Figuress 33, 115, 171; Map p. 147


**Description.** Body length: 6.0–7.5 mm. Moderately convex. 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, moderately 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 maximum 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 trisete (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,
Remarks
biology, dispersal power).
Larivière, 2001: 122 (taxonomy, distribution, ecology, pitfall trapping.
Good burrower.
Elytra fused along suture. Subapterous. Moderate runner.

Geographic distribution (BMNH, ITNZ, JNNZ, MONZ, NZAC, UCNZ).
143 specimens, including type
Material examined
Allo cinopus belli
Allocinopus belli
Allocinopus bellii
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. Mete pisterna as wide as 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 feeble. Sutural apices angulate. Scutellar striole present. Interneurs 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.

Ecology. Lowland, montane. Wet or moist forests (broadleaf, beech): along streams, rills, and gullies. Shaded area very wide, extending almost to basal bulb; apex 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.


Remarks. See under A. smithi.

Allocinopus bellii new species

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 6 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. Elytra. Widest about middle. Shoulders strongly developed, angulate, with a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striole present. Interneurs 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 moderately 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. 13 specimens, including types (BBNZ, ITNZ, LUNZ, NZAC).


Ecology. Lowland (coastal). Wet forests (broadleaf): along streams. Shaded area very wide, extending almost to basal bulb; apex deflected to the right and apical disc present, narrowly spatulate. Internal sac armed.


Remarks. See under A. smithi.

Allocinopus bellii new species

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.

**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 close friend and colleague Yves Bousquet (Agriculture and Agri-Food Canada, Ottawa, Canada) 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 smooth. Microsculpture strong, very 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. 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 metatarsomeres 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).


**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

*Allocinopus wardi* Larochelle & Larivière, new species.


**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. Irudescent. **Head.** [Missing]. **Thorax.** Pronotum (Fig. 118) 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; posterior bead incomplete medially; anterior angles strongly developed, acute; posterior angles strongly developed, subrectangular; basal foveae deep, narrow, very long; anterior lateral setiferous punctures touching lateral beads; 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. Interneurs 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.


**Remarks.** The configuration of the male aedeagus is unique among Alloclinopus species. This is the only species so far recorded from the Coromandels 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


“Good condition. Right middle leg without last tarsomere. Paratypes: 2 males and 1 female (BMNH) bearing blue paralectotype labels.

**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 plurisetose (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 longer than wide. **Legs.** Tarsi pubescent (with a few setae) dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 short, slightly longer than metatarsomeres 2. Male protarsi and mesotarsi strongly dilated laterally, about 2× wider than long (contrary to other Allocinopus species). **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae present. Interneurs shallow, not deepening apically, impunctate. Intervals impunctate, flat, not convex apically. Interval 3 without setiferous puncture behind middle. **Aedeagus** (Fig. 37). Lateral view: slightly arcuate; apex narrowly triangular, almost straight. Dorsal view: asymmetrical (with ostium slightly deflected to the right); dorsal membranous area very wide, extending almost to basal bulb; apex slightly deflected to the right; apical disc present, triangular. Internal sac armed.

**Material examined.** 274 specimens, including types (AMNZ, BBNZ, BMNH, CMNZ, ITNZ, LUNZ, MONZ, NZAC, UCNZ).


**Ecology.** Lowland. Wet forests (broadleaf), shrublands, and scrublands. Also pastures, gardens, stream edges, and


**Remarks.** The lectotype of * Allocinopus latitarsis* is designated to preserve stability of nomenclature in the future. The aedeagus of this species is morphologically close to that of * Allocinopus sculpticollis*, but * Allocinopus latitarsis* is unique among Allocinopus species in having male protarsi and mesotarsi strongly dilated laterally, and metatarsomeres 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<sup>6</sup>

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 medially. 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 antenomere 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 foveae 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; 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 situations feeble. Sutural apices angulate. Scutellar striole present. Interneurs shallow, deepening apically, impunctate. Intervals impunctate, flat, becoming convex apically. Interval 3 without setiferous pustule 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, JNNZ, 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.

**Ecology.** Lowland, montane. Wet forests (broadleaf, podocarp, beech), swamp forests, and shrublands: along streams and mud flats. Shaded ground; soil covered with dead leaves. Nocturnal; sheltering during the day in burrows dug under stones (mostly) and logs, also hiding under fallen branches and epiphyte crowns, and in leaf litter. Gregarious. **Biology.** Seasonality: October–April. Tenebroids: October–April. Occasionally infested with mites and fungi (Laboulbeniales). **Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner. Good burrower. **Collecting techniques.** Turning stones and logs, pitfall trapping.
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 from buccal fissure ventrally (by about maximum width of antennal scape). Tempora not inflated. Frons without clypeo-ocular prolongations. Antennal pubescence starting from basal third of antennomere 3. Mentum without a tooth medially. Mentum and submentum fused, not separated by transverse suture. Paraglossae longer than ligula. Palpi with last segment fusiform, not truncate apically, with sparse, short pubescence; penultimate segment of labial palpi plurisetose on anterior margin. **Thorax.** Pronotum transverse, rectangular; base straight, as wide as elytral base; lateral beads complete; anterior and posterior beads complete. Scutellum visible. Apex of prosternal lobe pubescent. **Legs.** Metatibiae with 3–4 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 (except metatarsomeres 1+2 with 3–6 setae) dorsally; metatarsomere 5 pubescent (with 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 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 arcuate. Dorsal view: asymmetrical (with ostium deflected to the left), twisted at middle; dorsal membranous area wide, not extending to basal bulb; apical disc present. Internal sac unarmed.

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


**Anisodactylus binotatus** (Fabricius, 1787)

**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 palpi 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; posterior 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. Metepisterna longer than wide. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices rounded. Scutellar striole present. Interneurs shallow, impunctate. Intervals flat; outer intervals and apex of elytra finely and densely punctate. Interval 3 with setiferous punctures absent. **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 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).


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**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 micro pores 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 times 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 plurisetose 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.** Metathorax 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).

**References.** Hudson, 1934: 177 (list); Noonan, 1976: 9 (taxonomy); Larochelle & Larivière, 2001: 123–124 (catalogue).

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*Gaioxenus pilipalpis* Broun, 1910

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


**Description.** Body length: 8.5–9.0 mm. Slightly convex. Piceous; lateral margins of pronotum piceous reddish; labrum and mandibles reddish; palpi brownish red; antennae, tibiae, 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 times 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 widen-
ing posteriorly; anterior angles moderately developed, ob-tuse-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 fee-bly. Sutural apices angulate. Scutellar striae present. Interneurs shallow, deepening apically, impunctate. Inter-vals 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.


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 Harpalini in having a boat-shaped body. In

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 micro pores dorsally. Head. Mandibles short, strongly curved forward, blunt apically. Labrum strongly transverse; apex slightly emarginate medially. Eyes moder-ately 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 trans-verse 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 incomplete medially. Scutellum visible. Apex of prosternal lobe pubescent. Legs. Metafemora with 2 long setae on posterior margin. Male protarsus and mesotarsus dilated laterally and spongily pubescent ventrally. Segment 4 of protarsus and mesotarsus of both sexes without membranous laminae. Tarsi glabrous dorsally; metatarsomere 5 pubes-cent (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) A 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 adelaidae Laporte de Castelnau, 1867: 108. Type locality: Adelaide and Port Lincoln (South Australia), and King George Sound (Western Australia), Australia. Synonymised by by Chaudoir, 1878: 510.


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


Harpalus atroviridis Macleay, 1871: 103. Type locality: Gayndah, Queensland, Australia. Synonymised by 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 striae 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.

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**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 micro pores 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 withoutclypeo-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.** Metaphemora with 4–6 long setae on posterior margin. Male...
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)
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: 81.


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

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


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 feebly. 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.
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 occurs on both main islands of New Zealand. See also Remarks under H. antarcticus.

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 6x 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 2x 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 5–6x longer than maximum width; contrary to other Anisodactylina genera). Mentum without tooth medially. Mandibles and antennal scapes, a strongly emarginate labrum, relatively small eyes, and a suborbicular 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 pronomal apex; excavated anteriorly, flat posteriorly. Antennae very long, reaching middle of elytra; antennal scape elongate, about 5–6x longer than its maximum width. Penultimate segment of labial palpi with 5–6 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 suborbicular pronotum.
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 striae present. Interneurs shallow, deepening apically, impunctate. Intervals impunctate, flat, becoming convex apically. Interval 3 without 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.

**Genus Notiobia Perty, 1830**

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

**Description** (*Notiobia quadricollis*). Body length: about 8.0 mm. Forebody (head and thorax) without sparse setiferous micro pores 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.** 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 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 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.** No male seen.

**Geographic distribution.** Australian Region, Neotropical Region.


**Remarks.** Australian representatives of this genus are in need of revision.

**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.


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

**Geographic distribution.** As for genus.

**References.** As for genus.

**Notiobia A. quadricollis** (Chaudoir, 1878)

First New Zealand record

Figures 92, 127, 183; Map p. 148

*Diaphoromerus quadricollis* Chaudoir, 1878: 86. Type locality: northern Australia.


**Description.** Body length: 8.2 mm. Moderately convex. Black; antennomere 1 rufous. 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 moderately long, reaching pronotal base; antennal scape about 2× longer than its maximum width. Penultimate segment of labial palpi with 2 long setae and 6 short setae on anterior margin. **Thorax.** Pronotum (Fig. 127) very transverse, widest about middle;
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.


**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.

**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) ... *hoaeri* 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 pronotal apex (Fig. 184). Pronotum (Fig. 128) very transverse. [Body stout, length 16.0–20.0 mm] ....... ... (p. 43) ... *atra* Broun

— Head as wide across eyes as pronotal apex (Fig. 185). Pronotum (Fig. 129) moderately transverse. [Body slender, length 15.5–16.5 mm] ........................................ 2


**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 (*atra*us, *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.** Metatarsa with 2 long setae on posterior margin. Male protarsi dilated laterally and spongily pubescent ventrally. Male mesotarsi dilated laterally and spongily pubescent ventrally (*atra*us) or unmodified (*hoaeri, lesagei*). 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.** 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. hoaeri* 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.
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 elytrial 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 as wide as long. Legs. Male mesotarsi dilated laterally and spongily pubescent ventrally. Elytra. Widest before middle. Shoulders strongly developed, angulate, with a tooth. Subapical sinuatuons strong. Sutural apices angulate. Scutellar striole present. 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.

Parabaris lesagei Larochelle & Larivière, 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 elytrial 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


Remarks. This species and P. lesagei are closer morphologically than either is to P. hoarei.
as wide as long. **Legs.** Male mesotarsi unmodified, neither dilated laterally nor spongily pubescent ventrally. **Elytra.** Widest before middle (as in *atratus*). Shoulders strongly developed, angulate, with a tooth. Subapical sinuations strong. Sutural apices rounded. Scutellar striole present. Interneurs moderately deep, impunctate. 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 entomological studies and for his special talent and dedication as a manuscript reviewer.

**Parabaris hoarei** new species

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

*Parabaris hoarei* Larochelle & Lariviére, new species. Holotype: male (NZAC) labelled “UNUWHAO SPIRITS BAY 11.I. 57. R.A. CUMBER. (hand-written) / HOLOTYPE [male symbol] Parabaris hoarei Larochelle & Lariviére, 2004 (red label; typed).” Paratypes: 3 females (2 NZAC, 1 MONZ) from the same locality as the holotype, bearing blue paratype labels.

**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 feeble. 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 *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


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). Temporal 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. Legs. Metemorma with 5–7 long setae on posterior margin. Male protarsi and mesotarsi of protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Segment 4 of protarsi and mesotarsi of protarsi and mesotarsi of protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Metatarsomere 1 shorter than metatarsomeres dorsally; metatarsomere 5 pubescent (with 6 setae) both sexes without membranous laminae. Tarsi glabrous pubescent ventrally. Segment 4 of protarsi and mesotarsi of protarsi and mesotarsi dilated laterally and spongily pubescent ventrally. Metafemora with 5–7 long setae on posterior margin. Male large, convex, widely separated from buccal fissure straight or slightly emarginate medially. Eyes moderately large, blunt apically. Labrum strongly transverse; apex straightly shorter than lateral lobes. Mentum and submentum of antennomere 3. Mentum with a tooth medially, moderately developed, angulate; basal foveae deep, 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. Metepisternum 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. 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)

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


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

Description. Body length: 7.5–10 mm. Slightly 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; head 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 andurary, 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 striole 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. The external morphology (including body colour) of the lectotype to preserve stability of nomenclature in the future.

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 antenomone 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by complete transverse suture. Paraglossae as long as ligula (cluniae, 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 (cluniae, hallae) on anterior margin. Thorax. Pronotum transverse or suborbicular (cluniae); 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 metatarsomerises –4–9 of both sexes dilated laterally, and subtriangular (as opposed to Parabaris, only male pro- and mesotarsi dilated). Male protarsi spongily pubescent ventrally; mesotarsi spongily 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 (cluniae)); dorsal membranous area wide, extending almost to basal bulb; apical disc present or absent. Internal sac armed or unarmored.

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 Parabaris, 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.
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) ... moorei new species

— Elytral interval 7 without a row of setiferous punctures (Fig. 96–98). Pronotum (Fig. 132–135) with lateral depressions not strongly explanate throughout. [Head smaller; slender body] ........................................... 2

2(1) Elytral interneur 2 with a row of setiferous punctures (Fig. 98); intervals 3 and 5 without rows of setiferous punctures (Fig. 96) ................................................. 3

— Elytral interneur 2 without a row of setiferous punctures (Fig. 96–97); intervals 3 and 5 with rows of setiferous punctures (Fig. 96–97) ................................................. 4

3(2) Pronotum (Fig. 135) very transverse; anterior angles moderately developed, obtusely rounded; posterior angles moderately developed, obtuse. Piceous black .......................................................... (p. 49) ... hallae new species

— Pronotum (Fig. 134) suborbicular; anterior angles strongly developed, acute; posterior angles feebly developed, broadly rounded. Reddish .......................................................... (p. 48) ... cluniae new species

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

— Pronotum (Fig. 132) less transverse; sides strongly converging toward base, moderately sinuate. Body length 11.0 mm or less ...(p. 47) ... crosbyi new species

Tuiharpalus crosbyi new species

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

Tuiharpalus crosbyi Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “THREE KINGS IS NZ Great I, 45 m 28–30 Nov. 1983 C.F. Butcher (typed) / Pan traps Shore and coastal forest (typed) / HOLOTYPE [male symbol] Tuiharpalus crosbyi Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 3 males (2 NZAC, Great Island, Tasman Valley; 1 LUNZ, Great Island), bearing blue paratype labels.

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 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 4 long setae and several short setae. Metepisterna wider than long. Legs. Metafemora with 2 long setae on posterior margin. Male mesotarsi spongy 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 mhi (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 *T. crosbyi*), slightly sinuate; base emarginate, slightly narrower than elytral base; apex concave; lateral depressions crosbyi; sides slightly converging toward base (less so than in *T. crosbyi*), slightly sinuate; base emarginate, slightly narrower than elytral base; apex concave; lateral depressions crosbyi. Pronotum (Fig. 134) wider than elytral base; apex concave; lateral depressions crosbyi. Pronotum (Fig. 134) wider than elytral base; apex concave; lateral depressions crosbyi. Pronotum (Fig. 134) wider than elytral base; apex concave; lateral depressions crosbyi. Pronotum (Fig. 134) wider than elytral base; apex concave; lateral depressions crosbyi. Pronotum (Fig. 134) wider than elytral base; apex concave; lateral depressions crosbyi

**Materials 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 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 not truncate apically, with sparse long pubescence; penultimate segment of labial palpi plurisetose (with 2 long and 1 short seta) on anterior margin. **Thorax.** Pronotum (Fig. 134) suborbicular, widest at middle; sides converging toward base, not sinuate; base emarginate, moderately narrower than elytral base; apex concave; lateral depressions moderately explanate throughout; posterior bead complete; anterior angles strongly developed, acute; posterior angles moderately explanate throughout; posterior bead complete; anterior angles strongly developed, acute; posterior angles

**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.** Metafemora 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 angulate. Scutellar striae absent or present. Internes 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 middle 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).


**Remarks.** This species is morphologically close to *T. clunieae*. 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.

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**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 (males) or granulate on elytra (females). 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, 5× wider than mesotarsomeres (contrary to other *Tuiharpalus* species, except *hallae*). Male mesotarsi spongily pubescent ventrally. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, with a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae absent or present. Internes 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. 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 most 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).


**Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner. **Collecting techniques.** Raking leaf litter, turning logs, pitfall trapping.

**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 thorax 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. Metepisternum wider than long. **Elytra.** Widest about middle. Shoulders moderately developed, rounded, without a tooth. Subapical situations 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


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 or much 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, not truncate apically, with sparse, moderately long pubescence; penultimate segment of labial palpi pluriisetose on anterior margin. Thorax. Pronotum very transverse; base straight or slightly emarginate, as wide as elytral base; lateral beads complete; anterior bead incomplete medially; posterior bead complete. Scutellum visible. Apex of prosternal lobe pubescent. Legs. Metafemora with 4–10 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 (at least tarsomeres 1–4) dorsally; metatarsomere 5 pubescent (with 6–8 setae) ventrally; metatarsomere 1 much shorter than metatarsomeres 2+3 (slightly longer than 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: moderately arcuate. Dorsal view: asymmetrical (with ostium strongly deflected to the left); dorsal membranous area very wide, extending only in apical half (stopping well before basal bulb); apical disc present. Internal sac armed or unarmed.

Geographic distribution. Nearctic, Palearctic, Ethiopian, Oriental, and Australian Regions; New Zealand (adventive).


Subgenus Harpalus Latreille, 1802

Harpalus Latreille, 1802: 92 (see above).

Amblystus Motschulsky, 1864: 209. Type species: Carabus rubripes Duftschmid, 1812, by original designation. Author of synonymy unknown for this subgenus.

Geographic distribution. Same as genus.

Key to species of Harpalus

1 Pronotum (Fig. 137): sides converging toward base; punctuation strongly developed basally and laterally; base emarginate. Elytra with apex and outer intervals pubescent (Fig. 100). [Metallic lustre strong; Fig. 193] ................................. ...(p. 51)... affinis (Schrank)
— Pronotum (Fig. 138–139): sides not converging toward base; punctuation feebly developed basally and laterally; base straight. Elytra with apex glabrous and at most interval 9 pubescent (in addition to umbilicate setiferous series). [Metallic lustre absent or weak] ..................  2

2(1) Body greenish dorsally (Fig. 195). Elytra with interval 9 glabrous (except for umbilicate series of setiferous punctures). Microsculpture strongly developed on head. Paraglossae longer than ligula. Metafemora 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 pubescent (in addition to umbilicate series of setiferous punctures). Microsculpture almost absent on head. Paraglossae as long as ligula (Fig. 31). Metafemora with 8-10 long setae on posterior margin. Body length 8.0 mm or more. [Pronotum (Fig. 138)] ...................................... ...(p. 52)... tardus (Panzer)

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
Carabus tardus Panzer, 1797: 24. Type locality: Germany. Figures 55, 138, 194; Map p. 149.

*C* 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 large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles moderately developed, broadly rounded; posterior angles strongly developed, obtuse; basal foveae deep, wide; punctuation 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 angulate in males, acutely angulate 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).

### Geographic distribution


### Ecology


### References

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.


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

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**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.

**Notiobia (Anisosatorus) australasiae** Noonan, 1973: 296.


**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. **Elytra.** Widest about middle. Shoulders strongly developed, angulate, 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. Apex of prosternal lobe pubescent (Kupeharpalus). Male protarsi dilated laterally and spongily pubescent ventrally; male mesotarsi usually dilated laterally, spongily pubescent ventrally (except Syllectus), seldom unmodified (either dilated or 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 (Hakaharpalus, 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

— 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 0.3–1× maximum width of antennal scape; Fig. 20) ............................................. 2

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

— 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

— 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 micropores 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 medially. 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 posterior 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 metatarsomeres 2–3.

**Elytra.** Interneurs 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 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* (Bembidiini) 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)] .......... ...................................(p. 56)... *maddisoni* new species
—Elytra (Fig. 102, 196): interneurs shallow (weakly impressed) ........................................... .... 3

3(2) Microsculpture absent on pronotum and elytra. Elytral intervals finely punctate. Pronotum (Fig. Addendum) sinuate laterally in front of posterior angle. [Male unknown] ................................. ........ (p. 57, 93)... *cavelli* (Broun) new combination
—Microsculpture present on pronotum and elytra. Elytral intervals coarsely punctate. Pronotum (Fig. 140) not sinuate laterally in front of posterior angle. [Aedeagus (Fig. 57): apical half slightly curved (in lateral view); apex broadly rounded (in dorsal view)] ...........................(p. 55)... *patricki* new species

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)] ............................. (p. 56)... *davidsoni* new species

**Hakaharpalus patricki** new species

*E* 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) / HOLOTYP [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 0.7× maximum width of antennal scape). Antennal scape about 3× 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 sinuations feebly. Sutural apices rounded. Scutellar striae absent. Interneurs 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.


**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 in our New Zealand insect studies.

### Hakaharpalus maddisoni new species

*Figures 58, 141, 197; Map p. 150*

**Hakaharpalus maddisoni** Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “Surveyers Ck. 380m. Karamea Bluff Nelson. (hand-written) / 13 Oct 70 JJ Townsend (hand-written) / HOLOTYPE [male symbol] *Hakaharpalus maddisoni* Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 1 male from same locality as holotype (NZAC) and 1 female (OMNZ) from Karamea Bluff.

**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; excavaed 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 feebble. 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*

**Hakaharpalus davidsoni** Larochelle & Larivière, new species. Holotype: male (NZAC) labelled “Gowan Bridge Buller gorge Wet moss 24.9.64 J.I. Townsend (hand-written) / HOLOTYPE [male symbol] *Hakaharpalus davidsoni* Larochelle & Larivière, 2004 (red label; typed).” Paratype: 1 female (NZAC) from Mt Arthur, NN, bearing blue paratype label.

**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 devel-
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 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. 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 antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Mentum and submentum separated by com-
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 segment 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 completely. Scutellum visible. Apex of prosternal lobe pubescent. **Legs.** Metatibia 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* or unmodified (*johnsi*). Segment 4 of protarsi and mesotarsi of both sexes without membranous laminae. Tarsi pubescent (with numerous setae) dorsally; 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 ostium dorsal, not deflected laterally); dorsal membranous area very wide, extending almost to basal bulb; apical disc present or absent. Internal sac armed or unarmed.

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

**Remarks.** The generic name is derived from Kupe (the legendary Polynesian navigator to whom is attributed the discovery of New Zealand) and Harpalus (the type genus of the tribe Harpalini). Members of this new genus superficially resemble those of *Lecanomerus*, but can be separated from the latter by the following characters: eyes widely separated from buccal fissure; penultimate segment of labial palpi trisetose; apex of prosternal lobe pubescent.

**Key to species of Kupeharpalus**

1 Pronotum (Fig. 146): base straight; posterior angles subrectangular; anterior angles obtuse; punctuation strongly developed basally. Paraglossae as long as ligula (Fig. 31) [Body length 6.0 mm or less. Aedeagus (Fig. 63)] ........................................ (p. 59)... *johnsi* new species

— Pronotum (Fig. 144–145): base emarginate; posterior angles broadly rounded; anterior angles rounded; punctuation feebly developed basally. Paraglossae longer than ligula [Body length 6.0 mm or more] ... 2

2(1) 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 17.1X.-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). 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 setae 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, with paired ambulatory setae on anterior margin. **Legs.** Male mesotarsi dilated laterally and spongily pubescent ventrally. Metatarsomere 5 pubescent (with 5–8 setae) ventrally. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feebly. 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 luster. 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 moderately deep, impunctate. Intervals impunctate, slightly convex. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 61). Lateral view: as for genus; moderately arcuate; apex broadly triangular. Dorsal view: as for genus; apical disc present, wide, with convergent sides.

Remarks. This taxon is morphologically close to K. embersoni but it is geographically isolated from it, being found south of the Aupouri Peninsula whereas K. embersoni is restricted to the tip of the Peninsula. This species is named after Barbara I. P. Barratt (AgResearch, Mosgiel) for her contribution to the building of important reference collections of New Zealand carabids.

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


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. See also Remarks under K. barrattae.

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.
Description. Body length: 5.0–6.0 mm. Strongly convex. Forebody (head and thorax) dark brown; elytra, labrum, antennae, palpi, and legs rufous. Generally glabrous and punctate. Microsculpture absent on forebody, absent or very transverse (with microlines) on elytra. Very shiny, without metallic lustre. Head. Moderately large, narrower across eyes than pronotal apex; excavated anteriorly, slightly convex posteriorly. Labrum slightly transverse, almost square; apex straight or slightly emarginate medially. Eyes widely separated from buccal fissure ventrally (by about 2× 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. Paraglossae as long as ligula. Penultimate segment of labial palpi with 2 long setae and 1 short seta on anterior margin.

Thorax. Pronotum (Fig. 146) very transverse, widest before middle; sides converging toward base, slightly sinuate; base straight, moderately narrower than elytral base; apex slightly concave; lateral depressions widening posteriorly; anterior bead incomplete medially; posterior bead complete; anterior angles moderately developed, obtuse; posterior angles strongly developed, subrectangular; basal foveae deep, narrow; punctuation strongly developed (basally). Apex of prosternal lobe with 10–20 short setae (without long setae). Metepisterna wider than long. Legs. Male mesotarsi unmodified, neither dilated laterally nor spongily pubescent ventrally. Metatarsomere 5 pubescent (with 4–8 setae) ventrally; metatarsomere 1 as long as or shorter than antennal scape). Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width. Paraglossae as long as ligula. Penultimate segment of labial palpi with 2 long setae and 1 short seta on anterior margin.

Elytra. Widest behind middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feeble. Sutural apices angulate. Scutellar striae absent or present. Interneurs moderately deep, impunctate. Intervals impunctate, slightly convex. Interval 3 without setiferous puncture behind middle. Aedeagus (Fig. 63). Lateral view: as for genus; strongly arcuate; apex narrowly pointed; main shaft much narrower than in other Kupaharpalus species. Dorsal view: as for genus; apical disc absent.

Material examined. 36 specimens, including types (AMNZ, CMNZ, JNNZ, MONZ, NZAC).


Remarks. This taxon is morphologically isolated from its congeners (see characters in key to species). It is named after Peter M. Johns (Canterbury Museum, Christchurch) for his special help in our entomological studies and for his contribution to the building of important reference collections of New Zealand carabids.

Genus Lecanomerus Chaudoir, 1850


Description. Body length: 3.2–10.0 mm. Forebody (head and thorax) without sparse setiferous microsculpture 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 spongious pubescence uniformly distributed, contrary to Kupeharpalus) 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; metatarsomere 5 pubescent (with 4–8 setae) ventrally; metatarsomere 1 as long as or shorter than
latimanus, marrisi) 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 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.


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 (Fig. 1). [South Island: Banks Peninsula] ....................................... ...(p. 66)... marrisi new species

Key to species of Lecanomerus

1 Elytra with sides broadly yellowish (Fig. 206–207) . 2
   — Elytra without 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)... obesulus 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)

Figures 64, 147, 203; Map p. 150

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

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

**Nemaglossa atriceps**: Pilgrim, 1963: 844.

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


**Description**. Body length: 3.2–3.5 mm. Slightly convex. Head black; pronotum reddish brown; elytra dark brown; elytral margins and sutures red; antennomeres 1+2, palpi, and legs yellowish; antennomeres 3–11 blackish (contrary to other *Lecanomerus* species). Generally glabrous and smooth. Microsculpture vestigial 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 0.3x maximum width of antennal scape). Frons with clypeo-ocular prolongations complete. Antennae moderately long, reaching pronotal base; antennal scape about 2x longer than its maximum width; pubescence starting from apical 1/2 of antennomere 2. Mentum with a very short tooth mediially, much shorter than lateral lobes (only about 0.3x 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. Sub-apical sinuations feeble. Sutural apices angulate. Scutellar striae absent. 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).


**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

Figures 65, 105, 148, 204; Map p. 150


**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 (with microlines) on elytra. Moderately shiny, without metallic lustre; elytra very iridescent. **Head.** Rather small, much narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles moderately elongate, slightly curved forward. Labrum moderately transverse, almost quadrate; apex straight or slightly emarginate medially. Eyes narrowly separated from buccal fissure ventrally (by about 0.7× 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; pubescence starting from basal 1/3 of antennomere 3. Mentum with a tooth medially, moderately shorter than lateral lobes. Parasagellae longer than ligula. Palpi with last segment cylindrical, glabrous. **Thorax.** Pronotum (Fig. 148) very transverse, widest about middle; sides converging toward base, not sinuate; base emarginate, as wide as elytral base; anterior bead complete (contrary to other *Lecanomerus* species); apex slightly concave; lateral depressions widening posteriorly; anterior angles moderately developed, rounded; posterior angles strongly developed, broadly rounded; basal foveae shallow, ill-defined; punctuation feebly developed basally. Metepisternum as wide as long. **Legs.** Male protarsi 3× wider than mesotarsi (contrary to other *Lecanomerus* species); male mesotarsi dilated laterally and spongy subpubescent ventrally. Tarsi glabrous dorsally; metatarsomere 5 pubescent (with 4 setae) ventrally; metatarsomere 1 as long as metatarsomeres 2+3. Metatarsal claws of male 2× larger than pro- and mesotarsal claws (about as wide in other *Lecanomerus* species). **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations moderate. Sutural apices angulate. Scutellar striae absent. Interneurs moderately deep, impunctate. Intervals impunctate, slightly convex. Interval 3 with a setiferous puncture behind middle. Umbilicate setiferous series of interval 9 with posterior group continuous. **Aedeagus** (Fig. 65). Lateral view: as for genus; slightly arcuate; apex truncate. Dorsal view: as for genus; apical disc present, transverse. Internal sac armed.

**Material examined.** 35 specimens, including types (AMNZ, BMNH, CMNZ, FMNH, JNNZ, LUNZ, NZAC).

**Geographic distribution** (Map p. 150). North Island: ND.


**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 *Kupeharpalus barrattae* 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

Figures 66, 149, 205; Map p. 151


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 forebody (head and thorax), isodiametric on head, moderately transverse on pronotum, very transverse (with microlines) on elytra. Shiny, with isodiametric on head, moderately transverse on pronotum, and coarse basally. Metepisterna longer than wide. Male mesotarsi dilated laterally and spongily pubescent ventrally; basal foveae deep, wide; punctuation strongly developed 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 strongly arcuate; apex acute. Dorsal view: as for genus; 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. Head. Moderately large, narrower across eyes than pronotal apex; flat anteriorly, slightly convex posteriorly. Mandibles short, strongly curved forward. Labrum with last segment fusiform, with sparse, very short pubescence. Head and pronotum brownish testaceous; elytra blackish; margins of pronotum and elytra narrowly reddish; antennomeres 1+2 and basal 1/2 of tibiae reddish; femora blackish. 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 with last segment fusiform, with sparse, very short pubescence. Elytra. Fused along suture. Subapterous. Moderately runner. Collecting techniques. Turning moss carpets, stones, and logs.


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.
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. 

**Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical sinuations feebly. Sutural apices angulate. Scutellar striole absent or nearly so. Interneurs shallow, impunctate. Intervals impunctate, flat. Interval 3 without setiferous puncture ventrally. Umbilicate setiferous series of interval 9 with posterior group divided into two subgroups. 

**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. obesulus* are the most commonly encountered *Lecanomerus* species on the South Island.
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. Metepisterna 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 striae absent or present. Interneurs shallow, impunctate. Intervals impunctate, flat.

**Ecology.** Lowland. Wet forests (broadleaf, podocarp) and swamp forests: along streams. Shaded ground; soil covered with thick leaf litter. Nocturnal; sheltering during the day

**Dispersal power.** Elytra fused (brachypterous) or Elytra fused along suture. 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 striae absent or present. Interneurs shallow, impunctate. Intervals impunctate, flat.

**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.

**Ecology.** Lowland. Wet forests (broadleaf, podocarp) and swamp forests: along streams. Shaded ground; soil covered with thick leaf litter. Nocturnal; sheltering during the day in leaf litter and under stones. Gregarious. **Biology.** Seasonality: throughout the year. Occasionally infested with mites. Defense mechanism: feigns death when disturbed. **Dispersal power.** Elytra fused (brachypterous) or free (macropterous) along suture. Moderate runner.

**Collecting techniques.** Pitfall trapping, raking leaf litter, baiting pitfall traps, using yellow pan traps.


**Remarks.** See under _L. latimanus._

**Lecanomerus marrisii** new species

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

**Lecanomerus marrisii** Larochelle & Larivière, new species. **Holotype:** male (NZAC) labelled “Peraki-Mt Bossu Rd Banks Peninsula 12.12.63 1800’ W.P. Thomas (handwritten) / HOLOTYPE [male symbol] Lecanomerus marrisii Larochelle & Larivière, 2004 (red label; typed).”

Paratypes: 1 male and 2 females (UCNZ) from Peraki Rd Bush, Banks Peninsula, bearing blue paratype labels.

**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 medially. Eyes reaching buccal fissure ventrally. Frons with clypeo-ocular prolongations incomplete toward eyes. Antennae modestly 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 medially, 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. Metepisterna longer than wide. **Legs.** Male mesotarsi unmodified, neither dilated laterally nor spongily pubescent ventrally. Protarsomeres 1–4 pubescent; meso- and metatarsomeres 1–4 glabrous; pro-, meso-, and metatarsomeres 5 with 5–6 setae dorsally. Metatarsomere 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 feeble. Sutural apices rounded. Scutellar striae present. Interneurs 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, inflated. Dorsal view: as for genus; apical disc present, subtriangular. Internal sac armed.

**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 Bossu Road; Peraki Road Bush).

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 marrisii* 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.


**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, apex 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 striae absent. Interneurs shallow, impunctate. Intervals impunctate, flat. Interv 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.

Genus Lecanomerus Bates, 1886


Lecanomerus mastersii: Sloane, 1911: 836.


Acupalpus (Egadroma) vestigialis: Csiki, 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 iridescent. Forebody (head and thorax) without sparse setiferous micropores dorsally. 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 sinuations feebly developed. Sutural apices angulate. Scutellar striae absent or present. Interneurs shallow, 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: as for genus; slightly arcuate; basal 1/2 much narrower than in verticalis; apex broadly acute. Dorsal view: as 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 micropores dorsally. Forebody (head and thorax) much narrower than elytra.
Dorsal view: symmetrical (with Aedeagus without short setae, with paired ambulatory setae only. Without a setiferous fovea. Ventrites 5+6 of both sexes extending to basal bulb or almost; apical disc absent. Interreflected laterally); dorsal membranous area wide or narrow, divided into 2 subgroups. Female 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 1.5× 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)] .................................................. (p. 69)... *anomalus* Bates

— 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* Britton

### *Syllectus anomalus* Bates, 1878

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


Good condition. Parallectotype: 1 female (MNHN) bearing blue paratype label.

**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 2× longer than its maximum width. Last segment of palpi with sparse, moderately long pubescence. **Thorax.**
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 lobeae deep, narrow; punctuation feebly developed. Metepisterna longer than wide. Legs. Metafemora 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 feeble. 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).


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, scree, 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. Tenebrars: February–March. Predators: trout. Occasionally infested with mites.

Dispersal power. Elytra free (macropterous) or fused (brachypterous) along suture. Occasional flier (at dusk and to artificial lights at night). Moderate runner. Occasional climber (on plants, shrubs, trees). 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

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) subrectangular (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-
plete 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 striae 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 *spelaeus*; distribution, ecology); Townsend, 1974: 430 (as *spelaeus*; ecology) and 1997: 17–18 (including *spelaeus*; distribution, ecology); Larochelle & Larivière, 2001: 121–122 (including *spelaeus*; 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.

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**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 straight; 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 striae 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*). Metatarsomere 1 usually as long as metatarsomeres 2+3, rarely shorter (*Haplanister*, usually with clypeo-ocular prolongations, seldom without). Clypeo-ocular prolongations complete (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). 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. Metafemora 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; metatarsomere 5 pubescent ventrally (with 2 setae); 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

Key to genera of New Zealand Stenolophina

1 Eyes (Fig. 112–113) strongly reduced, flat, consisting of obliterated facets. Mandibles very long (5–6× 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 3.5 mm 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
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, Palearctic, 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 Jackson [=Port Jackson], New South Wales, Australia.


_Stenolophus dingo_ Chaudoir, 1878: 514.


**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 \(3 \times\) 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 situations feeble. Sutural apices angulate. Scutellar striae present. Interneurs 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\(^N\)**


_Euthenaris_: Csiki, 1932: 1268 (incorrect subsequent spelling).

**Description.** Body length: 3.8–6.0 mm. Forebody (head and thorax) without sparse setiferous micro pores dorsally. **Head.** Mandibles short, slightly curved forward, blunt
**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. Metepisternum longer than wide. **Legs.** Male mesotarsi dilated laterally and biseriately pubescent ventrally. Metatarsomere 1 shorter than metatarsomeres 2+3. **Elytra.** Widest about middle. Shoulders strongly developed, rounded, without a tooth. Subapical situations feebly. Sutural apices angulate. Scutellar striole absent. 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” (situated 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 “Canterby [=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 other endemic *Euthenurus*.

### Euthenarus puncticollis Bates, 1874

**Figures** 77, 110, 160, 216; Map p. 152


**Euthenaris 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 thorax, 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 width of antennal scape). Antennae moderately long, reaching elytral base; antennal scape about 2× longer than its maximum width. **Thorax.** Pronotum (Fig. 160) moderately transverse, subrectangular, widest before middle; sides converging toward base, slightly sinuate; base slightly convex (less so than in *brevicollis*); apex straight; lateral depressions absent; anterior angles feebly developed, rounded; posterior angles strongly developed, almost rectangular; basal foveae very 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. 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 *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 armed.

**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. Tenebrions: October (rarely), February–April, June. Occasionally infested with mites and fungi (Laboulbeniales). **Dispersal power.** Elytra free along suture. Macropterous. 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*.

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**Euthenarus bicolor** Moore, 1985 ♀ first New Zealand record


**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 *Carex* tufts, 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...
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 flyer (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 (synonymy, 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) † 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, apical 1/3 of interval 9, pronotal and elytral epipleura, 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, angulate; 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 longer than wide. **Legs.** Male mesotarsi unmodified. 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 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 bulb; apical disc present, triangular. Internal sac armed.

**Material examined.** 113 non-type specimens (ITNZ, JNZN, LUNZ, MONZ, NZAC).


**Ecology.** Lowland. Stream banks, swamps, roadside banks, and wet pastures. Open ground; wet, sandy soil with sparse vegetation (grass, sedges). Nocturnal; sheltering during the day in burrows at the base of plants (mostly), under plants and logs. According to Moore (1985), this species “is generally associated with wet ground, under or among subaquatic plants.” Gregarious. **Biology.** Seasonality: September–March, July–August. Tenebrals: March (abundant), July. Omnivorous (Moore et al., 1987). **Dispersal power.** Elytra free along suture. Macropterous. Regular flyer (to artificial lights at night). Regular in seashore drift material, which also indicates flight ability. Moderate runner. Good burrower. Occasional climber (on rushes and grass). Clearly effective as a colonist. Favoured by human activities. **Collecting techniques.** Pouring water over ground, treading soil with feet, treading vegetation into water, uprooting plants, light trapping, sweeping vegetation, turning seashore drift material.


**Genus Haplanister** Moore, 1996 †


**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 mediially. 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.** Metatarsomere 1 with 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. Tarsi glabrous dorsally; metatarsomere 5 pubescent (with 2 setae) ventrally; metatarsomeres 2+3 anteriorly. **Elytra.** Innerneur 2. Umbilicate setiferous series of interval 9 separated into 2 major groups, with posterior group discontinuous. **Abdomen.** Ventrites 2+3 of both sexes 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).

**References.** Moore, 1996: 97-100 (taxonomy); Larochelle & Larivière, 2001: 127 (catalogue).

**Remarks.** A highly distinctive genus amongst the Stenolophina, with suborbicular pronotum, incomplete elytral innerneurs, 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 striole 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).


**References.** Kuschel, 1990: 24, 40 (as *Haplaner* sp., distribution, ecology, biology, dispersal power); Townsend, 1994: 9, 11 (as *Haplaner* sp., distribution, ecology); Moore 1996: 97–99 (distribution, ecology); Emberson, 1998: 30 (distribution, ecology, biology); Larochelle & Larivière, 2001: 127 (taxonomy, distribution, ecology, biology, dispersal power).
**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 labial palpi bisetose on anterior margin. 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 quadrate (as wide as long); base rather straight, much narrower than elytral base; lateral beads complete; anterior and posterior beads incomplete medi ally. 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 metatarsomerses 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

*Kiwiharpalus townsendi* Larochelle & Larivière, new species. Holotype: female (NZAC) labelled “THREE KINGS IS NZ, Princes I Hinemoa Nov 1983 C. F. Butcher (typed) / Nest of Larus novaehollandiae scopulinus 83[forward slash]313 (typed) / HOLOTYPE [male symbol] Kiwiharpalus townsendi Larochelle & Larivière, 2004 (red label; typed).” Paratypes: 2 females (1 AMNZ, 1 NZAC) from the same locality as the holotype, bearing blue paratype labels.

**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 Anillina (*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 *Sylectus*). Antennae and legs very long (contrary to other Harpalini genera, except *Sylectus*). **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. Paraglossae longer than ligula. Palpi with last segment fusiform, not truncate apically, 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 *Sylectus gouliei*). Scutellum visible. Apex of prosternal lobe glabrous. Palpi with last segment fusiform, not truncate apically, glabrous; penultimate segment of labial palpi bisetose on anterior margin. **Legs.** Metafemora with 2 membranous laminae (projecting laterally and anteriorly to about 2/3 the length of apical segment; as in *Sylectus*). 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 Stenolophine 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.** Lateralis: 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 *Sylectus*.

**Key to species of Pholeodytes**

1. Elytral interneurs coarsely punctate (Fig. 225). Pronotum (Fig. 169): basal foveae very deep and wide; posterior group continuous; genital swellings subrectangular. Elytra elliptical (narrower at base; Fig. 222). Aedeagus (Fig. 81) with genital swellings hook-like. .............................................................................................................................. 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 not hook-like. .............................................................................................................................. 3

3(2) 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. .............................................................................................................................. 4

4(3) Pronotum (Fig. 168): posterior angles obtusely rounded; sides barely sinuate in basal 1/2. Aedeagus (Fig. 84): genital swellings subelliptical. .............................................................................................................................. 5

5(4) 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. .............................................................................................................................. 6

6(5) Pronotum (Fig. 167): posterior angles acutely rounded; sides moderately sinuate in basal 1/2. Aedeagus (Fig. 83): genital swellings subrectangular. .............................................................................................................................. 7

7(6) Pronotum (Fig. 166): posterior angles obtusely rounded; sides barely sinuate in basal 1/2. Aedeagus (Fig. 82): genital swellings subtriangular. .............................................................................................................................. 8

8(7) Pronotum (Fig. 168): posterior angles acutely rounded; sides moderately sinuate in basal 1/2. Aedeagus (Fig. 83): genital swellings subrectangular. .............................................................................................................................. New Zealand (endemic; South Island).
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 Kāikōka N.W. Nelson 16.1.75 S.-I. Ueno (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. Microsculpture weak, isodiametric on head, very transverse (with microlines) and vestigial 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; punctation 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 angle. Scutellar striae absent. Sutural striae absent. Interneurs 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. 3 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 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. 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. Scutellar striole 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 pronotall 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. Scutellar striole 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 & Lariviére, new species.

Holotype: female (NZAC) labelled “Coal Flat Cave W. of New Creek Buller, 1.11.75 J. I. Townsend (hand-writ-ten) / HOLOTYPE [female symbol] Pholeodytes helmorei Larochelle & Lariviére, 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.

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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 screees, 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.

**biocentric** — 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** — spindle-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.
scre — 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 stria — 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.
tristetose — 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.

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**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).

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**vestigial** — strongly reduced, almost obsolete or absent.

**ventrite** — each ventral segment of the abdomen.
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ADDENDUM

_Hakaharpalus cavelli_ (Broun, 1893) new combination

See Figures opposite.


_Fair condition._

**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.

**Ecology.** Lowland. A wet beech forest. **Biology.** Unknown.

**Dispersal power.** Elytra fused along suture. Subapterous. Moderate runner (after leg morphology).

**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 Harpaliinae. 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.
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) *Gnathaphanus melbournensis*

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

(45) *Parabarlis atratus*  (46) *P. lesagei*  (47) *P. hoarei*
(48) Triplosaurus novaezelandiae  (49) Tuiharpalus crosbyi  (50) T. gourlayi

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

(54) Harpalus affinis  (55) H. tardus  (56) H. australasiae
(57) *Hakaharpalus patricki*

(58) *H. maddisoni*

(59) *H. davidsoni*

(60) *H. rhodeae*

(61) *Kupeharpalus barrattae*

(62) *K. emersoni*

(63) *K. johnsi*

(64) *Lecanomerus atriceps*

(65) *L. insignitus*
Larochelle & Larivière (2005): Harpalini (Insecta: Coleoptera: Carabidae)

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

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

(72) Syllectus anomalous
(73) S. magnus
(74) S. gouleti
dorsal
(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 Habitus 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*
(97) *Tuiharpalus gourtayi*

(98) *Tuiharpalus hallae*

(99) *Tuiharpalus moorei*

(100) *Harpalus affinis*
(101) *Harpalus australasiae*

(102) *Hakaharpalus patricki*

(103) *Kupeharpalus barrattae*

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

(106) *Lecanomerus marrisi*

(107) *Lecanomerus vestigialis*

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

(110) *Euthenarus puncticollis*

(111) *Haplanister crypticus*

(112) *Kiwharpalus townsendi*
(113) *Pholeodytes townsendi*
Fig. 114-169 Colour photographs of Harpalini pronota. (Photographer: M.-C. Larivièrè).
(120) Allocinopus sculpticollis

(121) Anisodactylus binotatus

(122) Gaioxenus pilipalpis

(123) Gnathaphanus melbournensis

(124) Hypharpax australis

(125) Hypharpax antarcticus
(126) Maoriharpalus sutherlandi

(127) Notiobia quadricollis

(128) Parabarisis atratus

(129) Parabarisis lesagei

(130) Parabarisis hoarei

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

(133) *Tuiharpalus gourlayi*

(134) *Tuiharpalus clunieae*

(135) *Tuiharpalus hallae*

(136) *Tuiharpalus moorei*
(149) Lecanomermus obesulus

(150) Lecanomermus latimanus

(151) Lecanomermus sharpi

(152) Lecanomermus marris

(153) Lecanomermus verticalis

(154) Lecanomermus vestigialis
(155) Syllectus anomalus

(156) Syllectus magnus

(157) Syllectus gouleti

(158) Egadroma picea

(159) Euthenarus brevicollis

(160) Euthenarus puncticollis
(161) *Euthenarus bicolor*

(162) *Euthenarus promptus*

(163) *Haplanister crypticus*

(164) *Kiwiharpalus townsendi*
(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 pilipalis

(179) Gnathaphanus melbournensis

(180) Hypharpax australis

(181) Hypharpax antarcticus
(182) *Maoriharpalus sutherlandi*  
(183) *Notiobia quadricollis*  
(184) *Parabaris atratus*  
(185) *Parabaris lesagei*
(186) Parabaris hoarei

(187) Triplosarus novaezelandiae

(188) Tuiharpalus crosbyi

(189) Tuiharpalus gouriayi
Larochelle & Larivière (2005): Harpalini (Insecta: Coleoptera: Carabidae)

(190) Tuiharpalus clunieae

(191) Tuiharpalus hallae

(192) Tuiharpalus moorei
(193) Harpalus affinis
(194) Harpalus tardus
(195) Harpalus australasiae
(196) *Hakaharpalus patricki*

(197) *Hakaharpalus maddisoni*

(198) *Hakaharpalus davidsoni*

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

(201) Kupeharpalus embersoni

(202) Kupeharpalus johnsi

(203) Lecanomerus atriceps
(208) Lecanomerus marrisi

(209) Lecanomerus verticalis

(210) Lecanomerus vestigialis
(211) *Syl lectus anomalus*

(212) *Syl lectus magnus*

(213) *Syl lectus gouleti*
(214) *Egadroma picea*

(215) *Euthenarus brevicollis*

(216) *Euthenarus puncticollis*

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(218) Euthenarus promptus

(219) Haplanister crypticus

(220) Kiwicharpalus 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).
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**Insecta**

**Coleoptera**
Family-group review and keys to identification (J. Klimaszewski & J.C. Watt, FNZ 37, 1997)

Anthribidae (B.A. Holloway, FNZ 3, 1982)

Anthicidae (F.G. Werner & D.S. Chandler, FNZ 34, 1995)

Carabidae: catalogue (A. Larochelle & M.-C. Larivière, FNZ 43, 2001)


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)


Tenebrionidae: catalogue of types and keys to taxa (J.C. Watt, FNZ 26, 1992)

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Bibionidae (Roy A. Harrison, FNZ 20, 1990)

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Dolichopodidae: Sciapodinae, Medeterinae with a generic review (D.J. Bickel, FNZ 23, 1992)

Therevidae (L. Lyneborg, FNZ 24, 1992)

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**NGĀ PĀNUI**

Kua whakatūria tēnei huīnga pukapuka hei whakahauhau i ngā tohunga whai mātauranga kia whakaputa i ngā kōrero poto, engari he whāikiko tonu, e pā ana ki ngā aitanga pepeke o Aotearoa. He tōtika tonu te āhua o ngā tuhītuhi, engari ko te tino whāinga, kia mārama te marea ki ngā tohu tautuhi o ia ngārara, o ia ngārara, me te roaanga atu o ngā kōrero mō tēnā, mō tēnā.

He titiro whāiti tā tēnei pukapuka kia ngā mea noho whenua, kāore he tuarā; i pēnei ai i te mea kei te mōhiho whānuitia ngā mea whai tuarā, ā, ko ngā mea noho moana, koirā te tino kauppapa o te huīnga pukapuka *Marine Fauna of N.Z.*

Ka āhei te tangata ki te *whakauru tuhituhinga* mehemea kei a ia ngā tohungatanga me ngā rauemi e tutukia ngā mea whai tuarā, ā, ko ngā mea noho moana, koirā te tino kauppapa o te huīnga pukapuka *Marine Fauna of N.Z.*

Me whāki te kaituhi i ōna whakararo kia tētahi o te Kāhu Ārahi Whakarōpūtanga Tuarā-Kore, ki te ī tītia rānei i mua i te tīmatanga, ā, mā ārangi a ia e ārahi mō te whāi ki tana tuhītuhi.


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

Te utu (tirohia “Titles in print”, whārangihangi 157). Ko te kōpaki me te pane kuini kei roto i te utu. Me utu te hunga e noho ana i Aotearoa me Ahitereiria ki ngā tāra o Aotearoa. Ko ētahi atu me utu te moni kua tohua, ki ngā tāra Merikan, ki te nui o te moni rānei e rite ana.

E toe ana he pukapuka o ngā putanga katoa o mua. Mehemea e hiahia ana koe ki te katoa o ngā pukapuka, ki ētahi rānei, tōnoa mai kia whakahaekia te utu. Tekau ōrau te heke iho o te utu ki ngā toa hoko pukapuka.