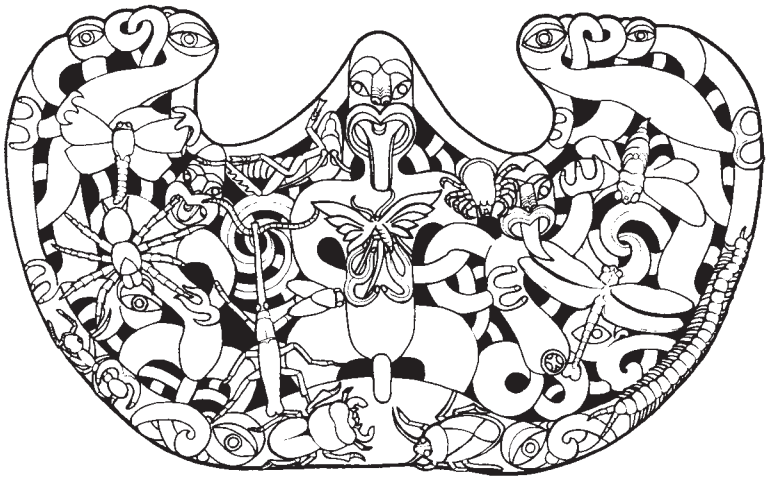

Fauna of New Zealand

Ko te Aitanga Pepeke o Aotearoa

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Carabidae

(Insecta: Coleoptera): catalogue

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POPULAR SUMMARY — HE WHAKARĀPOPOTOTANGA

Class **Insecta**

Order **Coleoptera**

Family **Carabidae**

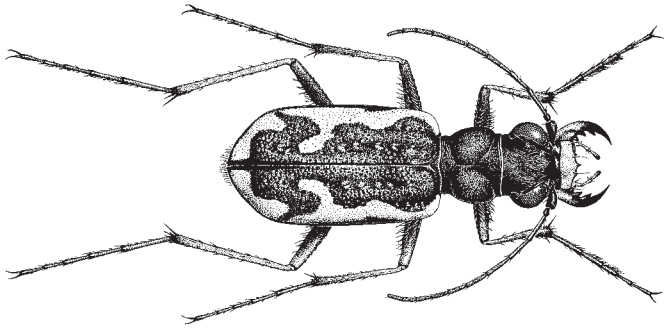


Illustration / Whakaahua: *Cicindela tuberculata* Fabricius, 1775 (Illustrator / Kaiwhakaahua: D. W. Helmore).

Ground beetles

The family Carabidae (ground beetles, including tiger beetles) is composed of 25 000 to 50 000 species worldwide, but probably at least twice as many taxa remain to be described. The world fauna is divided into 6 subfamilies and 85 tribes. Compared with larger or warmer regions of the world, the New Zealand fauna may appear relatively small (5 subfamilies, 20 tribes, 78 genera, 424 species), but New Zealand, with Australia, is a special place where the tribes Amarotypini, Broscini, Mecyclothoracini, Meonini, Migadopini, Pamborini, Tropopterini, and Zolini appear to have achieved their greatest taxonomic diversity. Once described, the New Zealand fauna will likely reach 600 species. Endemism is high with 92% (391) of species and 58% (46) of genera currently recognised as occurring only in this country. Faunal affinities are greatest with eastern Australia (16 native genera and 4 native species are shared).

While it is easy to recognise a carabid as such, it is rather difficult to identify it at the species level. Ground beetles show a relatively high degree of morphological uniformity, a marked diversity of taxa, and striking ecological preferences, which make them especially suitable for studying the ecological and physical adaptations required to cope with environmental demands. Carabids are generally abundant and demonstrate a flexible set of responses to environmental factors. Because of these features, the relative ease with which their populations may be sampled by reliable quantitative methods (e.g., pittrapping), and their potential use as bioindicators and biocontrol agents, these beetles increasingly attract the attention of world scientists. Biologists investigating evolutionary and ecological hypotheses particularly favour this group. In New Zealand, conservation biologists have already listed many, often large-sized carabid species, as rare or threatened and worthy of protection.

(continued overleaf)

Ngā pītara noho papa

I roto i te whānau Carabidae (ngā pītara noho papa, tae atu ki ngā pāpapa) kei waenga i te 25,000 me te 100,000 ngā momo e mōhiotia ana huri i te ao, otirā, ka whakareatia tēnei ki te rua, koirā kē pea te nui o ngā momo kāore anō i tautuhia noa. Ko ngā Carabidae katoa o te ao, ka noho ki ētahi whānau iti e 6, me ētahi iwi e 85. Ina whakatairitea ki ngā takiwā mahana ake o te ao, tērā ka whakaarohia he whāiti tonu te hunga noho ki Aotearoa (e 5 ngā momo iti, e 20 ngā iwi, e 78 ngā puninga, e 424 ngā momo). Engari he kāinga ahurei tonu a Aotearoa me Ahitereiria, ā, kua kaha tonu te tupu me te rea o ngā iwi Amarotypini, Broscini, Mecyclothoracini, Meonini, Migadopini, Pamborini, Tropopterini, me Zolini ki konei. Ina oti katoa te tautuhi, ka eke pea ki te 600 ngā momo o Aotearoa. Ko tētahi 92% (e 391) o ngā momo, ko tētahi 58% o ngā puninga (e 46) kāore e kitea i whenua kē. Heoi, he torokaha tonu te hono ki te rāwhiti o Ahitereiria (16 ngā puninga, e 4 ngā momo, ka kitea i ngā whenua e rua).

Ahakoa ka mōhio noa koe ki te carabid, ka uaua ake te tautuhi i ia momo. He kaha tonu te ōrite o tō rātou hanga, engari inā te tini o ngā momo, ā, mō te wāhi ki ō rātou kāinga noho, he rerekē tā tēnā, tā tēnā i pai ai. Nā konei i pai ai ēnei mea mō te rangahau i ngā urutaunga taha kāinga, taha tinana e hiahiatia ana e tau ai te noho. Ka mātotoru tonu te noho a ngā carabid ki te mata o te whenua, ā, ka tāwariwari tonu tā rātou aro atu ki ngā āhuatanga tērā ka pā. Nā ēnei āhuatanga, nā te māmā hoki o te tīpako i a rātou hei ine i te tokomaha (hei tauira, ki te kōpiha) me tō rātou pai hei waitohu koiora, hei kaipatu koiora hoki, kei te tahuri mai te ao pūtaiao whānui tonu ki a rātou. Kei te aro nuitia hoki e ngā tohunga koiora e whakamātau ana i ngā whakapae e pā ana ki te kunenga

(haere tonu)

As a result, ground beetles are among the best represented insect groups in New Zealand entomological museums and collections. But despite such high interest, no catalogue or checklist has been produced since 1934, although numerous name changes and new species have been published since then.

In general, carabids are hygrophilous (moisture-loving) species living at ground surface, but a number of species also live deep in the soil, in caves, or on plants and trees, and several species occur in association with the loose bark of trees or in rotten branches. The two New Zealand native habitats that harbour the greatest number of species are forests and tussock grasslands. While some species live almost exclusively along coastal lowlands, the majority of New Zealand species are found from the lowlands to higher elevations below the subalpine zone. Very few described carabids appear to be restricted to subalpine or alpine environments, but many new species remain to be described from such habitats. Most indigenous carabids occur naturally within the confines of native habitats, although a number of them can survive in modified environments. About 10 adventive species live around human dwellings. About 50 species (mostly native) dwell successfully in pine plantations, provided these are located near or adjacent to native forests. Introduced species seem to be able to invade natural habitats, but only to a slight degree.

Very little is known about the life history of native Carabidae. The reproductive season of most species is unknown. Population biology and locomotion are virtually undocumented. Mouthpart morphology and food data suggest that most species are opportunistic predators eating on a variety of small prey. Adults are active during most of the year, a little less so in winter. Adults are generally nocturnal. Parental care, or protection of eggs and larvae by the female, has been observed in 11 species. Larvae are usually very secretive, living in ground burrows or holes, and are rarely encountered at the surface of the ground, which makes them difficult to sample either by hand or by trapping.

New Zealand ground beetles have a number of enemies and parasites. Starlings, kiwis, spiders, and hedgehogs are frequent predators, while magpies, asilids, kingfishers, fernbirds, stoats, feral cats, thrushes, trout, and rats appear to be occasional predators. Based on the authors' field experience, spiders could be significant predators, especially in tussock grasslands, herbfields, and fellfields. About 32% (137 species) of all carabid species studied are infested by mites (Acari), and at least 11% (48 species) of the total carabid fauna are subjected to

(continued overleaf)

me te taupuhi kaiao. I Aotearoa, arā ētahi momo carabid maha tonu (tae atu ki ētahi mea rahi), e kī ana ngā tohunga whakapūmau koiora kua onge, kua mōrearea rānei te noho, ā, me tiaki ka tika.

Nā konei anō i nohoia nuitia ai ngā whare rokiroki pepeke me ngā kohinga pepeke o Aoteroa e ngā pītara noho papa, ina whakaritea ki ērā atu o ngā aitanga pepeke. Engari ahakoa e whāia nuitia ana tēnei whānau, nō te tau 1934 te whakararangitanga whakamutunga o ōna huānga katoa (otirā, kua tāia he kōrero e whakaatu ana i ngā ingoa hou, me ngā momo hou i roto i te wā).

Noho ai te nuinga o ngā carabid ki te mata tonu o Papatuanuku, ā, he pai ki a rātou te mākū. Heoi anō, arā ētahi ka noho rawa ki tōna poho, ki ngā ana, ki runga rānei i ngā tipu me ngā rākau. Arā anō ētahi ka noho tahi ki te hiako tangatanga, ki ngā peka pirau rānei. Ko ngā kāinga noho māori e rua o Aotearoa e kitea ai te tokomaha o ngā momo carabid, ko te ngahere me ngā whenua pātītī. Ko ētahi momo ka noho ki ngā whenua pātītī o te tahamoana anake, engari ko te nuinga, ka kitea mai i te tahatika, piki atu ki ngā whenua āhua teitei tonu. He tino tokoiti ngā momo ka noho ki ngā maunga teitei anake, engari me te mōhio anō he momo kei aua takiwā kāore anō i āta tautuhia. Ko te nuinga o ngā carabid o konei taketake ake, ka kitea i ngā kāinga māori, engari ka ora tonu ētahi i ngā kāinga noho i waihangatia e te ringa tangata. Tekau pea ngā momo ka noho tahi ki a ngāi tāua, ki te tangata. Kei te āhua 50 ngā momo (ko te nuinga nō konei tūturu) kua pai tā rātou noho ki ngā ngahere paina, mehemea e pātata ana ki tētahi ngahere māori. Kua hou atu anō ngā momo o tāwāhi i ētahi kāinga māori, engari kāore i panaia ngā momo tūturu ki waho.

He iti noa te mōhio ki te tupu haere o ngā Carabidae māori mai i te whānautanga tae noa ki te hemonga. Kāore e mōhiotia ana te kaupeka whakaputa uri o te nuinga. Waihoki, ko ngā āhuatanga taupori me te āhua o tā rātou neke haere, me kī kei te huna tonu. Heoi, ko te hanga o te waha me te āhua o ā rātou kai, e tohu ana he maha ngā momo mea ka patua e te pītara nei hei kai māna. He oreore tonu tā ngā pakeke mō te nuinga o te tau, otirā, ka āhua ngoikore haere ka takurua ana. He haere pō anō ngā pakeke. Kua kitea ngā uwha o ētahi momo 11 e tiaki ana i ngā hua me ngā kūī. Me kī he huna tonu tā ngā kūī, noho ai rātou ki te poho o Papa, ā, me uaua ka puta ake ki te whaiao. Koinei anō i uaua ai te hopu i a rātou ki te ringa, ki te kōpiha rānei.

Me kōrero anō ngā hoariri o ngā pītara noho papa i Aotearoa. Ko ōna hoariri matua, ko te tāringi, te kiwi, te pūngāwerewere, me te tuatete, engari i ētahi wā he hoariri

(haere tonu)

infestations by fungi (Laboulbeniales). Species infested with Laboulbeniales or mites are usually rain-forest dwellers, often associated with rotten wood, branches, or logs. Nematodes have been found to parasitise 5 ground-beetle species.

Carabids with fully developed wings disperse easily and can form stable populations soon after colonising new environments. However, the majority of native ground beetles are flightless and use running as their main means of locomotion. When disturbed, Carabidae generally burrow into litter or soil, or run away. A number of other interesting defense mechanisms can be observed in New Zealand species. Two tiger beetles use a form of camouflage or colour pattern, blending perfectly with the background, to protect themselves against enemies. Death feigning can be observed in several species, mostly in the tribe Broscini. Other species emit a repulsive smell or bite strongly when seized. Adults of *Amarotypus* standing on tree trunks at night drop to the ground if approached too closely, and *Prosphrodrus* species have the peculiar habit of diving into water when disturbed.

Too little information is currently available on the abundance and distribution of supposedly rare species to establish their conservation status with certainty, even though about 50 taxa have been declared as such. It is only through investigations including quantitative trapping and mark–recapture over several seasons that any meaningful conservation assessment can be formulated. Ground beetles are usually well hidden and scattered by day, hence usually escape the attention of the most specialised or attentive collector. Having to rely on casual observations or collection prevents any realistic approximation of population size and distribution.

Information about New Zealand carabids accumulated over the last 150 years is not easily accessible. It is most often scattered through the world literature or still associated with specimens in biological collections. With this catalogue, the authors wish to provide specialist as well as non-specialist readers with a compendium of all available knowledge on the taxonomy, distribution, ecology, biology, and dispersal of Carabidae. The format of the catalogue has been developed with the interests of systematists and other biologists in mind. It allows easy information retrieval, comparison between taxa, and synthesis of data. The authors believe that such a comprehensive database is necessary before testing hypotheses about environmental relationships in Carabidae.

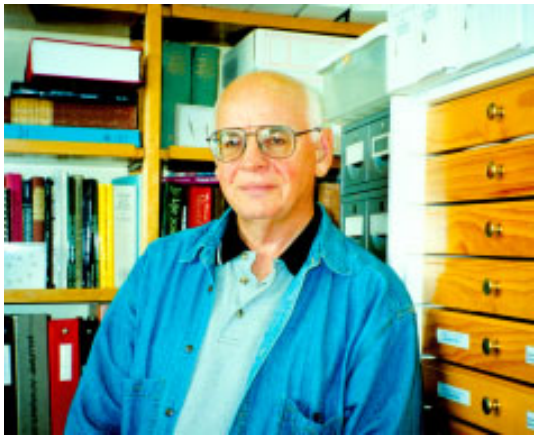
anō nōna te makipai, te asilid, te kōtare, te mātā, te toriura, te ngeru mohoao, te piopio, te taraute, me te kiore. Ki tā ngā kaituhi nei, ko te pūngāwerewere pea tētahi tino hoariri i ngā whenua pātītī, me ngā whenua teitei. Ko tētahi 33% pea (137 momo) o ngā momo carabid katoa kua rangahaua, e muia ana e te pūwereriki (e te Acari), ā, ko tētahi 11% (e 48 ngā momo) o ngā carabid katoa, ka muia e te kōpurawhetū (e te Laboulbeniale). Ko te nuinga o ngā momo e muia ana e te Laboulbeniale, e te pūwereriki rānei, he noho ngahere ua, ā, ka kitea nuitia i ngā rākau pirau. Ko te nematode ka pirinoa ki ētahi momo pītara noho papa e rima.

He māmā noa ki ngā carabid whai parirau tūturu te rere ki wīwī, ki wāwā, ā, kāore e roa kua tangata whenua ki ō rātou kāinga hou. Engari ko te nuinga o ngā pītara noho papa nō koinei tūturu, he rere-kore, ā, ka riro mā ngā waewae rātou e kawe haere ki hea, ki hea. Ki te whāwhāria tētahi, kua mahi ki te huna i a ia i ngā otaota, i te oneone rānei, kua tahuti rānei. Engari tērā ētahi atu mahi pare hoariri rerekē a ngā momo tūturu o Aotearoa. E rua ngā momo pāpapa he kirihuna ō rāua, e kore ai rāua e kitea e te hoariri. He maha ngā momo ka whakataruna kua mate rātou – ko te iwi Broscini ngā tohunga ki tērā mahi. Ko ētahi momo anō ka tuku haunga, ka ngau rānei ina hopukina. Tērā anō ngā pakeke o te iwi *Amarotypus* ka piri ki ngā kahiwi rākau ka pō ana, ā, ki te whakatata atu tētahi mea nui ki a ia, kua taka atu ki te papa. Ko tā ngā *Prosphrodrus*, he tirikohu ki te wai ki te pā he rarurarau.

E 50 ngā momo kua kīia he onge, engari nā te iti o te mōhio ki ēnei pītara, kāore e tino mōhiotia pēhea rawa te mōrearea o tā rātou noho. Me hopu rawa ētahi, ka hoatu tohu, ka tuku anō kia rere, ka hopu anō, ā, kia maha ngā tau e pēnei ana - hei reira taea ai te whakatau mēnā e tino mōrearea ana, pēhea kē rānei. He huna tonu tā ngā pītara noho papa i te awatea, he marara hoki te noho. Nā konei i kore ai e tere kitea ahakoa he tohunga, he kanohi hōmiromiro rānei te kaikohikohi. Kāore e taea te āta whakatau tata i tō rātou tokomaha, i runga i ngā kitenga me ngā kohinga māori noa iho.

Kua 150 tau ngā kōrero mō ngā carabid o Aotearoa e putu haere ana, engari kāore e tino wātea ana ki te tangata. Ko te nuinga o ngā kōrero, e noho paratī ana ki ngā tānga kōrero o te ao, e pā noa ana rānei ki ngā pītara takitahi o roto i ngā kohinga koiora. Ko te tūmanako o ngā kaituhi, mā te rārangi pītara nei, ka āhei mai ngā tohunga, me te marea anō hoki, ki ngā kōrero e pā ana ki te whakarōpūtanga, te tohanga, ngā āhuatanga taupuhi kaiao, ngā āhuatanga koiora, me te tītaringa o ngāi Carabidae. Ko te takoto o te rārangi, he mea whakarite i runga i te

(haere tonu)



Contributor **André Larochelle** was born and educated in Québec, graduating in 1974 with a Brevet d'Enseignement spécialisé from the Université du Québec à Montréal. Up to 1990 he taught ecology at the Collège Bourget, Rigaud, Québec. Early in his career, with the encouragement of the late carabid specialist Carl H. Lindroth, André became interested in the study of ground-beetles. From 1975 to 1979 he was the co-editor of two entomological journals, *Cordulia* and *Bulletin d'inventaire des insectes du Québec*. Between 1986 and 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 also honorary curator to the New Zealand Arthropod Collection, Auckland. André has authored over 400 papers on the distribution, ecology, biology, and dispersal power of North American insects, mostly carabids. In 1993 he co-authored a Catalogue of Carabidae of America north of Mexico. André, with the collaboration of his wife Marie-Claude, hopes to soon publish a natural history of North American carabids. Presently, his main research interest is the faunistics and taxonomy of New Zealand ground-beetles.

aro nui ki ngā tohunga whakarōpū, me ērā atu tohunga koiora. Te tikanga ka māmā noa te kimi whakamōhiotanga, te whakatairite rōpū, me te whakahiato kōrero. E whakapono ana ngā kaituhi me mātua whakatakoto he pātengi raraunga pēnei e tika ai te whakamātau whakapae e pā ana ki ngā hono i waenga i a ngāi Carabidae.

I whānau mai tētahi o ngā kaituhi, a **Andre Larochelle**, i Quebec. I reira ia e kura ana, ā, nō te tau 1974 ka whakawhiwhia ki tana tohu Brevet d'Enseignement specialise, mai i te Whare Wānanga o Quebec ki Montreal. Taka mai ki te tau 1990, e whakaako ana ia i te mātauranga taupuhi kaiao i te Kura Bourget, i Rigaud, Quebec. Kāore i roa e whakaako ana, ka tupu tana hiahia ki te rangahau pītara noho papa, me te akiaki anō a tērā tohunga carabid kua riro nei i te tirohanga kanohi, a Carl H. Lindroth, i tēnei whakaaro ōna. Mai i te 1975 ki te 1979 ko ia tētahi o ngā ētita o ētahi hautaka mātai pepeke, arā, o *Cordulia* me te *Bulletin d'inventaire des insectes du Quebec*. Mai i te 1986 ki te 1992, ko ia te kaitiaki utu-kore o te Whare Rokiroki, Rangahau Pepeke o Lyman, i te Whare Wānanga o McGill, i Quebec. I te tau 1992, ka neke mai a Andre ki Aotearoa, ka mahi hei kaipūtaiao rangahau. I tēnei wā, ko ia te kaitiaki utu-kore o te Kohinga Angawaho o Aotearoa, i Tāmaki-makau-rau. He nui ake i te 400 ngā kōrero kua tuhia e Andre mō te tohanga, te taupuhi kaiao, te koiora, me te tītaringa o ngā aitanga pepeke o Amerika ki te Raki, otirā me te aro nui ki ngā carabid. I te tau 1993 ko ia tētahi o ngā kaituhi i te Rārangi o ngā Carabidae o Amerika ki te raki o Mēhiko. Ko te tūmanako o Andre rāua ko tana wahine, a Marie-Claude, kia whakaputaina ā tōna wā tūtata te hītori māori o ngā carabid o Amerika ki te Raki. Ko te aronga nui o ana rangahau i tēnei wā, ko te āhua me te whakarōpūtanga o te whānau pītara noho papa o Aotearoa.

I whānau mai tērā atu kaituhi, a **Marie-Claude Lariviere** i Quebec. I reira anō ia a rapu ana i te mātauranga ā, riro noa i a ia tana Tohu Tākutatanga mai i te Whare Wānanga o McGill, i te tau 1990. Ko te kaupapa o tana tohu, ko te pūnaha whakarōpū i ngā aitanga a Punga. Kātahi ia ka neke ki Agriculture Canada, i Ottawa, mō te rua tau, ki reira whātoro ai i ētahi atu rangahautanga. Nō te tau 1992, ka neke mai a Marie-Claude ki Aotearoa, ka mahi hei kaipūtaiao rangahau mā Manaaki Whenua. Nō muri, ka riro i a ia te tūranga Kaihautū Mahi Rangahau i raro i te kaupapa e kīia nei ko te "Biosystemaics of New Zealand Land Invertebrates". Nāna taua kaupapa i whakahaere i te tau 1994 ki te tau 1997. I ēnei rā, he tūranga kairangahau ukiuki tōna i Manaaki Whenua, he whakarōpū koiora te

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 two years she did postdoctoral research at Agriculture Canada, Ottawa. In 1992, Marie-Claude moved to New Zealand to work as a research scientist for Landcare Research. In 1994, she became Research Leader of the Biosystematics of New Zealand Land Invertebrates programme which she led until late 1997. Marie-Claude currently enjoys a full-time research position as a biosystematist with Landcare Research, which also includes curatorial responsibilities for Hemiptera (excluding Sternorrhyncha) at the New Zealand Arthropod Collection. Marie-Claude has authored over 65 papers and monographs, including two Fauna of New Zealand contributions, on the biosystematics of various families of bugs, including faunal and ecological aspects. She has also published on Orthoptera and contributed to publications on Carabidae (Coleoptera). Marie-Claude has a keen interest in bioinformatics, especially digital taxonomy, computer imaging, interactive identification, and web publishing.

kaupapa matua. Arā anō tētahi o āna mahi ko te tiaki i ngā Hemiptera (hāunga anō ngā Sternorrhyncha) o roto i te Kohinga Angawaho o Aotearoa. Neke atu i te 65 ngā tuhinga kua oti i a Marie-Claude mō te whakapapa o ētahi whānau o ngā aitanga a Punga, tae atu ki ngā momo ka kitea i tēnā wāhi, i tēnā wāhi, me te āhua o tā rātou noho. Kua puta i a ia he tuhinga e pā ana ki te Orthoptera, kua whai wāhi atu hoki ki ētahi tānga kōrero e pā ana ki te Carabidae (Coleoptera). Tērā anō tētahi tino kaupapa e whāia ana e Marie-Claude, ko te pārongo-koiora, tae atu ki te whakarōpū ā-mati, te hanga whakaahua ki te rorohiko, me te pānui kōrero ki te pae tukutuku.

Translation by **H. Jacob**
Huatau Consultants, Levin

DEDICATION

We dedicate this work to J. Charles Watt, honorary research associate of the Systematics Group, Landcare Research, Auckland. Since our arrival in New Zealand Charles has repeatedly encouraged us to write a carabid catalogue for this country. Such a task would have been much more difficult to accomplish without his exceptional curation of carabids in the New Zealand Arthropod Collection (NZAC). Charles spent the major part of his professional career in the Entomology Division, DSIR (now Landcare Research), with responsibility in the Systematics Section for all Coleoptera except weevils. In this position he devoted almost as much attention to the study of carabids as to tenebrionids, his favourite group. Repeatedly he surveyed New Zealand to collect ground-beetles, mounted them with ecological annotations, organised them systematically, and sent them to foreign specialists for identification when necessary. Furthermore he indicated numerous undescribed carabid species in NZAC, which now makes the work of taxonomists much easier. As a result of Charles' efforts, the authors were able to study a well organised insect collection containing authoritatively identified material such as homeotypes (specimens compared with types) by experts such as E.B. Britton and B.P. Moore. Charles' open-mindedness, enthusiasm, generosity, and friendship have been inspirational to our research. Such is the influence of exceptional scientists.

Frontispiece*: Megadromus bullatus* (Broun, 1915) (photo prepared by B. E. Rhode, Landcare Research)

ABSTRACT

The species-group names of all New Zealand Carabidae (including Cicindelini) are catalogued with distribution records and information on ecology, biology, and dispersal power. Valid names are listed in their current and original combinations with the author(s), publication date, page citation, and type locality; synonyms are given in their original combinations; other existing combinations are also provided. Genus-group names are listed with the author(s), publication date, page citation, and type species (including method of fixation). The catalogue is arranged phylogenetically by subfamilies, divisions, tribes, and subtribes. Genus- and species-group names are listed alphabetically within these categories. The most important references dealing with taxonomy (including keys and revisions), distribution, ecology, biology, and dispersal power, are provided as appropriate.

The catalogue also includes a bibliography of all original descriptions and of most important references consulted, a habitus illustration of one representative of each tribe, maps showing species distribution, patterns of taxonomic diversity and of species endemism, and also a full taxonomic index. Finally, a number of appendices are provided: a glossary of technical terms, a list of nomina nuda, a list of unjustified emendations, a synopsis of species incorrectly or doubtfully recorded, a synopsis of species deliberately introduced, geographical coordinates of type localities, and alphabetical lists of species by areas.

The composition of the New Zealand carabid fauna (5 subfamilies, 20 tribes, 78 genera, 424 species, and 14 subspecies) and its affinities with Australia, New Caledonia, Lord Howe Island, and Norfolk Island are analysed and discussed. It is estimated that, once described, the fauna will attain approximately 600 species. Endemism is high with 92% (391) of species and 58% (46) of genera currently recognised as being endemic and the fauna shows greatest affinity to that of eastern Australia. Forty-three (43) species have been incorrectly or doubtfully recorded from New Zealand.

The following nomenclatural changes are proposed and discussed: *Agonocheila antipodum* (Bates, 1867) for *Agonocheila binotata* (Blanchard, 1842); *Anchomenus integratus* Broun, 1908 for *Agonum integratum* (Broun, 1908); *Anchomenus otagoensis* Bates, 1878 for *Platynus otagoensis* (Bates, 1878); *Anchomenus punctulatus* Broun, 1877 for *Agonum punctulatum* (Broun, 1877); *Anchomenus sulcitarsis* Broun, 1880 for *Agonum sulcitarse* (Broun, 1880); *Cicindela* (*Neocicindela*) for *Neocicindela* Rivalier, 1963 (14 taxa); *Ctenognathus montivagus* (Broun, 1880) for *Ctenognathus latipennis* Sharp, 1886; *Dicrochile whitei* (Csiki, 1931) for *Dicrochile atrata* (Blanchard, 1842); *Holcaspis sternalis* (Broun, 1881) for *Holcaspis punctigera* (Broun, 1882); *Maoritrechus rangitotoensis* Brookes, 1932 for *Temnostega rangitotoensis* (Brookes, 1932); *Mecyclothorax anplipennis amplipennis* (Broun, 1912) for *Molopsida amplipennis amplipennis* (Broun, 1912); *Mecyclothorax amplipennis labralis* (Broun, 1912) for *Molopsida amplipennis labralis* (Broun, 1912); *Mecyclothorax eplicatus* (Broun, 1923) for *Molopsida eplicata* (Broun, 1923); *Megadromus* (*Megadromus*) *asperatus* (Broun, 1886) for *Trichosternus* (*Megadromus*) *asperatus* Broun, 1886; *Megadromus* (*Megadromus*) *curtulus* (Broun, 1884) for *Megadromus optabilis* (Broun, 1893); *Megadromus* (*Megadromus*) *guerinii* (Chaudoir, 1865) for *Megadromus australasiae* (Guérin-Méneville, 1841); *Oopterus suavis* Broun, 1917 for *Pseudoopterus suavis* (Broun, 1917); *Platynus macropterus* (Chaudoir, 1879) for *Colpodes macropterus* Chaudoir, 1879; *Taenarthrus capito* (Jeannel, 1938) for *Loxomerus* (*Pristancylus*) *capito* Jeannel,

1938; *Taenarthrus philpotti* Broun, 1914 for *Loxomerus philpotti* (Broun, 1914); *Zolus ocularius* Broun, 1917 for *Oopterus ocularius* (Broun, 1917); and *Zolus subopacus* Broun, 1915 for *Oopterus subopacus* (Broun, 1915).

Aulacopodus brouni (Csiki, 1930) is removed from synonymy with *Aulacopodus puella* (Chaudoir, 1865); *Holcaspis thoracica* Broun, 1881 is here considered a synonym of *Holcaspis placida* Broun, 1881.

One new synonym is established: *Anchomenus haastii* Broun, 1882 is synonymised with *Platynus macropterus* (Chaudoir, 1879).

The type species (listed in parentheses) of the following genus-group taxa are designated for the first time: *Dicrochile* Guérin-Méneville, 1846 (*Dicrochile anchomenoides* Guérin-Méneville, 1846); *Pseudoopterus* Csiki, 1928 (*Oopterus plicaticollis* Blanchard, 1843); *Zabronothus* Broun, 1893 (*Zabronothus striatulus* Broun, 1893).

A first record is given for New Zealand: *Perigona nigriceps* (Dejean, 1831) from Auckland.

In general, species are nocturnal and live in forested areas and tussock grasslands. They usually live within the confines of their natural habitats, but about 50 species also live in pine tree plantations neighbouring native forests. Larval biology is almost unknown and only 14 species have been described. Parental care by the female has been observed in 11 species of Pterostichini. Major predators of ground-beetles are starlings, kiwis, spiders, and hedgehogs. Major parasites are mites, Laboulbeniale fungi, and nematodes; these have been recorded for 137, 48, and 5 carabid species respectively.

Most species are flightless and moderate runners. A number of defense mechanisms have been observed: cryptic coloration, death feigning, biting strongly when seized, dropping to the ground, and diving into water when approached.

Keywords. Coleoptera, Carabidae, New Zealand, catalogue, classification, distribution, ecology, biology, dispersal power, species endemism, fauna.

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CONTENTS

CHECKLIST OF TAXA

[Note: An alphabetical list of valid taxa is provided in Appendix G, p. 186]

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INTRODUCTION

The family Carabidae (including tiger beetles) is a highly speciose, worldwide beetle family, with an estimated total of 25,000 to 50,000 species. Carabids, or ground-beetles, are a highly adaptable group which has managed to occupy most terrestrial habitats on nearly all continents and most islands since its origin in the early Mesozoic. As a family they exhibit a relatively high degree of morphological uniformity which makes these insects especially suitable to study the ecophysiological adaptations required to cope with environmental demands. They are generally abundant in ecosystems and demonstrate a flexible set of responses to both abiotic and biotic environmental factors. Most carabids are nocturnal predators (Larochelle, 1990) living at the surface of the ground while some species live in the soil, in caves, or on the vegetation. Ground-beetles show good dispersal capability and, in many species, the ability to form stable populations following colonisation events. They are also fairly easy to sample by reliable and quantitative methods, e.g., pitfall trapping. These and other factors have made this group a favourite with biologists investigating evolutionary and ecological hypotheses throughout the world. More recently, this group has been used for applied investigations such as conservation evaluation.

The estimated number of species of better known continental faunas such as North America, Europe, and Australia, varies from about 2,500 to 3,000 species. Compared with these larger regions of the world the New Zealand fauna, currently known from five subfamilies, 20 tribes, 78 genera, and 424 species, appears relatively small, but what it lacks in size it makes up in uniqueness, e.g., 92% of known species are endemic.

The Carabidae are among the best represented groups of insects in New Zealand entomological museums and collections. Despite such high interest in this group, no modern effort has been made to catalogue the New Zealand species since Hudson's (1934) list which enumerated 556 taxa. Numerous nomenclatural changes and new taxa have been published since then and although Hudson's list is still useful, it is no longer reliable.

The present catalogue is an attempt to bring together the available literature and collection-based information on taxa recorded from New Zealand's main islands and its offshore islands. It has been written with the needs of systematists, identifiers, ecologists, and other biologists in mind, hence the sections summarizing for all species the geographic distribution, ecology, biology, dispersal power, and the citation of main references to available identification tools, taxonomic revisions, and natural history treatments. A species checklist, a full bibliography, a taxonomic index, several appendices, and species distributions maps are also provided.

All attempts have been made to report information as accurately as possible, but none are more aware than the authors of the inevitability of errors or omissions in this type of work. Therefore, the authors ask the indulgence of readers and can only hope that the usefulness of this catalogue will outweigh it shortcomings.

Brief history of carabid taxonomy in New Zealand. The first carabid beetle to have been described from New Zealand is *Cicindela tuberculata* Fabricius, 1775. Subsequently, between 1843 and 1923, the majority of species were described by Blanchard (1842–1843, 1853), White (1843, 1846), Laporte de Castelnau (1867–1868), Bates (1867–1878), Broun (1876–1923), and Sharp (1878–1903). This literature is quite complex to follow as about 90 species have been described twice or thrice in different papers or pre-publication reprints by the same author, e.g., Blanchard (1842–1843; 14 taxa republished in 1853), Laporte de Castelnau (1867; 23 taxa republished in 1867–1868), Bates (1874; 17 taxa republished in 1875), Broun (1882; 24 taxa republished in 1883 and 1886, and 1884; 11 taxa republished in 1886). Emberson (1993b) published an extremely useful paper establishing the publication dates of species described by Blanchard in Dumont D'Urville's *Voyage au Pôle Sud*.

Broun has been the most prolific carabid describer, with 382 taxa (202 still valid), but at the same time he contributed numerous nomenclatural problems still baffling workers today. His species concept was highly typological which often resulted in the description of the same species more than once under different names (e.g., 13 synonyms and 3 replacement names under *Megadromus meritus* (Broun)). Unfortunately, his type designations were often unclearly documented and he did not provide identification keys clarifying his view of diagnostic features. In addition, many of the Pterostichini and Platynini that he described were attributed to European genera. Examination of Broun's original material, located in the Natural History Museum (London), is essential to taxonomists studying New Zealand Carabidae. For example, among the 137 taxa described by him in the Pterostichini, only 38 are still valid after two subsequent revisions (Britton, 1940; Butcher, 1984).

Taxonomic revisions started in 1937 and the tribes treated since then are: Broscini (Britton, 1949); Bembidiini, except Tachyina (Jeannel, 1937; Lindroth, 1976 and 1980; Moore 1980b); Pterostichini (Britton, 1940; Butcher, 1984); Lebiini (Britton, 1941); Pentagonicini (Britton, 1941); and cave-dwelling carabids (Britton, 1958–1964). Based at the Natural History Museum (London), Britton contributed the greatest number of revisions. Unfortunately, even though he dealt with a good proportion of Broun's material, he did not generally designate any lectotypes. Consequently, much of his material will need to be re-examined by workers wanting to describe new taxa in the groups he previously covered.

The revisions published so far cover approximately 230 taxa which is about 50% of the currently described fauna. However, except perhaps for the genus *Holcaspis* (Pterostichini) which has been recently revised, most of these groups are still in need of a more modern revisionary treatment that would include the examination of all types with appropriate type designations, and a thorough study of male genitalia and other morphological features throughout the distribution range of species and of the variation of these structures within and between populations. In addition, so much new material has been collected and deposited in New Zealand collections in the last 30–40 years that numerous new taxa remain to be described in the groups already covered by previous workers as well as in other groups. We estimate that the fauna will reach around 600 species when totally described.

Most taxonomic works published until now deal only with the adult stage; the larva of only 14 species having been described: *Amarotypus edwardsii* Bates (Amarotypini); *Bountya insularis* Townsend, *Brullea antarctica* Laporte de Castelnau, *Diglymma castigatum* Broun, *Mecodema alternans hudsoni* Broun (Broscini); *Cicindela parryi* White, *Cicindela tuberculata* Fabricius (Cicindelini); *Loxomerus brevis* (Blanchard), *Loxomerus nebrioides* (Guérin-Méneville) (Migadopini); *Megadromus vigil* (White), *Plocamostethus planiusculus* (White), *Zeopoecilus putus* (Broun) (Pterostichini); *Duvaliomimus mayae* Britton, and *Kenodactylus audouini* (Guérin-Méneville) (Trechini).

Two keys to suprageneric taxa have been published: a key to carabid tribes by Britton (1940) and, more recently, a key to subfamilies and tribes by Klimaszewski & Watt (1997). A key to described genera, although an essential tool for most taxonomists and field workers, is still unavailable. Table 1 compares the subfamilies and tribes used in the present catalogue with those given by Klimaszewski & Watt (1997).

As for checklists, Hutton (1874; 1904) and Hudson (1923; 1934) are still the only lists available, now unreliable due to the numerous nomenclatural changes and new taxa proposed since.

Higher classification. The history of carabid classifications has beeen superbly presented by Ball (1979) and Ball *et al*. (1998b). The higher classification of carabids is very complex, with little consensus on the family's divisions, except at the tribal level. According to Ball *et al*. (1998b), Erwin's classification (1991) is the most detailed ever presented. His classification is very comprehensive, taking into account morphological and chemical features, behaviour of both adults and larvae, and historical zoogeography. The higher classification used in this catalogue (Table 2) follows Erwin (1991), except in the case of the Psydritae (Baehr, 1998) and the Pentagonicini (Bousquet & Larochelle, 1993). The subtribal classification, being omitted by Erwin, takes after Bousquet & Larochelle (1993), except for the Cicindelina (Freitag, 1999), the Creobiina and Broscina (Ball, 1956), the Oopterina (Liebherr & Will, 1998), and the Actenonycina (Ball *et al*., 1995).

More work on the systematics of Australian Carabidae is needed before the taxonomic limits and the phylogenetic relationships of the tribes Pamborini, Amarotypini, Migadopini, Broscini, Mecyclothoracini, Meonini, Tropopterini, Trechini, Zolini, and Bembidiini (Anillina), and their included subtribes, can be more satisfactorily established. Such advances will also provide the wider framework necessary to evaluate the taxonomic status of many genera originally described from New Zealand.

Geographic distribution. The New Zealand fauna is highly insular, with 46 genera (58%) and 391 species (92%) presently recorded as being endemic (Table 3).

Table 1. Comparison between subfamilies and tribes used in the present work and in Klimaszewski & Watt (1997).

Present work	**Klimaszewski & Watt**
Subfamily CARABINAE	Subfamily CARABINAE
Tribe CARABINI	Tribe CARABINI
Tribe PAMBORINI	Tribe CYCHRINI
	Subfamily CICINDELINAE
Tribe CICINDELINI	Tribe CICINDELINI
Subfamily SCARITINAE	Subfamily SCARITINAE
Tribe CLIVININI	Tribe CLIVININI
	Subfamily MIGADOPINAE
Tribe AMAROTYPINI	Tribe MIGADOPINI
Tribe MIGADOPINI	Tribe MIGADOPINI
Subfamily BROSCINAE	Subfamily SCARITINAE
Tribe BROSCINI	Tribe BROSCINI
Subfamily PSYDRINAE	Subfamily TRECHINAE
Tribe MECYCLOTHORACINI	Tribe PSYDRINI
Tribe MEONINI	Tribe PSYDRINI
Tribe TROPOPTERINI	Tribe PSYDRINI
Tribe TRECHINI	Tribe TRECHINI
Tribe ZOLINI	Tribe ZOLINI
Tribe BEMBIDIINI	Tribe BEMBIDIINI
Subfamily HARPALINAE	Subfamily HARPALINAE
Tribe PTEROSTICHINI	Tribe PTEROSTICHINI
Tribe LICININI	Tribe LICININI
Tribe HARPALINI	Tribe HARPALINI
Tribe PLATYNINI	Tribe AGONINI
Tribe PERIGONINI	(not recorded)
Tribe PENTAGONICINI	Tribe PENTAGONICINI
Tribe LEBIINI	Tribe LEBIINI

The maps on pages 223–270 summarise the geographic distribution of Carabidae taxa occurring in New Zealand. Overall, species appear to be more widely distributed than originally thought for mostly flightless organisms; species belonging to well-revised groups have been shown to occur in several areas.

A greater number of taxa (299) occurs on the South Island, although 209 are restricted to it. Two hundred and one (201) taxa occur on the North Island, but only 111 species are restricted to it. Ninety (90) taxa are shared between the North and the South Islands.

Patterns of taxonomic diversity and the number of taxa restricted to areas of New Zealand are illustrated on Maps 4–6 (pp. 219–221). The areas so far known to contain the highest diversity (Map 4) are: NN (126 taxa), WN (121 taxa), MC (117 taxa), AK (95 taxa), BR (88 taxa), ND (85 taxa), and CO (83). Three areas of the South Island have a relatively low number of taxa: KA (44 taxa), SC (44 taxa), and MK (52 taxa). These areas have probably been undersurveyed; their number of taxa may eventually double. The areas with the greatest number of New Zealand endemics (Map 5) are found mostly on the South Island: NN (115), MC (106), WN (101), BR (85), CO (78), and DN (74).

Table 2. Higher classification.

Family CARABIDAE
Division NEBRIIFORMES
Subfamily CARABINAE
Supertribe CARABITAE
Tribe CARABINI
Tribe PAMBORINI
Supertribe CICINDELITAE
Tribe CICINDELINI
Subtribe CICINDELINA

Division LOXOMERIFORMES
Subfamily SCARITINAE
Supertribe MIGADOPITAE
Tribe AMAROTYPINI
Tribe MIGADOPINI
Supertribe SCARITITAE
Tribe CLIVININI
Subtribe CLIVININA

Division MELAENIFORMES
Subfamily BROSCINAE
Supertribe BROSCITAE
Tribe BROSCINI
Subtribe CREOBIINA
Subtribe BROSCINA

Division PSYDRIFORMES
Subfamily PSYDRINAE
Supertribe PSYDRITAE
Tribe MECYCLOTHORACINI
Tribe MEONINI
Tribe TROPOPTERINI
Supertribe TRECHITAE
Tribe TRECHINI
Subtribe AEPINA
Subtribe TRECHINA
Tribe ZOLINI
Subtribe OOPTERINA
Tribe BEMBIDIINI
Subtribe BEMBIDIINA
Subtribe TACHYINA
Subtribe ANILLINA
Subfamily HARPALINAE
Supertribe PTEROSTICHITAE
Tribe PTEROSTICHINI
Subtribe PTEROSTICHINA
Supertribe CALLISTITAE
Tribe LICININI
Subtribe DICROCHILINA
Subtribe LICININA
Supertribe HARPALITAE
Tribe HARPALINI
Subtribe PELMATELLINA
Subtribe ANISODACTYLINA
Subtribe STENOLOPHINA
Subtribe HARPALINA
Supertribe PLATYNITAE
Tribe PLATYNINI
Subtribe SPHODRINA
Subtribe PLATYNINA
Supertribe LEBIITAE
Tribe PERIGONINI
Tribe PENTAGONICINI
Tribe LEBIINI
Subtribe PERICALINA
Subtribe ACTENONYCINA
Subtribe CALLEIDINA

Several carabids are restricted to a single area (Map 6). Currently, the areas with the greatest number of such taxa are: NN (19 taxa), MC (17 taxa), OL (11 taxa), ND (8 taxa), and AK (7 taxa). These numbers may change once the fauna is revised, but general trends should remain, i.e., these should be the areas of higher endemism.

Finally, the areas including the largest number of adventive taxa (Map 7, p. 222) are: AK (23 taxa), ND (18 taxa), WN (16 taxa), CL (14 taxa), and BP (14 taxa). Most introductions occur in the northern half of the North Island and in the Wellington region.

Faunal composition and affinities. Table 3 shows the total number of genera and species occurring in New Zealand. The number of adventive species is 27 or only 6% of the total fauna.

The New Zealand carabid fauna (424 species) is about 17% the size of the Australian fauna which is approximately 2,500 species according to Moore *et al*. (1987). It is characterised by a relatively high proportion of large-sized and darkly coloured taxa. Most species are flightless; even a few species of Cicindelini appear to have a subtantially reduced ability to fly. The largest carabid

tribes in New Zealand and Australia are the Broscini and Pterostichini. The largest carabid genus in New Zealand is *Mecodema* (58 taxa). The following world tribes appear to have their greatest diversity in New Zealand and Australia: Amarotypini, Broscini, Mecyclothoracini, Meonini, Migadopini, Pamborini, Tropopterini, and Zolini.

Ninety-seven (97) species have been reported from New Caledonia (Heller, 1916), 15 from Norfolk Island (Moore, 1985), and 28 from Lord Howe Island (Moore, 1992). Tables 4 and 5 show the genera and species shared between these areas. Too little is known of the South American fauna to infer any relationships with the New Zealand fauna.

The New Zealand fauna shows the greatest affinity with eastern Australia (including Tasmania) in sharing 16 native genera and 4 native species. In addition *Oopterus* (Zolini) and *Kenodactylus* (Trechini) are shared with the Falkland Islands and Patagonia, but not with Australia. All Clivinini occurring in New Zealand have been introduced from Australia. Based on our preliminary examination of material in New Zealand collections and our own field work, we think that there will be additional introduced species recognised as investigations progress on the New Zealand fauna. This will probably include Australian species already introduced on Lord Howe and Norfolk Islands, e.g., *Chlaenius flaviguttatus* Macleay, *C. ophonoides* Fairmaire (Callistini); *Egadroma subrobusta* Schauberger, *Euthenarus promptus* (Erichson), *Gnathaphanus melbournensis* (Laporte de Castelnau), *Notiobia melanaria* (Dejean) (Harpalini); *Eurystomis castelnaui* Chaudoir (Pterostichini); *Illaphanus stephensii* Macleay, *Paratachys transversicollis* Macleay, *Tachys plagiatus* Putzeys (Bembidiini); and *Sarothrocrepis inquinata* (Erichson) (Masoreini).

Ecology, biology, and dispersal. Most New Zealand ground-beetles are hygrophilous species living at the surface of the ground, although a number of species also live deep in the soil (e.g., Anillina), in caves (see below), and also on plants and trees. Several species in the genera *Oopterus*, *Zolus* (Zolini), *Molopsida* (Tropopterini), "*Anchomenus*", *Ctenognathus* (Platynini), *Agonocheila* (Lebiini), and *Amarotypus* (Amarotypini) are tree-dwellers, often occurring in association with the loose bark of trees or in rotten branches.

The two native habitats harbouring the greatest number of species are forests and, to a lesser extent, tussock grasslands. In general, native carabids tend to live within the confines of native habitats, but since less than 25% of New Zealand's original forest cover remains, most species appear also to survive in modified environments. Introduced species seem to be able to invade natural habitats, but only to a slight degree. About 50 species (mostly native) dwell sucessfully in pine plantations provided these are located near or adjacent to native forests.

A number of species live almost exclusively along coastal lowlands: *Cicindela* (3 spp.) (Cicindelini), *Brullea* (1 sp.), *Mecodema* (3 spp.) (Broscini), *Kenodactylus* (1 sp.), *Maoritrechus* (1 sp.) (Trechini), *Bembidion* (2 spp.), all *Zecillenus* (5 spp.) (Bembidiini), *Triplosarus* (1 sp.) (Harpalini), and *Ctenognathus* (2 spp.) (Platynini). The majority of New Zealand species, however, can be found from the lowlands to higher elevations below the subalpine zone. Very few described species appear to be restricted to the subalpine and alpine zones, but many species remain to be described from such habitats, e.g., in the Migadopini and Amarotypini.

Twelve (12) species from the following genera are obligatory cave-dwellers, i.e., living exclusively in caves: *Duvaliomimus*, *Erebotrechus*, *Neanops*, *Pholeodytes, Scototrechus* (Trechini), and *Syllectus* (Harpalini). Eighteen (18) species are occasional cave-dwellers. They belong to the genera *Taenarthrus* (Migadopini), *Mecodema* (Broscini), *Duvaliomimus* (Trechini), *Paratachys* (Bembidiini), *Holcaspis*, *Megadromus*, *Plocamostethus*, *Rhytisternus* (Pterostichini), *Dicrochile* (Licinini), *Lecanomerus*, *Syllectus* (Harpalini), and *Prosphodrus* (Platynini). The latter two genera occur more frequently in caves than other genera, provided that rills or small brooks run through the caves.

Eleven (11) species are regarded as being synanthropic, i.e., living around human dwellings: *Megadromus antarcticus* (Chaudoir), a native species, and 10 adventive species in the genera *Carabus* (Carabini), *Paratachys* (Bembidiini), *Laemostenus* (Platynini), *Perigona* (Perigonini), *Rhytisternus* (Pterostichini), *Anisodactylus*, *Haplanister*, *Harpalus,* and *Lecanomerus* (Harpalini).

Very little is known about the life history of native Carabidae. No life-cycle study has been published so far. The breeding type of most species, i.e., the time of the year at which they reproduce, is still unknown. Population biology and locomotory activity are virtually undocumented.

Mouthpart morphology and food data suggest that most species are opportunistic polyphagous predators. Adults are generally nocturnal and active most of the year, a little less so in winter (June–August). In general, they are active from November to March, that is, the end of spring (September–November), summer (December–February), and early autumn (March–May).

Parental care, or protection of eggs and larvae by the female, has been observed in 11 species of Pterostichini: *Megadromus* (8 spp.), *Neoferonia* (1 sp.), *Plocamostethus* (1 sp.), and *Zeopoecilus* (1 sp.).

Table 3. Number of genera and species of Carabidae occurring in New Zealand. ( ) = number of endemic taxa; [ ] = number of adventive taxa.

Subfamilies Tribes Genera	Number of genera and status	Number of species
Carabinae		
Carabini	**1(0)**	**1(0)**
Carabus	Adventive	1(0) [1]
Pamborini	**1(1)**	**1(1)**
Maoripamborus	Endemic	1(1)
Cicindelini	**1(0)**	**12(12)**
Cicindela	Native	12(12)
Scaritinae		
Amarotypini	**1(1)**	**1(1)**
Amarotypus	Endemic	1(1)
Migadopini	**3(3)**	**6(6)**
Calathosoma	Endemic	1(1)
Loxomerus	Endemic	3(3)
Taenarthrus	Endemic	2(2)
Clivinini	**1(0)**	**4(0)**
Clivina	Adventive	4(0) [4]
Broscinae		
Broscini	**6(6)**	**69(69)**
Bountya	Endemic	1(1)
Brullea	Endemic	1(1)
Diglymma	Endemic	4(4)
Mecodema	Endemic	58(58)
Metaglymma	Endemic	3(3)
Oregus	Endemic	2(2)
Psydrinae		
Mecyclothoracini	**1(0)**	**5(4)**
Mecyclothorax	Native	5(4) [1]
Meonini	**1(1)**	**6(6)**
Selenochilus	Endemic	6(6)
Tropopterini	**1(1)**	**28(28)**
Molopsida	Endemic	28(28)
Trechini	**6(5)**	**14(13)**
Kenodactylus	Native	1(0)
Maoritrechus	Endemic	1(1)
Duvaliomimus	Endemic	8(8)
Erebotrechus	Endemic	1(1)
Neanops	Endemic	2(2)
Scototrechus	Endemic	1(1)
Zolini	**3(2)**	**33(33)**
Oopterus	Native	25(25)
Synteratus	Endemic	1(1)
Zolus	Endemic	7(7)
Bembidiini	**10(6)**	**41(37)**
Bembidion	Native	21(20) [1]
Zecillenus	Endemic	5(5)
Paratachys	Adventive	1(0) [1]
Pericompsus	Adventive	1(0) [1]
Tachys	Native	4(3) [1]
Hygranillus	Endemic	1(1)
Nesamblyops	Endemic	2(2)
Pelodiaetodes	Endemic	1(1)
Pelodiaetus	Endemic	2(2)
Zeanillus	Endemic	3(3)
Harpalinae		
Pterostichini	**11(8)**	**77(74)**
"*Argutor*"	Endemic	1(1)
Aulacopodus	Endemic	4(4)
Gourlayia	Endemic	1(1)
Holcaspis	Endemic	31(31)
Megadromus	Native	24(24)
Neoferonia	Endemic	9(9)
Plocamostethus	Endemic	1(1)
Prosopogmus	Adventive	1(0) [1]
Psegmatopterus	Endemic	1(1)
Rhytisternus	Adventive	2(0) [2]
Zeopoecilus	Endemic	2(2)
Licinini	**2(0)**	**17(16)**
Dicrochile	Native	15(15)
Physolaesthus	Native	2(1)
Harpalini	**13(6)**	**36(27)**
Lecanomerus	Native	11(8) [3]
Syllectus	Endemic	3(3)
Allocinopus	Endemic	6(6)
Anisodactylus	Adventive	1(0) [1]
Gaioxenus	Endemic	1(1)
Hypharpax	Native	4(2) [2]
Parabaris	Endemic	2(2)
Triplosarus	Endemic	1(1)
Egadroma	Adventive	1(0) [1]
Euthenarus	Native	2(2)
Haplanister	Adventive	1(0) [1]
Pholeodytes	Endemic	2(2)
Harpalus	Adventive	1(0) [1]
Platynini	**8(5)**	**49(46)**
Laemostenus	Adventive	1(0) [1]
"*Anchomenus*"	Endemic	15(15)
Cerabilia	Endemic	4(4)
Ctenognathus	Endemic	19(19)
Notagonum	Native	5(3) [1]
Platynus	Native	1(1)
Prosphodrus	Endemic	2(2)
Zabronothus	Endemic	2(2)
Perigonini	**1(0)**	**1(0)**
Perigona	Adventive	1(0) [1]
Pentagonicini	**2(0)**	**12(11)**
Pentagonica	Native	1(0)
Scopodes	Native	11(11)
Lebiini	**5(1)**	**11(7)**
Agonocheila	Native	1(0) [1]
Philophlaeus	Adventive	1(0) [1]
Actenonyx	Endemic	1(1)
Anomotarus	Adventive	2(0) [2]
Demetrida	Native	6(6)
20 tribes	78 (46) [14]	424 (391) [29]

Table 4. Genera shared with Australia, New Caledonia, Norfolk Island, and Lord Howe Island. X = present; [ ] = adventive; — = absent.

Genera	New Zealand	Australia (mainland)	Tasmania	New Caledonia	Norfolk I.	Lord Howe I.
Cicindelini						
Cicindela	X	X	—	X	—	—
Clivinini						
Clivina	[X]	X	X	—	[X]	[X]
Mecyclothoracini						
Mecyclothorax	X	X	X	X	X	X
Bembidiini						
Bembidion	X	X	X	X	—	[X]
Paratachys	[X]	X	—	X	—	[X]
Pericompsus	[X]	X	X	—	—	[X]
Tachys	X	X	X	X	—	—
Pterostichini						
Megadromus	X	X	—	—	—	—
Prosopogmus	[X]	X	X	—	—	X
Rhytisternus	[X]	X	X	—	—	—
Licinini						
Dicrochile	X	X	X	X	X	—
Physolaesthus	X	X	—	—	—	—
Harpalini						
Lecanomerus	X	X	X	X	—	—
Hypharpax	X	X	X	—	—	[X]
Egadroma	[X]	X	X	X	—	[X]
Euthenarus	X	X	X	—	X	—
Harpalus	[X]	[X]	—	—	—	—
Platynini						
Laemostenus	[X]	[X]	[X]	—	—	—
Platynus	X	X	—	X	—	—
Notagonum	X	X	X	X	X	[X]
Perigonini						
Perigona	[X]	X	X	X	—	—
Pentagonicini						
Pentagonica	X	X	X	X	X	X
Scopodes	X	X	X	X	—	X
Lebiini						
Agonocheila	X	X	X	—	—	—
Philophlaeus	[X]	X	X	—	—	—
Anomotarus	[X]	X	X	X	X	[X]
Demetrida	X	X	X	X	—	—
Total shared New Zealand genera :	27 [11]	27	21	15	7	12

Table 5. Species shared with Australia, New Caledonia, Norfolk Island, and Lord Howe Island. X = present; [ ] = adventive; — = absent; * = wing condition unknown.

Species (winged)	New Zealand	Australia (mainland)	Tasmania	New Caledonia	Norfolk I.	Lord Howe I.
Clivinini						
Clivina australasiae	[X]	X	—	—	—	[X]
Clivina basalis	[X]	X	—	—	[X]	—
Clivina heterogena	[X]	X	—	—	—	—
Clivina vagans	[X]	X	X	—	—	[X]
Mecyclothoracini						
Mecyclothorax ambiguus	[X]	X	X	—	—	—
Bembidiini						
Bembidion brullei	[X]	[X]	—	—	—	[X]
Pericompsus australis	[X]	X	X	—	—	[X]
Tachys captus	[X]	X	X	—	—	—
Pterostichini						
Prosopogmus oodiformis	[X]	X	—	—	—	—
*Rhytisternus liopleurus**	[X]	X	X	—	—	—
Rhytisternus miser	[X]	X	X	—	—	—
Licinini						
Physolaesthus insularis	X	X	—	—	—	—
Harpalini						
Lecanomerus atriceps	[X]	X	—	—	—	—
Lecanomerus verticalis	[X]	X	X	—	—	—
Lecanomerus vestigialis	[X]	X	X	—	—	—
Hypharpax australasiae	[X]	X	X	—	—	—
Hypharpax australis	[X]	X	X	—	—	[X]
Egadroma picea	[X]	X	X	X	—	—
Platynini						
Laemostenus complanatus	[X]	[X]	[X]	—	—	—
Notagonum marginellum	[X]	X	X	—	[X]	[X]
Notagonum submetallicum	X	X	—	—	X	—
Perigonini						
Perigona nigriceps	[X]	[X]	—	[X]	—	—
Pentagonicini						
Pentagonica vittipennis	X	X	X	—	—	X
Lebiini						
Agonocheila antipodum	X	X	X	—	—	—
Philophlaeus luculentus	[X]	X	—	—	—	—
Anomotarus illawarrae	[X]	X	X	—	—	—
Anomotarus variegatus	[X]	X		—	—	[X]
Total shared New Zealand taxa:	27 [23]	27	16	2	3	8

Larvae are usually fossorial and very secretive; they are rarely encountered at the surface of the ground and can be difficult to sample by hand or by pittrapping. Larvae of *Bembidion*, *Zecillenus* (Bembidiini), and *Megadromus* (Pterostichini), live closer to the ground surface and they are more easily found.

New Zealand carabids have number of enemies and parasites. Starlings, kiwis, spiders, and hedgehogs are major predators while magpies, asilids, kingfishers, fernbirds, stoats, feral cats, thrushes, trouts, and rats appear to be minor predators. Based on our field experience, we think that spiders could be the most important predators, especially in tussock grasslands, herbfields, and fellfields. Hedgehogs are thought to be very active predators of carabids in tussock grasslands on the South Island. As elsewhere in the world, asilid flies, or robber flies (Diptera: Asilidae), could be regular enemies of tiger beetles (Cicindelini).

A survey of specimens in the New Zealand Arthropod Collection (NZAC) reported 48 species parasitised by Laboulbeniales (Fungi: Ascomycetes). This indicates that at least 11% of total carabid fauna is subjected to such infestations. Parasitised specimens were mostly from the tribes Trechini, Harpalini, Mecyclothoracini, Tropopterini, and Zolini. Fifteen (15) species were heavily infested in the genera *Duvaliomimus* (Trechini), *Lecanomerus* (Harpalini), *Mecyclothorax* (Mecyclothoracini), *Molopsida* (Tropopterini), *Oopterus*, and *Zolus* (Zolini).

A similar survey revealed 137 species as being infested with mites (Acari). Therefore, 32% of all species is subjected to this type of infestation. Eighteen (18) species were heavily infested in the genera *Holcaspis*, *Megadromus*, *Plocamostethus* (Pterostichini), *Mecodema* (Broscini), and *Ctenognathus* (Platynini). On a world basis, and apparently also in New Zealand, mites are among the most important parasites of carabids.

In New Zealand, species infested with Laboulbeniales or mites are rain-forest dwellers, often associated with rotten wood, branches, and logs. Our survey of NZAC specimens did not reveal any teneral carabids with Laboulbeniales or mites. Before this catalogue, only one species (*Kenodactylus audouini* (Guérin-Méneville)) had been reported with Laboulbeniales (Rossi, 1984); no published record is available for mites. More information on Laboulbeniales and mites associated with world carabids can be obtained from Lindroth (1948), Thiele (1977), Weir & Hammond (1997), and Vigna Taglianti & Rossi (1998).

Nematodes have been found as parasites of 5 species belonging to the following genera: *Mecodema* (1 sp.), (Broscini), *Holcaspis* (2 spp.), and *Megadromus* (2 spp.) (Pterostichini).

The majority of New Zealand carabids are flightless, usually using running as their main mode of locomotion. In general, carabids either burrow in the litter or the soil or run away when disturbed, but a number of interesting defense mechanisms can be observed in New Zealand species. Two *Cicindela* species (Cicindelini) use cryptic coloration (colour pattern blending perfectly with the background) to protect themselves against enemies. Death feigning has been observed in species of *Diglymma* (2 spp.), *Mecodema* (2 spp.), *Metaglymma* (1 sp.) (Broscini), *Megadromus* (1 sp.) (Pterostichini); and possibly also *Oopterus,* and *Zolus* (Zolini) (Hudson, 1934). When disturbed, adults may emit a strong smell, e.g., *Amarotypus* (1 sp.) (Amarotypini), *Diglymma* (1 sp.), *Mecodema* (3 spp.), *Oregus* (1 sp.) (Broscini), *Holcaspis* (2 spp.), *Megadromus* (5 spp.), *Plocamostethus* (1 sp.), *Rhytisternus* (1 sp.), and *Zeopoecilus* (1 sp.) (Pterostichini). Species of the following genera have been observed to bite strongly when seized: *Mecodema* (1 sp.) (Broscini), *Megadromus* (4 spp.), *Plocamostethus* (1 sp.), and *Zeopoecilus* (1 sp.) (Pterostichini). When closely approached, adults of *Amarotypus* (Amarotypini) standing on tree trunks at night let themselves drop to the ground. Finally, *Prosphodrus* (Platynini) species have the peculiar habit of diving into water when disturbed.

Fifty (50) carabid taxa were listed by Molloy *et al*. (1994) as threatened. So far, two species (*Mecodema chiltoni* Broun, *M. laeviceps* Broun) have been the subject of a basic conservation study (Barratt, 1994a & b). In our opinion, however, too little information is available on the relative abundance and distribution of supposedly rare species; more thorough investigations, e.g., quantitative pittrap population dynamic studies and mark-recapture studies over more than one year, will need to be carried out before any meaningful formal conservation assessment can be formulated for any species. Based on the world literature and our experience in the field, ground-beetles are usually well hidden and scattered by day through a given habitat so that they usually escape the attention of the most specialised or attentive collector, thus preventing any realistic approximation of population size and distribution from hand-collecting data.

METHODS AND CONVENTIONS

This catalogue is based on eight years of extensive field work carried out by the authors in over 400 localities, an exhaustive survey of the literature published between 1775 and December 1999 (approximately 500 publications), and the recording of information associated with several thousand specimens from the following entomological museums and collections:

AMNZ Auckland Institute and War Memorial Museum, Auckland, New Zealand.
BBNZ Barbara I.P. Barratt private collection, Dunedin, New Zealand.
BMNH British Museum (Natural History), now The Natural History Museum, London, England.
BPNZ Brian Patrick private collection, Dunedin [now in OMNZ].
CMNZ Canterbury Museum, Christchurch, New Zealand.
ITNZ J. Ian Townsend private collection, Levin, New Zealand [now partially deposited in NZAC].
JNNZ John Nunn private collection, Dunedin, New Zealand.
LUNZ Entomological Museum, Lincoln University, Lincoln, New Zealand.
MONZ Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand.
NZAC New Zealand Arthropod Collection, Mount Albert Research Centre, Auckland, New Zealand.
OMNZ Otago Museum, Dunedin, New Zealand.
PHNZ Philip Howe private collection, Timaru, New Zealand.
STNZ Stephen Thorpe private collection, Herne Bay, Auckland, New Zealand.
UCNZ Department of Zoology, University of Canterbury, Christchurch, New Zealand.

Field surveys and collecting techniques. Most areas of New Zealand have been visited by carabid collectors. This has provided a basic inventory of taxa and resulted in New Zealand collections having representatives of most species, either described or undescribed. Collecting in the back country and at high elevation throughout New Zealand, especially in the alpine habitats (edges of small glacial brooks and seepages) of the northern half of the South Island, may yet yield a number of undescribed species, e.g., in the Amarotypini and Migadopini. The South Island has generally received the closest attention while the North Island has been somewhat neglected by collectors, except for the Northland, Auckland, and Wellington areas. Coastal habitats (gravelly-stony sea beaches, estuaries, dunes, cliffs, salt marshes, mangroves, forests), flaxlands, edges of streams crossing forests, hill tops, soil fissures under well-embedded stones, the underside of loose tree bark, and cliff walls are among the habitats least surveyed.

The material collected so far is rich in geographic information but generally poor in biological data. Furthermore, a majority of species are represented only by a few specimens, impeding our ability to assess morphological variations within and between populations.

Because we are field biologists and believe that species should be first recognised in the field, we have carried out an extensive survey in order to complete a more detailed picture of geographic distribution and to increase our knowledge of the natural history of as many species as possible. Two to three months a year were spent in the field over the last eight years. Over 400 localities were surveyed mostly on the North Island, but also in the South and the West of the South Island. Visits lasting about one week were made to a relatively large area, e.g., the Catlins or the Ruahines. A mixture of collecting techniques was used: hand-collecting, litter-sifting, Berlese funnel extraction techniques, and pittrapping. For the latter, eight traps containing soapy water were set in a straight line with a distance of five metres between each trap and usually left for a period of 5–7 days. According to the world literature, setting and spacing traps in this manner allow minimum interference between traps and yields the greatest number of species. Pittrapping and litter collecting was also carried out for longer periods, especially in autumn and winter. For example, pittraps containing ethylene glycol would be set in the Mangamuka Hills, ND for 6 weeks at a time over a number of months.

Geographical and biological data associated with all samples and specimens collected were recorded in as much detail as possible in field notebooks. This information was subsequently transferred to mounted specimens on two labels (Fig. 1), one detailing the locality information, the other one, the biological observations. More recently, most locality information has also been georeferenced (attributed longitude and latitude data). Our material is deposited in the New Zealand Arthropod Collection (Auckland).

We plan to continue our surveys for years to come as there is still a lot of information to be gathered in order to complete our taxonomic revisions and to gain a better understanding of the biogeography and natural history of New Zealand species.

Taxonomic information. The appropriate taxonomic literature was checked to obtain original spellings, years of publication, page citation, type-species designations, type-locality information, and the nomenclatural acts and changes affecting the status of New Zealand taxa.

The catalogue is arranged phylogenetically by subfamilies, divisions, tribes, and subtribes. Genera, subgenera, species, and subspecies are listed alphabetically within their respective higher category.

The nomenclature adopted in this catalogue adheres to the provisions established in the *International Code of Zoological Nomenclature*, Fourth Edition (1999).

Family-group names. Valid names of subfamilies, tribes, and subtribes (when available) are given as bold centred headings in small capitals. Treatment of nomenclature of family-group names is not included.

Genus-group names. Valid names are given with author and year as bold centred headings. Under this heading the valid name and its synonyms are given with author(s), year, and a page reference. Synonyms are given in chronological order and are followed by a citation of the original authority, year of publication, and page reference of each synonymy. Information on original rank, availability, homonymy, and synonymy, or changes of rank are also included. Type species (in original combination) and method of fixation are given for valid genera as well as synonyms. Incorrect spellings are noted.

Species-group names. Valid names are given with author(s) and year as bold left-justified headings. Under this heading the valid name and its synonyms are given with author, year, and a page reference. Synonyms are given in chronological order in their original combination and are followed by a citation of the original authority, year of publication, and page reference of each synonymy. Information on original rank, availability, homonymy, and synonymy, or changes of rank are also included. New combinations are listed in a manner similar to synonyms. Incorrect spellings are noted. Type localities are provided for valid taxa as well as synonyms. Appendices B and C provide lists of *nomina nuda* and unjustified emendations.

Type data. Type locality information is quoted literally as possible from original descriptions and subsequent revisions. They are listed for valid species-group names and synonyms in the following format: "Type locality: name of type locality, appropriate area code (Crosby *et al*. 1976, 1998)." Additional information supported by reference citations is added in cases where information differs between two publications. The geographical coordinates of the main type localities are listed in Appendix F.

A number of years ago, R.M. Emberson (Lincoln University, Lincoln) initiated a project detailing the types of New Zealand Carabidae and their repositories; he is still working on this eagerly awaited catalogue.

Geographic distribution. The catalogue contains distributional information for tribes, subtribes, genera, subgenera, species, and subspecies, based on literature and specimen label data.

The distribution of supraspecific groups is given as major zoogeographical regions or in slightly more detail if the taxon is widely known within the Australian Region.

For species and subspecies, 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 is also included as well as first mentions of adventive species. Species-based geographic information and type-locality data for valid species and synonyms, were maintained in a MicrosoftAccess97 database. This database was used to prepare the species distribution maps (pp. 223–270, presented alphabetically by taxa), the maps on taxonomic diversity (pp. 219–222), the appendices listing type localities (Appendix F), and the species by areas of New Zealand (Appendices G, H). All maps were prepared with the program CorelDRAW (version 8.0).

Two additional appendices provide synopses of species incorrectly or doubtfully recorded (Appendix D) and species deliberately introduced (Appendix E).

Two-letter abbreviations for the area codes of Crosby *et al*. (1976, 1998) used in this catalogue are as follows: **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. **SI, Stewart Island**. **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.

Ecological, biological, and dispersal information. The information provided is based on the literature and specimen label data. In order to eliminate spurious records, an effort was made to summarise available information by using the smallest common denominator representing the essentials of each species' requirements.

Data sheets were prepared to compile information on ecology, biology, and dispersal power (Fig. 2). On these sheets, the first line indicates the data source, e.g., collection acronym or literature. The second line gives the complete scientific name of the taxon for which information is being compiled. This is followed by four sections recording information on geographic distribution, ecology, biology, and dispersal power, using predefined categories and standard terms. The data sheets were kept in alphabetical order in a series of binders and then used to compose the species' treatments for the catalogue.

In this catalogue, ecological tendencies are summarised for each species using a series of standard terms

following the approach taken by previous workers dealing with other faunas (Lindroth, 1945 and 1949; Sharova, 1981; Koch, 1989). The ecological terms used in this catalogue are defined in the glossary (Appendix A).

Altitudinal distribution, or distribution related to altitude or elevation, is expressed as lowland, mountain or upland, subalpine, alpine following the categories used by Poole & Adams (1990).

Vertical distribution, or distribution related to the horizon, is expressed as arboreal, planticolous, epigean, endogean, and cavernicolous. These terms are defined in the glossary (Appendix A).

Seasonality, or the period of year when an animal is active, is expressed as months from September to August.

Dispersal power, or the capability of dispersal, has been assessed when possible, using three main criteria: wing condition, flight data (including light-trapping observations), and other locomotory habits.

Wing condition was evaluated for each species based on the literature, and personal observations in the field and in the laboratory. The terms used for wing condition are also included in the glossary.

The locomotory habits of species has been recorded under three categories: fast runner, moderate runner, and slow runner. Each species has been assigned to one of these categories using field observations and examination of leg characteristics (Evans, 1977 and 1986; Forsythe, 1981 and 1983). In general, fast runners have longer, thinner legs and occur in open, bare habitats, e.g., *Cicindela* species. Moderate runners have moderately long, moderately large legs, and live generally in leaf litter or the low vegetation. Slow runners have shorter, more inflated legs armed with tooth-like excrescences, and dig burrows, e.g., Broscini and Clivinini.

For flight and climbing data, three categories were used: occasional (only a few specimens and instances observed), regular (a moderate number of specimens and instances), and frequent (numerous specimens and instances). Indirect evidence of flight was also provided in the case of specimens found in shore-drift material.

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

Notes. Additional information is given as Notes under each valid taxon.

CATALOGUE

Taxa are listed in phylogenetic order from divisions to subtribes and in alphabetical order from genera to subspecies. Valid family-group names are presented without authorship and date of publication; such information is contained in Madge (1989). Each genus-group name or species-group name is listed with its author(s), date, and page of publication. Valid species-group names are listed alphabetically in ***bold italics*** in their ***current combinations***; they are also recorded in *italics* in their *original combinations*. Synonyms are presented chronologically and in *italics* in their *original combinations*. Most synonyms of species introduced from outside the Australian Region are omitted.

Family CARABIDAE
Division NEBRIIFORMES
Subfamily CARABINAE
Supertribe CARABITAE
Tribe CARABINI

Figure 3

Geographic distribution. Worldwide.

Reference. Bousquet & Larochelle, 1993: 24 (classification).

Genus *Carabus* Linnaeus, 1758

Figure 3

Carabus Linnaeus, 1758: 413. Type species: *Carabus granulatus* Linnaeus, 1758, designated by Hope, 1838: 47.

Geographic distribution. Holarctic Region; New Zealand (adventive).

Reference. Liebherr & Will, 1998: 128 (morphology of female reproductive system).

Subgenus *Archicarabus* Seidlitz, 1887

Archicarabus Seidlitz, 1887: 6. Type species: *Carabus nemoralis* O.F. Müller, 1764, by monotypy.

Archeocarabus Bengtsson, 1927: 83. Type species: *Carabus nemoralis* O.F.Müller, 1764, by original designation.

Geographic distribution. Holarctic Region; New Zealand (adventive).

Carabus (Archicarabus) nemoralis O.F. Müller, 1764

Figure 3

Carabus nemoralis O.F. Müller, 1764: 21. Type locality: Frederiksdal, Sjaelland, Denmark.

Geographic distribution (Map p. 229). North Island: AK. Extralimital range: Europe; North America and New Zealand (adventive). First New Zealand record: Avondale, AK 1948 (NZAC; Spiller, 1949: 137). Probably not established.

Ecology. Epigean, mesophilous, synanthropic. Lowland. A cultivated field (potato). Nocturnal; shelters during the day.

Biology. Seasonality: January. Predacious, molluscophagous (Larochelle, 1990: 41).

Dispersal power. Subapterous. Moderate runner.

References. Spiller, 1949: 137 (distribution); Pilgrim, 1963: 840, 846 (distribution).

Tribe PAMBORINI

Figure 4

Geographic distribution. Australia, New Zealand.

References. Rousseau, 1908: 1–3 (revision); Darlington, 1961b: 1–13 (taxonomy of Australian taxa); Moore, 1966: 1–4 (larva of *Pamborus* Latreille, systematic position); Liebherr & Will, 1998: 142 (phylogeny, classification); Arndt, 1998: 179–180 (phylogeny, classification); Serrano & Galián, 1998: 195 (phylogeny, classification); Prüser & Mossakowski, 1998: 308–309, 316–321 (phylogeny, classification).

Genus *Maoripamborus* Brookes, 1944

Figure 4

Maoripamborus Brookes, 1944: 262. Type species: *Maoripamborus fairburni* Brookes, 1944, by monotypy.

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

References. Brookes, 1944: 262–263 (taxonomy); Molloy *et al.*, 1994: 60 (distribution), conservation).

Note. A new species from northeast of Waitara, TK awaits description (Molloy *et al*., 1994: 60).

Maoripamborus fairburni Brookes, 1944

Figure 4

Maoripamborus fairburni Brookes, 1944: 262. Type locality: Waimatenui, ND.

Geographic distribution (Map p. 244). North Island: AK, ND.

Ecology. Epigean, silvicolous, very hygrophilous. Lowland, mountains. Wet forests (broadleaf, podocarp) and tree plantations (pine). Nocturnal; hides during the day under logs (mostly), fallen branches, and in rotten fallen trees.

Biology. Seasonality: September–April, June–August. Tenerals: February. Larvae: November–December. Predacious, molluscophagous. Food: Snails.

Dispersal power. Subapterous. Moderate runner. Occasional climber (on tree trunks and logs).

References. Brookes, 1944: 263 (distribution, ecology); Worthy, 1983: 42 (subfossils); Meads, 1990: 37 (biology, conservation); Harris, 1992: 42–44 (distribution, ecology, biology); Molloy *et al*., 1994: 60 (distribution, conservation); Sherley, 1994: 115 (conservation); Klimaszewski & Watt, 1997: 168 (distribution, biology).

Note. Almost restricted to ND, but not rare there.

Supertribe CICINDELITAE
Tribe CICINDELINI

Figure 5

Geographic distribution. Worldwide.

References. Larochelle, 1974: 21–43 (food); Pearson, 1988: 123–147 (biology); Bousquet & Larochelle, 1993: 23–24 (classification); Vogler & Pearson, 1996: 321–338 (molecular phylogeny).

Subtribe CICINDELINA

Geographic distribution. Worldwide.

Reference. Wiesner, 1992: 95–231 (world catalogue).

Genus *Cicindela* Linnaeus, 1758

Figure 5

Cicindela Linnaeus, 1758: 407. Type species: *Cicindela campestris* Linnaeus, 1758, designated by Latreille, 1810: 425.

Geographic distribution. Worldwide.

References. Willis, 1967: 145–313 (ecology, biology, dispersal power, behaviour); Freitag, 1979: 1–99 (revision of Australian species); Knisley & Schultz, 1997: 1–209 (ecology, biology, dispersal power, behaviour); Liebherr & Will, 1998: 129 (morphology of female reproductive system).

Subgenus *Neocicindela* Rivalier, 1963, new status

Neocicindela Rivalier, 1963: 36. Type species: *Cicindela tuberculata* Fabricius, 1775: 225, by original designation.

Geographic distribution. New Zealand (endemic).

References. Horn, 1938: Plates 60–61 (left elytron drawings); Rivalier, 1963: 36–37 (taxonomy, list); Brown, 1964: 3–5 (translation of Rivalier's paper); Brouerius van Nidek, 1965: 352–358 (list, distribution); Wiesner, 1988: 175–181 (distribution of North Island species); Wiesner, 1992: 222–223 (world catalogue); Savill, 1999: 129–146 (key to species, distribution, ecology).

Notes. Rivalier's splitting of the genus *Cicindela* into fifty-five genera, from 1950 to 1963, was based on the structure of the internal sac of the male genitalia, but his study was not detailed enough to justify the splitting of the genus *Cicindela* here or elsewhere in the world. His "genera" could be regarded as subgenera or species groups to balance them with the rest of carabids (Erwin & Sims, 1984: 367). New Zealand tiger beetles will have to be related to the Australian fauna revised by Freitag (1979) who maintained the genus *Cicindela* with several subgenera. The genus could comprise a few subgenera and subspecies. A wide variation exists within some species in regard to body size, labrum shape, and elytral colour pattern; examination of the genitalia in both sexes will be needed when revising the New Zealand taxa.

Cicindela (Neocicindela) austromontana Bates, 1878

Cicindela austromontana Bates, 1878c: 22. Type locality: Castle Hill, MC.

Cicindela incognita Horn, 1892b: 82. Type locality: "New Zealand?". Synonymised by Horn, 1896b: 171.

Neocicindela austromontana: Rivalier, 1963: 37.

Geographic distribution (Map p. 229). South Island: KA, MB, MC, NC, SC.

Ecology. Epigean, mostly riparian, heliophilous. Lowland, montane, subalpine. Bare sand pockets or stony areas from open river beds, close to water; clay pockets of subalpine screes, road edges, lawns, and banks. Larval burrows usually dug in clay banks. Diurnal; active in the sunshine. Gregarious.

Biology. Seasonality: December–January, February–April. Predacious (based on mouthpart morphology). Predators: Spiders. Defense mechanism: Cryptic coloration (body colour blending perfectly with the drier shingles of river banks).

Dispersal power. Macropterous. Strong flier.

References. Hudson, 1934: 30 (distribution); Brouerius van Nidek, 1965: 356 (distribution); Johns, 1977: 319, 320 and Johns *et al*., 1980: 29 (distribution, ecology); Townsend, 1997: 7 (distribution); Savill, 1999: 133–138 (distribution, ecology).

Cicindela (Neocicindela) brevilunata Horn, 1926

Cicindela brevilunata Horn, 1926a: 168. Type locality: New Zealand and Hokianga, ND.

Neocicindela brevilunata: Rivalier, 1963: 37.

Geographic distribution (Map p. 229). North Island: AK, CL, ND.

Ecology. Stenotopic, epigean, arenicolous, xerophilous, heliophilous. Coastal lowland. Dry sandy beaches and foredunes with sparse vegetation. Diurnal; active in the sunshine.

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

Dispersal power. Macropterous. Strong flier. Fast runner.

References. Brouerius van Nidek, 1965: 356 (distribution); Wiesner, 1988: 180 (distribution, ecology); Wise, 1988: 147, 178 (taxonomy, ecology); Wise, 1990: 180, 183 (distribution, ecology); Savill, 1999: 133, 139 (distribution, ecology).

Cicindela (Neocicindela) dunedensis Laporte de Castelnau, 1867

Cicindela dunedensis Laporte de Castelnau, 1867: 35. Type locality: Dunedin, DN.

Cicindela wakefieldi Bates, 1874: 234 (redescribed in 1875: 298). Type locality: Near Christchurch, MC. Synonymised by Lewis, 1902: 203.

Cicindela dunedinensis: Hutton, 1874: 158 (incorrect subsequent spelling).

Cicindela dunedensis wakefieldi: Horn, 1896a: 354.

Neocicindela dunedensis: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). South Island: CO, DN, MB, MC, MK, NC, SC.

Ecology. Eurytopic, epigean, xerophilous, halotolerant, heliophilous. Lowland, montane, subalpine, alpine. Dry bare or sparsely vegetated areas (clay, chalk, sand, stone) of tussock grasslands, cultivated fields (mustard), field banks, eroded cliffs, eroded clay pockets, gardens, parks, river banks, saltpans, screes. Diurnal; active in the sunshine. Gregarious.

Biology. Seasonality: December–March. Mating: January. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Occasional strong flier, usually reluctant to fly. Fast runner.

References. Brouerius van Nidek, 1965: 356 (distribution); Johns, 1986: 32 (distribution, ecology); Howe, 1998: 16 (distribution, ecology); Townsend, 1997: 7 (distribution); Savill, 1999: 134, 145 (distribution, ecology).

Note. This name could comprise two taxonomic forms.

Cicindela (Neocicindela) feredayi Bates, 1867

Cicindela feredayi Bates, 1867: 53. Type locality: Province of Canterbury, South Island.
Neocicindela feredayi: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). North Island: BP, RI, TO, WI, WN. South Island: CO, DN, FD, KA, MB, MC, MK, NC, OL, SC.

Ecology. Stenotopic, epigean, riparian, arenicolous, heliophilous. Lowland, montane. Sandy pockets of open river beds; roadsides (occasionally). Diurnal; active in the sunshine. Gregarious.

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

Dispersal power. Macropterous. Strong flier. Strong runner.

References. Hudson, 1934: 30 (distribution, ecology); Brouerius van Nidek, 1965: 356 (distribution); Pilgrim, 1969: 364 (dispersal power); Harrison & White, 1969: 384 (distribution, ecology); Johns, 1977: 319 (distribution, ecology); Savill, 1999: 133, 137 (distribution, ecology).

Cicindela (Neocicindela) hamiltoni Broun, 1921

Cicindela hamiltoni Broun, 1921: 594. Type locality: Mouat's Lookout, Awatere River Basin, KA.
Neocicindela hamiltoni: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). South Island: KA, "Canterbury".

Ecology. Stenotopic, epigean, xerophilous, heliophilous. Montane, subalpine, alpine. Dry clayey pockets from screes; snow patches (occasionally). Diurnal; active in the sunshine.

Biology. Seasonality: January–March. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Strong flier. Fast runner.

References. Brouerius van Nidek, 1965: 356–357 (distribution); Palma *et al*., 1989: 21 (taxonomy); Townsend, 1997: 7 (distribution); Savill, 1999: 133, 136 (distribution, ecology).

Cicindela (Neocicindela) helmsi Sharp, 1886

Cicindela helmsi Sharp, 1886: 358. Type locality: Greymouth, BR.
Cicindela novaseelandica Horn, 1892b: 83. Type locality: New Zealand. Synonymised by Horn, 1893: 335.
Cicindela circumpictoides Horn, 1900: 207. Type locality: Oceania (Horn, 1900: 207); New Zealand (Horn, 1907: 21). Synonymised by Savill, 1999: 129.
Cicindela halli Broun, 1917: 350. Type locality: New Zealand (Broun, 1917: 350); Hollyford, FD (Horn 1927: 39). Synonymised by Brouerius van Nidek, 1965: 352.
Neocicindela circumpictoïdes: Rivalier, 1963: 37.
Neocicindela helmsi: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). North Island: TO. South Island: BR, FD, KA, MB, NC, NN, OL, SC, WD.

Ecology. Epigean, mostly riparian, arenicolous, xerophilous, heliophilous. Lowland, subalpine, alpine. Dry sandy pockets from open river beds; sandy spots in steppe (TO). Diurnal; active in the sunshine. Gregarious.

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

Dispersal power. Macropterous. Strong, short-distance flier. Fast runner.

References. Hudson, 1934: 30–31 (distribution, ecology); Brouerius van Nidek, 1965: 356–357 (distribution); Wiesner, 1988: 176 (distribution, ecology, dispersal power); Townsend, 1997: 7 (distribution); Savill, 1999: 129, 133, 135 (taxonomy, distribution, ecology).

Note. The Central Volcanic Plateau (TO) populations being ecologically and geographically distinct from other populations, we could be facing two sibling species or subspecies.

Cicindela (Neocicindela) latecincta White, 1846

Cicindela late-cincta White, 1846: 1. Type locality: Waikouaiti, DN (on Plate 1 hyphen omitted).
Cicindela tuberculata latecincta: Chaudoir, 1865a: 28.
Neocicindela latecincta: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). South Island: BR, CO, DN, KA, MB, MC, MK, NC, NN, OL, SC, SD, SL.

Ecology. Eurytopic, epigean, xerophilous, heliophilous. Lowland, montane, subalpine, alpine. Bare or sparsely vegetated dry clay banks, roadsides, gullies, grasslands, farmlands, wastelands, parks, river beds, sea cliffs, open scrublands, tree plantations (pine). Larval burrows dug at base of steep sloping clay banks, each burrow with small lip at the entrance, preventing water from running into it. Diurnal; active in the sunshine. Gregarious.

Biology. Seasonality: September, November–April. Predacious. Food: Flies and centipedes.

Dispersal power. Macropterous. Strong, short-distance flier (1–2 m).

References. Longstaff, 1912: 470 (biology); Hudson, 1934: 29 (distribution); Brouerius van Nidek, 1965: 357 (distribution); Johns, 1977: 323, 325 (distribution, ecology); Johns *et al.,* 1980: 29 (distribution, ecology); Johns, 1986: 32 (distribution, ecology); Townsend, 1997: 7 (distribution); Howe, 1998: 16 (distribution, ecology); Savill, 1999: 134, 144 (distribution, ecology).

Cicindela (Neocicindela) parryi White, 1846

Cicindela parryi White, 1846: 1. Type locality: Port Nicholson, WN.

Neocicindela parryi: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WI, WN, WO. South Island: BR, CO, DN, FD, MB, MC, NC, NN, OL, SD, SL, WD. Stewart Island.

Ecology. Epigean, mostly silvicolous, hygrophilous. Lowland, montane, subalpine, alpine. Openings, paths and roads situated in forests (beech, broadleaf, podocarp), shrublands, and scrublands; roadsides and clay banks in tussocks grasslands, cultivated fields; sandy beaches near tussock grasslands and cultivated fields; screes, stream beds, gardens. Larval burrows dug in bare areas of tussock grasslands. Mostly diurnal; active both in the sunshine and in cloudy weather. Solitary.

Biology. Seasonality: November–June. Tenerals: March. Predacious. Food: Caterpillars. Defense mechanism: Immobility. Easy to capture by hand.

Dispersal power. Macropterous. Short-distance flier (about 0.5 m). Occasional flier to artificial lights at night. Reluctant both to fly and run. Occasional climber (on shrubs).

References. Laporte de Castelnau, 1867: 36 (larval description); Hudson, 1934: 30 (distribution, ecology); Brouerius van Nidek, 1965: 357 (distribution); McColl, 1975: 25–26 (ecology, biology); Johns, 1977: 325 (distribution, ecology); Watt, 1980b: 187 (distribution, ecology); Patrick *et al*., 1986: 13 (distribution); Johns, 1986: 31 (distribution, ecology); Wiesner, 1988: 175 (distribution, ecology, dispersal power); Townsend, 1997: 7 (distribution); Savill, 1999: 133–134 (distribution, ecology).

Note. This name could represent a species complex.

Cicindela (Neocicindela) perhispida campbelli Broun, 1886

Cicindela campbelli Broun, 1886: 817. Type locality: Waikato Heads, AK/WO.

Cicindela perhispida campbelli: Horn, 1926a: 168.

Cicindela perhispida brouni Horn, 1893: 336. Type locality: New Zealand. Synonymised by Horn, 1926a: 168.

Neocicindela perhispida campbelli: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). North Island: AK, WO.

Ecology. Stenotopic, epigean, arenicolous, xerophilous, heliophilous, thermophobous. Coastal lowland. Dry beaches and foredunes with black ironsands. Diurnal; active in the sunshine, except in the middle of the day when the sun transforms the sand into a furnace. Gregarious.

Biology. Seasonality: December–February. Predacious (based on mouthpart morphology). Occasionally infested with mites. Defense mechanism: Cryptic coloration (body colour blending perfectly with the background); thermoregulation (during midday, shuttling frequently between sun and shade to avoid overheating).

Dispersal power. Macropterous. Strong, long-distance flier. Fast runner.

References. Brouerius van Nidek, 1965: 357 (distribution); Wise, 1988: 173–174 (distribution, ecology); Wiesner, 1988: 176, 179 (distribution, ecology, dispersal power); Hadley *et al*., 1988: 343–345 (ecology); Hadley & Savill, 1989: 749 (ecology); Wise, 1990: 181–183 (taxonomy, distribution, ecology); Hadley *et al.*, 1992: 57–61 (ecology); Savill, 1999: 133, 140 (distribution, ecology).

Cicindela (Neocicindela) perhispida giveni (Brouerius van Nidek, 1965), new combination

Neocicindela perhispida giveni Brouerius van Nidek, 1965: 353. Type locality: Spirits Bay, ND.

Neocicindela perhispida savilli Wiesner, 1988: 176. Type locality: Rarawa Beach, ND. Synonymised by Savill, 1999: 129.

Geographic distribution (Map p. 230). North Island: AK, ND.

Ecology. Stenotopic, epigean, arenicolous, xerophilous, heliophilous. Coastal lowland. Dry beaches and foredunes with white quartz sand. Diurnal; active in the sunshine. Gregarious.

Biology. Seasonality: November–March. Predacious (based on mouthpart morphology). Defense mechanism: Cryptic coloration (body colour blending perfectly with the background).

Dispersal power. Macropterous. Strong, long-distance flier. Fast runner.

References. Brouerius van Nidek, 1965: 355 (distribution); Wise, 1988: 172, 174 (distribution, ecology); Wiesner, 1988: 176, 178 (distribution, ecology, dispersal power)**;** Hadley *et al*., 1988: 343–345 (ecology); Hadley & Savill, 1989: 749–753 (ecology); Wise, 1990: 183 (taxonomy); Hadley *et al*., 1992: 57–61 (ecology); Savill, 1999: 129, 133, 140 (taxonomy, distribution, ecology).

Cicindela (Neocicindela) perhispida perhispida Broun, 1880

Cicindela perhispida Broun, 1880: 4. Type locality: Near Hokianga & Marsden Point, ND.

Neocicindela perhispida perhispida: Rivalier, 1963: 37.

Geographic distribution (Map p. 230). North Island: AK, ND.

Ecology. Stenotopic, epigean, arenicolous, xerophilous, heliophilous. Coastal lowland. Dry beaches and foredunes with yellowish-brown or creamy yellow sand. Diurnal; active in the sunshine. Gregarious.

Biology. Seasonality: November–February. Predacious (based on mouthpart morphology). Defense mechanism: Cryptic coloration (body colour blending perfectly with the background).

Dispersal power. Macropterous. Strong, long-distance flier. Fast runner.

References. Hudson, 1934: 31 (distribution, ecology); Brouerius van Nidek, 1965: 357 (distribution); Wise, 1988: 172–173 (taxonomy, distribution, ecology); Wiesner, 1988: 176, 178–179 (distribution, ecology, dispersal power); Hadley *et al*., 1988: 343–345 (ecology); Hadley & Savill, 1989: 749–753 (ecology); Wise, 1990: 181 (taxonomy); Hadley *et al*., 1992: 57–61 (ecology); Savill, 1999: 133, 140 (distribution, ecology).

Note. A genitalic study is required to assess the taxonomic status of *perhispida* varieties.

Cicindela (Neocicindela) spilleri (Brouerius van Nidek, 1965), new combination

Neocicindela spilleri Brouerius van Nidek, 1965: 355. Type locality: Swanson, AK.

Geographic distribution (Map p. 231). North Island: AK, BP, CL, HB, GB, ND, TK, TO, WO.

Ecology. Stenotopic, epigean, silvicolous, heliophilous. Lowland, mountains. Small openings in forests (broadleaf, podocarp, beech). Mostly diurnal; active in the sunshine; hides under stones on cloudy days. Solitary.

Biology. Seasonality: November–February, June. Predacious (based on mouthpart morphology). Predators: Spiders. Defense mechanism: Immobility.

Dispersal power. Macropterous. Occasional strong flier, usually reluctant to move. Attracted to artificial lights at night. Slow runner.

References. Brouerius van Nidek, 1965: 355–356 (distribution); Wiesner, 1988: 175–176 (distribution, ecology); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Savill, 1999: 134, 142 (distribution, ecology).

Cicindela (Neocicindela) tuberculata Fabricius, 1775

Figure 5

Cicindela tuberculata Fabricius, 1775: 225. Type locality: New Zealand.

Cicindela tuberculosa Olivier, 1790a: 732. Type locality: New Zealand. Synonymised by Horn, 1910: 318.

Cicindela tuberculata tuberculata: Chaudoir, 1865a: 28.

Cicindela huttoni Broun, 1877b: 375. Type locality: Hikuwai, CL. Synonymised by Horn, 1936: 10.

Neocicindela tuberculata: Rivalier, 1963: 37.

Geographic distribution (Map p. 231). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: NN, SD.

Ecology. Eurytopic, epigean, xerophilous, heliophilous. Lowland, montane. Dry clay banks, pastures, tussock grasslands, cultivated fields (millet, turnip, mustard), gardens, roadsides; streets, tracks in forests (broadleaf, podocarp), shrublands, and scrublands; orchards (apple), sand dunes, sandy or clay stream banks; sea beaches, flaxlands. Larval burrows (10–15 cm deep) dug in dry clay banks. Diurnal; active in the sunshine. Gregarious.

Biology. Seasonality: September–July. Mating: February. Tenerals: December, February. Predacious. Adult food: Caterpillars, flies. Larval food: Flies. Predators: Kiwis, magpies, asilids. Defense mechanism: Emits a musky smell when disturbed.

Dispersal power. Macropterous. Strong, short-distance flier (2–3 m). Occasional flier (on trees, shrubs). Fast runner.

References. Laporte de Castelnau, 1867: 35–36 (larval description); Hudson, 1892: 19–20 and 1934: 28–30 (taxonomy, distribution, ecology, biology); Martin, 1929: 119 (ecology, biology, dispersal power); Miller, 1952: 55 (taxonomy); Manson, 1963: 50 (ecology, biology); Brouerius van Nidek, 1965: 357–358 (distribution); Crowhurst, 1970: 123 (biology); Sharell, 1971: 83–85 (ecology, biology, dispersal power); Radford, 1981: 194 (taxonomy); Helmore, 1982: 42 (ecology, biology); Baker, 1983: 9 (biology); Watt, 1983b: 32 (ecology); Wiesner, 1988: 176 (distribution, ecology, dispersal power); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Klimaszewski & Watt, 1997: 168 (ecology, biology, dispersal power); Townsend, 1997: 7 (distribution); Savill, 1999: 134, 143 (distribution, ecology).

Note. Common names: Common tiger beetle, moeone, and papapa (adult); penny doctor, butcher boy, kapuku, kui, kurikuri, moeone, and muremure (larva).

Cicindela (Neocicindela) waiouraensis Broun, 1914

Cicindela waiouraensis Broun, 1914b: 146. Type locality: Waiouru, TO.

Neocicindela waiouraensis: Rivalier, 1963: 37.

Geographic distribution (Map p. 231). North Island: TO. South Island: MB.

Ecology. Epigean, xerophilous, heliophilous, thermophilous. Upland. Open sparsely vegetated clay banks or compacted ash, often very hot to the touch; clay pockets in grasslands. Diurnal; active in the sunshine. Gregarious.

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

Dispersal power. Macropterous. Strong flier. Fast runner.

References. Hudson, 1934: 29 (distribution); Brouerius van Nidek, 1965: 358 (distribution); Wiesner, 1988: 175 (distribution); Savill, 1999: 134, 146 (distribution, ecology).

Division LOXOMERIFORMES
Subfamily SCARITINAE
Supertribe MIGADOPITAE
Tribe AMAROTYPINI

Figure 6

Geographic distribution. New Zealand (endemic).

References. Arndt, 1998: 174 (classification); Liebherr & Will, 1998: 142 (phylogeny, classification).

Notes. Peter M. Johns (Christchurch, New Zealand) is currently revising this tribe. A few genera and numerous species from the South Island await description.

Genus *Amarotypus* Bates, 1872

Figure 6

Amarotypus Bates, 1872: 50. Type species: *Amarotypus edwardsii* Bates, 1872, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Jeannel, 1938b: 25–27 (taxonomy); Emberson, 1982: 22 (classification, biogeography).

Note. A few species await description.

Amarotypus edwardsii Bates, 1872

Figure 6

Amarotypus edwardsii Bates, 1872: 51. Type locality: New Zealand.

Geographic distribution (Map p. 223). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WI, WN, WO. South Island: BR, CO, FD, MB, MC, NC, NN, OL, SD, SL, WD. Stewart Island.

Ecology. Stenotopic, arboreal, silvicolous. Lowland, montane, subalpine. Wet forests (beech, broadleaf) and shrublands. Nocturnal; active at night on trees; hides during the day in moss, liverworts and lichens growing on trees and shrubs.

Biology. Seasonality: Throughout the year. Tenerals: September, November–January, April. Predacious (based on mouthpart morphology). Defense mechanism: Either emits a strong smell or drops on the ground when disturbed. Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Frequent climber (on trees and shrubs)

References. Walker, 1904: 72 (ecology); Hudson, 1934: 31 (larval description, distribution, ecology, biology, dispersal power); Jeannel, 1938b: 27 (distribution); Johns, 1977: 312 and 1980: 58 (distribution, ecology); Emberson, 1982: 21–22 (ecology); Patrick, 1988: 86 (distribution, ecology); Deuve, 1993: 132–133 (morphology of female reproductive system); Townsend, 1997: 7 and 1998: 7, 21 (distribution).

Tribe MIGADOPINI

Figure 7

Geographic distribution. Australia, New Zealand, Falkland Islands, southern South America.

References. Jeannel, 1938b: 1–55 (world revision); Gourlay, 1950: 174–182 (distribution); Darlington, 1960: 662–663 (biogeography); Johns, 1974: 285–292 (revision of Auckland Islands species; larval description); Moret, 1989: 245–257 (systematics);Deuve, 1993: 132–135 (morphology of female reproductive system); Arndt, 1998: 174, 183 (phylogeny, classification); Liebherr & Will, 1998: 142, 147 (phylogeny, classification).

Notes. Peter M. Johns (Christchurch, New Zealand) is revising this tribe. Several species await description.

Genus *Calathosoma* Jeannel, 1938

Calathosoma Jeannel, 1938b: 18. Type species: *Calathus rubromarginatus* Blanchard, 1843, by monotypy.

Geographic distribution. Subantarctic New Zealand (endemic).

References. Jeannel, 1938b: 18–19 (taxonomy); Gourlay, 1950: 179–180 (taxonomy); Johns, 1974: 285–288 (taxonomy).

Calathosoma rubromarginatum (Blanchard, 1843)

Calathus rubromarginatus Blanchard, 1843: Plate 2, Figure 3 (redescribed in 1853: 24). Type locality: Auckland Islands.
Calathosoma rubromarginatum: Jeannel, 1938b: 19.

Geographic distribution (Map p. 229). Subantarctic Islands: AU.

Ecology. Epigean, very hygrophilous. Lowland. Open scrublands (*Metrosideros-Dracophyllum*), grass-ferns coves. Nocturnal; hides during the day under fallen branches and stones lying on moss or peat.

Biology: Seasonality: November, January, March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Putzeys, 1873b: 91 (taxonomy); Jeannel, 1938b: 19 (distribution); Gourlay, 1950: 180 (distribution); Brookes, 1951: 22 (distribution); Johns, 1974: 288, 301 (distribution, ecology); Emberson, 1993b: 20 (taxonomy).

Genus *Loxomerus* Chaudoir, 1842

Figure 7

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

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

Geographic distribution. Subantarctic New Zealand (endemic).

References. Jeannel, 1938b: 13–17 (revision); Larsson, 1943: 420–431 (taxonomy, including larval description); Gourlay, 1950: 175–179 (revision of Auckland Islands species); Johns, 1974: 288–292 (revision).

Notes. This genus is restricted to the New Zealand Subantarctic Islands. A species awaits description. Although closely allied, both subgenera (*Loxomerus* and *Pristancylus*) are valid (P.M. Johns, personal communication).

Subgenus *Loxomerus* Chaudoir, 1842

Geographic distribution. Auckland Islands.

Loxomerus (Loxomerus) nebrioides (Guérin-Méneville, 1841)

Figure 7

Heterodactylus nebrioïdes Guérin-Méneville, 1841b: 214. Type locality: Auckland Islands.

Loxomerus nebrioides Chaudoir, 1842: 854. Type locality: Solomon Islands ("lire [read] Auckland" according to Jeannel, 1938b: 17). Secondary homonym of *Loxomerus nebrioides* (Guérin-Ménevillle). Synonymised by Chaudoir, 1844: 477–478.

Pristonychus castaneus Blanchard, 1843: Plate 2, Figure 1 (redescribed as *Pristancylus castaneus* in 1853: 23). Type locality: Auckland Islands. Synonymised by Chaudoir, 1861: 515.

Loxomerus nebrioides (Guérin-Méneville): Lacordaire, 1854: 276.

Heterodactylus castaneus: Hutton & Broun, 1902: 176.

Loxomerus ambiguus Broun, 1909b: 92. Type locality: Port Ross, Auckland Islands. Synonymised by Jeannel, 1938b: 17.

Loxomerus (*Loxomerus*) *nebrioides*: Jeannel, 1938b: 17.

Loxomerus (*Loxomerus*) *largus* Brookes, 1951: 19. Type locality: Adams Island, Auckland Islands. Synonymised by Johns, 1974: 288.

Geographic distribution (Map p. 244). Subantarctic Islands: AU.

Ecology. Stenotopic, epigean, very hygrophilous. Lowland. Wet peaty forests (*Metrosideros*). Nocturnal; hides during the day under pieces of wood and stones.

Biology: September–November, January–February, April–May. Tenerals: November, Jauary–February. Predacious (based on mouthpart morphology). Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Jeannel, 1938b: 17 (distribution); Gourlay, 1950: 176–177 (distribution); Brookes, 1951: 19, 21 (distribution); Johns, 1974: 290 (larval description, distribution); Palma *et al.*, 1989: 22 (taxonomy); Deuve, 1993: 133–134 (morphology of female reproductive system); Emberson, 1993b: 20 (taxonomy).

Subgenus *Pristancylus* Blanchard, 1853

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

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

Geographic distribution. Auckland Islands.

Loxomerus (Pristancylus) brevis (Blanchard, 1843)

Pristonychus brevis Blanchard, 1843: Plate 2, Figure 2 (redescribed as *Pristancylus brevis*, 1853: 23). Type locality: Auckland Islands.

Euthenarus (?) *cilicollis* Broun, in Hutton & Broun, 1902: 176. Type locality: Carnley Harbour, Auckland Islands. Synonymised by Gourlay, 1950: 178.

Loxomerus fossulatus Broun, 1909b: 93. Type locality: Carnley Harbour, Auckland Islands. Synonymised by Gourlay, 1950: 179.

Loxomerus cilicollis: Broun, 1909b: 94.

Euthenaris cilicollis: Csiki, 1932a: 1268 (incorrect subsequent spelling).

Loxomerus (*Pristancylus*) *brevis*: Jeannel, 1938b: 17.

Geographic distribution (Map p. 243). Subantarctic Islands: AU.

Ecology. Eurytopic, epigean, very hygrophilous. Lowland, montane. Supralittoral zone, wet peaty herbfields (*Stilbocarpa*), tussock swards, fellfields. Nocturnal; hides during the day under pieces of wood, stones, and among *Stilbocarpa*-roots.

Biology. Seasonality: September–November, January–February, April, July–August. Tenerals: January–February. Predacious. Food: Amphipodan, lepidopteran, or other exoskeletal material.

Dispersal power. Subapterous. Moderate runner.

References. Jeannel, 1938b: 17 (distribution, ecology); Gourlay, 1950: 179 (distribution); Brookes, 1951: 21 (distribution, ecology); Johns, 1974: 291, 294, 301 (larval

description, distribution, ecology); Emberson, 1993b: 20 (taxonomy); Nicholls *et al*., 1998: 3 (taxonomy).

Loxomerus (Pristancylus) huttoni (Broun, 1902)

Euthenarus huttoni Broun, in Hutton & Broun, 1902: 177. Type locality: Auckland Islands.
Loxomerus huttoni: Broun, 1909b: 94.
Euthenaris huttoni: Csiki, 1932a: 1268 (incorrect subsequent spelling).
Loxomerus (*Pristancylus*) *huttoni*: Jeannel, 1938b: 17.

Geographic distribution (Map p. 244). Subantarctic Islands: AU.

Ecology. Stenotopic, epigean, very hygrophilous. Lowland. Wet peaty scrublands (*Dracophyllum*). Nocturnal; hides during the day under stones.

Biology. Seasonality: January. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Jeannel, 1938b: 17 (distribution, ecology); Gourlay, 1950: 179 (distribution); Johns, 1974: 292, 301 (distribution, ecology); Nicholls *et al*., 1998: 3 (taxonomy).

Genus *Taenarthrus* Broun, 1914

Taenarthrus Broun, 1914a: 85. Type species: *Taenarthrus philpotti* Broun, 1914a, by monotypy.

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

References. Hudson, 1934: 177 (list); Jeannel, 1938b: 17 (distribution, ecology); Gourlay, 1960: 7 (taxonomy).

Notes. The genus *Taenarthrus* Broun, 1914 was incorrectly synonymised with *Loxomerus* Chaudoir, 1842 by Gourlay (1960: 7). Several species await description. They occur in the South Island, particularly in the south, from lower to higher elevations, either in forests or open alpine areas, along seepages and rills, in colonies under deep embedded stones.

Taenarthrus capito (Jeannel, 1938), new combination

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

Geographic distribution (Map p. 268). South Island: OL.

Ecology. Eurytopic, riparian, very hygrophilous. Montane, subalpine, alpine. Wet edges of seepages and small brooks crossing screes and forests (beech). Nocturnal; hides during the day under stones (mostly) and fallen trees.

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

Dispersal power. Subapterous. Moderate runner.

References. Gourlay, 1950: 176 and 1960: 7 (taxonomy); Johns, 1977: 325 and 1980: 58–59 (distribution, ecology).

Note. This species belongs to the genus *Taenarthrus* based on characters of the mentum and genitalia (P.M. Johns, personal communication).

Taenarthrus philpotti Broun, 1914

Taenarthrus philpotti Broun, 1914a: 85. Type locality: Hump Ridge, Southland [FD].
Loxomerus philpotti: Townsend, 1963: 95.

Geographic distribution (Map p. 268). South Island: FD

Ecology. Stenotopic, riparian, very hygrophilous. Montane. Wet edges of small brooks crossing tussock grasslands; caves (occasionally). Nocturnal; hides during the day under stones.

Biology. Seasonality: September, December. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Gourlay, 1960: 7 (taxonomy); Townsend, 1963: 95 (distribution, ecology).

Notes. Original combination reinstated on the basis of morphology. This taxon was incorrectly synonymised with *Loxomerus* (*Pristancylus*) *capito* Jeannel, 1938b, but was reinstated as a valid species by Elliott & Ogle, 1985: 40.

Supertribe SCARITITAE

Tribe CLIVININI

Figure 8

Geographic distribution. Worldwide.

Reference. Bousquet & Larochelle, 1993: 27–28 (classification).

Subtribe CLIVININA

Geographic distribution. Worldwide.

Genus *Clivina* Latreille, 1802

Figure 8

Clivina Latreille, 1802: 96. Type species: *Scarites arenarius* Fabricius, 1775 (= *Tenebrio fossor* Linnaeus, 1758), by monotypy.
Ceratoglossa Macleay, 1863: 71. Type species: *Ceratoglossa rugiceps* Macleay, 1863, designated by Lorentz, 1998: 63. Synonymised by Sloane, 1896a: 144.
Scolyptus Putzeys, 1863: 21. Type species: *Clivina microphthalmus* Putzeys, 1863 (= *Clivina curvidens* LaFerté-Sénectère, 1850) by original designation. Synonymised by Sloane, 1896a: 144.

Geographic distribution. Worldwide; New Zealand (adventive).

References. Sloane, 1896a: 144–257 and 1905: 712–733 (revision of Australian species); Moore, 1992: 164 (distribution); Liebherr & Will, 1998: 127 (morphology of female reproductive system).

australasiae group

Clivina australasiae Boheman, 1858

Clivina australasiae Boheman, 1858: 8. Type locality: Sydney, New South Wales, Australia.

Clivina rugithorax Putzeys, 1866a: 37. Type locality: New Zealand. Synonymised by Moore, 1992: 164.

Geographic distribution (Map p. 231). North Island: AK. Extralimital range: Australia (mainland), Lord Howe Island. Adventive. Described from "New Zealand" as *rugithorax*. Broun (1880: 7) mentioned having collected specimens in Auckland. Apparently not established.

Ecology. Fossorial. Lowland. Cultivated fields. Nocturnal; hides during the day in burrows.

Biology. Seasonality unknown. Predacious (Moore *et al.*, 1987: 67). A pest of strawberry and maize (Muggeridge, 1939: 184–186).

Dispersal power. Macropterous, capable of flight. Slow runnner.

References. Broun, 1880: 7 (distribution); Sloane, 1920b: 320 (distribution); Hudson, 1934: 31–32 (distribution, ecology); Anonymous, 1938a: 29 (biology); Muggeridge, 1939: 184–186 (biology); Spiller *et al.*, 1982: 133 (biology); Martin, 1983: 30 (ecology, biology); Moore *et al*., 1987: 67 (distribution, ecology, biology, dispersal power); Moore, 1992: 162, 164 (distribution); Sunderland *et al*., 1995: 39–49 (distribution, ecology, biology).

Notes. Since Broun's literature record (1880; as *rugithorax*), no specimens belonging to this species have been authenticated in New Zealand entomological collections. Almost all the New Zealand literature dealing with *Clivina rugithorax* probably refers to *Clivina vagans*.

Clivina basalis Chaudoir, 1843

Figure 8

Clivina basalis Chaudoir, 1843b: 734. Type locality: Australia.

Clivina ephippiata Putzeys, 1846: 602. Type locality: Sulawesi, Indonesia. Synonymised by Darlington, 1962b: 383

Clivina microdon Putzeys, 1866b: 183. Type locality: Melbourne, Victoria, Australia. Synonymised by Csiki, 1927: 498.

Clivina felix Sloane, 1896a: 213. Type locality: Port Denison, Queensland, Junee, Narrandera, Carrathool, Urana and Mulwala, New South Wales, Victoria, South Australia, Australia. Synonymised with *C. ephippiata* by Sloane, 1920b: 320.

Clivina eximia Sloane, 1896a: 214. Type locality: Northwestern Australia. Synonymised with *C. ephippiata* by Sloane, 1920b: 320.

Geographic distribution (Map p. 231). North Island: AK, BP, CL, GB, ND, TO. South Island: NN, SD, SL. Extralimital range: Australia (mainland), New Guinea, Sulawesi, Java, Celebes, Norfolk Island. Adventive. First New Zealand records: Lake Ohia, ND 1917 (NZAC); Woodhill, AK, Ruakaka, ND, Rangiputa, ND (Cameron & Butcher, 1980: 115). Well established.

Ecology. Eurytopic, fossorial, hygrophilous. Lowland. Moist or wet muddy areas such as pastures, cultivated fields, roadside ditches; edges of rivers, brooks, and marshes; swamp forests, saltmarshes. Nocturnal; hides during the day in burrows, under logs, plant debris, and stones.

Biology. Seasonality: September–May, August. Tenerals: February. Predacious (Moore *et al*., 1987: 67).

Dispersal power. Macropterous. Frequent flier to artificial lights at night; frequent in drift material, which indicates previous flight. Slow runner.

References. Cameron & Butcher, 1980: 115–116 (distribution, ecology, biology); Moore, 1985: 244 (distribution); Moore *et al*., 1987: 67 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Sunderland *et al.*, 1995: 40 (distribution); Townsend, 1997: 7 (distribution).

Clivina vagans Putzeys, 1866

Clivina vagans Putzeys, 1866a: 38. Type locality: Eastern Australia.

Clivina lepida tasmaniensis Sloane, 1896a: 222. Type locality: Tasmania, Australia. Synonymised by Sloane, 1905: 747.

Geographic distribution (Map p. 231). North Island: AK, BP, CL, GB, HB, ND, TK, TO, WI, WN, WO. South Island: MC, NN, SD. Extralimital range: Australia (including Tasmania), Lord Howe Island. Adventive. First New Zealand records: Howick, AK and Rangiriri, WO, 1915 (both localities; NZAC; Kuschel, 1990: 39). Well established.

Ecology. Eurytopic, fossorial, hygrophilous. Lowland. Moist or wet muddy areas such as pastures, cultivated fields (onion, carrot, potato, strawberry, maize, wheat, tobacco, swede, lucerne, turnip), gardens, chicken yards; edges of rivers, ponds, and lakes; roadside ditches, flaxlands. Nocturnal; hides during the day in burrows, under logs, and stones. Gregarious.

Biology. Seasonality: September–April, July–August. Tenerals: January–March. Predacious (Moore *et al*., 1987: 77). Occasionally infested with mites.

Dispersal power. Macropterous. Frequent flier. Frequent in drift material (sea beaches, lagoons, sand dunes), which indicates previous flight. Slow runner.

References. Moore *et al*., 1987: 77 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Moore, 1992: 164 (distribution); Townsend, 1994: 9, 10, 12 (distribution, ecology).

heterogena group

Clivina heterogena Putzeys, 1866

Clivina heterogena Putzeys, 1866a: 41. Type locality: Australia.
Clivina angustula Putzeys, 1866a: 42. Type locality: Melbourne, Victoria, Australia. Synonymised by Sloane, 1905: 718.
Clivina deplanata Putzeys, 1866b: 190. Type locality: Melbourne, Victoria, Australia. Synonymised by Sloane, 1905: 718.

Geographic distribution (Map p. 231). North Island: AK, ND. Extralimital range: Australia (mainland). Adventive. First New Zealand records: Pakatai, Whangarei, ND, 1951 (NZAC); New Zealand (Sunderland *et al.,* 1995: 40). Well established.

Ecology. Fossorial, very hygrophilous. Lowland. Wet muddy areas such as edges of brooks and seepages crossing swamp forests. Nocturnal; hides during the day in burrows and under plant debris.

Biology. Seasonality: April, September, November. Predacious (Moore *et al*., 1987: 71).

Dispersal power. Macropterous, capable of flight. Slow runner.

References. Moore *et al*., 1987: 71 (distribution, ecology, biology, dispersal power); Baehr, 1989: 12 (distribution, ecology); Sunderland *et al*., 1995: 40 (distribution).

Division MELAENIFORMES
Subfamily BROSCINAE
Supertribe BROSCITAE
Tribe BROSCINI

Figure 9

Geographic distribution. Worldwide; mostly the Australian Region and South America.

References. Sloane, 1893: 45–64 (taxonomy); Emden, 1936: 43 (classification); Britton, 1949: 533–581 (revision); Ball, 1956: 33–52 (classification); Townsend, 1971b: 174 (key to subtribes); Roigt-Juñent & Cicchino, 1989: 201–225 and Roigt-Juñent, 1992a–1995b (taxonomy of South American taxa); Liebherr & Will, 1998: 130 (morphology of female reproductive system); Roigt-Juñent, 1998: 343–358 (phylogeny, classification).

Notes. A new revision is needed. Numerous species await description, particularly in the genera *Mecodema* (for example, the *curvidens* and *spiniferum* groups) and *Diglymma*. Larvae are highly fossorial; they are rarely found at the surface of the ground. The Broscini and the Pterostichini are the largest tribes of Carabidae in New Zealand.

Subtribe CREOBIINA

Geographic distribution. New Zealand and South America.

Genus *Bountya* Townsend, 1971

Bountya Townsend 1971b: 180. Type species: *Bountya insularis* Townsend, 1971b: 183, by monotypy.

Geographic distribution. Subantarctic New Zealand (endemic).

Reference. Townsend, 1971b: 180–183 (taxonomy).

Bountya insularis Townsend, 1971

Bountya insularis Townsend, 1971b: 183. Type locality: Bounty Island.

Geographic distribution (Map p. 228). Subantarctic Islands: BO.

Ecology. Stenotopic, fossorial, nidicolous, very hygrophilous. Lowland. Penguin and albatross colonies; bare granitic areas. Nocturnal; hides during the day in bird nests and under stones.

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

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1971b: 183 (taxonomy, distribution, ecology) and 1988: 10–11 (larval description); Johns, 1974: 284, 301 (distribution, ecology).

Subtribe BROSCINA

Geographic distribution. Worldwide; mostly the Australian Region and South America.

Genus *Brullea* Laporte de Castelnau, 1867

Brullea Laporte de Castelnau 1867: 79 (redescribed in 1868: 165). Type species: *Brullea antarctica* Laporte de Castelnau, 1867, by monotypy.

Geographic distribution. New Zealand (endemic).

Reference. Britton, 1949: 580–581 (taxonomy).

Brullea antarctica Laporte de Castelnau, 1867

Brullea antarctica Laporte de Castelnau, 1867: 80 (redescribed in 1868: 166). Type locality: Auckland, AK.

Geographic distribution (Map p. 229). North Island: AK, GB, ND, TK, WA, WI, WN, WO. South Island: BR, FD, MC, NN, SD, WD.

Ecology. Stenotopic, fossorial, arenicolous, halophilous. Coastal lowland. Sandy sea beaches at the spring high water level; sandy foredunes. Nocturnal; hides during the day in deep burrows (down to 11 cm), under logs, and under dry dung-cakes. Larval habitat: Deep burrows dug in sand. Occasionally seen wandering on beaches in daytime after heavy rain and high tide.

Biology. Seasonality: September–May, July–August. Tenerals: February, March–April, May–June. Predacious (based on mouthpart morphology). Predator: Katipo spider (a major enemy, but now absent from much of the beetle range). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 4 (distribution, ecology); Britton, 1949: 581 (distribution); Ball, 1956: 49 (taxonomy); Bull, R.M. 1959: 9 (distribution, ecology, biology); Harris, 1970a: 48, 53, 55 and 1970b: 59–87 (ecology, biology, dispersal power); Harris, 1978: 401–405 and 1980: 174–175 (larval description); Molloy *et al.,* 1994: 60 (distribution, conservation); Townsend, 1997: 8 (distribution).

Genus *Diglymma* Sharp, 1886

Diglymma Sharp, 1886: 360. Type species: *Maoria clivinoides* Laporte de Castelnau, 1867: 78, designated by Britton, 1949: 539.

Snofru Broun, 1908: 340. Type species: *Snofru aemulator* Broun, 1908: 341, by monotypy. Synonymised by Britton, 1949: 539.

Geographic distribution. New Zealand (endemic).

Reference. Britton, 1949: 539–542 (revision).

Notes. A new revision is needed. Britton's revision is of limited usefulness as it did not include any illustration of male genitalia. In addition, a few species await description.

Diglymma castigatum Broun, 1909

Diglymma castigatum Broun, 1909b: 84. Type locality: The Snares.

Geographic distribution (Map p. 236). Subantarctic Islands: BO, SN.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland. Wet shrublands (*Olearia*) with peaty ground. Nocturnal; hides during the day under fallen branches, among dead leaves, in rotten wood, and at the base of tussock clumps.

Biology. Seasonality: November–March, July. Tenerals: December–February. Occasionally infested with mites. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 540 (distribution); Townsend, 1971b: 176, 178 (taxonomy, including larval description, distribution, ecology); Johns, 1974: 284, 301 (distribution, ecology,).

Diglymma clivinoides (Laporte de Castelnau, 1867)

Maoria clivinoides Laporte de Castelnau, 1867: 78 (redescribed in 1868: 164). Type locality: Near Wellington, WN.

Metaglymma clivinoides: Putzeys, 1873a: 315.

Diglymma ovipenne Sharp, 1886: 361. Type locality: Greymouth, BR. Synonymised by Britton, 1949: 541.

Diglymma dubium Sharp, 1886: 361. Type locality: Bealey, NC. Synonymised by Britton, 1949: 541.

Diglymma clivinoides: Hutton, 1904: 143.

Diglymma basale Broun, 1917: 358. Type locality: Ben Lomond, Mt Alfred, and Routeburn, OL. Synonymised by Britton, 1949: 541.

Geographic distribution (Map p. 236). North Island: WA, WN. South Island: BR, FD, MB, MC, MK, NC, NN, OL, SD, SL, WD.

Ecology. Fossorial, silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf). Nocturnal; hides during the day under logs and stones, and in leaf litter.

Biology. Seasonality: September–July. Tenerals: September, February–March. Predacious (based on mouthpart morphology). Defense mechanism: Either feigns death with legs stiffened and held closely to the body (R.M. Emberson, personal communication) or emits a strong smell when disturbed. Regularly infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 34 (ecology, biology); Britton, 1949: 541–542 (distribution); Johns, 1969: 393 and 1980: 60 (distribution, ecology); Townsend, 1997: 8 and 1998: 7, 21 (distribution, ecology).

Note. This taxon could represent a species complex.

Diglymma marginale Broun, 1914

Diglymma marginale Broun, 1914b: 148. Type locality: Hump Ridge, near Invercargill, FD.

Geographic distribution (Map p. 236). South Island: BR, FD, MB, NN.

Ecology. Fossorial, silvicolous, very hygrophilous. Montane, subalpine. Wet forests (beech) and scrublands. Nocturnal; hides during the day under logs.

Biology. Seasonality: December–February. Tenerals: February. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 541 (distribution); Townsend, 1997: 8 (distribution).

Diglymma obtusum (Broun, 1886)

Metaglymma obtusum Broun, 1886: 819. Type locality: Mt Maungatua, DN.
Diglymma punctipenne Broun, 1893a: 982. Type locality: Puysegur Point, FD. Synonymised by Britton, 1949: 540.
Diglymma nigripes Broun, 1893a: 982. Type locality: Puysegur Point, FD. Synonymised by Britton, 1949: 540.
Diglymma obtusum: Hutton, 1904: 143.
Diglymma tarsalis [*sic*] Broun, 1908 : 339. Type locality: Preservation Inlet, FD. Synonymised by Britton, 1949: 540.
Snofru aemulator Broun, 1908: 341. Type locality: Otara, SL. Synonymised by Britton, 1949: 540.
Diglymma thoracicum Broun, 1917: 359. Type locality: Stewart Island. Synonymised by Britton, 1949: 540.

Geographic distribution (Map p. 236). South Island: CO, DN, FD, OL, SL. Stewart Island.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp), shrublands, and scrublands; flaxlands, tussock grasslands, herbfields. Nocturnal; active at night on moss and moss-covered vegetation (R.M. Emberson, personal communication); hides during the day in leaf litter, under and in logs, in moss, and burrows.

Biology. Seasonality: September–April, August. Predacious (based on mouthpart morphology). Occasionally infested with mites. Defense mechanism: Feigns death when disturbed.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 541 (distribution); Patrick *et al*., 1984: 17 (distribution); Patrick *et al*., 1986: 13 (distribution, ecology); Patrick *et al*., 1987: 35 (distribution); Patrick *et al*., 1992b: 18 (distribution); Patrick *et al*., 1993: 11 (distribution, ecology).

Note. This taxon could represent a species complex.

Genus *Mecodema* Blanchard, 1843

Figure 9

Mecodema Blanchard 1843: Plate 2, Figure 14 (redescribed in 1853: 34). Type species: *Mecodema sculpturatum* Blanchard, 1843, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Britton, 1949: 543–578 (revision); Britton, 1964b: 525–526 (revision of *curvidens* group); Townsend, 1965: 301–318 (partial revision of South Island species); Sherley, 1994: 115 (conservation).

Notes. A new revision is needed. Numerous species await description, particularly from the North Island. Some species groups of Britton could represent genera of their own.

alternans group

Reference. Townsend, 1965: 315–317 (key to species).

Mecodema alternans alternans Laporte de Castelnau, 1867

Mecodema alternans Laporte de Castelnau, 1867: 75 (redescribed in 1868: 161). Type locality: Near Otago, South Island.
Mecodema trailli Broun, 1917: 356.Type locality: Stewart Island. Synonymised by Townsend, 1971b: 178.
Mecodema philpotti Broun, 1923: 672. Type locality: Bluff, SL. Synonymised with *M. trailli* by Britton, 1949: 568.
Mecodema alternans alternans: Townsend, 1971b: 178.

Geographic distribution (Map p. 244). South Island: DN, SL. Stewart Island. Offshore Islands: CH.

Ecology. Eurytopic, fossorial, silvicolous, very hygrophilous. Lowland, alpine. Wet forests (broadleaf, podocarp) and scrublands, coastal swards, sand dunes, petrel nest burrows. Nocturnal; active at night on forest floor and standing trees (R.M. Emberson, personal communication); hides during the day under logs, stones, and in tree stumps.

Biology. Seasonality: October–February, July–August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner. Good climber.

References. Britton, 1949: 568 (distribution); Townsend, 1971b: 178–180 (taxonomy, distribution); Patrick *et al*., 1992b: 18 (distribution); Molloy *et al*., 1994: 59 (distribution, conservation); Emberson, 1998: 29 (distribution, ecology, biology).

Note. *Mecodema alternans* could represent a species complex.

Mecodema alternans hudsoni Broun, 1909

Mecodema hudsoni Broun, 1909b: 83. Type locality: The Snares.
Mecodema alternans hudsoni: Townsend, 1971b: 178.

Geographic distribution (Map p. 244). Subantarctic Islands: SN.

Ecology. Stenotopic, fossorial, mostly silvicolous, very hygrophilous. Lowland. Wet peaty forests (*Olearia*); hepatic swards. Nocturnal; hides during the day under logs and among tussock roots. Gregarious.

Biology. Seasonality: November–February. Predacious, necrophagous. Food: Amphipods, lepidopterans, tipulid larvae, bird carrion. Predators: Fernbirds. Frequently infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 568 (distribution); Townsend, 1971b: 178, 180 (taxonomy, including larval description, distribution, ecology); Johns, 1974: 284, 301 (distribution, ecology, biology); Best, 1979: 482 (biology).

Mecodema angustulum Broun, 1914

Mecodema angustulum Broun, 1914a: 82. Type locality: Mt Arthur, NN.

Geographic distribution (Map p. 244). South Island: NN.

Ecology. Eurytopic, fossorial, very hygrophilous. Montane, subalpine. Wet forests (beech) and shrublands; tussock grasslands. Nocturnal; hides during the day under logs.

Biology. Seasonality: December–February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 569 (distribution); Molloy *et al*., 1994: 59 (distribution, conservation); Townsend, 1997: 8 (distribution).

Note. This species could be a true forest inhabitant.

Mecodema dunense Townsend, 1965

Mecodema dunense Townsend, 1965: 313. Type locality: Dun Mountain, NN.

Geographic distribution (Map p. 246). South Island: NN.

Ecology. Eurytopic, fossorial, mostly silvicolous. Subalpine, alpine. Wet forests (beech), scrublands, tussock grasslands, fellfields. Nocturnal; hides during the day under logs.

Biology. Seasonality: October–December, February–March. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1965: 313–314 (taxonomy, distribution); Molloy *et al*., 1994: 59 (distribution, conservation); Townsend, 1997: 8 (distribution, ecology).

Mecodema femorale Broun, 1921

Mecodema femorale Broun, 1921: 595. Type locality: Hump Ridge, Southland [FD].

Mecodema veratrum Broun, 1921: 596. Type locality: Hunter Mountains, FD. Synonymised by Britton, 1949: 573.

Geographic distribution (Map p. 246). South Island: CO, FD. Stewart Island.

Ecology. Eurytopic, fossorial, very hygrophilous. Montane, subalpine, alpine. Wet forests (beech) and shrublands, tussock grasslands, herbfields, screes. Nocturnal; hides during the day under stones.

Biology. Seasonality: October–January. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

Reference. Britton, 1949: 573 (distribution).

Mecodema florae Britton, 1949

Mecodema florae Britton, 1949: 572. Type locality: Ohakune, TO.

Geographic distribution (Map p. 246). North Island: GB, HB, RI, TO. South Island: BR, NN.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech) and shrublands; screes. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: October–March, August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 572 (distribution); Townsend, 1997: 8 (distribution).

Mecodema integratum Townsend, 1965

Mecodema integratum Townsend, 1965: 314. Type locality: Near Mt Owen, Long Lookout Range, NN.

Geographic distribution (Map p. 247). South Island: BR, NN.

Ecology. Fossorial. Montane, alpine. Alpine grasslands. Nocturnal; hides during the day under stones.

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

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1965: 314 (taxonomy, distribution); Molloy *et al.*, 1994: 59 (distribution, conservation).

Mecodema longicolle Broun, 1923

Mecodema longicolle Broun, 1923: 672. Type locality: Mt Egmont/Taranaki, TK.

Mecodema subaeneum Broun, 1923: 674. Type locality: Martinborough, WA. Synonymised by Britton, 1949: 571.

Geographic distribution (Map p. 248). North Island: TK, WA. South Island: NN.

Ecology. Fossorial, mostly silvicolous, hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf), shrublands, and scrublands; tussock grasslands-fellfields; caves (occasionally). Nocturnal; hides under and in rotten logs as well as under stones.

Biology. Seasonality: November–February, April–May. Predacious (based on mouthpart morphology). Regularly infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 571 (distribution); Townsend, 1965: 311 (distribution); Fox, 1982: 289 (distribution); Townsend, 1997: 9 (distribution, ecology).

Mecodema metallicum Sharp, 1886

Mecodema metallicum Sharp, 1886: 359. Type locality: Greymouth, BR.

Geographic distribution (Map p. 248). South Island: BR, NN, WD.

Ecology. Fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, broadleaf, beech). Nocturnal; shelters during the day.

Biology. Seasonality: September, November, March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 569 (distribution); Johns, 1980: 59, 65 (distribution, ecology); Townsend, 1997: 9 (distribution).

Mecodema nitidum Broun, 1903

Mecodema nitidum Broun, 1903: 452. Type locality: Westport, NN.

Geographic distribution (Map p. 248). South Island: NN.

Ecology. Fossorial, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf, beech). Nocturnal; hides during the day under logs.

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

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 571 (distribution); Molloy *et al*., 1994: 59 (as *M. nitiden* [*sic*], distribution, conservation); Townsend, 1997: 9 (distribution).

Note. This species is difficult to separate from *Mecodema punctatum* (Laporte de Castelnau).

Mecodema pavidum Townsend, 1965

Mecodema pavidum Townsend, 1965: 314. Type locality: Seddonville, NN.

Geographic distribution (Map p. 249). South Island: NN.

Ecology. Fossorial. Lowland. A wet forest (beech, rata). Habitat unknown.

Biology. Seasonality: October, February, April. Predacious (based on mouthpart morphology). Defense mechanism: Folds its legs and feigns death when disturbed.

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1965: 314–315 (taxonomy, distribution); Molloy *et al*., 1994: 59 (distribution, conservation); Townsend, 1997: 9 (distribution).

Mecodema proximum Britton, 1949

Mecodema proximus [*sic*] Britton, 1949: 569. Type locality: Saddle Hill, NN.

Geographic distribution (Map p. 249). South Island: NN, SD.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Montane, subalpine, alpine. Wet forests (beech), alpine grasslands, and rocky tussock grasslands. Nocturnal; hides during the day under stones.

Biology. Seasonality: January–March. Predacious (based on mouthpart morphology). Occasionally infested with mites. Predators: Spiders.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 569 (distribution); Molloy *et al.,* 1994: 59 (as *M. proximis* [*sic*], distribution, conservation); Townsend, 1997: 9 (distribution).

Note. *Mecodema* is a neuter noun, therefore requiring an adjective with neuter ending.

Mecodema punctatum (Laporte de Castelnau, 1867)

Maoria punctata Laporte de Castelnau, 1867: 78 (redescribed in 1868: 164). Type locality: Dunedin, DN.
Metaglymma punctatum: Putzeys, 1873a: 312.
Metaglymma aeneoniger Broun, 1886: 818. Type locality: Wangapeka Valley, NN. Synonymised by Britton, 1949: 571.
Mecodema aeneoniger: Broun, 1893a: 977.
Mecodema erraticum Broun, 1917: 353. Type locality: Clipping's Bush, near Kingston, OL. Synonymised by Britton, 1949: 571.
Mecodema punctatum: Britton, 1949: 571.

Geographic distribution (Map p. 249). South Island: BR, CO, DN, NN, OL, SL.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech). Nocturnal; shelters during the day.

Biology. Seasonality: October–February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 33 (distribution); Britton, 1949: 571 (distribution); Townsend, 1965: 312–313 (taxonomy, distribution); Mark *et al.,* 1989: 361 (distribution); Townsend, 1997: 8 (distribution).

Note. *Metaglymma aeneoniger* could be a valid species.

Mecodema rugiceps anomalum Townsend, 1965

Mecodema rugiceps anomalum Townsend, 1965: 311. Type locality: Upper Maitai, NN.

Geographic distribution (Map p. 250). South Island: MB, NN, SD.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech). Nocturnal; shelters during the day.

Biology. Seasonality: September–December, February. Predacious (based on mouthpart morphology). Frequently infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1965: 311–312 (taxonomy, distribution); Molloy *et al.*, 1994: 59 (as *M. rawgiceps* [*sic*] subsp., distribution, conservation); Townsend, 1997: 9 (distribution).

Note. This subspecies could be a valid species.

Mecodema rugiceps rugiceps Sharp, 1886

Mecodema rugiceps Sharp, 1886: 359. Type locality: Near Bealey, NC.

Mecodema seriatum Broun, 1908: 338. Type locality: Kinloch, Lake Wakatipu, OL. Synonymised by Britton, 1949: 570.

Mecodema persculptum Broun, 1915: 271. Type locality: Lake Mackenzie, OL. Synonymised by Townsend, 1965: 311.

Mecodema rugiceps rugiceps: Townsend, 1965: 313.

Geographic distribution (Map p. 250). South Island: BR, FD, MB, MC, NC, NN, OL, WD.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp) and shrublands, tussock grasslands, herbfields, fellfields, moraines. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: October–April, August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 33 (distribution); Britton, 1949: 570, 572 (distribution); Townsend, 1965: 311 (taxonomy, distribution); Johns, 1969: 393 and 1980: 59 (distribution, ecology); Johns *et al*., 1980: 28 (distribution); Johns, 1980: 59 (distribution, ecology).

Mecodema striatum Broun, 1904

Mecodema striatum Broun, 1904: 42. Type locality: Puysegur Point, FD.

Geographic distribution (Map p. 251). South Island: FD.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech) and scrublands; tussock grasslands. Nocturnal; hides during the day under stones.

Biology. Seasonality: December–March. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

Reference. Britton, 1949: 573 (distribution).

Mecodema strictum Britton, 1949

Mecodema strictum Britton, 1949: 569. Type locality: Takaka Hill, NN.

Geographic distribution (Map p. 251). South Island: NN.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Montane. Wet forests (beech). Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: December, June. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 570 (distribution); Townsend, 1965: 311 (taxonomy, distribution); Molloy *et al*., 1994: 59 (distribution, conservation); Townsend, 1997: 9 (distribution).

costellum group

References. Townsend, 1965: 305 (key to *Mecodema costellum* subspecies); Townsend, 1990: 35–37 (subfossils); Worthy & Holdaway, 1993: 178 (subfossils); Townsend, 1997: 8 (subfossils).

Note. *Mecodema costellum spelles* from Paturau Cave, NN awaits description (Molloy *et al*., 1994: 58).

Mecodema bullatum Lewis, 1902

Mecodema bullatum Lewis, 1902: 202. Type locality: Puysegur Point, FD.

Mecodema intricatum Broun, 1903: 451. Type locality: Te Oneroa, FD. Synonymised by Britton, 1949: 551.

Geographic distribution (Map p. 245). South Island: FD, OL, SL, WD.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech) and shrublands; tussock grasslands. Nocturnal; hides dur-

ing the day under logs and stones.

Biology. Seasonality: September–February, May. Predacious (based on mouthpart morphology). Defense mechanism: Emits a strong nasty smell when disturbed (B.I.P. Barratt, personal communication).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 551 (distribution); Patrick *et al*., 1987: 35 (distribution); Palma *et al.*, 1989: 20 (taxonomy).

Mecodema chiltoni Broun, 1917

Mecodema chiltoni Broun, 1917: 351. Type locality: Mt Dick, Lake Wakatipu, OL.

Geographic distribution (Map p. 245). South Island: CO, OL.

Ecology. Eurytopic, fossorial. Lowland, upland, alpine. Tussock grasslands, pastures, forests (beech). Nocturnal; hides during the day under stones (often situated near large weta holes) and logs.

Biology. Seasonality: September–April. Predacious. Adult and larval food: Invertebrates; a montane weta (J. Nunn, personal communication). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 558 (distribution); Townsend, 1965: 305 (taxonomy, ecology); Barratt, 1993: 1– 21 and 1994b: 1–2 (distribution, ecology, biology, dispersal power, conservation).

Note. This species could mainly be a forest inhabitant.

Mecodema costellum costellum Broun, 1903

Mecodema costellum Broun, 1903: 451. Type locality: Stephens Island, SD.

Mecodema costellum costellum: Townsend, 1965: 302.

Geographic distribution (Map p. 245). South Island: SD.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf). Nocturnal; hides during the day under logs, stones, pieces of wood, and fallen nikau palm fronds.

Biology. Seasonality: September–November, January, March–April, July–August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 33 (distribution, ecology); Britton, 1949: 549 (distribution); Townsend, 1965: 302 (taxonomy, distribution); Sharell, 1971: 86 (distribution, ecology); Mark *et al*., 1989: 361 (distribution); Molloy *et al*., 1994: 24 (distribution, conservation); Townsend, 1997: 8 and 1998: 5, 18–19, 21 (distribution).

Notes. Configuration of the male genitalia suggests that this may be a valid species as originally proposed by Broun. An examination of the internal sac of the male genitalia, and perhaps of the female reproductive system, is needed to assess the taxonomic status of the *Mecodema costellum* subspecies. Common name: Stephens Island carabid.

Mecodema costellum gordonense Broun, 1917

Mecodema gordonense Broun, 1917: 357. Type locality: Gordon's Knob, near Belgrove, NN.

Mecodema costellum gordonense: Townsend, 1965: 304.

Geographic distribution (Map p. 245). South Island: BR, NN, SD.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Montane, alpine. Cloud forests (beech), alpine grasslands. Nocturnal; shelters during the day.

Biology. Seasonality: November–May. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 550 (distribution); Townsend, 1965: 304–305, 1997: 8, and 1998: 19 (taxonomy, distribution).

Mecodema costellum lewisi Broun, 1908

Mecodema lewisi Broun, 1908: 337. Type locality: Broken River, MC.

Mecodema costellum lewisi: Townsend, 1965: 305.

Geographic distribution (Map p. 245). South Island: KA, MC.

Ecology. Stenotopic, fossorial, silvicolous, xerophilous. Lowland, montane, subalpine. Dry forests (beech) and shrublands. Nocturnal; hides during the day in burrows dug under logs.

Biology. Seasonality: October, December–February, April, July. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 547 (distribution); Townsend, 1965: 305 (taxonomy, distribution); Johns, 1980: 59, 65 (distribution, ecology); Molloy *et al*., 1994: 59 (distribution, conservation); Townsend, 1997: 8 and 1998: 19 (distribution).

Mecodema costellum obesum Townsend, 1965

Mecodema costellum obesum Townsend, 1965: 302. Type locality: Canaan, Takaka Hill, NN.

Geographic distribution (Map p. 245). South Island: BR, KA, MB, NN.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech) and shrublands. Nocturnal; hides during the day under large logs.

Biology. Seasonality: September–March, May–July. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1965: 302, 304 and 1990: 35 (distribution); Molloy *et al*., 1994: 59 (distribution, conservation); Townsend, 1998: 19 (distribution).

Mecodema costipenne Broun, 1914

Mecodema costipenne Broun, 1914a: 82. Type locality: Routeburn, Lake Wakatipu, OL.

Geographic distribution (Map p. 245). South Island: FD, OL, SL.

Ecology. Fossorial, silvicolous, very hygrophilous. Lowland, montane, subalpine. Forests (beech), shrublands-grasslands. Nocturnal, hides during the day under logs.

Biology. Seasonality: December–February, April, August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner. Occasional climber (on trees).

References. Hudson, 1934: 32 (distribution, ecology); Britton, 1949: 548 (distribution); Barratt, 1993: 5 (distribution).

Mecodema howittii Laporte de Castelnau, 1867

Mecodema howittii Laporte de Castelnau, 1867: 73 (redescribed in 1868: 159). Type locality: Near Christchurch, MC.

Mecodema rectolineatum Putzeys, 1868b: 317. Type locality: New Zealand. Primary homonym of *Mecodema rectolineatum* Laporte de Castelnau, 1867. Synonymised by Bates, 1874: 236.

Mecodema walkeri Broun, 1904: 43. Type locality: Akaroa, MC. Synonymised by Britton, 1949: 550.

Geographic distribution (Map p. 247). South Island: MC.

Ecology. Stenotopic, fossorial, campicolous, xerophilous. Lowland. Dry pastures. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September, November–January, March–May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 550 (distribution); Johns, 1986: 3, 28 (distribution, ecology, conservation); Molloy *et al*., 1994: 59 (as *M. howarti* [*sic*], distribution, conservation).

Mecodema litoreum Broun, 1886

Mecodema litoreum Broun, 1886: 875. Type locality: Taieri Beach, Otago, DN.

Mecodema dissonum Broun, 1914a: 83. Type locality: Hump Ridge, Okaka, Southland [FD]. Synonymised by Britton, 1949: 551.

Geographic distribution (Map p. 248). South Island: DN, FD, SL. Stewart Island.

Ecology. Eurytopic, fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech) and scrublands; sand hills close to the sea. Nocturnal; hides during the day under logs.

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

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 551 (distribution, ecology); Molloy *et al*., 1994: 59 (distribution, conservation).

Mecodema punctellum Broun, 1921

Mecodema punctellum Broun, 1921: 596. Type locality: Stephens Island, SD.

Geographic distribution (Map p. 249). South Island: SD.

Ecology. Fossorial. Lowland. Habitat unknown; probably wet forests.

Biology. Seasonality: September, January, June. Predacious, molluscophagous. Food: Snails.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 33 (distribution); Britton, 1949: 548–549 (distribution); Meads, 1990: 37 (distribution, conservation); Molloy *et al*., 1994: 58 (distribution, conservation); Townsend, 1997: 9 and 1998: 5, 18, 21 (distribution, conservation).

Note. Enigmatic species which has not been collected for many years.

Mecodema rectolineatum Laporte de Castelnau, 1867

Mecodema rectolineatum Laporte de Castelnau, 1867: 74 (redescribed in 1868: 160). Type locality: Near Dunedin, DN.

Mecodema suteri Broun, 1893a: 977. Type locality: Near the Hermitage, Mt Cook, MK. Synonymised by Britton, 1949: 551.

Geographic distribution (Map p. 250). South Island: CO,

DN, MK, SC.

Ecology. Stenotopic, fossorial, silvicolous. Montane. Forests (beech, podocarp, broadleaf) and scrublands. Mostly nocturnal; sometimes active on cloudy days (R.M. Emberson, personal communication); usually hides during the day under logs (mostly) and under stones.

Biology. Seasonality: November–May. Predacious (based on mouthpart morphology). Defense mechanism: Emits a strong nasty smell when disturbed (B.I.P. Barratt, personal communication). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 552 (distribution); Barratt, 1994a: 5 (distribution, ecology); Howe, 1998: 16 (distribution, ecology).

Mecodema sculpturatum puncticolle Broun, 1914

Mecodema puncticolle Broun, 1914b: 146. Type locality: Totara, DN.

Mecodema sculpturatum puncticolle: Britton, 1949: 552.

Geographic distribution (Map p. 250). South Island: CO, DN, SL, WD.

Ecology. Eurytopic, fossorial. Lowland, montane. Forests (beech), open areas, suburban gardens. Nocturnal; hides during the day under logs.

Biology. Seasonality: November, January, March. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

Reference. Britton, 1949: 552 (distribution).

Note. The male genitalia are identical to those of the nominotypical subspecies.

Mecodema sculpturatum sculpturatum Blanchard, 1843

Mecodema sculpturatum Blanchard, 1843: Plate 2, Figure 14 (redescribed in 1853: 35). Type locality: Otago, South Island.

Mecodema sculpturatum sculpturatum: Britton, 1949: 552.

Geographic distribution (Map p. 250). South Island: DN, SL, WD.

Ecology. Eurytopic, fossorial. Lowland, upland, subalpine, alpine. Tussock grasslands, tussock shrublands, tussock herbfields, pastures, gardens, scrublands, forests (beech); caves (occasionally). Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: September–March, June. Predacious. Food: Insects. Defense mechanism: Feigns death when disturbed.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 552 (distribution); Townsend, 1963: 94 (distribution, ecology); Emberson, 1993b: 20 (taxonomy).

curvidens group

Geographic distribution. This group of species occurs mostly along the eastern coast of the North Island from the Three Kings Islands to East Cape.

Reference. Britton, 1964b: 526–527 (key to species)**.**

Notes. A new revision is needed. A few species await description. Species belonging to this group could require a genus of their own.

Mecodema atrox Britton, 1949

Mecodema atrox Britton, 1949: 576. Type locality: Tauranga, BP.

Geographic distribution (Map p. 244). North Island: BP.

Ecology. Fossorial, silvicolous, very hygrophilous. Lowland. Wet native forests; an exotic plantation (pine-eucalypt). Nocturnal; hides during the day under logs.

Biology. Seasonality: January, March, July. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 576 (distribution); Watt, 1979: 7 (distribution, ecology); Molloy *et al*., 1994: 59 (as *M. aptrox* [*sic*], distribution, conservation).

Mecodema curvidens (Broun, 1915)

Metaglymma curvidens Broun, 1915: 273. Type locality: Opotiki, BP.

Mecodema curvidens: Britton, 1949: 576.

Geographic distribution (Map p. 246). North Island: BP.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Coastal lowland. Wet forests (broadleaf, podocarp). Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 576 (distribution); Molloy *et al.*, 1994: 59 (as *M. kermadens* [*sic*], distribution, conservation).

Mecodema occiputale Broun, 1923

Mecodema occiputale Broun, 1923: 670. Type locality: Tokaanu, TO (Broun, 1923: 671); Kai Iwi Beach, WI (Britton, 1949: 575).

Mecodema exitiosus [*sic*] Brookes, 1926: 441. Type locality: Okauia, near Matamata, WO. Synonymised by Britton, 1949: 575.

Geographic distribution (Map p. 248). North Island: BP, HB, TO, WI, WO.

Ecology. Fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp) and tree plantations (pine). Nocturnal; hides during the day under logs.

Biology. Seasonality: September, November–April, June, August. Tenerals: September. Predacious (based on mouthpart morphology). Regularly infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Brookes, 1926: 442 (distribution, ecology, biology); Britton, 1949: 575 (distribution); Davies, 1986: 63 (distribution, ecology, biology).

Mecodema pluto Britton, 1949

Mecodema pluto Britton, 1949: 576. Type locality: Te Aroha Trig Station, BP.

Geographic distribution (Map p. 249). North Island: BP, CL.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Coastal lowland and montane. Wet forests (broadleaf, podocarp). Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 576 (distribution); Molloy *et al*., 1994: 59 (distribution, conservation).

Mecodema regulus Britton, 1964

Mecodema regulus Britton, 1964b: 526. Type locality: Great Island, TH.

Geographic distribution (Map p. 250). Offshore Islands: TH.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf). Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: November, January, March. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

Reference. Britton, 1964b: 526 (distribution).

ducale group

Mecodema crenaticolle Redtenbacher, 1868

Mecodema crenaticollis [*sic*] Redtenbacher, 1868: 11. Type locality: New Zealand.

Mecodema rugicolle Broun, 1882: 215 (redescribed in 1883: 215 and 1886: 745). Type locality: Near Taranaki, TK. Synonymised by Britton, 1949: 554.

Mecodema lineatum Broun, 1894: 303. Type locality: Ligar's Bush, Papakura, AK. Synonymised by Lewis, 1902: 203.

Geographic distribution (Map p. 245). North Island: AK, BP, CL, RI, TK, TO, WI, WO. South Island: NN.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp) and tree plantations (pine); farmlands, gardens. Mostly nocturnal; sometimes active on cloudy days; hides during the day under logs and stones.

Biology. Seasonality: September–June. Predacious (based on mouthpart morphology). Predators: Kiwis, spiders. Regularly infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 32 (distribution); Britton, 1949: 554 (distribution); Reid *et al*., 1982: 84 (biology); Worthy, 1983: 42 (subfossils); Townsend, 1997: 8 (distribution).

Mecodema crenicolle Laporte de Castelnau, 1867

Mecodema crenicolle Laporte de Castelnau, 1867: 74 (redescribed in 1868: 160). Type locality: Auckland, AK (probably mislabelling).

Mecodema venator Broun, 1886: 817. Type locality: Wangapeka Valley, NN. Synonymised by Britton, 1949: 554.

Mecodema variolosum Broun, 1903: 453. Type locality: Rotorua, BP. Synonymised by Britton, 1949: 554.

Mecodema attenuatum Broun, 1908: 339. Type locality: Tapawera, NN. Synonymised by Britton, 1949: 554.

Mecodema ventriculum Broun, 1923: 673. Type locality: Nelson, NN. Synonymised by Britton, 1949: 554.

Geographic distribution (Map p. 246). North Island: AK, BP, WI. South Island: BR, MB, NN, SD.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech) and tree plantations (pine); pastures, gardens; caves (occasionally). Mostly nocturnal; sometimes active on cloudy days; hides during the day under logs.

Biology. Seasonality: Throughout the year. Predacious. Food, in captivity: Scarabaeid adults and larvae. Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 554 (distribution); Brown, 1966: 47 (biology); Townsend, 1963: 94, 1974b: 430, and 1997: 8 (distribution, ecology).

Mecodema ducale Sharp, 1886

Mecodema ducale Sharp, 1886: 358. Type locality: Ahoura (=Ahaura), near Greymouth, BR.

Geographic distribution (Map p. 246). South Island: BR, NN.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp), shrublands, and scrublands. Nocturnal; hides during the day under logs, stones, and fallen nikau palm fronds.

Biology. Seasonality: September–June, August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 553 (distribution); Watt, 1974: 762 (distribution); Townsend, 1997: 8 (distribution).

infimate group

Mecodema elongatum Laporte de Castelnau, 1867

Mecodema elongatum Laporte de Castelnau, 1867: 76 (redescribed in 1868: 162). Type locality: New Zealand.

Mecodema gratum Broun, 1917: 354. Type locality: Mt Alfred, near Paradise, OL. Synonymised by Britton, 1949: 574.

Geographic distribution (Map p. 246). South Island: CO, OL, SL.

Ecology. Fossorial, mostly silvicolous. Lowland, montane. Forests (beech), scrublands, shrublands, tussock grasslands, pastures. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: December–March. Tenerals: January. Predacious.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 33 (distribution, ecology); Britton, 1949: 575 (distribution).

Mecodema infimate Lewis, 1902

Mecodema infimate Lewis, 1902: 202. Type locality: West Plains, Invercargill, SL.

Mecodema rubripes Broun, 1917: 353. Type locality: Stewart Island. Synonymised by Britton, 1949: 573.

Geographic distribution (Map p. 247). South Island: SL. Stewart Island.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp, broadleaf), cushion herbfields, tussock grasslands, flaxlands, moorlands. Nocturnal; hides during the day under stones, in the soil, leaf litter, and tussock clumps.

Biology. Seasonality: October–February. Tenerals: December. Predacious. Food: Spiders.

Dispersal power. Subapterous. Slow runner. Occasional climber (on ferns).

References. Britton, 1949: 574 (distribution); Patrick *et al*., 1992b: 18 (distribution); Palma *et al*., 1989: 21 (taxonomy).

Mecodema minax Britton, 1949

Mecodema minax Britton, 1949: 574. Type locality: Mt Table Top, near Milton, DN.

Geographic distribution (Map p. 248). South Island: CO, DN, SL.

Ecology. Eurytopic, fossorial. Lowland, upland, subalpine, alpine. Tussock grasslands, tussock herbfields, tussock shrublands, forests (beech). Nocturnal; hides during the day in rotten fallen trees.

Biology. Seasonality: October–March, July. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 574 (distribution); Patrick *et al*., 1985: 8 (distribution, ecology); Palma *et al*., 1989: 22 (taxonomy); Molloy *et al*., 1994: 59 (as *M. ninax* [*sic*], distribution, conservation).

Mecodema morio (Laporte de Castelnau, 1867)

Maoria morio Laporte de Castelnau, 1867: 78 (redescribed in 1868: 164). Type locality: Otago, South Island.

Metaglymma morio: Putzeys, 1873a: 313.

Metaglymma punctifer [*sic*] Broun, 1882: 215 (redescribed in 1883: 215 and 1886: 745). Type locality: Near Dunedin, DN. Synonymised by Britton, 1949: 574.

Mecodema punctifer [*sic*]: Broun, 1893a: 977.

Mecodema morio: Britton, 1949: 574.

Geographic distribution (Map p. 248). South Island: CO, DN, SL.

Ecology. Eurytopic, fossorial. Lowland, upland, subalpine. Tussock grasslands, tussock shrublands, forests. Nocturnal; shelters during the day.

Biology. Seasonality: September–March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 574 (distribution); Patrick *et al*., 1986: 14 (distribution); Barratt & Patrick, 1987: 82 (distribution, ecology, biology); Patrick *et al*., 1987: 35 (distribution); Molloy *et al*., 1994: 59 (as *M. moria* [*sic*], distribution, conservation).

laterale group

Mecodema allani Fairburn, 1945

Mecodema allani Fairburn, 1945: 408. Type locality. Valley between Mt Misery and Mt Horrible, near Cass, MC.

Geographic distribution (Map p. 244). North Island: WN. South Island: BR, MC, WD.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech) and shrublands: often along streams. Nocturnal; hides during the day under logs.

Biology. Seasonality: October–November, January–April, July. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Fairburn, 1945: 410 (ecology); Britton, 1949: 555 (distribution); Johns, 1977: 317 and 1980: 59, 65 (distribution, ecology); Moeed & Meads, 1985: 36 (distribution, ecology); Molloy *et al*., 1994: 59 (distribution, conservation); Townsend, 1997: 8 (distribution); Nicholls *et al*., 1998: 3 (taxonomy).

Mecodema laterale Broun, 1917

Mecodema laterale Broun, 1917: 350. Type locality: Hollyford, OL.

Geographic distribution (Map p. 247). South Island: FD, OL, WD.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp, broadleaf), shrublands, and scrublands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–December, February–March. Predacious (based on mouthpart morphology). Predators: Stoats.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 555 (distribution); King & Moody, 1982: 78–79 (biology); Townsend, 1997: 9 (distribution).

spiniferum group

Notes. *Mecodema* is a neuter noun requiring the neuter epithet *spiniferum*, not *spinifer* (Brown, 1985: 323). A new revision is needed, particularly for the North Island forms.

Mecodema brittoni Townsend, 1965

Mecodema brittoni Townsend, 1965: 308. Type locality: Hanmer, MB.

Geographic distribution (Map p. 245). South Island: MB, NC, SC.

Ecology. Eurytopic, fossorial. Lowland, montane, subalpine, alpine. Scrubby open areas; a dry scrub with limestone rocks; city gardens and streets; a scree stream bed. Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: October–December, March–April, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1965: 308–309 (taxonomy, distribution, ecology); Johns *et al*., 1980: 27–28 (distribution); Molloy *et al.,* 1994: 59 (distribution, conservation); Howe, 1998: 16 (distribution, ecology, conservation).

Mecodema dux Britton, 1949

Mecodema dux Britton, 1949: 563. Type locality: Oio, Taumarunui, TO.

Geographic distribution (Map p. 246). North Island: HB, RI, TO.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech) and shrublands; tussock grasslands. Nocturnal; shelters during the day.

Biology. Seasonality: January–February, June. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 563 (distribution); Davies, 1986: 63 (distribution, ecology biology); Molloy *et al*., 1994: 59 (distribution, conservation).

Mecodema fulgidum Broun, 1881

Figure 9

Mecodema fulgida [*sic*] Broun, 1881: 653.Type locality: Near Nelson, NN.

Mecodema constricta [*sic*] Broun, 1881: 653. Type locality: Castle Hill Station, West Coast Road, MC. Synonymised by Townsend, 1965: 309.

Mecodema cognatum Broun, 1908: 336. Type locality: Castle Hill and Broken River, MC. Synonymised with *M. constrictum* by Britton, 1949: 565.

Mecodema halli Broun, 1915: 270. Type locality: Mt Hutt, near Methven, MC. Synonymised by Britton, 1949: 564.

Mecodema cassense Broun, 1923: 671. Type locality: Cass, MC. Synonymised with *M. constrictum* by Britton, 1949: 565.

Mecodema antennale Broun, 1923: 672. Type locality: Gordon's Pyramid, Mt Arthur, NN. Synonymised by Britton, 1949: 564.

Mecodema simulans Hudson, 1934:32. Type locality: Mt Arthur, NN. Synonymised by Britton, 1949: 564.

Geographic distribution (Map p. 246). South Island: BR, KA, MB, MC, NC, NN, SC.

Ecology. Eurytopic, fossorial. Lowland, montane, subalpine, alpine. Dry forests (beech), shrublands, and scrublands; tussock grasslands, pastures, fellfields, screes. Mostly nocturnal; sometimes active on cloudy days (R.M. Emberson, personal communication); usually hides during the day under logs, stones, in stumps, and tussock clumps.

Biology. Seasonality: Throughout the year. Predacious (based on mouthpart morphology). Parasites: Nematodes. Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 32 (distribution, ecology); Britton, 1949: 564–565 (distribution); Townsend, 1965: 309 (taxonomy, distribution, ecology); Johns, 1969: 393, 1977: 317, 323, and 1980: 60 (distribution, ecology); Johns *et al*., 1980: 27 (distribution, ecology); Gill, 1979: 18 (distribution, ecology, biology); Johns, 1986: 28–29 (distribution, ecology); Townsend, 1997: 8 (distribution).

Mecodema gourlayi Britton, 1949

Mecodema gourlayi Britton, 1949: 563. Type locality: New Zealand.

Geographic distribution (Map p. 247). South Island: FD.

Ecology. Fossorial. Lowland. A wet beech forest. Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Slow runner.

Reference. Britton, 1949: 563–564 (distribution).

Mecodema hector Britton, 1949

Mecodema hector Britton, 1949: 560. Type locality: Mt Hector, WN (type mislabelled as Mt Hector, Otago).

Geographic distribution (Map p. 247). North Island: WN.

Ecology. Fossorial. Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality: December, February, April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 560 (distribution); Palma *et al*., 1989: 21 (taxonomy).

Mecodema huttense Broun, 1915

Mecodema huttense Broun, 1915: 270. Type locality: Mt Hutt, MC.

Geographic distribution (Map p. 247). South Island: CO, FD, MC, OL, SC.

Ecology. Fossorial, mostly silvicolous. Montane, subalpine. Forests (beech, broadleaf), shrublands, scrublands, tussock grasslands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

Reference. Britton, 1949: 563 (distribution).

Mecodema impressum Laporte de Castelnau, 1867

Mecodema impressum Laporte de Castelnau, 1867: 75 (redescribed in 1868: 161). Type locality: Near Dunedin, DN.

Mecodema mutabile Broun, 1917: 357. Type locality: Mt Dick, Ben Lomond, Mt Ernslaw and Mt Alfred, OL. Synonymised by Britton, 1949: 562.

Geographic distribution (Map p. 247). South Island: BR, CO, DN, FD, OL, SL.

Ecology. Eurytopic, fossorial. Lowland, montane, subalpine, alpine. Forests (beech), scrublands, tussock grasslands. Nocturnal; hides during the day under stones.

Biology. Seasonality: September–November, January, March–April. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 32 (distribution); Britton, 1949: 562 (distribution); Patrick *et al.*, 1985: 8 and 1992a: 272 (distribution).

Mecodema laeviceps Broun, 1904

Mecodema laeviceps Broun, 1904: 41. Type locality: Ida Valley, CO.

Geographic distribution (Map p. 247). South Island: CO.

Ecology. Fossorial. Subalpine. A tussock grassland; a scree-like area surrounded by tussock and briar. Probably steppicolous. Nocturnal; hides during the day under stones and in tussock litter.

Biology. Seasonality: October–November, April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 564 (distribution); Barratt, 1994a: 1–20 (distribution, ecology, biology, dispersal power, conservation); Molloy *et al*., 1994: 24 (distribution, conservation).

Note. Common name: Ida Valley carabid.

Mecodema lucidum Laporte de Castelnau, 1867

Mecodema lucidum Laporte de Castelnau, 1867: 74 (redescribed in 1868: 160). Type locality: New Zealand.
Mecodema laevicolle Broun, 1912: 384. Type locality: Bold Peak, Wakatipu, OL. Synonymised by Britton, 1949: 561.
Mecodema ambiguum Broun, 1915: 272. Type locality: Ben Lomond, OL. Synonymised by Britton, 1949: 561.
Mecodema latulum Broun, 1917: 355. Type locality: Ben Lomond, OL. Synonymised by Britton, 1949: 561.
Mecodema affinum Broun, 1917: 355. Type locality: Mt Dick, OL. Synonymised by Britton, 1949: 561.
Mecodema indiscretum Broun, 1917: 356. Type locality: Mt Earnslaw, OL. Synonymised by Britton, 1949: 561.
Mecodema clarkei Brookes, 1926: 442. Type locality: Mt Constitution, OL. Synonymised by Britton, 1949: 561.

Geographic distribution (Map p. 248). South Island: CO, DN, FD, MK, OL, SL, WD.

Ecology. Eurytopic, fossorial. Lowland, montane, subalpine, alpine. Tussock grasslands, herbfields, fellfields, screes. Nocturnal; hides during the day under stones.

Biology. Seasonality: October–April. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 561–562 (distribution); Watt, 1980b: 187 (distribution, ecology); Patrick *et al*., 1992a: 272 (distribution); Barratt, 1994a: 5 (distribution).

Mecodema oconnori Broun, 1912

Mecodema o'connori Broun, 1912: 382. Type locality: Levin, WN.

Geographic distribution (Map p. 249). North Island: TO, WA, WN.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp, beech). Nocturnal; hides during the day under logs.

Biology. Seasonality: October–April. Predacious. Food: Earthworms, small spiders (J.I. Townsend, personal communication). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 32 (distribution, ecology); Britton, 1949: 560 (distribution); Edwards, 1950b: 85 (distribution, ecology).

Note. According to the International Code of Zoological Nomenclature (1999: Article 32.5.2.3), in a compound species-group name published as words united by an apostrophe or a hyphen, the words are to be united by removing the mark concerned.

Mecodema politanum Broun, 1917

Mecodema politanum Broun, 1917: 352. Type locality: Staircase [= Devil's Staircase], CO.

Geographic distribution (Map p. 249). South Island: CO, MK, OL.

Ecology. Eurytopic, fosssorial. Montane, subalpine, alpine. Herbfields, tussock grasslands, forests (beech). Mostly nocturnal; sometimes active on cloudy days (R.M. Emberson, personal communication); usually hides during the day under stones and logs.

Biology. Seasonality: October–April. Mating: April. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 562 (distribution); Barratt, 1994a: 5 (distribution); Molloy *et al*., 1994: 59 (as *M. pullatanum* [*sic*], distribution, conservation).

Note. This taxon could be conspecific with *Mecodema lucidum*.

Mecodema pulchellum Townsend, 1965

Mecodema pulchellum Townsend, 1965: 307. Type locality: West of Saddle Hill, NN.

Geographic distribution (Map p. 249). South Island: NN.

Ecology. Fossorial. Montane. A wet forest (beech). Nocturnal; hides during the day under limestone blocks.

Biology. Seasonality: December–February, May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Townsend, 1965: 307–308 (taxonomy, distribution, ecology); Meads, 1990: 36 (distribution, conservation); Molloy *et. al*., 1994: 59 (distribution, conservation); Townsend, 1997: 9 (distribution).

Mecodema quoinense Broun, 1912

Mecodema quoinense Broun, 1912: 384. Type locality: Mt Quoin, Tararua Range, WN.

Geographic distribution (Map p. 250). North Island: WN.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Montane. Wet forests (beech). Nocturnal; hides during the day under logs.

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

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 558 (distribution); Molloy *et al*., 1994: 59 (distribution, conservation).

Mecodema rex Britton, 1949

Mecodema rex Britton, 1949: 565. Type locality: Tuatapere, SL.

Geographic distribution (Map p. 250). South Island: FD, SL.

Ecology. Eurytopic, fossorial, very hygrophilous. Subalpine, alpine. Alpine meadows, tussock grasslands, tussock shrublands, wet forests (beech). Nocturnal; hides during the day under big stones and logs.

Biology. Seasonality: October–April. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 565 (distribution); Patrick *et al.,* 1987: 35 (distribution); Palma *et al*., 1989: 22 (taxonomy); Molloy *et al*., 1994: 59 (distribution, conservation); Peat & Patrick, 1996: 116 (distribution, ecology).

Mecodema simplex Laporte de Castelnau, 1867

Mecodema simplex Laporte de Castelnau, 1867: 74 (redescribed in 1868: 160). Type locality: Auckland, AK (probably mislabelling).

Mecodema acuductum Broun, 1908: 335. Type locality: Mt Holdsworth, Tararua Range, WN. Synonymised by Britton, 1949: 559.

Mecodema bryobium Broun, 1912: 383. Type locality: Silverstream, WN. Synonymised by Britton, 1949: 559.

Mecodema arcuatum Broun, 1912: 385. Type locality: Near Martinborough, WA. Synonymised by Britton, 1949: 559.

Geographic distribution (Map p. 250). North Island: ?AK, HB, RI, WA, WN.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf) and tree plantations (pine); alpine meadows. Nocturnal; hides during the day under logs and in moss.

Biology. Seasonality: October–June. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 32 (distribution, ecology); Britton, 1949: 559 (distribution); Moeed & Meads, 1983: 52 (ecology); Davies, 1986: 63 (distribution, ecology, biology).

Note. The geographic distribution of *M. simplex* suggests that the type specimen may have been mislabelled.

Mecodema spiniferum Broun, 1880

Mecodema spinifer [*sic*] Broun, 1880: 10. Type locality: Waitakerei (=Waitakere), near Auckland, AK.

Mecodema scitulum Broun, 1894: 302. Type locality: Northern Wairoa, AK. Synonymised by Britton, 1949: 560.

Geographic distribution (Map p. 251). North Island: AK, BP, CL, GB, HB, ND, RI, WA, WN, WO.

Ecology. Stenotopic, fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, broadleaf). Mostly nocturnal; sometimes active on cloudy days; usually hides during the day under logs and stones.

Biology. Seasonality: September–November, January–July. Predacious. Food, in captivity: Scarabaeid larvae, fish, meat. Occasionally infested with mites. Defense mechanism: Either emits a nasty smell or bites strongly when disturbed.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1905: 342 (distribution, ecology); Britton, 1949: 561 (distribution); Simmonds, 1953: 90 (biology); Dumbleton, 1957: 28 (biology); Green, 1982: 36 (distribution, ecology); Watt, 1983b: 34 (distribution); Davies, 1986: 63 (distribution, ecology, biology).

Note. This taxon could represent a species complex.

Mecodema validum Broun, 1923

Mecodema validum Broun, 1923: 670. Type locality: Ohakune,TO.

Geographic distribution (Map p. 251). North Island: BP, CL, GB, ND, TO.

Ecology. Fossorial, mostly silvicolous, very hygrophilous. Montane, subalpine, alpine. Wet forests (beech, podocarp, broadleaf). Nocturnal; hides during the day under big logs and fallen trees.

Biology. Seasonality: November–February, April. Predacious (based on mouthpart morphology). Frequently infested with large reddish mites.

Dispersal power. Subapterous. Slow runner.

References. Britton,1949: 559 (distribution); Davies, 1986: 63 (distribution, ecology, biology).

sulcatum group

Reference. Townsend, 1998: 7, 9 (key to *M. oblongum* and *M. sulcatum*).

Note. Species belonging to this group could require a genus of their own.

Mecodema oblongum (Broun, 1882)

Metaglymma oblonga [*sic*] Broun, 1882: 216 (redescribed in 1883: 216 and 1886: 746). Type locality: The Brothers, SD.

Mecodema insulare Broun, 1921: 597. Type locality: Stephens Island, SD. Synonymised by Britton, 1949: 578.

Mecodema oblongum: Britton, 1949: 578.

Geographic distribution (Map p. 248). North Island: HB, WA, WN. South Island: SD.

Ecology. Eurytopic, fossorial, xerophilous. Lowland. Dry forests (beech, podocarp, broadleaf), tree plantations (pine), orchards, pastures, river banks. Nocturnal; hides during the day under logs, stones, and in burrows dug in sandy soil.

Biology. Seasonality: September–January, March–May, August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 578 (distribution); Davies, 1986: 63 (distribution, ecology, biology); Townsend, 1997: 9 and 1998: 7 (taxonomy, distribution).

Note. The junior synonym *M. insulare* could be a valid species.

Mecodema oregoides (Broun, 1894)

Metaglymma oregoide [*sic*] Broun, 1894: 305. Type locality: Christchurch, MC.
Mecodema oregoides: Britton, 1949: 577.

Geographic distribution (Map p. 249). South Island: MC.

Ecology. Fossorial, mostly silvicolous, xerophilous. Lowland. Dry forests (broadleaf, podocarp, beech) and scrublands; forest pastures, farmlands, tussock grasslands, gardens. Nocturnal; hides during the day under fallen trees, logs, stones, and in leaf litter.

Biology. Seasonality: Throughout the year. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 577 (distribution); Butcher & Emberson, 1981: 62, 67–69 (distribution, ecology, biology); Johns, 1986: 28 (distribution).

Note. Adjectives ending in *-oides* are invariable (Stearn, 1983: 97).

Mecodema sulcatum (Sharp, 1886)

Metaglymma sulcatum Sharp, 1886: 361. Type locality: Picton, SD.
Metaglymma modicum Broun, 1894: 305. Type locality: Wellington, WN. Synonymised by Britton, 1949: 578.
Metaglymma doullii Broun, 1905: 543. Type locality: North Canterbury. Synonymised by Britton, 1949: 578.
Metaglymma ovicolle Broun, 1914b: 147. Type locality: Otaraia, near Martinborough, WA. Synonymised by Britton, 1949: 578.
Mecodema sulcatum: Britton, 1949: 578.

Geographic distribution (Map p. 251). North Island: HB, WA, WN. South Island: KA, MB, NC, NN, SD.

Ecology. Eurytopic, fossorial. Lowland, upland. Both dry and moist areas such as tussock grasslands, pastures, farmlands, gardens, scrublands, shrublands, forests (broadleaf) and tree plantations (pine), seashore supralittoral zone. Nocturnal; hides during the day in burrows dug in sandy substrate under stones and logs.

Biology. Seasonality: Throughout the year, except February and June. Tenerals: November. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Slow runner.

References. Hudson, 1934: 33 (distribution, ecology); Britton, 1949: 578 (distribution); Grehan, 1990: 73 (distribution); Townsend, 1998: 7, 21 (taxonomy, distribution).

Genus *Metaglymma* Bates, 1867

Metaglymma Bates, 1867: 78. Type species: *Metaglymma monilifer* Bates, 1867: 78, by monotypy.
Maoria Laporte de Castelnau, 1867: 77 (redescribed in 1868: 163). Type species: *Maoria tibialis* Laporte de Castelnau, 1867: 77, designated by Britton 1949: 538. Synonymised by Putzeys, 1868b: 318.

Geographic distribution. New Zealand (endemic).

Reference. Britton, 1949: 578–580 (revision).

Metaglymma aberrans Putzeys, 1868

Metaglymma aberrans Putzeys, 1868b: 320. Type locality: New Zealand.
Metaglymma tersatum Broun, 1893a: 980. Type locality: Lake Tekapo region, MK. Synonymised by Britton, 1949: 580.
Metaglymma thoracicum Broun, 1893a: 1322. Type locality: Moeraki, Otago, DN. Synonymised by Britton, 1949: 580.
Metaglymma rugiceps Broun, 1903: 454. Type locality: Albury, SC. Synonymised by Britton, 1949: 580.

Geographic distribution (Map p. 254). South Island: DN, MC, MK, SC.

Ecology. Eurytopic, fossorial. Lowland, montane. Tussock grasslands, gardens, urban areas, scrublands, tree plantations (willow), lakeshores. Nocturnal; hides during the day under stones and logs, or in the soil.

Biology. Seasonality: September–February, April. Predacious. Food: Elaterid and scarabaeid larvae (P. M. Johns, personal communication). Predators: Starlings.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 580 (distribution); Wood, 1973: 160 (biology); Howe, 1998: 16 (distribution, ecology).

Metaglymma moniliferum Bates, 1867

Metaglymma monilifer [*sic*] Bates, 1867: 79. Type locality: Province of Canterbury, South Island.
Metaglymma rugipenne Broun, 1893a: 1321. Type locality: Ashburton, MC. Synonymised by Britton, 1949: 579.
Metaglymma minor Broun, 1905: 543. Type locality: North Canterbury. Synonymised by Britton, 1949: 579.

Geographic distribution (Map p. 255). South Island: KA, MC, NC, SC.

Ecology. Eurytopic, fossorial, xerophilous. Lowland, montane. Dry areas such as tussock grasslands, cultivated fields (carrot), pastures, gardens, urban parks, scrublands, open forests (beech, podocarp) and tree plantations (pine, eucalypt), lagoon shores, river beds. Nocturnal; hides during the day in burrows, under cakes of dry manure, logs, stones, and fallen bark.

Biology. Seasonality: September–March, August. Tenerals: October. Predacious. Food: Scarabaeid grubs. Predators: Hedgehogs, starlings. Defense mechanism: Feigns death when captured (P. Howe, personal communication).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 580 (distribution); Johns, 1980: 60 (distribution, ecology) and 1986: 28 (distribution, ecology, biology).

Note. *Metaglymma* is a neuter noun requiring the neuter epithet *moniliferum*, not *monilifer*.

Metaglymma tibiale (Laporte de Castelnau, 1867)

Maoria tibialis Laporte de Castelnau, 1867: 77 (redescribed in 1868: 163). Type locality: Near Molyneux River (=Puerua River), SL.
Metaglymma rufipes Broun, 1886: 876. Type locality: Near Outram, DN. Synonymised by Britton, 1949: 579.
Metaglymma asperum Broun, 1893a: 978. Type locality: Taieri Beach, DN. Synonymised by Britton, 1949: 579.
Metaglymma junctum Broun, 1893a: 979. Type locality: Strath-Taieri, CO. Synonymised by Britton, 1949: 579.
Metaglymma calcaratum Broun, 1903: 455. Type locality: Maniototo, Taieri (=Upper Taieri), CO. Synonymised by Britton, 1949: 579.

Geographic distribution (Map p. 255). South Island: CO, DN, SL.

Ecology. Eurytopic, fossorial. Lowland, montane, subalpine, alpine. Tussock grasslands, pastures, cultivated fields (lucerne, mustard), screes, scrublands, forests (beech), tree plantations (pine), river beds. Nocturnal; hides during the day under stones.

Biology. Seasonality: September–April, June. Predacious. Food, in captivity: Scarabaeid adults and larvae.

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 579 (distribution); Brown, 1966: 47 (biology); Deuve, 1993: 153–154 (morphology of female reproductive system); Sivasubramaniam *et al*., 1997: 210 (ecology).

Genus *Oregus* Putzeys, 1868

Oregus Putzeys 1868b: 326. Type species: *Broscus (Promecoderus?) aereus* White, 1846: 5, by monotypy.

Geographic distribution. New Zealand (endemic).

Reference. Britton, 1949: 542–543 (revision).

Note. A new species from KA awaits description (Townsend, 1997: 19).

Oregus aereus (White, 1846)

Broscus (Promecoderus?) aereus White, 1846: 5. Type locality: Port Nicholson, WN.
Promecoderus aereus: Chenu, 1851: 117.
Mecodema oeneum [*sic*]: Laporte de Castelnau, 1867: 76.
Mecodema aereum: Gemminger & Harold, 1868: 241.
Oregus aeneus [*sic*]: Putzeys, 1868b: 327.
Oregus aereus: Putzeys, 1873a: 317.

Geographic distribution (Map p. 262). North Island: WN. South Island: CO, DN, FD, MB, MC, MK, NC, NN, OL, SC, SL.

Ecology. Eurytopic, fossorial, xerophilous. Lowland, montane, subalpine, alpine. Dry forests (beech, broadleaf, podocarp), tree plantations (pine), shrublands, and scrublands; tussock grasslands, pastures, herbfields, urban gardens. Nocturnal; hides during the day under logs, large stones, and in tussock clumps.

Biology. Seasonality: Throughout the year, but less active in summer. Predacious. Food: Various insects; dead carabids (P. Howe, personal communication). Parasites: Nematomorpha (gordian worms). Occasionally infested by mites. Defense mechanism: Emits a strong nasty smell when disturbed (B.I.P. Barratt, personal communication).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 543 (distribution); Townsend, 1970: 99 (biology); Johns *et al*., 1980: 28 (distribution, ecology); Patrick, 1982: 37 (distribution); Patrick *et al*., 1986: 14 (distribution); Barratt & Patrick, 1987: 75, 82 (distribution, ecology, biology); Poinar, 1991: 1598 (biology); Patrick *et al.*, 1993: 11 (distribution, ecology); Townsend, 1997: 9 (distribution).

Oregus inaequalis (Laporte de Castelnau, 1867)

Mecodema inaequale Laporte de Castelnau, 1867: 76 (redescribed in 1868: 162). Type locality: Dunedin, DN.
Oregus inequalis: Putzeys, 1873a: 317.

Geographic distribution (Map p. 263). South Island: DN, SL.

Ecology. Eurytopic, fossorial. Lowland, montane, subalpine, alpine. Tussock grasslands, shrublands. Nocturnal; hides during the day under stones.

Biology. Seasonality: September, November–March, May, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Britton, 1949: 543 (distribution); Molloy *et al*., 1994: 33 (distribution, conservation); Peat & Patrick, 1995: 90 (distribution).

Division PSYDRIFORMES
Subfamily PSYDRINAE
Supertribe PSYDRITAE

Geographic distribution. Worldwide.

References. Jeannel, 1940b: 97–98 (classification); Moore, 1963: 277–290 (revision of Australian supraspecific taxa); Deuve, 1993: 149–153 (morphology of female reproductive system); Baehr, 1998: 359–368 (phylogeny, classification).

Tribe MECYCLOTHORACINI

Figure 10

Geographic distribution. Australian Region, Pacific Islands.

Reference. Moore, 1963: 286–287 (taxonomy).

Genus *Mecyclothorax* Sharp, 1903

Figure 10

Cyclothorax Macleay, 1871: 104 (*nec* Fraunfeld, 1867; Arachnida). Type species: *Cyclothorax punctipennis* Macleay, 1871, by monotypy. Synonymised by Sharp, 1903: 243.

Mecyclothorax Sharp, 1903: 243. Type species: *Cyclothorax montivagus* Blackburn, 1878, designated by Andrewes, 1939: 135.

Geographic distribution. Australia, New Zealand, Pacific Islands.

References. Hudson, 1934: 177 (as *Cyclothorax*, list); Jeannel, 1940b: 98–99 (classification); Moore, 1963: 286–287 and 1984: 161–166 (taxonomy); Perrault, 1984–1992 (taxonomy of Tahitian taxa); Liebherr & Will, 1998: 130 (morphology of female reproductive system).

Notes. A new species awaits description. Three *Molopsida* taxa (*amplipennis amplipennis*, *amplipennis labralis*, and *eplicatus*) are transferred to *Mecyclothorax* on morphological bases; they are not congeneric with *Molopsida* and they clearly belong to the tribe Mecyclothoracini, not Tropopterini. The only described New Zealand genus that these taxa can be associated with is *Mecyclothorax* even though its taxonomic limits may be poorly defined. A fourth taxon (*placens*) was recombined with *Mecyclothorax* by Sherley *et al*. (1999).

Mecyclothorax ambiguus (Erichson, 1842)

Anchomenus ambiguus Erichson, 1842: 130. Type locality: Tasmania, Australia.

Cyclothorax ambiguus: Sloane, 1895: 447.

Mecyclothorax ambiguus: Sloane, 1920a: 153.

Mecyclothorax ambiguus ambiguus: Britton, 1948: 108. Reduced to subspecific status.

Mecyclothorax ambiguus: Moore, 1984: 161. Species status re-established.

Geographic distribution (Map p. 251). North Island: AK, BP, CL, ND. Extralimital range: Australia (including Tasmania). Adventive. First New Zealand records: Lynfield, AK, 1976 (NZAC); New Zealand (Sloane, 1920a: 1531). Well established.

Ecology. Eurytopic, epigean, mesophilous. Lowland. Sand dunes, cultivated fields (strawberry), pastures, lawns, gardens, vacant lots, chicken yards. Nocturnal; hides during the day under dead leaves and at the base of plants (*Lupinus*). Gregarious.

Biology. Seasonality: September–February, May–August. Tenerals: December, June. Predacious (Moore *et al*., 1987: 147). Recorded once as damaging strawberries. Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Macropterous. Regular flier. Moderate runner.

References. Sloane, 1920a: 153 (distribution); Moore, 1963: 278 (distribution); Moore, 1984: 161–162 (taxonomy, distribution); Moore *et al.,* 1987: 147 (distribution, ecology, biology, dispersal power); Deuve, 1993: 151–152 (morphology of female reproductive system).

Mecyclothorax amplipennis amplipennis (Broun, 1912), new combination

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

Molopsida amplipennis amplipennis: Britton, 1940: 477.

Geographic distribution (Map p. 251). North Island: GB, HB, RI, TK, TO, WA, WI, WN, WO.

Ecology. Stenotopic, arboreal-epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp) and scrublands. Nocturnal; active at night on mossy logs and trees; hides during the day under logs, fallen branches, stones, and in leaf litter.

Biology. Seasonality: October–April, August. Tenerals: February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner. Good climber.

Reference. Broun, 1912: 387 (ecology).

Mecyclothorax amplipennis labralis (Broun, 1912), new combination

Tarastethus amplipennis labralis Broun, 1912: 387. Type locality: Raurimu, TO.
Molopsida amplipennis labralis: Britton, 1940: 477.

Geographic distribution (Map p. 251). North Island: TO.

Ecology. Upland. A forest. Nocturnal; hides during the day under logs or in leaf litter.

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

Dispersal power. Subapterous. Moderate runner. Good climber.

Mecyclothorax eplicatus (Broun, 1923), new combination

Tarastethus eplicatus Broun, 1923: 675. Type locality: Pakarau [=Pekerau], ND.
Molopsida eplicata: Britton, 1940: 477.

Geographic distribution (Map p. 251). North Island: HB, ND, RI.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech, broadleaf, podocarp). Nocturnal; hides during the day under fallen branches (mostly), stones, and in leaf litter.

Biology. Seasonality: February–March, May. Tenerals: February–March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Mecyclothorax placens (Broun, 1880)

Tropopterus placens Broun, 1880: 28. Type locality: Near Whangarei Heads, ND.
Tarastethus placens: Sharp, 1886: 373.
Molopsida placens: Britton, 1940: 477.
Mecyclothorax placens: Sherley *et al*., 1999: 299.

Geographic distribution (Map p. 252). North Island: BP, CL, ND, TO, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp, beech). Nocturnal; hides during the day in leaf litter, under logs and stones.

Biology. Seasonality: October–April, July. Tenerals: October–November, January. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Mecyclothorax rotundicollis (White, 1846)

Figure 10
Oopterus rotundicollis White, 1846: 6. Type locality: Bay of Islands, ND.
Olisthopus insularis Motschulsky, 1865: 325. Type locality: New Zealand. Synonymised by Sharp, 1884: 298.
Drimostoma striato-punctata Laporte de Castelnau, 1867: 113 (redescribed in 1868: 199). Type locality: Nelson, NN. Synonymised by Bates, 1874: 242.
Tropidopterus striatopunctatus: Bates, 1874: 242.
Olisthopus (*?*) *insularis*: Hutton, 1874: 159.
Cyclothorax insularis: Bates, 1874: 242.
Cyclothorax rotundicollis: Hutton, 1904: 149.
Pseudoopterus rotundicollis: Csiki, 1928: 225.
Mecyclothorax insularis: Britton, 1940: 477 and Jeannel, 1940b: 97.
Tarastehus striatopunctatus: Jeannel, 1940b: 97.
Mecyclothorax ambiguus rotundicollis: Britton, 1948: 108.
Mecyclothorax rotundicollis: Wise, 1970: 230.

Geographic distribution (Map p. 252). North Island: AK, BP, CL, GB, HB, ND, RI, TO, WA, WI, WN, WO. South Island: BR, CO, DN, FD, MB, MC, MK, NC, NN, OL, SC, SD, SL, WD. Offshore Islands: CH, KE, TH.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine, alpine. Tussock grasslands, pastures, cultivated fields (turnip, strawberry, carrot, rye, lucerne), farmlands, herfields, gardens, lawns, sand dunes, forest edges, forests (broadleaf, beech), tree plantations (pine), shrublands, scrublands, stream banks, pond edges, lakeshores, coastal turfs. Mostly nocturnal; hides during the day in leaf litter, moss, at the base of plants (*Lupinus*), under logs, boards, dried algal mats, and stones. Sometimes active in the sunshine. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: September–March. Predacious (based on mouthpart morphology). Recorded once as damaging strawberries. Predators: Kiwis, starlings. Occasionally infested with fungi (Laboulbeniales) and mites.

Dispersal power. Macropterous. Regular flier. Moderate runner. Occasional climber (on plants, shrubs, trees).

References. Hudson, 1934: 38 (distribution, ecology). Britton, 1940: 477 (taxonomy); Britton, 1948: 108 (taxonomy, distribution); Pilgrim, 1963: 842–844 (distribution); Wood, 1973: 160 (biology); Watt, 1975b: 50–51 (distribution); Johns *et al.,* 1980: 28 (distribution, ecology); Johns, 1980: 61 and 1986: 29 (distribution, ecology); Reid *et al*., 1982: 84 (biology); Martin, 1983: 31

(ecology, biology); Moore, 1984: 164 (taxonomy, distribution); Barratt & Patrick, 1987: 82 (distribution, ecology); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Patrick *et al*., 1993: 11 (ecology); Townsend, 1994: 9–10 (distribution, ecology); Emberson, 1998: 29 (distribution, ecology, biology).

Note. This taxon could represent a species complex.

Tribe MEONINI (MEONIDINI)

Figure 11

Geographic distribution. Australian Region.

Reference. Moore, 1963: 288–289 (taxonomy).

Note. The tribal stem is *Meon-*, not *Meonid-* (Madge, 1989: 465).

Genus *Selenochilus* Chaudoir, 1878

Figure 11

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

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

Geographic distribution. New Zealand (endemic).

References. Hudson, 1934: 178 (as *Sympiestus*, list); Britton, 1940: 477 (taxonomy); Moore, 1963: 288 (taxonomy); Baehr, 1998: 360 (taxonomy).

Notes. A revision is needed. Two species await description. Members of this genus live in forests.

Selenochilus fallax (Broun, 1893)

Sympiestus fallax Broun, 1893a: 1007. Type locality: Castle Hill Station, MC.

Selenochilus fallax: Britton, 1940: 477.

Geographic distribution (Map p. 266). South Island: MC.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Johns, 1980: 61 (taxonomy, distribution).

Note. This taxon could be conspecific with *S. syntheticus*.

Selenochilus frontalis (Broun, 1917)

Sympiestus frontalis Broun, 1917: 370. Type locality: Scarcliff[e], near Mt Algidus, MC.

Selenochilus frontalis: Britton, 1940: 477.

Geographic distribution (Map p. 267). South Island: MC.

Ecology. Montane. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

Selenochilus oculator (Broun, 1893)

Sympiestus oculator Broun, 1893a: 1398. Type locality: Hunua Ranges, AK.

Selenochilus oculator: Britton, 1940: 477.

Geographic distribution (Map p. 267). North Island: AK.

Ecology. Lowland. Habitat unknown; problably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Selenochilus piceus (Blanchard, 1843)

Argutor erythropus Blanchard, 1843: Plate 2, Figure 7 (redescribed in 1853: 27). Type locality: Akaroa, MC. Secondary homonym of *Pterostichus erythropus* (Marsham, 1802). Synonymised by Chaudoir, 1878b: 21.

Argutor piceus Blanchard, 1843: Plate 2, Figure 8 (redescribed in 1853: 28). Type locality: Akaroa, MC.

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

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

Selenochilus erythropus: Chaudoir, 1878b: 23.

Sympiestus modestus Broun, 1894: 311. Type locality: Dyers Pass, MC. Synonymised by Johns, 1986: 29.

Selenochilus piceus: Csiki, 1930: 736.

Geographic distribution (Map p. 267). South Island: MC.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland. Dry forests (broadleaf) and shrublands. Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 477 (taxonomy); Johns, 1980: 61 and 1986: 29 (taxonomy, distribution); Emberson, 1993b: 20 (taxonomy).

Selenochilus ruficornis (Broun, 1882)

Cerabilia ruficorne [*sic*] Broun, 1882: 223 (redescribed in 1883: 223 and 1886: 754). Type locality: Wellington, WN.

Selenochilus ruficornis: Britton, 1940: 478.

Geographic distribution (Map p. 267). North Island: TO, WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf, podocarp). Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 478 (taxonomy); Moeed & Meads, 1985: 22, 34 (distribution, ecology).

Selenochilus syntheticus (Sharp, 1886)

Figure 11

Sympiestus syntheticus Sharp, 1886: 373. Type locality: Bealey, NC.

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

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

Geographic distribution (Map p. 267). South Island: MB, MC, NC.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland. Dry forests (beech). Nocturnal; hides during the day under logs.

Biology. Seasonality: October–January, July. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 477 (taxonomy); Johns, 1980: 61, 65 and 1986: 29 (taxonomy, distribution, ecology); Johns *et al*., 1980: 28 (distribution, ecology).

Tribe TROPOPTERINI (TROPIDOPTERINI)

Figure 12

Geographic distribution. Australia, New Zealand, Neotropical Region.

Reference. Moore, 1963: 281–285 (taxonomy).

Note. The tribal stem is *Tropo-*, not *Tropido-* (Madge, 1989: 468).

Genus *Molopsida* White, 1846

Figure 12

Molopsida White, 1846: 6. Type species: *Molopsida polita* White, 1846, by monotypy.

Tarastethus Sharp, 1883: 23. Synonymised by Britton, 1940: 477. Type species: *Tarastethus puncticollis* Sharp, 1883, designated by Lorentz, 1998: 170.

Geographic distribution. New Zealand (endemic).

References. Hudson, 1934: 177–178 (as *Tarastethus*, list); Sharp, 1886: 373 (taxonomy); Britton, 1940: 477 (taxonomy); Jeannel, 1940b: 97 (taxonomy).

Notes. A revision is needed. Several species await description. J. Nunn (Dunedin, New Zealand) is preparing a key to species, with some new synonymies. Members of this genus are occasional tree climbers at night.

Molopsida alpinalis (Broun, 1893)

Tarastethus alpinalis Broun, 1893a: 1005. Type locality: New Zealand.

Molopsida alpinalis: Britton, 1940: 477.

Geographic distribution (Map p. 255). South Island: BR, MB, NN, SD, WD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Montane, subalpine, alpine. Wet forests (beech, podocarp, broadleaf), alpine meadows. Nocturnal; active at night on mossy logs and the forest floor; hides during the day in logs.

Biology. Seasonality: September–May, July–August. Predacious (based on mouthpart morphology). Regularly infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

Reference. Townsend, 1997: 12 (distribution).

Notes. Broun (1887: 604) cited *Tarastethus alpinalis*, n. sp. from Mt Arthur (NN), but without providing any description. This comment and Broun's annotation of his personal copy of his *Manual* suggest Mt Arthur, NN, as type locality.

Molopsida antarctica (Laporte de Castelnau, 1867)

Drimostoma antarctica Laporte de Castelnau, 1867: 113 (redescribed in 1868: 199). Type locality: Wellington, WN.

Tarastethus antarcticus: Sharp, 1886: 373. *Tropopterus antarcticus*: Sloane, 1898: 472.

Tarastethus insularis Broun, 1923: 676. Type locality: Chetwode Islands, SD. Synonymised by Townsend, 1998: 5.

Tropidopterus antarcticus: Csiki, 1929: 486.

Molopsida insularis: Britton, 1940: 477.

Molopsida antarctica: Townsend, 1997: 12.

Geographic distribution (Map p. 255). North Island: WN. South Island: KA, MB, NN, SC, SD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland. Wet native forests and tree plantations (pine), river bed plantings, shelter belts, city gardens. Nocturnal; hides during the day under logs (mostly), in rotten logs, and under the loose bark of fallen trees.

Biology. Seasonality: September, December, July. Predacious (morphology). Regularly infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner. Occasional climber (on trees and logs).

References. Britton, 1940: 477 (taxonomy); Townsend, 1997: 12 and 1998: 5 (taxonomy, distribution); Howe, 1998: 17 (distribution, ecology).

Molopsida carbonaria (Broun, 1908)

Tarastethus carbonarius Broun, 1908: 351. Type locality: Manawatu Flats, nine miles below the Gorge, WI/WN.
Molopsida carbonaria: Britton, 1940: 477.

Geographic distribution (Map p. 255). North Island: WI/WN.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida polita*.

Molopsida cincta (Broun, 1893)

Tarastethus cinctus Broun, 1893a: 1005. Type locality: Near the Hermitage, Mt Cook, MK.
Molopsida cincta: Britton, 1940: 477.

Geographic distribution (Map p. 255). South Island: CO, MK, SL.

Ecology. Epigean. Montane, subalpine, alpine. Forests (beech); a tussock herbfield. Nocturnal; hides during the day in leaf litter.

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

Dispersal power. Subapterous. Moderate runner.

Molopsida convexa (Broun, 1917)

Tarastethus convexus Broun, 1917: 366. Type locality: Routeburn, OL.
Molopsida convexa: Britton, 1940: 477.

Geographic distribution (Map p. 255). South Island: OL.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Montane. Wet forests (beech, podocarp, broadleaf). Nocturnal; active at night on mossy logs and the forest floor.

Biology. Seasonality: December, February, April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner. Good climber.

Note. This taxon could be conspecific with *Molopsida oxygona*.

Molopsida cordipennis (Broun, 1912)

Tarastethus cordipennis Broun, 1912: 388. Type locality: Mt Quoin, Tararua Range, WN.
Molopsida cordipennis: Britton, 1940: 477.

Geographic distribution (Map p. 255). North Island: WA, WN.

Ecology. Epigean, silvicolous. Lowland, montane. Both dry and wet forests (broadleaf). Nocturnal; hides during the day under logs, branches, and in leaf litter.

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

Dispersal power. Subapterous. Moderate runner.

Molopsida debilis (Sharp, 1886)

Tarastethus debilis Sharp, 1886: 373. Type locality: Bealey, NC.
Molopsida debilis: Britton, 1940: 477.

Geographic distribution (Map p. 255). South Island: MC, NC.

Ecology. Montane. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

Reference. Johns, 1980: 61 (distribution).

Molopsida diversa (Broun, 1917)

Tarastethus diversus Broun, 1917: 366. Type locality: Moa Basin, West of Mt Algidus, MC.
Molopsida diversa: Britton, 1940: 477.

Geographic distribution (Map p. 256). South Island: MC, NC, WD.

Ecology. Stenotopic, epigean, silvicolous. Montane, subalpine. Forests (beech, podocarp), scrublands. Nocturnal; hides during the day in leaf litter and moss.

Biology. Seasonality: October–November. Tenerals: November. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Townsend, 1997: 13 (distribution).

Molopsida dubia (Broun, 1894)

Tarastethus dubius Broun, 1894: 309. Type locality: Wellington, WN.
Molopsida dubia: Britton, 1940: 477.

Geographic distribution (Map p. 256). North Island: TO, WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech). Nocturnal; hides during the day in fissures of fallen pieces of wood.

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

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida strenua*.

Molopsida fovealis (Broun, 1917)

Tarastethus fovealis Broun, 1917: 367. Type locality: Ben Lomond, OL.
Molopsida fovealis: Britton, 1940: 477.

Geographic distribution (Map p. 256). South Island: OL.

Ecology. Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality: March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida southlandica*.

Molopsida fuscipes (Broun, 1923)

Tarastethus fuscipes Broun, 1923: 675. Type locality: Belgrove, NN.
Molopsida fuscipes: Britton, 1940: 477.

Geographic distribution (Map p. 256). South Island: NN.

Ecology. Lowland. Macrohabitat unknown; probably silvicolous. Nocturnal; hides during the day in rotten pieces of wood.

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

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida seriatoporus*.

Molopsida halli (Broun, 1917)

Tarastethus halli Broun, 1917: 367. Type locality: Mt Kiwi and Moa Basin, near Mt Algidus, MC.
Molopsida halli: Britton, 1940: 477.

Geographic distribution (Map p. 256). South Island: MC.

Ecology. Montane. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida diversa*.

Molopsida longula (Broun, 1917)

Tarastethus longulus Broun, 1917: 368. Type locality: Clipping's Bush, near Kingston, OL.
Molopsida longula: Britton, 1940: 477.

Geographic distribution (Map p. 256). South Island: OL.

Ecology. Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality: January. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References: Johns, 1980: 61 (distribution); Watt, 1977: 89 (distribution).

Note. This taxon could be conspecific with *Molopsida debilis*.

Molopsida marginalis (Broun, 1882)

Tropopterus marginalis Broun, 1882: 219 (redescribed in 1883: 219 and 1886: 749). Type locality: Wellington, WN.
Tarastethus marginalis: Sharp, 1886: 373.
Tropidopterus marginalis: Csiki, 1929: 487.
Molopsida marginalis: Britton, 1940: 477.

Geographic distribution (Map p. 256). North Island: WN.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida antarctica*.

Molopsida optata (Broun, 1917)

Tarastethus optatus Broun, 1917: 369. Type locality: Mt Dick, OL.
Molopsida optata: Britton, 1940: 477.

Geographic distribution (Map p. 256). South Island: OL.

Ecology. Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality: March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida oxygona*.

Molopsida oxygona (Broun, 1886)

Tropopterus oxygonus Broun, 1886: 820. Type locality: Mt Maungatua, DN.
Tarastethus oxygonus: Sharp, 1886: 373.
Molopsida oxygona: Britton, 1940: 477.

Geographic distribution (Map p. 256). South Island: DN, SL.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (broadleaf, podocarp, beech); a tussock-*Celmisia* area. Nocturnal; hides during the day under stones.

Biology. Seasonality: October, December–January, March. Tenerals: January. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Molopsida phyllocharis (Broun, 1912)

Tarastethus phyllocharis Broun, 1912: 387. Type locality: Erua, TO.
Molopsida phyllocharis: Britton, 1940: 477.

Geographic distribution (Map p. 257). North Island: TO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech). Nocturnal; hides during the day in rotten pieces of wood and in leaf litter.

Biology. Seasonality: October, January, March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida seriatoporus*.

Molopsida polita White, 1846

Molopsida polita White, 1846: 6. Type locality: Waikouaiti, DN [probably mislabelled].
Tarastethus laevicollis Broun, 1903: 458. Type locality: Te Aroha, BP/WO. Synonymised by Britton, 1940: 477.

Geographic distribution (Map p. 257). North Island: BP, CL, GB, HB, RI, TK, TO, WN, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp), shrublands, and scrublands. Nocturnal; hides during the day under and in rotten logs as well as in rotten branches.

Biology. Seasonality: October–June. Tenerals: January–February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales) and mites.

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1940: 477 (taxonomy).

Note.The North Island distribution of *M. polita* indicates that the type specimen collected by Mr Earl has been mislabelled. The likely type locality is Port Nicholson [= Wellington] as White records Earl as collector of a number of other beetles from there.

Molopsida pretiosa (Broun, 1910)

Tarastethus pretiosus Broun, 1910b: 6. Type locality: Raurimu, TO.
Molopsida pretiosa: Britton, 1940: 477.

Geographic distribution (Map p. 257). North Island: BP, TK, TO. South Island: NN.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp) and shrublands; fellfields. Nocturnal; hides during the day in leaf litter (mostly), moss, under fallen branches and epiphyte crowns. Gregarious.

Biology. Seasonality: October–April, June. Tenerals: November. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Townsend, 1997: 13 (distribution).

Note. This taxon could represent a species complex.

Molopsida propinqua (Broun, 1917)

Tarastethus propinquus Broun, 1917: 369. Type locality: Ben Lomond, OL.
Molopsida propinqua: Britton, 1940: 477.

Geographic distribution (Map p. 257). South Island: OL.

Ecology. Epigean. Montane. A forest (beech). Nocturnal; hides during the day under stones.

Biology. Seasonality: December–January, March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Molopsida puncticollis (Sharp, 1883)

Tarastethus puncticollis Sharp, 1883: 24. Type locality: Greymouth, BR.
Molopsida puncticollis: Britton, 1940: 477.

Geographic distribution (Map p. 257). South Island: BR, MC, NC, NN, WD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp) and shrublands. Nocturnal; hides during the day in the cracked undersurface of logs and in moss.

Biology. Seasonality: September–December, February, April–May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1934: 38 (distribution, ecology); Emden, 1936: 45 (morphology of male genitalia); Johns, 1977: 317 and 1980: 61, 65 (distribution, ecology); Deuve, 1993: 149 (morphology of female reproductive system); Townsend, 1997: 13 (distribution).

Molopsida robusta (Broun, 1921)

Tarastethus robustus Broun, 1921: 600. Type locality: Mt Robert, BR.
Molopsida robusta: Britton, 1940: 477.

Geographic distribution (Map p. 257). South Island: BR, NN, SD.

Ecology: Epigean, stenotopic, very hygrophilous, silvicolous. Lowland, montane. Wet forests (broadleaf). Nocturnal; hides during the day under stones.

Biology. Seasonality: November–December, February–March, June–July. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

Refences. Townsend, 1997: 13 and 1998: 11, 21 (taxonomy, distribution, biology).

Molopsida seriatoporus (Bates, 1874)

Figure 12
Tropopterus seriatoporus Bates, 1874: 242 (redescribed in 1875: 305). Type locality: New Zealand.
Tarastethus seriatoporus: Sharp, 1886: 373.
Tropidopterus seriatoporus: Csiki, 1929: 487.
Molopsida seriatopora [*sic*]: Britton, 1940: 477.

Geographic distribution (Map p. 257). North Island: BP, CL, GB, HB, RI, TK, TO, WI, WA, WO. South Island: BR, MB, NN, SD, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech, broadleaf, podocarp). Nocturnal; hides during the day in leaf litter, under fallen branches, logs, and in rotten pieces of wood.

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

Dispersal power. Subapterous. Moderate runner. Occasional climber (on trees).

Reference. Townsend, 1997: 13 (distribution).

Note. The suffix *-porus* is a Latin masculine noun, meaning pore (Brown, 1985: 415), not an adjective, thus invariable.

Molopsida simplex (Broun, 1903)

Tarastethus simplex Broun, 1903: 457. Type locality: Port Chalmers, DN.
Molopsida simplex: Britton, 1940: 477.

Geographic distribution (Map p. 257). South Island: DN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaved, podocarp, beech). Nocturnal; hides during the day under stones and in leaf litter.

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

Dispersal power. Subapterous. Moderate runner.

Molopsida simulans (Broun, 1894)

Tarastethus simulans Broun, 1894: 309. Type locality: Capleston, BR.
Molopsida simulans: Britton, 1940: 477.

Geographic distribution (Map p. 257). South Island: BR.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Molopsida alpinalis*.

Molopsida southlandica (Broun, 1908)

Tarastethus southlandicus Broun, 1908: 350. Type locality: Invercargill, SL.
Molopsida southlandica: Britton, 1940: 477.

Geographic distribution (Map p. 258). South Island: SL.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (podocarp, broadleaf). Nocturnal; hides during the day under logs.

Biology. Seasonality: April, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Molopsida strenua (Broun, 1894)

Tarastethus strenuus Broun, 1894: 308. Type locality: Napier [HB] (Hastwells), WA.
Molopsida strenua: Britton, 1940: 477.

Geographic distribution (Map p. 258). North Island: BP,

HB, RI, TK, TO, WA, WI, WN, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp) and shrublands. Nocturnal; hides during the day under fallen branches and in fissures of fallen pieces of wood.

Biology. Seasonality: September–February, June–July. Tenerals: December, February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

Molopsida sulcicollis (Bates, 1874)

Tropopterus sulcicollis Bates, 1874: 241 (redescribed in 1875: 304). Type locality: Christchurch, MC.
Tarastethus sulcicollis: Sharp, 1886: 373.
Tropidopterus sulcicollis: Csiki, 1929: 487.
Molopsida sulcicollis: Britton, 1940: 477.

Geographic distribution (Map p. 258). North Island: WA, WN. South Island: KA, MB, MC, NC, SD.

Ecology. Stenotopic, arboreal-epigean, silvicolous. Lowland, montane, subalpine. Usually coastal. Forests (beech), tree plantations (pine). Nocturnal; active on trees at night; shelters during the day.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner. Occasional climber.

References. Johns *et al*., 1980: 28 and Johns, 1980: 65 (distribution, ecology).

Supertribe TRECHITAE

Tribe TRECHINI

Figure 13

Geographic distribution. Worldwide.

References. Jeannel, 1926: 221–450, 1927: 1–592, and 1928: 1–808 (world revision); Moore, 1972: 1–61 (revision of Australian taxa); Laneyrie, 1974: 3–21 (systematics); Casale & Laneyrie, 1982: 1–226 (world catalogue; keys to supraspecific taxa); Liebherr & Will, 1998: 131 (morphology of female reproductive system).

Notes. A revision is needed. Several genera and many species await description. J.I. Townsend (Levin, New Zealand) is currently revising this tribe.

Subtribe AEPINA

Geographic distribution. Europe, subantarctic New Zealand, Falkland Islands, Crozet Islands, Patagonia, Chile.

Genus *Kenodactylus* Broun, 1909

Kenodactylus Broun, 1909b: 90. Type species: *Kenodactylus capito* Broun, 1909b, by monotypy.
Aepomorphus Jeannel, 1926: 447. Type species: *Trechus audouini* Guérin-Méneville, 1830, by monotypy. Synonymised by Jeannel, 1938a: 255.

Geographic distribution. Subantarctic New Zealand, Falkland Islands, Patagonia.

References. Jeannel, 1938a: 255 (taxonomy, distribution) and 1964: 411 (distribution); Johns, 1974: 292–297 (taxonomy); Casale & Laneyrie, 1982: 51 (list).

Kenodactylus audouini (Guérin-Méneville, 1830)

Trechus audouini Guérin-Méneville, 1830: page 60, plate I, figure 16. Type locality: Soledad Bay, Falkland Islands.
Trechus testaceus Blanchard, 1843: Plate 3, Figure 15 (redescribed in 1853: 45). Type locality: Port Famine, Falkland Islands. Synonymised by Putzeys, 1870: 22.
Kenodactylus capito Broun, 1909b: 91. Type locality: Campbell Island. Synonymised by Johns, 1974: 293.
Aepomorphus audouini: Jeannel, 1926: 451.
Kenodactylus audouini: Jeannel, 1940b: 93.

Geographic distribution (Map p. 242). Stewart Island. Subantarctic Islands: AN, AU, CA, SN. Extralimital range: Falkland Islands, Patagonia.

Ecology. Epigean-fossorial, nidicolous, subaquatic, halophilous. Coastal lowland. Intertidal and supralittoral zones; penguin and seal colonies. Nocturnal; hides under stones, algae, and in rock fissures (intertidal zone), under stones (supralittoral zone).

Biology. Seasonality: September–March, May–June, August. Tenerals: November–February. Predacious (based on mouthpart morphology). Regularly infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Brookes, 1951: 24–25 (distribution, ecology); Jeannel, 1962: 540–541 (taxonomy, distribution); Darlington, 1964a: 335, 338–339 (distribution, ecology); Gressitt, 1964: 544 (distribution); Jeannel, 1964: 411 (taxonomy); Johns, 1974: 294–297, 301 (larval description, distribution, ecology, biology); Rossi, 1984: 756 (biology).

Note. This flightless species has a wide subantarctic distribution which could be explained by its high tolerance to salinity and its exceptional ability to swim or survive for long periods at sea.

Genus *Maoritrechus* Brookes, 1932

Maoritrechus Brookes, 1932: 27. Type species: *Maoritrechus rangitotoensis* Brookes, 1932, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Brookes, 1932: 27–28 (taxonomy); Jeannel, 1938a: 255–256 (taxonomy, distribution), 1940b: 78–82 and 1964: 411 (taxonomy); Casale & Laneyrie, 1982: 51 (list).

Notes. *Maoritrechus* was incorrectly synonymised with *Temnostega* Enderlein, 1905, by Jeannel (1938a: 255), but was used again as a valid genus by Watt (1983b: 35). Two undescribed species have been found along the seashore over the tide line in deep beach gravel or under stones.

Maoritrechus rangitotoensis Brookes, 1932

Maoritrechus rangitotoensis Brookes, 1932: 27. Type locality: Rangitoto Island, AK.
Temnostega rangitotoensis: Jeannel, 1938a: 255.

Geographic distribution (Map p. 244). North Island: AK.

Ecology. Coastal lowland. A sea beach: above the high tide level, under decaying zosteras.

Biology. Seasonality: July. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Brookes, 1932: 28 (distribution, ecology); Casale & Laneyrie, 1982: 51 (list); Watt, 1983b: 35 (distribution, ecology); Voisin & Dreux, 1987: 463 (biogeography).

Notes. This species was incorrectly synonymised with *Temnostega antarctica* Enderlein, 1905: 719 by Jeannel (1964: 411), but was used again as a valid species by Casale & Laneyrie (1982: 51). As in the two undescribed species, the true habitat of *M. rangitotoensis* could be above the high tide, among deep coarse gravel or under stones.

Subtribe TRECHINA

Geographic distribution. Worldwide.

Genus *Duvaliomimus* Jeannel, 1928

Figure 13

Duvaliomimus Jeannel, 1928: 82. Type species: *Trechus maori* Jeannel, 1920, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Jeannel, 1928: 82–83 and 1942b: 226–228 (biogeography); Uéno, 1956: 64 (biogeography); Britton, 1958: 183 (taxonomy) and 1964a: 629 (taxonomy, including key to species); Casale & Laneyrie, 1982: 117 (list).

Notes. A few species currently included in *Duvaliomimus* may belong to undescribed genera of Trechina. In addition, several species await description in *Duvaliomimus* itself. Members of this genus live either in caves, sinkholes, or dark shaded mountain ravines and gullies, along rills and brooks, under stones, or in leaf debris (tree ferns). Long-legged, blind cave species and short-legged, eyed epigean species could belong to different genera.

Duvaliomimus brittoni Jeannel, 1938

Duvaliomimus brittoni Jeannel, 1938a: 256. Type locality: [Mt] Earnslaw, OL.

Geographic distribution (Map p. 236). South Island: MK, OL.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Montane. Cool dark wet edges of streams. Nocturnal; hides during the day under stones (usually) and pieces of wood.

Biology. Seasonality: January. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. May & Kermode, 1972: 83 (distribution, ecology).

"*Duvaliomimus" lamberti* Britton, 1960

Duvaliomimus lamberti Britton, 1960b: 34. Type locality: Dogleg Hole, Takaka Hill, NN.

Geographic distribution (Map p. 236). South Island: NN.

Ecology. Stenotopic, cavernicolous (troglobitic), very hygrophilous. Lowland. Cool dark deep caves and holes. Occurs on drips and wet rocks.

Biology. Seasonality: November, January–February. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Fast runner.

References. Britton, 1960b: 34 (distribution, ecology); Townsend, 1963: 95 (distribution, ecology); Uéno, 1977: 1, 5 (nomenclature, phylogeny); Valentine, 1987: 84 (nomenclature, phylogeny); Johns, 1991: 19 (distribution); Townsend, 1997: 11 (taxonomy, distribution, ecology).
Note. This species requires the description of a new genus (Townsend, 1997: 11).

Duvaliomimus mayae Britton, 1958

Duvaliomimus mayae Britton, 1958: 184. Type locality: Waipuna Caves, Te Kuiti, WO.

Geographic distribution (Map p. 236). North Island: WO.

Ecology. Stenotopic, cavernicolous (troglobitic), very hygrophilous. Lowland. Cool caves. Occurs on cave walls and on muddy or silty banks, among scorias.

Biology: Seasonality: Throughout the year, except October. Tenerals: March. Predacious (based on mouthpart morphology). Attracted to pittraps baited with a mixture of minced beef and cheese. Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Fast runner. Excellent climber.

References. Britton, 1958: 185–186 (distribution); May, 1962: 61 (distribution, ecology), 1963a: 147–150 (taxonomy, including larval description) and 1963b: 191–192 (distribution, ecology, biology); May, 1979: 210–213 (taxonomy, distribution, ecology); May & Kermode, 1972: 83–90 (taxonomy, ecology, biology); Townsend, 1974b: 431–432 (distribution, ecology).

Duvaliomimus orpheus Britton, 1962

Duvaliomimus orpheus Britton, 1962: 668. Type locality: Twin Forks Cave, "Paturau District", NN.

Geographic distribution (Map p. 237). South Island: NN.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland. Cool caves.

Biology. Seasonality: January, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Fast runner.

References. Britton, 1962: 668, 670 (distribution, ecology); Townsend, 1963: 95, 1974b: 430–432 and 1997: 11 (distribution, ecology); Johns, 1991: 19 (distribution).

Duvaliomimus pluto Britton, 1964

Duvaliomimus pluto Britton, 1964a: 627. Type locality: Fenian Creek Cave, Oparara, NN.

Geographic distribution (Map p. 237). South Island: NN.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland. Cool caves.

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

Dispersal power. Subapterous. Fast runner.

References. Britton, 1959: 104 (distribution, ecology); May & Kermode, 1972: 83 (distribution, ecology); Johns, 1991: 19 (distribution); Townsend, 1974b: 431–432 and 1997: 11 (distribution, ecology).

Duvaliomimus styx Britton, 1959

Figure 13

Duvaliomimus styx Britton, 1959: 104. Type locality: Puriri Cave, Port Waikato, WO.

Geographic distribution (Map p. 237). North Island: BP, GB, TK, WA, WI, WO.

Ecology. Epigean-cavernicolous (troglophilous). Lowland. Stream banks, caves. Nocturnal; hides during the day under stones.

Biology. Seasonality: November, January–February, June–August. Tenerals: January, May. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. May, 1962: 61, 1963b: 192 and 1979: 210 (ecology); Britton, 1964a: 627 (distribution); Ashton, 1976: 480–481 (distribution, ecology).

"Duvaliomimus" walkeri (Broun, 1903)

Anchomenus walkeri Broun, 1903: 456. Type locality: Westport, NN.

Trechus maori Jeannel, 1920: 111. Type locality: Greymouth, BR. Synonymised by Jeannel, 1938a: 256.

Duvaliomimus maori: Jeannel, 1928: 83.

Agonum (*Anchomenus*) *walkeri*: Csiki, 1931: 865.

Duvaliomimus walkeri: Jeannel, 1938a: 256.

Geographic distribution (Map p. 237). South Island: BR, NC, NN, WD.

Ecology: Mostly epigean, very hygrophilous, riparian. Lowland, montane. Edges of streams crossing wet forests (podocarp); caves (occasionally). Nocturnal; hides during the day under stones.

Biology. Seasonality: October–November, January, April, July. Predacious (morphology).

Dispersal power. Subapterous. Moderate runner. Occasional climber (on cave walls).

References. Jeannel, 1928: 83–85 (taxonomy, distribution) and 1938a: 256 (taxonomy); Townsend, 1974b: 430 (distribution, ecology) and 1997: 11 (taxonomy, distribution, ecology); Johns, 1991: 19 (distribution).

Notes.This species requires the description of a new genus. Adults show enormous morphological variation.

Duvaliomimus watti Britton, 1958

Duvaliomimus watti Britton, 1958: 188. Type locality: Moumoukai Valley, AK.

Geographic distribution (Map p. 237). North Island: AK, BP, CL, RI, WA, WI, WN.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland. Shaded edges of rills crossing wet forests (broadleaf, podocarp). Nocturnal; hides during the day under stones and vegetal debris (dead fern leaves, branches).

Biology. Seasonality: September–October, January–May, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1958: 188 (distribution); Johns, 1980: 65 (distribution, ecology).

Genus *Erebotrechus* Britton, 1964

Erebotrechus Britton, 1964a: 625. Type species: *Erebotrechus infernus* Britton, 1964a, by monotypy.

Stygiotrechus [*sic*]: Britton, 1964a: 626, Figure 1 (incorrect original spelling).

Geographic distribution. New Zealand (endemic).

References. Britton, 1964a: 625–627 (taxonomy); Casale & Laneyrie, 1982: 67 (list).

Erebotrechus infernus Britton, 1964

Erebotrechus infernus Britton, 1964a: 625. Type locality: Fox River Cave, near Charleston, BR.

Stygiotrechus [*sic*] *infernus*: Britton, 1964a: 626, Figure 1.

Geographic distribution (Map p. 237). South Island: BR.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland. Cool caves.

Biology. Seasonality: September–October, January, April, July–August. Tenerals: January. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Fast runner.

References. Britton, 1964a: 627 (distribution, ecology); Watt, 1975a: 526 (ecology); Johns, 1991: 19 (distribution); Townsend, 1997: 11 (distribution, habitat).

Genus *Neanops* Britton, 1962

Neanops Britton, 1962: 672. Type species: *Duvaliomimus caecus* Britton, 1960a, by monotypy.

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

References. Britton, 1962: 672 (taxonomy); Casale & Laneyrie, 1982: 67 (list); Valentine, 1987: 79–81 (taxonomy).

Neanops caecus (Britton, 1960)

Duvaliomimus caecus Britton, 1960a: 121. Type locality: Fred Cave, Te Kuiti, WO.

Neanops caecus: Britton, 1962: 672.

Geographic distribution (Map p. 258). North Island: WO.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland. Caves. Clings to the underside of large stones.

Biology. Seasonality: January–March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Fast runner.

References. Britton, 1960a: 123 (distribution, ecology); May, 1962: 61 and 1963b: 192 (distribution, ecology); Uéno, 1977: 1–8 (taxonomy, distribution, ecology).

Neanops pritchardi Valentine, 1987

Neanops pritchardi Valentine, 1987: 79. Type locality: Wairere Falls Cave, near Te Kuiti, WO.

Geographic distribution (Map p. 258). North Island: WO.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland. A wet cave.

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

Dispersal power. Subapterous. Fast runner.

Reference. Valentine, 1987: 79–81 (distribution, ecology).

Genus *Scototrechus* Britton, 1962

Scototrechus Britton, 1962: 670. Type species: *Scototrechus orcinus* Britton, 1962, by monotypy.

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

References. Britton, 1962: 670–672 (taxonomy); Casale & Laneyrie, 1982: 117 (list).

Scototrechus orcinus Britton, 1962

Scototrechus orcinus Britton, 1962: 670. Type locality: Ed's Cellar, Canaan, Takaka Hill, NN.

Geographic distribution (Map p. 266). South Island: NN.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland. Marble caves and sink-holes.

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

Dispersal power. Subapterous. Fast runner.

References. Britton, 1962: 672 (distribution, ecology); Townsend, 1963: 96 (distribution, ecology); Johns, 1991: 20 (distribution, ecology); Townsend, 1997: 11 (distribution, ecology).

Tribe ZOLINI

Figure 14

Geographic distribution. Circumantarctic and South Temperate Regions, including New Zealand.

References. Hudson, 1934: 177 (list); Emden, 1936: 44–46 (classification); Jeannel, 1940b: 92–97 (taxonomy); Liebherr & Will, 1998: 141, 143 (phylogeny, classification); Grebennikov, 1999: 245–252 (larval description).

Notes. A revision is needed. P.M. Johns (Christchurch, New Zealand) is preparing a synonymic checklist to the Zolini of the world.

Subtribe OOPTERINA

Geographic distribution. Same as tribe.

Genus *Oopterus* Guérin-Méneville, 1841

Oopterus Guérin-Méneville, 1841a: 123. Type species: *Oopterus clivinoides* Guérin-Méneville, 1841a, by monotypy.
Oöpterus: Broun, 1880: 54 (historical alternative spelling).
Pseudoopterus Csiki, 1928: 225. Type species: *Oopterus plicaticollis* Blachard, 1843, designated here. Synonymised by Jeannel, 1940b: 92.

Geographic distribution. New Zealand, Falkland Islands; South Georgia (adventive).

References. Csiki, 1928: 225–226 and 1933b: 1651, 1678 (as *Oopterus* and *Pseudoopterus*, list); Hudson, 1934: 177 (list); Jeannel, 1926: 245–246 and 1940b: 92 (taxonomy); Emden, 1936: 44–45 (classification); Johns, 1974: 297–300 (revision of Subantarctic Island species); Deuve, 1993: 156–157 (morphology of female reproductive system); Grebennikov, 1999: 247–250 (larval description).

Notes. A revision is needed. About twenty species await description. This taxon could represent three or four genera. *Oopterus* species climb regularly on trees at night. Death feigning has been observed by Hudson (1934: 38).

Oopterus basalis Broun, 1915

Oöpterus basalis Broun, 1915: 273. Type locality: Ben Lomond, OL.
Pseudoopterus basalis: Csiki, 1928: 225.
Oopterus basalis: Hudson, 1934: 177.

Geographic distribution (Map p. 260). South Island: MK, OL.

Ecology. Epigean. Subalpine. A herbfield. Nocturnal; hides during the day under stones.

Biology. Seasonality: November–December, February. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Oopterus clivinoides Guérin-Méneville, 1841

Oopterus clivinoïdes Guérin-Méneville, 1841a: 123. Type locality: Auckland Islands.
Oopterus guerini Kirsch, in Kiesenwetter & Kirsch, 1877: 158. Type locality: Auckland Islands. Synonymised by Gourlay, 1950: 181.
Oopterus tripunctatus Broun, 1909b: 87. Type locality: Carnley Harbour, Auckland Islands. Synonymised by Gourlay, 1950: 181.
Oopterus tarsalis Broun, 1909b: 89. Type locality: Campbell Island. Synonymised by Johns, 1974: 297.
Pseudoopterus guerini: Csiki, 1928: 225.
Pseudoopterus tripunctatus: Csiki, 1928: 226.
Pseudoopterus tarsalis: Csiki, 1928: 226.

Geographic distribution (Map p. 260). Subantarctic Islands: AN, AU, CA, SN.

Ecology. Eurytopic, epigean, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (broadleaf), peaty scrublands, tussock areas, pastures, fellfields, supralittoral zone, sea beaches; penguin, shag, and seal colonies. Nocturnal; hides during the day under logs, stones, in leaf litter, moss and mat plants, under cow dung, in turf, among tussock roots, in logs, and under algae. Gregarious.

Biology. Seasonality: October–February, April–May, July. Tenerals: December–April. Predacious. Food: Amphipods, caterpillars. Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Blanchard, 1853: 43 (taxonomy); Gourlay, 1950: 181 (distribution, ecology); Brookes, 1951: 22 (distribution, biology); Darlington, 1964a: 337–338 (distribution, ecology, biology); Gressitt, 1964: 544 (distribution); Johns, 1974: 297–298, 301 (distribution, ecology, biology); Emberson, 1993b: 20 (taxonomy).

Note. This taxon could represent a species complex.

Oopterus collaris Broun, 1893

Oöpterus collaris Broun, 1893a: 1002. Type locality: New Zealand.
Pseudoopterus collaris: Csiki, 1928: 225.
Oopterus collaris: Hudson, 1934: 177.

Geographic distribution (Map p. 260). South Island: NN.

Ecology. Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Notes. Broun (1887: 604) cited *Oopterus collaris*, n. sp. from Mt Arthur, NN, without providing any description. This comment and Broun's annotation of his personal copy of his *Manual* suggest Mt Arthur, NN as type locality.

Oopterus frontalis Broun, 1908

Oopterus frontalis Broun, 1908: 342. Type locality: Wadestown, WN and Palmerston North, WI.
Pseudoopterus frontalis: Csiki, 1928: 225.
Oopterus frontalis: Hudson, 1934: 38, 177.

Geographic distribution (Map p. 260). North Island: WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests. Nocturnal; hides during the day in moss and leaf litter.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Hudson, 1934: 38 (distribution, ecology).

Oopterus fulvipes Broun, 1886

Oöpterus fulvipes Broun, 1886: 936. Type locality: Midhirst, base of Mt Egmont, TK.
Pseudoopterus fulvipes: Csiki, 1928: 225.
Oopterus fulvipes: Hudson, 1934: 177.

Geographic distribution (Map p. 260). North Island: TK.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Oopterus laevicollis Bates, 1871

Oopterus laevicollis Bates, 1871a: 14. Type locality: New Zealand.
Pseudoopterus laevicollis: Csiki, 1928: 225.
Oopterus laevicollis: Hudson, 1934: 177.

Geographic distribution (Map p. 260). North Island: WN. South Island: MC.

Ecology. Epigean, silvicolous. Lowland. Both wet and dry forests (broadleaf, podocarp, beech) and scrublands. Nocturnal; shelters during the day.

Biology. Seasonality: September–November, March–June. Tenerals: September. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Butcher & Emberson, 1981: 62 (distribution, ecology); Moeed & Meads, 1983: 52 and 1985: 36 (distribution, ecology); Johns, 1986: 29 (distribution, ecology).

Oopterus laevigatus Broun, 1912

Oöpterus laevigatus Broun, 1912: 389. Type locality: Hastwells, WA.
Pseudoopterus laevigatus: Csiki, 1928: 225.
Oopterus laevigatus: Hudson, 1934: 177.

Geographic distribution (Map p. 260). North Island: WA.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Oopterus laeviventris (Sharp, 1883)

Tarastethus laeviventris Sharp, 1883: 24. Type locality: Greymouth, BR.
Molopsida laeviventris: Britton, 1940: 477.
Oopterus laeviventris: Johns, 1980: 57.

Geographic distribution (Map p. 261). South Island: BR, MC, NC, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech, podocarp) and scrublands. Nocturnal; hides during the day under logs and stones.

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

Dispersal power. Subapterous. Moderate runner.

References. Johns, 1977: 317 and 1980: 60, 65 (distribution, ecology).

Oopterus latifossus Broun, 1917

Oöpterus latifossus Broun, 1917: 364. Type locality: Moa and Mistake Basins, near Mt Algidus, MC.
Pseudoopterus latifossus: Csiki, 1928: 225.
Oopterus latifossus: Hudson, 1934: 177.

Geographic distribution (Map p. 261). South Island: MC.

Ecology. Lowland. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Oopterus latipennis*.

Oopterus latipennis Broun, 1903

Oöpterus latipennis Broun, 1903: 609. Type locality: Westport, NN.
Pseudoopterus latipennis: Csiki, 1928: 225.
Oopterus latipennis: Hudson, 1934: 177.

Geographic distribution (Map p. 261). South Island: BR, MC, NC, NN, WD.

Ecology. Stenotopic, epigean, silvicolous, very

hygrophilous. Lowland, montane. Wet forests (podocarp, beech) and scrublands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September, April. Predacious (based on mouthpart morphology)

Dispersal power. Subapterous. Moderate runner.

References. Johns, 1977: 317 and 1980: 60, 65 (distribution, ecology).

Oopterus lewisi (Broun, 1912)

Tarastethus lewisi Broun, 1912: 388. Type locality: Greymouth, BR.
Molopsida lewisi: Britton, 1940: 477.
Oopterus lewisi: Johns, 1980: 57.

Geographic distribution (Map p. 261). South Island: BR, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, beech) and scrublands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Johns, 1980: 60, 65 (taxonomy, distribution, ecology).

Oopterus marrineri Broun, 1909

Oopterus marrineri Broun, 1909b: 88. Type locality: Campbell Island.
Oopterus elongellus Broun, 1909b: 89. Type locality: Campbell Island. Synonymised by Darlington, 1964a: 336.
Pseudoopterus marrineri: Csiki, 1928: 225.
Pseudoopterus elongellus: Csiki, 1928: 225.
Oopterus marrineri: Johns, 1974: 297.

Geographic distribution (Map p. 261). Subantarctic Islands: CA.

Ecology. Eurytopic, epigean, very hygrophilous. Lowland, montane, subalpine, alpine. Supralittoral zone, peaty scrublands, tussock swards, fellfields, mollymawk and penguin colonies. Nocturnal; hides during the day under stones, in leaf litter, under pieces of wood and wick sacks, in/under tussock clumps and moss, and under mat plants. Gregarious.

Biology. Seasonality: September–January, May, August. Tenerals: December–January. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Brookes, 1951: 24 (distribution); Darlington, 1964a: 336–337 (taxonomy, distribution, ecology, dispersal power); Gressitt, 1964: 544 (distribution); Johns, 1974: 298 (distribution, ecology).

Oopterus minor Broun, 1917

Oöpterus minor Broun, 1917: 364. Type locality: Mt Dick, near Kingston, OL.
Pseudoopterus minor: Csiki, 1928: 225.
Oopterus minor: Hudson, 1934: 177.

Geographic distribution (Map p. 261). South Island: OL.

Ecology. Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality: March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Oopterus nigritulus Broun, 1908

Oopterus nigritulus Broun, 1908: 341. Type locality: Palmerston North, WI; Karori, WN.
Pseudoopterus nigritulus: Csiki, 1928: 225.
Zolus nigritulus: Hudson, 1934: 38.
Oopterus nigritulus: Hudson, 1934: 177.

Geographic distribution (Map p. 261). North Island: WI, WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests. Nocturnal; hides during the day in moss and under logs.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Hudson, 1934: 38 (distribution, ecology).

Oopterus pallidipes Broun, 1893

Oöpterus pallidipes Broun, 1893a: 1003. Type locality: New Zealand.
Pseudoopterus pallidipes: Csiki, 1928: 225.
Oopterus pallidipes: Hudson, 1934: 177.

Geographic distribution (Map p. 261). North Island: NN.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Montane, subalpine, alpine. Wet forests (beech), fellfields. Nocturnal; active at night on mossy logs; hides during the day in moss and leaf litter. Gregarious.

Biology. Seasonality: November–December, February. Tenerals: March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner. Regular climber (on logs).

Notes. Broun (1887: 604) cited *Oopterus pallidipes*, n. sp. from Mt Arthur, NN, without providing any description. This comment and Broun's annotation of his personal copy of his *Manual* suggest Mt Arthur, NN as type locality.

Oopterus parvulus Broun, 1903

Oöpterus parvulus Broun, 1903: 610. Type locality: Westport, NN.
Pseudoopterus parvulus: Csiki, 1928: 225.
Oopterus parvulus: Hudson, 1934: 177.

Geographic distribution (Map p. 261). South Island: NC, NN.

Ecology. Stenotopic, epigean, silvicolous. Lowland, montane. Forest (podocarp) and scrublands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Johns, 1980: 60, 65 (distribution, ecology).

Oopterus patulus (Broun, 1881)

Tropopterus patulus Broun, 1881: 655. Type locality: Otago, South Island.
Oöpterus patulus: Broun, 1886: 755.
Tarastethus patulus: Sharp, 1886: 373.
Pseudoopterus patulus: Csiki, 1933a: 1651.
Oopterus patulus: Johns, 1974: 301.

Geographic distribution (Map p. 262). South Island: DN.

Ecology. Lowland. Habitat unknown; probably silvicolous. Nocturnal; hides during the day in decayed wood or in cavity in trunks and branches of live or dead trees; patrols woody surfaces at night (J. Nunn, personal communication).

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Johns, 1974: 301 (distribution).

Oopterus plicaticollis Blanchard, 1843

Oopterus plicaticollis Blanchard, 1843: Plate 2, Figure 15 (redescribed in 1853: 44). Type locality: Auckland Islands.
Oopterus laticollis Kirsch, in Kiesenwetter & Kirsch, 1877: 159. Type locality: Auckland Islands. Synonymised by Gourlay, 1950: 181.
Pseudoopterus plicaticollis: Csiki, 1928: 225.
Pseudoopterus laticollis: Csiki, 1928: 225.
Oopterus plicaticollis: Hudson, 1934: 177.
Oopterus aucklandicus Brookes, 1951: 23. Type locality: Mt Raynald (Flat Topped Mountain), Auckland Islands. Synonymised by Johns, 1974: 298.

Geographic distribution (Map p. 262). Subantarctic Islands: AU.

Ecology. Eurytopic, epigean, very hygrophilous. Lowland, montane, subalpine, alpine. Supralittoral zone, peaty wet forests (*Olearia*, *Metrosideros*), tussock swards, fellfields. Nocturnal; hides during the day under leaf litter, under logs and stones, and in peat. Gregarious.

Biology. Seasonality: November, January–February, April, June, August. Tenerals: February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Gourlay, 1950: 181–182 (taxonomy, ecology); Brookes, 1951: 22–24 (distribution); Johns, 1974: 298 (distribution, ecology); Palma *et al*., 1989: 20 (taxonomy); Emberson, 1993b: 20 (taxonomy).

Oopterus probus Broun, 1903

Oöpterus probus Broun, 1903: 610. Type locality: Westport, NN.
Pseudoopterus probus: Csiki, 1928: 225.
Oopterus probus: Hudson, 1934: 177.

Geographic distribution (Map p. 262). South Island: NN.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Oopterus latipennis*.

Oopterus puncticeps Broun, 1893

Oöpterus puncticeps Broun, 1893a: 1398. Type locality: Port Hills, MC.
Pseudoopterus puncticeps: Csiki, 1928: 225.
Oopterus puncticeps: Hudson, 1934: 177.

Geographic distribution (Map p. 262). South Island: MC.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Oopterus laevicollis*.

Oopterus pygmeatus Broun, 1907

Oöpterus pygmeatus Broun, 1907: 56. Type locality: Near Obelisk Peak, Carrick Range [= Old Man Range], CO.
Pseudoopterus pygmeatus: Csiki, 1928: 225.
Oopterus pygmeatus: Hudson, 1934: 38, 177.

Geographic distribution (Map p. 262). South Island: CO, FD, OL, SL.

Ecology. Eurytopic, epigean. Montane, subalpine, alpine. Herbfields, tussock grasslands, fellfields, forests (beech). Nocturnal; hides during the day in leaf litter, moss, mat plants, and under stones. Gregarious.

Biology. Seasonality: October–February, April. Tenerals: November. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales) and mites.

Dispersal power. Subapterous. Moderate runner.

References. Broun, 1907: 56–57 (distribution, ecology); Hudson, 1934: 38 (distribution, ecology); Patrick *et al*., 1992b: 18 (distribution).

Oopterus sculpturatus ovinotatus Broun, 1908

Oopterus ovinotatus Broun, 1908: 344 (as a variety of *O. sculpturatus*, also listed by May, 1967: 177). Type locality: New Zealand.

Geographic distribution. "New Zealand".

Ecology. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Oopterus sculpturatus sculpturatus Broun, 1908

Oopterus sculpturatus Broun, 1908: 343 (as containing two varieties, *O. sculpturatus* and *O. ovinotatus*). Type locality: New Zealand.
Oöpterus sculpturalis [*sic*]: Hudson, 1923: 358.
Pseudoopterus sculpturatus: Csiki, 1928: 226.
Oopterus sculpturatus sculpturatus: May, 1967: 177.

Geographic distribution. "New Zealand".

Ecology. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Oopterus sobrinus Broun, 1886

Oöpterus sobrinus Broun, 1886: 936. Type locality: Near Mt Egmont [=Taranaki], TK.
Pseudoopterus sobrinus: Csiki, 1928: 226.
Oopterus sobrinus: Hudson, 1934: 177.

Geographic distribution (Map p. 262). North Island: TK, WN.

Ecology. Lowland, montane. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Oopterus strenuus Johns, 1974

Oopterus strenuus Johns, 1974: 299. Type locality: Station Point, SN.

Geographic distribution (Map p. 262). Subantarctic Islands: SN.

Ecology. Eurytopic, epigean, nidicolous, very hygrophilous. Lowland. Wet peaty forests (*Olearia*); penguin colonies and their vicinity. Nocturnal; hides during the day in leaf litter and bird nests.

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

Dispersal power. Subapterous. Moderate runner.

References. Johns, 1974: 299, 301 (distribution, ecology); Nicholls *et al*., 1998: 3 (taxonomy).

Oopterus suavis Broun, 1917

Oöpterus suavis Broun, 1917: 365. Type locality: Routeburn and Hollyford, OL.
Pseudoopterus suavis: Csiki, 1928: 226.

Geographic distribution (Map p. 262). South Island: OL.

Ecology. Epigean, mostly silvicolous. Lowland, montane, subalpine. Forests (beech) and scrublands, tussock grasslands, fellfields. Nocturnal; hides during the day in leaf litter and moss. Gregarious.

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

Dispersal power. Subapterous. Moderate runner. Occasional climber (on trees).

Reference. Emden, 1936: 45 (morphology of male genitalia).

Genus *Synteratus* Broun, 1909

Synteratus Broun, 1909b: 84. Type species: *Synteratus ovalis* Broun, 1909b, by monotypy.

Geographic distribution. Subantarctic New Zealand (endemic).

Reference. Johns, 1974: 300 (taxonomy).

Synteratus ovalis Broun, 1909

Synteratus ovalis Broun, 1909b: 85. Type locality: The Snares.

Geographic distribution (Map p. 267). Subantarctic Islands: SN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet peaty forests (*Olearia*). Nocturnal; hides during the day in leaf litter, under fallen branches and logs, and in rotten pieces of wood. Gregarious.

Biology. Seasonality: September–October, December–March. Tenerals: December, March, July. Predacious (based on mouthpart morphology). Infested with mites (regularly) and fungi (Laboulbeniales) (occasionally).

Dispersal power. Subapterous. Moderate runner.

Reference. Johns, 1974: 300–301 (distribution, ecology).

Genus *Zolus* Sharp, 1886

Figure 14

Zolus Sharp, 1886: 371. Type species: *Zolus helmsi* Sharp, 1886, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Hudson, 1934: 37–38, 177 (list); Emden, 1936: 44–45 (classification); Jeannel, 1940b: 92–93 (classification).

Notes. The genus *Zolus* Sharp, 1886 was incorrectly synonymised with *Oopterus* Guérin-Méneville, 1841a by Jeannel (1940b: 92). This genus is in need of revision and a new species awaits description. At night, *Zolus* species climb regularly on trees. They hide in colonies during the day in fallen branches (e.g., beech, kamahi). Death feigning has been observed by Hudson (1934: 38).

Zolus atratus Broun, 1893

Zolus atratus Broun, 1893a: 1002. Type locality: Mt Egmont [=Taranaki], TK.
Oopterus atratus: Jeannel, 1940b: 92.
Zolus atratus: Townsend, 1997: 12.

Geographic distribution (Map p. 270). North Island: TK, TO. South Island: BR, NN, SD.

Ecology. Arboreal-epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (broadleaf, podocarp, beech), alpine meadows. Nocturnal; active at night on mossy trees and logs; hides during the day under logs (mostly), dead leaves, the loose bark of fallen trees and stones.

Biology. Seasonality: December, February, April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner. Regular climber.

Note. This taxon could be conspecific with *Zolus carinatus*.

Zolus carinatus (Broun, 1882)

Oöpterus carinatus Broun, 1882: 224 (redescribed in 1883: 224 and 1886: 754). Type locality: Near Wellington, WN.
Zolus carinatus: Hutton, 1904: 148.
Pseudoopterus carinatus: Csiki, 1928: 225.
Zolus carinatus: Moeed & Meads, 1983: 52.

Geographic distribution (Map p. 270). North Island: TO, WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech, broadleaf). Nocturnal; hides during the day in logs.

Biology. Seasonality: Throughout the year, except June. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Emden, 1936: 45 (morphology of male genitalia); Moeed & Meads, 1983: 52 and 1985: 22, 35–36 (distribution, ecology, biology).

Zolus femoralis Broun, 1894

Figure 14

Zolus femoralis Broun, 1894: 311. Type locality: Wellington, WN.
Oopterus femoralis: Jeannel, 1940b: 92.
Zolus femoralis: May, 1967: 177.

Geographic distribution (Map p. 270). North Island: TO, WN. South Island: BR, MK, NN, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Montane, subalpine. Wet forests (beech, broadleaf). Nocturnal; hides during the day under logs and loose bark. Gregarious.

Biology. Seasonality: September, November–May. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Walker, 1904: 72 (ecology); Watt, 1980b: 187 (distribution, ecology); Moeed & Meads, 1985: 22, 35–36 (distribution, ecology, biology).

Note. This taxon could be conspecific with *Zolus carinatus*.

Zolus helmsi Sharp, 1886

Zolus helmsi Sharp, 1886: 372. Type locality: Greymouth, BR.
Oopterus helmsi: Jeannel, 1940b: 92.
Zolus helmsi: Johns, 1977: 316.

Geographic distribution (Map p. 270). North Island: WN. South Island: BR, MC, NC, NN, SD, WD.

Ecology. Arboreal-epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp), alpine meadows. Nocturnal;

active at night on logs, trees, and the forest floor; hides during the day under logs, stones, and in moss. Gregarious.

Biology. Seasonality: October–April, August. Tenerals: January–February, March. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales) and mites.

Dispersal power. Subapterous. Moderate runner. Excellent climber (on trees).

References. Walker, 1904: 72 (ecology); Hudson 1934: 38 (distribution, ecology); Johns, 1977: 316–317 and 1980: 60, 65 (distribution, ecology); Townsend, 1997: 12 and 1998: 9, 21 (distribution).

Zolus labralis Broun, 1921

Zolus labralis Broun, 1921: 599. Type locality: Mt Robert, BR.
Oopterus labralis: Jeannel, 1940b: 92.
Zolus labralis: Townsend, 1997: 12.

Geographic distribution (Map p. 270). South Island: BR, NN.

Ecology. Lowland, subalpine. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

Reference. Townsend, 1997: 12 (distribution).

Zolus ocularius Broun, 1917

Zolus ocularius Broun, 1917**:** 365. Type locality: Routeburn, Hollyford and Mt Earnslaw, OL.
Oopterus ocularius: Jeannel, 1940b: 92.

Geographic distribution (Map p. 270). South Island: OL.

Ecology. Habitat unknown; probably silvicolous.

Biology. Seasonality: February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

Note. Original combination reinstated on the basis of morphology.

Zolus subopacus Broun, 1915

Zolus subopacus Broun, 1915: 277. Type locality: Ben Lomond, OL.
Oopterus subopacus: Jeannel, 1940b: 92.

Geographic distribution (Map p. 270). South Island: OL, SL.

Ecology. Lowland, montane. Habitat unknown; probably silvicolous.

Biology. Seasonality: December, March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. Original combination reinstated on the basis of morphology.

Tribe BEMBIDIINI

Figures 15–18

Geographic distribution. Worldwide.

References. Jeannel, 1962: 608 and 1963: 44 (keys to tribes).

Note. A new revision is needed for New Zealand.

Subtribe BEMBIDIINA

Figures 15–16

Geographic distribution. Worldwide.

References. Lindroth, 1980: 180 and Emberson, 1993a: 16 (key to genera).

Genus *Bembidion* Latreille, 1802

Figure 15

Bembidion Latreille, 1802: 82. Type species: *Carabus quadriguttatus* Fabricius, 1775 (=*Cicindela quadrimaculata* Linnaeus, 1761), designated by Andrewes, 1935: 17.
Bembecidium: Agassiz, 1847: 43 (unjustified emendation).
Bembicidium: Gemminger & Harold, 1868: 405 (unjustified emendation).
Bembidium: Gyllenhal, 1810: 12 (unjustified emendation).

Geographic distribution. Holarctic and Neotropical Regions, New Caledonia, Australia (including Tasmania), Lord Howe Island, New Zealand.

References. Lindroth, 1976: 161–198 (revision); Liebherr & Will, 1998: 131 (morphology of female reproductive system).

Note. A new revision is needed; several species await description.

Subgenus *Ananotaphus* Netolitzky, 1931

Ananotaphus Netolitzky, 1931: 181. Type species: *Bembidium errans* Blackburn, 1888a, by monotypy.

Geographic distribution. Australia, New Zealand.

Bembidion (Ananotaphus) rotundicolle eustictum Bates, 1878

Bembidium eustictum Bates, 1878b: 195. Type locality: Tairua, near Auckland, CL.
Bembidium clevedonense Broun, 1893a: 1007. Type locality: Near Clevedon, Southern Wairoa, AK (Broun, 1893a: 1008); "Hunua", Clevedon, AK (Lindroth, 1976: 196, lectotype designated). Synonymised by Lindroth, 1976: 196.
Bembidium waikatoense Broun, 1910b: 9. Type locality: Mt Pirongia, WO. Synonymised by Lindroth, 1976: 196.
Bembidion (*Peryphus*) *eustictum*: Csiki, 1928: 95.
Bembidion (*Zeactedium*) *eustictum*: Netolitzky, 1931: 182.
Bembidion (*Ananotaphus*) *rotundicolle eustictum*: Lindroth, 1976: 196.
Bembidion (*Peryphus*) *clevedonense*: Csiki, 1928: 90.
Bembidion (*Zeactedium*) *clevedonense*: Netolitzky, 1931: 182.
Bembidion waikatoense: Csiki, 1928: 163.

Geographic distribution (Map p. 227). North Island: AK, BP, CL, GB, HB, ND, WA, WI, WN, WO. South Island: BR, SD.

Ecology. Epigean, mostly riparian, very hygrophilous, halotolerant. Lowland, montane, subalpine. Bare sandy river banks, lakeshores, sea beaches, and salt marshes. Nocturnal; hides during the day in burrows, soil crevices, at the base of plants, and under plant debris and logs. Gregarious.

Biology. Seasonality: November–February, April–May, August. Tenerals: February. Predacious (based on mouthpart morphology).

Dispersal power. Either macropterous, or brachypterous (incapable of flight). Moderate runner.

References. Lindroth, 1976: 197 (distribution, ecology); Townsend, 1994: 9–10 (distribution, ecology).

Bembidion (Ananotaphus) rotundicolle rotundicolle Bates, 1874

Bembidium rotundicolle Bates, 1874: 275 (redescribed in 1875: 312). Type locality: Lake Coleridge, MC (Bates, 1874: 275); Canterbury (Lindroth, 1976: 195, lectotype designated).
Bembidion (*Peryphus*) *rotundicolle*: Csiki, 1928: 110.
Bemdidion (*Zeactedium*) *rotundicolle*: Netolitzky, 1931: 182.
Bembidion (*Ananotaphus*) *rotundicolle rotundicolle*: Lindroth, 1976: 195.

Geographic distribution (Map p. 228). North Island: WN. South Island: CO, DN, KA, MC, MK, NC, OL, SC, SL. Offshore Islands: CH.

Ecology. Epigean, mostly riparian, hygrophilous, halotolerant. Lowland, montane, subalpine. Moist or wet, bare banks of streams, lakes, ponds, sea beaches, and lagoons; cultivated fields (lucerne), pastures. Nocturnal; hides during the day under moss and algal mats. Gregarious.

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

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 196–197 (distribution, ecology); Johns, 1986: 29 (distribution, ecology); Emberson, 1998: 29 (distribution, ecology, biology).

Subgenus *Notaphus* Stephens, 1827

Notaphus Stephens, 1827: 51. Type species: *Carabus varius* Olivier, 1795, designated by Westwood, 1838: 7.

Geographic distribution. Holarctic and Neotropical Regions; Australia and New Zealand (adventive).

Bembidion (Notaphus) brullei Gemminger & Harold, 1868

Bembidion variegatum Brullé, 1838: 44. Type locality: Montevideo, Uruguay. Primary homonym of *Bembidium variegatum* Say, 1823.
Bembicidium brullei Gemminger & Harold, 1868: 409. Replacement name for *Bembidion variegatum* Brullé, 1838.
Bembidion brullei: Csiki, 1928: 159.
Notaphus (*Austronotaphus*) *gameani* Jeannel, 1962: 621. Type locality: Auckland Island. Synonymised by Lindroth, 1976: 197.
Bembidion (*Notaphus*) *brullei*: Darlington, 1962a: 3.

Geographic distribution (Map p. 226). North Island: AK, BP, GB, HB, ND. South Island: KA, MC, NN. Subantarctic Islands: AU. Extralimital range: Uruguay, Argentina, Falkland Islands, Australia (mainland), Lord Howe Island. Adventive. First New Zealand records: Auckland, AK, 1959 (NZAC); Auckland Islands, AU (Jeannel, 1962: 621). Well established.

Ecology. Epigean, very hygrophilous, mostly halophilous. Coastal lowland. Bare muddy areas along salt flats, lagoons, and estuary streams (mostly); edges of freshwater pools and streams; pastures, cultivated fields (carrot). Nocturnal; hides during the day at the base of plants and in soil crevices. Gregarious.

Biology. Seasonality: December–May. Tenerals: September–October. Predacious (Moore *et al*., 1987: 136)

Dispersal power. Macropterous. Occasional flier to artificial lights at night. Moderate runner.

References. Darlington, 1953: 12–16 (distribution); Jeannel, 1962: 620 (distribution); Moore, 1976: 127–128 (distribution, ecology, biology, dispersal power); Lindroth, 1976: 198 (distribution, ecology); Darlington, 1979: 347 (ecology, distribution); Roux & Voisin, 1982: 203 (distribution); Moore *et al*., 1987: 135–136 (distribution, ecology, biology, dispersal power); Moore, 1992: 164 (distribution); Townsend, 1997: 10 (distribution).

Subgenus *Zeactedium* Netolitzky, 1931

Zeactedium Netolitzky, 1931: 182. Type species: *Bembidium orbiferum* Bates, 1878c, by original designation.

Geographic distribution. New Zealand (endemic).

Bembidion (Zeactedium) musae Broun, 1882

Bembidium musae Broun, 1882: 225 (redescribed in 1883: 225 and 1886: 755). Type locality: Mt Arthur, NN.

Bembidium diaphanum Broun, 1893a: 1008. Type locality: Manawatu River, Palmerston North, WI (Broun, 1893a: 1009); Manawatu, Palmerston, WI (Lindroth, 1976: 180, "holotype" designated). Synonymised by Lindroth, 1976: 180.

Bembidion (*Peryphus*) *musae*: Csiki, 1928: 104.

Bembidion (*Peryphus*) *diaphanum*: Csiki, 1928: 93.

Bembidion (*Zeactedium*) *musae*: Netolitzky, 1931: 182.

Bembidion (*Zeactedium*) *diaphanum*: Netolitzky, 1931: 182.

Geographic distribution (Map p. 227). North Island: HB, RI, WI, WN, WO. South Island: CO, DN, KA, MB, MC, NC, NN, SC. Stewart Island.

Ecology. Stenotopic, epigean, riparian, halophilous, heliophilous. Lowland, montane. Bare banks of rivers and big brooks, with fine sand. At a good distance from water (up to 10 m). Both diurnal and nocturnal; active in the sunshine; shelters in cloudy weather.

Biology. Seasonality: September–February, April. Tenerals: January. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous, capable of flight. Moderate runner.

References. Pilgrim, 1969: 364 (distribution); Lindroth, 1976: 180 (distribution, ecology); Emberson, 1993a: 15–16 (distribution, ecology); Townsend, 1997: 10 (distribution, ecology).

Bembidion (Zeactedium) orbiferum Bates, 1878

Bembidium orbiferum Bates, 1878c: 24. Type locality: West Coast, South Island.

Bembidion (*Peryphus*) *orbiferum*: Csiki, 1928: 107.

Bembidion (*Zeactedium*) *orbiferum*: Netolitzky, 1931: 182.

Geographic distribution (Map p. 227). South Island: BR, FD, MK, NN, OL, WD.

Ecology. Stenotopic, epigean, riparian. Lowland, montane. River banks with bare fine sand. At a good distance from water. Nocturnal; hides during the day under stones, logs, and fallen loose bark. Gregarious.

Biology. Seasonality: September, December–February. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 179 (distribution, ecology); Townsend, 1997: 10 (distribution).

Subgenus *Zemetallina* Lindroth, 1976

Zemetallina Lindroth, 1976: 184. Type species: *Bembidium anchonoderum* Bates, 1878b, by original designation.

Geographic distribution. New Zealand (endemic).

Bembidion (Zemetallina) anchonoderus Bates, 1878

Figure 15

Bembidium anchonoderum [*sic*] Bates, 1878b: 195. Type locality: Tairua, near Auckland, CL (Bates, 1878b: 195); Auckland, AK (Lindroth, 1976: 187, lectotype designated).

Bembidium antipodum Broun, 1893a: 1009. Type locality: Manawatu River, near Palmerston, WI (Broun, 1893a: 1010); Manawatu, Palmerston, WI (Lindroth, 1976: 187, holotype examined). Synonymised by Lindroth, 1976: 185.

Bembidion (*Peryphus*) *anchonoderum* [*sic*]: Csiki, 1928: 86.

Bembidion (*Peryphus*) *antipodum*: Csiki, 1928: 87.

Bembidion (*Zeactedium*) *anchonoderum* [*sic*]: Netolitzky, 1931: 182.

Bembidion (*Zeactedium*) *antipodum*: Netolitzky, 1931: 182.

Bembidion (*Zemetallina*) *anchonoderum* [*sic*] Lindroth, 1976: 185.

Geographic distribution (Map p. 226). North Island: AK, BP, CL, GB, HB, ND, RI, TO, WA, WI, WN, WO. South Island: BR, CO, DN, FD, KA, MB, MK, NC, NN, OL, SC, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane. Wet, bare banks of rivers and brooks, with gravel and pebbles lying on fine sand. Nocturnal; hides during the day among gravel and under pebbles. Gregarious.

Biology. Seasonality: September–April, July. Tenerals: January. Predacious (based on mouthpart morphology). Body occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Macropterous. Moderate runner.

References. Hudson, 1934: 39 (distribution, ecology); Lindroth, 1976: 187–189 (distribution, ecology); Townsend, 1994: 9–10 (distribution, ecology).

Note. The suffix *-derus* (meaning neck) is a masculine noun (Brown, 1985: 552), not an adjective, hence invariable.

Bembidion (Zemetallina) chalceipes Bates, 1878

Bembidium chalceipes Bates, 1878c: 24. Type locality: West Coast, South Island.

Bembidium tinctellum Broun, 1910b: 9. Type locality: Lake Tekapo Region, MK (Broun, 1910b: 10); Te Kapo, MK (Lindroth, 1976: 184, lectotype designated). Synonymised by Lindroth, 1976: 184.

Bembidion (*Peryphus*) *chalceipes*: Csiki, 1928: 89.
Bembidion (*Zeactedium*) *tinctellum*: Csiki, 1928: 163.
Bembidion (*Zeactedium*) *chalceipes*: Netolitzky, 1931: 182.
Bembidion (*Zemetallina*) *chalceipes*: Lindroth, 1976: 184.

Geographic distribution (Map p. 226). South Island: BR, CO, FD, KA, MB, MC, MK, NC, OL, SC, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane, subalpine. Wet, bare banks of rivers and brooks. Nocturnal; hides during the day among gravel and under pebbles. Gregarious.

Biology. Seasonality: September, November–February. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 184–185 (distribution, ecology); Johns *et al.,* 1980: 28 (distribution, ecology).

Bembidion (Zemetallina) hokitikense Bates, 1878

Bembidium hokitikense Bates, 1878c: 25. Type locality: West Coast, South Island.
Bembidium tantillum Broun, 1886: 828. Type locality: Wangapeka [Valley], NN (Broun, 1886: 829); Pokororo, NN (Lindroth, 1976: 191, neotype designated). Synonymised by Lindroth, 1976: 191.
?*Bembidium attenuatum* Broun, 1886: 881. Type locality: Near Lake Tekapo, MK (Broun, 1886: 881); Tekapo, MK (Lindroth, 1976: 191, holotype examined). Thought to be perhaps a synonym (Lindroth, 1976: 191)
Bembidion (*Peryphus*) *hokitikense*: Csiki, 1928: 99.
Bembidion (*Peryphus*) *tantillum*: Csiki, 1928: 114.
Bembidion (*Peryphus*) *attenuatum*: Csiki, 1928: 88.
Bembidion (*Zeactedium*) *hokitikense*: Netolitzky, 1931: 182.
Bembidion (*Zeactedium*) *tantillum*: Netolitzky, 1931: 182.
Bembidion (*Zeactedium*) *attenuatum*: Netolitzky, 1931: 182.
Bembidion (Zemetallina) *hokitikense*: Lindroth, 1976: 191.

Geographic distribution (Map p. 227). South Island: BR, CO, DN, FD, KA, MB, MC, MK, NN, SC, WD.

Ecology. Epigean, riparian, very hygrophilous. Lowland, montane, subalpine, alpine. Banks of small brooks (mostly); moraines situated near glaciers. Nocturnal; hides during the day among gravel, under stones, in moss, and under dead leaves.

Biology. Seasonality: September–March. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 191, 193 (distribution, ecology); Johns, 1977: 320 (distribution, ecology); Johns *et al.,* 1980: 28 (distribution, ecology).

Note. The species name implies Hokitika, WD as type locality.

Bembidion (Zemetallina) parviceps Bates, 1878

Bembidium parviceps Bates, 1878b: 194. Type locality: Tairua, near Auckland, CL (Bates, 1878b: 194); Auckland, AK (Lindroth, 1976: 193, lectotype designated).
Bembidion (*Peryphus*) *parviceps*: Csiki, 1928: 107.
Bembidion (*Zeactedium*) *parviceps*: Netolitzky, 1931: 182.
Bembidion (*Zemetallina*) *parviceps*: Lindroth, 1976: 193.

Geographic distribution (Map p. 227). North Island: AK, BP, CL, GB, HB, ND, TO, WA, WN, WO. South Island: BR, CO, DN, FD, MB, MC, NC, NN, SD, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane, subalpine. Wet, bare banks of rivers and brooks. Nocturnal; hides during the day mostly among gravel and under pebbles, occasionally in the soil at the base of plants. Gregarious.

Biology. Seasonality: September–April, August. Tenerals: January–February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Macropterous. Moderate runner.

References. Hudson, 1934: 39 (distribution, ecology); Lindroth, 1976: 193, 195 (distribution, ecology); Johns *et al*., 1980: 28 (distribution, ecology).

Bembidion (Zemetallina) solitarium Lindroth, 1976

Bembidion (*Zemetallina*) *solitarium* Lindroth, 1976: 185. Type locality: Rangitikei River Flats, RI.

Geographic distribution (Map p. 228). North Island: RI, WA, WI, WN. South Island: BR.

Ecology. Epigean, mostly riparian, very hygrophilous. Lowland. Wet, bare river banks and sea beaches. Nocturnal; hides during the day under stones and plant debris.

Biology. Seasonality: September–October, January, April, July. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner. Occasional flier.

References. Lindroth, 1976: 185 (distribution); Townsend, 1994: 9–10 and 1997: 10 (distribution, ecology).

Bembidion (Zemetallina) stewartense Lindroth, 1976

Bembidion (*Zemetallina*) *anchonoderum* [*sic*] *stewartense* Lindroth, 1976: 187. Type locality: Stewart Island.
Bembidion stewartense: Emberson, 1993a: 13.

Geographic distribution (Map p. 228). Stewart Island.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland. Bare stream banks. Gregarious. Diurnal; active on mat plants.

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

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 187 (distribution); Emberson, 1993a: 13–15 (taxonomy, distribution, ecology).

Bembidion (Zemetallina) tekapoense Broun, 1886

Bembidium tekapoense Broun, 1886: 880. Type locality: Near Lake Tekapo, MK (Broun, 1886: 881); Tekapo, MK (Lindroth, 1976: 189, "holotype").
Bembidion (*Peryphus*) *tekapoense*: Csiki, 1928: 114.
Bembidion (*Zeactedium*) *tekapoense*: Netolitzky, 1931: 182.
Bembidion (*Zemetallina*) *tekapoense*: Lindroth, 1976: 189.

Geographic distribution (Map p. 228). North Island: BP, HB, WA, WN, WO. South Island: BR, CO, MB, MC, MK, NC, NN, OL, WD. Stewart Island.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane. Wet, bare river banks with gravel and pebbles lying on fine sand. Nocturnal; shelters during the day. Gregarious.

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

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 189 (distribution, ecology); Emberson, 1993a: 16 (distribution, ecology).

Bembidion (Zemetallina) urewerense Lindroth, 1976

Bembidion (*Zemetallina*) *urewerense* Lindroth, 1976: 191. Type locality: Lake Waikaremoana, Urewera National Park, GB.

Geographic distribution (Map p. 228). North Island: BP, GB, TK, WA, WI.

Ecology. Epigean, very hygrophilous. Lowland, montane. Sparsely vegetated wet muddy edges of trickles, seepages, puddles, and flats along roadsides. Nocturnal; hides during the day under soil clods, in moss, under spurrey (*Spergula*), and plant debris.

Biology. Seasonality: September, December, March, May–June. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

Reference. Lindroth, 1976: 191 (distribution, ecology).

Bembidion (Zemetallina) wanakense Lindroth, 1976

Bembidion (*Zemetallina*) *wanakense* Lindroth, 1976: 189. Type locality: Matukituki River, West Branch, Northwest of Wanaka, OL.

Geographic distribution (Map p. 228). South Island: BR, FD, MC, MK, NC, NN, OL, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane. Wet, bare or sparsely vegetated sandy river banks. Nocturnal; hides during the day under stones.

Biology. Seasonality: September–May. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Macropterous. Moderate runner.

Reference. Lindroth, 1976: 191 (distribution, ecology).

Subgenus *Zeperyphodes* Lindroth, 1976

Zeperyphodes Lindroth, 1976: 180. Type species: *Bembidium callipeplum* Bates, 1878b, by monotypy.

Geographic distribution. New Zealand (endemic).

Bembidion (Zeperyphodes) callipeplum Bates, 1878

Bembidium callipeplum Bates, 1878b: 195. Type locality: Wellington, WN.
Bembidium nesophilum Broun, 1886: 828. Type locality: "One of the small islands of the Lower Waikato", AK/WO (Broun, 1886: 828); Waikato, WO (Lindroth, 1976: 182, lectotype designated). Synonymised by Lindroth, 1976: 182.
Bembidion (*Peryphus*) *callipeplum*: Csiki, 1928: 89.
Bembidion (*Peryphus*) *nesophilum*: Csiki, 1928: 104.
Bembidion (*Zeactidium*) *callipeplum*: Netolitzky, 1931: 182.
Bembidion (*Zeactidium*) *nesophilum*: Netolitzky, 1931: 182.
Bembidion (Zeperyphodes) *callipeplum*: Lindroth, 1976: 182.

Geographic distribution (Map p. 226). North Island: AK, BP, CL, GB, HB, ND, WA, WI, WN, WO.

Ecology. Epigean-fossorial, riparian, arenicolous, very hygrophilous, halophilous. Coastal lowland. Wet, bare sandy edges of estuaries, lagoons, and neighboring streams. Nocturnal; hides during the day in burrows (mostly), under plant debris and stones. Gregarious.

Biology. Seasonality: September–April. Tenerals: December, March. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales) and mites.

Dispersal power. Macropterous. Moderate runner.

Reference. Lindroth, 1976: 182 (distribution, ecology).

Subgenus *Zeperyphus* Lindroth, 1976

Zeperyphus Lindroth, 1976: 182. Type species: *Bembidium actuarium* Broun, 1903, by monotypy.

Geographic distribution. New Zealand (endemic).

Bembidion (Zeperyphus) actuarium Broun, 1903

Bembidium actuarium Broun, 1903: 611. Type locality: Pipiriki, Wanganui River, WI (Broun, 1903: 611); Pipiriki, Wanganui, WI (Lindroth, 1976: 183, lectotype designated).
Bembidion (*Peryphus*) *actuarium*: Csiki, 1928: 85.
Bembidion (*Zeactedium*) *actuarium*: Netolitzky, 1931: 182.
Bembidion (*Zeperyphus*) *actuarium*: Lindroth, 1976: 182.

Geographic distribution (Map p. 226). North Island: AK, BP, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland. Wet, bare banks of streams. Nocturnal; hides during the day under stones and among gravel. Gregarious.

Biology. Seasonality: October–February. Tenerals: January–February. Predacious (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Reference. Lindroth, 1976: 183 (distribution, ecology).

Subgenus *Zeplataphus* Lindroth, 1976

Zeplataphus Lindroth, 1976: 169. Type species: *Bembidium maorinum* Bates, 1867, by original designation.

Geographic distribution. New Zealand (endemic).

Bembidion (Zeplataphus) charile Bates, 1867

Bembidium (Peryphus) charile Bates, 1867: 79. Type locality: Province of Canterbury, South Island (Bates, 1867: 79); Christchurch, MC (Bates, 1874: 274); Canterbury (Lindroth, 1976: 175, lectotype designated).
Bembicidium charile: Gemminger & Harold, 1868: 409.
Bembidium charile: Hutton, 1874: 158.
Bembidion (*Peryphus*) *charile*: Csiki, 1928: 89.
Bembidion (*Zeactedium*) *charile*: Netolitzky, 1931: 182.
Bembidion (*Zeplataphus*) *charile*: Lindroth, 1976: 175.

Geographic distribution (Map p. 226). North Island: BP, GB, HB, RI, TK, TO, WA, WI, WN. South Island: BR, CO, DN, FD, MC, MK, NC, SC, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane. Wet, bare banks of big rivers, with pebbles lying on sand. Nocturnal; hides during the day under pebbles and among gravel. Gregarious.

Biology. Seasonality: September–May. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

Reference. Lindroth, 1976: 175 (distribution, ecology).

Bembidion (Zeplataphus) dehiscens Broun, 1893

Bembidium dehiscens Broun, 1893a: 1009. Type locality: Pakuratahi Stream, Rimutaka Range, WN (Broun, 1893a: 1009); Rimutaka Range, WN (Lindroth, 1976: 173, lectotype designated).
Bembidion (*Peryphus*) *dehiscens*: Csiki, 1928: 93.
Bembidion (*Zeactedium*) *dehiscens*: Netolitzky, 1931: 182.
Bembidion (*Zeplataphus*) *dehiscens*: Lindroth, 1976: 173.

Geographic distribution (Map p. 227). North Island: BP, GB, HB, RI, TO, WA, WN. South Island: BR, MB, MC, NC, NN, WD.

Ecology. Stenotopic, epigean, riparian, arenicolous, very hygrophilous. Lowland, montane, subalpine. Wet, bare sandy banks of big rivers. Close to water. Nocturnal; hides during the day under stones and among gravel. Gregarious.

Biology. Seasonality: September–April, June. Tenerals: November. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

Reference. Lindroth, 1976: 173–175 (distribution, ecology).

Bembidion (Zeplataphus) granuliferum Lindroth, 1976

Bembidion (*Zeplataphus*) *granuliferum* Lindroth, 1976: 175. Type locality: Motueka River, NN.

Geographic distribution (Map p. 227). North Island: BP, GB, HB, WA, WI, WN. South Island: BR, KA, MK, NC, NN, SC, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous, halophilous. Lowland. Wet, bare gravelly banks of big rivers (often near their mouths) with brackish or saline water. Nocturnal; hides during the day under stones and among gravel.

Biology. Seasonality: September–February, April, July. Tenerals: January. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 175–176 (distribution, ecology); Townsend, 1994: 9–10 (distribution, ecology).

Bembidion (Zeplataphus) maorinum levatum Lindroth, 1976

Bembidion (*Zeplataphus*) *maorinum levatum* Lindroth, 1976: 171. Type locality: Mangakirikiri Stream, Urewera National Park, GB.

Geographic distribution (Map p. 227). North Island: AK, BP, GB, HB, RI, TO, WA, WN, WO.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland. Wet, bare banks of rivers and brooks. Close to the water. Nocturnal; hides during the day among gravel and under stones. Gregarious.

Biology. Seasonality: September, November–April. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

Reference. Lindroth, 1976: 171–173 (distribution, ecology).

Bembidion (Zeplataphus) maorinum maorinum Bates, 1867

Bembidium (Peryphus) maorinum Bates, 1867: 56. Type locality: Province of Canterbury, South Island (Bates, 1867: 56); New Zealand (Lindroth, 1976: 171, lectotype designated).
Bembidium latiusculum Broun, 1882: 225 (redescribed in 1883: 225 and 1886: 755). Type locality: Mt Arthur, NN. Primary homonym of *Bembidium latiusculum* Motschulsky, 1844. Synonymised by Lindroth, 1976: 171.
Bembicidium maorinum: Gemminger & Harold, 1868: 415.
Bembidium maorinum: Hutton, 1874: 158.
Bembidion (*Peryphus*) *latiusculum*: Csiki, 1928: 101.
Bembidion (*Peryphus*) *maorinum*: Csiki, 1928: 102.
Bembidion (*Zeactedium*) *maorinum*: Netolitzky, 1931: 182.
Bembidion (*Zeactedium*) *latiusculum*: Netolitzky, 1931: 182.
Bembidion (*Zeplataphus*) *maorinum maorinum*: Lindroth, 1976: 171.

Geographic distribution (Map p. 227). North Island: WA, WN. South Island: CO, FD, KA, MB, MC, MK, NC, NN, OL, SC, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane. Wet, bare banks of rivers and brooks. Close to the water. Nocturnal; hides during the day among gravel and under stones. Gregarious.

Biology. Seasonality: September, November–January, March, June. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

Reference. Lindroth, 1976: 171–173 (distribution, ecology).

Bembidion (Zeplataphus) tairuense Bates, 1878

Bembidium tairuense Bates, 1878b: 193. Type locality: Tairua, near Auckland, CL (Bates, 1878b: 193); Auckland, AK (Lindroth, 1976: 176, lectotype designated).
Bembidion (*Peryphus*) *tairuense*: Csiki, 1928: 114.
Bembidion (*Zeactedium*) *tairuense*: Netolitzky, 1931: 182.
Bembidion (*Zeplataphus*) *tairuense*: Lindroth, 1976: 176.

Geographic distribution (Map p. 228). North Island: AK, BP, CL, GB, HB, ND, TO, WA, WI, WN, WO. South Island: BR, CO, DN, FD, MC, MK, NC, NN, OL, SC, SD, WD.

Ecology. Stenotopic, epigean, riparian, very hygrophilous. Lowland, montane, subalpine. Wet, bare river banks. Close to the water. Nocturnal; hides during the day among gravel and under stones. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: November–February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales) and mites.

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 176, 178 (distribution, ecology); Townsend, 1994: 12 and 1998: 9 (distribution, ecology).

Note. The type locality was not given by Bates but the name of this species implies it is probably Tairua, the type locality of previous and following species in his text (*Cillenum albescens*, p. 193, *Bembidium parviceps*, p. 194) and the collection locality of the majority of specimens sent to him by Broun.

Bembidion (Zeplataphus) townsendi Lindroth, 1976

Bembidion (*Zeplataphus*) *townsendi* Lindroth, 1976: 176. Type locality: Limestone Creek, Teal Valley, near Nelson, NN.

Geographic distribution (Map p. 228). South Island: NN.

Ecology. Lowland. Habitat unknown; probably riparian.

Biology. Seasonality: January. Predacious (based on mouthpart morphology).

Dispersal power. Macropterous. Moderate runner.

References. Lindroth, 1976: 176 (distribution); Townsend, 1997: 10 (distribution).

Genus *Zecillenus* Lindroth, 1980

Figure 16

Zecillenus Lindroth, 1980: 182. Type species: *Cillenum albescens* Bates, 1878b, by original designation.

Geographic distribution. New Zealand (endemic).

References. Andrewes, 1938: 190–195 (key to species); Lindroth, 1980: 179–186 (revision).

Notes. *Zecillenus* might be congeneric with *Bembidion,* or perhaps treated as a subgenus of it. In addition, *Zecillenus* itself is in need of a new revision. Several species await description. These coastal beetles have been considered very rare until the authors discovered their ecological requirements. The majority of species live in colonies on wet, bare sandy banks of estuary streams, well above the highest tidal line; one must flood their habitat

for a period to flush adults and larvae out of their burrows. They are found in association with staphylinids (Coleoptera). *Zecillenus* species could be excellent bioindicators of the water quality of estuary streams.

Zecillenus alacris (Broun, 1921)

Figure 16

Cillenum [*sic*] *alacris* Broun, 1921: 601. Type locality: Karekare, West of Auckland, AK.
Bembidion (*Cillenus*) *alacre*: Andrewes, 1938: 195.
Zecillenus alacris: Lindroth, 1980: 184.

Geographic distribution (Map p. 269). North Island: AK.

Ecology. Stenotopic, fossorial, riparian, arenicolous, very hygrophilous, halophilous. Coastal lowland. Wet banks of estuary streams with bare or sparsely vegetated black ironsand. Just above the highest tidal line. Nocturnal; hides during the day in burrows. Gregarious. Associated with staphylinids (Coleoptera).

Biology. Seasonality: November, January–February, April. Tenerals: February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Lindroth, 1980: 184 (distribution, ecology); Klimaszewski & Watt, 1997: 168 (distribution, ecology).

Zecillenus albescens (Bates, 1878)

Cillenum [*sic*] *albescens* Bates, 1878b: 193. Type locality: Tairua, near Auckland, CL.
Bembidion (*Cillenus*) *albescens*: Csiki, 1928: 130.
Zecillenus albescens: Lindroth, 1980: 183.

Geographic distribution (Map p. 269). North Island: AK, CL, ND. Offshore Islands: CH.

Ecology. Stenotopic, fossorial, riparian, arenicolous, very hygrophilous, halophilous. Coastal lowland. Wet banks of estuary streams with bare yellow sand. Just above the highest tidal line. Nocturnal; hides during the day in burrows. Gregarious. Associated with staphylinids (Coleoptera).

Biology. Seasonality: October–December. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Broun, 1880: 59–60 (as *Cillenum*, distribution, ecology); Alfken, 1903: 603 (as *Cillenus*, distribution); Lindroth, 1980: 183 (distribution, ecology); Emberson, 1998: 29 (distribution).

Zecillenus chalmeri (Broun, 1886)

Cillenum [*sic*] *chalmeri* Broun, 1886: 881. Type locality: Port Chalmers, DN.
Cillenum [*sic*] *batesi* Sharp, 1886: 374. Type locality: Otago, South Island. Secondary homonym of *Notaphus batesi* Putzeys, 1875 (=*Bembidion niloticum* Dejean, 1831).
Bembidion (*Cillenus*) *batesianum* Csiki, 1928: 130 (replacement name for *Bembidion batesi* Sharp, 1886). Synonymised by Lindroth, 1980: 185.
Bembidion (*Cillenus*) *chalmeri*: Csiki, 1928: 130.
Zecillenus chalmeri: Lindroth, 1980: 185.

Geographic distribution (Map p. 269). South Island: DN.

Ecology. Arenicolous. Coastal lowland. A sand spit. The true habitat is probably estuary streams.

Biology. Seasonality: November. Predacious. Food: Staphylinids (Coleoptera).

Dispersal power. Subapterous. Moderate runnner.

Reference. Lindroth, 1980: 185–186 (distribution, ecology).

Zecillenus embersoni Lindroth, 1980

Zecillenus embersoni Lindroth, 1980: 185. Type locality: Mason Bay, Stewart Island.

Geographic distribution (Map p. 269). Stewart Island.

Ecology. Arenicolous. Coastal lowland. An area of extensive sand dunes. The true habitat is probably estuary streams.

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

Dispersal power. Subapterous. Moderate runner.

References. Lindroth, 1980: 185 (distribution, ecology); Emberson, 1993a: 16 (distribution, ecology).

Zecillenus tillyardi (Brookes, 1927)

Cillenum [*sic*] *tillyardi* Brookes, 1927: 563. Type locality: Tahuna (=Tahunanui), NN (Brookes, 1927: 564); Tahunanui, NN (Lindroth, 1976: 184).
Bembidion (*Cillenus*) *tillyardi*: Andrewes, 1938: 195.
Zecillenus tillyardi: Lindroth, 1980: 184.

Geographic distribution (Map p. 269). South Island: NN.

Ecology. Arenicolous, halophilous. Coastal lowland. Sea beach with yellow sand; near the highest tidal line; sand hills. The true habitat is probably estuary streams. Nocturnal; hides during the day in burrows. Gregarious. Associated with amphibious amphipods.

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

Dispersal power. Subapterous. Moderate runner.

References. Brookes, 1927: 564 (as *Cillenum*, distribution, ecology); Lindroth, 1980: 185 (distribution, ecology); Molloy *et al*., 1994: 32 (distribution, conservation); Townsend, 1997: 10 (distribution, conservation).

Note. Common name: Back beach beetle.

Subtribe TACHYINA

Figure 17

Geographic distribution. Worldwide.

References. Hudson, 1934: 178 (list); Erwin, 1974a: 123–155 (world revision of supraspecific taxa; key to New World genera); Baehr, 1987: 225–269 and 1995: 315–381 (revision of Australian taxa).

Note. A revision is needed.

Genus *Paratachys* Casey, 1918

Paratachys Casey, 1918: 174. Type species: *Paratachys austinicus* Casey, 1918, by original designation.

Eotachys Jeannel, 1941: 426. Type species: *Elaphrus bistriatus* Duftschmid, 1812, by original designation. Synonymised by Erwin, 1971: 236.

Geographic distribution. Worldwide.

References. Jeannel, 1941: 426–430 (revision of *Eotachys*); Erwin, 1974a: 127–128, 139 (taxonomy).

Paratachys crypticola (Britton, 1960)

Eotachys crypticolus [*sic*] Britton, 1960a: 125. Type locality: Puriri Cave, Port Waikato, WO.

Paratachys crypticola: Erwin, 1971: 236 and Kuschel, 1990: 24.

Geographic distribution (Map p. 263). North Island: AK, BP, CL, GB, ND, WI, WN, WO. First New Zealand records: Huia, AK, 1912 (NZAC); Okauia, BP/WO, 1924 (Kuschel, 1990: 39). Well established.

Ecology. Epigean, synanthropic. Lowland. Gardens; caves (occasionally). Nocturnal; hides during the day in leaf litter and compost.

Biology. Seasonality: November, January–August. Tenerals: October, December, May. Predacious. Food: Small insects.

Dispersal power. Macropterous. Frequent flier. Occasional in seashore drift material, which indicates previous flight. Moderate runner. Occasional climber (on shrubs).

References. Britton, 1960a: 126 (distribution, ecology); May, 1962 : 60 and 1963b: 192 (distribution, ecology); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9–10 (distribution, ecology).

Notes. The Latin suffix *-cola* (meaning dweller) is a masculine noun (Brown, 1985: 478), not an adjective, hence invariable. This species has probably been introduced into New Zealand: the hind-wings are full and functional; the beetle is synanthropic; the first record for New Zealand is relatively recent. The geographic origin is unknown.

Genus *Pericompsus* LeConte, 1852

Pericompsus LeConte, 1852: 191. Type species: *Bembidium ephippiatum* Say, 1830, designated by LeConte, 1859: 553.

Tachysops Casey, 1918: 171. Type species: *Bembidium ephippiatum* Say, 1830, designated by Jeannel, 1941: 423. Synonymised by Jeannel, 1941: 423.

Tachysalia Casey, 1918: 173. Type species: *Pericompsus laetulus* LeConte, 1852, by original designation. Synonymised by Jeannel, 1941: 423.

Leiotachys Jeannel, 1962: 614. Type species: *Bembidium circuliformus* Solier, 1849, by original designation. Synonymised by Erwin, 1974b: 5.

Geographic distribution. Western Hemisphere, Australia (including Tasmania); New Zealand (adventive).

References. Erwin, 1974b: 1–96 (revision); Moore, 1992: 165 (distribution).

Subgenus Upocompsus Erwin, 1974

Upocompsus Erwin, 1974b: 11 (originally proposed with subgeneric rank in *Pericompsus* LeConte, 1852). Type species: *Tachys australis* Schaum, 1863, by original designation.

Geographic distribution. Australia (including Tasmania); New Zealand (adventive).

Pericompsus (Upocompsus) australis (Schaum, 1863)

Tachys australis Schaum, 1863: 90. Type locality: Victoria, Australia.

Tachys monochrous Schaum, 1863: 90. *Nomen nudum* (Darlington, 1963a: 28).

Bembidium rubicundum Macleay, 1871: 118. Type locality: Gayndah, Queensland, Australia. Synonymised by Csiki, 1928: 179; subsequently confirmed by Darlington, 1963a: 28.

Tachys flindersi Blackburn, 1888a: 41. Type locality: Near Port Lincoln and Adelaide, South Australia. Synonymised by Darlington, 1963a: 28.

Bembidium tersatum Broun, 1893a: 1010. Type locality: Mokohinou [=Mokohinau] Islands, ND. Synonymised by Darlington, 1963a: 28.

Anillus tersatus: Broun, 1893a: 1400.

Pericompsus (*Upocompsus*) *australis*: Erwin, 1974b: 14.

Tachys (*Pericompsus*) *australis*: Moore, 1992: 165.

Geographic distribution (Map p. 263). North Island: AK, BP, GB, HB, ND, RI, TK, TO, WI, WN, WO. South Island: NN. Extralimital range: Australia (including Tasmania), Lord Howe Island. Adventive. First New Zea-

land record: Mokohinau Islands, ND (Broun, 1893a: 1010, as *Bembidium tersatum*). Well established.

Ecology. Eurytopic, fossorial, hygrophilous. Lowland. Wet or moist places: muddy edges of pools, lakes, eutrophic marshes, lagoons, streams, seepages, and roadside ditches; gardens, chicken yards, vacant lots, and parks. Nocturnal; hides during the day in soil fissures and under soil clods. Gregarious.

Biology. Seasonality: Throughout the year, except April. Predacious (Moore *et al*., 1987: 143).

Dispersal power. Macropterous. Frequent flier. Abundant in seashore drift material, which indicates previous flight. Moderate runner.

References. Darlington, 1963a: 28–29 (distribution, ecology); Erwin, 1974b: 14 (distribution); Moore *et al*., 1987: 143 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Moore, 1992: 165 (distribution, ecology); Townsend, 1994: 9–10, 12 (distribution, ecology).

Genus *Tachys* Dejean, 1821

Figure 17

Tachys Dejean, 1821: 16. Type species: *Tachys scutellaris* Stephens, 1828, designated by Hope, 1838: 61.

Isotachys Casey, 1918: 204. Type species: *Tachys vittiger* LeConte, 1852, designated by Lindroth, 1966: 427. Synonymised by Erwin, 1974a: 146.

Geographic distribution. Worldwide.

Reference. Hudson, 1934: 178 (list).

Note. Our taxa could comprise a few genera.

Tachys antarcticus Bates, 1874

Figure 17

Tachys antarcticus Bates, 1874: 274 (redescribed in 1875: 311). Type locality: "?Auckland", AK.

Geographic distribution (Map p. 268). North Island: AK, BP, CL, ND, TK, TO, WA, WN, WO. South Island: MB, NN, SD.

Ecology. Stenotopic, fossorial, silvicolous, xylophilous, very hygrophilous. Lowland, montane. Wet dark forests (broadleaf, podocarp, beech) and tree plantations (pine). Nocturnal; hides during the day in rotten wood on top of fallen trees (mostly), in leaf litter, branches and logs, under the loose bark of fallen logs and trees, and in moss growing on tree trunks. Gregarious.

Biology. Seasonality: September–April, July–August. Tenerals: March. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner. Regular climber (on trees and logs).

References. Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Townsend, 1997: 10 (distribution).

Note. This species could belong to an undescribed genus.

Tachys captus Blackburn, 1888

Tachys captus Blackburn, 1888a: 42. Type locality: Near Port Lincoln, South Australia.

Geographic distribution (Map p. 268). North Island: AK, ND. Extralimital range: Australia (including Tasmania). First New Zealand record: Hikurangi, ND, 1927 (NZAC; Kuschel, 1990: 39). Well established.

Ecology. Epigean. Lowland. A pasture. In Australia, in damp situations, under sticks and stones. Nocturnal; hides during the day in moss.

Biology. Seasonality: September, November, April, June, August. Predacious (Moore *et al*., 1987: 138).

Dispersal power. Macropterous. Moderate runner.

References. Sloane, 1896b: 372 (distribution, ecology); Moore *et al*., 1987: 138 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power).

"Tachys" cavelli Broun, 1893

Tachys (?) cavelli Broun, 1893a: 1400. Type locality: Capleston, BR.

Tachys cavelli: Broun, 1893c: 197.

Geographic distribution (Map p. 268). South Island: BR.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner

Note. This species could belong to an undescribed genus of Zolini.

Tachys latipennis Sharp, 1886

Tachys latipennis Sharp, 1886: 374. Type locality: Greymouth, BR and Kumara, WD.

Geographic distribution (Map p. 268). South Island: BR, NN, SD, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (beech). Nocturnal; hides during the day in leaf litter.

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

Dispersal power. Subapterous. Moderate runner.

References. Johns, 1980: 60 (distribution, ecology); Townsend, 1997: 11 (distribution).

Note. This taxon could be conspecific with *Tachys antarcticus*.

Subtribe ANILLINA

Figure 18

Geographic distribution. Worldwide.

References. Jeannel, 1937: 241–399 and 1963: 33–204 (revisions of world taxa); Moore, 1980b: 399–406 (revision); Zaballos & Mateu, 1997: 269, 272–273 (biogeography).

Notes. Anillines are known to occur in deep litter, soil crevices, and under well-embedded stones, particularly in moist situations. Sifting detached slopes bordering seepages, rills, brooks, and streams from temporary waters could add numerous species to the New Zealand fauna; this collecting technique has been succesfully applied in Spain (Zaballos & Ruiz-Tapiador, 1996: 95).

Genus *Hygranillus* Moore, 1980

Hygranillus Moore, 1980b: 404. Type species: *Hygranillus kuscheli* Moore, 1980b, by monotypy.

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

Reference. Moore, 1980b: 404–406 (taxonomy).

Hygranillus kuscheli Moore, 1980

Hygranillus kuscheli Moore, 1980b: 404. Type locality: Livingstons Well, Brightwater, NN.

Geographic distribution (Map p. 241). South Island: NN.

Ecology. Stenotopic, endogean, very hygrophilous. Lowland. Obtained "from a driven pipe descending vertically through a concrete floor to a depth of 4.5 m" (Moore, 1980b: 406).

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

Dispersal power. Subapterous. Slow runner.

References. Moore, 1980b: 404–406 (distribution, ecology); Townsend, 1997: 9 (distribution).

Note. The true habitat of this species could be deep soil crevices along streams.

Genus *Nesamblyops* Jeannel, 1937

Figure 18

Nesamblyops Jeannel, 1937: 279. Type species: *Cillenum (?) subcaecum* Sharp, 1886, by original designation.

Geographic distribution. New Zealand (endemic).

References. Jeannel, 1937: 279–281 and 1963: 91–92 (revisions); Moore, 1980b: 400–402 (revision).

Nesamblyops oreobius (Broun, 1893)

Figure 18

Tachys (?) oreobius Broun, 1893a: 1399. Type locality: Mt Pirongia, WO.
Tachys oreobius: Hutton, 1904: 150.
Tachys coriaceus Broun, 1908: 421. Type locality: Otira Gorge, WD. Synonymised by Moore, 1980b: 400.
Anillus monticola Broun, 1910b: 10. Type locality: Mt Pirongia, WO. Synonymised by Jeannel, 1937: 281.
Nesamblyops oreobius: Jeannel, 1937: 281.

Geographic distribution (Map p. 259). North Island: RI, TK, WN, WO. South Island: BR, MB, NC, NN, SD, WD.

Ecology. Stenotopic, endogean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp) and shrublands. Nocturnal; hides during the day in deep leaf litter, moss, and mat plants, at the base of ferns, and along logs and fallen trees. Gregarious.

Biology. Seasonality: throughout the year. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Broun, 1893a: 1400 and 1893c: 197 (distribution, ecology); Jeannel, 1937: 281 and 1963: 92 (distribution); Moore, 1980b: 400–401 (distribution); Johns, 1980: 60, 65 (distribution); Moeed & Meads, 1985: 22, 34 (distribution, ecology, biology); Townsend, 1997: 10 and 1998: 20–21 (distribution, ecology).

Nesamblyops subcaecus (Sharp, 1886)

Cillenum [*sic*] *(?) subcaecum* Sharp, 1886: 375. Type locality: Greymouth, BR.
Cillenum [*sic*] *subcaecum*: Hutton, 1904: 150.
Anillus subcoecus [*sic*]: Csiki, 1928: 210.
Nesamblyops subcaecus: Jeannel, 1937: 281.

Geographic distribution (Map p. 259). North Island: AK, ND. South Island: BR, DN, FD, MB, NC, NN, SD, SL.

Ecology. Stenotopic, endogean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp) and shrublands; alpine herbfields. Nocturnal; hides during the day in deep leaf litter, moss, mat plants, and under deeply embedded stones. Gregarious.

Biology. Seasonality: September–November, January–April, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Walker, 1904: 124 (distribution, ecology); Jeannel, 1937: 241, 281 and 1963: 91 (distribution); Moore, 1980b: 400 (distribution); Townsend, 1997: 10 (distribution).

Genus *Pelodiaetodes* Moore, 1980

Pelodiaetodes Moore, 1980b: 404. Type species: *Pelodiaetodes prominens* Moore, 1980b, by monotypy.

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

Reference. Moore, 1980b: 404 (taxonomy).

Note. Another species awaits description.

Pelodiaetodes prominens Moore, 1980

Pelodiaetodes prominens Moore, 1980b: 404. Type locality: Waipoua State Forest, ND.

Geographic distribution (Map p. 263). North Island: CL, ND.

Ecology. Stenotopic, endogean, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf, podocarp). Nocturnal; hides during the day in deep leaf litter.

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

Dispersal power. Subapterous. Slow runner.

References. Moore, 1980b: 404 (distribution); Watt, 1982a: 297 (distribution, ecology).

Genus *Pelodiaetus* Jeannel, 1937

Pelodiaetus Jeannel, 1937: 275. Type species: *Pelodiaetus sulcatipennis* Jeannel, 1937, by original designation.

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

References. Jeannel, 1937: 275–277 and 1963: 94–96 (revision); Moore, 1980b: 402, 404 (revision).

Note. A new species awaits description (Johns, 1981: 64).

Pelodiaetus lewisi Jeannel, 1937

Pelodiaetus lewisi Jeannel, 1937: 277. Type locality: Otago, South Island.

Geographic distribution (Map p. 263). South Island: CO, DN, ?NN

Ecology. Eurytopic, endogean. Montane, alpine. Forests (beech), fellfields, screes. Nocturnal; hides during the day in fern leaf litter and mat plants (*Raoulia*). Gregarious.

Biology. Seasonality: September–November, April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Slow runner.

References. Jeannel, 1937: 277 and 1963: 96 (distribution); Moore, 1980b: 402, 404 (distribution, ecology).

Pelodiaetus sulcatipennis Jeannel, 1937

Pelodiaetus sulcatipennis Jeannel, 1937: 277. Type locality: Otago, South Island.

Geographic distribution (Map p. 263). South Island: CO, DN.

Ecology. Stenotopic, endogean, steppicolous. Lowland, montane. Tussock grasslands. Nocturnal; hides during the day in clumps and carpets of low shrubs (*Cassinia*, *Pentachondra*), and in clumps of mixed vegetation and soil.

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

Dispersal power. Subapterous. Slow runner.

References. Jeannel, 1937: 277 and 1963: 95 (distribution); Moore, 1980b: 402, 404 (distribution, ecology); Barratt & Patrick, 1987: 75, 82 (distribution, ecology).

Genus *Zeanillus* Jeannel, 1937

Zeanillus Jeannel, 1937: 277. Type species: *Anillus phyllobius* Broun, 1893b, by original designation.

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

References. Jeannel, 1937: 277–279 and 1963: 93–94 (revisions); Moore, 1980b: 402 (revision).

Zeanillus pallidus (Broun, 1884)

Anillus pallidus Broun, 1884: 228 (redescribed in 1886: 918). Type locality: Taieri, DN.

Anillus marginatus Broun, 1914b: 152. Type locality: Invercargill, SL. Synonymised by Moore, 1980b: 402.

Zeanillus pallidus: Jeannel, 1937: 279.

Geographic distribution (Map p. 269). South Island: BR, CO, DN, SL.

Ecology. Eurytopic, endogean. Lowland, upland, subalpine, alpine. Tussock grasslands, pastures, fellfields, shrublands, forests (beech). Nocturnal; hides during the day in deep leaf litter, moss, and *Raoulia*-mats.

Biology. Seasonality: September, October–December, February–March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Jeannel, 1937: 279 and 1963: 74 (distribution); Moore, 1980b: 402 (distribution).

Zeanillus phyllobius (Broun, 1893)

Anillus phyllobius Broun, 1893b: 164. Type locality: Riccarton Bush, MC.
Zeanillus phyllobius: Jeannel, 1937: 279.

Geographic distribution (Map p. 269). South Island: CO/DN, MC.

Ecology. Stenotopic, endogean, silvicolous, xerophilous. Lowland. Dry forests (broadleaf, podocarp). Nocturnal; hides during the day in deep leaf litter.

Biology. Seasonality: May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Jeannel, 1937: 279 and 1963: 94 (distribution); Moore, 1980b: 402 (distribution); Johns, 1986: 29 (distribution, ecology).

Zeanillus punctiger (Broun, 1914)

Anillus punctigerus [*sic*] Broun, 1914b: 153. Type locality: Mt Hutt, near Methven, MC.
Zeanillus punctigerus [*sic*]: Moore, 1980b: 402.

Geographic distribution (Map p. 269). South Island: MC.

Ecology. Endogean. Lowland or montane. A tussock grassland area. Nocturnal; hides during the day under stones.

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

Dispersal power. Subapterous. Moderate runner.

References. Broun, 1914b: 153 (distribution, ecology); Moore, 1980b: 402 (distribution).

Note. The Latin suffix *-ger*, not *-gerus*, is required for the masculine gender (Brown, 1985: 366).

Subfamily HARPALINAE
Supertribe PTEROSTICHITAE
Tribe PTEROSTICHINI

Figures 19–20

Geographic distribution. Worldwide.

References. Britton, 1940: 473–508 (revision); Moore, 1965b: 7–9 (keys to Australian and New Zealand genera); Freitag, 1969: 89–212 (taxonomy of North American taxa); Straneo, 1979: 345–356 (classification and taxonomy of South American taxa).

Notes.The Pterostichini and the Broscini are the largest tribes of Carabidae in New Zealand. A new revision is needed. Numerous species await description.

Subtribe PTEROSTICHINA

Geographic distribution. Worldwide.

Genus "*Argutor*" Dejean, 1821

Argutor Dejean, 1821: 11. Type species*: Carabus vernalis* Panzer, 1797, designated by Curtis, 1837: 666.

Geographic distribution. Europe (true *Argutor*). New Zealand (endemic; South Island – taxon currently placed in **"***Argutor*").

Reference. Britton, 1940: 478 (taxonomy).

"*Argutor" pantomelas* Blanchard, 1843

Argutor pantomelas Blanchard, 1843: Plate 2, Figure 6 (redescribed in 1853: 27, from Auckland Islands). Type locality: Akaroa, MC.
Omaseus sylvaticus Blanchard, 1843: Plate 2, Figure 5 (redescribed in 1853: 29). Type locality: Akaroa, MC. Synonymised by Tschitschérine, 1901: 47.
Feronia (*Argutor*) *pantomelas*: Lacordaire, 1854: 326.
Feronia (*Omaseus*) *sylvatica*: Lacordaire, 1854: 326.
Feronia (*Holcaspis*) *sylvatica*: Chaudoir, 1865b: 102.
Holcaspis sylvatica: Bates, 1874: 243.
Pterostichus sylvaticus: Sharp, 1886: 369.
Platysma (*Holcaspis*) *pantomelas*: Tschitschérine, 1901: 47.
Holcaspis pantomelas: Csiki, 1930: 558.
"Omaeseus" [*sic*] *pantomelus* [*sic*]: Butcher & Emberson, 1981: 63.

Geographic distribution (Map p. 225). South Island: MC.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland. Dry forests (broadleaf). Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 478 (taxonomy, distribution); Butcher & Emberson, 1981: 63–64 (distribution, ecology); Johns,1986: 3, 30 (taxonomy, distribution, conservation); Emberson, 1993b: 20 (taxonomy).

Notes. This species requires the description of a new genus. It is retained here in its original combination in the genus *Argutor* Dejean. This species is distinct from all other described New Zealand Pterostichini, and, as noted by Butcher & Emberson (1981), it is "not at all closely related to the northern hemisphere members of the genus *Omaeseus* [*sic*] [=*Omaseus* Dejean]", nor is it, in the authors' opinion, closely related to the genus *Argutor*.

Genus *Aulacopodus* Britton, 1940

Aulacopodus Britton, 1940: 491. Type species: *Pterostichus sharpianus* Broun, 1893b, by original designation.

Geographic distribution. New Zealand.

Reference. Britton, 1940: 491–492 (revision).

Notes. A new revision is needed. Two species await description.

Aulacopodus brouni (Csiki, 1930), new status

Pterostichus adoxus Broun, 1908: 414. Type locality: Manawatu Gorge, RI/WN. Secondary homonym of *Pterostichus adoxus* (Say, 1823).
Trichosternus (*Megadromus*) *brouni* Csiki, 1930: 545 (replacement name for *Pterostichus adoxus* Broun, 1908).
Aulacopodus brouni: Britton, 1940: 492.

Geographic distribution (Map p. 225). North Island: RI, WA, WI, WN.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland. Mostly wet forests (broadleaf); also poplar hedges, flaxlands, sandy beaches. Nocturnal; hides during the day under stones, leaf litter, and the loose bark of fallen trees.

Biology. Seasonality: September, November, January, March, May, August. Predacious (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Britton, 1940: 492 (distribution); Pilgrim, 1963: 840 (taxonomy, distribution); Harris, 1970a: 48, 53, 55 (ecology); Townsend, 1994: 9–10, 13 (as *Aulacopodus puella*, taxonomy, distribution).

Note. *Aulacopodus brouni* was incorrectly synonymised with *Rhytisternus puellus* (Chaudoir, 1865b: 105) from Australia by Pilgrim, 1963: 840 (R.M. Emberson, personal communication).

Aulacopodus calathoides (Broun, 1886)

Haptoderus calathoides Broun, 1886: 879. Type locality: Whangarata, near Tuakau, AK and near Ngaruawahia, WO.
Trichosternus (*Megadromus*) *calathoides*: Csiki, 1930: 545.
Argutor calathoides: Hudson, 1934: 176.
Aulacopodus calathoides: Britton, 1940: 491.

Geographic distribution (Map p. 226). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp, beech) and tree plantations (pine). Nocturnal; hides during the day under logs, stones, and fallen branches.

Biology. Seasonality: September–August. Tenerals: November, February. Predacious (based on mouthpart morphology). Predators: Kiwis. Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 491 (distribution); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power).

Note. This taxon could represent a species complex.

Aulacopodus maorinus (Bates, 1874)

Haptoderus maorinus Bates, 1874: 244 (redescribed in 1875: 307). Type locality: Christchurch, MC.
Holcaspis (*Haptoderus*) *maorinus*: Broun, 1880: 41.
Pterostichus maorinus: Broun, 1893a: 991.
Holcaspis maorinus: Hutton, 1904: 146.
Aulacopodus maorinus: Britton, 1940: 492.

Geographic distribution (Map p. 226). South Island: MC.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland. Dry forests (podocarp, broadleaf, beech). Nocturnal; hides during the day under logs and in fern leaf litter.

Biology. Seasonality: December–January, April. Tenerals: April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 492 (distribution); Johns, 1986: 30 (distribution, ecology).

Aulacopodus sharpianus (Broun, 1893)

Pterostichus sharpianus Broun, 1893b: 163. Type locality: Ohaupo, WO and Hunua Ranges, AK.
Holcaspis sharpianus: Hutton, 1904: 146.
Trichosternus (*Megadromus*) *sharpianus*: Csiki, 1930: 546.
Aulacopodus sharpianus: Britton, 1940: 491.

Geographic distribution (Map p. 226). North Island: AK, ND, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (podocarp, broadleaf), swamp forests (broadleaf). Nocturnal; hides during the day in leaf litter and at the base of plants.

Biology. Seasonality: October–November. Tenerals: February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Britton, 1940: 491 (distribution); Kuschel, 1990: 39, 74 (distribution, ecology, biology, dispersal power).

Genus *Gourlayia* Britton, 1964

Gourlayia Britton, 1964b: 521. Type species: *Gourlayia regia* Britton, 1964b, by monotypy.

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

Reference. Britton, 1964b: 521–522 (taxonomy).

Gourlayia regia Britton, 1964

Gourlayia regia Britton, 1964b: 522. Type locality: Great Island, TH.

Geographic distribution (Map p. 238). Offshore Islands: TH.

Ecology. Epigean, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf). Nocturnal; hides during the day under large stones.

Biology. Seasonality: December–January. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1964b: 522 (distribution).

Genus *Holcaspis* Chaudoir, 1865

Holcaspis Chaudoir, 1865b: 101 (originally proposed with subgeneric rank in *Feronia* Latreille, 1817; first used with generic rank by Bates, 1874: 243). Type species: *Feronia* (*Holcaspis*) *angustula* Chaudoir, 1865b, designated by Britton, 1940: 492.

Omaseus (*Holcaspis*): Gemminger & Harold, 1868: 310.

Geographic distribution. New Zealand (endemic).

References. Britton, 1940: 492–502 (revision); Butcher, 1984: 47–99 (revision).

Notes. A new revision is needed that would describe in detail and illustrate the range of variation of male genitalia and pronotal configuration between and within populations. The North Island and Canterbury Plains species are particularly poorly understood. A few species await description. *Holcaspis* could comprise several genera.

angustula group, *algida* complex

Holcaspis algida Britton, 1940

Holcaspis algida Britton, 1940: 496. Type locality: Mt Algidus, MC.

Geographic distribution (Map p. 238). South Island: MC.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland, montane, subalpine, alpine. Dry forests (beech) and scrublands, tussock grasslands, modified grasslands, farmlands, screes. Nocturnal; hides during the day under logs, stones, in leaf litter, and under loose bark.

Biology: Seasonality: October–June. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 496 (distribution); Butcher, 1984: 61 (distribution).

Holcaspis brevicula Butcher, 1984

Holcaspis brevicula Butcher, 1984: 61. Type locality: Eyrewell, NC.

Geographic distribution (Map p. 238). South Island: NC.

Ecology. Lowland. A tree plantation (pine) through tussock grassland; probably silvicolous. Nocturnal; shelters during the day.

Biology. Seasonality: June. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Butcher, 1984: 61 (distribution, ecology).

Holcaspis ohauensis Butcher, 1984

Holcaspis ohauensis Butcher, 1984: 61. Type locality: Lake Ohau Reserve, MK.

Geographic distribution (Map p. 240). South Island: MK.

Ecology. Epigean, mostly silvicolous. Lowland. Forests (beech); a tussock grassland; probably mostly silvicolous. Nocturnal; hides during the day under logs.

Biology. Seasonality: November–January, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Butcher, 1984: 61 (distribution, ecology).

angustula group, *angustula* complex

Holcaspis angustula (Chaudoir, 1865)

Omaseus elongatus Blanchard, 1843: Plate 2, Figure 4 (redescribed in 1853: 28). Type locality: Akaroa, MC. Secondary homonym of *Pterostichus elongatus* (Duftschmid, 1812).

Feronia (*Omaseus*) *elongata*: Lacordaire, 1854: 326.

Feronia (Holcaspis) angustula Chaudoir, 1865b: 101. Type locality: Akarva (=Akaroa), MC (Chaudoir, 1865b: 102); New Zealand (Butcher, 1984: 64, lectotype designated). Replacement name for *Omaseus elongatus* Blanchard, 1843.

Feronia angustula: Hutton, 1874: 159.

Holcaspis angustula: Bates, 1874: 243.

Pterostichus angustulus: Sharp, 1886: 369.

Pterostichus longiformis Sharp, 1886: 369. Type locality: Christchurch, MC. Synonymised by Butcher, 1984: 64.

Pterostichus disparalis Broun, 1893a: 1324. Type locality: Moeraki, DN. Synonymised with *Holcaspis longiformis* (Sharp, 1886) by Britton, 1940: 497.
Holcaspis longiformis: Hutton, 1904: 146.
Holcaspis disparalis: Hutton, 1904: 146.

Geographic distribution (Map p. 238). South Island: DN, KA, MC, MK, NC, SC.

Ecology. Eurytopic, epigean, xerophilous. Lowland, montane, subalpine, alpine. Dry forests (beech, broadleaf, podocarp), shrublands, and scrublands; plantations (pine, eucalypt), tussock grasslands, pastures, grass paddocks, cultivated fields (carrot), farmlands, gardens. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: October–August. Tenerals: March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 497 (distribution); Butcher & Emberson, 1981: 63 (distribution, ecology); Butcher, 1984: 64–65 (distribution, ecology, biology); Johns, 1964: 31 (as *Holcaspis longiformis*, distribution) and 1986: 30 (distribution); Emberson, 1993b: 20 (taxonomy); Sivasubramaniam *et al*., 1997: 209–210 (distribution, ecology); Howe, 1998: 17 (distribution, ecology).

Holcaspis bathana Butcher, 1984

Holcaspis bathana Butcher, 1984: 67. Type locality. Mt St. Bathans, CO.

Geographic distribution (Map p. 238). South Island: CO.

Ecology. Epigean. Montane. A tussock-scree area. Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Moderate runner.

References. Butcher, 1984: 67 (distribution, ecology); Nicholls *et al*., 1998: 3 (taxonomy).

Holcaspis falcis Butcher, 1984

Holcaspis falcis Butcher, 1984: 67. Type locality: Mt John, Tekapo, MK.

Geographic distribution (Map p. 239). South Island: MC, MK, NC.

Ecology. Epigean, mostly silvicolous, xerophilous. Montane. Dry forests (beech) and shrublands; tussock grasslands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: October–November, January, April. Tenerals: January. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Butcher, 1984: 67 (distribution, ecology); Molloy *et al*., 1994: 60 (distribution, conservation).

Holcaspis implica Butcher, 1984

Holcaspis implica Butcher, 1984: 65. Type locality: Bobs Cove, Lake Wakatipu, OL.

Geographic distribution (Map p. 240). South Island: CO, KA, MC, OL, SC, SL.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine, alpine. Forests (beech, broadleaf, podocarp), tussock grasslands, fellfields. Nocturnal; hides during the day under logs, stones, and in leaf litter.

Biology. Seasonality: September–October, December, February–May. Tenerals: February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

Reference. Butcher, 1984: 67 (distribution, ecology).

Holcaspis placida Broun, 1881

Holcaspis placidus [*sic*] Broun, 1881: 658. Type locality: Near Dunedin (Broun, 1881: 659); Otago (Butcher, 1984: 65, holotype examined).
Holcaspis thoracicus [*sic*] Broun, 1881: 657. Type locality: Near Whangarei Harbour, ND [mislabelling for Taieri, near Dunedin]. Incorrectly synonymised with *H. angustula* (Chaudoir, 1865b) by Britton, 1940: 497; resurrected from synonymy by Butcher, 1984: 65, 94.
Pterostichus placidulus [*sic*]: Broun, 1893a: 991.
Pterostichus chalmeri Broun, 1908: 420. Type locality: Dunedin, DN (Broun, 1908: 421), Outram, DN (Butcher, 1984: 65, holotype examined). Synonymised with *Holcaspis angustula* (Chaudoir, 1865b), *H. thoracicus* Broun, 1881, and *H. placidus* Broun, 1881, by Britton, 1940: 497.
Pterostichus thoracicus: Hudson, 1923: 357.
Trichosternus (*Megadromus*) *chalmeri*: Csiki, 1930: 545.

Geographic distribution (Map p. 240). South Island: CO, DN, FD, OL, SL.

Ecology. Eurytopic, epigean. Lowland, upland, subalpine, alpine. Tussock grasslands, pastures, herbfields, shrublands, forests (beech). Nocturnal; hides during the day under stones.

Biology. Seasonality: September–May. Tenerals: October–November, February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 477 (distribution); Butcher, 1984: 65, 94 (taxonomy, distribution); Barratt & Patrick, 1987: 82 (distribution, ecology); Patrick *et al*., 1993: 11 (distribution, ecology).

Notes. Britton (1940: 497) considered *H. placida* and *H. thoracica* as junior synonyms of *H. angustula* (Chaudoir), and based on his examination of the Broun Collection, he also clearly identified that the type locality "Whangarei Harbour" published by Broun (1881: 657) for *H. thoracica*, was incorrect and should have read "Taieri", DN.

Butcher's (1984) treatment of the names *H. placida* and *H. thoracica* was confusing. On page 65 of his revision, he seemed to indicate clearly that they are synonyms but on page 94 he listed *H. thoracica* as a valid *species inquirenda* while in his comment on the same page apparently not really believing this to be the valid name. However, he revised the genus *Holcaspis* and rightfully he was acting as First Reviser in selecting *H. placida* as valid name for this taxon. Recommendation 24A (International Code of Zoological Nomenclature, 1999) states that in acting as First Reviser, an author should select the name that will best serve stability and universality of the nomenclature.

angustula group, *impigra* complex

Holcaspis impigra Broun, 1886

Holcaspis impiger [*sic*] Broun, 1886: 879. Type locality: Flagstaff Mountain, near Dunedin and Mt Maungatua (Broun, 1886: 879); Maungatua, DN (Butcher, 1984: 59, lectotype designated).
Pterostichus impiger: Broun, 1893a: 991.
Pterostichus edax Broun, 1893a: 1326. Type locality: Dusky Bay, FD. Secondary homonym of *Neoferonia edax* (Chaudoir, 1878b). Synonymised by Britton, 1940: 496.
Holcaspis edax: Hutton, 1904: 146.
Pterostichus sculpturalis Broun, 1917: 362.Type locality: Mt Dick, Lake Wakatipu, OL. Synonymised by Britton, 1940: 496.
Pterostichus fenwicki Broun, 1921: 599. Type locality: Hump Ridge, Southland [FD]. Synonymised by Britton, 1940: 496.
Trichosternus (*Megadromus*) *sculpturalis*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *fenwicki*: Csiki, 1930: 546.

Geographic distribution (Map p. 239). South Island: CO, DN, FD, OL, SL, WD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp), shrublands, and scrublands; tussock grasslands, herbfields, screes. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: November–March, May, July. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 496 (distribution); Butcher, 1984: 59 (distribution); Patrick *et al*., 1986: 14 and Patrick, 1988: 87 (distribution).

Note. *Holcaspis* is a feminine noun which requires a specific epithet of the same gender.

Holcaspis stewartensis Butcher, 1984

Holcaspis stewartensis Butcher, 1984: 59. Type locality: Christmas Village, Stewart Island.

Geographic distribution (Map p. 241). Stewart Island.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (podocarp, broadleaf), shrublands, and scrublands; herbfields. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–March, May, August. Tenerals: November, February. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Butcher, 1984: 59 (distribution); Patrick *et al*., 1992b: 18 (distribution).

brouniana group

Holcaspis brouniana (Sharp, 1886)

Pterostichus brounianus Sharp, 1886: 367. Type locality: Picton, SD.
Holcaspis brounianus [*sic*]: Hutton, 1904: 146.

Geographic distribution (Map p. 238). North Island: WN. South Island: KA, MB, SD.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine. Wet or dry tussock grasslands, pastures, fellfields, sand dunes, scrublands, forests (beech, broadleaf). Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: September–October, January–March, May–August. Tenerals: August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 498 (distribution); Butcher, 1984: 71 (distribution); Townsend, 1997: 13 and 1998: 20–21 (taxonomy, distribution).

Holcaspis elongella (White, 1846)

Feronia (Cophosus) elongella White, 1846: 4. Type locality: New Zealand.
Feronia elongella: Lacordaire, 1854: 326.
Feronia (*Holcaspis*) *elongella*: Chaudoir, 1865b: 104.
Omaseus elongellus: Gemminger & Harold, 1868: 312.
Holcaspis elongella: Bates, 1874: 244.

Pterostichus elongellus: Sharp, 1886: 365.
Pterostichus constrictellus Sharp, 1886: 368. Type locality: Christchurch, MC and Greymouth, BR (Sharp, 1886: 369); Christchurch, MC (Butcher, 1984: 73, lectotype designated). Synonymised by Britton, 1940: 498.
Pterostichus detractus Broun, 1893a: 996. Type locality: Castle Hill, MC. Synonymised by Britton, 1940: 498.
Trichosternus (*Nesopterostichus*) *constrictellus*: Tschitschérine, 1902: 521.
Holcaspis constrictellus [*sic*]: Hutton, 1904: 146.
Holcaspis detractus [*sic*]: Hutton, 1904: 146.
Trichosternus (*Megadromus*) *constrictellus*: Csiki, 1930: 544.

Geographic distribution (Map p. 239). South Island: BR, MC, NC, SC.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland, montane. Dry forests (beech, broadleaf, podocarp) and shrublands; farmlands, tussock grasslands, modified grasslands, pastures, gardens. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–April, July. Predacious (based on mouthpart morphology). Parasites: Nematodes.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 498 (distribution); Butcher & Emberson, 1981: 63, 68–69 (distribution, ecology, biology); Butcher, 1984: 71 (distribution); Johns, 1986: 30 (distribution).

Holcaspis tripunctata Butcher, 1984

Holcaspis tripunctata Butcher, 1984: 73. Type locality: Rarangi, SD.

Geographic distribution (Map p. 241). South Island: KA, MB, SD.

Ecology. Epigean, mostly silvicolous. Lowland. Forests (beech); a garden. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: October–November, April, June. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Butcher, 1984: 73 (distribution).

catenulata group

Holcaspis catenulata Broun, 1882

Holcaspis catenulata Broun, 1882: 222 (redescribed in 1883: 222 and 1886: 753). Type locality: Outram, Otago, DN (Broun, 1882: 223), Taieri, DN (Butcher, 1984: 69, holotype examined).
Pterostichus catenulatus: Broun, 1893a: 991.
Pterostichus insidiosus Broun, 1893a: 999. Type locality: Invercargill, SL. Synonymised by Britton, 1940: 497.
Pterostichus inconstans Broun, 1893a: 999. Type locality: Invercargill, SL. Synonymised by Britton, 1940: 497.
Holcaspis inconstans: Hutton, 1904: 146.
Holcaspis insidiosus [*sic*]: Hutton, 1904: 147.
Pterostichus philpotti Broun, 1908: 418. Type locality: West Plains, Invercargill, SL. Synonymised by Britton, 1940: 497.
Trichosternus (*Megadromus*) *philpotti*: Csiki, 1930: 546.

Geographic distribution (Map p. 239). South Island: CO, DN, FD, SL.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, alpine. Wet forests (beech, podocarp, broadleaf), shrublands, and scrublands; tussock grasslands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: October–February, April, July. Predacious. Food: Earthworms.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 497 (distribution); Butcher, 1984: 69 (distribution).

egregialis group

Holcaspis egregialis (Broun, 1917)

Pterostichus egregialis Broun, 1917: 362. Type locality: Staircase [= Devil's Staircase], south end of the Remarkables, CO.
Trichosternus (*Megadromus*) *egregialis*: Csiki, 1930: 546.
Holcaspis egregialis: Britton, 1940: 498.

Geographic distribution (Map p. 239). South Island: CO, DN, OL, SL.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine. Mostly tussock grasslands, tussock herbfields; also shrublands, forests (beech). Nocturnal; hides during the day under stones and logs.

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

Dispersal power. Subapterous. Moderate runner. Occasional climber.

References. Britton, 1940: 498 (distribution); Butcher, 1984: 75 (distribution).

hudsoni group

Holcaspis hudsoni Britton, 1940

Holcaspis hudsoni Britton, 1940: 499. Type locality: Canterbury, South Island.

Geographic distribution (Map p. 239). South Island: KA, MB, MC, NC, ?NN.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland, montane. Dry forests (beech, broadleaf, podocarp),

shrublands, and tree plantations (pine); tussock grasslands, pastures. Nocturnal; hides during the day under logs, stones, and in leaf litter.

Biology. Seasonality: October–December, February–June, August. Tenerals: September, November, March, May. Predacious (based on mouthpart morphology). Regularly infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 499 (distribution); Johns *et al*., 1980: 26 (distribution, ecology); Johns, 1980: 62, 65 (distribution, ecology); Butcher, 1984: 75–76 (distribution); Townsend, 1997: 13 (distribution).

Holcaspis suteri (Broun, 1893)

Pterostichus suteri Broun, 1893a: 1324. Type locality: Dyers Pass [MC], Port Hill, Canterbury (Broun, 1893a: 1325); Canterbury (Butcher, 1984: 76, lectotype designated).
Holcaspis suteri: Hutton, 1904: 147.

Geographic distribution (Map p. 241). South Island: MC.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland. Dry forests (broadleaf, podocarp, beech) and scrublands; tussock grasslands, pastures. Nocturnal; hides during the day under logs, stones, and leaf litter.

Biology. Seasonality: Throughout the year. Tenerals: September. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 499 (distribution); Butcher & Emberson, 1981: 63, 67–69 (distribution, ecology, biology); Butcher, 1984: 76 (distribution); Johns, 1986: 30 (distribution).

odontella group

Holcaspis odontella (Broun, 1908)

Pterostichus odontellus Broun, 1908: 410. Type locality: Taranaki [TK], North Island.
Trichosternus (*Megadromus*) *odontellus*: Csiki, 1930: 546.
Holcaspis odontella: Britton, 1940: 499.

Geographic distribution (Map p. 240). North Island: TK, WA. South Island: MC.

Ecology. Epigean. Lowland, montane. A forest (broadleaf); probably silvicolous. Nocturnal; hides during the day under logs.

Biology. Seasonality: May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 500 (distribution); Butcher, 1984: 77, 79 (distribution, ecology).

Note. Broun (1908: 410) believed the type specimen was taken near Mount Egmont.

oedicnema group, *delator* complex

Holcaspis delator (Broun, 1893)

Pterostichus delator Broun, 1893a: 1397. Type locality: Ashburton, MC (Broun, 1893a: 1397), Canterbury (Butcher, 1984: 86, holotype examined).
Holcaspis delator: Hutton, 1904: 147.

Geographic distribution (Map p. 239). South Island: MC, MK, SC.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland, montane. Dry forests (beech, broadleaf, podocarp) and shrublands; grasslands. Nocturnal; hides during the day under logs.

Biology. Seasonality: September–March. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 501 (distribution); Butcher, 1984: 86 (distribution).

Holcaspis intermittens (Chaudoir, 1865)

Feronia (Holcaspis) intermittens Chaudoir, 1865b: 103. Type locality: Port Nicholson [WN], New Zealand (Chaudoir, 1865b: 104); New Zealand (Butcher, 1984: 89, holotype examined). Synonymised with *Feronia subaenea* and *Feronia vagepunctata* White by Tschitschérine, 1891: 166; resurrected from synonymy by Butcher, 1984: 86.
Pterostichus sinuellus Broun, 1893a: 1325. Type locality: Dyers Pass, MC (Broun, 1893a: 1325), Canterbury (Butcher, 1984: 89, holotype examined). Synonymised by Butcher, 1984: 87.
Holcaspis sinuellus [*sic*]: Hutton, 1904: 147.

Geographic distribution (Map p. 240). North Island: WN. South Island: MC, NC.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland. Dry forests (broadleaf, podocarp) and scrublands. Nocturnal; hides during the day in leaf litter, among stones and logs.

Biology. Seasonality: October–January, August. Predacious (based on mouthpart morphology). Parasites: Nematodes.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 502 (as a synonym of *H. vagepunctata*, taxonomy); Butcher, 1984: 87–88 (distribution); Johns, 1986: 30 (distribution, ecology); Townsend, 1997: 13 (distribution).

oedicnema group, *mucronata* complex

Holcaspis hispida (Broun, 1877)

Trichosternus hispidus Broun, 1877a: 371. Type locality: Kikuwai (=Hikuwai) Forest, CL.
Holcaspis hispidulus [*sic*] Broun, 1880: 40. Type locality: near Tairua, CL, and Whangarei Heads, ND. Synonymised by Britton, 1940: 500.
Holcaspis pellax Broun, 1881: 656. Type locality: Manaia, ND (lectotype designated by Butcher, 1984: 85). Synonymised by Britton, 1940: 500.
Holcaspis hybrida Broun, 1886: 826. Type locality: Tuakau, AK. Synonymised by Britton, 1940: 500.
Pterostichus hispidulus: Broun, 1893a: 991.
Pterostichus pellax: Broun, 1893a: 991.
Pterostichus hybridus: Broun, 1893a: 991.
Pterostichus ithaginis Broun, 1893b: 162. Type locality: Ligar's Bush, Papakura, AK. Synonymised by Britton, 1940: 500.
Pterostichus obsoletus Broun, 1893b: 163. Type locality: "Hunua-Maketu" [=Maketu Stream, in the Hunua Ranges], AK. Secondary homonym of *Sericoda obsoleta* (Say, 1823).
Holcaspis ithaginis: Hutton, 1904: 147.
Holcaspis obsoletus [*sic*]: Hutton, 1904: 147.
Trichosternus (*Megadromus*) *ithaginis*: Csiki, 1930: 546.
Holcaspis hispida: Britton, 1940: 500.

Geographic distribution (Map p. 239). North Island: AK, BP, CL, GB, HB, ND, RI, TK, WN, WO.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Mostly wet forests (broadleaf, podocarp, beech), shrublands, and tree plantations (pine); also tussock grasslands, alpine meadows. Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: Throughout the year. Tenerals: January, April. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 500 (distribution); Butcher, 1984: 85 (distribution).

Note. *Holcaspis hispida* could represent a species complex.

Holcaspis mucronata Broun, 1886

Holcaspis mucronata Broun, 1886: 826. Type locality: Waitakerei (=Waitakere) Ranges, Auckland, AK (Broun, 1886: 826), Waitakere, AK (Butcher, 1984: 83, lectotype designated).
Pterostichus mucronatus: Broun, 1893a: 991.
Pterostichus oxymelus Broun, 1908: 415. Type locality: Manawatu Gorge, RI/WN. Synonymised by Britton, 1940: 501.
Pterostichus burrowsi Broun, 1914b: 150. Type locality: Mt Hutt, near Methven, MC [mislabelling]. Synonymised by Britton, 1940: 501.
Pterostichus fieldi Broun, 1915: 276. Type locality: Opotiki, BP. Synonymised by Britton, 1940: 501.

Geographic distribution (Map p. 240). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp, beech) and tree plantations (pine). Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: Throughout the year. Tenerals: January–February. Predacious (based on mouthpart morphology). Predators: Kiwis. Occasionally infested with mites. Defense mechanism: Either emits a strong smell or burrows when disturbed.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 501 (distribution); Reid *et al*., 1982: 84 (biology); Butcher, 1984: 83 (distribution).

Holcaspis vexata (Broun, 1908)

Pterostichus vexatus Broun, 1908: 417. Type locality: Wellington, WN.
Trichosternus (*Megadromus*) *vexatus*: Csiki, 1930: 547.
Holcaspis vexata: Butcher, 1984: 85. Resurrected from synonymy with *H. hispida* (Butcher, 1984: 85).

Geographic distribution (Map p. 241). North Island: WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf). Nocturnal; hides during the day under stones.

Biology. Seasonality: October–November, January–February, April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 500 (as a synonym of *H. hispida;* taxonomy); Butcher, 1984: 86 (distribution); Townsend, 1998: 5 (taxonomy, distribution).

oedicnema group, *oedicnema* complex

Holcaspis dentifera (Broun, 1880)

Trichosternus dentiferus Broun, 1880: 36. Type locality: Parua, Whangarei Harbour, ND.
Pterostichus dentiferus: Broun, 1893a: 986.
Trichosternus (*Megadromus*) *dentiferus*: Csiki, 1930: 546.
Pterostichus eruensis Hudson, 1934: 37. Type locality: Mt Egmont, TK and the Central Plateau, TO. Synonymised by Britton, 1940: 499.
Holcaspis dentifera: Britton, 1940: 499.

Geographic distribution (Map p. 239). North Island: BP, GB, HB, ND, RI, TK, TO, WI.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (broadleaf, podocarp, beech) and tree plantations (pine):

often along streams. Nocturnal; hides during the day under logs, fallen branches, stones, and in leaf litter.

Biology. Seasonality: Throughout the year, except May. Tenerals: March. Predacious (based on mouthpart morphology). Predators: Kiwis. Defense mechanism: Emits a strong smell when disturbed.

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1934: 37 (distribution); Britton, 1940: 499 (distribution); Watt, 1971: 25 (biology); Reid *et al*., 1982: 84 (biology); Butcher, 1984: 81–82 (distribution).

Note. *Holcaspis dentifera* could represent a species complex.

Holcaspis oedicnema Bates, 1874

Holcaspis oedicnema Bates, 1874: 243 (redescribed in 1875: 306). Type locality: New Zealand.
Holcaspis cribrale [*sic*] Broun, 1882: 222 (redescribed in 1883: 222 and 1886: 752). Type locality: Mt Arthur, NN. Synonymised by Britton, 1940: 500.
Pterostichus myrmidon Sharp, 1886: 368. Type locality: Picton, SD (Sharp, 1886: 368), Christchurch, MC (Butcher, 1984: 80, lectotype designated). Synonymised by Britton, 1940: 500.
Pterostichus rugifrons Sharp, 1886: 451. Type locality: Greymouth, BR. Secondary homonym of *Holcaspis* (*Rhytisternus*) *rugifrons* Broun, 1880 (=*Rhytisternus miser* (Chaudoir, 1865b)). Synonymised by Britton, 1940: 500.
Pterostichus oedicnemus: Broun, 1893a: 991.
Pterostichus cribralis: Broun, 1893a: 991.
Pterostichus pastoricius Broun, 1893a: 994. Type locality: Wangapeka Valley, NN. Synonymised by Britton, 1940: 500.
Pterostichus egmontensis Broun, 1893a: 997. Type locality: Mt Egmont, TK. Synonymised by Britton, 1940: 500.
Pterostichus irregularis Broun, 1893a: 998. Type locality: Boatman's, near Reefton, BR. Synonymised by Britton, 1940: 500.
Pterostichus sculptipes Broun, 1893a: 1325. Type locality: "Hastwell [WA], Napier [HB]" (Broun, 1893a: 1326), Napier (Butcher, 1984: 80, holotype examined). Synonymised by Britton, 1940: 500.
Pterostichus lewisi Broun, 1894: 310. Type locality: Wellington, WN. Synonymised by Britton, 1940: 500.
Trichosternus (*Nesopterostichus*) *rugifrons*: Tschitschérine, 1902: 521.
Pterostichus setiventris Broun, 1903: 606. Type locality: Westport, NN. Synonymised by Britton, 1940: 500.
Holcaspis myrmidon: Walker, 1904: 126.
Holcaspis pastoricius: Hutton, 1904: 146.
Holcaspis egmontensis: Hutton, 1904: 147.
Holcaspis irregularis: Hutton, 1904: 147.
Holcaspis sculptipes: Hutton, 1904: 147.
Holcaspis lewisi: Hutton, 1904: 147.
Pterostichus antennalis Broun, 1908: 412. Type locality: "Takuratahi [=Pakuratahi] and Mt Holdsworth", WN (Broun, 1908: 413), "Mt Holdsworth, Pakuratahi", WN (Butcher, 1984: 80, lectotype designated). Synonymised by Britton, 1940: 500.
Trichosternus (*Megadromus*) *nigrifrons* [*sic*]: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *antennalis*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *lewisi*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *setiventris*: Csiki, 1930: 546.
Holcaspis rugifrons: Csiki, 1930: 559.

Geographic distribution (Map p. 240). North Island: HB, RI, TK, TO, WA, WI, WN, WO. South Island: BR, KA, MB, MC, NN, SC, SD, WD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Mostly wet forests (broadleaf, podocarp, beech), shrublands, and tree plantations (pine): often along streams; also alpine meadows, pastures, gardens; caves (occasionally). Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: Throughout the year. Tenerals: October–November, January, April–May, July. Predacious (based on mouthpart morphology). Predators: Kiwis. Regularly infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1934: 37 (distribution, ecology); Britton, 1940: 501 (distribution); Townsend, 1963: 94 and 1974b: 430 (distribution, ecology); McColl, 1975: 25 (ecology, biology); Butcher, 1984: 79–80 (distribution); Moeed & Meads, 1985: 22, 35–36 (distribution, ecology, biology); Colbourne *et al.,* 1990: 540 (biology); Townsend, 1998: 12, 14, 20–21 (taxonomy, distribution).

Note. *Holcaspis oedicnema* could represent a species complex.

Holcaspis subaenea (Guérin-Méneville, 1841)

Feronia (*Platysma?*) *subaenea* Guérin-Méneville, 1841a: 122. Type locality: New Zealand.
Feronia (*Platysma*) *subaenea*: Lacordaire, 1854: 326.
Platysma subaeneum: Gemminger & Harold, 1868: 320.
Feronia subaenea: Hutton, 1874: 159.
Holcaspis subaenea: Bates, 1874: 243.
Pterostichus subaenea [*sic*]: Sharp, 1886: 369.
Feronia (*Holcaspis*) *subaenea*: Tschitschérine, 1891: 166.

Geographic distribution (Map p. 241). South Island: DN.

Ecology. Lowland. Habitat unknown; possibly silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 502 (distribution); Johns, 1964: 8 (distribution, biogeography); Butcher & Emberson, 1981: 63, 69 (distribution, ecology, biology); Butcher, 1984: 82 (distribution).

oedicnema group, *vagepunctata* complex

Holcaspis sinuiventris (Broun, 1908)

Pterostichus sinuiventris Broun, 1908: 416. Type locality: Manawatu Flats, nine miles below the Gorge, WI/WN (Broun, 1908: 417), Manawatu Gorge, RI/WN (Butcher, 1984: 90, lectotype designated).
Trichosternus (*Megadromus*) *sinuiventris*: Csiki, 1930: 546.
Holcaspis sinuiventris: Britton, 1940: 502.

Geographic distribution (Map p. 241). North Island: AK, BP, GB, HB, ND, RI, WA, WI, WN, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (broadleaf, podocarp, beech) and shrublands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–October, December–March, May, July. Tenerals: January–February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 502 (distribution); Butcher, 1984: 90 (distribution).

Note. This species is difficult to distinguish from *H. vagepunctata*.

Holcaspis vagepunctata (White, 1846)

Feronia (*Pterostichus*) *vagepunctata* White, 1846: 4. Type locality: Port Nicholson, WN. Synonymised under *H. subaenea* (Guérin-Méneville, 1841a: 122) by Bates, 1874: 243; resurrected from synonymy by Britton, 1940: 502.
Feronia vagepunctata: Lacordaire, 1854: 326.
Omaseus vagepunctatus: Gemminger & Harold, 1868: 313.
Holcaspis praecox Broun, 1886: 827. Type locality: Near Wellington, WN (Broun, 1886: 827), Wellington, WN (Butcher, 1984: 90, holotype examined). Synonymised by Britton, 1940: 502.
Pterostichus praecox: Broun, 1893a: 991.
Holcaspis vagepunctata: Britton, 1940: 502.

Geographic distribution (Map p. 241). North Island: AK, GB, HB, RI, WA, WN, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech). Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–November, January–March, May–July. Tenerals: February, April. Predacious (based on mouthpart morphology). Parasites: Mites.

Dispersal power. Subapterous. Moderate runner.

References. Smith, 1902: 200 (biology); Hudson, 1934: 37 (distribution, ecology); Britton, 1940: 502 (distribution); McColl, 1975: 26 (ecology); Butcher, 1984: 90 (distribution).

Note. This species is difficult to distinguish from *H. sinuiventris*.

ovatella group

Holcaspis ovatella (Chaudoir, 1865)

Feronia (Holcaspis) ovatella Chaudoir, 1865b: 105. Type locality: New Zealand.
Omaseus ovatellus: Gemminger & Harold, 1868: 313.
Feronia ovatella: Hutton, 1874: 159.
Holcaspis ovatella: Bates, 1874: 244.
Pterostichus ovatellus: Sharp, 1886: 370.
Pterostichus perbonus Broun, 1908: 418. Type locality: Westport, NN ("almost certainly incorrect" (Butcher, 1984: 54)). Synonymised by Butcher, 1984: 53.
Trochosternus (*Megadromus*) *perbonus*: Csiki, 1930: 546.
Holcaspis ovatella ovatella: Britton, 1940: 495.
Holcaspis ovatella perbonus [*sic*]: Britton, 1940: 495.

Geographic distribution (Map p. 240). South Island: CO, DN, OL, SC, SL.

Ecology. Eurytopic, epigean. Lowland, upland, subalpine, alpine. Tussock grasslands, herbfields, cushion fields, fellfields, forests (beech). Nocturnal; hides during the day under stones.

Biology. Seasonality: October–April. Predacious. Food: Cicadids.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 495 (distribution); Valentine, 1967: 1102 (biology); Butcher, 1984: 54 (distribution); Barratt & Patrick, 1987: 82 (distribution, ecology); Patrick *et al*., 1992a: 273 (distribution); Patrick *et al*., 1993: 11 (distribution, ecology).

sternalis group

Note. Previously known as *punctiger* group (see Notes under *Holcaspis sternalis*).

Holcaspis mordax Broun, 1886

Holcaspis mordax Broun, 1886: 938. Type locality: Base of Mt Egmont, TK (Broun, 1886: 938), Taranaki, TK (Butcher, 1984: 57, lectotype designated).
Pterostichus mordax: Broun, 1893a: 991.
Pterostichus hunuensis Broun, 1893a: 996. Type locality: Hunua, near Papakura, AK. Synonymised by Britton, 1940: 496.
Pterostichus scitipennis Broun, 1893a: 1396. Type locality: Mt Pirongia, WO. Synonymised by Britton, 1940: 496.
Holcaspis hunuensis: Hutton, 1904: 146.
Holcaspis scitipennis: Hutton, 1904: 146.

Geographic distribution (Map p. 240). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WI, WN, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (broadleaf, podocarp, beech), shrublands, and tree plantations (pine). Nocturnal; hides during the day under logs, stones, and in leaf litter.

Biology. Seasonality: September–March, July. Tenerals: April. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 496 (distribution); Butcher, 1984: 57 (distribution).

Holcaspis sternalis Broun, 1881

Holcaspis sternalis Broun, 1881: 658. Type locality: Near Whangarei Harbour, ND [mislabelling for Maungatua, DN].

Cerabilia punctigera Broun, 1882: 223 (redescribed in 1883: 223 and 1886: 753). Type locality: Invercargill, SL. Synonymised by Britton, 1940: 478, 495; incorrectly resurrected from synonymy by Butcher, 1984: 54. Here reinstated as a junior synonym.

Pterostichus oscillator Sharp, 1886: 369. Type locality: Dunedin, DN and Otago (Sharp, 1886: 370), Dunedin, DN (Butcher, 1984: 55, lectotype designated). Synonymised by Britton, 1940: 495.

Pterostichus sternalis: Broun, 1893a: 991.

Pterostichus perfidiosus Broun, 1893a: 995. Type locality: Dunedin (Flagstaff Hill), DN (Broun, 1893a: 996); Dunedin, DN (Butcher, 1984: 55, holotype examined). Synonymised by Britton, 1940: 495.

Holcaspis oscillator: Hutton, 1904: 146.

Holcaspis perfidiosus [*sic*]: Hutton, 1904: 146.

Pterostichus lepidulus Broun, 1908: 419. Type locality: West Plains, Invercargill, SL. Synonymised by Britton, 1940: 495.

Pterostichus melanostolus Brookes, 1926: 443. Type locality: Waitati, near Dunedin, DN. Synonymised by Britton, 1940: 495.

Trichosternus (*Megadromus*) *lepidulus*: Csiki, 1930: 546.

Trichosternus (*Megadromus*) *melanostolus*: Csiki, 1930: 546.

Holcaspis punctigera: Butcher, 1984: 54. Incorrectly considered a valid species.

Geographic distribution (Map p. 241). South Island: CO, DN, FD, MC, MK, OL, SC, SL. Stewart Island.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine, alpine. Tussock grasslands, herbfields, cushion fields, gardens, swamps, shrublands, forests (beech, podocarp), tree plantations (pine). Nocturnal; hides during the day under large stones and logs.

Biology. Seasonality: Throughout the year, except July. Tenerals: October, February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner. Occasional climber (on shrubs).

References. Britton, 1940: 478, 485, 495 (taxonomy, distribution); Butcher, 1984: 55, 94 (taxonomy, distribution). Patrick *et al*., 1986: 14 (distribution); Barratt & Patrick, 1987: 82 (distribution, ecology, biology); Patrick *et al*., 1987: 35 (distribution); Patrick *et al.,* 1993: 11 (distribution, ecology).

Notes. The authors agree with Britton (1940: 495) and his examination of the Broun Collection that the type locality "Whangarei Harbour" published by Broun (1881: 658) is incorrect and should be "Maungatua", DN. Still following Britton (1940: 495) and, to the contrary of Butcher (1984: 94), the authors retain *H. punctigera* as a junior synonym of *Holcaspis sternalis*, not as a valid species. Butcher (1984: 94) did not see the specimen from the Broun Collection and considered that the original description of *H. sternalis* was made from a specimen of *H. punctigera*. We disagree with Butcher, and consider that the type of *H. sternalis* was simply mislabelled, as explained above.

Genus *Megadromus* Motschulsky, 1866

Figures 19–20

Megadromus Motschulsky, 1866: 249. Type species: *Feronia* (*Trichosternus*) *antarctica* Chaudoir, 1865b, by monotypy.

Nesopterostichus Tschitschérine, 1902: 521 (originally proposed with subgeneric rank in *Trichosternus* Chaudoir, 1865b). Type species: *Feronia* (*Trichosternus*) *guerinii* Chaudoir, 1865b, by original designation. Synonymised by Britton, 1940: 480.

Geographic distribution. New Zealand (mostly) and Australia (mainland).

References. Britton, 1940: 479–489 (revision); Sherley, 1994: 115 (conservation).

Notes. Peter M. Johns (Christchurch, New Zealand) is currently revising this genus. Twelve species await description. A few species could be removed from synonymy. Most species occur in the South Island. Members of this genus are general scavengers and usually emit a strong defensive smell when disturbed.

Subgenus *Megadromus* Motschulsky, 1866

Geographic distribution. New Zealand (endemic).

Notes. Moore (1965b: 17) created the subgenus *Protodromus* for two Australian species. All other currently described species of *Megadromus* occur in New Zealand and belong to the nominotypical subgenus.

Megadromus (Megadromus) alternus (Broun, 1886)

Trichosternus alternus Broun, 1886: 877. Type locality: Near Lake Tekapo, MK.
Trichosternus urquharti Broun, 1886: 877. Type locality: Vicinity of Lake Tekapo, MK. Synonymised by Britton, 1940: 486.
Trichosternus (*Nesopterostichus*) *alternus*: Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *urquharti*: Tschitschérine, 1902: 521.
Trichosternus (*Megadromus*) *alternus*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *urquharti*: Csiki, 1930: 545.
Megadromus alternus: Britton, 1940: 486.

Geographic distribution (Map p. 252). South Island: CO, MC, MK, SC.

Ecology. Eurytopic, epigean, xerophilous. Montane, subalpine, alpine. Dry forests (beech), screes, lakeshores. Nocturnal; hides during the day under logs and stones.

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

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1940: 486 (distribution).

Megadromus (Megadromus) antarcticus (Chaudoir, 1865)

Figure 19
Feronia (Trichosternus) antarctica Chaudoir, 1865b: 73. Type locality: New Zealand.
Megadromus viridilimbatus Motschulsky, 1866: 251. Type locality: New Zealand. Synonymised by Bates, 1874: 242.
Homalosoma antarcticum: Gemminger & Harold, 1868: 329.
Trichosternus antarcticus: Bates, 1874: 242.
Feronia antarctica: Broun, 1876: 264.
Trichosternus crassalis Broun, 1893a: 1395. Type locality: Albury, SC. Synonymised by Britton, 1940: 484.
Trichosternus (*Nesopterostichus*) *antarcticus*: Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *crassalis*: Tschitschérine, 1902: 521.
Trichosternus coelocephalus Broun, 1908: 405. Type locality: Ashburton, MC. Synonymised by Britton, 1940: 484.
Trichosternus dissentaneus Broun, 1910b: 6. Type locality: Ashburton, MC. Synonymised by Britton, 1940: 484.
Trichosternus blandellus Broun, 1915: 274. Type locality: Mt Hutt, MC. Synonymised by Britton, 1940: 484.
Trichosternus (*Megadromus*) *antarcticus*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *crassalis*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *coelocephalus*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *dissentaneus*: Csiki, 1930: 544.
Megadromus antarcticus: Britton, 1940: 484.

Geographic distribution (Map p. 252). South Island: MC, NC, SC. Offshore Islands: CH (adventive; not established).

Ecology. Eurytopic, epigean-fossorial, mostly xerophilous, synanthropic. Lowland, montane. Dry shrublands, scrublands, open or light forests (broadleaf, beech, podocarp), tree plantations (pine), and tree hedges; tussock grasslands, pastures, cultivated fields (potato, carrot), non-arable farmlands, hillsides, urban and suburban gardens. Mostly nocturnal; hides during the day under logs, stones, boards, and in deep burrows (down to 0.5m).

Biology. Seasonality: Throughout the year, except August. Tenerals: March. Predacious. Food, in the field: Small invertebrates. Food, in captivity: Caterpillars, mealworms. Predators: Hedgehogs (major enemies), starlings; kingfishers (R.M. Emberson, personal communication). Defense mechanism: Either emits a strong nasty smell or gives a painful nip when disturbed; parental care exhibited by the female who protects her eggs against enemies.

Dispersal power. Subapterous. Moderate runner.

References. Martin, 1929: 118 (biology); Hudson, 1934: 36 (distribution, ecology); Britton, 1940: 484 (distribution); Campbell, 1973: 38 (biology); Wood, 1973: 160 (biology); Johns, 1980: 61, 65 and 1986: 30 (distribution, ecology); Butcher & Emberson 1981: 63, 67–68 (distribution, ecology, biology); Walker, 1984: 25 (distribution, biology); Johns, 1995: 261–262 (nomenclature, distribution, ecology).

Notes. Common name: Alexander Beetle. *Trichosternus crassalis* could be a valid species. Two new subspecies await description (Molloy *et al*., 1994: 58).

Megadromus (Megadromus) asperatus (Broun, 1886), new combination

Trichosternus asperatus Broun, 1886: 822. Type locality: Mt Maungatua, DN.
Pterostichus asperatus: Broun, 1893a: 986.
Trichosternus (*Megadromus*) *asperatus*: Csiki, 1930: 545.

Geographic distribution (Map p. 252). South Island: DN.

Ecology. Montane. Habitat unknown; probably forests.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This species, described in *Trichosternus* by Broun, has the elytral pubescence of characteristic of *Megadromus* and could be conspecific with *Megadromus meritus*.

Megadromus (Megadromus) bucolicus (Broun, 1903)

Trichosternus bucolicus Broun, 1903: 604. Type locality: Stephens Island, SD. Synonymised with *Megadromus capito* (White, 1846) by Britton, 1940: 485; resurrected from synonymy by Townsend, 1997: 13.
Trichosternus (*Megadromus*) *bucolicus*: Csiki, 1930: 544.

Megadromus bucolicus: Molloy *et al*., 1994: 59 and Townsend, 1997: 13.

Geographic distribution (Map p. 252). South Island: SD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf) and scrublands. Nocturnal; hides during the day under logs.

Biology. Seasonality: February, May, July–August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 485 (taxonomy); Molloy *et al.,* 1994: 59 (distribution, conservation); Townsend, 1997: 13 (taxonomy, distribution) and 1998: 5, 12, 21 (taxonomy, distribution).

Megadromus (Megadromus) bullatus (Broun, 1915)

Pterostichus bullatus Broun, 1915: 275. Type locality: Greenstone Flat, near Queenstown, OL.
Megadromus bullatus: Britton, 1940: 483.

Geographic distribution (Map p. 252). South Island: CO, DN, FD, MK, OL, SL. Stewart Island.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp) and tree plantations (pine), tussock grasslands. Nocturnal; hides during the day under fallen trees, big logs and stones.

Biology. Seasonality: September–April. Tenerals: April. Predacious (based on mouthpart morphology). Predators: Stoats. Occasionally infested with mites. Defense mechanism: Either emits a strong smell or bites strongly when disturbed.

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1934: 37 (distribution); Britton, 1940: 485 (distribution); King & Moody, 1982: 79 (biology); Barratt & Patrick, 1987: 82 (distribution, ecology, biology); Patrick *et al.,* 1993: 11 (distribution, ecology); Peat & Patrick, 1995: 118 (distribution, ecology).

Note. This taxon could represent a species complex.

Megadromus (Megadromus) capito (White, 1846)

Figure 20

Feronia (*Platysma*) *capito* White, 1846: 4. Type locality: New Zealand.
Feronia capito: Lacordaire, 1854: 326.
Feronia (*Trichosternus*) *capito*: Chaudoir, 1865b: 74.
Homalosoma capito: Gemminger & Harold, 1868: 329.
Trichosternus capito: Bates, 1874: 243.
Pterostichus (*Trichosternus*) *aucklandicus* Bates, 1878c: 25. Type locality: Auckland, AK. Synonymised by Britton, 1940: 485.
Trichosternus aucklandicus Broun, 1880: 33. Type locality: Auckland, AK. Secondary homonym of *Pterostichus* (*Trichosternus*) *aucklandicus* Bates, 1878c.
Trichosternus humeralis Broun, 1882: 220 (redescribed in 1883: 220 and 1886: 750). Type locality: Hicks Bay, BP. Synonymised by Britton, 1940: 485.
Trichosternus cephalotes Broun, 1886: 825. Type locality: Near Wellington, WN. Synonymised by Britton, 1940: 485.
Pterostichus capito: Sharp, 1886: 366.
Trichosternus (*Nesopterostichus*) *capito*: Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *aucklandicus* (Bates): Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *cephalotes*: Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *humeralis*: Tschitschérine, 1902: 521.
Trichosternus hudsoni Broun, 1904: 44. Type locality: Wellington, WN. Synonymised by Britton, 1940: 485.
Trichosternus ordinarius Broun, 1908: 407. Type locality: Lake Horowhenua, WN. Synonymised by Britton, 1940: 485.
Trichosternus (*Megadromus*) *capito*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *aucklandicus*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *humeralis*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *cephalotes*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *hudsoni*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *ordinarius*: Csiki, 1930: 544.
Megadromus capito: Britton, 1940: 485.

Geographic distribution (Map p. 252). North Island: AK, BP, CL, GB, HB, RI, TK, TO, WA, WI, WN, WO.

Ecology. Epigean, mostly silvicolous. Lowland, montane. Wet or dry forests (broadleaf, podocarp, beech), shrublands, and scrublands; tree hedges, flaxlands, pastures, grasslands, cultivated fields (potato). Mostly nocturnal; hides during the day under stones, logs, and in burrows dug at the base of plants.

Biology. Seasonality: Throughout the year. Tenerals: January–March. Predacious. Food: Small invertebrates. Predators: Starlings. Occasionally infested with mites. Defense mechanism: Either emits a strong repugnatorial smell or bites strongly when disturbed; parental care exhibited by the female who protects her eggs and young larvae against enemies.

Dispersal power. Subapterous. Moderate runner. Good burrower.

References. Hudson, 1934: 36 (distribution, ecology); Britton, 1940: 485 (distribution); Moeed, 1980: 250 (biology); Walker, 1984: 25 (distribution, biology); Moeed & Meads, 1992: 67 (distribution, ecology); Townsend, 1994: 9, 10, 12 (distribution, ecology).

Note. The type locality of *Trichosternus cephalotes* could be the Tararua Ranges as implied by Broun's description ("taken on the range near Wellington").

Megadromus (Megadromus) compressus (Sharp, 1886)

Pterostichus (Trichosternus) compressus Sharp, 1886: 366. Type locality: Picton, SD.
Trichosternus compressus: Broun, 1893a: 986.
Trichosternus (*Nesopterostichus*) *compressus*: Tschitschérine, 1902: 521.
Trichosternus (*Megadromus*) *compressus*: Csiki, 1930: 544.
Megadromus compressus: Britton, 1940: 486.

Geographic distribution (Map p. 252). South Island: MB, SD.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine, alpine. Forests (beech, broadleaf), tussock grasslands, pastures. Nocturnal; hides during the day under stones, logs, and boards.

Biology. Seasonality: September–October, January–April, July–August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 486 (distribution); Watt, 1981: 13 (distribution, conservation); Molloy *et al*., 1994: 60 (distribution, conservation); Townsend, 1997: 13 (distribution).

Megadromus (Megadromus) curtulus (Broun, 1884), new status

Trichosternus erythropus Broun, 1884: 226 (redescribed in 1886: 913). Type locality: Rock and Pillar Mountains, Strath-Taieri, CO. Secondary homonym of *Pterostichus erythropus* (Marsham, 1802).
Trichosternus curtulus Broun, 1884: 227 (redescribed in 1886: 916). Type locality: Rock and Pillar Mountains, CO. Synonymised with *M. optabilis* by Britton, 1940: 488.
Trichosternus suspicax Broun, 1884: 227 (redescribed in 1886: 917). Type locality: Rock and Pillar Mountains, CO. Synonymised with *M. optabilis* by Britton, 1940: 488.
Pterostichus optabilis Broun, 1893a: 986 (replacement name for *Trichosternus erythropus* Broun, 1884). Here reinstated as a junior synonym.
Pterostichus curtulus: Broun, 1893a: 986.
Pterostichus suspicax: Broun, 1893a: 986.
Trichosternus (*Megadromus*) *curtulus*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *optabilis*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *suspicax*: Csiki, 1930: 546.
Megadromus optabilis: Britton, 1940: 488.
Megadromus curtulus: Patrick, 1991: 20.

Geographic distribution (Map p. 253). South Island: CO, DN.

Ecology. Epigean. Lowland, montane, subalpine. Tussock grasslands, pastures, fellfields. Nocturnal; shelters during the day.

Biology. September, November, January–May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 488 (distribution); Patrick, 1991: 20 (distribution).

Note. Britton (1940: 488) synonymised *Trichosternus curtulus* Broun, 1884 and *Pterostichus optabilis* Broun, 1893, overlooking the fact that the former name was the oldest available one that should have been applied to this species.

Megadromus (Megadromus) enysi (Broun, 1882)

Trichosternus enysi Broun, 1882: 221 (redescribed in 1883: 221 and 1886: 752). Type locality: Canterbury, South Island.
Trichosternus (*Nesopterostichus*) *enysi*: Tschitschérine, 1902: 521.
Trichosternus walkeri Broun, 1903: 602. Type locality: Springfield, MC. Synonymised by Britton, 1940: 484.
Trichosternus halli Broun, 1914b: 149. Type locality: Mt Hutt, near Methven, MC. Synonymised by Britton, 1940: 484.
Trichosternus (*Megadromus*) *enysi*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *walkeri*: Csiki, 1930: 545
Megadromus enysi: Britton, 1940: 484.

Geographic distribution (Map p. 253). North Island: WN. South Island: MC, WD.

Ecology. Eurytopic, epigean-fossorial. Lowland, montane, subalpine, alpine. Forests (beech, podocarp, broadleaf), swamp forests, scrublands, shrublands, tussock grasslands, modified grasslands, farmlands, flaxlands, gardens, Nocturnal; hides during the day under logs, within cracks in logs, under stones, and in soil burrows (down to 10 cm).

Biology. Seasonality: September–April. Predacious (based on mouthpart morphology). Occasionally infested with mites. Defense mechanism: Parental care exhibited by the female who protects her eggs against enemies (R.M. Emberson and P.M. Johns, personal communications).

Dispersal power. Subapterous. Moderate runner. Good burrower.

References. Britton, 1940: 485 (distribution); Harrison & White, 1969: 384 (distribution, ecology); Johns, 1969: 393, 1977: 317, 323, 1980: 61–62, 65, and 1995: 261–262 (distribution, ecology).

Note. The type locality of *T. enysi* could be Broken River, MC, as noted by Broun in his personal copy of his *Manual*.

Megadromus (Megadromus) fultoni (Broun, 1882)

Trichosternus fultoni Broun, 1882: 221 (redescribed in 1883: 221 and 1886: 751). Type locality: Outram, DN (Broun, 1882: 221).
Trichosternus erraticus Broun, 1884: 227 (redescribed in 1886: 915). Type locality: Taieri, DN. Synonymised by Britton, 1940: 488.

Trichosternus amplicollis Broun, 1884: 227 (redescribed in 1884: 918). Type locality: Taieri, DN. Synonymised by Britton, 1940: 488.
Trichosternus curvipes Broun, 1886: 878. Type locality: Taieri, DN. Synonymised by Britton, 1940: 488.
Pterostichus fultoni: Broun, 1893a: 986.
Pterostichus erraticus: Broun, 1893a: 986.
Pterostichus amplicollis: Broun, 1893a: 986.
Pterostichus curvipes: Broun, 1893a: 986.
Trichosternus polychaetus Broun, 1893a: 987. Type locality: Taieri, DN. Synonymised by Britton, 1940: 488.
Trichosternus (*Nesopterostichus*) *polychaetus*: Tschitschérine, 1902: 521.
Pterostichus flectipes Broun, 1908: 413. Type locality: South Island, probably Westport, NN. Synonymised by Britton, 1940: 488.
Trichosternus (*Megadromus*) *amplicollis*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *curvipes*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *polychaetus*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *fultoni*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *erraticus*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *flectipes*: Csiki, 1930: 546.
Megadromus fultoni: Britton, 1940: 488.

Geographic distribution (Map p. 253). South Island: DN.

Ecology. Lowland. Habitat unknown.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 489 (distribution); Molloy *et al*., 1994: 60 (distribution, conservation).

Note. This species is difficult to distinguish from *M. meritus*.

Megadromus (Megadromus) guerinii (Chaudoir, 1865)

Feronia (Platysma?) australasiae Guérin-Méneville, 1841a: 121. Type locality: "Port Otago [DN], Bay of Islands [ND], etc" (Guérin-Méneville, 1841a: 122); Otago (Britton, 1940: 483). Primary homonym of *Feronia australasiae* Dejean, 1828.
Abax australasiae: Blanchard, 1853: 31.
Feronia (*Platysma*) *australasiae*: Lacordaire, 1854: 326.
Feronia (Trichosternus) guerinii Chaudoir, 1865b: 75 (replacement name for *Feronia (Platysma?) australasiae* Guérin-Méneville, 1841a).
Homalosoma australasiae: Gemminger & Harold, 1868: 329.
Feronia australasiae: Hutton, 1874: 159.
Trichosternus guerinii: Broun, 1880: 32.
Trichosternus (*Nesopterostichus*) *australasiae*: Tschitschérine, 1902: 521.
Trichosternus akaroensis Broun, 1903: 603. Type locality: Akaroa, MC. Synonymised by Britton, 1940: 483.
Trichosternus (*Megadromus*) *australasiae*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *guerinii*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *akaroensis*: Csiki, 1930: 544.
Megadromus australasiae: Britton, 1940: 483.

Geographic distribution (Map p. 253). South Island: DN, MC, SC.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland. Dry forests (podocarp, broadleaf) and shrublands, pastures, gardens. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–March, July–August. Egg stage: October, February (MC). Tenerals: February–March. Predacious (based on mouthpart morphology). Occasionally infested with mites. Defense mechanism: Parental care exhibited by the female who protects her eggs against enemies.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 483 (distribution); Johns, 1986: 30 (distribution, ecology, biology).; Emberson, 1993b: 20 (taxonomy).

Note. Chaudoir's replacement name (1865b) was overlooked by Britton (1940: 483).

Megadromus (Megadromus) haplopus (Broun, 1893)

Trichosternus haplopus Broun, 1893a: 1323. Type locality: Hampden, DN.
Trichosternus (*Nesopterostichus*) *haplopus*: Tschitschérine, 1902: 521.
Pterostichus haplopus: Hutton, 1904: 146.
Trichosternus (*Megadromus*) *haplopus*: Csiki, 1930: 544.
Megadromus haplopus: Britton, 1940: 487.

Geographic distribution (Map p. 253). South Island: CO, DN, SL.

Ecology. Epigean, stenotopic, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp). Nocturnal; hides during the day under logs and stones.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 487 (distribution); Molloy *et al*., 1994: 59 (distribution, conservation).

Megadromus (Megadromus) lobipes (Bates, 1878)

Pterostichus lobipes Bates, 1878b: 191. Type locality: Otira River, WD.
Trichosternus (*Pterostichus*) *lobipes*: Broun, 1880: 34.
Trichosternus lobipes: Broun, 1893a: 986.
Trichosternus (*Nesopterostichus*) *lobipes*: Tschitschérine, 1902: 521.
Trichosternus (*Megadromus*) *lobipes*: Csiki, 1930: 544.
Megadromus lobipes: Britton, 1940: 482.

Geographic distribution (Map p. 253). South Island: BR, MC, NC, NN, WD.

Ecology. Epigean, mostly silvicolous. Lowland, montane. Wet forests (beech, podocarp) and tree plantations (pine); caves (occasionally). Nocturnal; hides during the day under and in large logs.

Biology. Seasonality: October–May, August. Tenerals: November. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 482 (distribution); Johns, 1980: 61, 65 (distribution, ecology); Worthy & Holdaway, 1993: 178 (subfossils); Townsend, 1997: 13 (distribution).

Megadromus (Megadromus) memes (Broun, 1903)

Pterostichus memes Broun, 1903: 605. Type locality: Maniototo Plains [=Upper Taieri], CO.
Trichosternus (*Megadromus*) *memes*: Csiki, 1930: 546.
Megadromus memes: Britton, 1940: 488.

Geographic distribution (Map p. 253). South Island: CO.

Ecology. Epigean. Lowland. A tree plantation (pine). Nocturnal; shelters during the day.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1940: 488 (distribution).

Megadromus (Megadromus) meritus (Broun, 1884)

Trichosternus meritus Broun, 1884: 227 (redescribed in 1886: 914). Type locality: Invercargill, SL.
Trichosternus angulatus Broun, 1884: 227 (redescribed in 1886: 914). Type locality: Invercargill, SL. Synonymised by Britton, 1940: 489.
Trichosternus convexus Broun, 1884: 227 (redescribed in 1886: 915). Type locality: Invercargill, SL. Secondary homonym of *Pterostichus convexus* (Gebler, 1847). Synonymised by Britton, 1940: 489.
Trichosternus agriotes Broun, 1884: 227 (redescribed in 1886: 915). Type locality: Invercargill, SL. Synonymised by Britton, 1940: 489.
Trichosternus riparius Broun, 1884: 227 (redescribed in 1886: 916). Type locality: Lee Stream, Taieri, DN. Secondary homonym of *Pterostichus riparius* (Dejean, 1828). Synonymised by Britton, 1940: 489.
Trichosternus waihourensis Broun, 1886: 821. Type locality: Waihoura, "Bruce Co.", Otago, South Island. Synonymised by Britton, 1940: 489.
Trichosternus monticola Broun, 1886: 821. Type locality: Mt Maungatua, Taieri, DN. Synonymised by Britton, 1940: 489.
Trichosternus aeruginosus Broun, 1886: 822. Type locality: Mt Maungatua, DN. Synonymised by Britton, 1940: 489.
Trichosternus chloris Broun, 1886: 823. Type locality: Mt Maungatua, DN. Synonymised by Britton, 1940: 489.
Trichosternus grassator Broun, 1886: 823. Type locality: Waihola, Otago, DN. Synonymised by Britton, 1940: 489.
Trichosternus patruelis Broun, 1886: 824. Type locality: Mt Maungatua, DN. Secondary homonym of *Pterostichus patruelis* (Dejean, 1831). Synonymised by Britton, 1940: 489.
Trichosternus fusulus Broun, 1886: 824. Type locality: Maungatua, DN. Synonymised by Britton, 1940: 489.
Pterostichus deceptus Broun, 1886: 916 (replacement name for *Pterostichus riparius* (Broun, 1884)). Synonymised by Britton, 1940: 489.
Pterostichus waihorensis [*sic*]: Broun, 1893a: 986.
Pterostichus monticola: Broun, 1893a: 986.
Pterostichus aeruginosus: Broun, 1893a: 986.
Pterostichus chloris: Broun, 1893a: 986.
Pterostichus grassator: Broun, 1893a: 986.
Pterostichus amicus Broun, 1893a: 986 (replacement name for *Pterostichus patruelis* (Broun, 1886)). Synonymised by Britton, 1940: 489.
Pterostichus fusulus: Broun, 1893a: 986.
Pterostichus angulatus: Broun, 1893a: 986.
Pterostichus meliusculus Broun, 1893a: 986 (replacement name for *Pterostichus convexus* (Broun, 1884)). Synonymised by Britton, 1940: 489.
Pterostichus agriotis [*sic*]: Broun, 1893a: 986.
Pterostichus kirkianus Broun, 1903: 604. Type locality: Stewart Island. Synonymised by Britton, 1940: 489.
Pterostichus maiaei Broun, 1917: 363. Type locality: Kuriwai Bush, near Wyndham, SL. Synonymised by Britton, 1940: 489.
Trichosternus (*Megadromus*) *aeruginosus*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *agriotis* [*sic*]: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *amicus*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *angulatus*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *chloris*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *deceptus*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *fusulus*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *grassator*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *kirkianus*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *maiei* [*sic*]: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *meliusculus*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *meritus*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *monticola*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *waihorensis* [*sic*]: Csiki, 1930: 547.
Pterostichus meritus: Hudson, 1934: 175.
Megadromus meritus: Britton, 1940: 489.

Geographic distribution (Map p. 253). South Island: DN, SL. Stewart Island

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp, broadleaf) and shrublands, tussock grasslands, pastures, herbfields. Nocturnal; hides during the day under logs and fallen trees.

Biology. Seasonality: Throughout the year, except June. Tenerals: September, February. Predacious (based on mouthpart morphology). Parasites: Nematodes. Occasionally infested with mites. Defense mechanism: Emits a strong smell when disturbed; parental care exhibited by

the female who protects her eggs and larvae against enemies.

Dispersal power. Subapterous. Moderate runner.

References. Smith, 1920: 14 (biology); Britton, 1940: 489 (distribution); Patrick *et al*., 1993: 11 (distribution, ecology).

Megadromus (Megadromus) rectalis (Broun, 1881)

Trichosternus rectalis Broun, 1881: 656. Type locality: Near Nelson, NN (Broun, 1881: 656); Nelson, NN (Britton, 1940: 486).
Trichosternus (*Nesopterostichus*) *rectalis*: Tschitschérine, 1902: 521.
Trichosternus hanmerensis Broun, 1908: 406. Type locality: Hanmer, MB. Synonymised by Townsend, 1997: 13.
Trichosternus (*Megadromus*) *hanmerensis*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *rectalis*: Csiki, 1930: 545.
Megadromus rectalis: Britton, 1940: 486.
Megadromus hanmerensis: Britton, 1940: 486.

Geographic distribution (Map p. 253). South Island: KA, MB, MC, NC, NN.

Ecology. Eurytopic, epigean, mostly silvicolous. Lowland, montane, subalpine, alpine. Both wet and dry forests (beech, broadleaf), tree plantations (pine), shrublands, scrublands, tussock grasslands, screes. Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: September–August. Tenerals: May. Predacious (based on mouthpart morphology). Occasionally infested with mites. Defense mechanism: Parental care exhibited by the female who protects her eggs and larvae against enemies.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 486 (distribution); Johns, 1969: 393 (distribution, ecology); Johns *et al*., 1980: 26 (distribution, ecology, biology); Townsend, 1997: 13 (taxonomy, distribution).

Megadromus (Megadromus) rectangulus (Chaudoir, 1865)

Feronia (*Trichosternus*) *rectangula* Chaudoir, 1865b: 74. Type locality: New Zealand.
Homalosoma rectangulum: Gemminger & Harold, 1868: 329.
Feronia rectangula: Hutton, 1874: 159.
Trichosternus rectangulus: Bates, 1874: 243.
Pterostichus rectangulus: Sharp, 1886: 366.
Trichosternus (*Nesopterostichus*) *rectangulus*: Tschitschérine, 1902: 521.
Trichosternus (*Megadromus*) *rectangulus*: Csiki, 1930: 545.
Megadromus rectangulus: Britton, 1940: 486.

Geographic distribution (Map p. 254). South Island: MB, MC, NC, SD.

Ecology. Epigean, mostly silvicolous. Lowland, montane. Mostly forests (broadleaf), tree plantations (pine, willow), shrublands, and scrublands (native, exotic); tussock grasslands, gardens; stony-gravelly coastline grown with *Muehlenbeckia*. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–October, December–May, August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 487 (distribution); Johns *et al.,* 1980: 26 (distribution, ecology); Watt, 1981: 13 (conservation); Johns, 1995: 261–262 (distribution, ecology); Townsend, 1997: 13 (distribution, ecology).

Megadromus (Megadromus) sandageri (Broun, 1893)

Pterostichus sandageri Broun, 1893a: 988. Type locality: Puysegur Point, FD.
Pterostichus oneroaensis Broun, 1908: 413. Type locality: Te Oneroa, FD and Invercargill, SL. Synonymised by Britton, 1940: 487.
Pterostichus hamiltoni Broun, 1912: 390. Type locality: Bold Peak, Wakatipu, OL. Primary homonym of *Pterostichus hamiltoni* Horn, 1880. Synonymised by Britton, 1940: 487.
Pterostichus pascoi Broun, 1915: 275. Type locality: Ben Lomond, OL. Synonymised by Britton, 1940: 487.
Pterostichus aciphyllae Broun, 1917: 361. Type locality: Clipping's Bush, near Kingston, OL. Synonymised by Britton, 1940: 487.
Trichosternus (*Megadromus*) *aciphyllae*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *hamiltoni*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *oneroaënsis*: Csiki, 1930: 546.
Trichosternus (*Megadromus*) *sandageri*: Csiki, 1930: 546.
Megadromus sandageri: Britton, 1940: 487.

Geographic distribution (Map p. 254). South Island: CO, FD, OL, SL.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine, alpine. Forests (beech), shrublands, tussock grasslands, herbfields, fellfields, boggy areas; caves (occasionally). Nocturnal; hides during the day under logs and stones (mostly), and among *Aciphylla*-roots.

Biology. Seasonality: September–May. Tenerals: October. Predacious (based on mouthpart morphology). Occasionally infested with mites. Defense mechanism: Either bites strongly or emits a strong musky smell when disturbed.

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1934: 36 (distribution, ecology); Broun, 1917: 361 (distribution, ecology); Britton, 1940: 488 (distribution); Townsend, 1963: 94 (distribution, ecology); Patrick, 1988: 86–87 (distribution, ecology); Peat & Patrick, 1996: 122 (distribution, ecology).

Note. This taxon could represent a species complex.

Megadromus (Megadromus) temukensis (Bates, 1878)

Pterostichus (*Trichosternus*) *temukensis* Bates, 1878c: 26. Type locality: Temuka, SC.
Pterostichus (*Trichosternus*) *sylvius* Bates, 1878c: 26. Type locality: Peel Forest, SC. Synonymised by Britton, 1940: 485.
Trichosternus (*Pterostichus*) *sylvius*: Broun, 1880: 35.
Pterostichus sylvius: Sharp, 1886: 366.
Trichosternus sylvius: Broun, 1893a: 986.
Trichosternus temukensis: Broun, 1893a: 986.
Trichosternus smithii Broun, 1893a: 1322. Type locality: Ashburton, MC. Synonymised by Britton, 1940: 485.
Trichosternus (*Nesopterostichus*) *temukensis*: Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *sylvius*: Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *smithi*: Tschitschérine, 1902: 521.
Trichosternus (*Megadromus*) *smithi*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *sylvius*: Csiki, 1930: 545.
Trichosternus (*Megadromus*) *temukensis*: Csiki, 1930: 545.
Megadromus temukensis: Britton, 1940: 485.

Geographic distribution (Map p. 254). South Island: MC, MK, SC.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine, alpine. Tussock grasslands, fellfields, screes, flaxlands, gardens, scrublands, forests (broadleaf). Nocturnal; hides during the day under stones.

Biology. Seasonality: September–May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 485 (distribution); Johns, 1964: 31 (distribution); Nicholls *et al*., 1998: 3 (taxonomy); Howe, 1998: 17 (distribution, ecology).

Megadromus (Megadromus) turgidiceps (Broun, 1908)

Pterostichus turgidiceps Broun, 1908: 409. Type locality: Manawatu Gorge, RI/WN.
Trichosternus (*Megadromus*) *turgidiceps*: Csiki, 1930: 547.
Megadromus turgidiceps: Britton, 1940: 482.

Geographic distribution (Map p. 254). North Island: HB, RI, TK, WA, WI, WN.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp, broadleaf), shrublands and scrublands (native, exotic); tussock grasslands, urban gardens. Nocturnal; hides during the day under logs and big stones.

Biology. Seasonality: September–February, May, August. Tenerals: February. Predacious (based on mouthpart morphology). Defense mechanism: Feigns death when disturbed (J. Nunn, personal communication).

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1940: 483 (distribution).

Note. *Megadromus turgidiceps* could represent a species complex belonging to an undescribed genus.

Megadromus (Megadromus) vagans (Broun, 1886)

Trichosternus vagans Broun, 1886: 825. Type locality: Mt Maungatua, DN.
Trichosternus (*Nesopterostichus*) *vagans*: Tschitschérine, 1902: 521.
Pterostichus vagans: Hutton, 1904: 146.
Trichosternus (*Megadromus*) *vagans*: Csiki, 1930: 545.
Megadromus vagans: Britton, 1940: 487.

Geographic distribution (Map p. 254). South Island: CO, DN.

Ecology. Stenotopic, epigean, steppicolous. Lowland, upland. Tussock grasslands. Nocturnal; shelters during the day.

Bioplogy. Seasonality: September–March, August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 487 (distribution); Barratt & Patrick, 1987: 82 (distribution, ecology, biology).

Note. This taxon could be conspecific with *M. fultoni*.

Megadromus (Megadromus) vigil (White, 1846)

Feronia (*Platysma*) *vigil* White, 1846: 3. Type locality: Port Nicholson, WN.
Feronia vigil: Lacordaire, 1854: 326.
Platysma vigil: Gemminger & Harold, 1868: 321.
Pterostichus (*Trichosternus*) *difformipes* Bates, 1878b: 191. Type locality: Wellington, WN. Synonymised by Britton, 1940: 482.
Trichosternus (*Pterostichus*) *difformipes*: Broun, 1880: 33.
Holcaspis (*Platysma*) *vigil*: Broun, 1880: 41.
Trichosternus difformipes: Broun, 1893a: 986.
Pterostichus vigil: Broun, 1893a: 991.
Trichosternus (*Nesopterostichus*) *difformipes*: Tschitschérine, 1902: 521.
Holcaspis vigil: Hutton, 1904: 147.
Trichosternus (*Megadromus*) *difformipes*: Csiki, 1930: 544.
Megadromus vigil: Britton, 1940: 482.
Trichosternus vigil: Emden, 1942: 67.

Geographic distribution (Map p. 254). North Island: HB, RI, TO, WA, WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech, broadleaf, podocarp), tree plantations (pine), and shrublands. Nocturnal; hides during the day under logs, fallen branches and trees, and stones.

Biology. Seasonality: Throughout the year. Tenerals: March. Predacious. Adult and larval food: Small inverte-

brates. Occasionally infested with mites. Defense mechanism: Bites strongly when disturbed; parental care exhibited by the female who protects her eggs against enemies (J. Nunn and J.I. Townsend, personal communications).

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1934: 35–36 (as *Trichosternus difformipes*, larval description, distribution, ecology, biology); Britton, 1940: 482 (distribution); Emden, 1942: 10, 67 (as *Trichosternus vigil*, larval description); McColl, 1975: 25 (ecology, biology); Moeed & Meads, 1985: 22 (distribution, ecology, biology).

Megadromus (Megadromus) virens (Broun, 1886)

Trichosternus virens Broun, 1886: 937. Type locality: Oamaru, DN.
Trichosternus hampdenensis Broun, 1893a: 1323. Type locality: Hampden, near Moeraki, DN. Synonymised by Britton, 1940: 484.
Trichosternus (*Nesopterostichus*) *virens*: Tschitschérine, 1902: 521.
Trichosternus (*Nesopterostichus*) *hampdenensis*: Tschitschérine, 1902: 521.
Trichosternus (*Megadromus*) *hampdenensis*: Csiki, 1930: 544.
Trichosternus (*Megadromus*) *virens*: Csiki, 1930: 545.
Megadromus virens: Britton, 1940: 484.

Geographic distribution (Map p. 254). South Island: CO, DN, SC.

Ecology. Eurytopic, epigean. Lowland. Forests (podocarp, broadleaf), tree plantations (pine), tussock grasslands, modified grasslands, gardens. Nocturnal; hides during the day under logs and stones.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 484 (distribution); Molloy *et al*., 1994: 60 (distribution, conservation).

Megadromus (Megadromus) wallacei (Broun, 1912)

Trichosternus wallacei Broun, 1912: 390. Type locality: Wairiri, Seaward Kaikouras, KA.
Trichosternus (*Megadromus*) *wallacei*: Csiki, 1930: 545.
Megadromus wallacei: Gill, 1979: 18 and Townsend, 1997: 13. Resurrected from synonymy with *Megadromus rectangulus* (Chaudoir, 1865b).

Geographic distribution (Map p. 254). South Island: KA.

Ecology. Stenotopic, epigean, silvicolous. Lowland. Forests (beech, broadleaf, podocarp), scrublands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: March, May, July–August. Predacious (based on mouthpart morphology). Parasites: Nematodes. Defense mechanism: Parental care exhibited by the female who protects her eggs against enemies (P.M. Johns, personal communication).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 486 (taxonomy); Gill, 1979: 18 (taxonomy, distribution, ecology, biology); Townsend, 1997: 13 (taxonomy, distribution).

Genus *Neoferonia* Britton, 1940

Neoferonia Britton, 1940: 504. Type species: *Pterostichus procerulus* Broun, 1886, by original designation.

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

Reference. Britton, 1940: 504–506 (revision).

Notes. About 20 species await description. Peter M. Johns (Christchurch, New Zealand) is currently revising this genus. *Neoferonia* species live in wet forests. In two yet undetermined species, parental care is exhibited by the female who protects her eggs against enemies (J.I. Townsend, personal communication).

Neoferonia ardua (Broun, 1893)

Pterostichus arduus Broun, 1893a: 1395. Type locality: Mt Arthur, NN (Broun, 1893a: 1396), Flora River, Mt Arthur (Britton, 1940: 505).
Holcaspis arduus [*sic*]: Hutton, 1904: 146.
Neoferonia ardua: Britton, 1940: 505.

Geographic distribution (Map p. 258). South Island: BR, NN, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech, podocarp). Nocturnal; hides during the day under logs.

Biology: Seasonality: December, March, May. Tenerals: April. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1934: 36 (distribution, ecology); Britton, 1940: 505 (distribution); Johns, 1980: 62, 65 (distribution, ecology); Townsend, 1997: 13 (distribution).

Neoferonia edax (Chaudoir, 1878)

Feronia (Holcaspis) edax Chaudoir, 1878b: 69. Type locality: New Zealand.
Holcaspis edax: Csiki, 1930: 558.
Neoferonia edax: Butcher, 1984: 94.

Geographic distribution (Map p. 258). South Island: CO.

Ecology. Montane. A tussock grassland area; probably silvicolous. Nocturnal; shelters during the day.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 478 (taxonomy); Butcher, 1984: 94 (taxonomy).

Neoferonia fossalis (Broun, 1914)

Pterostichus fossalis Broun, 1914b: 149. Type locality: Hump Ridge, near Invercargill [FD] (Broun, 1914b: 150); Hump Ridge [FD], Invercargill [SL] (Britton, 1940: 506).
Neoferonia fossalis: Britton, 1940: 506.

Geographic distribution (Map p. 258). South Island: DN, FD, SL.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech). Nocturnal; hides during the day under stones.

Biology. Seasonality: November–December, February. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1940: 506 (distribution).

Neoferonia integrata (Bates, 1878)

Pterostichus (Holcaspis) integratus Bates, 1878c: 27. Type locality: Hokitika, WD and Lake Paroa [=?Lake Poerua], BR.
Holcaspis integratus [*sic*]: Broun, 1880: 40.
Pterostichus (Steropus) helmsi Sharp, 1883: 25. Type locality: Near Greymouth, BR (Sharp, 1883: 25), Greymouth, BR (Britton, 1940: 505). Synonymised by Britton, 1940: 505.
Pterostichus helmsi: Sharp, 1886: 365.
Feronia (*Holcaspis*) *convexidorsis* Tschitschérine, 1891: 166. Type locality: New Zealand. Synonymised by Britton, 1940: 505.
Pterostichus integratus: Broun, 1893a: 991.
Pterostichus cavelli Broun, 1893a: 991. Type locality: Boatman's, near Reefton, BR. Synonymised by Britton, 1940: 505.
Holcaspis convexidorsis: Sloane, 1895: 410.
Holcaspis cavelli: Hutton, 1904: 146.
Steropus helmsi: Hutton, 1904: 147.
Pterostichus convexidorsis: Hudson, 1923: 357.
Trichosternus (*Megadromus*) *helmsi*: Csiki, 1930: 546.
Neoferonia integrata: Britton, 1940: 505.

Geographic distribution (Map p. 258). South Island: BR, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech, podocarp, broadleaf) and scrublands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: October–January, March–May, July–August. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 505 (distribution); Townsend, 1997: 13 (distribution)

Neoferonia prasignis (Broun, 1903)

Pterostichus prasignis Broun, 1903: 606. Type locality: Westport, NN.
Trichosternus (*Megadromus*) *prasignis*: Csiki, 1930: 546.
Neoferonia prasignis: Townsend, 1997: 14. Resurrected from synonymy with *N. integrata* (Bates, 1878).

Geographic distribution (Map p. 259). South Island: NN.

Ecology. Lowland. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 505 (taxonomy); Townsend, 1997: 14 (taxonomy, distribution).

Neoferonia procerula (Broun, 1886)

Pterostichus procerulus Broun, 1886: 827. Type locality: Mt Maungatua, DN.
Holcaspis procerulus [*sic*]: Hutton, 1904: 146.
Neoferonia procerula: Britton, 1940: 506.

Geographic distribution (Map p. 259). South Island: CO, DN, FD, MC, OL, SL.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp), tree plantations (pine), shrublands, and scrublands; tussock grasslands. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–June, August. Predacious (based on mouthpart morphology). Defense mechanism: Parental care exhibited by the female who protects her eggs against enemies.

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 506 (distribution); Patrick *et al*., 1987: 35 (distribution); Patrick, 1988: 85–86 (distribution).

Neoferonia prolixa (Broun, 1880)

Trichosternus prolixus Broun, 1880: 35. Type locality: Martin's Bay, West coast of Otago [FD]. Secondary homonym of *Platycoelus prolixus* (Erichson, 1842).
Pterostichus prolixus: Broun, 1893a: 991.
Holcaspis prolixus [*sic*]: Hutton, 1904: 146.
Neoferonia prolixa: Britton, 1940: 505.

Geographic distribution (Map p. 259). South Island: FD, OL.

Ecology. Silvicolous. Lowland, montane. Forests (beech). Nocturnal; hides during the day under logs.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 506 (distribution); Townsend, 1960: 16 (distribution).

Neoferonia straneoi Britton, 1940

Neoferonia straneoi Britton, 1940: 504. Type locality: New Zealand.

Geographic distribution. "New Zealand"; probably South Island.

Ecology. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1940: 504 (distribution).

Neoferonia truncatula (Broun, 1923)

Pterostichus truncatulus Broun, 1923: 674. Type locality: Mt Owen, NN.

Trichosternus (*Megadromus*) *truncatulus*: Csiki, 1930: 547.

Neoferonia truncatula: Townsend, 1997: 14. Resurrected from synonymy with *N. ardua* (Broun, 1893a).

Geographic distribution (Map p. 259). South Island: NN

Ecology. Montane. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 505 (taxonomy); Townsend, 1997: 14 (taxonomy, distribution).

Note. *Neoferonia* is a feminine noun requiring a specific epithet of the same gender.

Genus *Plocamostethus* Britton, 1940

Plocamostethus Britton, 1940: 503. Type species: *Feronia (Platysma) planiuscula* White, 1846, by original designation.

Geographic distribution. New Zealand (endemic).

Reference. Britton, 1940: 503–504 (revision).

Note. A new species awaits description.

Plocamostethus planiusculus (White, 1846)

Feronia (Platysma) planiuscula White, 1846: 3. Type locality: Wellington, WN.

Feronia planiuscula: Lacordaire, 1854: 326.

Homalosoma planiusculum: Gemminger & Harold, 1868: 329.

Trichosternus planiusculus: Bates, 1874: 243.

Pterostichus (*Trichosternus*) *planiusculus*: Bates, 1878b: 191.

Trichosternus planiusculus: Broun, 1880: 36.

Trichosternus (*Nesopterostichus*) *planiusculus*: Tschitschérine, 1902: 521.

Trichosternus (*Megadromus*) *planiusculus*: Csiki, 1930: 545.

Plocamostethus planiusculus planiusculus: Britton, 1940: 503.

Plocamostethus planiusculus latus Britton, 1940: 503. Type locality: Pokororo, near Mt Arthur, NN. Synonymised by Townsend, 1997: 14.

Plocamostethus planiusculus durvillei Britton, 1940: 503. Type locality: D'Urville Island, SD. Synonymised by Townsend, 1997: 14.

Plocamostethus planiusculus: May, 1958: 14.

Geographic distribution (Map p. 264). North Island: BP, CL, HB, RI, TK, TO, WA, WI, WN, WO. South Island: BR, KA, MB, NN, SD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, broadleaf, podocarp), tree plantations (pine), shrublands, and scrublands; grasslands, pastures, fellfields; caves (occasionally). Nocturnal; hides during the day under logs, big fallen branches, and stones.

Biology. Seasonality: Throughout the year. Tenerals: September, November–July. Predacious. Adult food: Earthworms (J.I. Townsend, personal communication). Larval food: Insects. Predators: Kiwis. Regularly infested with mites. Defense mechanism: Either emits an evil-smelling odour or bites strongly when disturbed; parental care is exhibited by the female who protects her larvae against enemies.

Dispersal power. Subapterous. Moderate runner.

References. Walker, 1904: 72 (ecology, biology); Hudson, 1934: 35 (distribution, ecology, biology); Britton, 1940: 503–504 (distribution); Manson, 1963: 42 (larval description, distribution, ecology, biology); May, 1963b: 192 (distribution, ecology); Townsend, 1963: 94 (distribution, ecology); Watt, 1974: 762 (biology); Worthy, 1983: 42 (subfossils); Moeed & Meads, 1985: 22, 34–36 (distribution, ecology, biology); Colbourne *et al*., 1990: 540 (biology); Townsend, 1997: 14 and 1998: 11, 21 (taxonomy, distribution).

Genus *Prosopogmus* Chaudoir, 1865

Prosopogmus Chaudoir, 1865b: 92 (originally proposed with subgeneric rank in *Feronia* Latreille, 1817; first used with generic rank by Sloane, 1895: 428). Type species: *Feronia (Prosopogmus) impressifrons* Chaudoir, 1865b, by monotypy.

Ceneus Chaudoir, 1865b: 109 (originally proposed with subgeneric rank in *Feronia* Latreille, 1817). Type species: *Feronia (Ceneus) coracina* Chaudoir, 1865b, designated by Moore, in Moore *et al*., 1987: 199. Synonymised by Sloane, 1895: 428.

Ophryosternus Chaudoir, 1873: 115. Type species: *Ophryosternus sulcatulus* Chaudoir, 1873, by monotypy. Synonymised by Sloane, 1895: 428.

Hormochilus Chaudoir, 1874a: 1. Type species: *Feronia (Ceneus) monochroa* Chaudoir, 1865b, by original designation. Synonymised by Sloane, 1920a: 159.

Geographic distribution. Australia (including Tasmania), Lord Howe Island, New Guinea, Fiji; New Zealand (adventive).

References. Britton, 1940: 476 (taxonomy, distribution); Moore, 1965b: 12–13 (taxonomy).

Prosopogmus oodiformis (Macleay, 1871)

Argutor oodiformis Macleay, 1871: 111. Type locality: Gayndah, Queensland, Australia.

Simodontus oodiformis: Chaudoir, 1874b: 594.

Prosopogmus oodiformis: Sloane, 1920a: 160.

Geographic distribution (Map p. 264). North Island: TO, WO. Extralimital range: Australia (mainland). Adventive. First New Zealand records: Nafea Block, Rangitikei Plains, TO 1975 (NZAC); "around the Waikato" (Baker, 1982: 4). Well established.

Ecology. Eurytopic, epigean. Lowland, upland. Cultivated fields (maize), pastures, tussock grasslands, sand dunes. Low open woodland (Australia; Moore *et al*., 1987: 201). Nocturnal; hides during the day under dead leaves and in soil burrows.

Biology. Seasonality: September–November, January–February, June–July. Predacious (Moore *et al*., 1987: 201). Occasionally infested with mites.

Dispersal power. Macropterous, capable of flight. Moderate runner.

References. Baker, 1982: 4 (distribution, ecology); Moore *et al*., 1987: 201 (distribution, ecology, biology, dispersal power).

Genus *Psegmatopterus* Chaudoir, 1878

Psegmatopterus Chaudoir, 1878b: 57 (originally proposed with a subgeneric rank in *Feronia* Latreille, 1817; first used with generic rank by Csiki, 1930: 562). Type species: *Feronia* (*Psegmatopterus*) *anchomenoides* Chaudoir, 1878b, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Britton, 1940: 507 (taxonomy); Moore, 1965b: 24 (taxonomy).

Note. This taxon could be congeneric with *Platycoelus* Blanchard, 1853 (Moore, 1965b: 24).

Psegmatopterus politissimus (White, 1846)

Feronia (Platysma) politissima White, 1846: 4. Type locality: Port Nicholson, WN.

Feronia politissima: Lacordaire, 1854: 326.

Feronia (*Psegmatopterus*) *anchomenoides* Chaudoir, 1878b: 57. Type locality: New Zealand. Synonymised by Britton, 1940: 507.

Holcaspis (*Platysma*) *politissima*: Broun, 1880: 41.

Pterostichus politissima [*sic*]: Broun, 1893a: 991.

Holcaspis politissima: Hutton, 1904: 147.

Anchomenus hallianus Broun, 1921: 598. Type locality: [Lake] Rotoiti, BR. Synonymised by Britton, 1940: 507.

Psegmatopterus anchomenoides: Csiki, 1930: 562.

Agonum (*Anchomenus*) *hallianum*: Csiki, 1931: 865.

Psegmatopterus politissimum [*sic*]: Britton, 1940: 507.

Geographic distribution (Map p. 265). North Island: AK, HB, TK, WA, WI, WN, WO. South Island: BR, KA, NN.

Ecology. Eurytopic, epigean, very hygrophilous. Lowland. Edges of swamps, marshes, ponds, and streams; sandy sea beaches, cultivated fields (maize), pastures, paddocks, farmlands. Nocturnal; hides during the day under stones, logs, fallen branches, and in soil burrows dug at the base of plants.

Biology. Seasonality: October–December, February–May, July–August. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Occasional burrower.

References. Hudson, 1934: 35 (distribution, ecology); Britton, 1940: 507 (distribution); Baker, 1982: 4 (distribution, ecology); Townsend, 1994: 9–10 (distribution, ecology); Townsend, 1997: 14 (distribution).

Note. The genus *Psegmatopterus* should be treated as masculine (Article 30.1.3, International Code of Zoological Nomenclature, 1999).

Genus *Rhytisternus* Chaudoir, 1865

Rhytisternus Chaudoir, 1865b: 106 (originally proposed with subgeneric rank in *Feronia* Latreille, 1817; first used with generic rank by Sharp, 1886: 365). Type species: *Feronia (Rhytisternus) liopleura* Chaudoir, 1865b, designated by Moore, 1965b: 23.

Amastus Motschulsky, 1866: 246. Type species: *Amastus nigricolor* Motschulsky, 1866, by monotypy. Synonymised by Chaudoir, 1874b: 597.

Geographic distribution. Australia (including Tasmania); New Zealand (adventive).

References. Sloane, 1895: 437–438 and 1920a: 164 (key to species); Britton, 1940: 506–507 (taxonomy); Moore, 1965b: 23–24 (taxonomy).

Rhytisternus liopleurus (Chaudoir, 1865)

Feronia (Rhytisternus) liopleura Chaudoir, 1865b: 106. Type locality: Near Melbourne (Chaudoir, 1865b: 107), Melbourne (Moore *et al*., 1987: 207, syntypes examined).

Amastus nigricolor Motschulsky, 1866: 246. Type locality: Australia. Synonymised by Chaudoir, 1874b: 598.

Abax liopleurus: Gemminger & Harold, 1868: 328.

Feronia liopleura: Chaudoir, 1874b: 598.

Rhytisternus liopleurus: Sloane, 1895: 438.

Geographic distribution (Map p. 265). North Island: ND. Extralimital range: Australia (including Tasmania). Adventive. First New Zealand records: Whirinaki, Hokianga, ND, 1957 (NZAC); New Zealand (Moore *et al*., 1987: 208). Well established.

Ecology. Epigean, campicolous, mesophilous, synanthropic. Lowland. Cultivated fields (kumara). Nocturnal; hides during the day under pieces of wood.

Biology. Seasonality: November, January. Predacious (Moore *et al*., 1987: 208). Occasionally infested with mites.

Dispersal power. Wing condition unknown. Moderate runner.

Reference. Moore *et al*., 1987: 207–208 (distribution, ecology, biology, dispersal power).

Rhytisternus miser (Chaudoir, 1865)

Feronia (Rhytisternus) misera [*sic*] Chaudoir, 1865b: 108. Type locality: Moreton Bay, Queensland, Australia.

Feronia subcarbonaria Laporte de Castelnau, 1867: 134 (redescribed in 1868: 220). Type locality: Victoria, New South Wales, Australia. Synonymised by Chaudoir, 1874b: 598.

Abax miser: Gemminger & Harold, 1868: 328.

Holcaspis (Rhytisternus) rugifrons Broun, 1880: 41. Type locality: Auckland, AK. Synonymised by Britton, 1940: 506.

Feronia (*Rhytisternus*) *subcarbonaria*: Tschitschérine, 1891: 169.

Rhytisternus erythrognathus Broun, 1893a: 986. Type locality: Howick, AK. Synonymised by Britton, 1940: 506.

Feronia (*Omaseus*) *subcarbonaria*: Tschitschérine, 1891: 169.

Rhytisternus rugifrons: Broun, 1893a: 986.

Rhytisternus miser: Sloane, 1895: 437.

Holcaspis rugifrons: Hutton, 1904: 147.

Geographic distribution (Map p. 265). North Island: AK, BP, CL, GB, HB, ND, RI, TK, WI, WN, WO. Offshore Islands: TH. Extralimital range: Australia (including Tasmania). Adventive. First New Zealand record: Auckland, AK (BMNH; Broun, 1880: 41, as *Holcaspis rugifrons*). Well established.

Ecology. Epigean, mostly campicolous, mesophilous, synanthropic. Lowland. Pastures, cultivated fields (potato, maize, strawberry, turnip), gardens, sand dunes, river banks, open native forests, tree plantations (pine); caves (occasionally). Nocturnal; hides during the day under stones, pieces of wood, logs, dry cow dung, and in soil burrows.

Biology. Seasonality: Throughout the year. Tenerals: January–March. Predacious. Adult and larval food, in captivity: Scarabaeid adults and larvae; dipterous eggs and larvae. Occasionally infested by fungi (Laboulbeniales). Defense mechanism: Emits a strong malodorous smell when disturbed.

Dispersal power. Macropterous, capable of flight. Regular in sea beach drift material, which indicates previous flight. Moderate runner. Occasional burrower.

References. Britton, 1940: 507 (distribution); May, 1958: 14, 1963b: 192, and 1972: 571 (distribution, ecology); Pilgrim, 1963: 845 (distribution); Cameron & Butcher, 1980: 116 (distribution, ecology, biology); Robertson *et al*., 1981: 431, 433 (biology); Moore *et al*., 1987: 208 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9–10 (distribution, ecology).

Genus *Zeopoecilus* Sharp, 1886

Zeopoecilus Sharp, 1886: 365 (originally proposed with subgeneric rank in *Pterostichus* Bonelli, 1810; first used with generic rank by Broun, 1893a: 986). Type species: *Pterostichus (Zeopoecilus) calcaratus* Sharp, 1886, designated by Britton, 1940: 489.

Geographic distribution. New Zealand (endemic; South Island and WI, North Island).

References. Britton, 1940: 489–491 (revision); Molloy *et al*., 1994: 60 (distribution, conservation).

Notes. Peter M. Johns (Christchurch, New Zealand) is currently revising this genus. Several species await description. *Zeopoecilus* species live in dense forests and emit a strong defensive smell when disturbed (P.M. Johns, personal communication).

Zeopoecilus calcaratus (Sharp, 1886)

Pterostichus (*Zeopoecilus*) *calcaratus* Sharp, 1886: 366. Type locality: Picton, SD.
Zeopoecilus calcaratus: Broun, 1893a: 986.

Geographic distribution (Map p. 269). North Island: WI. South Island: MB, NN, SD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (beech, broadleaf, podocarp). Nocturnal; hides during the day under logs.

Biology. Seasonality: Throughout the year. Predacious (based on mouthpart morphology). Regularly infested with mites. Defense mechanism: Emits a strong nasty smell when disturbed (P. M. Johns, personal communication).

Dispersal power. Subapterous. Moderate runner.

References. Britton, 1940: 490 (distribution); Townsend, 1997:14 and 1998: 12, 21 (distribution).

Zeopoecilus putus (Broun, 1882)

Trichosternus putus Broun, 1882: 219 (redescribed in 1883: 219 and 1886: 750). Type locality: Mt Arthur, NN.
Trichosternus combesi Broun, 1882: 220 (redescribed in 1883: 220 and 1886: 750). Type locality: Mt Arthur, NN. Synonymised by Britton, 1940: 490.
Pterostichus (*Zeopoecilus*) *putus*: Sharp, 1886: 366.
Pterostichus (*Zeopoecilus*) *combesi*: Sharp, 1886: 366.
Pterostichus (*Zeopoecilus*) *achilles* Sharp, 1886: 367. Type locality: Picton, SD. Synonymised by Britton, 1940: 490.
Trichosternus opulentus Broun, 1886: 820. Type locality: Wangapeka Valley, NN. Secondary homonym of *Notonomus opulentus opulentus* (Laporte de Castelnau, 1867). Synonymised by Britton, 1940: 490.
Pterostichus opulentus: Hudson, 1892: 21.
Zeopoecilus putus: Broun, 1893a: 986.
Zeopoecilus opulentus: Broun, 1893a: 986.
Zeopoecilus achilles: Broun, 1893a: 986.
Zeopoecilus princeps Broun, 1893a: 990 (replacement name for *Trichosternus opulentus* Broun, 1886; overlooked by Britton, 1940: 490).
Trichosternus (*Nesopterostichus*) *combesi*: Tschitschérine, 1902: 521.
Zeopoecilus optandus Broun, 1908: 408. Type locality: Nelson, NN. Synonymised by Britton, 1940: 490.
Trichosternus (*Megadromus*) *combesi*: Csiki, 1930: 544.

Geographic distribution (Map p. 270). South Island: BR, MB, NN, SD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Mostly wet forests (beech), tree plantations (pine), scrublands; also fellfields. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: Throughout the year, except June–July. Predacious. Food: Flies, caterpillars, other insects. Occasionally infested with mites and fungi (Laboulbeniales). Defense mechanism: Bites strongly when disturbed; parental care exhibited by the female who protects her eggs against enemies.

Dispersal power. Subapterous. Moderate runner.

References. Hudson, 1892: 21 (as *Pterostichus opulentus*, larval description, distribution, ecology, biology); Martin, 1929: 118 (biology); Hudson, 1934: 36 (distribution, ecology); Britton, 1940: 491 (distribution); Valentine, 1967: 1102 (biology); Townsend, 1997: 14 (distribution).

Supertribe CALLISTITAE

Tribe LICININI

Figure 21

Geographic distribution. Worldwide.

References. Sloane, 1898: 488 (key to genera); Matthews, 1980: 35 (key to genera); Ball, 1992: 325–380 (world review of genus-groups; key to subtribes).

Note. Rowan M. Emberson (Lincoln, New Zealand) is currently revising this tribe.

Subtribe DICROCHILINA

Geographic distribution. Australian Region.

Reference. Ball, 1992: 330 (classification).

Genus *Dicrochile* Guérin-Méneville, 1846

Figure 21

Dicrochile Guérin-Méneville, 1846a: CIII. Type species: *Dicrochile anchomenoides* Guérin-Méneville, 1846a, designated here.
Dicronochilus: Guérin-Méneville, 1846b: 428 (incorrect subsequent spelling).
Stomatocoelus Macleay, 1864: 115. Type species: *Stomatocoelus licinoides* Macleay, 1864, by monotypy. Synonymised by Chaudoir, 1871: 283.
Stomatocolus: Chaudoir, 1871: 283 (incorrect subsequent spelling).
Pedalopia Laporte de Castelnau, 1867: 68. Type species: *Pedalopia novaezelandiae* Laporte de Castelnau, 1867, by monotypy. Synonymised by Britton, 1941: 191 (synonymy of *Pedalopia* (monotypic genus) with *Dicrochile* through the synonymy of *Dicrochile cinctiger* with *Pedalopia novaezelandiae*).

Geographic distribution. New Guinea, the Moluccas, the Solomons, New Caledonia, Australia (including Tasmania), Norfolk Island, New Zealand.

References. Sloane, 1898: 488 (key to genera); Hudson, 1934: 174 (list); Britton, 1941: 191 (taxonomy); Ball, 1959: 7–9 (classification).

Notes. The type species of *Dicrochile* Guérin-Méneville selected by Moore (1985: 249), *Rhembus goryi* Boisduval, is invalid since *goryi* was not an originally included species. *Dicrochile anchomenoides* is here selected as type species. The validity of this taxon is discussed under *D. anchomenoides* and *D. fabrii*. Several species await description. Members of this genus seem to be regular tree climbers at night. Like *Megachile* (Hymenoptera) which is a feminine noun (Brown, 1985: 486), the generic name *Dicrochile* requires specific epithets of feminine gender.

Dicrochile anchomenoides Guérin-Méneville, 1846

Dicrochile anchomenoides Guérin-Méneville, 1846a: CIII. Type locality: New Zealand.

Geographic distribution. "New Zealand."

Ecology. Habitat unknown.

Biology. Seasonality unknown. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Lacordaire, 1854: 345 (taxonomy), Plate 11, Figure 6 (illustration); Bates, 1874: 238 (taxonomy).

Note. Contrary to Bates' (1874: 238) interpretation, Guérin-Méneville's description is equivalent to a formal description. Article 12.1 of the International Code of Zoological Nomenclature states that "To be available every new scientific name published before 1931 must satisfy the provisions of Article 11 and must be accompanied by a description or a definition of the taxon that it denotes, or by an indication". On page CIII, Guérin-Méneville's (1846) description complies with this article by characterising two taxa, stating "la plus grande espèce [the larger species] portera le nom de *Dicrochile Fabrii*, et la seconde [and the second; thus the smaller one] celui de *Dicrochile anchomenoides*".

Dicrochile anthracina Broun, 1893

Dicrochile anthracina Broun, 1893b: 161. Type locality: Ligar's Bush, Papakura, AK.

Geographic distribution (Map p. 234). North Island: AK.

Ecology. Lowland. Habitat unknown.

Biology. Seasonality unknown. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Dicrochile aterrima Bates, 1874

Dicrochile aterrima Bates, 1874: 238 (redescribed in 1875: 301). Type locality: Lake Coleridge, MC.

Geographic distribution (Map p. 234). North Island: WI, WN. South Island: CO, MC, MK, OL.

Ecology. Eurytopic, epigean, very hygrophilous. Lowland, montane. River banks, sand beaches, sand dunes, pastures, lagoon edges. Nocturnal; hides during the day under stones and in rotten pieces of wood. Gregarious.

Biology. Seasonality: September, November, January, June. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Bates, 1874: 238 (distribution, ecology); Harris, 1970a: 48, 54–55 (distribution, ecology); Johns, 1986: 30 (distribution).

Dicrochile cephalotes Broun, 1894

Dicrochile cephalotes Broun, 1894: 306. Type locality: Ngatira, WO.

Geographic distribution (Map p. 235). North Island: BP, CL, GB, HB, RI, TK, TO, WO.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp, beech); caves (occasionally). Nocturnal; hides during the day under logs, in leaf litter, and under stones.

Biology. Seasonality: September, November–March. Tenerals: April. Predacious, molluscophagous (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Britton, 1960a: 126 (distribution, ecology); May, 1962: 60 and 1963b: 191 (distribution, ecology).

Dicrochile cordicollis Broun, 1903

Figure 21

Dicrochile cordicolle [*sic*] Broun, 1903: 455. Type locality: Te Aroha, WO.

Geographic distribution (Map p. 235). North Island: BP, CL, GB, ND, TO, WI, WN, WO.

Ecology. Mostly riparian, subaquatic. Lowland. *Typha*-grown edges of rivers, brooks, lakes, and marshes; swamp forests; caves (occasionally). Nocturnal; hides during the day among floating plant debris and under well-embedded stones. Gregarious.

Biology. Seasonality: Throughout the year, except June. Predacious. Food: Small insects. Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Good swimmer.

References. May, 1962: 60, 1963b: 181 (distribution, ecology) and 1972: 571 (ecology); Townsend, 1994: 9, 11–12 (distribution, ecology).

Dicrochile fabrii Guérin-Méneville, 1846

Dicrochile fabrii Guérin-Méneville, 1846a: CIII. Type locality: New Zealand.

Dicrochile fabrei [*sic*]: Gemminger & Harold, 1868: 365 (misspelling).

Geographic distribution. "New Zealand."

Ecology. Habitat unknown.

Biology. Seasonality unknown. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Lacordaire, 1854: 345 (taxonomy); Bates, 1874: 238 (taxonomy).

Note. Contrary to Bates' (1874: 238) interpretation, Guérin-Méneville's description is equivalent to a formal description (see Note under *D. anchomenoides*).

Dicrochile flavipes Broun, 1917

Dicrochile flavipes Broun, 1917: 360. Type locality: Gordon's Knob [= Mt Arthur], near Belgrove, NN.

Dicrochile flavipes flavipes: Townsend, 1997: 16. *Nomen nudum*.

Geographic distribution (Map p. 235). South Island: BR, MB, MC, NC, NN, SD, WD.

Ecology. Epigean-arboreal, silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech). Nocturnal; hides during the day in leaf litter and under stones.

Biology. Seasonality: September–March, May, August. Tenerals: October. Predacious, molluscophagous (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Regular climber (on trees).

References. Johns, 1980: 62, 65 (distribution, ecology); Townsend, 1997: 16 and 1998: 11, 21 (distribution).

Note. Townsend (1997: 16) mentioned a second undescribed subspecies from Mt Arthur, NN.

Dicrochile insignis Broun, 1917

Dicrochile insignis Broun, 1917: 359. Type locality: Routeburn and Hollyford, northwest of Lake Wakatipu, OL.

Geographic distribution (Map p. 235). South Island: FD, OL, WD.

Ecology. Epigean, hygrophilous. Montane, subalpine. A river bank, a grassland, a scree, and a roadside. Nocturnal; active at night on moss; hides during the day under logs.

Biology. Seasonality: September, December–February. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Dicrochile maura Broun, 1880

Dicrochile maura Broun, 1880: 18. Type locality: Parua, ND.

Geographic distribution (Map p. 235). North Island: BP, GB, HB, ND.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp, beech). Nocturnal; hides during the day in leaf litter and under logs.

Biology. Seasonality: October–March, July–August. Tenerals: February–March. Predacious, molluscophagous (based on mouthpart morphology). Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Dicrochile nitida Broun, 1882

Dicrochile nitida Broun, 1882: 216 (redescribed in 1883: 216 and 1886: 746). Type locality: Outram, DN.

Geographic distribution (Map p. 235). South Island: DN.

Ecology. Lowland. Habitat unknown.

Biology. Seasonality unknown. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Dicrochile novaezelandiae (Laporte de Castelnau, 1867)

Pedalopia novaezelandiae Laporte de Castelnau, 1867: 68 (redescribed in 1868: 154). Type locality: New Zealand.

Dicrochile cinctiger [*sic*] Broun, 1882: 217 (redescribed in 1883: 217 and 1886: 747). Type locality: Outram, DN. Synonymised by Britton, 1941: 191.

Dicrochile novaezelandiae: Britton, 1941: 191 (new combination resulting from the synonymy of *Pedalopia* (monotypic genus) with *Dicrochile* through the synonymy of *D. cinctiger* with *P. novaezelandiae*).

Geographic distribution (Map p. 235). South Island: CO, DN, SL.

Ecology. Epigean, very hygrophilous. Lowland, upland. Wet tussock grasslands and forests (beech). Nocturnal; hides during the day under well-embedded stones and in leaf litter (*Aciphylla*).

Biology. Seasonality: November–January. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Britton, 1941: 191 (taxonomy); Barratt & Patrick, 1987: 82 (distribution, ecology, biology).

Dicrochile rugicollis Broun, 1917

Dicrochile rugicollis Broun, 1917: 360. Type locality:[Mt] Oakden, near Mt Algidus, MC.

Geographic distribution (Map p. 235). South Island: MC.

Ecology. Montane or subalpine. Habitat unknown; probably wet areas.

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

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Dicrochile subopaca Bates, 1874

Dicrochile subopaca Bates, 1874: 237 (redescribed in 1875: 301). Type locality: Near Christchurch, MC.

Geographic distribution (Map p. 235). South Island: MC.

Ecology. Stenotopic, epigean, silvicolous. Lowland. Damp situations at the margin of broadleaf forests. Nocturnal; hides during the day under stones.

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

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Hudson, 1934: 34 (distribution, ecology); Harris, 1970a: 54 (distribution, ecology); Butcher & Emberson, 1981: 64 (distribution, ecology).

Dicrochile thoracica Broun, 1908

Dicrochile thoracica Broun, 1908: 345. Type locality: Broken River, MC.

Geographic distribution (Map p. 236). South Island: KA, MB, MC, NC.

Ecology. Eurytopic, epigean, very hygrophilous. Lowland, montane, subalpine, alpine. Forests (beech), tree plantations (pine), scrublands, screes, stony beaches, river beds. Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: November, March–April, July–August. Tenerals: March–April, September. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Johns *et al*., 1980: 27 (distribution, ecology); Johns, 1980: 62, 65 (distribution, ecology).

Dicrochile whitei (Csiki, 1931), new combination

Anchomenus atratus Blanchard, 1842: Plate 1, Figure 15 (redescribed in 1853: 21). Type locality: New Zealand. Secondary homonym of *Agonum atratum* (Duftschmid, 1812).
Anchomenus atratus: White & Doubleday, 1843: 273.
Anchomenus deplanatus White, 1846: 3. Type locality: New Zealand. Primary homonym of *Anchomenus deplanatus* Chaudoir, 1843b; secondary homonym of *Agonum deplanatum* Ménétriés, 1843 (=*Agonum fallianum* (Leng, 1918)). Bates (1874: 239) synonymised *Anchomenus atratus* Blanchard, 1853 [instead of 1842, true date of original description] with *Anchomenus deplanatus* White, 1846.
Platynus atratus: Gemminger & Harold, 1868: 368.
Platynus deplanatus: Bates, 1874: 239.
Anchomenus (*Platynus*) *deplanatus*: Broun, 1880: 25.
Dicrochile deplanata: Sharp, 1884: 298.
Agonum (Platynus) whitei Csiki, 1931: 854 (replacement name for *A. deplanatus* White, 1846 as a secondary homonym of *Agonum deplanatum* Ménétriés, 1843).
Dicrochile atrata: Johns, 1986: 30.

Geographic distribution (Map p. 236). South Island: KA, MB, MC, NC.

Ecology. Epigean, very hygrophilous. Lowland. Edges of scrubland streams; vegetated roadsides. Nocturnal; hides during the day under stones.

Biology. Seasonality: October, March, May–July. Predacious. Food, in captivity: Mealworms (R.M. Emberson, personal communication).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Bates, 1874: 239 (taxonomy); Sharp, 1884: 298 (taxonomy); Johns, 1986: 30 (distribution, ecology); Emberson, 1993b: 20 (taxonomy); Townsend, 1997: 16 (distribution).

Note. Emberson (1993b: 20) established that Plate 1, Figure 15 of Blanchard should be treated as having been

published in 1842. Bates (1874: 239) was not aware of this and took *Anchomenus atratus* Blanchard as having been described in 1853, instead of 1842. Consequently, when he synonymised *Anchomenus deplanatus* White, 1846 and *Anchomenus atratus*, he considered the latter to be a junior synonym of the former. Csiki (1931: 854) following Bates' interpretation created the name *Agonum* (*Platynus*) *whitei* in replacement of *Anchomenus deplanatus*, which he found to be a secondary homonym of *Agonum deplanatum* Ménétriés, 1843, with *Anchomenus atratus* as its synonym. *Dicrochile whitei* (Csiki) is therefore the valid name for this species.

Subtribe LICININA

Geographic distribution. Worldwide.

References. Ball, 1959: 7–9 and 1992: 330 (classification).

Genus *Physolaesthus* Chaudoir, 1850

Physolaesthus Chaudoir, 1850: 411. Type species: *Physolaesthus australis* Chaudoir, 1850, by monotypy.
Physoloesthus: Lacordaire, 1854: 235 (incorrect subsequent spelling).
Physolesthus: Sloane, 1898: 488 (incorrect subsequent spelling).

Geographic distribution. New Guinea, Java, the Philippines, Australia (mainland), New Zealand.

Reference. Hudson, 1934: 174 (list).

Physolaesthus insularis Bates, 1878

Physolaesthus insularis Bates, 1878c: 22. Type locality: Canterbury Province, South Island.

Geographic distribution (Map p. 264). North Island: AK, BP, GB, WI, WN. South Island: BR, WD, "Canterbury Province". Extralimital range: Australia (mainland). Native to the Australian Region.

Ecology. Epigean, very hygrophilous, halophilous. Lowland. Salt marshes and marshy edges of ponds, lakes, and lagoons. Nocturnal; hides during the day at the base of *Carex*-plants and among *Typha*-vegetation. Gregarious.

Biology. Seasonality: November–January, March. Tenerals: January. Predacious (Moore *et al*., 1987: 269), molluscophagous.

Dispersal power. Macropterous, capable of flight. Moderate runner.

References. Moore *et al.,* 1987: 269 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9, 11–12 (distribution, ecology).

Physolaesthus limbatus (Broun, 1880)

Dicrochile limbata Broun, 1880: 17. Type locality: Auckland, AK.
Physolaesthus limbatus: Hutton, 1904: 143.

Geographic distribution (Map p. 264). North Island: AK.

Ecology. Lowland. Habitat unknown; probably wet areas.

Biology. Seasonality unknown. Predacious, molluscophagous (based on mouthpart morphology).

Dispersal power. Macropterous, capable of flight. Moderate runner.

Note. This taxon could be conspecific with *P. insularis*.

Supertribe HARPALITAE
Tribe HARPALINI

Figure 22

Geographic distribution. Worldwide.

References. Sloane, 1898: 456 (key to Australian genera); Hudson, 1934: 176–177 (list); Noonan, 1973: 266–480 (taxonomy of Anisodactylina; key to genera) and 1976: 3–87 (taxonomy of world Harpalini); Matthews, 1980: 36–37 (key to South Australian genera).

Notes. A revision is under way by the authors. Several genera and species await description. A few exotic species have been recently introduced in New Zealand.

Subtribe PELMATELLINA

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

Reference. Noonan, 1976: 6–8 (taxonomy).

Genus *Lecanomerus* Chaudoir, 1850

Lecanomerus Chaudoir, 1850: 446. Type species: *Lecanomerus insidiosus* Chaudoir, 1850, by monotypy.
Thenarotes Bates,1878a: 320. Type species: *Thenarotes tasmanicus* Bates, 1878a, by monotypy. Synonymised by Sloane, 1920a: 137.
Odontagonum Darlington, 1956: 8. Type species: *Odontagonum nigrum* Darlington, 1956, by monotypy. Synonymised by Moore, in Moore *et al*., 1987: 225.

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

References. Hudson, 1934: 176 (list); Noonan, 1976: 7 (taxonomy).

Notes. A few species await description. Sloane (1920a: 137) incorrectly synonymised *Lecanomerus* with *Nemaglossa* Solier, 1849 which is a valid genus restricted to Chile (Noonan, 1976: 7).

Lecanomerus atriceps (Macleay, 1871)

Trechus atriceps Macleay, 1871: 113. Type locality: Gayndah, Queensland, Australia.
Thenarotes atriceps: Blackburn, 1892: 97.
Nemaglossa atriceps: Sloane, 1920a: 137.
Nemaglossa (*Thenarotes*) *atriceps*: Pilgrim, 1963: 844.
Lecanomerus atriceps: Moore *et al*., 1987: 225.

Geographic distribution (Map p. 242). North Island: AK, BP, CL, GB, HB, ND, WI, WN. South Island: MC, NN, SD. Extralimital range: Australia (mainland). Adventive. First New Zealand records: Swanson, AK, 1916 (NZAC); Port Waikato, WO, 1958 (May, 1963b: 192); Near Auckland, AK, 1916 (Pilgrim, 1963: 845). Well established.

Ecology. Eurytopic, epigean-fossorial, very hygrophilous. Lowland. Borders of eutrophic marshes and ponds, and open swamp forests; mud flats, wet pastures, cultivated fields (maize), paddocks, vacant lots, roadside ditches; caves (occasionally). Nocturnal; hides during the day in burrows, under clay cakes, in fallen plant debris and compost heaps, under logs and stones. Gregarious.

Biology. Seasonality: Throughout the year, except May. Tenerals: February, April, July. Predacious (Moore *et al*., 1987: 225). Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Macropterous. Regular flier. Moderate runner. Good burrower.

References. May, 1963b: 192 (distribution, ecology); Pilgrim, 1963: 844–845 (distribution); Johns, 1986: 31 (distribution, ecology); Moore *et al*., 1987: 225 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9, 11–12 (distribution, ecology).

Lecanomerus fallax Broun, 1880

Lecanomerus fallax Broun, 1880: 48. Type locality: Parua, near Whangarei Harbour, ND.
Nemaglossa fallax: Sloane, 1920a: 137.
Lecanomerus fallax: Hudson, 1934: 176.

Geographic distribution (Map p. 242). North Island: ND.

Ecology. Lowland. Habitat unknown.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Lecanomerus fuliginosus Broun, 1880

Lecanomerus fuliginosus Broun, 1880: 48. Type locality: Otago, South Island.
Nemaglossa fuliginosa: Sloane, 1920a: 137.
Lecanomerus fuliginosus: Hudson, 1934: 176.

Geographic distribution (Map p. 242). South Island: CO, DN, KA, MC, SL. Offshore Islands: CH.

Ecology. Eurytopic, epigean. Lowland, upland, subalpine, alpine. Tussock grasslands, farmlands, gardens, river banks, forests (beech, broadleaf, podocarp). Nocturnal; hides during the day in moss, mat plants, plant debris, under stones, and in leaf litter.

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

Dispersal power. Subapterous. Moderate runner.

References. Barratt & Patrick, 1987: 82 (distribution, ecology, biology); Townsend, 1997: 17 (distribution); Emberson, 1998: 30 (distribution, ecology, biology).

Lecanomerus incertus Broun, 1914

Lecanomerus incertus Broun, 1914b: 151. Type locality: Mt Hutt, near Methven, MC.
Nemaglossa incerta: Sloane, 1920a: 137.
Lecanomerus incertus: Hudson, 1934: 176.

Geographic distribution (Map p. 243). South Island: MC.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland, montane. Dry forests, gardens. Nocturnal; shelters during the day.

Biology. Seasonality: September–December, March, May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Lecanomerus insignitus Broun, 1880

Lecanomerus insignitus Broun, 1880: 47. Type locality: Parua, near Whangarei Harbour, ND.
Nemaglossa insignita: Sloane, 1920a: 137.
Lecanomerus insignitus: Hudson, 1934: 176.

Geographic distribution (Map p. 243). North Island: ND.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (podocarp, broadleaf): often along streams. Nocturnal; hides during the day in leaf litter and under logs.

Biology. Seasonality: November–February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

Lecanomerus latimanus Bates, 1874

Lecanomerus latimanus Bates, 1874: 271 (redescribed in 1875: 309). Type locality: New Zealand.
Nemaglossa latimana: Sloane, 1920a: 137.
Lecanomerus latimanus: Hudson, 1934: 176.

Geographic distribution (Map p. 243). South Island: CO, DN, MC.

Ecology. Epigean, mostly steppicolous. Lowland, upland, subalpine. Tussock grasslands (mostly) , screes, forests (beech). Nocturnal; hides during the day under stones (mostly), under and in logs.

Biology. Seasonality: October–December, February–March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Lecanomerus obesulus Bates, 1878

Lecanomerus obesulus Bates, 1878c: 23. Type locality: West Coast, South Island.
Nemaglossa obesula: Sloane, 1920a: 137.
Lecanomerus obesulus: Hudson, 1934: 176.

Geographic distribution (Map p. 243). South Island: BR, MB, MC, NN, OL, WD.

Ecology. Epigean, silvicolous. Lowland, montane. Forests (beech) and scrublands (bog pine). Nocturnal; hides during the day in moss, under stones and logs.

Biology. Seasonality: September–February, May–June. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Townsend, 1997: 17 (distribution).

Lecanomerus pallipes Broun, 1894

Lecanomerus pallipes Broun, 1894: 379. Type locality: Dyers Pass, MC.
Nemaglossa pallipes: Sloane, 1920a: 137.
Lecanomerus pallipes: Hudson, 1934: 176.

Geographic distribution (Map p. 243). South Island: MC.

Ecology. Epigean, campicolous. Lowland, upland, subalpine, alpine. Tussock grasslands, herbfields, gardens. Nocturnal; shelters during the day.

Biology. Seasonality: June. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Lecanomerus fuliginosus*.

Lecanomerus sharpi (Csiki, 1932)

Lecanomerus marginatus Sharp, 1883: 25. Type locality: Auckland, AK. Primary homonym of *Lecanomerus marginatus* Reed, 1874.
Nemaglossa sharpi Csiki, 1932a: 1059 (replacement name for *Lecanomerus marginatus* Sharp, 1883).
Nemaglossa marginata: Sloane, 1920a: 137.
Lecanomerus sharpi: Noonan, 1976: 7 and Kuschel, 1990: 24.

Geographic distribution (Map p. 243). North Island. AK, BP, CL, GB, HB, ND, TK, TO, WI, WN, WO. South Island: MC.

Ecology. Epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp) and swamp forests. Nocturnal; hides during the day under stones and in leaf litter. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: December. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Johns, 1986: 31 (distribution); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power).

Note. This taxon could represent a species complex.

Lecanomerus verticalis (Erichson, 1842)

Harpalus verticalis Erichson, 1842: 126. Type locality: Tasmania, Australia.
Lecanomerus insidiosus Chaudoir, 1850: 447. Type locality: Swan River and Melbourne, Australia. Synonymised by Moore, in Moore *et al*., 1987: 227.
Lecanomerus flavocinctus Blackburn, 1888b: 188. Type locality: Port Lincoln, South Australia. Synonymised by Moore, in Moore *et al*., 1987: 227.
Lecanomerus occidentalis Sloane, 1898: 464. Type locality: Swan River, Darling Range, Pinjarrah, Donnybrook, Mt Barker, and Albany, Western Australia. Synonymised with *L. flavocinctus* by Sloane, 1911: 835.
Lecanomeus verticalis: Sloane, 1911: 835.
Nemaglossa verticalis: Sloane, 1920a: 137.
Nemaglossa insidiosa: Sloane, 1920a: 137.
Nemaglossa flavocincta: Sloane, 1920a: 137.
Lecanomerus verticalis: Noonan, 1976: 7.

Geographic distribution (Map p. 243). North Island: AK, BP, CL, GB, ND, WI, WN, WO. South Island: NN. Extralimital range: Australia (including Tasmania). Adventive. First New Zealand records: Okauia, WO 1922 (NZAC); New Zealand (Moore *et al*., 1987: 227). Well established.

Ecology. Epigean, eurytopic, synanthropic. Lowland, upland. Sand dunes, vacant lots, gardens. Nocturnal; hides during the day in burrows dug at the base of plants and under pieces of wood. Gregarious.

Biology. Seasonality: September–November, January–June. Tenerals: February. Predacious (Moore *et al*., 1987: 227). Occasionally infested with mites.

Dispersal power. Macropterous. Occasional flier. Moderate runner. Good burrower.

References. Moore *et al*., 1987: 227 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9, 11 and 1997: 17 (distribution, ecology).

Lecanomerus vestigialis (Erichson, 1842)

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

Acupalpus mastersii Macleay, 1871: 104. Type locality: Gayndah, Queensland, Australia. Synonymised by Moore, in Moore *et al*., 1987: 227.

Lecanomerus stenopus Broun, 1886: 880. Type locality: Howick, "Paparoa District", AK. Synonymised by Moore, in Moore *et al*., 1987: 227.

Lecanomerus nitidus Blackburn, 1891: 779. Type locality: Victoria, Australia. Synonymised with *Nemaglossa mastersi* by Sloane, 1920a: 137.

Lecanomerus mastersii: Sloane, 1911: 836.

Lecanomerus labralis Broun, 1914b: 151. Type locality: Epsom, AK.

Nemaglossa mastersi: Sloane, 1920a: 137.

Nemaglossa stenopus: Sloane, 1920a: 137.

Nemaglossa labralis: Sloane, 1920a: 137.

Acupalpus (*Egadroma*) *vestigialis*: Csiki, 1932a: 1242.

Lecanomerus vestigialis: Noonan, 1976: 7 and Moore, in Moore *et al*., 1987: 227.

Geographic distribution (Map p. 243). North Island: AK, BP, CL, GB, HB, ND, WI, WN, WO. South Island: NN. Extralimital range: Australia (including Tasmania). First New Zealand record: Howick, AK, 1880s (Broun, 1886: 880; as *Lecanomerus stenopus*). Well established.

Ecology. Epigean, eurytopic, synanthropic. Lowland. Sand dunes, cultivated fields (maize), pastures. Nocturnal; hides during the day in leaf litter and in burrows dug around roots of plants (*Muehlenbeckia, Lupinus, Ammophila*, *Spinifex*). Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: October–January, March, July. Predacious (Moore *et al*., 1987: 228). Food, in captivity: Small scarabaeids and lygaeid nymphs. Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Macropterous. Occasional flier. Moderate runner. Good burrower.

References. May, 1965: 202 (biology); Valentine, 1967: 1102 (biology); Harris, 1970a: 48, 53, 55 (distribution, ecology); Cameron & Butcher, 1980: 115–116 (distribution, ecology, biology); Moore *et al*., 1987: 227–228 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9, 11 and 1997: 17 (distribution, ecology).

Genus *Syllectus* Bates, 1878

Syllectus Bates 1878b: 191. Type species: *Syllectus anomalus* Bates, 1878b, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Hudson, 1934: 177 (list); Britton, 1964a: 629–631 (taxonomy); Noonan, 1976: 7 (taxonomy).

Note. A new species awaits description.

Syllectus anomalus Bates, 1878

Syllectus anomalus Bates, 1878b: 192. Type locality: Auckland, AK.

Geographic distribution (Map p. 267). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: BR, DN, KA, MB, MC, NN, SD, WD.

Ecology. Epigean, mostly riparian, very hygrophilous. Lowland, montane, subalpine, alpine. Stream banks (mostly brooks) crossing cool wet forests (beech, broadleaf), tree plantations (pine), and scrublands; seepage edges, swamps, mud flats, screes, gardens; caves (ocasionally). Gregarious. Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: September–April, August. Tenerals: February. Predacious. Food: Small insects. Predators: Trouts. Occasionally infested with mites.

Dispersal power. Macropterous. Occasional flier. Moderate runner. Occasional climber (on trees and ferns).

References. May, 1962: 60 and 1972: 571 (distribution, ecology, biology); May, 1963b: 192 (ecology); Townsend, 1974b: 430 (ecology); Britton, 1964a: 631 (taxonomy); Johns, 1980: 63 (distribution, ecology); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Townsend, 1997: 17 (distribution).

Syllectus magnus Britton, 1964

Syllectus magnus Britton, 1964a: 629. Type locality: Profanity Cave, Buller River, near Inangahua, BR.

Geographic distribution (Map p. 267). South Island: BR, NN.

Ecology. Mostly cavernicolous (troglophilous). Lowland. Cave entrances: in the twilight zone; a bush.

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

Dispersal power. Subapterous. Fast runner.

References. Britton, 1964a: 631 (distribution, ecology); Townsend, 1997: 17 (distribution, ecology).

Syllectus spelaeus Britton, 1964

Syllectus spelaeus Britton, 1964a: 631.Type locality: Nile River Cave, Charleston, BR.

Geographic distribution (Map p. 267). South Island: BR, NN.

Ecology. Mostly cavernicolous (troglophilous). Lowland. Cave entrances: in the twilight zone; a rock-shelter and a forest.

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

Dispersal power. Subapterous. Fast runner.

References. Britton, 1964a: 631 (distribution, ecology); Townsend, 1974b: 430 (ecology) and 1997: 18 (distribution, ecology).

Subtribe ANISODACTYLINA

Geographic distribution. Worldwide.

References. Noonan, 1973: 266–480 (classification; key to genera) and 1976: 8–15 (taxonomy).

Genus *Allocinopus* Broun, 1903

Figure 22

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

Geographic Distribution. New Zealand (endemic).

References. Hudson, 1934: 177 (list); Noonan, 1973: 284–285 and 1976: 8 (taxonomy).

Notes. This taxon probably represents two genera (Broun, 1912: 392). A few species await description. These beetles live in forests, along streams.

Allocinopus angustulus Broun, 1912

Allocinopus angustulus Broun, 1912: 392. Type locality: Forty-mile Bush, near Napier, WA.

Geographic distribution (Map p. 223). North Island: WA.

Ecology. Lowland. A forest. Nocturnal; shelters during the day.

Biology. Seasonality: December, February. Omnivorous, mostly phytophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Reference. Noonan, 1973: 285 (taxonomy).

Allocinopus castaneus Broun, 1912

Allocinopus castaneus Broun, 1912: 392. Type locality: Maketu [Stream], Hunua Ranges, AK.

Geographic distribution (Map p. 223). North Island: AK, TK.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality: October, April. Omnivorous, mostly phytophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Reference. Noonan, 1973: 285 (taxonomy).

Allocinopus latitarsis Broun, 1911

Allocinopus latitarsis Broun, 1911: 95. Type locality: Pitt Island, CH.

Geographic distribution (Map p. 223). Offshore Islands: CH.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf), shrublands, scrublands, pastures, gardens, stream edges, coastal rocky faces. Nocturnal; hides during the day under logs and stones (mostly), under fallen bark, plant debris, in leaf litter; in and around bird nests (*Puffinus*). Gregarious.

Biology. Seasonality: October–March, July–August. Mating: September. Omnivorous, mostly phytophagous (based on mouthpart morphology). Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Occasional climber (on trees).

References. Noonan, 1973: 285 (taxonomy); Watt, 1980a: 334 (distribution, ecology); Emberson, 1998: 30 (distribution, biology).

Allocinopus ocularius Broun, 1908

Allocinopus ocularius Broun, 1908: 344. Type locality: Manawatu Flats, nine miles below the Gorge, WI/WN.

Geographic distribution (Map p. 223). North Island: WI/WN.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Omnivorous, mostly phytophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

Reference. Noonan, 1973: 285 (taxonomy).

Allocinopus sculpticollis Broun, 1903

Figure 22

Allocinopus sculpticollis Broun, 1903: 608. Type locality: Motueka River, NN.

Geographic distribution (Map p. 223). North Island: BP, GB, HB, RI, TK, TO, WA, WI, WN. South Island: BR, NN, SD, WD.

Ecology. Stenotopic, epigean-fossorial, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp, beech), swamp forests, and shrublands: along streams and mud flats. Nocturnal; hides during the day in burrows dug under logs and stones Gregarious.

Biology. Seasonality: October–April. Tenerals: October–November, January–February. Omnivorous, mostly phytophagous (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Good burrower.

References. Hudson, 1934: 37 (distribution, ecology); Noonan, 1973: 285 (taxonomy); Townsend, 1997: 16 and 1998: 11, 21 (distribution).

Note. This taxon could represent a species complex.

Allocinopus smithi Broun, 1912

Allocinopus smithi Broun, 1912: 391. Type locality: Ratapihipihi Forest, TK.

Geographic distribution (Map p. 223). North Island: AK, BP, TK, WN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests: along streams. Nocturnal; hides during the day under stones and in leaf litter.

Biology. Seasonality: December–January, June. Omnivorous, mostly phytophagous (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Moderate runner.

References. Hudson, 1934: 37 (distribution, ecology); Noonan, 1973: 285 (taxonomy).

Genus *Anisodactylus* Dejean, 1829

Anisodactylus Dejean 1829: 4. Type species: *Carabus binotatus* Fabricius, 1787, designated by Westwood, 1838: 4.

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

References. Noonan, 1973: 349–380 and 1976: 13 (taxonomy).

Subgenus *Anisodactylus* Dejean, 1829

Geographic distribution. Holarctic Region, Oriental Region, northern Africa; New Zealand (adventive).

Anisodactylus (Anisodactylus) binotatus (Fabricius, 1787)

Carabus 2notatus Fabricius, 1787: 199. Type locality: Kiel, Germany.

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

Geographic distribution (Map p. 225). North Island: WN. South Island: DN, MC, OL, SC. Introduced from Europe. First New Zealand record: Spreydon, Christchurch, MC, 1938 (Pilgrim, 1963: 837). Well established.

Ecology. Epigean, mostly campicolous, mesophilous, synanthropic. Lowland, upland. Gardens, pastures, tussock grasslands, dried stream beds, sand dunes, orchards, forests (beech, podocarp). Mostly nocturnal; hides during the day under logs, stones, plant debris, and in soil burrows. Sometimes active in the sunshine (P. Howe, personal communication).

Biology. Seasonality: September–October, December–July. Tenerals: April. Omnivorous, mostly phytophagous (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Macropterous, capable of flight. Moderate runner. Occasional burrower.

References. Pilgrim, 1963: 837–839 (distribution); Butcher & Emberson, 1981: 60 (distribution, ecology); Johns, 1986: 31 (distribution, ecology); Lindroth, 1986: 370 (distribution, ecology, biology, dispersal power).

Genus *Gaioxenus* Broun, 1910

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

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

References. Hudson, 1934: 177 (list); Noonan, 1976: 9 (taxonomy).

Note. A new species awaits description.

Gaioxenus pilipalpis Broun, 1910

Gaioxenus pilipalpis Broun, 1910b: 8. Type locality: Raurimu, TO.

Geographic distribution (Map p. 238). North Island: RI, TK, TO, WN, WO.

Ecology. Epigean-fossorial, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Mostly wet forests (beech, broadleaf); also tussock grasslands. Nocturnal; hides during the day often in burrows dug under stones, logs, fallen branches, and fallen epiphyte crowns.

Biology. Seasonality: September–April. Tenerals: December–March. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runnner. Good burrower.

Genus *Hypharpax* W. S. Macleay, 1825

Hypharpax Macleay, 1825: 22 (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.

Sagraemerus Redtenbacher, 1868: 13. Type species: *Sagraemerus javanus* Redtenbacher, 1868, by monotypy. Synonymised by Andrewes, 1924: 467.

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

References. Hudson, 1934: 177(list); Noonan, 1973: 288–289 and 1976: 9 (taxonomy); Moore *et al*., 1987: 237–240 (list of Australian species); Moore, 1992: 168 (distribution).

Hypharpax abstrusus Bates, 1878

Hypharpax abstrusus Bates, 1878c: 23. Type locality: Auckland, AK.

Geographic distribution (Map p. 242). North Island: AK, HB, WN. South Island: MB, MC, NC.

Ecology. Epigean, mostly campicolous, heliophilous. Lowland, montane. Tussock grasslands, cultivated fields (lucerne), pastures, sand hills, river flats, scrublands. Mostly diurnal; active in the sunshine; hides on cloudy days under stones.

Biology. Seasonality: Throughout the year. Omnivorous, probably granivorous (based on mouthpart morphology). Predators: Starlings.

Dispersal power. Macropterous. Frequent flier. Moderate runner. Occasional climber (on shrubs).

References. Walker, 1904: 76 (distribution, ecology); Noonan, 1973: 289 (taxonomy); Johns, 1980: 63 (distribution, ecology).

Note. This taxon could be conspecific with *Hypharpax antarcticus*.

Hypharpax antarcticus (Laporte de Castelnau, 1867)

Harpalus antarcticus Laporte de Castelnau, 1867: 107 (redescribed in 1868: 193). Type locality: Dunedin [DN] and the North Island.

Hypharpax antarcticus: Bates, 1874: 272.

Diaphoromerus antarcticus: Chaudoir, 1878a: 485.

Hypharpax antarcticus: Hudson, 1934: 37, 177.

Geographic distribution (Map p. 242). North Island: AK, BP. South Island: CO, DN, MC, MK, NC.

Ecology. Epigean, mostly campicolous, heliophilous. Lowland, montane, subalpine, alpine. Tussock grasslands, pastures, gardens, river banks. Mostly diurnal; active in the sunshine; hides on cloudy days under stones and at the base of tussock clumps.

Biology. Seasonality: Throughout the year. Omnivorous, probably granivorous (based on mouthpart morphology). Predators: Starlings.

Dispersal power. Macropterous. Frequent flier. Moderate runner. Occasional climber (on plants).

References. Hudson, 1934: 37 (distribution, ecology); Noonan, 1973: 289 (taxonomy); Johns, 1986: 31 (distribution).

Hypharpax australasiae (Dejean, 1829)

Harpalus australasiae Dejean, 1829: 386. Type locality: Australia.

Hypharpax australasiae: Bates, 1874: 272.

Diaphoromerus australasiae: Chaudoir, 1878a: 480.

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

Hypharpax australasiae: Moore, in Moore *et al*., 1987: 237.

Geographic distribution (Map p. 242). North Island: BP, GB, HB, WI, WN. South Island: MC. Extralimital range: Australia (including Tasmania). Adventive. First New Zealand records: Napier, HB 1947 (NZAC); New Zealand (Redtenbacher, 1868: 15). Well established.

Ecology. Eurytopic, epigean-fossorial, heliophilous. Lowland. Cultivated fields (strawberry), sand dunes. Mostly diurnal; active on plants in the sunshine; hides on cloudy days in burrows dug at the base of plants (*Muhlenbeckia*).

Biology. Seasonality: October–November, January, March–April, July–August. Tenerals: February. Omnivorous, probably granivorous (Moore *et al*., 1987: 237). Once recorded as feeding on strawberry seeds.

Dispersal power. Macropterous. Occasional flier. Moderate runner.

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).

Hypharpax australis (Dejean, 1829)

Harpalus australis Dejean, 1829: 385. Type locality: Australia.
Harpalus inornatus Germar, 1848: 169. Type locality: Adelaide, South Australia. Synonymised by Chaudoir, 1878a: 484.
Harpalus coxii Laporte de Castelnau, 1867: 107 (redescribed in 1868: 193). Type locality: Clarence River, New South Wales, Australia. Synonymised by Chaudoir, 1878a: 484.
Hypharpax australis: Bates, 1874: 272.
Diaphoromerus australis: Chaudoir, 1878a: 484.
Hypharpax australis: Broun, 1880: 51.
Hypharpax parvus Chaudoir, 1878a: 500. Type locality: Southern Australia. Synonymised by Moore, in Moore *et al*., 1987: 237.
Hypharpax (*Harpalus*) *australis*: Blackburn, 1892: 83.
Hypharpax australis: Hutton, 1904: 351.

Geographic distribution (Map p. 242). North Island: AK, BP, CL, GB, HB, ND, RI, TK, WN, WO. South Island: CO, KA, MB, MC, MK, NN, SC, SD. Offshore Islands: CH. Extralimital range: Australia (including Tasmania), Lord Howe Island; New Zealand (adventive). First New Zealand records: Mt Albert, AK, 1916 (NZAC); New Zealand (Redtenbacher, 1868: 15). Well established.

Ecology. Epigean-fossorial, mostly campicolous, heliophilous. Lowland, montane. Sand dunes, pastures, cultivated fields (lucerne, carrot, pea), farmlands, gardens, tussock grasslands, river banks, scrublands. Mostly diurnal; active in the sunshine; hides on cloudy days in soil burrows dug at the base of plants, under stones, pieces of wood, logs, dead leaves, and *Muehlenbeckia*-clumps. Gregarious.

Biology. Seasonality: Throughout the year, except May–June. Tenerals: February. Omnivorous, probably granivorous (Moore *et al*., 1987: 238). Predators: Starlings. Regularly infested with mites.

Dispersal power. Macropterous. Frequent flier. Moderate runner. Occasional climber (on shrubs and plants).

References. Thomson, 1922: 284 (distribution); Pilgrim, 1963: 842 (distribution); Noonan, 1973: 289 (taxonomy); Moeed, 1980: 250 (biology); Butcher & Emberson, 1981: 64 (distribution, ecology); Johns, 1986: 31 (distribution, ecology); Moore *et al*., 1987: 237–238 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Moore, 1992: 168 (distribution); Patrick *et al*., 1992a: 272 (distribution); Emberson, 1998: 30 (distribution, ecology, biology); Townsend, 1997: 16 and 1998:18, 21 (distribution).

Genus *Parabaris* Broun, 1881

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

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

References. Hudson, 1934: 174 (list); Britton, 1964b: 522–523, 526 (taxonomy); Noonan, 1976: 9 (taxonomy).

Note. A few species await description.

Parabaris atratus Broun, 1881

Parabaris atratus Broun, 1881: 655. Type locality: Parua, near Whangarei Harbour, ND.

Geographic distribution (Map p. 263). North Island: AK, BP, CL, GB, ND, TK, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp). Nocturnal; hides during the day under logs (mostly) and stones.

Biology. Seasonality: September–June. Predacious (based on mouthpart morphology). Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

Parabaris gourlayi Britton, 1964

Parabaris gourlayi Britton, 1964b: 523. Type locality: Great Island, TH.

Geographic distribution (Map p. 263). Offshore Islands: TH.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf). Nocturnal; hides during the day under stones.

Biology. Seasonality: November, January, May. Tenerals: December–January. Predacious (based on mouthpart morphology). Regularly infested with mites.

Dispersal power. Subapterous. Moderate runner.

Reference. Britton, 1964b: 526 (distribution).

Genus *Triplosarus* Bates, 1874

Triplosarus Bates 1874: 270 (redescribed in 1875: 308). Type species: *Triplosarus fulvescens* Bates, 1874, by monotypy.

Geographic distribution. New Zealand (endemic).

References. Hudson, 1934: 176 (list); Noonan, 1973: 285–286 and 1976: 8 (taxonomy).

Note. A new species awaits description.

Triplosarus novaezelandiae (Laporte de Castelnau, 1867)

Harpalus novaezelandiae Laporte de Castelnau, 1867: 108 (redescribed in 1868: 194). Type locality: North Island.
Triplosarus fulvescens Bates, 1874: 271 (redescribed in 1875: 309). Type locality: "Auckland (?) [AK] and Christchurch", MC. Synonymised by Townsend, 1997: 16.

Triplosarus novae-zealandiae [*sic*]: Broun, 1881: 659 (misspelling).

Geographic distribution (Map p. 268). North Island: AK, CL, ND, WI, WN. South Island: DN, MC, NN, SD, WD. Stewart Island.

Ecology. Stenotopic, fossorial, arenicolous. Coastal lowland. Sand dunes, sand beaches. Nocturnal; hides during the day in burrows, and also under marram grass (*Ammophila*) and wrack. Gregarious.

Biology. Seasonality: November–April, August. Tenerals: January–February. Omnivorous, mostly phytophagous (based on mouthpart morphology).

Dispersal power. Macropterous, probably capable of flight. Excellent burrower.

References. Wakefield, 1873: 298 (distribution, ecology); Hudson, 1934: 176 (list); Pilgrim, 1969: 364 (ecology); Harris, 1970a: 48, 55 (distribution, ecology, biology); Noonan, 1973: 286 (taxonomy, dispersal power); Johns, 1986: 31 (distribution, ecology); Townsend, 1994: 11 (distribution, ecology) and 1997: 16 (taxonomy, distribution).

Subtribe STENOLOPHINA

Geographic distribution. Worldwide.

Reference. Noonan, 1976: 15–28 (taxonomy).

Genus *Egadroma* Motschulsky, 1855

Egadroma Motschulsky, 1855: 43. Type species: *Carabus smaragdulus* Fabricius, 1798, by monotypy.
Stenolophus (*Egadroma*): Ganglbauer, 1892: 370.
Acupalpus (*Egadroma*): Csiki, 1932a: 1239
Stenolophus (*Egadroma*): Noonan, 1976: 18.
Egadroma: Serrano *et al*., 1994: 56.

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

References. Noonan, 1976: 18 (taxonomy); Serrano *et al*., 1994: 56 (karyotype, taxonomy); Serrano & Galián, 1998: 198 (karyotype, taxonomy).

Note. 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.

Egadroma picea (Guérin-Méneville, 1830)

Acupalpus piceus Guérin-Méneville, 1830: Plate 1, Figure 12. Type locality: Port Jakson [=Port Jackson], New South Wales, Australia.
Harpalus dingo Laporte de Castelnau, 1867: 111 (redescribed in 1868: 197). Type locality: Rockhampton, Queensland, Australia. Synonymised by Moore, in Moore *et al*., 1987: 242.
Homalosoma dingo: Gemminger & Harold, 1868: 329.
Stenolophus politus Macleay, 1871: 103. Type locality: Gayndah, Queensland, Australia. Synonymised by Moore, in Moore *et al*., 1987: 242.
Stenolophus dingo: Chaudoir, 1878a: 514.
Stenolophus sexualis Fauvel, 1882: 270. Type locality: Ile des Pins and Nouméa, New Caledonia. Synonymised by Sloane, 1920b: 323.
Stenolophus piceus: Cameron & Butcher, 1980: 115.
Stenolophus (*Egadroma*) *piceus*: Moore *et al*., 1987: 242.
Egadroma piceus [*sic*]: Serrano *et al*., 1994: 56.

Geographic distribution (Map p. 237). North Island: AK, CL, ND. Extralimital range: New Caledonia, Pacific Islands, Australia (including Tasmania). Adventive. First New Zealand records: Lake Ohia, ND, 1917 (NZAC) ; Redhill and Woodhill, AK, Rangiputa and Ruakaka, ND (Cameron & Butcher, 1980: 115–116). Well established.

Ecology. Epigean, arenicolous. Lowland. Sandy pastures, sand dunes. Nocturnal; hides during the day in soil burrows dug at the base of plants and under logs.

Biology. Seasonality: November–February, August. Omnivorous, probably granivorous (Moore *et al*., 1987: 242). Food, in captivity: Small scarabaeids.

Dispersal power. Macropterous. Occasional flier. Moderate runner. Good burrower.

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

Note. Like *Apodroma* (Lepidoptera) which is a feminine noun (Brown, 1985: 673), the generic name *Egadroma* requires a specific epithet of feminine gender.

Genus *Euthenarus* Bates, 1874

Euthenarus Bates 1874: 272 (redescribed in 1875: 310). Type species: *Euthenarus brevicollis* Bates, 1874, designated by Noonan, 1976: 27.
Euthenaris: Csiki, 1932a: 1268 (incorrect subsequent spelling).

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

References. Bates, 1874: 273 (taxonomy); Hudson, 1934: 177 (list); Noonan, 1976: 27–28 (taxonomy); Moore, 1985: 252 (distribution); Townsend, 1997: 17 (species diagnosis).

Notes. A few species await description. An exotic species could have been introduced.

Euthenarus brevicollis Bates, 1874

Euthenarus brevicollis Bates, 1874: 273 (redescribed in 1875: 311). Type locality: Lake Coleridge, MC.

Euthenaris brevicollis: Csiki, 1932a: 1268 (incorrect subsequent spelling).

Geographic distribution (Map p. 237). South Island: MC, NN. Offshore Islands: CH.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, upland, subalpine. Wet scrublands and forests: often along creeks. Nocturnal; hides during the day under stones and debris. Gregarious.

Biology. Seasonality: October–February, March. Tenerals: February. Omnivorous, mostly phytophagous (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Macropterous, capable of flight. Moderate runner.

References. Johns, 1986: 31 (distribution, ecology); Emberson, 1998: 30 (taxonomy, distribution, ecology, biology); Townsend, 1997: 17 (taxonomy, distribution).

Euthenarus puncticollis Bates, 1874

Euthenarus puncticollis Bates, 1874: 273 (redescribed in 1875: 311). Type locality: Auckland, AK.

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

Geographic distribution (Map p. 237). North Island: AK, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: BR, CO, MC, NN, SD, SL, WD.

Ecology. Eurytopic, epigean-fossorial, very hygrophilous. Lowland, montane, subalpine. Flaxlands, mud flats, edges of lakes and streams, pastures, tussock grasslands. Nocturnal; hides during the day in soil burrows and cracks, under soil clods, logs, at the base of plants, in moss and other debris.

Biology. Seasonality: Throughout the year, except June. Tenerals: February, March. Omnivorous, mostly phytophagous (based on mouthpart morphology). Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Macropterous, capable of flight. Moderate runner. Good burrower.

References. Barratt & Patrick, 1987: 82 (distribution, ecology); Townsend, 1994: 9, 11–13 (distribution, ecology); Townsend, 1997: 17 (taxonomy, distribution).

Genus *Haplanister* Moore, 1996

Haplanister Moore, 1996: 97. Type species: *Haplanister crypticus* Moore, 1996, by monotypy.

Geographic distribution. New Zealand (apparently adventive).

Reference. Moore, 1996: 97–100 (taxonomy).

Haplanister crypticus Moore, 1996

Haplanister crypticus Moore, 1996: 98. Type locality: Hastings, HB.

Geographic distribution (Map p. 238). North Island: AK, BP, CL, HB, RI, TK, WI, WN, WO. South Island: MC, NN. Offshore Islands: CH. Apparently an adventive species of unknown origin. First New Zealand records: Mt Te Atuaparapara, HB 1970 (NZAC); Palmerston North, WI, 1974 (Moore, 1996: 98). Well established.

Ecology. Eurytopic, epigean-fossorial-planticolous, heliophilous, synanthropic. Lowland, montane, subalpine, alpine. Sandy pastures, gardens, golf courses, coastal swards, alpine meadows, sandy banks, brook and lagoon edges, open forests (broadleaf). Mostly diurnal; active in the sunshine; hides on cloudy days in leaf litter, under logs, in rotten logs and moss, under dried algal mats and stones. Gregarious.

Biology. Seasonality: Throughout the year, except May–June. Omnivorous, mostly phytophagous (based on mouthpart morphology). Predators: Starlings (frequent enemies).

Dispersal power. Macropterous. Frequent flier. Regular in drift material, which indicates previous flight. Moderate runner. Good climber (on plants and logs). Occasional burrower.

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).

Genus *Pholeodytes* Britton, 1962

Pholeodytes Britton, 1962: 665. Type species: *Pholeodytes townsendi* Britton, 1962, by monotypy.

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

References. Britton, 1962: 665–668 and 1964a: 631 (taxonomy); Noonan, 1976: 27 (taxonomy).

Note. Three species await description.

Pholeodytes cerberus Britton, 1964

Pholeodytes cerberus Britton, 1964a: 631. Type locality: Fenian Creek Cave, Oparara, NN.

Geographic distribution (Map p. 264). South Island: NN.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland.

Caves: in dry gypsum sand at some distance from dripping or wet areas.

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

Dispersal power. Subapterous. Fast runner.

References. Britton, 1964a: 633 (distribution, ecology); May, 1972: 575 (ecology); Johns, 1991: 20 (distribution); Townsend, 1997: 17 (distribution, ecology).

Pholeodytes townsendi Britton, 1962

Pholeodytes townsendi Britton, 1962: 666. Type locality: Twin Forks Cave, Paturau District, NN.

Geographic distribution (Map p. 264). South Island: NN.

Ecology. Stenotopic, cavernicolous (troglobitic). Lowland. Caves: in dry gypsum sand at some distance from dripping or wet areas.

Biology. Seasonality: October, December–January, March, June. Predacious. Food: A small weta.

Dispersal power. Subapterous. Fast runner.

References. Britton, 1962: 666, 668 (distribution, biology); Townsend, 1963: 96 (distribution, ecology); May, 1972: 575 (ecology); Johns, 1991: 20 (distribution); Townsend, 1997: 17 (distribution, ecology).

Subtribe HARPALINA

Geographic distribution. Worldwide.

Reference. Noonan, 1976: 28–60 (taxonomy).

Genus *Harpalus* Latreille, 1802

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

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

Reference. Noonan, 1976: 31–38 (taxonomy).

Note. Another European species has been recently introduced in the South Island (R.M. Emberson, personal communication).

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 European genus.

Geographic distribution. Same as genus.

Harpalus (Harpalus) affinis (Schrank, 1781)

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

Carabus affinis Schrank, 1781: 212. Type locality: Austria.

Harpalus affinis: Author of combination uncertain for this European species.

Geographic distribution (Map p. 238). North Island: RI, WI, WN. Extralimital range: Europe, Asia; North America and New Zealand (adventive). First New Zealand record: Palmerston North, WI, 1975 (NZAC; Townsend, 1992a: 25). Well established.

Ecology. Epigean, mostly campicolous, synanthropic. Lowland. Cultivated fields (seradella, pea, wheat, quinoa, buckwheat, phacelia, coriander, barley), pastures, gardens, kiwifruit orchards, tomato glasshouses. Soil sandy (mosty) or silty. Mostly nocturnal; shelters during the day.

Biology. Seasonality: Throughout the year, except May–June. Spring breeder. Tenerals: March–May. Omnivorous, mostly phytophagous. Food: Weed seeds (mostly), aphids, and flies.

Dispersal power. Macropterous. Frequent flier. Moderate runner.

References. Lindroth, 1986: 351 (distribution, ecology, biology, dispersal power); Townsend, 1992a: 25–29 (distribution, ecology, biology) and 1994: 9, 11 (distribution, ecology); Sunderland *et al*., 1995: 39–49 (biology).

Supertribe PLATYNITAE

Tribe PLATYNINI

Figure 23

Geographic distribution. Worldwide.

Reference. Hudson, 1934: 174 (list).

Notes. Tribe previously known as Agonini. This is New Zealand's third largest carabid tribe. A revision is needed.

Subtribe SPHODRINA

Geographic distribution. Worldwide; New Zealand (adventive).

Reference. Casale, 1988: 1–1024 (world revision).

Genus *Laemostenus* Bonelli, 1810

Laemostenus Bonelli, 1810: Tabula Synoptica. Type species: *Carabus janthinus* Duftschmid, 1812, designated by Madge, 1975: 583.

Laemosthenes: Agassiz, 1847: 199 (incorrect subsequent spelling).

Laemosthenus: Winkler, 1924: 187 (incorrect subsequent spelling).

Geographic distribution. Worldwide; New Zealand (adventive).

References: Britton, 1940: 508 (taxonomy); Casale, 1988: 448–892 (world revision).

Subgenus *Laemostenus* Bonelli, 1810

Geographic distribution. Palearctic and Oriental Regions, Middle East, North Africa; North America, Australia (including Tasmania), and New Zealand (adventive).

Laemostenus (Laemostenus) complanatus (Dejean, 1828)

Pristonychus complanatus Dejean, 1828: 58. Type locality: Southern France.

Laemosthenes complanatus: Schaufuss, 1865: 54.

Pristonychus australis Blackburn, 1888d: 811. Type locality: Port Lincoln, Wallaroo and near Roseworthy, South Australia. Primary homonym of *Pristonychus australis* Fairmaire, 1859. Synonymised by Sloane, 1903: 631.

Laemostenus complanatus: Moore *et al*., 1987: 222.

Laemostenus (*Laemostenus*) *complanatus*: Casale, 1988: 458.

Pristonychus australianus Casale, 1988: 458 (replacement name for *Pristonychus australis* Blackburn, 1888d).

The extensive list of synonyms and combinations for this cosmopolitan species has been omitted to conserve space.

Geographic distribution (Map p. 242). North Island: AK, CL, GB, ND, TK, TO, WA, WI, WN, WO. South Island: CO, DN, FD, KA, MB, MC, NC, NN, OL, SC, SD, SL, WD. Subantarctic, offshore Islands: CA, CH. Europe, North Africa, Middle East; North America, South America; Australia (including Tasmania) and New Zealand (adventive). First New Zealand records: New Zealand, 1888 (Thomson, 1922: 285); Tairua, CL, early 1870s (Kuschel, 1990: 39); Nelson, NN, 1920 (NZAC). Well established.

Ecology. Eurytopic, epigean, synanthropic. Lowland, montane. Gardens, near houses, pastures, cultivated fields (lucerne), modified grasslands, gardens, sand dunes, hedges, orchards (apricot), open forests (broadleaf), tree plantations (pine), sheds, outbuildings, bird and bumblebee nest boxes, supralittoral shores. Nocturnal; hides during the day under rubbish heaps, garden clippings, grass sacks, stones, logs, piles of wood, fence posts, garden plant debris, in leaf litter, grass sods, in the soil, in tree trunks and stumps, in log fissures, and under the loose bark of trees.

Biology. Seasonality: Throughout the year. Tenerals: December–January, March–May. Predacious. Food: Isopods and amphipods. Predators: Hedgehogs. Occasionally infested with mites.

Dispersal power. Macropterous. Occasional flier to artificial lights at night. Occasionally found in drift material, which indicates previous flight. Moderate runner. Occasional climber (on trees).

References. Thomson, 1922: 285 (distribution); Britton, 1940: 508 (distribution); Brookes, 1951: 25 (distribution); Pilgrim, 1963: 842 (distribution); Timms, 1971: 1–22 (biology); Walker, 1983: 37 (ecology, dispersal power); Johns, 1986: 31 (distribution, ecology); Moore *et al*., 1987: 222 (distribution, ecology, biology, dispersal power); Casale, 1988: 458–461 (taxonomy, distribution); Kuschel, 1990: 24, 39 (distribution, ecology, biology, dispersal power); Emberson, 1998: 29 (distribution, ecology, biology).

Subtribe PLATYNINA

Geographic distribution. Worldwide.

References. Basilewsky, 1985: 1–543 (revision of Madagascan fauna); Liebherr, 1986: 1–198 (classification, phylogeny); Liebherr & Will, 1998: 135 (morphology of female reproductive system).

Genus "*Anchomenus*" Bonelli, 1810

Anchomenus Bonelli, 1810: Tabula Synoptica. Type species: *Carabus prasinus* Thunberg, 1784, designated by Westwood, 1838: 3.

Geographic distribution. New Zealand (endemic).

References. Csiki, 1931: 853–854, 865 (list); Hudson, 1934: 174 (list); Liebherr, 1991b: 33–60 (revision of *Anchomenus*).

Notes. The generic name "*Anchomenus*" is here given between quotation marks to indicate that the New Zealand species ascribed to this Holarctic genus, do not belong here. Over time, some species have also been incorrectly ascribed to *Agonum* Bonelli, 1810, another Holarctic genus, but they do not bear any more relation to this genus than to *Anchomenus*. All combinations listed below follow Hudson (1934: 174), except when stated otherwise.

At least one new genus will need to be described to accommodate both described and numerous currently undescribed New Zealand species, but this cannot be done until the group is formally revised. These beetles live mostly in the South Island in wet forests along streams and mud flats. They appear to be regular tree climbers at night.

"Anchomenus" arnaudensis Broun, 1921

Anchomenus arnaudensis Broun, 1921: 598. Type locality: Mt St. Arnaud, BR/MB.
Agonum (*Anchomenus*) *arnaudense*: Csiki, 1931: 865.
Anchomenus arnaudensis: Hudson, 1934: 174.

Geographic distribution (Map p. 224). South Island: BR/MB.

Ecology: Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality: June. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Townsend, 1997: 15 (distribution).

"Anchomenus" colensonis White, 1846

Anchomenus colensonis White, 1846: 3. Type locality: New Zealand.
Platynus colensonis: Bates, 1874: 239.
Anchomenus (*Platynus*) *colensonis*: Broun, 1880: 26.
Achomenus colensonis: Sharp, 1884: 298.
Agonum (*Platynus*) *colensoni* [*sic*]: Csiki, 1931: 858.
Anchomenus colensonis: Hudson, 1934: 174.

Geographic distribution. "New Zealand".

Ecology. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

"Anchomenus" edwardsii (Bates, 1874)

Platynus edwardsii Bates, 1874: 239 (redescribed in 1875: 302). Type locality: New Zealand.
Anchomenus (*Platynus*) *edwardsii*: Broun, 1880: 26.
Anchomenus edwardsii: Hudson, 1923: 356.
Agonum (*Platynus*) *edwardsi*: Csiki, 1931: 853.
Anchomenus edwardsii: Hudson, 1934: 174.

Geographic distribution. "New Zealand".

Ecology. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

"Anchomenus" helmsi Sharp, 1881

Anchomenus helmsi Sharp, 1881: 47. Type locality: Greymouth, BR.
Agonum (*Platynus*) *helmsi*: Csiki, 1931: 853.
Anchomenus helmsi: Hudson, 1934: 174.
Agonum helmsi: Johns, 1977: 316.
Anchomenus helmsi: Townsend, 1997: 15.

Geographic distribution (Map p. 224). North Island: TK, WN. South Island: BR, MC, NN, WD.

Ecology. Stenotopic, arboreal-epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, broadleaf, beech) and scrublands. Nocturnal; hides during the day under logs, stones, and fallen nikau palm fronds.

Biology: Seasonality: October–January, March. Tenerals: May. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner. Excellent climber (on trees) (P.M. Johns, personal communication).

References. Hudson, 1934: 35 (distribution, ecology); Johns, 1980: 62, 65 (distribution, ecology).

"Anchomenus" integratus Broun, 1908

Anchomenus integratus Broun, 1908: 348. Type locality: Broken River, MC.
Agonum (*Anchomenus*) *integratum*: Csiki, 1931: 865.
Agonum integratus [*sic*]: Johns, 1980: 62.

Geographic distribution (Map p. 224). South Island: CO, FD, MB, MC, MK.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech, podocarp, broadleaf): along streams. Nocturnal; hides during the day under logs, stones, and fallen plants.

Biology. Seasonality: September–January, March, May, August. Tenerals: May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Johns *et al*., 1980: 27 (distribution, ecology); Johns, 1980: 62, 65 (distribution, ecology).

Note. Original combination reinstated on the basis of morphology.

"Anchomenus" intermedius Broun, 1908

Anchomenus intermedius Broun, 1908: 347. Type locality: Manawatu Flats, nine miles below the Gorge, WI/WN.
Agonum (*Anchomenus*) *intermedium*: Csiki, 1931: 865.
Anchomenus intermedius: Hudson, 1934: 174.

Geographic distribution (Map p. 224). North Island: WI/WN.

Ecology. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runner.

"Anchomenus" libitus Broun, 1914

Anchomenus libitus Broun, 1914a: 84. Type locality: Hakapoua, FD.

Geographic distribution (Map p. 224). South Island: FD.

Ecology. Habitat unknown; probably silvicolous.

Biology. Seasonality: March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

"Anchomenus" macrocoelis Broun, 1908

Anchomenus macrocoelis Broun, 1908: 346. Type locality: The Hermitage, Mt Cook, MK.
Agonum (*Anchomenus*) *macrocoele*: Csiki, 1931: 865.
Anchomenus macrocaelis [*sic*]: Hudson, 1934: 174.

Geographic distribution (Map p. 224). South Island: MK, NN, OL, WD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane, subalpine. Wet forests (beech) and scrublands: along streams. Nocturnal; shelters during the day.

Biology. Seasonality: October–May. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner. Occasional climber (on trees).

"Anchomenus" oreobius Broun, 1886

Anchomenus oreobius Broun, 1886: 876. Type locality: Mt Maungatua, Taieri, DN.
Agonum (*Platynus*) *oreobium*: Csiki, 1931: 853.
Anchomenus oreobius: Hudson, 1934: 174.

Geographic distribution (Map p. 224). South Island: DN.

Ecology. Subalpine. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

"Anchomenus" otagoensis Bates, 1878

Anchomenus (Platynus) otagoensis Bates, 1878c: 27. Type locality: Otago, South Island.
Anchomenus otagoensis: Broun, 1880: 25.
Agonum (*Platynus*) *otagoense*: Csiki, 1931: 853.
Agonum otagoense: Patrick *et al*., 1985: 8.
Platynus otagoensis: Liebherr & Zimmerman, 1998: 147.

Geographic distribution (Map p. 224). South Island: CO, DN, FD, MC, MK, OL, SL.

Ecology. Eurytopic, epigean. Lowland, montane. Forests (beech), shrublands, tree plantations (pine), tussock grasslands, herbfields. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–February, April–May. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner. Occasional climber (on trees).

References. Hudson, 1934: 35 (distribution); Patrick *et al*., 1986: 13 (distribution); Barratt & Patrick, 1987: 82 (distribution, ecology, biology); Patrick *et al*., 1993: 11 (distribution, ecology); Liebherr & Zimmerman, 1998: 147 (part of outgroup for the Hawaiian Platynini).

Note. Original combination reinstated on the basis of morphology.

"Anchomenus" punctulatus Broun, 1877

Anchomenus punctulatus Broun, 1877a: 371. Type locality: Auckland, AK.
Agonum (*Anchomenus*) *punctatum* [*sic*]: Csiki, 1931: 865.

Geographic distribution (Map p. 224). North Island: AK.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. Original combination reinstated on the basis of morphology.

"Anchomenus" sandageri Broun, 1882

Anchomenus sandageri Broun, 1882: 218 (redescribed in 1883: 218 and 1886: 748). Type locality: New Zealand.
Agonum (*Platynus*) *sandageri*: Csiki, 1931: 853.
Anchomenus sandageri: Hudson, 1934: 174.

Geographic distribution (Map p. 225). North Island: WN. South Island: NN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet forests: along ravine streams. Nocturnal; hides during the day under stones.

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

Dispersal power. Subapterous. Moderate runner.

Reference. Hudson, 1934: 35 (distribution, ecology).

Note. Type locality probably Port Nicholson [= Wellington] or The Brothers where Sandager collected.

"Anchomenus" sophronitis Broun, 1908

Anchomenus sophronitis Broun, 1908: 349.Type locality: West Plains, Invercargill, SL.
Agonum (*Anchomenus*) *sophronitis*: Csiki, 1931: 865.
Anchomenus sophronitis: Hudson, 1934: 174.

Geographic distribution (Map p. 225). South Island: SL.

Ecology. Lowland. Habitat unknown; probably silvicolous.

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

Dispersal power. Subapterous. Moderate runnner.

"Anchomenus" sulcitarsis Broun, 1880

Anchomenus (Platynus) sulcitarsis Broun, 1880: 27. Type locality: Parua, near Whangarei Harbour, ND.
Anchomenus sulcitarsis: Hutton, 1904: 144.
Agonum (*Platynus*) *sulcitarse*: Csiki, 1931: 853.
Agonum sulcitarse: Watt, 1971: 25.

Geographic distribution (Map p. 225). North Island: AK, CL, ND.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, broadleaf). Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–October, March–May, August. Tenerals: December–March. Predacious (based on mouthpart morphology). Predators: Kiwis. Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner. Occasional climber (on trees).

References. Watt, 1971: 25 (biology); Reid *et al*., 1982: 84 (biology).

Note. Original combination reinstated on the basis of morphology.

"Anchomenus" xanthomelas Broun, 1908

Anchomenus xanthomelus Broun, 1908: 346. Type locality: Manawatu Gorge, RI/WN.
Anchomenus xanthomelas: Hudson, 1923: 356 (justified subsequent spelling).
Agonum (*Anchomenus*) *xanthomelus*: Csiki, 1931: 865.
Anchomenus xanthomelas: Hudson, 1934: 174.

Geographic distribution (Map p. 225). North Island: RI/WN.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

Genus *Cerabilia* Laporte de Castelnau, 1867

Cerabilia Laporte de Castelnau, 1867: 116 (redescribed in 1868: 202). Type species: *Cerabilia maori* Laporte de Castelnau, 1867, by monotypy.

Geographic distribution. New Zealand (endemic; southern North Island and South Island).

References. Hudson, 1934: 176 (list); Britton, 1940: 477–478 (classification, taxonomy).

Notes. M.R. Butcher (Lincoln, New Zealand) apparently started revising this genus around 1985. About fifteen species await description. These beetles are forest dwellers.

Cerabilia aphela (Broun, 1912)

Zabronothus aphelus Broun, 1912: 394. Type locality: Wairiri, Kaikoura, KA.
Cerabilia aphela: Townsend, 1997: 15.

Geographic distribution (Map p. 229). South Island: KA, MB.

Ecology. Epigean. Lowland, alpine. A forest, a river bed, a fellfield; probably mostly silvicolous. Nocturnal; hides during the day under stones.

Biology. Seasonality: October, December, March. Tenerals: March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Johns *et al*., 1980: 27 (nomenclature, distribution); Townsend, 1997: 15 (taxonomy, distribution).

Cerabilia major (Broun, 1912)

Zabronothus major Broun, 1912: 393. Type locality: Broken River, MC.
Cerabilia major: Townsend, 1997: 15.

Geographic distribution (Map p. 229). South Island: KA, MB, MC, MK, NC.

Ecology. Epigean, mostly silvicolous, xerophilous. Lowland, montane, subalpine. Dry forests (beech) and shrublands; tussock grasslands. Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: October–March, August. Tenerals: March. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Johns *et al*., 1980: 27 and Johns, 1980: 65 (distribution, ecology); Townsend, 1997: 15 (taxonomy, distribution).

Cerabilia maori Laporte de Castelnau, 1867

Cerabilia maori Laporte de Castelnau, 1867: 116 (redescribed in 1868: 202). Type locality: Dunedin, DN.
Feronia (*Cerabilia*) *moori* [*sic*]: Tschitschérine, 1891: 161.
Cerabilia maori: Hutton, 1904: 147.

Geographic distribution (Map p. 229). South Island: DN, MK.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland. Dry forests (beech). Nocturnal; hides during the day under stones.

Biology. Seasonality: January, March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner. Occasional climber (on plants).

Reference. Britton, 1940: 477–478 (taxonomy).

Cerabilia oblonga (Broun, 1910)

Zabronothus oblongus Broun, 1910b: 8. Type locality: Broken River, MC.
Cerabilia oblonga: Townsend, 1997: 15.

Geographic distribution (Map p. 229). South Island: MB, MC, NC.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland, montane. Dry forests (beech) and scrublands. Nocturnal; hides during the day under stones and logs.

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

Dispersal power. Subapterous. Moderate runner.

References. Johns *et al*., 1980: 27 (taxonomy, distribution); Johns, 1980: 62, 65 (distribution, ecology); Townsend, 1997: 15 (taxonomy, distribution).

Genus *Ctenognathus* Fairmaire, 1843

Figure 23

Ctenognathus Fairmaire, 1843: 13. Type species: *Anchomenus novae-zelandiae* Fairmaire, 1843, by monotypy.

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

References. Lacordaire, 1854: 353–354 (taxonomy); Sharp, 1886: 363 (taxonomy); Csiki, 1931: 744–745 (list); Hudson, 1934: 174 (list); Watt, 1961: 91–94 (partial revision of Auckland species).

Notes. A revision is needed. This taxon could represent two genera. Several species await description. These beetles are either widespread in the interior or restricted to the coast. They live in wet forests.

Ctenognathus actochares Broun, 1894

Ctenognathus actochares Broun, 1894: 307. Type locality: Wellington, WN.
Ctenognathus (*Anchomenus*) *actochares*: Walker, 1904: 76.
Ctenognathus actochares: Hudson, 1923: 356.

Geographic distribution (Map p. 231). North Island: WN. South Island: NN.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Coastal lowland. Wet native forests areas: along streams and seepages. Nocturnal; shelters during the day.

Biology. Seasonality: September–March, May–June, August. Tenerals: October–November. Predacious (based on mouthpart morphology). Predators: Spiders. Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner.

References. Walker, 1904: 76 (distribution); Grehan, 1990: 73 (distribution); Townsend, 1997: 15 (distribution).

Ctenognathus adamsi (Broun, 1886)

Anchomenus adamsi Broun, 1886: 937. Type locality: Base of Mt Egmont, TK and Waitakerei (=Waitakere) Ranges, AK.
Ctenognathus adamsi: Broun, 1893a: 986.

Geographic distribution (Map p. 231). North Island: AK, HB, RI, TK, TO, WA, WI, WN. South Island: MB, SD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane, subalpine, alpine. Wet forests (beech, podocarp), tree plantations (pine), and shrublands, and alpine meadows: along streams and mud flats. Nocturnal; hides during the day under logs, fallen branches, and stones. Gregarious.

Biology. Seasonality: September–May, August. Tenerals: October, December, April. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Subapterous. Moderate runner. Occasional climber (on plants).

References. Hudson, 1934: 35 (distribution, ecology); Townsend, 1997: 15 (taxonomy, distribution).

Note. *Ctenognathus adamsi* could represent a species complex.

Ctenognathus bidens (Chaudoir, 1878)

Colpodes bidens Chaudoir, 1878c: 303. Type locality: New Zealand.
Anchomenus batesi Broun, 1880: 21. Type locality: Near Whangarei Heads, ND. Synonymised by Watt, 1961: 93.
Ctenognathus bidens: Broun, 1893a: 986.
Ctenognathus batesi: Broun, 1893a: 986.

Geographic distribution (Map p. 232). North Island: AK, BP, CL, GB, ND, TK, WN, WO.

Ecology. Stenotopic, epigean-arboreal, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, broadleaf), tree plantations (pine), and shrublands. Nocturnal; hides during the day under stones and logs. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: December–March. Predacious (based on mouthpart morphology). Predators: Kiwis. Infested regularly with fungi (Laboulbeniales) and occasionally with mites.

Dispersal power. Subapterous. Moderate runner. Frequent climber (on trees).

References. Dohrn, 1884: 319–320 (taxonomy); Watt, 1961: 93–94 (taxonomy, distribution), 1962: 256–257, and 1971: 25 (distribution, biology); Reid *et al*., 1982: 84 (biology); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Liebherr & Zimmerman, 1998: 147 (part of outgroup for the Hawaiian Platynini).

Ctenognathus cardiophorus (Chaudoir, 1878)

Colpodes cardiophorus Chaudoir, 1878c: 305. Type locality: New Zealand.
Ctenognathus cardiophorus: Hutton, 1904: 144.
Colpodes cardiophorus: Csiki, 1931: 749.
Ctenognathus cardiophorus: Hudson, 1934: 174.

Geographic distribution (Map p. 232). North Island: AK, BP, CL, GB, HB, ND, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (broadleaf, podocarp) and tree plantations (pine): along streams, seepages, and mud flats. Nocturnal; hides during the day under logs, fallen branches, and stones. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: November–December. Predacious (based on mouthpart morphology). Predators: Spiders. Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner.

References. Watt, 1961: 94 and 1962: 257 (taxonomy, distribution); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power).

Ctenognathus cheesemani (Broun, 1880)

Anchomenus (Platynus) cheesemani Broun, 1880: 26. Type locality: Remuera, Auckland, AK.
Ctenognathus cheesemani: Broun, 1893a: 986.

Geographic distribution (Map p. 232). North Island: AK.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Ctenognathus crenatus (Chaudoir, 1878)

Colpodes crenatus Chaudoir, 1878c: 304. Type locality: New Zealand.
Ctenognathus crenatus: Hutton, 1904: 144.
Colpodes crenatus: Csiki, 1931: 751.
Ctenognathus crenatus: Hudson, 1934: 174.

Geographic distribution (Map p. 232). North Island: AK, BP, CL, ND, TK, TO, WO.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, broadleaf) and tree plantations (pine): along streams. Nocturnal; hides during the day under logs.

Biology. Seasonality: Throughout the year. Tenerals: December–January. Predacious (based on mouthpart morphology). Regularly infested with mites.

Dispersal power. Subapterous. Moderate runner. Occasional climber (on logs).

Reference. Watt, 1961: 94 (distribution).

Ctenognathus deformipes (Broun, 1880)

Calathus deformipes Broun, 1880: 19. Type locality: Parua, Whangarei Harbour, ND.
Anchomenus deformipes: Broun, 1886: 820.
Ctenognathus deformipes: Broun, 1893a: 986.

Geographic distribution (Map p. 232). North Island: ND.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Ctenognathus crenatus*.

Ctenognathus littorellus Broun, 1908

Ctenognathus littorellus Broun, 1908: 349. Type locality: Invercargill, SL.

Geographic distribution (Map p. 232). South Island: SL.

Ecology. Lowland. Seaside; probably silvicolous. Nocturnal; hides during the day under pieces of wood.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology)

Dispersal power. Subapterous. Moderate runner.

Reference. Broun, 1908: 350 (ecology).

Note. This taxon could be conspecific with *Ctenognathus adamsi*.

Ctenognathus lucifugus (Broun, 1886)

Anchomenus lucifugus Broun, 1886: 819. Type locality: Near the Waitakerei (=Waitakere) Railway-station, AK.
Ctenognathus lucifugus: Broun, 1893a: 986.

Geographic distribution (Map p. 232). North Island: AK, BP, CL, ND, TK, WO.

Ecology. Epigean-arboreal, silvicolous, very hygrophilous. Lowland, montane. Wet forests (podocarp, broadleaf) and tree plantations (pine). Nocturnal; hides during the day under logs (mostly) and in rotten logs.

Biology. Seasonality: Throughout the year. Tenerals: December–January, March. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner. Regular climber (on trees).

Reference. Watt, 1961: 93 (distribution).

Ctenognathus montivagus (Broun, 1880), new combination

Anchomenus montivagus Broun, 1880: 22. Type locality: Near Whangarei Heads, ND.
Ctenognathus latipennis Sharp, 1886: 363. Type locality: Auckland, AK. Synonymised by Csiki, 1930: 744.

Geographic distribution (Map p. 232). North Island: AK, ND.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology)

Dispersal power. Subapterous. Moderate runner.

References. Sharp, 1886: 364 (taxonomy); Broun, 1886: 749 (taxonomy).

Note. *Anchomenus elevatus* Bates, 1874: 240 (*nec* White, 1846: 3) was listed in the synonymy of *C. latipennis* Sharp, by Csiki (1930: 744), but *A. elevatus* was never formally described by Bates. Csiki was right in listing *C. latipennis* and *A. montivagus* as synonyms, but he should have used the name *montivagus* for this species because it is the oldest available name.

Ctenognathus munroi Broun, 1893

Ctenognathus munroi Broun, 1893a: 984. Type locality: South of Clevedon and Wairoa, AK.

Geographic distribution (Map p. 232). North Island: AK, BP.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Ctenognathus lucifugus*.

Ctenognathus neozelandicus (Chaudoir, 1878)

Colpodes neozelandicus Chaudoir, 1878c: 294. Type locality: Bay of Islands, ND.
Ctenognathus neozealandicus [*sic*]: Hutton, 1904: 144.
Colpodes neozelandicus: Csiki, 1931: 758.
Ctenognathus neozelandius: Hudson, 1934: 174.

Geographic distribution (Map p. 233). North Island: ND.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Dohrn, 1884: 320 (taxonomy); Sharp, 1886: 364 (taxonomy).

Ctenognathus novaezelandiae (Fairmaire, 1843)

Figure 23

Anchomenus novae-zelandiae Fairmaire, 1843: 12. Type locality: New Zealand.
Anchomenus elevatus White, 1846: 3. Type locality: Port Nicholson, WN. Synonymised by Sharp, 1884: 297.
Anchomenus (*Ctenognathus*) *novae zeelandiae* [*sic*]: White, 1846: 3.
Ctenognathus novae zelandiae: Chenu, 1851: 139.
Dicrochile ovicollis Motschulsky, 1865: 316. Type locality: New Zealand. Synonymised by Kuschel, 1990: 76.
Agonum novaezealandicum [*sic*]: Moeed & Meads, 1985: 22.
Ctenognathus novaezelandiae: Kuschel, 1990: 24, 40.

Geographic distribution (Map p. 233). North Island: AK, BP, CL, ND, TK, WN, WO.

Ecology. Epigean-arboreal, mostly silvicolous, very hygrophilous. Coastal lowland. Mostly wet forests (broadleaf, podocarp), shrublands, and tree plantations (pine); also sand dunes. Larval habitat: Leaf litter and rotten logs. Nocturnal; hides during the day in leaf litter, under logs, fallen branches, stones, and at the base of plants (*Muehlenbeckia*, grass). Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: September–February, July. Predacious. Food: Small arthropods, e.g., insects. Predators: Rats. Occasionally infested with mites.

Dispersal power. Subapterous. Moderate runner. Occasional burrower. Frequent climber (on trees).

References. Dohrn, 1884: 319–320 (taxonomy); Sharp, 1884: 297 (taxonomy); Hudson, 1934: 34 (distribution, ecology); Helmore, 1982: 40 (distribution, ecology, biol-

ogy); Watt, 1982a: 289, 296–297 and 1983b: 38 (taxonomy, distribution, ecology); Moeed & Meads, 1985: 22, 34–35 (distribution, ecology, biology); Kuschel, 1990: 24, 40, 76 (distribution, ecology, biology, dispersal power, taxonomy); Klimaszewski & Watt, 1997: 168 (distribution, ecology, biology).

Ctenognathus parabilis (Broun, 1880)

Anchomenus parabilis Broun, 1880: 20. Type locality: Whangarei Heads, ND.
Ctenognathus parabilis: Broun, 1893a: 986.

Geographic distribution (Map p. 233). North Island: ND.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Liebherr & Zimmerman, 1998: 147 (part of outgroup for the Hawaiian Platynini).

Note. This taxon could be conspecific with *Ctenognathus cardiophorus*.

Ctenognathus perrugithorax (Broun, 1880)

Anchomenus perrugithorax Broun, 1880: 24. Type locality: near Whangarei Heads, ND.
Ctenognathus perrugithorax: Broun, 1893a: 986.

Geographic distribution (Map p. 233). North Island: ND.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Ctenognathus novaezelandiae*.

Ctenognathus pictonensis Sharp, 1886

Ctenognathus pictonensis Sharp, 1886: 364. Type locality: Picton, SD.
Anchomenus pictonensis: Sharp, 1886: 454, Plate XII, Figure 5 (in error for *Ctenognathus pictonensis*).

Geographic distribution (Map p. 233). North Island: WN. South Island: MB, NN, SD.

Ecology. Stenotopic, epigean, silvicolous, very hygrophilous. Lowland. Wet native forests and tree plantations (pine). Nocturnal; hides during the day under logs and stones.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

References. Townsend, 1997: 15 (taxonomy, distribution) and 1998: 16, 21 (taxonomy, distribution, ecology).

Note. This taxon could be conspecific with *Ctenognathus adamsi*.

Ctenognathus politulus (Broun, 1880)

Anchomenus politulus Broun, 1880: 22. Type locality: Near Whangarei Heads, ND.
Ctenognathus politulus: Broun, 1893a: 986.

Geographic distribution (Map p. 233). North Island: ND.

Ecology. Lowland. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Ctenognathus simmondsi Broun, 1912

Ctenognathus simmondsi Broun, 1912: 386. Type locality: Mt Quoin, WN.

Geographic distribution (Map p. 233). North Island: WN.

Ecology. Montane. Habitat unknown; probably silvicolous.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. This taxon could be conspecific with *Ctenognathus adamsi*.

Ctenognathus suborbithorax (Broun, 1880)

Anchomenus suborbithorax Broun, 1880: 24. Type locality: Mt Manaia, near Whangarei Harbour, ND.
Ctenognathus suborbithorax: Broun, 1893a: 986.
Anchomenus suborbithorax: Walker, 1904: 115.
Ctenognathus suborbithorax: Hutton, 1904: 144.

Geographic distribution (Map p. 233). North Island: ND.

Ecology. Lowland. Habitat unknown; probably silvicolous. Nocturnal; hides during the day under stones.

Biology. Seasonality unknown. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Reference. Hudson, 1934: 35 (distribution, ecology).

Note. This taxon could be conspecific with *Ctenognathus novaezelandiae*.

Genus *Notagonum* Darlington, 1952

Notagonum Darlington, 1952: 127. Type species: *Notagonum externum* Darlington, 1952, by original designation.

Geographic distribution. Indonesia, New Guinea, Fiji, Samoa, New Caledonia, Australia (including Tasmania), Norfolk Island, Lord Howe Island, New Zealand.

References. Hudson, 1934: 174 (as *Anchomenus*, list); Moore, 1985: 241 (partial key).

Notes. A revision is needed. Two species await description.

Notagonum chathamense (Broun, 1909)

Anchomenus chathamensis Broun, 1909a: 147. Type locality: Chatham Islands.
Agonum (*Anchomenus*) *chatamense* [*sic*]: Csiki, 1931: 865.
Notagonum chathamensis [*sic*]: Watt, 1980a: 334.

Geographic distribution (Map p. 259). Offshore Islands: CH.

Ecology. Epigean-arboreal, mostly silvicolous, very hygrophilous. Lowland. Wet forests (broadleaf) and shrublands; boggy pastures, stream banks; bird nests (occasionally). Nocturnal; hides during the day under logs and stones. Gregarious.

Biology. Seasonality: October–November, January–February. Predacious (based on mouthpart morphology). Occasionally infested with mites.

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Regular climber (on trees and logs).

References. Watt, 1980a: 334 (distribution, ecology); Emberson, 1995: 4 (distribution, dispersal power) and 1998: 29 (distribution, ecology, biology).

Notagonum feredayi (Bates, 1874)

Anchomenus feredayi Bates, 1874: 240 (redescribed 1875: 303). Type locality: Christchurch, MC.
Agonum (*Europhilus*) *feredayi*: Csiki, 1931: 869.
Notogonum [*sic*] *feredayi*: Burrows, 1977b: 392.

Geographic distribution (Map p. 259). North Island: WN. South Island: BR, CO, DN, FD, KA, MB, MC, MK, NC, NN, OL, SD, SL, WD.

Ecology. Eurytopic, epigean-arboreal-planticolous, very hygrophilous. Lowland, montane, subalpine, alpine. Moist or wet tussock grasslands, pastures, swamps, edges of bodies of water (streams, tarns) and snowfields; wet areas in scrublands, shrublands, forests (beech); alpine meadows, and fellfields. Nocturnal; hides during the day in leaf litter, moss, mat plants, at the base of plants, under logs and stones. Gregarious.

Biology. Seasonality: September–May, August. Tenerals: October–February. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Brachypterous, incapable of flight. Moderate runner. Regular climber (on trees, plants).

References. Hudson, 1934: 34 (distribution); Johns *et al*., 1980: 27 (distribution, ecology); Townsend, 1994: 13 (taxonomy).

Notagonum lawsoni (Bates, 1874)

Anchomenus lawsoni Bates, 1874: 240 (redescribed in 1875: 304). Type locality: Auckland, AK.
Agonum (*Europhilus*) *lawsoni*: Csiki, 1931: 870.
Notagonum lawsoni: Watt, 1982a: 297.

Geographic distribution (Map p. 259). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: SD.

Ecology. Eurytopic, epigean-arboreal-planticolous, very hygrophilous. Lowland, montane. Swamps, swamp forests, marshes, flaxlands, stream banks, lakeshores. Nocturnal; hides during the day in leaf litter, at the base of plants, under fallen branches, logs, and stones. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: January–February, April. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Macropterous. Occasional flier to artificial lights at night. Moderate runner. Occasional climber (on trees, shrubs, plants).

References. Hudson, 1934: 34 (distribution); Watt, 1982a: 289, 297, 316 (distribution); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Townsend, 1994: 9, 11, 13 (distribution, ecology).

Notagonum marginellum (Erichson, 1842)

Anchomenus marginellus Erichson, 1842: 130. Type locality: Tasmania, Australia.
Platynus nigroaeneus Newman, 1842a: 402. Type locality: Port Philip, Victoria, Australia. Synonymised by Sloane, 1903: 632.
Loxocrepis lugubris Motschulsky, 1865: 309. Type locality: Australia. Synonymised by Csiki, 1931: 864.
Platynus marginellus: Blackburn, 1890: 740.
Agonum (*Anchomenus*) *marginellum*: Csiki, 1931: 864.
Notagonum marginellum: Moore, 1985: 247.

Geographic distribution (Map p. 260). North Island: AK. Extralimital range: Australia (including Tasmania), Lord Howe Island, Norfolk Island. Adventive. First New Zea-

land record: Auckland, AK (not seen in NZAC; Redtenbacher, 1868: 18). Presumably not established.

Ecology. Habitat unknown; probably wet areas.

Biology. Seasonality unknown. Predacious (Moore *et al*., 1987: 221).

Dispersal power. Macropterous, capable of flight. Moderate runner.

References. Moore, 1985: 247 (distribution); Moore *et al*., 1987: 221 (distribution, ecology, biology, dispersal power); Moore, 1992: 167 (distribution).

Notagonum submetallicum (White, 1846)

Colpodes submetallicus White, 1846: 2. Type locality: New Zealand.
Colpodes (*?*) *submetallicus*: Chaudoir, 1859: 359.
Platynus marginicollis Macleay, 1871: 112. Type locality: Gayndah, Queensland, Australia. Synonymised by Sloane, 1920b: 322.
Anchomenus submetallicus: Bates, 1874: 241.
Agonum (*Europhilus*) *submetallicum*: Csiki, 1931: 873.
Notagonum submetallicum: Darlington, 1956: 6.
Notagum ("*Agonum*") *submetallicum*: Darlington, 1961a: 21.
Notagonum submetallicum: Moore, in Moore *et al*., 1987: 221.

Geographic distribution (Map p. 260). North Island: AK, BP, CL, GB, HB, ND, TK,TO, WA, WI, WN, WO. South Island: BR, CO, DN, FD, KA, MB, MC, MK, NN, OL, SC, SD, SL. Offshore Islands: CH, TH. Extralimital range: Australia, Norfolk Island. Native to the Australian Region.

Ecology. Eurytopic, epigean-arboreal, very hygrophilous. Lowland, montane, subalpine. Edges of marshes, slow streams, dried up ponds, and seepages; swamps, flaxlands, wet scrublands, wet pastures, moist cultivated fields (strawberry, turnip, swede), tussock grasslands. Preferably wet, grassy muddy places. Nocturnal; hides during the day in burrows, at the base of plants, in mat plants, in leaf litter, under logs and stones. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: February. Predacious (Moore *et al*., 1987: 221). Food: Sandhoppers (P. Howe, personal communication); strawberry seeds (occasionally). Predators: Starlings. Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Macropterous. Frequent flier to artificial lights at night. Moderate runner. Occasional climber (on trees and shrubs).

References. Hudson, 1934: 35 (distribution, ecology); Cumber, 1953: 243 (distribution, ecology, biology); Darlington, 1963b: 3 (ecology); Pilgrim, 1963: 839–840 (distribution); Wood, 1973: 160 (biology); Johns *et al*., 1980: 26 (distribution, ecology); Moore, 1985: 247 (distribution); Moore *et al*., 1987: 221 (distribution, ecology); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Emberson, 1998: 29 (distribution, ecology, biology); Liebherr & Zimmerman, 1998: 147 (part of outgroup for the Hawaiian Platynini).

Genus *Platynus* Bonelli, 1810

Platynus Bonelli, 1810: Tabula Synoptica. Type species: *Carabus angusticollis* Fabricius, 1801 (=*Carabus assimilis* Paykull, 1790), by subsequent monotypy in Germar, 1817: 303.

Geographic distribution. Worldwide.

References. Hudson, 1934: 174 (as *Anchomenus haasti* and *Ctenognathus macropterus*, list); Liebherr, 1998: 987–1000 (taxonomy, classification, phylogeny).

Note. According to Liebherr (1998: 987, 997) "Application of the generic-level name *Colpodes* W.S. MacLeay is restricted to a clade of Javanese species also including *Colpodes brittoni* Louwerens and *C. latus* Louwerens", and "the [other] species previously assigned to *Colpodes* are considered representatives of a broader *Platynus*." These lineages may be ascribed to subgenera within *Platynus*, but the exact subgeneric placement of the New Zealand species will remain unknown until Australasian taxa are reviewed and their phylogenetic relationships are deciphered.

Platynus macropterus (Chaudoir, 1879), new combination

Colpodes macropterus Chaudoir, 1879: 370. Type locality: New Zealand.
Anchomenus haastii Broun, 1882: 217 (redescribed in 1883: 217 and 1886: 747). Type locality: Near Wellington, WN. **New synonym.**
Ctenognathus macropterus: Hutton, 1904: 144.
Agonum (*Platynus*) *haasti*: Csiki, 1931: 853.
Colpodes haasti: Johns, 1980: 62.

Geographic distribution (Map p. 264). North Island: AK, BP, GB, HB, ND, TO, WA, WN. South Island: BR, CO, DN, FD, KA, MB, MC, NC, NN, SD, SL, WD.

Ecology. Epigean, mostly silvicolous, very hygrophilous. Lowland, montane. Mostly open wet forests (broadleaf, podocarp, beech), shrublands, scrublands, forest edges, and tree plantations (pine); also tussock grasslands, pastures. Nocturnal; hides during the day under logs and stones.

Biology. Seasonality: September–March, May, July–August. Tenerals: November–January, March. Predacious (based on mouthpart morphology). Predators: Feral cats. Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Macropterous. Occasional flier. Moderate runner. Occasional climber (on trees).

References. Hudson, 1950: 38 (dispersal power); Fitzgerald & Karl, 1979: 116 (biology); Johns *et al.,* 1980: 27 (distribution, ecology); Johns, 1980: 62 and 1986: 31 (distribution, ecology); Perrault, 1990a: 127 (type repository).

Note. *Colpodes macropterus* and *A. haastii* have been used interchangeably in the New Zealand literature (e.g., Johns, 1980: 62, Johns *et al*., 1980: 27, Johns, 1981: 64 and 1986: 31) and among carabidologists to denote the same biological entity, but nobody until now has formally synonymised these two taxonomic names.

Genus *Prosphodrus* Britton, 1959

Prosphrodrus Britton, 1959: 106. Type species: *Prosphrodrus waltoni* Britton, 1959, by monotypy.

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

References. Townsend, 1971a: 63 (taxonomy); Valentine, 1987: 74, 81 (classification); Casale, 1988: 919 (classification).

Notes. A revision is needed. A few species await description. These beetles live in colonies in dense forests gullies and ravines, along seepages and rills, under well-embedded stones. They try to dive in the water when disturbed. These carabids were considered rare and thought to be cave-dwellers before the discovery of their ecological requirements. A closely allied large-sized genus (ND, AK, CL) showing the same habits awaits description.

Prosphodrus occultus Britton, 1960

Prosphrodrus occultus Britton, 1960a: 123. Type locality: Simpson's Cave, Wairoa, GB.

Geographic distribution (Map p. 265). North Island: BP, GB, HB, RI, WA, WN.

Ecology. Stenotopic, riparian, subaquatic. Lowland, montane. Wet margins of seepages and swifts rills crossing dark wet forests (broadleaf, podocarp); caves (occasionally). Nocturnal; hides during the day under well-embedded stones (mostly) and logs. Gregarious.

Biology. Seasonality: September, November, January–February, April, August. Predacious (based on mouthpart morphology). Defense mechanism: Dives into the water when disturbed.

Dispersal power. Subapterous. Moderate runner. Excellent swimmer.

References. Britton, 1960a: 124 (distribution, ecology); May, 1962: 61 (distribution, ecology); Townsend, 1971a: 63–64 and 1974b: 430 (distribution, ecology).

Prosphodrus waltoni Britton, 1959

Prosphrodrus waltoni Britton, 1959: 106. Type locality: Waipuna Caves, Te Kuiti, WO.

Geographic distribution (Map p. 265). North Island: AK, RI, TK, WI, WO.

Ecology. Stenotopic, riparian, subaquatic. Lowland, montane. Wet margins of seepages and swifts rills crossing dark wet forests (broadleaf, podocarp); caves (occasionally). Nocturnal; hides during the day under well-embedded stones. Gregarious.

Biology. Seasonality: January, April, June–July. Tenerals: March–April, June. Predacious (based on mouthpart morphology). Defense mechanism: Dives into the water when disturbed.

Dispersal power. Subapterous. Moderate runner. Occasional climber (on cave walls). Excellent swimmer.

References. Britton, 1959: 105–106 (distribution, ecology); May, 1962: 61 and 1963b: 192 (distribution, ecology); Valentine, 1987: 78 (taxonomy).

Genus *Zabronothus* Broun, 1893

Zabronothus Broun, 1893a: 1327. Type species: *Zabronothus striatulus* Broun, 1893a, designated here.

Geographic distribution. New Zealand (endemic).

References. Hudson, 1934: 177 (list); Britton, 1964b: 523 (classification).

Note. This taxon could be congeneric with *Cerabilia* Laporte de Castelnau. M.R. Butcher (Lincoln, New Zealand) apparently started revising this genus around 1985.

Zabronothus rufipes Broun, 1893

Zabronothus rufipes Broun, 1893a: 1328. Type locality: New Zealand.

Geographic distribution (Map p. 268). North Island: WA, WN.

Ecology. Epigean, silvicolous. Lowland. Both wet and dry forests (podocarp, beech). Nocturnal; hides during the day under stones and logs.

Biology. Seasonality: September, January–March. Predacious (based on mouthpart morphology).

Dispersal power. Subapterous. Moderate runner.

Note. Broun's comment that the type specimen was sent to him by G.V. Hudson "some time ago" suggests that it was collected by Hudson in the Wellington area which was his place of residence and perhaps the type locality for this species.

Zabronothus striatulus Broun, 1893

Zabronothus striatulus Broun, 1893a: 1327. Type locality: Dyers Pass, MC.

Geographic distribution (Map p. 268). South Island: MC, NC.

Ecology. Stenotopic, epigean, silvicolous, xerophilous. Lowland. Dry forests (broadleaf, beech) and scrublands. Nocturnal; hides during the day under stones and logs.

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

Dispersal power. Subapterous. Moderate runner.

References. Butcher & Emberson, 1981: 64 (distribution, ecology); Johns, 1986: 31 (distribution, ecology).

Supertribe LEBIITAE

Tribe PERIGONINI

Figure 24

Geographic distribution. Worldwide; mostly tropical and warm temperate regions.

Reference. Darlington, 1968: 5–14 (taxonomy, distribution).

Genus *Perigona* Laporte de Castelnau, 1835

Figure 24

Perigona Laporte de Castelnau, 1835: 151. Type species: *Perigona pallida* Laporte de Castelnau, 1835, by monotypy.

Siltopia Laporte de Castelnau, 1867: 41 (redescribed in 1868: 127). Type species: *Siltopia tricolor* Laporte de Castelnau, 1867, by monotypy. Synonymised by Csiki, 1931: 896.

Geographic distribution. Worldwide; New Zealand (adventive).

References. Darlington, 1964b: 125–129 (revision of Australian species); Moore *et al*., 1987: 223–225 (list of Australian species).

Subgenus *Trechicus* LeConte, 1853

Trechicus LeConte, 1853: 386. Type species: *Trechicus umbripennis* LeConte, 1853 (=*Bembidium nigriceps* Dejean, 1831), designated by Jeannel, 1926: 247. Synonymised by Csiki, 1931: 895.

Geographic distribution. Same as genus.

Reference. Perrault, 1988a: 13 (taxonomy).

Perigona (Trechicus) nigriceps (Dejean, 1831), first New Zealand record

Figure 24

Bembidium nigriceps Dejean, 1831: 44. Type locality: North America.

Trechicus umbripennis LeConte, 1853: 386. Type locality: Georgia and Carolina, North America. Synonymised by Horn, 1875: 126.

Perigona nigriceps: Horn, 1892a: 44.

Perigona australica Sloane, 1903: 635. Type locality: Mackay, Queensland, Australia. Synonymised by Andrewes, 1919: 181.

Perigona (*Trechicus*) *nigriceps*: Moore *et al.*, 1987: 224.

Geographic distribution (Map p. 264). Worldwide; tropical and warm regions. Adventive in Europe, North America, New Caledonia, Australia (mainland), New Zealand. First New Zealand record: Newmarket Park, Auckland, AK, 1999 (First example collected by S. Thorpe, deposited in AMNZ.). Another thirty examples collected since then, also deposited in AMNZ. Well established.

Ecology. Epigean-fossorial, synanthropic. Lowland. Parks. Nocturnal; hides during the day in compost heaps and also in/under piles of dead grass. Outside New Zealand, known to occur in gardens and parks, in heaps of compost, straw, and sawdust.

Biology. Seasonal activity: January, June. Predacious (Moore *et al*., 1987: 224).

Dispersal power. Macropterous. Regularly attracted to artificial lights at night (literature). Moderate runner.

References. Darlington, 1968: 11–12 (taxonomy, distribution, ecology, biology); Lindroth, 1986: 392–393 (taxonomy, distribution, ecology, biology); Moore *et al*., 1987: 224 (distribution, ecology, biology).

Tribe PENTAGONICINI

Figure 25

Geographic distribution. Mostly in the Tropics.

References. Sloane, 1920a: 176 (key to species); Britton, 1941: 191–196 (revision); Liebherr, 1988: 1–42 and 1991a: 312–321 (classification).

Note. A new revision is needed.

Genus *Pentagonica* Schmidt-Goebel, 1846

Figure 25

Pentagonica Schmidt-Goebel, 1846: 47. Type species: *Pentagonica ruficollis* Schmidt-Goebel, 1846, designated by Andrewes, 1939: 137.

Wakefieldia Broun, 1880: 62. Type species: *Wakefieldia vittata* Broun, 1880, by monotypy. Synonymised by Dupuis, 1913: 2.

Geographic distribution. Pantropical and Nearctic Regions, New Caledonia, Australia (including Tasmania), Norfolk Island, Lord Howe Island, New Zealand.

References. Britton, 1941: 192 (taxonomy); Moore, 1985: 254 and 1992: 171 (distribution); Moore *et al*., 1987: 272–273 (list of Australian species).

Pentagonica vittipennis Chaudoir, 1877

Figure 25

Pentagonica vittipenis Chaudoir, 1877: 217. Type locality: Australia.

Wakefieldia vittata Broun, 1880: 62. Type locality: New Zealand. Synonymised by Sloane, 1920b: 323.

Pentagonica vittata: Dupuis, 1913: 3.

Pentagonica vittipennis: Sloane, 1898: 513 (incorrect subsequent spelling).

Geographic distribution (Map p. 263). North Island: AK, BP, CL, GB, HB, ND, RI, TO, WI, WN. South Island: BR, CO, DN, FD, MB, MC, NN, OL, SD, WD. Offshore Islands: CH. Extralimital range: Australia (including Tasmania), Lord Howe Island. Native to the Australian Region.

Ecology. Stenotopic, epigean-arboreal-planticolous, silvicolous. Lowland, montane. Wet forests (broadleaf, podocarp, beech). Mostly nocturnal; hides during the day in leaf litter (mostly), moss, under fallen nikau palm fronds and stones.

Biology. Seasonality: September–May. Tenerals: December. Predacious (Moore *et al*., 1987: 273). Occasionally infested with mites.

Dispersal power. Macropterous. Occasional flier. Fast runner. Regular climber (on trees, shrubs, plants, and logs).

References. Hudson, 1934: 40 (distribution, ecology); Britton, 1941: 192 (distribution); Hudson, 1950: 38 (distribution, ecology); Pilgrim, 1963: 845 (distribution); Moore *et al*., 1987: 273 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Moore, 1992: 171 (distribution); Townsend, 1997: 18 and 1998: 16, 21 (distribution); Emberson, 1998: 30 (distribution, ecology).

Notes. The name of this species reads "*vittipenis*" in Chaudoir's description, but the incorrect subsequent spelling "*vittipennis*" is in prevailing usage and is attributed to the publication of the original spelling; it is to be preserved according to the 1999 edition of the International Code of Zoological Nomenclature (article 33.3.1). Broun's syntypes of *Wakefieldia vittata* were probably collected in the northern North Island which was the area where he did most of his collecting before 1880.

Genus *Scopodes* Erichson, 1842

Scopodes Erichson, 1842: 123. Type species: *Scopodes boops* Erichson, 1842, by monotypy.

Molpus Newman, 1842b: 413. Type species: *Molpus sex-punctatus* Newman, 1842b, by monotypy. Synonymised by Lacordaire, 1854: 148.

Helaeotrechus White, 1846: 5. Type species: *Helaeotrechus elaphroides* White, 1846, by monotypy. Synonymised by Lacordaire, 1854: 149.

Heloetrechus: Chenu, 1851: 187 (incorrect subsequent spelling).

Periblepusa Redtenbacher, 1868: 20. Type species: *Periblepusa elaphroides* Redtenbacher, 1868, by monotypy. Synonymised by Bates, 1874: 275.

Geographic distribution. New Guinea, Java, New Caledonia, Australia (including Tasmania), Lord Howe Island, New Zealand.

References. Britton, 1941: 192–196 (revision); Moore, 1992: 171 (distribution); Baehr, 1994: 97–155 (revision of New Guinean species).

Notes. A new revision is needed. A few species, especially those found at higher altitude, are difficult to separate taxonomically (R.M. Emberson, personal communication). *Scopodes* could comprise two genera.

Scopodes basalis Broun, 1893

Scopodes basalis Broun, 1893a: 1012. Type locality: Mt Maungatua, Otago, DN.

Geographic distribution (Map p. 265). South Island: CO, DN.

Ecology. Epigean, heliophilous. Montane. A tussock grassland; edge of a swamp. Diurnal; active in the sunshine; shelters on cloudy days.

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

Dispersal power. Wing condition unknown. Fast runner.

Reference. Britton, 1941: 193 (distribution).

Scopodes bryophilus Broun, 1886

Scopodes bryophilus Broun, 1886: 882. Type locality: Mt Maungatua, DN (Broun, 1886: 882); Maungatua, Otago, DN (Britton, 1941: 194).

Geographic distribution (Map p. 265). South Island: CO, DN.

Ecology. Stenotopic, epigean, heliophilous. Lowland, montane, subalpine, alpine. Tussock grasslands, herbfields, stream borders. Diurnal; active in the sunshine on moss and cushion plants; shelters on cloudy days. Gregarious.

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

Dispersal power. Wing condition unknown. Fast runner.

References. Broun, 1886: 882 (distribution, ecology); Britton, 1941: 194 (distribution); Patrick *et al*., 1993: 11 (distribution, ecology).

Scopodes cognatus Broun, 1886

Scopodes cognatus Broun, 1886: 882. Type locality: Mt Maungatua, DN (Broun, 1886: 882); Maungatua, Otago, DN (Britton, 1941: 195).

Geographic distribution (Map p. 265). South Island: BR, CO, DN, NN.

Ecology. Stenotopic, epigean, muscicolous, heliophilous. Lowland, montane, subalpine, alpine. Tussock grasslands, herbfields, screes, river banks, rocky slopes, shrublands, edges and openings of forests (beech, broadleaf). Diurnal; active in the sunshine on moss; shelters on cloudy days. Gregarious.

Biology. Seasonality: Throughout the year, except March and June. Predacious (based on mouthpart morphology).

Dispersal power. Wing condition unknown. Fast runner.

References. Britton, 1949: 195 (distribution); Patrick *et al*., 1992a: 272 and 1993: 11 (distribution, ecology); Townsend, 1997: 18 (distribution).

Scopodes edwardsii Bates, 1878

Scopodes aterrimus Bates, 1874: 276 (redescribed in 1875: 313). Type locality: Auckland, AK and Christchurch, MC. Primary homonym of *Scopodes aterrimus* Chaudoir, 1872.

Scopodes edwardsii Bates, 1878c: 58 (replacement name for *Scopodes aterrimus* Bates, 1874).

Scopodes nigrinus Sharp, 1882: 77. Type locality: Greymouth, BR. Synonymised by Britton, 1941: 196.

Scopodes antennalis Broun, 1886: 883. Type locality: Lake Tekapo region, MK. Synonymised by Britton, 1941: 196.

Geographic distribution (Map p. 265). North Island: AK, CL, ND, TO, WO, WN. South Island: BR, CO, DN, FD, MC, MK, NC, NN, OL, SL, WD. Offshore Islands: CH.

Ecology. Eurytopic, epigean, heliophilous. Lowland, montane, subalpine, alpine. Tussock grasslands, herbfields, cushion bogs, moorlands, swamps, river banks, scrublands, open forests (beech). Diurnal; active in the sunshine on moss, cushion plants, flowers, and stones; hides on cloudy days in moss, leaf litter, and under stones. Gregarious.

Biology. Seasonality: Throughout the year. Tenerals: February. Predacious (based on mouthpart morphology).

Dispersal power. Wing condition unknown. Fast runner. Occasional climber (on plants).

References. Britton, 1941: 196 (distribution); Johns, 1977: 320 (distribution, ecology); Barratt & Patrick, 1987: 82 (distribution, ecology, biology); Patrick *et al*., 1993: 11 (distribution, ecology); Patrick, 1994: 12 (distribution); Townsend, 1997: 18 (distribution); Emberson, 1998: 30 (distribution, ecology, biology).

Scopodes fossulatus (Blanchard, 1843)

Dromius fossalatus Blanchard, 1843: Plate 3, Figure 16 (redescribed in 1853: 9, as *D. fossulatus*). Type locality: Akaroa, MC.

Helaeotrechus elaphroides White, 1846: 5. Type locality: New Zealand. Synonymised by Britton, 1941: 194 (as a valid species, with *D. fossulatus* as its junior synonym).

Heloetrechus elaphroides: Chenu, 1851: 187 (incorrect subsequent spelling).

Scopodes elaphroides: Lacordaire, 1854: 149.

Periblepusa elaphroides Redtenbacher, 1868: 21. Type locality: New Zealand. Synonymised by Bates, 1874: 275. Secondary homonym of *Helaeotrechus elaphroides* White, 1846.

Scopodes fossulatus: Bates, 1874: 275 (incorrect subsequent spelling).

Geographic distribution (Map p. 266). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: BR, CO, DN, KA, MB, MC, MK, NN, OL, SC, SD, SL.

Ecology. Eurytopic, epigean-planticolous-arboreal, heliophilous. Lowland, montane, subalpine, alpine. Wet or moist places such as edges of marshes and streams, mud flats, swamps, open swamp forests, open wet forests (beech, podocarp) and scrublands, cushion bogs, wet pastures, moist cultivated fields (potato, maize), gardens, herbfields, tussock grasslands; paved areas. Larval habitat: Pasture (collected in soil samples). Diurnal; active in the sunshine on moss, stones, and snow; hides on cloudy days in leaf litter, compost heaps, under logs, and the loose bark of logs, trees and shrubs. Gregarious.

Biology. Seasonality: Throughout the year. Larval stage: October–November. Tenerals: February. Predacious (based on mouthpart morphology). Predators: Starlings, thrushes.

Dispersal power. Wing condition unknown. Fast runner. Regular climber (on plants, shrubs, and trees).

References. Bates, 1874: 275 (taxonomy); Hudson, 1934: 41 (distribution); Britton, 1941: 195 (distribution); Wood, 1973: 160 (biology); Watt, 1980b: 187 (distribution, ecology); Martin, 1983: 31 (ecology, biology); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Emberson, 1993b: 20–21 (taxonomy).

Notes. The name of this species reads "*fossalatus*" in Blanchard's separata of 1843, but the incorrect subsequent spelling "*fossulatus*" is in prevailing usage and is attrib-

uted to the publication of the original spelling, it is to be preserved according to the 1999 edition of the International Code of Zoological Nomenclature (article 33.3.1). Until Emberson (1993) correctly dated Blanchard's separata as having been published in 1843, the valid name of this species was thought to be *Scopodes elaphroides* (White, 1846).

Scopodes laevigatus Bates, 1878

Scopodes laevigatus Bates, 1878c: 58. Type locality: West Coast, South Island.

Scopodes instabilis Broun, 1917: 371. Type locality: Moa Basin, West of Mt Algidus, MC. Synonymised by Britton, 1941: 195.

Geographic distribution (Map p. 266). South Island: BR, MC, FD, MK, NC, NN, SC, WD.

Ecology. Eurytopic, epigean, heliophilous. Lowland, montane, subalpine, alpine. Borders of rivers, brooks, seepages, ice- and snow-patches; screes, moraines, tussock grasslands, forests (beech). Diurnal; active in the sunshine on moss and mat plants; hides on cloudy days under stones.

Biology. Seasonality: September–May. Tenerals: February. Predacious (based on mouthpart morphology).

Dispersal power. Wing condition unknown. Fast runner.

References. Britton, 1941: 195 (distribution); Johns, 1980: 63 (distribution, ecology); Townsend, 1997: 18 (distribution).

Scopodes levistriatus Broun, 1886

Scopodes levistriatus Broun, 1886: 829. Type locality: Wangapeka Valley, NN.

Geographic distribution (Map p. 266). South Island: BR, CO, MC, NN.

Ecology. Stenotopic, epigean, muscicolous, heliophilous. River banks inside and outside forests (beech) and shrublands, tussock grasslands, fellfields. Diurnal; active in the sunshine on moss; hides on cloudy days under logs.

Biology. Seasonality: October–December, February, April. Predacious (based on mouthpart morphology).

Dispersal power. Wing condition unknown. Fast runner.

References. Britton, 1941: 195 (distribution); Townsend, 1997: 18 (distribution).

Scopodes multipunctatus Bates, 1878

Scopodes multipunctatus Bates, 1878c: 58. Type locality: Auckland, AK.

Geographic distribution (Map p. 266). North Island: AK, BP, CL, ND, TK, TO, WA, WN, WO. South Island: BR, NN.

Ecology. Epigean, muscicolous, heliophilous. Lowland, montane. River banks and open forests (beech, boadleaved, podocarp). Diurnal; active in the sunshine on moss; hides on cloudy days in leaf litter, under the loose bark of fallen trees, and in rotten logs.

Biology. Seasonality: October–February, April–June. Predacious (based on mouthpart morphology).

Dispersal power. Wing condition unknown. Fast runner.

References. Britton, 1941: 194 (distribution); Moeed & Meads, 1985: 36 (distribution); Townsend, 1997: 18 (distribution).

Scopodes prasinus Bates, 1878

Scopodes prasinus Bates, 1878c: 57. Type locality: Powell, South Island.

Scopodes tardus Broun, 1882: 226 (redescribed in 1883: 226 and 1886: 757). Type locality: Mt Arthur, NN. Synonymised by Britton, 1941: 195.

Scopodes speciosus Broun, 1893a: 1012. Type locality: Mt Cook, MK. Synonymised by Britton, 1941: 195.

Geographic distribution (Map p. 266). North Island: WN. South Island: BR, CO, FD, MB, MC, MK, NC, NN, OL, SL, WD.

Ecology. Eurytopic, epigean, heliophilous. Lowland, montane, subalpine, alpine. Open forests (beech, broadleaf), river banks, tussock grasslands, herbfields, screes. Diurnal; active in the sunshine on mat plants and flowers; hides on cloudy days in leaf litter, under stones, logs, and the loose bark of fallen trees.

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

Dispersal power. Wing condition unknown. Fast runner. Occasional climber (on plants).

References. Britton, 1941: 195 (distribution); Johns, 1977: 320 (distribution, ecology); Mark *et al*., 1989: 379 (distribution, ecology); Patrick, 1994: 12 (distribution); Townsend, 1997: 18 (distribution); Nicholls *et al*., 1998: 3 (taxonomy).

Scopodes pustulatus Broun, 1882

Scopodes pustulatus Broun, 1882: 227 (redescribed in 1883: 227 and 1886: 757). Type locality: Wellington, WN.

Scopodes nigripes Broun, 1910b: 11. Type locality: Waimarino, TO. Synonymised by Britton, 1941: 195.

Geographic distribution (Map p. 266). North Island: RI, TK, TO, WA, WN. South Island: MB, NN, SD, WD.

Ecology. Epigean, muscicolous, heliophilous. Lowland, montane, subalpine, alpine. Open forests (beech), tussock grasslands. Diurnal; active in the sunshine on moss; hides on cloudy days in leaf litter. Gregarious.

Biology. Seasonality: September, November, February, July–August. Predacious (based on mouthpart morphology).

Dispersal power. Wing condition unknown. Fast runner.

References. Hudson, 1934: 41 (distribution); Britton, 1941: 196 (distribution); Moeed & Meads, 1985: 36 (distribution); Townsend, 1997: 18 (distribution).

Scopodes versicolor Bates, 1878

Scopodes versicolor Bates, 1878c: 57. Type locality: Otira Pass, WD.

Scopodes venustus Broun, 1882: 226 (redescribed in 1883: 226 and 1886: 756). Type locality: Mt Arthur, NN. Synonymised by Britton, 1941: 196.

Scopodes planus Broun, 1882: 226 (redescribed in 1883: 226 and 1886: 756).Type locality: Mt Arthur, NN. Synonymised by Britton, 1941: 196.

Scopodes viridis Broun, 1903: 612. Type locality: Ida Valley, CO. Synonymised by Britton, 1941: 196.

Geographic distribution (Map p. 266). South Island: BR, CO, FD, MB, MC, MK, NC, NN, OL, SL, WD.

Ecology. Eurytopic, epigean-planticolous, heliophilous. Lowland, montane, subalpine, alpine. River banks, cushion bogs, tussock grasslands, herfields, open forests. Diurnal; active in the sunshine on cushion plants, moss, grass, and flowers; hides on cloudy days under stones. Gregarious.

Biology. Seasonality: September–February. Tenerals: January. Predacious. Food: Small insects.

Dispersal power. Macropterous. Occasional flier. Fast runner. Regular climber (on plants).

References. Hudson, 1934: 41 (distribution, ecology); Britton, 1941: 196 (distribution); Johns, 1980: 63 (distribution, ecology); Patrick, 1994: 12 (distribution); Townsend, 1997: 18 (distribution, ecology).

Tribe LEBIINI

Figure 26

Geographic distribution. Worldwide.

References. Sloane, 1898: 493–494 and 1920a: 170 (keys to Australian genera); Britton, 1941: 185–191 (revision); Ball, 1975: 143–242 (classification); Matthews, 1980: 38–39 (key to South Australian genera); Ball & Hilchie, 1983: 93–216 (classification) Ball *et al*., 1995: 288–289 (classification); Casale, 1998: 381–428 (phylogeny, biogeography).

Notes. A new revision is needed. A few exotic species have been introduced since Britton's revision.

Subtribe PERICALINA

Geographic distribution. Worldwide.

Reference. Ball *et al*., 1995: 297 (phylogeny).

Genus *Agonocheila* Chaudoir, 1848

Figure 26

Agonocheila Chaudoir, 1848: 119. Type species: *Agonocheila guttata* Chaudoir, 1848, by monotypy.

Agonochila: Chaudoir, 1869: 223 (incorrect subsequent spelling).

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

References. Lacordaire, 1854: 140–141 (taxonomy); Britton, 1941: 187–188 (taxonomy).

Note. *Agonocheila* has often been misspelled *Agonochila*.

Agonocheila antipodum (Bates, 1867), new combination

Figure 26

Lebia binotata Blanchard, 1842: Plate 1, Figure 8 (redescribed 1853: 12 as *Gomelina binotata*). Type locality: Akaroa, MC (Blanchard, 1842: Plate 1, Figure 8); Port Nicholson, WN (Britton, 1941: 188, "holotype'). Primary homonym of *Lebia binotata* Buquet, 1834.

Coptodera antipodum Bates, 1867: 78. Type locality: Province of Canterbury, South Island. Synonymised with *Agonocheila binotata* (Blanchard, 1842), by Bates, 1874: 276.

Sarothrocrepis binotata: Redtenbacher, 1868: 7.

Agonochila binotata: Chaudoir, 1869: 224 (incorrect subsequent spelling).

Philophloeus [*sic*] *antipodum*: Bates, 1869: 80.

Agonocheila binotata: Moore *et al*., 1987: 289.

Geographic distribution (Map p. 223). North Island: AK, BP, CL, HB, ND, TK, TO, WN, WO. South Island: BR, CO, DN, FD, MB, MC, NC, NN, OL, SC, SD, SL, WD. Extralimital range: Australia (including Tasmania). Native to the Australian Region.

Ecology. Stenotopic, arboreal (corticolous). Lowland, montane, subalpine, alpine. Both dry or moist forests (broadleaf, podocarp, beech), tree plantations (pine, eucalypt, willow), and scrublands; fields, grasslands, meadows, fellfields, pastures, farmlands, gardens. Nocturnal; hides during the day under the loose bark of trees and logs (mostly), in leaf litter, plant mats, moss, clumps of grass, and bird nests.

Biology. Seasonality: Throughout the year, except June. Predacious (Moore *et al*., 1987: 289).

Dispersal power. Macropterous. Regular flier to artificial lights at night. Moderate runner. Excellent climber (on trees).

References. Thomson, 1922: 284 (distribution); Hudson, 1934: 40, (distribution, ecology); Britton, 1941: 188 (distribution); Pilgrim, 1963: 839 (distribution); Moore *et al*., 1987: 289 (distribution, ecology, biology, dispersal power); Emberson, 1993b: 20–21 (taxonomy).

Note. Britton (1941: 187) overlooked Bates' (1874: 276) synonymy of *Agonocheila binotata* with *Coptodera antipodum*.

Genus *Philophlaeus* Chaudoir, 1844

Philophlaeus Chaudoir, 1844: 472. Type species: *Cymindis australis* Dejean, 1826, by original designation.

Gomelina Blanchard, 1853: 10. Type species: *Cymindis australis* Dejean, 1826, by original designation. Synonymised by Chaudoir, 1869: 214.

Idius Chaudoir, 1869: 212. Type species: *Idius moestus* Chaudoir, 1869, by monotypy. Synonymised by Sloane, 1920a: 171.

Philophloeus: Lacordaire, 1854: 139 (incorrect subsequent spelling).

Geographic distribution. Australia (including Tasmania); New Zealand (adventive).

Reference. Sloane, 1898: 504–510 (revision).

Philophlaeus luculentus (Newman, 1842)

Lebia luculenta Newman, 1842a: 368. Type locality: Port Philip, South Australia (in error for Victoria), Australia.

Philophloeus [*sic*] *luculentus*: Chaudoir, 1869: 221.

Philophloeus [*sic*] *luculentus luculentus*: Sloane, 1911: 841.

Philophloeus [*sic*] *luculentus guttifera* [*sic*] Sloane, 1911: 841. Type locality: Dorrigo, New South Wales, Australia. Synonymised by Moore, in Moore *et al*., 1987: 158.

Geographic distribution (Map p. 264). North Island: AK, BP, CL, TK, WN. Extralimital range: Australia (mainland). Adventive. First New Zealand record: Katikati, BP, 1931 (Kuschel, 1990: 40). Well established.

Ecology. Stenotopic, arboreal (corticolous). Lowland, montane, subalpine, alpine. Forests (broadleaf), tree plantations (pine), shrublands. Nocturnal; hides during the day under the loose bark of trees and shrubs (*Leptospermum, Pseudopanax, Acacia*), plants and logs (mostly), in leaf litter and mat plants.

Biology. Seasonality: October–August, except June. Tenerals: December. Predacious (Moore *et al*., 1987: 287).

Dispersal power. Macropterous. Occasional flier to artificial lights at night. Moderate runner. Frequent climber.

References. Newman, 1842a: 368 (ecology); Moore *et al*., 1987: 287 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power).

Subtribe ACTENONYCINA

Geographic distribution. New Zealand (endemic).

References. Bates, 1871b: 30 (classification); Ball *et al*., 1995: 278, 302 (classification).

Genus *Actenonyx* White, 1846

Actenonyx White, 1846: 2. Type species: *Actenonyx bembidioides* White, 1846, by monotypy.

Sphallax Bates, 1867: 55. Type species: *Sphallax peryphoïdes* Bates, 1867, by monotypy. Synonymised by Bates, 1871b: 30.

Geographic distribution. New Zealand (endemic).

References. Bates, 1871b: 30 (classification); Britton, 1941: 186–187 (taxonomy).

Notes. A revision is needed. Two species await description.

Actenonyx bembidioides White, 1846

Actenonyx bembidioides White, 1846: 2. Type locality: New Zealand (White, 1846: 2).

Sphallax peryphoïdes Bates, 1867: 56. Type locality: Province of Canterbury, South Island. Synonymised by Bates, 1871b: 30.

Geographic distribution (Map p. 223). North Island: AK, BP, CL, GB, HB, ND, RI, TK, TO, WA, WI, WN, WO. South Island: BR, CO, FD, KA, MB, MC, MK, NC, NN, OL, SC, SD, SL, WD.

Ecology. Stenotopic, epigean, riparian, xerophilous, heliophilous. Lowland, montane, subalpine, alpine. Open dry gravelly-stony banks of streams. At some distance from the water. Diurnal; active in the sunshine (adult and larva); hides on cloudy days under stones. Gregarious.

Biology. Seasonality: September–May. Tenerals: January, March. Predacious. Food: Dipterous larvae. Occasionally infested with mites and fungi (Laboulbeniales).

Dispersal power. Brachypterous, incapable of flight. Fast runner. Occasional climber.

References. Hudson, 1934: 39 (distribution, ecology); Britton, 1941: 187 (distribution); Townsend, 1960: 15–18 (behaviour); Johns, 1977: 320 (distribution, ecology); Johns, 1980: 63 (distribution, ecology, biology, dispersal power); Johns *et al*., 1980: 28 (distribution, ecology); Townsend, 1992b: 45 (behaviour); Ball *et al*., 1995: 275–311 (classification, taxonomy).

Subtribe CALLEIDINA

Geographic distribution. Worldwide.

Reference. Ball *et al*., 1995: 297 (phylogeny).

Genus *Anomotarus* Chaudoir, 1875

Anomotarus Chaudoir, 1875: 48. Type species: *Anomotarus olivaceus* Chaudoir, 1875, by monotypy.

Uvea Fauvel, 1881: CXVIII. Type species: *Cymindis stigmula* Chaudoir, 1852, by monotypy. Synonymised by Sloane, 1917: 435.

Geographic distribution. Japan, Oriental Region to New Guinea, Fiji, New Caledonia, Australia (including Tasmania), Norfolk Island, Lord Howe Island; New Zealand (adventive).

References. Moore, 1985: 253 and 1992: 172 (taxonomy, distribution).

Subgenus *Anomotarus* Chaudoir, 1875

Geographic distribution. Same as genus.

Anomotarus (Anomotarus) illawarrae (Macleay, 1873)

Cymindis illawarrae Macleay, 1873: 320. Type locality: Illawarra District, New South Wales, Australia.

Anomotarus olivaceus Chaudoir, 1875: 48. Type locality: Melbourne, Victoria, Australia. Synonymised by Sloane, 1917: 435.

Anomotarus illawarrae: Sloane, 1917: 435.

Anomotarus (*Anomotarus*) *illawarrae*: Moore *et al*., 1987: 306.

Geographic distribution (Map p. 225). North Island: AK, ND, WI, WN. South Island: MB. Extralimital range: Australia (including Tasmania), Norfolk Island. Adventive. First New Zealand records: Swanson, AK, 1955 (NZAC; Kuschel, 1990: 40); Riverhead State Forest, AK, 1982 (Maddison, 1983: 32). Well established.

Ecology. Eurytopic, arboreal-planticolous-epigean. Lowland. Native forests, vacant lots, sand dunes, river banks, swamps, marshes. Nocturnal; hides during the day on trees and plants, in leaf litter, at the base of plants (*Lupinus*), and under stones. Gregarious.

Biology. Seasonality: September–April, July–August. Predacious (Moore *et al*., 1987: 305).

Dispersal power. Macropterous. Occasional flier to artificial lights at night. Moderate runner. Frequent climber (on trees and plants).

References. Maddison, 1983: 32 (distribution); Moore *et al*., 1987: 305 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Grehan, 1990: 73 (distribution).

Anomotarus (Anomotarus) variegatus Moore, 1967

Anomotarus variegatus Moore, 1967: 318. Type locality: Kuranda, Queensland, Australia.

Anomotarus (*Anomotarus*) *variegatus*: Moore *et al*., 1987: 306.

Geographic distribution (Map p. 225). North Island: AK, CL, HB, ND, RI, TK, WA, WI, WN, WO. South Island: NN, SD. Extralimital range: Australia (mainland), Lord Howe Island. Adventive. First New Zealand record: Auckland, AK, 1941 (NZAC; Townsend, 1973: 343). Well established.

Ecology. Eurytopic, epigean. Lowland. Forests, forest edges, flaxlands, gardens, paddocks, pastures, cultivated fields (potato), sand dunes. Nocturnal; hides during the day in leaf litter, in burrows dug at the base of plants (*Lupinus*), and in garden refuse. Gregarious.

Biology. Seasonality: September–August. Tenerals: November, February, May. Predacious (Moore *et al*., 1987: 306). Occasionally infested with mites.

Dispersal power. Macropterous. Regular flier. Moderate runner.

References. Townsend, 1973: 343–345 (distribution); Maddison, 1983: 32 (distribution); Moore *et al*., 1987: 306 (distribution, ecology, biology, dispersal power); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Moore, 1992: 172 (distribution).

Genus *Demetrida* White, 1846

Demetrida White, 1846: 2. Type species: *Demetrias (Demetrida) lineella* White, 1846, designated by Chenu, 1851: 72.

Xanthophaea Chaudoir, 1848: 73. Type species: *Xanthophaea grandis* Chaudoir, 1848, designated by Moore, in Moore *et al*., 1987: 295. Synonymised by Britton, 1941: 189.

Xanthophoea: Lacordaire, 1854: 106 (incorrect subsequent spelling).

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

References. Britton, 1941: 188–191 (revision); Moore *et al*., 1987: 295–300 (list of Australian species).

Notes. A new revision is needed. A few species await description. An Australian species could have been introduced. *Xanthophaea* has often been misspelled *Xanthophoea*. White (1846: 2) described the genus *Demetrida* with two included species, *lineella* and *nasuta*; *Demetrias* (*Demetrida*) *lineella* (page 2) is a *lapsus calami* which he corrected to *Demetrida lineella* on Plate 1, Figure 3.

Subgenus *Demetrida* White, 1846

Demetrida (*Demetrida*): Britton, 1941: 189.

Geographic distribution. Same as genus.

Demetrida (Demetrida) dieffenbachii (White, 1843)

Cymindis australis Blanchard, 1842: Plate 1, Figure 7. Type locality: Otago, South Island. Primary homonym of *Cymindis australis* Dejean, 1826.

Cymindis dieffenbachii White, in White & Doubleday, 1843: 273 (replacement name for *Cymindis australis* Blanchard, 1842).

Demetrida picea Chaudoir, 1848: 77. Type locality: New Zealand. Synonymised by Bates, 1874: 277 (as a valid species with *Cymindis australis* Blanchard, 1842 and *Cymindis dieffenbachii* White, 1843 as its junior synonyms).

Xanthophaea (*Demetrida*) *picea*: Chaudoir, 1872: 195.

Xanthophaea (*Demetrida*) *dieffenbachi*: Csiki, 1932b: 1459 (as a valid species with *Demetrida picea* Chaudoir, 1848 and *Cymindis australis* Blanchard, 1853 [1842] as its junior synonyms).

Demetrida (*Demetrida*) *dieffenbachi*: Britton, 1941: 190.

Demetrida dieffenbachi: Johns, 1977: 325.

Geographic distribution (Map p. 233). South Island: BR, KA, MB, MC, MK, NC, SC, WD.

Ecology. Stenotopic, arboreal (corticolous)-epigean. Lowland, montane, subalpine, alpine. Forests (beech, broadleaf, podocarp), scrublands, shrublands, tree plantations (pine), sand dunes, tussock grasslands, alpine meadows, pastures, screes, vicinity of snow patches. Nocturnal; hides during the day under the loose bark of logs and dead tree trunks (mostly), in rotten logs, under stones, and at the base of plant clumps (*Chinochloa*, *Muehlenbeckia*).

Biology. Seasonality: September–May, August. Tenerals: March. Predacious (based on mouthpart morphology). Occasionally associated with mites.

Dispersal power. Brachypterous, incapable of flight. Fast runner. Excellent climber (on trees and logs).

References. Britton, 1941: 191 (distribution); Johns, 1977: 323 (distribution, ecology); Johns *et al*., 1980: 29 (distribution, ecology); Johns, 1986: 31 (distribution); Emberson, 1993b: 20 (taxonomy).

Note. *Demetrida picea* could prove to be a valid species.

Demetrida (Demetrida) lateralis Broun, 1910

Demetrida lateralis Broun, 1910b: 10. Type locality: Mt Cook, MK.

Xanthophaea (*Demetrida*) *lateralis*: Csiki, 1932b: 1460.

Demetrida (*Demetrida*) *lateralis*: Britton, 1941: 191.

Geographic distribution (Map p. 234). South Island: MC, MK, OL.

Ecology. Epigean, mostly steppicolous. Montane, subalpine. Tussock grasslands, herbfields, and screes (mostly); scrublands and shrublands (occasionally). Nocturnal; hides during the day under stones (mostly) and in roots of small rotting stumps.

Biology. Seasonality: October–April. Tenerals: October. Predacious (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Fast runner.

Reference. Britton, 1941: 191 (distribution).

Demetrida (Demetrida) lineella White, 1846

Demetrias (Demetrida) lineella White, 1846: 2 (illustrated on Plate 1, Figure 3, as *Demetrida lineella*). Type locality: Port Nicholson, WN.

Demetrida lineella: Gemminger & Harold, 1868: 127.

Xanthophaea (*Demetrida*) *lineella*: Chaudoir, 1872: 196.

Demetrida (*Demetrida*) *lineella*: Britton, 1941: 190.

Geographic distribution (Map p. 234). North Island: TK, WI, WN. South Island: BR, MB, NN, SD.

Ecology. Eurytopic, arboreal-planticolous-epigean, heliophilous. Lowland, montane, subalpine, alpine. Forests (beech, podocarp, broadleaf), shrublands, flaxlands, tussock grasslands. Diurnal; active in the sunshine on trees, shrubs, plants, and logs; hides under bark on cloudy days.

Biology. Seasonality: September–April, July–August. Tenerals: September, February. Predacious (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Fast runner. Frequent climber.

References. Hudson, 1934: 40 (distribution, ecology); Britton, 1941: 190 (distribution); Townsend, 1997: 16 and 1998: 16, 21 (distribution, ecology).

Demetrida (Demetrida) moesta atra Broun, 1880

Demetrida ater [*sic*] Broun, 1880: 66. Type locality: Queenstown, OL.

Xanthophaea (*Demetrida*) *atra*: Csiki, 1932b: 1459.

Demetrida (*Demetrida*) *moesta atra*: Britton, 1941: 191.

Geographic distribution (Map p. 234). South Island: CO, DN, OL.

Ecology. Epigean, steppicolous. Lowland, upland. Tussock grasslands. Nocturnal; hides during the day under stones.

Biology. Seasonality: December, February, March. Predacious (based on mouthpart morphology).

Dispersal power. Brachypterous, incapable of flight. Fast runner.

Reference. Britton, 1941: 191 (distribution).

Demetrida (Demetrida) moesta moesta Sharp, 1878

Demetrida moesta Sharp, 1878: 47. Type locality: Otago, South Island.
Xanthophaea (*Demetrida*) *moesta*: Csiki, 1932b: 1460.
Demetrida (*Demetrida*) *moesta moesta*: Britton, 1941: 191.

Geographic distribution (Map p. 234). South Island: CO, DN, OL.

Ecology. Eurytopic, epigean. Lowland, upland, subalpine, alpine. Tussock grasslands, screes. Nocturnal; hides during the day under stones at the base of tussock clumps.

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

Dispersal power. Brachypterous, incapable of flight. Fast runner.

References. Britton, 1941: 191 (distribution); Barratt & Patrick, 1987: 82 (distribution, ecology, biology); Patrick *et al*., 1993: 11 (distribution, ecology); Patrick, 1994: 12 (distribution).

Demetrida (Demetrida) nasuta White, 1846

Demetrida nasuta White, 1846: 2. Type locality: New Zealand.
Xanthophaea (*Demetrida*) *nasuta*: Chaudoir, 1872: 195.
Demetrida (*Demetrida*) *nasuta*: Britton, 1941: 190.

Geographic distribution (Map p. 234). North Island: AK, BP, CL, GB, HB, ND, TK, TO, WA, WI, WN, WO. South Island: BR, DN, FD, MB, MC, NC, NN, OL, SD, SL, WD.

Ecology. Eurytopic, arboreal-planticolous-epigean. Lowland, montane, subalpine, alpine. Forests (beech), tree plantations (pine), shrublands, scrublands, orchards, tussock grasslands, pastures, gardens, screes, rocky open places, gravel pits, river banks. Nocturnal; active at night on trees, shrubs, plants, logs, and stones; hides during the day under stones and logs, in leaf litter and moss, and under the loose bark of fallen trees. Gregarious.

Biology. Seasonality: Throughout the year, except June. Tenerals: September, November, January–March. Predacious (based on mouthpart morphology). Occasionally infested with fungi (Laboulbeniales).

Dispersal power. Brachypterous, incapable of flight. Fast runner. Regular climber.

References. Hudson, 1934: 40 (distribution, ecology); Britton, 1941: 190 (distribution, ecology); Walker, 1976: 29 (ecology); Johns, 1977: 323 (distribution, ecology); MacDonald, 1983: 39 (ecology); Kuschel, 1990: 24, 40 (distribution, ecology, biology, dispersal power); Townsend, 1997: 16 and 1998: 16, 21 (distribution, ecology).

Note. *Demetrida nasuta* could represent a species complex.

Demetrida (Demetrida) sinuata maculata Britton, 1941

Demetrida (*Demetrida*) *sinuata maculata* Britton, 1941: 190. Type locality: Ben Lomond, OL.

Geographic distribution (Map p. 234). South Island: OL.

Ecology. Montane or subalpine. Habitat unknown.

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

Dispersal power. Brachypterous, incapable of flight. Fast runner.

Reference. Britton, 1941: 190 (distribution).

Demetrida (Demetrida) sinuata sinuata Broun, 1917

Demetrida sinuata Broun, 1917: 370. Type locality: Clipping's Bush, OL and Staircase, CO.
Xanthophaea (*Demetrida*) *sinuata*: Csiki, 1932b: 1460.
Demetrida (*Demetrida*) *sinuata sinuata*: Britton, 1941: 189.

Geographic distribution (Map p. 234). South Island: CO, MB, MK, OL.

Ecology. Eurytopic, epigean. Lowland, montane, subalpine, alpine. Screes (mostly), herbfields, tussock grasslands, scrublands. Nocturnal; hides during the day under stones.

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

Dispersal power. Brachypterous, incapable of flight. Fast runner.

References. Britton, 1941: 190 (distribution); Townsend, 1997: 16 (distribution).

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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.

altitudinal distribution — distribution related to altitude, i.e., lowland, upland or montane, subalpine, alpine.

apterous — without membranous wings.

arboreal — living on trees or shrubs.

arenicolous — living in sandy environments.

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

campicolous — living in fields.

cavernicolous — living in caves.

corticolous — living under or in the bark of trees or shrubs.

cryptic coloration — colour pattern imitating the environmental background, which conceals an organism from detection.

dispersal power — capacity of self-dispersal.

diurnal — active during the day.

endemic — restricted to a geographic area.

endogean — living in soil crevices or fissures, in deep humus or leaf litter, or under well-embedded stones.

epigean — living on the surface of the ground.

eurytopic — tolerant of wide variation in environmental conditions.

fossorial — digging holes or burrows.

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

granivorous — eating grains or seeds.

gregarious — living in groups or colonies.

halophilous — living in environments with relatively high concentrations of salt.

halotolerant — tolerating life in environments with relatively high concentrations of salt.

heliophilous — active in the sunshine.

hygrophilous — living in moist or wet environments.

indigenous — see native.

intertidal — living between the low and high tide levels.

macropterous — with long or fully developed membranous wings.

mesophilous — living in moderately humid environments.

molluscophagous — eating snails or slugs.

muscicolous — living in moss.

native — occurring naturally in one, two, or several areas.

nidicolous — living in the nests of other animals.

nocturnal — active during the night.

omnivorous — feeding on both animal and vegetable matter.

parental care — protection of eggs and larvae by the female.

planticolous — living on plants (not on trees or shrubs).

polyphagous — eating many types of food.

predacious — eating live animals.

riparian — living at the border of streams, lakes, or ponds.

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

scree — accumulation of loose stones on a slope.

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

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

shuttling — moving back and forth frequently.

silvicolous — living in forests, tree plantations, shrublands, or scrublands.

stenotopic — tolerant of narrow variation in environmental conditions.

steppicolous — living in steppes, tussock grasslands, or prairies.

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

subaquatic — nearly aquatic.

synanthropic — living in and around human dwellings.

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

thermophilous — active in the heat or the hottest part of the day.

thermophobous — avoiding activity in the heat or the hottest part of the day.

thermoregulation — maintenance of a constant body temperature.

troglobitic — living exclusively in caves.

troglophilous — living usually, but not exclusively in caves.

trogloxenous — living occasionally in caves.

vertical distribution — distribution related to the horizon, i.e., cavernicolous, endogean, epigean, planticolous, arboreal.

xerophilous — living in dry environments.

xylophilous — living in wood tissues.

Appendix B. *Nomina nuda*

A list of *Nomina nuda* for New Zealand Carabidae is annexed herein. These taxa have never been formally described and have no taxonomic value.

Anchomenus elevatus Bates, 1874: 10 (according to Sharp, 1886: 363 and Csiki, 1931: 744).

Bembidium anilloides Broun, 1887: 604.

Demetrida longula Sharp "n.sp." (according to Reitter, 1880: 165).

Dicrochile flavipes flavipes Broun, 1917: 360 (according to Townsend, 1997: 16).

Oopterus collaris Broun, 1887: 604.

Pterostichus minor Broun, 1893a: 991.

Tachys monochrous Schaum, 1863: 90.

Tarastethus alpinalis Broun, 1887: 604.

Appendix C. Alphabetical list of unjustified emendations

The following names are emendations. They are invalid and have no taxonomic status.

Agonochila by Chaudoir (1869: 223) for *Agonocheila* Chaudoir, 1848.

Bembecidium by Agassiz (1847: 43) for *Bembidion* Latreille, 1802.

Bembicidium by Gemminger & Harold (1868: 405) for *Bembidion* Latreille, 1802.

Bembidium by Gyllenhal (1810: 12) for *Bembidion* Latreille, 1802.

Cicindela dunedinensis by Hutton (1874: 158) for *Cicindela dunedensis* Laporte de Castelnau, 1867.

Dicronochilus by Guérin-Méneville (1846b: 428) for *Dicrochile* Guérin-Méneville, 1846a.

Euthenaris by Csiki (1932a: 1268) for *Euthenarus* Bates, 1874.

Heloetrechus by Chenu (1851: 187) for *Helaeotrechus* White, 1846.

Laemosthenes by Agassiz (1847: 199) for *Laemostenus* Bonelli, 1810.

Laemosthenus by Winkler (1924: 187) for *Laemostenus* Bonelli, 1810.

Philophloeus by Lacordaire (1854: 139) for *Philophlaeus* Chaudoir, 1844.

Physolesthus by Sloane (1898: 488) for *Physolaesthus* Chaudoir, 1850.

Physoloesthus by Lacordaire (1854: 235) for *Physolaesthus* Chaudoir, 1850.

Stomatocolus by Chaudoir (1871: 283) for *Stomatocoelus* Macleay, 1864.

Xanthophoea by Lacordaire (1854: 106) for *Xanthophaea* Chaudoir, 1848.

Appendix D. Alphabetical synopsis of species incorrectly or doubtfully recorded from New Zealand

Thirty species recorded in the literature from New Zealand represent mislabelled specimens or misidentifications. Thirteen others were erroneously described from New Zealand. These records are addressed here. Species are listed by their valid name.

***Abacetus grandis* Laferté-Sénectère, 1853: 304**

Described from New Zealand as *Alogus monachicus* by Motschulsky (1866: 245). Subsequently recorded from this area by Gemminger & Harold (1868: 312), Bates (1874: 245), Hutton (1874: 159), Broun (1880: 44), Hutton (1904: 147), Hudson (1923: 357), Csiki (1930: 557), Hudson (1934: 176), and Britton (1940: 478). *A. monachicus* was made synonymous with *Abacetus grandis* from West Africa by Moore (1980a: 173-174). The type was obviously mislabelled.

***Anchomenus raptor* Redtenbacher, 1868: 18**

Recorded from New Zealand by Gemminger & Harold (1868: 376), Hutton (1904: 144), Hudson (1923: 356), Csiki (1931: 865), and Hudson (1934: 174). Described from Tahiti and restricted to that area.

***Anomotarus monarensis* Moore, 1987: 305**

Recorded from Swanson, AK by Pilgrim (1963: 840) as *Anomotarus aeneus (=Cymindis aenea* Macleay, 1873: 320), a species restricted to Australia (Moore *et al.,* 1987: 305) and confused by Pilgrim (1963) with *A. illawarrae* (Macleay, 1873) which occurs in New Zealand.

***Calathus glabricollis* Dejean, 1828: 68**

Described from Auckland, New Zealand as *Calathus zeelandicus* by Redtenbacher (1868: 17). Subsequently recorded from this area by Gemminger & Harold (1868: 364), Hutton (1874: 159), Bates (1874: 238), Broun (1880: 19), Walker (1904: 76), Hutton (1904: 143), and Thomson (1922: 284). Restricted to Europe (Csiki, 1931: 779). The type was obviously mislabelled.

***Castelnaudia cordata* (Chaudoir, 1865b: 69)**

Recorded from New Zealand by Gemminger & Harold (1868: 329), as *Homalosoma cunninghami* (*=Feronia cunninghamii* Laporte de Castelnau, 1867: 120). Restricted to Australia (Moore *et al.*, 1987: 168).

***Castelnaudia cyanea* (Laporte de Castelnau, 1840: 113)**

Recorded from New Zealand by Gemminger & Harold (1868: 329), as *Homalosoma episcopale* (*=Feronia episcopalis* Laporte de Castelnau, 1867: 118). Restricted to Australia (Moore *et al.,* 1987: 168).

***Castelnaudia marginifera* (Chaudoir, 1865b: 68)**

Recorded from New Zealand by Gemminger & Harold (1868: 330), as *Homalosoma viridescens* (*=Feronia viridescens* Laporte de Castelnau, 1867: 120). Restricted to Australia (Moore *et al.,* 1987: 169).

***Castelnaudia septemcostata* (Chaudoir, 1874b: 572)**

Recorded from New Zealand by Gemminger & Harold (1868: 329), as *Homalosoma nitidicolle* (*=Feronia nitidicollis* Laporte de Castelnau, 1867: 120). Restricted to Australia (Moore *et al.,* 1987: 170).

***Castelnaudia superba* (Laporte de Castelnau, 1867: 119)**

Recorded from New Zealand by Gemminger & Harold (1868: 330), as *Homalosoma superbum* (*=Feronia superba* Laporte de Castelnau, 1867). Restricted to Australia (Moore *et al.,* 1987: 170).

***Castelnaudia wilsoni* (Laporte de Castelnau, 1867: 119)**

Recorded from New Zealand by Gemminger & Harold (1868: 330), as *Homalosoma wilsoni* (*=Feronia wilsoni* Laporte de Castelnau, 1867). Restricted to Australia (Moore *et al.,* 1987: 171).

***Cicindela klugii* Dejean, 1831: 45**

Described from New Zealand as *Cicindela douei* by Chenu (1840: 45). Subsequently recorded from this area by White & Doubleday (1843: 272), White (1846: 1), Gemminger & Harold (1868: 14), Wakefield (1873: 297), Hutton (1874: 158), Bates (1874: 234), Broun (1880: 3-4), Fleutiaux (1892: 63), Hutton (1904: 141), Hudson (1923: 354; 1934: 172), and White (1958: 9). Restricted to Mexico (Wiesner, 1992: 144-145). The type was obviously mislabelled (Horn, 1892d: 215).

***Clivina dilutipes* Putzeys, 1868a: 12**

Recorded from New Zealand by Sloane (1920b: 320) and Csiki (1927: 502). Restricted to Australia (Moore *et al.,* 1987: 70). Not seen in New Zealand entomological collections.

***Clivina impressefrons* LeConte, 1844: 50**

Recorded from the "Pakowai District", Hawke's Bay (Anonymous 1938b:79). Restricted to North America (Bousquet & Larochelle, 1993: 102). Not seen in New Zealand entomological collections. Apparently confused with *Clivina vagans* Putzeys.

***Crossonychus viridis* (Dejean, 1831: 356)**

Recorded from New Zealand as *Lebia bembidioides* Fairmaire, 1849: 34 by Lacordaire (1854: 128), Gemminger & Harold (1868: 136), Hutton (1904: 150), and Hudson (1923: 359; 1934: 178). This species was described from Tahiti and synonymised with *C. viridis* from Chile and Argentina by Britton (1941: 191).

***Darodilia mandibularis* Laporte de Castelnau, 1867: 71**

Recorded from New Zealand by Gemminger & Harold (1868: 246). Restricted to Australia (Moore *et al.,* 1987: 162).

***Dicrochile gigas* Laporte de Castelnau, 1867: 66**

Recorded from New Zealand by Gemminger & Harold (1868: 365). Restricted to Australia (Moore *et al.,* 1987: 264).

***Dicrochile goryi* (Boisduval, 1832: 32)**

Recorded from New Zealand as *Dicrochile montana* Laporte de Castelnau, 1867: 67 by Gemminger & Harold (1868: 365). Restricted to Australia (Moore *et al.,* 1987: 264).

***Dicrochile minuta* Laporte de Castelnau, 1867: 68**

Recorded from New Zealand by Gemminger & Harold (1868: 365). Restricted to Australia (Moore *et al.,* 1987: 264).

***Dicrochile punctatostriata* Laporte de Castelnau, 1867: 67**

Recorded from New Zealand by Gemminger & Harold (1868: 366). Restricted to Australia (Moore *et al.,* 1987: 264).

***Dicrochile punctipennis* Laporte de Castelnau, 1867: 67**

Recorded from New Zealand by Gemminger & Harold (1868: 366). Restricted to Australia (Moore *et al.,* 1987: 264).

***Dicrochile quadricollis* Laporte de Castelnau, 1867: 67**

Recorded from New Zealand by Gemminger & Harold (1868: 366). Restricted to Australia (Moore *et al.,* 1987: 265).

***Diplocheila zeelandica* (Redtenbacher, 1868: 10)**

Described from Auckland, New Zealand as *Rembus zeelandicus* by Redtenbacher (1868: 10). Subsequently recorded from this area by Gemminger & Harold (1868: 239), Hutton (1874: 159), Walker (1904: 76), Hutton (1904: 143), Hudson (1923: 355), Csiki (1931: 1003), and Hudson (1934: 174). Restricted to Korea, Japan, China, and Taiwan. The type was obviously mislabelled (Bates, 1874: 237; Broun, 1880: 15; Ball, 1959: 50).

***Distipsidera flavicans* (Chaudoir, 1854: 125)**

Described from New Zealand as *Distipsidera fasciata* by Motschulsky (1864: 174). Subsequently recorded from this area by Hutton (1874: 158). Restricted to Australia (Horn, 1893: 331; Moore *et al.*, 1987: 40; McCairns *et al.,* 1997: 652). The type of *D. fasciata* was obviously mislabelled.

***Eurylychnus blagravii* (Laporte de Castelnau, 1867: 75)**

Recorded from New Zealand by Gemminger & Harold (1868: 241) and Csiki (1928: 16). Restricted to Australia (Moore *et al.,* 1987: 120).

***Eurylychnus dyschirioides* (Laporte de Castelnau, 1867: 78)**

Described as *Maoria dyschirioides* from "Crooked River, in New Zealand". Subsequently recorded from this area by Gemminger & Harold (1868: 243), Putzeys (1873a: 316), Hutton (1874: 159), Bates (1874: 237), Broun (1880: 13), Hutton (1904: 142), Hudson (1923: 355), Csiki (1928: 18), and Hudson (1934: 173). Restricted to Australia (Britton, 1949: 538; Moore *et al.,* 1987: 121). Crooked River is situated in Victoria, Australia.

***Laemostenus (Pristonychus) terricola terricola* (Herbst, 1784: 140)**

Recorded from New Zealand by Hudson (1923: 356; 1934: 174). Distributed in Europe, India, Canada, and U.S.A. (Casale, 1988: 787). Confused with *Laemostenus* (*Laemostenus*) *complanatus* (Dejean) which occurs in New Zealand (Britton, 1940: 508).

***Leiradira auricollis* Laporte de Castelnau, 1867: 73**

Recorded from New Zealand by Gemminger & Harold (1868: 246). Restricted to Australia (Moore *et al.,* 1987: 163).

***Leiradira latreilli latreilli* Laporte de Castelnau, 1867: 72**

Recorded from New Zealand by Gemminger & Harold (1868: 246). Restricted to Australia (Moore *et al.,* 1987: 164).

***Lophyridia decemguttata* (Fabricius, 1801: 241)**

Recorded from New Zealand by Laporte de Castelnau (1840: 16). Restricted to Indonesia, Papua-New Guinea, and the Bismarck Archipelago (Csiki, 1926: 178; Wiesner, 1992: 155).

***Loxodactylus carinulatus amaeropterus* (Chaudoir, 1865b: 97)**

Recorded from New Zealand by Gemminger & Harold (1868: 330), as *Homalosoma yarrae* (=*Feronia yarrae* Laporte de Castelnau, 1867: 120). Restricted to Australia (Moore *et al.,* 1987: 198).

***Notonomus mediosulcatus* (Chaudoir, 1865b: 88)**

Recorded from New Zealand by Gemminger & Harold (1868: 246), as *Adetipa punctata* Laporte de Castelnau, 1867: 71. Restricted to Australia (Moore *et al.,* 1987: 183).

***Nurus atlas* (Laporte de Castelnau, 1867: 117)**

Recorded from New Zealand by Gemminger & Harold (1868: 329), as *Homalosoma atlas* (=*Feronia atlas* Laporte de Castelnau, 1867: 118) and *H. obesum* (=*Feronia obesa* Laporte de Castelnau, 1867). Restricted to Australia (Moore *et al.,* 1987: 171).

***Nurus brevis* Motschulsky, 1866: 236**

Recorded from New Zealand by Gemminger & Harold (1868: 329), as *Homalosoma solandersi* (=*Feronia solandersii* Laporte de Castelnau, 1867: 118). Restricted to Australia (Moore *et al.,* 1987: 171).

***Oceanella vitiensis vitiensis* (Blanchard, 1842: Plate 1, Figure 5)**

Described from Greymouth, New Zealand as *Cicindela ezonata* by Broun (1921: 594). Subsequently recorded from this area by Hudson (1923: 354), Horn (1926b: 200), Hudson (1934: 172), Edwards (1950b: 85), and Palma *et al.* (1989: 21). Restricted to Fiji (Wiesner, 1992: 229). The type of *C. ezonata* was obviously mislabelled (Horn, 1936: 9; Brouerius van Nidek, 1965: 353).

***Percosoma carenoides* (White, 1846: 4)**

Described from New Zealand as *Broscus carenoides* by White (1846: 4). Subsequently recorded from this area by Gemminger & Harold (1868: 243), Hutton (1874: 159). Restricted to Australia (Moore *et al.,* 1987: 122). The type was obviously mislabelled.

***Promecoderus lottini* Brullé, 1834: 450**

Described from New Zealand and subsequently recorded from this area by White & Doubleday (1843: 273), White (1846: 5), Gemminger & Harold (1868: 242), Hutton (1874: 159), and Csiki (1928: 25). Restricted to Australia (Moore *et al.,* 1987: 113). The type was obviously mislabelled (Laporte de Castelnau, 1867: 73; Bates, 1874: 237).

***Promecoderus tasmanicus* Laporte de Castelnau, 1867: 80**

Described from New Zealand as *Acallistus simplex* by Sharp (1886: 362). Subsequently recorded from this area by Broun (1893a: 984), Hutton (1904: 143), Hudson (1923: 355), Csiki (1928: 22), and Hudson (1934: 174). Restricted to Australia (Britton, 1949: 537; Moore *et al.,* 1987: 115). The type of *A. simplex* was obviously mislabelled.

***Prosopogmus impressifrons* (Chaudoir, 1865b: 93)**

Described from New Zealand as *Feronia* (*Prosopogmus*) *impressifrons* by Chaudoir (1865b: 93). Subsequently recorded from this area by Gemminger & Harold (1868: 300), Hutton (1874: 159), Bates (1874: 242), Broun (1880: 31), Hutton (1904: 144), Hudson (1923: 356), Csiki (1930: 565), Hudson (1934: 174), and Darlington (1962b: 536). Restricted to Australia (Britton, 1940: 476; Moore, 1965b: 13; Moore *et al.,* 1987: 200). The type was obviously mislabelled.

***Rhabdotus reflexus* (Chaudoir, 1865b: 94)**

Described from New Zealand as *Feronia* (*Rhabdotus*) *reflexa* by Chaudoir (1865b: 94). Subsequently recorded from this area by Gemminger & Harold (1868: 321), Hutton (1874: 159; 1904: 147), and Hudson (1923: 357; 1934: 176). Restricted to Australia (Csiki, 1930: 548; Britton, 1940: 476; Moore, 1965b: 29; Moore *et al.,* 1987: 197). The type was obviously mislabelled (Chaudoir, 1874b: 594; Bates, 1874: 246).

***Rhytisternus puellus* (Chaudoir, 1865b: 105)**

Described from New Zealand as *Feronia* (*Rhytisternus*) *puella* by Chaudoir (1865b: 105). Subsequently recorded from this area by Bates (1878c: 27), Walker (1904: 118), Hutton (1904: 351), Thomson (1922: 284), Hudson (1923: 358; 1934: 176), and Townsend (1994: 10). Unjustly synonymised with *Aulacopodus brouni* Csiki by Pilgrim (1963: 840). Restricted to Australia (Csiki, 1930: 562; Moore *et al*., 1987: 209). The type was obviously mislabelled.

***Sarothrocrepis posticalis* (Guérin-Méneville, 1830: Plate 1, Figures a & b)**

Recorded from New Zealand as *Lebia posticalis* Guérin-Méneville by Lacordaire (1854: 128), Gemminger & Harold (1868: 140), Hutton (1904: 150), and Hudson (1923: 359; 1934: 178). Restricted to Australia (Csiki, 1932b: 1304; Britton, 1941: 191; Moore *et al.,* 1987: 281).

***Sphodrosomus saisseti* Perroud & Montrouzier, 1864: 59**

Erroneously recorded from New Zealand by Bousquet & Larochelle (1993: 32). Restricted to New Caledonia (Csiki, 1930: 736).

***Trichosternus renardi* (Chaudoir, 1865b: 71)**

Recorded from New Zealand as *Homalosoma hercules* (=*Feronia hercules* Laporte de Castelnau, 1867: 119) by Gemminger & Harold (1868: 329). Restricted to Australia (Moore *et al.,* 1987: 167).

Appendix E. Alphabetical synopsis of species deliberately introduced into New Zealand

***Barypus clivinoides* Curtis, 1839: 185**

Introduced from Argentina against grass grub, *Costelytra zelandica* (White) (Coleoptera: Scarabaeidae), and released in the Nelson and Marlborough regions from 1968 to 1970 (Cameron *et al*., 1980: 214; Cameron & Wigley, 1989: 13). No recoveries have been recorded.

***Cnemalobus gayi* Putzeys, 1868: 366**

Introduced from Argentina against grass grub, *Costelytra zelandica* (White) (Coleoptera: Scarabaeidae), and released in the Marlborough region from 1968 to 1970 (Cameron *et al*., 1980: 214; Cameron & Wigley, 1989: 13). No recoveries have been recorded.

***Scarites* "spp."**

Introduced from South Africa against black beetle, *Heteronychus arator* (Fabricius) (Coleoptera: Scarabaeidae), and released at Woodhill, AK and Ruakaka, ND in 1977-1978 (Cameron & Thomas, 1989: 19). Doubtfully established (Longworth, 1982: 142-143).

***Trirammatus unistriatus* (Dejean, 1828: 232)**

Introduced from Argentina against grass grub, *Costelytra zelandica* (White) (Coleoptera: Scarabaeidae), and released in the Nelson region from 1968 to 1970 (Cameron *et al* ., 1980: 214; Cameron & Wigley, 1989: 13). No recoveries have been recorded.

None of these deliberate introductions are likely to have survived (personal communication P.J. Cameron, 1998).

Appendix F. Geographical coordinates of main localities. Coordinates should read as 00°00'S/ 000°00'E. The two-letter area codes follow Crosby *et al*. (1998). A "—" indicates a locality with unknown coordinates.

Adams Island, AU 5053/16603
Ahaura, BR 4221/17132
Akaroa, MC 4339/17258
Albury, SC 4414/17054
Ashburton, MC 4354/17145
Auckland, AK 3651/17446
Auckland Island, AU 5042/16606
Auckland Islands, AU 5035/16610

Bay of Islands, ND 3513/17412
Bealey, NC 4302/17138
Belgrove, NN 4127/17258
Ben Lomond, OL 4501/16837
Bluff, SL 4636/16820
Boatmans Creek, BR 4200/17153
Bold Peak, OL 4451/16818
Bounty Island, BO 4745/17901
Brightwater, NN 4123/17306
Broken River, MC 4313/17156

Campbell Island, CA 5233/16908
Canaan [Little], Takaka Hill, NN 4058/17251
Capleston, BR 4204/17155
Carnley Harbour, AU 5051/16607
Cass, MC 4302/17145
Castle Hill, MC 4314/17143
Castle Hill Station, MC 4314/17143
Central Plateau [= Desert Road], TO .. 3914/17544
Chatham Islands, CH 4400/17630W
Chetwode Islands, SD 4054/17405
Christchurch, MC 4332/17238
Christmas Village, SI 4645/16759
Clevedon, AK 3659/17503
Clippings Bush [= Kingston], OL 4520/16843

D'Urville Island, SD 4050/17351
Dun Mountain, NN 4121/17322
Dunedin, DN 4553/17030
Dusky Bay [= Dusky Sound], FD 4546/16626
Dyers Pass, MC 4337/17239

Epsom, AK 3654/17446
Erua, TO 3914/17524
Eyrewell, NC 4323/17218

Fenian Creek, Oparara, NN 4112/17211
Flagstaff Hill, Dunedin, DN 4553/17030
Flora River, Mt Arthur, NN 4110/17241
Forty Mile Bush, WA ..... —
Fox River [cave], BR 4202/17123

Gordons Knob, NN 4136/17256
Gordons Pyramid, NN 4111/17241
Great Island, TH 3410/17208
Greenstone Flat, OL 4459/16818
Greymouth, BR 4227/17112

Hakapoua [Lake], FD 4610/16657
Hampden, DN 4520/17049
Hanmer Springs, MB 4231/17250
Hastings, HB 3939/17651
Hastwells, WA 4043/17542
Hermitage, Mt Cook, MK 4344/17005
Hicks Bay, BP 3735/17817
Hikuwai, CL 3810/17816
Hokianga [Harbour], ND 3526/17325
Hokitika, WD 4243/17058
Hollyford [River], OL 4420/16800
Howick, AK 3654/17456
Hump Ridge, FD 4607/16720
Hunter Mountains, FD 4538/16724
Hunua Ranges, AK 3701/17513

Ida Valley, CO 4502/16949
Inangahua, BR 4152/17157
Invercargill, SL 4625/16822

Kai Iwi Beach, WI 4552/17454
Karekare, AK 3659/17429
Karori, WN 4117/17444
Kinloch, OL 4451/16821
Kumara, WD 4238/17111
Kuriwai Bush, SL 4625/16851

Lake Coleridge, MC 4322/17132
Lake Horowhenua, WN 4037/17515
Lake Mackenzie, OL 4446/16810

Appendix G. Alphabetical list of valid taxa for New Zealand. N = native, but not endemic to New Zealand; A = adventive.

Actenonyx bembidioides
Agonocheila antipodum [N]
Allocinopus angustulus
Allocinopus castaneus
Allocinopus latitarsis
Allocinopus ocularius
Allocinopus sculpticollis
Allocinopus smithi
Amarotypus edwardsii
Anchomenus arnaudensis
Anchomenus colensonis
Anchomenus edwardsii
Anchomenus helmsi
Anchomenus integratus
Anchomenus intermedius
Anchomenus libitus
Anchomenus macrocoelis
Anchomenus oreobius
Anchomenus otagoensis
Anchomenus punctulatus
Anchomenus sandageri
Anchomenus sophronitis
Anchomenus sulcitarsis
Anchomenus xanthomelas
Anisodactylus binotatus [A]
Anomotarus illawarrae [A]
Anomotarus variegatus [A]
Argutor pantomelas
Aulacopodus brouni
Aulacopodus calathoides
Aulacopodus maorinus
Aulacopodus sharpianus

Bembidion actuarium
Bembidion anchonoderus
Bembidion brullei [A]
Bembidion callipeplum
Bembidion chalceipes
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion hokitikense
Bembidion maorinum levatum
Bembidion maorinum maorinum
Bembidion musae
Bembidion orbiferum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion rotundicolle rotundicolle
Bembidion solitarium
Bembidion stewartense
Bembidion tairuense
Bembidion tekapoense
Bembidion townsendi
Bembidion urewerense
Bembidion wanakense
Bountya insularis
Brullea antarctica

Calathosoma rubromarginatum
Carabus nemoralis [A]
Cerabilia aphela
Cerabilia major
Cerabilia maori
Cerabilia oblonga
Cicindela austromontana
Cicindela brevilunata
Cicindela dunedensis
Cicindela feredayi
Cicindela hamiltoni
Cicindela helmsi
Cicindela latecincta
Cicindela parryi
Cicindela perhispida campbelli
Cicindela perhispida giveni
Cicindela perhispida perhispida
Cicindela spilleri
Cicindela tuberculata
Cicindela waiouraensis
Clivina australasiae [A]
Clivina basalis [A]
Clivina heterogena [A]
Clivina vagans [A]
Ctenognathus actochares
Ctenognathus adamsi
Ctenognathus bidens
Ctenognathus cardiophorus
Ctenognathus cheesemani
Ctenognathus crenatus
Ctenognathus deformipes
Ctenognathus littorellus
Ctenognathus lucifugus
Ctenognathus montivagus
Ctenognathus munroi
Ctenognathus neozelandicus
Ctenognathus novaezelandiae
Ctenognathus parabilis
Ctenognathus perrugithorax
Ctenognathus pictonensis
Ctenognathus politulus
Ctenognathus simmondsi
Ctenognathus suborbithorax

Demetrida dieffenbachii
Demetrida lateralis
Demetrida lineella
Demetrida moesta atra
Demetrida moesta moesta
Demetrida nasuta
Demetrida sinuata maculata
Demetrida sinuata sinuata
Dicrochile anchomenoides
Dicrochile anthracina
Dicrochile aterrima
Dicrochile cephalotes
Dicrochile cordicollis
Dicrochile fabrii
Dicrochile flavipes
Dicrochile insignis
Dicrochile maura
Dicrochile nitida
Dicrochile novaezelandiae
Dicrochile rugicollis
Dicrochile subopaca
Dicrochile thoracica
Dicrochile whitei
Diglymma castigatum
Diglymma clivinoides
Diglymma marginale
Diglymma obtusum
Duvaliomimus brittoni
Duvaliomimus lamberti
Duvaliomimus mayae
Duvaliomimus orpheus
Duvaliomimus pluto
Duvaliomimus styx
Duvaliomimus walkeri
Duvaliomimus watti

Egadroma picea [A]
Erebotrechus infernus
Euthenarus brevicollis
Euthenarus puncticollis

Gaioxenus pilipalpis
Gourlayia regia

Haplanister crypticus [A]
Harpalus affinis [A]
Holcaspis algida
Holcaspis angustula

Holcaspis bathana
Holcaspis brevicula
Holcaspis brouniana
Holcaspis catenulata
Holcaspis delator
Holcaspis dentifera
Holcaspis egregialis
Holcaspis elongella
Holcaspis falcis
Holcaspis hispida
Holcaspis hudsoni
Holcaspis impigra
Holcaspis implica
Holcaspis intermittens
Holcaspis mordax
Holcaspis mucronata
Holcaspis odontella
Holcaspis oedicnema
Holcaspis ohauensis
Holcaspis ovatella
Holcaspis placida
Holcaspis sinuiventris
Holcaspis sternalis
Holcaspis stewartensis
Holcaspis subaenea
Holcaspis suteri
Holcaspis tripunctata
Holcaspis vagepunctata
Holcaspis vexata
Hygranillus kuscheli
Hypharpax abstrusus
Hypharpax antarcticus
Hypharpax australasiae [A]
Hypharpax australis [A]

Kenodactylus audouini [N]

Laemostenus complanatus [A]
Lecanomerus atriceps [A]
Lecanomerus fallax
Lecanomerus fuliginosus
Lecanomerus incertus
Lecanomerus insignitus
Lecanomerus latimanus
Lecanomerus obesulus
Lecanomerus pallipes
Lecanomerus sharpi
Lecanomerus verticalis [A]
Lecanomerus vestigialis [A]
Loxomerus brevis
Loxomerus huttoni
Loxomerus nebrioides
Maoripamborus fairburni
Maoritrechus rangitotoensis
Mecodema allani
Mecodema alternans alternans
Mecodema alternans hudsoni
Mecodema angustulum
Mecodema atrox
Mecodema brittoni
Mecodema bullatum
Mecodema chiltoni
Mecodema costellum costellum
Mecodema costellum gordonense
Mecodema costellum lewisi
Mecodema costellum obesum
Mecodema costipenne
Mecodema crenaticolle
Mecodema crenicolle
Mecodema curvidens
Mecodema ducale
Mecodema dunense
Mecodema dux
Mecodema elongatum
Mecodema femorale
Mecodema florae
Mecodema fulgidum
Mecodema gourlayi
Mecodema hector
Mecodema howitti
Mecodema huttense
Mecodema impressum
Mecodema infimate
Mecodema integratum
Mecodema laeviceps
Mecodema laterale
Mecodema litoreum
Mecodema longicolle
Mecodema lucidum
Mecodema metallicum
Mecodema minax
Mecodema morio
Mecodema nitidum
Mecodema oblongum
Mecodema occiputale
Mecodema oconnori
Mecodema oregoides
Mecodema pavidum
Mecodema pluto
Mecodema politanum
Mecodema proximum
Mecodema pulchellum
Mecodema punctatum
Mecodema punctellum
Mecodema quoinense
Mecodema rectolineatum
Mecodema regulus
Mecodema rex
Mecodema rugiceps anomalum
Mecodema rugiceps rugiceps
Mecodema sculpturatum puncticolle
Mecodema sculpturatum sculpturatum
Mecodema simplex
Mecodema spiniferum
Mecodema striatum
Mecodema strictum
Mecodema sulcatum
Mecodema validum
Mecyclothorax ambiguus [A]
Mecyclothorax amplipennis amplipennis
Mecyclothorax amplipennis labralis
Mecyclothorax eplicatus
Mecyclothorax placens
Mecyclothorax rotundicollis
Megadromus alternus
Megadromus antarcticus
Megadromus asperatus
Megadromus bucolicus
Megadromus bullatus
Megadromus capito
Megadromus compressus
Megadromus curtulus
Megadromus enysi
Megadromus fultoni
Megadromus guerinii
Megadromus haplopus
Megadromus lobipes
Megadromus memes
Megadromus meritus
Megadromus rectalis
Megadromus rectangulus
Megadromus sandageri
Megadromus temukensis
Megadromus turgidiceps
Megadromus vagans
Megadromus vigil
Megadromus virens
Megadromus wallacei
Metaglymma aberrans
Metaglymma moniliferum
Metaglymma tibiale

Molopsida alpinalis
Molopsida antarctica
Molopsida carbonaria
Molopsida cincta
Molopsida convexa
Molopsida cordipennis
Molopsida debilis
Molopsida diversa
Molopsida dubia
Molopsida fovealis
Molopsida fuscipes
Molopsida halli
Molopsida longula
Molopsida marginalis
Molopsida optata
Molopsida oxygona
Molopsida phyllocharis
Molopsida polita
Molopsida pretiosa
Molopsida propinqua
Molopsida puncticollis
Molopsida robusta
Molopsida seriatoporus
Molopsida simplex
Molopsida simulans
Molopsida southlandica
Molopsida strenua
Molopsida sulcicollis

Neanops caecus
Neanops pritchardi
Neoferonia ardua
Neoferonia edax
Neoferonia fossalis
Neoferonia integrata
Neoferonia prasignis
Neoferonia procerula
Neoferonia prolixa
Neoferonia straneoi
Neoferonia truncatula
Nesamblyops oreobius
Nesamblyops subcaecus
Notagonum chathamense
Notagonum feredayi
Notagonum lawsoni
Notagonum marginellum [A]
Notagonum submetallicum [N]

Oopterus basalis
Oopterus clivinoides
Oopterus collaris
Oopterus frontalis
Oopterus fulvipes
Oopterus laevicollis
Oopterus laevigatus
Oopterus laeviventris
Oopterus latifossus
Oopterus latipennis
Oopterus lewisi
Oopterus marrineri
Oopterus minor
Oopterus nigritulus
Oopterus pallidipes
Oopterus parvulus
Oopterus patulus
Oopterus plicaticollis
Oopterus probus
Oopterus puncticeps
Oopterus pygmeatus
Oopterus sculpturatus ovinotatus
Oopterus sculpturatus sculpturatus
Oopterus sobrinus
Oopterus strenuus
Oopterus suavis
Oregus aereus
Oregus inaequalis

Parabaris atratus
Parabaris gourlayi
Paratachys crypticola [A]
Pelodiaetodes prominens
Pelodiaetus lewisi
Pelodiaetus sulcatipennis
Pentagonica vittipennis [N]
Pericompsus australis [A]
Perigona nigriceps [A]
Philophlaeus luculentus [A]
Pholeodytes cerberus
Pholeodytes townsendi
Physolaesthus insularis [N]
Physolaesthus limbatus
Platynus macropterus
Plocamostethus planiusculus
Prosopogmus oodiformis [A]
Prosphodrus occultus
Prosphodrus waltoni
Psegmatopterus politissimus

Rhytisternus liopleurus [A]
Rhytisternus miser [A]

Scopodes basalis
Scopodes bryophilus
Scopodes cognatus
Scopodes edwardsii
Scopodes fossulatus
Scopodes laevigatus
Scopodes levistriatus
Scopodes multipunctatus
Scopodes prasinus
Scopodes pustulatus
Scopodes versicolor
Scototrechus orcinus
Selenochilus fallax
Selenochilus frontalis
Selenochilus oculator
Selenochilus piceus
Selenochilus ruficornis
Selenochilus syntheticus
Syllectus anomalus
Syllectus magnus
Syllectus spelaeus
Synteratus ovalis

Tachys antarcticus
Tachys captus [A]
Tachys cavelli
Tachys latipennis
Taenarthrus capito
Taenarthrus philpotti
Triplosarus novaezelandiae

Zabronothus rufipes
Zabronothus striatulus
Zeanillus pallidus
Zeanillus phyllobius
Zeanillus punctiger
Zecillenus alacris
Zecillenus albescens
Zecillenus chalmeri
Zecillenus embersoni
Zecillenus tillyardi
Zeopoecilus calcaratus
Zeopoecilus putus
Zolus atratus
Zolus carinatus
Zolus femoralis
Zolus helmsi
Zolus labralis
Zolus ocularius
Zolus subopacus

Appendix H. Alphabetical list of valid taxa by areas of New Zealand. E = endemic to country; N = native, but not endemic to country; A = adventive; R = restricted to a single area of country.

North Island

AK

95 taxa
E, 68; N, 4; A, 23; R, 7.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus castaneus
Allocinopus smithi
Amarotypus edwardsii
Anchomenus punctulatus R
Anchomenus sulcitarsis
Anomotarus illawarrae A
Anomotarus variegatus A
Aulacopodus calathoides
Aulacopodus sharpianus
Bembidion actuarium
Bembidion anchonoderus
Bembidion brullei A
Bembidion callipeplum
Bembidion maorinum levatum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Brullea antarctica
Carabus nemoralis A
Cicindela brevilunata
Cicindela parryi
Cicindela perhispida campbelli
Cicindela perhispida giveni
Cicindela perhispida perhispida
Cicindela spilleri
Cicindela tuberculata
Clivina australasiae A
Clivina basalis A
Clivina heterogena A
Clivina vagans A
Ctenognathus adamsi
Ctenognathus bidens
Ctenognathus cardiophorus
Ctenognathus cheesemani R
Ctenognathus crenatus
Ctenognathus lucifugus
Ctenognathus montivagus
Ctenognathus munroi
Ctenognathus novaezelandiae
Demetrida nasuta
Dicrochile anthracina R
Duvaliomimus watti
Egadroma picea A
Euthenarus puncticollis
Haplanister crypticus A
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis sinuiventris
Holcaspis vagepunctata
Hypharpax abstrusus
Hypharpax antarcticus
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus atriceps A
Lecanomerus sharpi
Lecanomerus verticalis A
Lecanomerus vestigialis A
Maoripamborus fairburni
Maoritrechus rangitotoensis R
Mecodema crenaticolle
Mecodema crenicolle
Mecodema simplex
Mecodema spiniferum
Mecyclothorax ambiguus A
Mecyclothorax rotundicollis
Megadromus capito
Nesamblyops subcaecus
Notagonum lawsoni
Notagonum marginellum A
Notagonum submetallicum N
Parabaris atratus
Paratachys crypticola A
Pentagonica vittipennis N
Pericompsus australis A
Perigona nigriceps A
Philophlaeus luculentus A
Physolaesthus insularis N
Physolaesthus limbatus R
Platynus macropterus
Prosphodrus waltoni
Psegmatopterus politissimus
Rhytisternus miser A
Scopodes edwardsii
Scopodes fossulatus
Scopodes multipunctatus
Selenochilus oculator R
Syllectus anomalus
Tachys antarcticus
Tachys captus A
Triplosarus novaezelandiae
Zecillenus alacris R
Zecillenus albescens

BP

82 taxa
E, 64; N, 4; A, 14; R, 2.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus sculpticollis
Allocinopus smithi
Amarotypus edwardsii
Aulacopodus calathoides
Bembidion actuarium
Bembidion anchonoderus
Bembidion brullei A
Bembidion callipeplum
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion maorinum levatum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Bembidion tekapoense
Bembidion urewerense
Cicindela feredayi
Cicindela parryi
Cicindela spilleri
Cicindela tuberculata
Clivina basalis A
Clivina vagans A
Ctenognathus bidens
Ctenognathus cardiophorus
Ctenognathus crenatus
Ctenognathus lucifugus
Ctenognathus munroi
Ctenognathus novaezelandiae
Demetrida nasuta
Dicrochile cephalotes
Dicrochile cordicollis
Dicrochile maura
Duvaliomimus styx
Duvaliomimus watti
Haplanister crypticus A
Holcaspis dentifera
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis sinuiventris
Hypharpax antarcticus
Hypharpax australasiae A
Hypharpax australis A
Lecanomerus atriceps A
Lecanomerus sharpi
Lecanomerus verticalis A
Lecanomerus vestigialis A
Mecodema atrox R
Mecodema crenaticolle
Mecodema crenicolle
Mecodema curvidens R
Mecodema occiputale
Mecodema pluto
Mecodema spiniferum
Mecodema validum
Mecyclothorax ambiguus A
Mecyclothorax placens
Mecyclothorax rotundicollis
Megadromus capito

Molopsida polita
Molopsida pretiosa
Molopsida seriatoporus
Molopsida strenua
Notagonum lawsoni
Notagonum submetallicum N
Parabaris atratus
Paratachys crypticola A
Pentagonica vittipennis N
Pericompsus australis A
Philophlaeus luculentus A
Physolaesthus insularis N
Platynus macropterus
Plocamostethus planiusculus
Prosphodrus occultus
Rhytisternus miser A
Scopodes fossulatus
Scopodes multipunctatus
Syllectus anomalus
Tachys antarcticus

CL
64 taxa
E, 47; N, 3; A, 14; R, 0.

Actenonyx bembidioides
Agonocheila antipodum N
Amarotypus edwardsii
Anchomenus sulcitarsis
Anomotarus variegatus A
Aulacopodus calathoides
Bembidion anchonoderus
Bembidion callipeplum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Cicindela brevilunata
Cicindela parryi
Cicindela spilleri
Cicindela tuberculata
Clivina basalis A
Clivina vagans A
Ctenognathus bidens
Ctenognathus cardiophorus
Ctenognathus crenatus
Ctenognathus lucifugus
Ctenognathus novaezelandiae
Demetrida nasuta
Dicrochile cephalotes
Dicrochile cordicollis
Duvaliomimus watti
Egadroma picea A
Euthenarus puncticollis
Haplanister crypticus A
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus atriceps A
Lecanomerus sharpi
Lecanomerus verticalis A
Lecanomerus vestigialis A
Mecodema crenaticolle
Mecodema pluto
Mecodema spiniferum
Mecodema validum
Mecyclothorax ambiguus A
Mecyclothorax placens
Mecyclothorax rotundicollis
Megadromus capito
Molopsida polita
Molopsida seriatoporus
Notagonum lawsoni
Notagonum submetallicum N
Parabaris atratus
Paratachys crypticola A
Pelodiaetodes prominens
Pentagonica vittipennis N
Philophlaeus luculentus A
Plocamostethus planiusculus
Rhytisternus miser A
Scopodes edwardsii
Scopodes fossulatus
Scopodes multipunctatus
Syllectus anomalus
Tachys antarcticus
Triplosarus novaezelandiae
Zecillenus albescens

GB
63 taxa
E, 48; N, 3; A, 12; R, 0.

Actenonyx bembidioides
Allocinopus sculpticollis
Amarotypus edwardsii
Aulacopodus calathoides
Bembidion actuarium
Bembidion anchonoderus
Bembidion brullei A
Bembidion callipeplum
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion maorinum levatum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Bembidion urewerense
Brullea antarctica
Cicindela parryi
Cicindela spilleri
Cicindela tuberculata
Clivina basalis A
Clivina vagans A
Ctenognathus bidens
Ctenognathus cardiophorus
Demetrida nasuta
Dicrochile cephalotes
Dicrochile cordicollis
Dicrochile maura
Duvaliomimus styx
Euthenarus puncticollis
Holcaspis dentifera
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis sinuiventris
Holcaspis vagepunctata
Hypharpax australasiae A
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus atriceps A
Lecanomerus sharpi
Lecanomerus verticalis A
Lecanomerus vestigialis A
Mecodema florae
Mecodema spiniferum
Mecodema validum
Mecyclothorax amplipennis amplipennis
Mecyclothorax rotundicollis
Megadromus capito
Molopsida polita
Molopsida seriatoporus
Notagonum lawsoni
Notagonum submetallicum N
Parabaris atratus
Paratachys crypticola A
Pentagonica vittipennis N
Pericompsus australis A
Physolaesthus insularis N
Platynus macropterus
Prosphodrus occultus
Rhytisternus miser A
Scopodes fossulatus
Syllectus anomalus

HB
70 taxa
E, 57; N, 3; A, 10; R, 0.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus sculpticollis
Amarotypus edwardsii
Anomotarus variegatus A
Aulacopodus calathoides
Bembidion actuarium
Bembidion anchonoderus
Bembidion brullei A
Bembidion callipeplum
Bembidion charile

Bembidion dehiscens
Bembidion granuliferum
Bembidion maorinum levatum
Bembidion musae
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Bembidion tekapoense
Cicindela parryi
Cicindela spilleri
Cicindela tuberculata
Clivina vagans A
Ctenognathus adamsi
Ctenognathus cardiophorus
Demetrida nasuta
Dicrochile cephalotes
Dicrochile maura
Euthenarus puncticollis
Haplanister crypticus A
Holcaspis dentifera
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis oedicnema
Holcaspis sinuiventris
Holcaspis vagepunctata
Hypharpax abstrusus
Hypharpax australasiae A
Hypharpax australis A
Lecanomerus atriceps A
Lecanomerus sharpi
Lecanomerus vestigialis A
Mecodema dux
Mecodema florae
Mecodema oblongum
Mecodema occiputale
Mecodema simplex
Mecodema spiniferum
Mecodema sulcatum
Mecyclothorax amplipennis amplipennis
Mecyclothorax eplicatus
Mecyclothorax rotundicollis
Megadromus capito
Megadromus turgidiceps
Megadromus vigil
Molopsida polita
Molopsida seriatoporus
Molopsida strenua
Notagonum lawsoni
Notagonum submetallicum N
Pentagonica vittipennis N
Pericompsus australis A
Platynus macropterus
Plocamostethus planiusculus
Prosphodrus occultus
Psegmatopterus politissimus
Rhytisternus miser A
Scopodes fossulatus
Syllectus anomalus

ND
85 taxa
E, 64; N, 3; A, 18; R, 8.

Actenonyx bembidioides
Agonocheila antipodum N
Amarotypus edwardsii
Anchomenus colensonis
Anchomenus edwardsii
Anchomenus sulcitarsis
Anomotarus illawarrae A
Anomotarus variegatus A
Aulacopodus calathoides
Aulacopodus sharpianus
Bembidion actuarium
Bembidion anchonoderus
Bembidion brullei A
Bembidion callipeplum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Brullea antarctica
Cicindela brevilunata
Cicindela parryi
Cicindela perhispida giveni
Cicindela perhispida perhispida
Cicindela spilleri
Cicindela tuberculata
Clivina basalis A
Clivina heterogena A
Clivina vagans A
Ctenognathus bidens
Ctenognathus cardiophorus
Ctenognathus crenatus
Ctenognathus deformipes R
Ctenognathus lucifugus
Ctenognathus montivagus
Ctenognathus neozelandicus R
Ctenognathus novaezelandiae
Ctenognathus parabilis R
Ctenognathus perrugithorax R
Ctenognathus politulus R
Ctenognathus suborbithorax R
Demetrida nasuta
Dicrochile anchomenoides
Dicrochile cordicollis
Dicrochile fabrii
Dicrochile maura
Egadroma picea A
Euthenarus puncticollis
Holcaspis dentifera
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis sinuiventris
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus atriceps A
Lecanomerus fallax R
Lecanomerus insignitus R
Lecanomerus sharpi
Lecanomerus verticalis A
Lecanomerus vestigialis A
Maoripamborus fairburni
Mecodema spiniferum
Mecodema validum
Mecyclothorax ambiguus A
Mecyclothorax eplicatus
Mecyclothorax placens
Mecyclothorax rotundicollis
Nesamblyops subcaecus
Notagonum lawsoni
Notagonum submetallicum N
Parabaris atratus
Paratachys crypticola A
Pelodiaetodes prominens
Pentagonica vittipennis N
Pericompsus australis A
Platynus macropterus
Rhytisternus liopleurus A
Rhytisternus miser A
Scopodes edwardsii
Scopodes fossulatus
Scopodes multipunctatus
Syllectus anomalus
Tachys antarcticus
Tachys captus A
Triplosarus novaezelandiae
Zecillenus albescens

RI
57 taxa
E, 50; N, 1; A, 6; R, 0.

Actenonyx bembidioides
Allocinopus sculpticollis
Amarotypus edwardsii
Anchomenus xanthomelas
Anomotarus variegatus A
Aulacopodus brouni
Aulacopodus calathoides
Bembidion actuarium
Bembidion anchonoderus
Bembidion charile
Bembidion dehiscens
Bembidion maorinum levatum
Bembidion musae
Bembidion solitarium
Cicindela feredayi
Cicindela parryi
Cicindela tuberculata
Ctenognathus adamsi
Dicrochile cephalotes

Duvaliomimus watti
Euthenarus puncticollis
Gaioxenus pilipalpis
Haplanister crypticus A
Harpalus affinis A
Holcaspis dentifera
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis oedicnema
Holcaspis sinuiventris
Holcaspis vagepunctata
Hypharpax australis A
Mecodema crenaticolle
Mecodema dux
Mecodema florae
Mecodema simplex
Mecodema spiniferum
Mecyclothorax amplipennis amplipennis
Mecyclothorax eplicatus
Mecyclothorax rotundicollis
Megadromus capito
Megadromus turgidiceps
Megadromus vigil
Molopsida polita
Molopsida seriatoporus
Molopsida strenua
Nesamblyops oreobius
Notagonum lawsoni
Pentagonica vittipennis N
Pericompsus australis A
Plocamostethus planiusculus
Prosphodrus occultus
Prosphodrus waltoni
Rhytisternus miser A
Scopodes fossulatus
Scopodes pustulatus
Syllectus anomalus

TK
65 taxa
E, 55; N, 2; A, 8; R, 1.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus castaneus
Allocinopus sculpticollis
Allocinopus smithi
Amarotypus edwardsii
Anchomenus helmsi
Anomotarus variegatus A
Aulacopodus calathoides
Bembidion actuarium
Bembidion charile
Bembidion urewerense
Brullea antarctica
Cicindela parryi
Cicindela spilleri
Cicindela tuberculata
Clivina vagans A
Ctenognathus adamsi
Ctenognathus bidens
Ctenognathus crenatus
Ctenognathus lucifugus
Ctenognathus novaezelandiae
Demetrida lineella
Demetrida nasuta
Dicrochile cephalotes
Duvaliomimus styx
Euthenarus puncticollis
Gaioxenus pilipalpis
Haplanister crypticus A
Holcaspis dentifera
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis odontella
Holcaspis oedicnema
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus sharpi
Mecodema crenaticolle
Mecodema longicolle
Mecyclothorax amplipennis amplipennis
Megadromus capito
Megadromus turgidiceps
Molopsida polita
Molopsida pretiosa
Molopsida seriatoporus
Molopsida strenua
Nesamblyops oreobius
Notagonum lawsoni
Notagonum submetallicum N
Oopterus fulvipes R
Oopterus sobrinus
Parabaris atratus
Pericompsus australis A
Philophlaeus luculentus A
Plocamostethus planiusculus
Prosphodrus waltoni
Psegmatopterus politissimus
Rhytisternus miser A
Scopodes fossulatus
Scopodes multipunctatus
Scopodes pustulatus
Syllectus anomalus
Tachys antarcticus
Zolus atratus

TO
68 taxa
E, 60; N, 3; A, 5; R, 2.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus sculpticollis
Amarotypus edwardsii
Aulacopodus calathoides
Bembidion actuarium
Bembidion anchonoderus
Bembidion charile
Bembidion dehiscens
Bembidion maorinum levatum
Bembidion parviceps
Bembidion tairuense
Cicindela feredayi
Cicindela helmsi
Cicindela parryi
Cicindela spilleri
Cicindela tuberculata
Cicindela waiouraensis
Clivina basalis A
Clivina vagans A
Ctenognathus adamsi
Ctenognathus crenatus
Demetrida nasuta
Dicrochile cephalotes
Dicrochile cordicollis
Euthenarus puncticollis
Gaioxenus pilipalpis
Holcaspis dentifera
Holcaspis mordax
Holcaspis mucronata
Holcaspis oedicnema
Laemostenus complanatus A
Lecanomerus sharpi
Mecodema crenaticolle
Mecodema dux
Mecodema florae
Mecodema occiputale
Mecodema oconnori
Mecodema validum
Mecyclothorax amplipennis amplipennis
Mecyclothorax amplipennis labralis R
Mecyclothorax placens
Mecyclothorax rotundicollis
Megadromus capito
Megadromus vigil
Molopsida dubia
Molopsida phyllocharis R
Molopsida polita
Molopsida pretiosa
Molopsida seriatoporus
Molopsida strenua
Notagonum lawsoni
Notagonum submetallicum N

Pentagonica vittipennis [N]
Pericompsus australis [A]
Platynus macropterus
Plocamostethus planiusculus
Prosopogmus oodiformis [A]
Scopodes edwardsii
Scopodes fossulatus
Scopodes multipunctatus
Scopodes pustulatus
Selenochilus ruficornis
Syllectus anomalus
Tachys antarcticus
Zolus atratus
Zolus carinatus
Zolus femoralis

WA
61 taxa
E, 58; N, 1; A, 2; R, 2.

Actenonyx bembidioides
Allocinopus angustulus [R]
Allocinopus sculpticollis
Anomotarus variegatus [A]
Aulacopodus brouni
Bembidion actuarium
Bembidion anchonoderus
Bembidion callipeplum
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion maorinum levatum
Bembidion maorinum maorinum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion solitarium
Bembidion tairuense
Bembidion tekapoense
Bembidion urewerense
Brullea antarctica
Cicindela tuberculata
Ctenognathus adamsi
Demetrida nasuta
Diglymma clivinoides
Duvaliomimus styx
Duvaliomimus watti
Euthenarus puncticollis
Holcaspis mucronata
Holcaspis odontella
Holcaspis oedicnema
Holcaspis sinuiventris
Holcaspis vagepunctata
Laemostenus complanatus [A]
Mecodema longicolle
Mecodema oblongum
Mecodema oconnori
Mecodema simplex
Mecodema spiniferum
Mecodema sulcatum
Mecyclothorax amplipennis amplipennis
Mecyclothorax rotundicollis
Megadromus capito
Megadromus turgidiceps
Megadromus vigil
Molopsida cordipennis
Molopsida seriatoporus
Molopsida strenua
Molopsida sulcicollis
Notagonum lawsoni
Notagonum submetallicum [N]
Oopterus laevigatus [R]
Platynus macropterus
Plocamostethus planiusculus
Prosphodrus occultus
Psegmatopterus politissimus
Scopodes fossulatus
Scopodes multipunctatus
Scopodes pustulatus
Syllectus anomalus
Tachys antarcticus
Zabronothus rufipes

WI
70 taxa
E, 54; N, 3; A, 13; R, 0.

Actenonyx bembidioides
Allocinopus ocularius
Allocinopus sculpticollis
Amarotypus edwardsii
Anchomenus intermedius
Anomotarus illawarrae [A]
Anomotarus variegatus [A]
Aulacopodus brouni
Bembidion actuarium
Bembidion anchonoderus
Bembidion callipeplum
Bembidion charile
Bembidion granuliferum
Bembidion musae
Bembidion rotundicolle eustictum
Bembidion solitarium
Bembidion tairuense
Bembidion urewerense
Brullea antarctica
Cicindela feredayi
Cicindela parryi
Cicindela tuberculata
Clivina vagans [A]
Ctenognathus adamsi
Demetrida lineella
Demetrida nasuta
Dicrochile aterrima
Dicrochile cordicollis
Duvaliomimus styx
Duvaliomimus watti
Euthenarus puncticollis
Haplanister crypticus [A]
Harpalus affinis [A]
Holcaspis dentifera
Holcaspis mordax
Holcaspis mucronata
Holcaspis oedicnema
Holcaspis sinuiventris
Hypharpax australasiae [A]
Laemostenus complanatus [A]
Lecanomerus atriceps [A]
Lecanomerus sharpi
Lecanomerus verticalis [A]
Lecanomerus vestigialis [A]
Mecodema crenaticolle
Mecodema crenicolle
Mecodema occiputale
Mecyclothorax amplipennis amplipennis
Mecyclothorax rotundicollis
Megadromus capito
Megadromus turgidiceps
Molopsida carbonaria
Molopsida seriatoporus
Molopsida strenua
Notagonum lawsoni
Notagonum submetallicum [N]
Oopterus frontalis
Oopterus nigritulus
Paratachys crypticola [A]
Pentagonica vittipennis [N]
Pericompsus australis [A]
Physolaesthus insularis [N]
Plocamostethus planiusculus
Prosphodrus waltoni
Psegmatopterus politissimus
Rhytisternus miser [A]
Scopodes fossulatus
Syllectus anomalus
Triplosarus novaezelandiae
Zeopoecilus calcaratus

WN
121 taxa
E, 101; N, 4; A, 16; R, 5.

Actenonyx bembidioides
Agonocheila antipodum [N]
Allocinopus ocularius
Allocinopus sculpticollis
Allocinopus smithi
Amarotypus edwardsii
Anchomenus helmsi
Anchomenus intermedius
Anchomenus sandageri
Anchomenus xanthomelas
Anisodactylus binotatus [A]

Anomotarus illawarrae [A]
Anomotarus variegatus [A]
Aulacopodus brouni
Bembidion actuarium
Bembidion anchonoderus
Bembidion callipeplum
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion maorinum levatum
Bembidion maorinum maorinum
Bembidion musae
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion rotundicolle rotundicolle
Bembidion solitarium
Bembidion tairuense
Bembidion tekapoense
Brullea antarctica
Cicindela feredayi
Cicindela parryi
Cicindela tuberculata
Clivina vagans [A]
Ctenognathus actochares
Ctenognathus adamsi
Ctenognathus bidens
Ctenognathus novaezelandiae
Ctenognathus pictonensis
Ctenognathus simmondsi [R]
Demetrida lineella
Demetrida nasuta
Dicrochile aterrima
Dicrochile cordicollis
Diglymma clivinoides
Duvaliomimus watti
Euthenarus puncticollis
Gaioxenus pilipalpis
Haplanister crypticus [A]
Harpalus affinis [A]
Holcaspis brouniana
Holcaspis hispida
Holcaspis intermittens
Holcaspis mordax
Holcaspis mucronata
Holcaspis oedicnema
Holcaspis sinuiventris
Holcaspis vagepunctata
Holcaspis vexata [R]
Hypharpax abstrusus
Hypharpax australasiae [A]
Hypharpax australis [A]
Laemostenus complanatus [A]
Lecanomerus atriceps [A]
Lecanomerus sharpi
Lecanomerus verticalis [A]
Lecanomerus vestigialis [A]
Mecodema allani
Mecodema hector [R]
Mecodema oblongum
Mecodema oconnori
Mecodema quoinense [R]
Mecodema simplex
Mecodema spiniferum
Mecodema sulcatum
Mecyclothorax amplipennis amplipennis
Mecyclothorax rotundicollis
Megadromus capito
Megadromus enysi
Megadromus turgidiceps
Megadromus vigil
Molopsida antarctica
Molopsida carbonaria
Molopsida cordipennis
Molopsida dubia
Molopsida marginalis [R]
Molopsida polita
Molopsida strenua
Molopsida sulcicollis
Nesamblyops oreobius
Notagonum feredayi
Notagonum lawsoni
Notagonum submetallicum [N]
Oopterus frontalis
Oopterus laevicollis
Oopterus nigritulus
Oopterus sobrinus
Oregus aereus
Paratachys crypticola [A]
Pentagonica vittipennis [N]
Pericompsus australis [A]
Philophlaeus luculentus [A]
Physolaesthus insularis [N]
Platynus macropterus
Plocamostethus planiusculus
Prosphodrus occultus
Psegmatopterus politissimus
Rhytisternus miser [A]
Scopodes edwardsii
Scopodes fossulatus
Scopodes multipunctatus
Scopodes prasinus
Scopodes pustulatus
Selenochilus ruficornis
Syllectus anomalus
Tachys antarcticus
Triplosarus novaezelandiae
Zabronothus rufipes
Zolus carinatus
Zolus femoralis
Zolus helmsi

WO
73 taxa
E, 60; N, 2; A, 11; R, 3.

Actenonyx bembidioides
Agonocheila antipodum [N]
Amarotypus edwardsii
Anomotarus variegatus [A]
Aulacopodus calathoides
Aulacopodus sharpianus
Bembidion actuarium
Bembidion anchonoderus
Bembidion callipeplum
Bembidion maorinum levatum
Bembidion musae
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Bembidion tekapoense
Brullea antarctica
Cicindela parryi
Cicindela perhispida campbelli
Cicindela spilleri
Cicindela tuberculata
Clivina vagans [A]
Ctenognathus bidens
Ctenognathus cardiophorus
Ctenognathus crenatus
Ctenognathus lucifugus
Ctenognathus novaezelandiae
Demetrida nasuta
Dicrochile cephalotes
Dicrochile cordicollis
Duvaliomimus mayae [R]
Duvaliomimus styx
Euthenarus puncticollis
Gaioxenus pilipalpis
Haplanister crypticus [A]
Holcaspis hispida
Holcaspis mordax
Holcaspis mucronata
Holcaspis oedicnema
Holcaspis sinuiventris
Holcaspis vagepunctata
Hypharpax australis [A]
Laemostenus complanatus [A]
Lecanomerus sharpi
Lecanomerus verticalis [A]
Lecanomerus vestigialis [A]
Mecodema crenaticolle
Mecodema occiputale
Mecodema spiniferum
Mecyclothorax amplipennis amplipennis
Mecyclothorax placens
Mecyclothorax rotundicollis
Megadromus capito
Molopsida polita

Molopsida seriatoporus
Molopsida strenua
Neanops caecus R
Neanops pritchardi R
Nesamblyops oreobius
Notagonum lawsoni
Notagonum submetallicum N
Parabaris atratus
Paratachys crypticola A
Pericompsus australis A
Plocamostethus planiusculus
Prosopogmus oodiformis A
Prosphodrus waltoni
Psegmatopterus politissimus
Rhytisternus miser A
Scopodes edwardsii
Scopodes fossulatus
Scopodes multipunctatus
Syllectus anomalus
Tachys antarcticus

South Island

BR

88 taxa
E, 84; N, 4; A, 0; R, 4.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus sculpticollis
Amarotypus edwardsii
Anchomenus arnaudensis R
Anchomenus helmsi
Bembidion anchonoderus
Bembidion chalceipes
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion hokitikense
Bembidion orbiferum
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion solitarium
Bembidion tairuense
Bembidion tekapoense
Bembidion wanakense
Brullea antarctica
Cicindela helmsi
Cicindela latecincta
Cicindela parryi
Demetrida dieffenbachii
Demetrida lineella
Demetrida nasuta
Dicrochile flavipes
Diglymma clivinoides
Diglymma marginale
Duvaliomimus walkeri
Erebotrechus infernus R
Euthenarus puncticollis
Holcaspis elongella
Holcaspis oedicnema
Lecanomerus obesulus
Mecodema allani
Mecodema costellum gordonense
Mecodema costellum obesum
Mecodema crenicolle
Mecodema ducale
Mecodema florae
Mecodema fulgidum
Mecodema impressum
Mecodema integratum
Mecodema metallicum
Mecodema punctatum
Mecodema rugiceps rugiceps
Mecyclothorax rotundicollis
Megadromus lobipes
Molopsida alpinalis
Molopsida puncticollis
Molopsida robusta
Molopsida seriatoporus
Molopsida simulans R
Neoferonia ardua
Neoferonia integrata
Neoferonia prasignis
Nesamblyops oreobius
Nesamblyops subcaecus
Notagonum feredayi
Notagonum submetallicum N
Oopterus laeviventris
Oopterus latipennis
Oopterus lewisi
Pentagonica vittipennis N
Physolaesthus insularis N
Platynus macropterus
Plocamostethus planiusculus
Psegmatopterus politissimus
Scopodes cognatus
Scopodes edwardsii
Scopodes fossulatus
Scopodes laevigatus
Scopodes levistriatus
Scopodes multipunctatus
Scopodes prasinus
Scopodes versicolor
Syllectus anomalus
Syllectus magnus
Syllectus spelaeus
Tachys cavelli R
Tachys latipennis
Zeanillus pallidus
Zeopoecilus putus
Zolus atratus
Zolus femoralis
Zolus helmsi
Zolus labralis

CO

83 taxa
E, 78; N, 3; A, 2; R, 4.

Actenonyx bembidioides
Agonocheila antipodum N
Amarotypus edwardsii
Anchomenus integratus
Anchomenus otagoensis
Bembidion anchonoderus
Bembidion chalceipes
Bembidion charile
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion musae
Bembidion parviceps
Bembidion rotundicolle rotundicolle
Bembidion tairuense
Bembidion tekapoense
Cicindela dunedensis
Cicindela feredayi
Cicindela latecincta
Cicindela parryi
Demetrida moesta atra
Demetrida moesta moesta
Demetrida sinuata sinuata
Dicrochile aterrima
Dicrochile novaezelandiae
Diglymma obtusum
Euthenarus puncticollis
Holcaspis bathana R
Holcaspis catenulata
Holcaspis egregialis
Holcaspis impigra
Holcaspis implica
Holcaspis ovatella
Holcaspis placida
Holcaspis sternalis
Hypharpax antarcticus
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus fuliginosus
Lecanomerus latimanus
Mecodema chiltoni
Mecodema elongatum
Mecodema femorale
Mecodema huttense
Mecodema impressum
Mecodema laeviceps R
Mecodema lucidum
Mecodema minax
Mecodema morio
Mecodema politanum
Mecodema punctatum
Mecodema rectolineatum
Mecodema sculpturatum puncticolle
Mecyclothorax rotundicollis
Megadromus alternus

Megadromus bullatus
Megadromus curtulus
Megadromus haplopus
Megadromus memes [R]
Megadromus sandageri
Megadromus vagans
Megadromus virens
Metaglymma tibiale
Molopsida cincta
Neoferonia edax [R]
Neoferonia procerula
Notagonum feredayi
Notagonum submetallicum [N]
Oopterus pygmeatus
Oregus aereus
Pelodiaetus lewisi
Pelodiaetus sulcatipennis
Pentagonica vittipennis [N]
Platynus macropterus
Scopodes basalis
Scopodes bryophilus
Scopodes cognatus
Scopodes edwardsii
Scopodes fossulatus
Scopodes levistriatus
Scopodes prasinus
Scopodes versicolor
Zeanillus pallidus
Zeanillus phyllobius

DN
79 taxa
E, 74; N, 3; A, 2; R, 8.

Agonocheila antipodum [N]
Anchomenus oreobius [R]
Anchomenus otagoensis
Anisodactylus binotatus [A]
Bembidion anchonoderus
Bembidion charile
Bembidion hokitikense
Bembidion musae
Bembidion parviceps
Bembidion rotundicolle rotundicolle
Bembidion tairuense
Cerabilia maori
Cicindela dunedensis
Cicindela feredayi
Cicindela latecincta
Cicindela parryi
Demetrida moesta atra
Demetrida moesta moesta
Demetrida nasuta
Dicrochile nitida [R]
Dicrochile novaezelandiae
Diglymma obtusum
Holcaspis angustula
Holcaspis catenulata
Holcaspis egregialis
Holcaspis impigra
Holcaspis ovatella
Holcaspis placida
Holcaspis sternalis
Holcaspis subaenea [R]
Hypharpax antarcticus
Laemostenus complanatus [A]
Lecanomerus fuliginosus
Lecanomerus latimanus
Mecodema alternans alternans
Mecodema impressum
Mecodema litoreum
Mecodema lucidum
Mecodema minax
Mecodema morio
Mecodema punctatum
Mecodema rectolineatum
Mecodema sculpturatum puncticolle
Mecodema sculpturatum sculpturatum
Mecyclothorax rotundicollis
Megadromus asperatus [R]
Megadromus curtulus
Megadromus fultoni [R]
Megadromus guerinii
Megadromus haplopus
Megadromus meritus
Megadromus vagans
Megadromus virens
Metaglymma aberrans
Metaglymma tibiale
Molopsida oxygona
Molopsida simplex [R]
Neoferonia fossalis
Neoferonia procerula
Nesamblyops subcaecus
Notagonum feredayi
Notagonum submetallicum [N]
Oopterus patulus [R]
Oregus aereus
Oregus inaequalis
Pelodiaetus lewisi
Pelodiaetus sulcatipennis
Pentagonica vittipennis [N]
Platynus macropterus
Scopodes basalis
Scopodes bryophilus
Scopodes cognatus
Scopodes edwardsii
Scopodes fossulatus
Syllectus anomalus
Triplosarus novaezelandiae
Zeanillus pallidus
Zeanillus phyllobius
Zecillenus chalmeri [R]

FD
59 taxa
E, 55; N, 3; A, 1; R, 4.

Actenonyx bembidioides
Agonocheila antipodum [N]
Amarotypus edwardsii
Anchomenus integratus
Anchomenus libitus [R]
Anchomenus otagoensis
Bembidion anchonoderus
Bembidion chalceipes
Bembidion charile
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion orbiferum
Bembidion parviceps
Bembidion tairuense
Bembidion wanakense
Brullea antarctica
Cicindela feredayi
Cicindela helmsi
Cicindela parryi
Demetrida nasuta
Dicrochile insignis
Diglymma clivinoides
Diglymma marginale
Diglymma obtusum
Holcaspis catenulata
Holcaspis impigra
Holcaspis placida
Holcaspis sternalis
Laemostenus complanatus [A]
Mecodema bullatum
Mecodema costipenne
Mecodema femorale
Mecodema gourlayi [R]
Mecodema huttense
Mecodema impressum
Mecodema laterale
Mecodema litoreum
Mecodema lucidum
Mecodema rex
Mecodema rugiceps rugiceps
Mecodema striatum [R]
Mecyclothorax rotundicollis
Megadromus bullatus
Megadromus sandageri
Neoferonia fossalis
Neoferonia procerula
Neoferonia prolixa
Nesamblyops subcaecus
Notagonum feredayi
Notagonum submetallicum [N]
Oopterus pygmeatus
Oregus aereus
Pentagonica vittipennis [N]
Platynus macropterus

Scopodes edwardsii
Scopodes laevigatus
Scopodes prasinus
Scopodes versicolor
Taenarthrus philpotti R

KA
44 taxa
E, 40; N, 1; A, 3; R, 1.

Actenonyx bembidioides
Bembidion anchonoderus
Bembidion brullei A
Bembidion chalceipes
Bembidion granuliferum
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion musae
Bembidion rotundicolle rotundicolle
Cerabilia aphela
Cerabilia major
Cicindela austromontana
Cicindela feredayi
Cicindela hamiltoni
Cicindela helmsi
Cicindela latecincta
Demetrida dieffenbachii
Dicrochile thoracica
Dicrochile whitei
Holcaspis angustula
Holcaspis brouniana
Holcaspis hudsoni
Holcaspis implica
Holcaspis oedicnema
Holcaspis tripunctata
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus fuliginosus
Mecodema costellum lewisi
Mecodema costellum obesum
Mecodema fulgidum
Mecodema sulcatum
Megadromus rectalis
Megadromus wallacei R
Metaglymma moniliferum
Molopsida antarctica
Molopsida sulcicollis
Notagonum feredayi
Notagonum submetallicum N
Platynus macropterus
Plocamostethus planiusculus
Psegmatopterus politissimus
Scopodes fossulatus
Syllectus anomalus

MB
74 taxa
E, 68; N, 3; A, 3; R, 0.

Actenonyx bembidioides
Agonocheila antipodum N
Amarotypus edwardsii
Anchomenus integratus
Anomotarus illawarrae A
Bembidion anchonoderus
Bembidion chalceipes
Bembidion dehiscens
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion musae
Bembidion parviceps
Bembidion tekapoense
Cerabilia aphela
Cerabilia major
Cerabilia oblonga
Cicindela austromontana
Cicindela dunedensis
Cicindela feredayi
Cicindela helmsi
Cicindela latecincta
Cicindela parryi
Cicindela waiouraensis
Ctenognathus adamsi
Ctenognathus pictonensis
Demetrida dieffenbachii
Demetrida lineella
Demetrida nasuta
Demetrida sinuata sinuata
Dicrochile flavipes
Dicrochile thoracica
Dicrochile whitei
Diglymma clivinoides
Diglymma marginale
Holcaspis brouniana
Holcaspis hudsoni
Holcaspis oedicnema
Holcaspis tripunctata
Hypharpax abstrusus
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus obesulus
Mecodema brittoni
Mecodema costellum obesum
Mecodema crenicolle
Mecodema fulgidum
Mecodema rugiceps anomalum
Mecodema rugiceps rugiceps
Mecodema sulcatum
Mecyclothorax rotundicollis
Megadromus compressus
Megadromus rectalis
Megadromus rectangulus
Molopsida alpinalis
Molopsida antarctica
Molopsida seriatoporus
Molopsida sulcicollis
Nesamblyops oreobius
Nesamblyops subcaecus
Notagonum feredayi
Notagonum submetallicum N
Oregus aereus
Pentagonica vittipennis N
Platynus macropterus
Plocamostethus planiusculus
Scopodes fossulatus
Scopodes prasinus
Scopodes pustulatus
Scopodes versicolor
Selenochilus syntheticus
Syllectus anomalus
Tachys antarcticus
Zeopoecilus calcaratus
Zeopoecilus putus

MC
117 taxa
E, 106; N, 3; A, 8; R, 17.

Actenonyx bembidioides
Agonocheila antipodum N
Amarotypus edwardsii
Anchomenus helmsi
Anchomenus integratus
Anchomenus otagoensis
Anisodactylus binotatus A
Argutor pantomelas R
Aulacopodus maorinus R
Bembidion brullei A
Bembidion chalceipes
Bembidion charile
Bembidion dehiscens
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion musae
Bembidion parviceps
Bembidion rotundicolle rotundicolle
Bembidion tairuense
Bembidion tekapoense
Bembidion wanakense
Brullea antarctica
Cerabilia major
Cerabilia oblonga
Cicindela austromontana
Cicindela dunedensis
Cicindela feredayi
Cicindela latecincta
Cicindela parryi
Clivina vagans A
Demetrida dieffenbachii
Demetrida lateralis
Demetrida nasuta

Dicrochile aterrima
Dicrochile flavipes
Dicrochile rugicollis R
Dicrochile subopaca R
Dicrochile thoracica
Dicrochile whitei
Diglymma clivinoides
Euthenarus brevicollis
Euthenarus puncticollis
Haplanister crypticus A
Holcaspis algida R
Holcaspis angustula
Holcaspis delator
Holcaspis elongella
Holcaspis falcis
Holcaspis hudsoni
Holcaspis implica
Holcaspis intermittens
Holcaspis odontella
Holcaspis oedicnema
Holcaspis sternalis
Holcaspis suteri R
Hypharpax abstrusus
Hypharpax antarcticus
Hypharpax australasiae A
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus atriceps A
Lecanomerus fuliginosus
Lecanomerus incertus R
Lecanomerus latimanus
Lecanomerus obesulus
Lecanomerus pallipes R
Lecanomerus sharpi
Mecodema allani
Mecodema costellum lewisi
Mecodema fulgidum
Mecodema howitti R
Mecodema huttense
Mecodema oregoides R
Mecodema rugiceps rugiceps
Mecyclothorax rotundicollis
Megadromus alternus
Megadromus antarcticus
Megadromus enysi
Megadromus guerinii
Megadromus lobipes
Megadromus rectalis
Megadromus rectangulus
Megadromus temukensis
Metaglymma aberrans
Metaglymma moniliferum
Molopsida debilis
Molopsida diversa
Molopsida halli R
Molopsida puncticollis
Molopsida sulcicollis
Neoferonia procerula
Notagonum feredayi
Notagonum submetallicum N
Oopterus laevicollis
Oopterus laeviventris
Oopterus latifossus R
Oopterus latipennis
Oopterus puncticeps R
Oregus aereus
Pentagonica vittipennis N
Platynus macropterus
Scopodes edwardsii
Scopodes fossulatus
Scopodes laevigatus
Scopodes levistriatus
Scopodes prasinus
Scopodes versicolor
Selenochilus fallax R
Selenochilus frontalis R
Selenochilus piceus R
Selenochilus syntheticus
Syllectus anomalus
Triplosarus novaezelandiae
Zabronothus striatulus
Zeanillus phyllobius
Zeanillus punctiger R
Zolus helmsi

MK
52 taxa
E, 50; N, 1; A, 1; R, 1.

Actenonyx bembidioides
Anchomenus integratus
Anchomenus macrocoelis
Anchomenus otagoensis
Bembidion anchonoderus
Bembidion chalceipes
Bembidion charile
Bembidion granuliferum
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion orbiferum
Bembidion rotundicolle rotundicolle
Bembidion tairuense
Bembidion tekapoense
Bembidion wanakense
Cerabilia major
Cerabilia maori
Cicindela dunedensis
Cicindela feredayi
Cicindela latecincta
Demetrida dieffenbachii
Demetrida lateralis
Demetrida sinuata sinuata
Dicrochile aterrima
Diglymma clivinoides
Duvaliomimus brittoni
Holcaspis angustula
Holcaspis delator
Holcaspis falcis
Holcaspis ohauensis R
Holcaspis sternalis
Hypharpax antarcticus
Hypharpax australis A
Mecodema lucidum
Mecodema politanum
Mecodema rectolineatum
Mecyclothorax rotundicollis
Megadromus alternus
Megadromus bullatus
Megadromus temukensis
Metaglymma aberrans
Molopsida cincta
Notagonum feredayi
Notagonum submetallicum N
Oopterus basalis
Oregus aereus
Scopodes edwardsii
Scopodes fossulatus
Scopodes laevigatus
Scopodes prasinus
Scopodes versicolor
Zolus femoralis

NC
69 taxa
E, 66; N, 2; A, 1; R, 1.

Actenonyx bembidioides
Agonocheila antipodum N
Amarotypus edwardsii
Bembidion anchonoderus
Bembidion chalceipes
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion maorinum maorinum
Bembidion musae
Bembidion parviceps
Bembidion rotundicolle rotundicolle
Bembidion tairuense
Bembidion tekapoense
Bembidion wanakense
Cerabilia major
Cerabilia oblonga
Cicindela austromontana
Cicindela dunedensis
Cicindela feredayi
Cicindela helmsi
Cicindela latecincta
Cicindela parryi
Demetrida dieffenbachii
Demetrida nasuta
Dicrochile flavipes
Dicrochile thoracica
Dicrochile whitei

Diglymma clivinoides
Duvaliomimus walkeri
Holcaspis angustula
Holcaspis brevicula R
Holcaspis elongella
Holcaspis falcis
Holcaspis hudsoni
Holcaspis intermittens
Hypharpax abstrusus
Hypharpax antarcticus
Laemostenus complanatus A
Mecodema brittoni
Mecodema fulgidum
Mecodema rugiceps rugiceps
Mecodema sulcatum
Mecyclothorax rotundicollis
Megadromus antarcticus
Megadromus lobipes
Megadromus rectalis
Megadromus rectangulus
Metaglymma moniliferum
Molopsida debilis
Molopsida diversa
Molopsida puncticollis
Molopsida sulcicollis
Nesamblyops oreobius
Nesamblyops subcaecus
Notagonum feredayi
Oopterus laeviventris
Oopterus latipennis
Oopterus parvulus
Oregus aereus
Physolaesthus insularis N
Platynus macropterus
Scopodes edwardsii
Scopodes laevigatus
Scopodes prasinus
Scopodes versicolor
Selenochilus syntheticus
Zabronothus striatulus
Zolus helmsi

NN
126 taxa
E, 115; N, 3; A, 11; R, 19.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus sculpticollis
Amarotypus edwardsii
Anchomenus helmsi
Anchomenus macrocoelis
Anchomenus sandageri
Anomotarus variegatus A
Bembidion anchonoderus
Bembidion brullei A
Bembidion dehiscens
Bembidion granuliferum
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion musae
Bembidion orbiferum
Bembidion parviceps
Bembidion tairuense
Bembidion tekapoense
Bembidion townsendi R
Bembidion wanakense
Brullea antarctica
Cicindela helmsi
Cicindela latecincta
Cicindela parryi
Cicindela tuberculata
Clivina basalis A
Clivina vagans A
Ctenognathus actochares
Ctenognathus pictonensis
Demetrida lineella
Demetrida nasuta
Dicrochile flavipes
Diglymma clivinoides
Diglymma marginale
Duvaliomimus lamberti R
Duvaliomimus orpheus R
Duvaliomimus pluto R
Duvaliomimus walkeri
Euthenarus brevicollis
Euthenarus puncticollis
Haplanister crypticus A
Holcaspis hudsoni
Holcaspis oedicnema
Hygranillus kuscheli R
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus atriceps A
Lecanomerus obesulus
Lecanomerus verticalis A
Lecanomerus vestigialis A
Mecodema angustulum R
Mecodema costellum gordonense
Mecodema costellum obesum
Mecodema crenaticolle
Mecodema crenicolle
Mecodema ducale
Mecodema dunense R
Mecodema florae
Mecodema fulgidum
Mecodema integratum
Mecodema longicolle
Mecodema metallicum
Mecodema nitidum R
Mecodema pavidum
Mecodema proximum
Mecodema pulchellum R
Mecodema punctatum
Mecodema rugiceps anomalum
Mecodema rugiceps rugiceps
Mecodema strictum R
Mecodema sulcatum
Mecyclothorax rotundicollis
Megadromus lobipes
Megadromus rectalis
Molopsida alpinalis
Molopsida antarctica
Molopsida fuscipes R
Molopsida pretiosa
Molopsida puncticollis
Molopsida robusta
Molopsida seriatoporus
Neoferonia ardua
Neoferonia prasignis
Neoferonia truncatula R
Nesamblyops oreobius
Nesamblyops subcaecus
Notagonum feredayi
Notagonum submetallicum N
Oopterus collaris R
Oopterus latipennis
Oopterus pallidipes R
Oopterus parvulus
Oopterus probus R
Oregus aereus
Pelodiaetus lewisi
Pentagonica vittipennis N
Pericompsus australis A
Pholeodytes cerberus R
Pholeodytes townsendi R
Platynus macropterus
Plocamostethus planiusculus
Psegmatopterus politissimus
Scopodes cognatus
Scopodes edwardsii
Scopodes fossulatus
Scopodes laevigatus
Scopodes levistriatus
Scopodes multipunctatus
Scopodes prasinus
Scopodes pustulatus
Scopodes versicolor
Scototrechus orcinus R
Syllectus anomalus
Syllectus magnus
Syllectus spelaeus
Tachys antarcticus
Tachys latipennis
Triplosarus novaezelandiae
Zecillenus tillyardi R
Zeopoecilus calcaratus
Zeopoecilus putus
Zolus atratus
Zolus femoralis
Zolus helmsi
Zolus labralis

OL
73 taxa
E, 68; N, 3; A, 2; R, 11.

Actenonyx bembidioides
Agonocheila antipodum N
Amarotypus edwardsii
Anchomenus macrocoelis
Anchomenus otagoensis
Anisodactylus binotatus A
Bembidion anchonoderus
Bembidion chalceipes
Bembidion maorinum maorinum
Bembidion orbiferum
Bembidion rotundicolle rotundicolle
Bembidion tairuense
Bembidion tekapoense
Bembidion wanakense
Cicindela feredayi
Cicindela helmsi
Cicindela latecincta
Cicindela parryi
Demetrida lateralis
Demetrida moesta atra
Demetrida moesta moesta
Demetrida nasuta
Demetrida sinuata maculata R
Demetrida sinuata sinuata
Dicrochile aterrima
Dicrochile insignis
Diglymma clivinoides
Diglymma obtusum
Duvaliomimus brittoni
Holcaspis egregialis
Holcaspis impigra
Holcaspis implica
Holcaspis ovatella
Holcaspis placida
Holcaspis sternalis
Laemostenus complanatus A
Lecanomerus obesulus
Mecodema bullatum
Mecodema chiltoni
Mecodema costipenne
Mecodema elongatum
Mecodema huttense
Mecodema impressum
Mecodema laterale
Mecodema lucidum
Mecodema politanum
Mecodema punctatum
Mecodema rugiceps rugiceps
Mecyclothorax rotundicollis
Megadromus bullatus
Megadromus sandageri
Molopsida convexa R
Molopsida fovealis R
Molopsida longula R
Molopsida optata R
Molopsida propinqua R
Neoferonia procerula
Neoferonia prolixa
Notagonum feredayi
Notagonum submetallicum N
Oopterus basalis
Oopterus minor R
Oopterus pygmeatus
Oopterus suavis R
Oregus aereus
Pentagonica vittipennis N
Scopodes edwardsii
Scopodes fossulatus
Scopodes prasinus
Scopodes versicolor
Taenarthrus capito R
Zolus ocularius R
Zolus subopacus R

SC
44 taxa
E, 39; N, 2; A, 3; R, 0.

Actenonyx bembidioides
Agonocheila antipodum N
Anisodactylus binotatus A
Bembidion anchonoderus
Bembidion chalceipes
Bembidion charile
Bembidion granuliferum
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion musae
Bembidion rotundicolle rotundicolle
Bembidion tairuense
Cicindela austromontana
Cicindela dunedensis
Cicindela feredayi
Cicindela helmsi
Cicindela latecincta
Demetrida dieffenbachii
Holcaspis angustula
Holcaspis delator
Holcaspis elongella
Holcaspis implica
Holcaspis oedicnema
Holcaspis ovatella
Holcaspis sternalis
Hypharpax australis A
Laemostenus complanatus A
Mecodema brittoni
Mecodema fulgidum
Mecodema huttense
Mecodema rectolineatum
Mecyclothorax rotundicollis
Megadromus alternus
Megadromus antarcticus
Megadromus guerinii
Megadromus temukensis
Megadromus virens
Metaglymma aberrans
Metaglymma moniliferum
Molopsida antarctica
Notagonum submetallicum N
Oregus aereus
Scopodes fossulatus
Scopodes laevigatus

SD
62 taxa
E, 53; N, 3; A, 6; R, 3.

Actenonyx bembidioides
Agonocheila antipodum N
Allocinopus sculpticollis
Amarotypus edwardsii
Anomotarus variegatus A
Bembidion parviceps
Bembidion rotundicolle eustictum
Bembidion tairuense
Brullea antarctica
Cicindela latecincta
Cicindela parryi
Cicindela tuberculata
Clivina basalis A
Clivina vagans A
Ctenognathus adamsi
Ctenognathus pictonensis
Demetrida lineella
Demetrida nasuta
Dicrochile flavipes
Diglymma clivinoides
Euthenarus puncticollis
Holcaspis brouniana
Holcaspis oedicnema
Holcaspis tripunctata
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus atriceps A
Mecodema costellum costellum R
Mecodema costellum gordonense
Mecodema crenicolle
Mecodema oblongum
Mecodema proximum
Mecodema punctellum R
Mecodema rugiceps anomalum
Mecodema sulcatum
Mecyclothorax rotundicollis
Megadromus bucolicus R
Megadromus compressus
Megadromus rectangulus
Molopsida alpinalis
Molopsida antarctica
Molopsida robusta
Molopsida seriatoporus

Molopsida sulcicollis
Nesamblyops oreobius
Nesamblyops subcaecus
Notagonum feredayi
Notagonum lawsoni
Notagonum submetallicum [N]
Pentagonica vittipennis [N]
Platynus macropterus
Plocamostethus planiusculus
Scopodes fossulatus
Scopodes pustulatus
Syllectus anomalus
Tachys antarcticus
Tachys latipennis
Triplosarus novaezelandiae
Zeopoecilus calcaratus
Zeopoecilus putus
Zolus atratus
Zolus helmsi

SL
63 taxa
E, 59; N, 2; A, 2; R, 4.

Actenonyx bembidioides
Agonocheila antipodum [N]
Amarotypus edwardsii
Anchomenus otagoensis
Anchomenus sophronitis [R]
Bembidion rotundicolle rotundicolle
Cicindela latecincta
Cicindela parryi
Clivina basalis [A]
Ctenognathus littorellus [R]
Demetrida nasuta
Dicrochile novaezelandiae
Diglymma clivinoides
Diglymma obtusum
Euthenarus puncticollis
Holcaspis catenulata
Holcaspis egregialis
Holcaspis impigra
Holcaspis implica
Holcaspis ovatella
Holcaspis placida
Holcaspis sternalis
Laemostenus complanatus [A]
Lecanomerus fuliginosus
Mecodema alternans alternans
Mecodema bullatum
Mecodema costipenne
Mecodema elongatum
Mecodema impressum
Mecodema infimate [R]
Mecodema litoreum
Mecodema lucidum
Mecodema minax
Mecodema morio
Mecodema punctatum
Mecodema rex
Mecodema sculpturatum puncticolle
Mecodema sculpturatum sculpturatum
Mecyclothorax rotundicollis
Megadromus bullatus
Megadromus haplopus
Megadromus meritus
Megadromus sandageri
Metaglymma tibiale
Molopsida cincta
Molopsida oxygona
Molopsida southlandica [R]
Neoferonia fossalis
Neoferonia procerula
Neoferonia straneoi
Nesamblyops subcaecus
Notagonum feredayi
Notagonum submetallicum [N]
Oopterus pygmeatus
Oregus aereus
Oregus inaequalis
Platynus macropterus
Scopodes edwardsii
Scopodes fossulatus
Scopodes prasinus
Scopodes versicolor
Zeanillus pallidus
Zolus subopacus

WD
67 taxa
E, 63; N, 3; A, 1; R, 0.

Actenonyx bembidioides
Agonocheila antipodum [N]
Allocinopus sculpticollis
Amarotypus edwardsii
Anchomenus helmsi
Anchomenus macrocoelis
Bembidion anchonoderus
Bembidion chalceipes
Bembidion charile
Bembidion dehiscens
Bembidion granuliferum
Bembidion hokitikense
Bembidion maorinum maorinum
Bembidion orbiferum
Bembidion parviceps
Bembidion tairuense
Bembidion tekapoense
Bembidion wanakense
Brullea antarctica
Cicindela helmsi
Cicindela parryi
Demetrida dieffenbachii
Demetrida nasuta
Dicrochile flavipes
Dicrochile insignis
Diglymma clivinoides
Duvaliomimus walkeri
Euthenarus puncticollis
Holcaspis impigra
Holcaspis oedicnema
Laemostenus complanatus [A]
Lecanomerus obesulus
Mecodema allani
Mecodema bullatum
Mecodema laterale
Mecodema lucidum
Mecodema metallicum
Mecodema rugiceps rugiceps
Mecodema sculpturatum puncticolle
Mecodema sculpturatum sculpturatum
Mecyclothorax rotundicollis
Megadromus enysi
Megadromus lobipes
Molopsida alpinalis
Molopsida diversa
Molopsida puncticollis
Molopsida seriatoporus
Neoferonia ardua
Neoferonia integrata
Nesamblyops oreobius
Notagonum feredayi
Oopterus laeviventris
Oopterus latipennis
Oopterus lewisi
Pentagonica vittipennis [N]
Physolaesthus insularis [N]
Platynus macropterus
Scopodes edwardsii
Scopodes laevigatus
Scopodes prasinus
Scopodes pustulatus
Scopodes versicolor
Syllectus anomalus
Tachys latipennis
Triplosarus novaezelandiae
Zolus femoralis
Zolus helmsi

Stewart Island
17 taxa
E, 16; N, 1; A, 0; R, 3.

Amarotypus edwardsii
Bembidion musae
Bembidion stewartense [R]
Bembidion tekapoense
Cicindela parryi
Diglymma obtusum
Holcaspis sternalis
Holcaspis stewartensis [R]
Kenodactylus audouini [N]
Mecodema alternans alternans

Mecodema femorale
Mecodema infimate
Mecodema litoreum
Megadromus bullatus
Megadromus meritus
Triplosarus novaezelandiae
Zecillenus embersoni R

Offshore Islands

AN
2 taxa
E, 1; N, 1; A, 0; R, 0.

Kenodactylus audouini N
Oopterus clivinoides

AU
8 taxa
E, 6; N, 1; A, 1; R, 5.

Bembidion brullei A
Calathosoma rubromarginatum R
Kenodactylus audouini N
Loxomerus brevis R
Loxomerus huttoni R
Loxomerus nebrioides R
Oopterus clivinoides
Oopterus plicaticollis R

BO
2 taxa
E, 2; N, 0; A, 0; R, 1.

Bountya insularis R
Diglymma castigatum

CA
4 taxa
E, 2; N, 1; A, 1; R, 1.

Kenodactylus audouini N
Laemostenus complanatus A
Oopterus clivinoides
Oopterus marrineri R

CH
15 taxa
E, 9; N, 2; A, 3; R, 2.

Allocinopus latitarsis R
Bembidion rotundicolle rotundicolle
Euthenarus brevicollis
Haplanister crypticus A
Hypharpax australis A
Laemostenus complanatus A
Lecanomerus fuliginosus
Mecodema alternans alternans
Mecyclothorax rotundicollis
Megadromus antarcticus (not established)
Notagonum chathamense R
Notagonum submetallicum N
Pentagonica vittipennis N
Scopodes edwardsii
Zecillenus albescens

KE
1 taxon
E, 1; N, 0; A, 0; R, 0.

Mecyclothorax rotundicollis

SN
6 taxa
E, 5; N, 1; A, 0; R, 3.

Diglymma castigatum
Kenodactylus audouini N
Mecodema alternans hudsoni R
Oopterus clivinoides
Oopterus strenuus R
Synteratus ovalis R

TH
6 taxa
E, 4; N, 1; A, 1; R, 3.

Gourlayia regia R
Mecodema regulus R
Mecyclothorax rotundicollis
Notagonum submetallicum N
Parabaris gourlayi R
Rhytisternus miser A

Appendix I. Type localities of Carabidae described from New Zealand. Names in ***bold italic*** indicate that the species is considered valid, whereas names in *italic* indicate that the species is considered a synonym. Note that generic names are given as in the original combination of the description, but may now differ. (Appendix kindly provided by T. K. Crosby).

AK Auckland

Auckland
- ***Anchomenus lawsoni***
- ***Anchomenus punctulatus***
- ***Brullea antarctica***
- *Ctenognathus latipennis*
- ***Dicrochile limbata***
- ***Euthenarus puncticollis***
- *Holcaspis rugifrons*
- ***Hypharpax abstrusus***
- *Lecanomerus marginatus*
- ***Mecodema crenicolle***
- ***Mecodema simplex***
- *Pterostichus aucklandicus*
- ***Scopodes multipunctatus***
- ***Syllectus anomalus***
- *Trichosternus aucklandicus*

?Auckland
- ***Tachys antarcticus***

Epsom
- *Lecanomerus labralis*

Howick
- *Rhytisternus erythrognathus*

Howick, Paparoa District
- *Lecanomerus stenopus*

Hunua
- *Pterostichus hunuensis*

Hunua Ranges
- ***Sympiestus oculator***

Hunua–Maketu [= Maketu Stream]
- *Pterostichus obsoletus*

Karekare, West of Auckland
- ***Cillenum alacris***

Ligar's Bush, Papakura
- ***Dicrochile anthracina***
- *Mecodema lineatum*
- *Pterostichus ithaginis*

Maketu [Stream], Hunua Ranges
- ***Allocinopus castaneus***

Moumoukai Valley
- ***Duvaliomimus watti***

Near Clevedon, Southern Wairoa
- *Bembidium clevedonense*

Near the Waitakerei (= Waitakere) Railway-station
- ***Anchomenus lucifugus***

Northern Wairoa
- *Mecodema scitulum*

Rangitoto Island
- ***Maoritrechus rangitotoensis***

Remuera, Auckland
- ***Anchomenus cheesemani***

South of Clevedon and Wairoa
- ***Ctenognathus munroi***

Swanson
- ***Neocicindela spilleri***

Tuakau
- *Holcaspis hybrida*

Waitakerei (= Waitakere) Ranges, Auckland
- ***Holcaspis mucronata***
- ***Mecodema spinifer***

AK Whangarata, near Tuakau and Ngaruawahia, WO
- ***Haptoderus calathoides***

AK Auckland and Christchurch , MC
- *Scopodes aterrimus*
- *Triplosarus fulvescens*

AK/WO One of the small islands of the Lower Waikato
- *Bembidium nesophilum*

AK/WO Waikato Heads
- ***Cicindela campbelli***

AU Auckland Islands

Adams Island, Auckland Islands
- *Loxomerus largus*

Auckland Island
- *Notaphus gameani*

Auckland Islands
- ***Calathus rubromarginatus***
- ***Euthenarus huttoni***
- ***Heterodactylus nebrioides***
- ***Oopterus clivinoides***
- *Oopterus guerini*
- *Oopterus laticollis*
- ***Oopterus plicaticollis***
- ***Pristonychus brevis***
- *Pristonychus castaneus*

Carnley Harbour, Auckland Islands
- *Euthenarus cilicollis*
- *Loxomerus fossulatus*
- *Oopterus tripunctatus*

Mt Raynald (Flat Topped Mountain), Auckland Islands
- *Oopterus aucklandicus*

Port Ross, Auckland Islands
- *Loxomerus ambiguus*

BO Bounty Island

Bounty Island
- ***Bountya insularis***

BP Bay of Plenty

Hicks Bay
- *Trichosternus humeralis*

Opotiki
- ***Metaglymma curvidens***
- *Pterostichus fieldi*

Rotorua
- *Mecodema variolosum*

Tauranga
- ***Mecodema atrox***

Te Aroha Trig Station
- ***Mecodema pluto***

BP/WO Te Aroha
- *Tarastethus laevicollis*

BR Buller

Ahoura (= Ahaura), near Greymouth
- ***Mecodema ducale***

Boatman's, Near Reefton
- *Pterostichus cavelli*
- *Pterostichus irregularis*

Capleston
- ***Tachys cavelli***
- ***Tarastethus simulans***

Fox River Cave, Near Charleston
- ***Erebotrechus infernus***

Greymouth
- ***Anchomenus helmsi***
- ***Cicindela helmsi***
- ***Cillenum subcaecum***
- *Diglymma ovipenne*
- ***Mecodema metallicum***
- *Pterostichus rugifrons*
- *Scopodes nigrinus*
- ***Tarastethus laeviventris***
- ***Tarastethus lewisi***
- ***Tarastethus puncticollis***
- *Trechus maori*
- ***Zolus helmsi***

[Lake] Rotoiti
- *Anchomenus hallianus*

Mt Robert
- ***Tarastethus robustus***
- ***Zolus labralis***

Near Greymouth
- *Pterostichus helmsi*

Nile River Cave, Charleston
- ***Syllectus spelaeus***

Profanity Cave, Buller River, near Inangahua
- ***Syllectus magnus***

BR, Greymouth and Kumara, WD
- ***Tachys latipennis***

BR/MB Mt St Arnaud
- ***Anchomenus arnaudensis***

CA Campbell Island

Campbell Island
- *Kenodactylus capito*
- *Oopterus elongellus*
- ***Oopterus marrineri***
- *Oopterus tarsalis*

CH Chatham Islands

Chatham Islands
- ***Anchomenus chathamensis***

Pitt Island
- ***Allocinopus latitarsis***

CL Coromandel

Hikuwai
- *Cicindela huttoni*

Hikuwai Forest
- ***Trichosternus hispidus***

Tairua
- ***Bembidium anchonoderum***
- ***Bembidium eustictum***
- ***Bembidium parviceps***
- ***Bembidium tairuense***
- ***Cillenumalbescens***
- *Holcaspis hispidulus*

CO Central Otago

Ida Valley
- ***Mecodema laeviceps***
- *Scopodes viridis*

Maniototo (= Upper Taieri)
- *Metaglymma calcaratum*
- ***Pterostichus memes***

Mt St Bathans
- ***Holcaspis bathana***

Near Obelisk Peak, [Old Man Range]
- ***Oopterus pygmeatus***

Rock and Pillar Mountains
- ***Trichosternus curtulus***
- *Trichosternus suspicax*

Staircase [= Devil's Staircase]
- ***Mecodema politanum***
- ***Pterostichus egregialis***

Strath–Taieri
- *Metaglymma junctum*
- *Trichosternus erythropus*

DN Dunedin

Dunedin
- ***Cerabilia maori***
- ***Cicindela dunedensis***
- ***Maoria punctata***
- ***Mecodema inaequale***
- *Pterostichus chalmeri*

Dunedin (Flagstaff Hill)
- *Pterostichus perfidiosus*

Flagstaff Mountain, near Dunedin and Maungatua
- ***Holcaspis impiger [sic]***

Hampden, near Moeraki
- ***Trichosternus haplopus***
- *Trichosternus hampdenensis*

Lee Stream, Taieri
- *Trichosternus riparius*

Maungatua
- *Trichosternus fusulus*

Moeraki
- *Metaglymma thoracicum*
- *Pterostichus disparalis*

Mt Maungatua
- ***Anchomenus oreobius***
- ***Metaglymma obtusum***
- ***Pterostichus procerulus***
- ***Scopodes basalis***
- ***Scopodes bryophilus***
- ***Scopodes cognatus***
- *Trichosternus aeruginosus*
- ***Trichosternus asperatus***
- *Trichosternus chloris*
- *Trichosternus monticola*
- *Trichosternus patruelis*
- ***Trichosternus vagans***
- ***Tropopterus oxygonus***

Mt Table Top, near Milton
- ***Mecodema minax***

Near Dunedin
- ***Holcaspis placidus***
- ***Mecodema impressum***
- ***Mecodema rectolineatum***
- *Metaglymma punctifer*

Near Outram
- *Metaglymma rufipes*

Oamaru
- ***Trichosternus virens***

Outram
- *Dicrochile cinctiger*
- ***Dicrochile nitida***
- ***Holcaspis catenulata***
- ***Trichosternus fultoni***

Port Chalmers
- ***Cillenum chalmeri***
- ***Tarastethus simplex***

Taieri
- ***Anillus pallidus***
- *Holcaspis thoracicus*
- *Trichosternus amplicollis*
- *Trichosternus curvipes*
- *Trichosternus erraticus*
- *Trichosternus polychaetus*

Taieri Beach
- ***Mecodema litoreum***
- *Metaglymma asperum*

Totara
- ***Mecodema puncticolle***

Waihola
- *Trichosternus grassator*

Waikouaiti
- ***Cicindela latecincta***
- ***Molopsida polita***

Waitati, near Dunedin
- *Pterostichus melanostolus*

DN, Dunedin and Otago
- *Pterostichus oscillator*

[DN] Dunedin and the North Island
- ***Harpalus antarcticus***

[DN] Port Otago, Bay of Islands [ND], etc
- *Feronia australasiae*

FD Fiordland

Dusky Bay
- *Pterostichus edax*

Hakapoua
- ***Anchomenus libitus***

Hump Ridge
- ***Diglymma marginale***
- *Mecodema dissonum*
- ***Mecodema femorale***
- *Pterostichus fenwicki*
- ***Pterostichus fossalis***
- ***Taenarthrus philpotti***

Hunter Mountains
- *Mecodema veratrum*

Martin's Bay, west coast of Otago
- ***Trichosternus prolixus***

Preservation Inlet
- *Diglymma tarsalis*

Puysegur Point
- *Diglymma nigripes*
- *Diglymma punctipenne*
- ***Mecodema bullatum***
- ***Mecodema striatum***
- ***Pterostichus sandageri***

Te Oneroa
- *Mecodema intricatum*

FD, Te Oneroa and Invercargill, SL
- *Pterostichus oneroaensis*

GB Gisborne

Lake Waikaremoana, Urewera National Park
- ***Bembidion urewerense***

Mangakirikiri Stream, Urewera National Park
- ***Bembidion maorinum levatum***

Simpson's Cave, Wairoa
- ***Prosphrodrus occultus***

HB Hawke's Bay

Hastings

Haplanister crypticus
Napier, Hastwell [WA]
Pterostichus sculptipes
Tarastethus strenuus

KA Kaikoura

Mouat's Lookout, Awatere River Basin
Cicindela hamiltoni
Wairiri, Kaikoura
Trichosternus wallacei
Zabronothus aphelus

MB Marlborough

Hanmer
Mecodema brittoni
Trichosternus hanmerensis

MC Mid Canterbury

Akaroa
Argutor erythropus
Argutor pantomelas
Argutor piceus
Dromius fossalatus
Feronia angustula
Lebia binotata
Mecodema walkeri
Omaseus elongatus
Omaseus sylvaticus
Trichosternus akaroensis
Ashburton
Metaglymma rugipenne
Pterostichus delator
Trichosternus coelocephalus
Trichosternus dissentaneus
Trichosternus smithii
Broken River
Anchomenus integratus
Dicrochile thoracica
Mecodema lewisi
Zabronothus major
Zabronothus oblongus
Cass
Mecodema cassense
Castle Hill
Cicindela austromontana
Mecodema constricta
Pterostichus detractus
Sympiestus fallax
Castle Hill and Broken River
Mecodema cognatum
Christchurch
Anchomenus feredayi
Haptoderus maorinus
Metaglymma oregoide
Pterostichus longiformis
Tropopterus sulcicollis
Dyers Pass
Lecanomerus pallipes
Pterostichus sinuellus
Pterostichus suteri
Sympiestus modestus
Zabronothus striatulus
Lake Coleridge
Bembidium rotundicolle
Dicrochile aterrima
Euthenarus brevicollis
Moa and Mistake Basins, near Mt Algidus
Oopterus latifossus
Moa Basin, west of Mt Algidus
Scopodes instabilis
Tarastethus diversus
Mt Algidus
Holcaspis algida
Mt Hutt
Mecodema huttense
Trichosternus blandellus
Mt Hutt, near Methven
Anillus punctigerus]
Lecanomerus incertus
Mecodema halli
Pterostichus burrowsi
Trichosternus halli
Mt Kiwi and Moa Basin, near Mt Algidus
Tarastethus halli
[Mt] Oakden, near Mt Algidus
Dicrochile rugicollis
Near Christchurch
Cicindela wakefieldi
Dicrochile subopaca
Mecodema howittii
Port Hills
Oopterus puncticeps
Riccarton Bush
Anillus phyllobius
Scarcliffe, near Mt Algidus
Sympiestus frontalis
Springfield
Trichosternus walkeri
Valley between Mt Misery and Mt Horrible, near Cass
Mecodema allani
MC, Christchurch and Greymouth, BR
Pterostichus constrictellus

MK Mackenzie

Lake Ohau Reserve
Holcaspis ohauensis
Lake Tekapo region
Bembidium tinctellum
Metaglymma tersatum
Scopodes antennalis
Mt Cook
Demetrida lateralis
Scopodes speciosus
Mt John, Tekapo
Holcaspis falcis
Near Lake Tekapo
?*Bembidium attenuatum*
Bembidium tekapoense
Trichosternus alternus
Trichosternus urquharti
Near the Hermitage, Mt Cook
Mecodema suteri
Tarastethus cinctus
The Hermitage, Mt Cook
Anchomenus macrocoelis

NC North Canterbury

Bealey
Diglymma dubium
Sympiestus syntheticus
Tarastethus debilis
Eyrewell
Holcaspis brevicula
Near Bealey
Mecodema rugiceps

ND Northland

Bay of Islands
Colpodes neozelandicus
Oopterus rotundicollis
Manaia and Whangarei Harbour
Holcaspis pellax
Mokohinou [= Mokohinau] Islands
Bembidium tersatum
Mt Manaia, near Whangarei Harbour
Anchomenus suborbithorax
Near Hokianga & Marsden Point
Cicindela perhispida
Near Whangarei Harbour
Holcaspis sternalis
Holcaspis thoracicus
New Zealand and Hokianga [ND]
Cicindela brevilunata
Pakarau [= Pekerau]
Tarastethus eplicatus
Parua
Dicrochile maura
Parua, near Whangarei Habour
Anchomenus sulcitarsis
Lecanomerus fallax
Lecanomerus insignitus
Parabaris atratus
Parua, Whangarei Harbour
Calathus deformipes
Trichosternus dentiferus
Rarawa Beach
Neocicindela perhispida savilli
Spirits Bay
Neocicindela perhispida giveni
Waimatenui
Maoripamborus fairburni
Waipoua State Forest

Pelodiaetodes prominens
Whangarei Heads
Anchomenus parabilis
Anchomenus perrugithorax
Near Whangarei Heads
Anchomenus batesi
Anchomenus montivagus
Anchomenus perrugithorax
Anchomenus politulus
Tropopterus placens

NN Nelson

Belgrove
Tarastethus fuscipes
Canaan, Takaka Hill
Mecodema costellum obesum
Dogleg Hole, Takaka Hill
Duvaliomimus lamberti
Dun Mountain
Mecodema dunense
Ed's Cellar, Canaan, Takaka Hill
Scototrechus orcinus
Fenian Creek Cave, Oparara
Duvaliomimus pluto
Pholeodytes cerberus
Gordon's Knob, near Belgrove
Dicrochile flavipes
Mecodema antennale
Mecodema gordonense
Limestone Creek, Teal Valley, near Nelson
Bembidion townsendi
Livingstons Well, Brightwater
Hygranillus kuscheli
Motueka River
Allocinopus sculpticollis
Bembidion granuliferum
Mt Arthur
Bembidium latiusculum
Bembidium musae
Holcaspis cribrale
Mecodema angustulum
Mecodema simulans
Pterostichus arduus
Scopodes planus
Scopodes tardus
Scopodes venustus
Trichosternus combesi
Trichosternus putus
Mt Owen
Pterostichus truncatulus
Near Mt Owen, Long Lookout Range
Mecodema integratum
Near Nelson
Mecodema fulgida
Trichosternus rectalis
Nelson
Drimostoma striato-punctata
Mecodema ventriculum
Zeopoecilus optandus
Pokororo, Near Mt Arthur
Plocamostethus planiusculus latus
Saddle Hill
Mecodema proximus
Seddonville
Mecodema pavidum
South Island, probably Westport
Pterostichus flectipes
Tahuna (= Tahunanui)
Cillenum tillyardi
Takaka Hill
Mecodema strictum
Tapawera
Mecodema attenuatum
Twin Forks Cave, Paturau District
Duvaliomimus orpheus
Pholeodytes townsendi
Upper Maitai
Mecodema rugiceps anomalum
Wangapeka [Valley]
Bembidium tantillum
Mecodema venator
Metaglymma aeneoniger
Pterostichus pastoricius
Scopodes levistriatus
Trichosternus opulentus
West of Saddle Hill
Mecodema pulchellum
Westport
Anchomenus walkeri
Mecodema nitidum
Oopterus latipennis
Oopterus parvulus
Oopterus probus
Pterostichus perbonus
Pterostichus prasignis
Pterostichus setiventris

NZ New Zealand

Canterbury, South Island
Holcaspis hudsoni
Trichosternus enysi
Canterbury Province, South Island
Physolaesthus insularis
Near Dunedin
Holcaspis placidus
Near Otago, South Island
Mecodema alternans
New Zealand
Actenonyx bembidioides
Amarotypus edwardsii
Anchomenus atratus
Anchomenus colensonis
Anchomenus deplanatus
Anchomenus novaezelandiae
Anchomenus sandageri
Cicindela halli
Cicindela incognita
Cicindela novaseelandica
Cicindela perhispida brouni
Cicindela tuberculata
Cicindela tuberculosa
Clivina rugithorax
Colpodes bidens
Colpodes cardiophorus
Colpodes crenatus
Colpodes macropterus
Colpodes submetallicus
Demetrida nasuta
Demetrida picea
Dicrochile anchomenoides
Dicrochile fabrii
Dicrochile ovicollis
Feronia anchomenoides
Feronia antarctica
Feronia capito
Feronia convexidorsis
Feronia edax
Feronia elongella
Feronia ovatella
Feronia rectangula
Feronia subaenea
Helaeotrechus elaphroides
Holcaspis oedicnema
Lecanomerus latimanus
Mecodema crenaticollis
Mecodema elongatum
Mecodema gourlayi
Mecodema lucidum
Mecodema rectolineatum
Megadromus viridilimbatus
Metaglymma aberrans
Neoferonia straneoi
Olisthopus insularis
Oopterus collaris
Oopterus laevicollis
Oopterus ovinotatus
Oopterus pallidipes
Oopterus s. ovinotatus
Oopterus s. sculpturatus
Pedalopia novaezelandiae
Periblepusa elaphroides
Platynus edwardsii
Tarastethus alpinalis
Tropopterus seriatoporus
Wakefieldia vittata
Zabronothus rufipes
New Zealand and Hokianga, ND
Cicindela brevilunata
North Canterbury
Metaglymma doullii
Metaglymma minor
North Island
Harpalus novaezelandiae

Otago, South Island
Anchomenus otagoensis
Cillenum batesi
Cymindis australis
Demetrida moesta
Lecanomerus fuliginosus
Maoria morio
Mecodema sculpturatum
Pelodiaetus lewisi
Pelodiaetus sulcatipennis
Tropopterus patulus
Powell, South Island
Scopodes prasinus
Province of Canterbury, South Island
Bembidium charile
Bembidium maorinum maorinum
Cicindela feredayi
Coptodera antipodum
Metaglymma monilifer
Sphallax peryphoides
Waihoura, Bruce Co, Otago
Trichosternus waihourensis
West Coast, South Island
Bembidium chalceipes
Bembidium hokitikense
Bembidium orbiferum
Lecanomerus obesulus
Scopodes laevigatus

OL Otago Lakes

Ben Lomond
Demetrida sinuata maculata
Diglymma basale
Mecodema ambiguum
Mecodema latulum
Oopterus basalis
Pterostichus pascoi
Tarastethus fovealis
Tarastethus propinquus
Zolus subopacus
Bobs Cove, Lake Wakatipu
Holcaspis implica
Bold Peak
Mecodema laevicolle
Pterostichus hamiltoni
Clipping's Bush, near Kingston and Staircase, CO
Demetrida sinuata
Clipping's Bush, near Kingston
Mecodema erraticum
Pterostichus aciphyllae
Tarastethus longulus
Earnslaw
Duvaliomimus brittoni
Greenstone Flat, near Queenstown
Pterostichus bullatus
Hollyford
Mecodema laterale
Kinloch, Lake Wakatipu
Mecodema seriatum
Lake Mackenzie
Mecodema persculptum
Lake Nakatipu [= Wakatipu]
Loxomerus capito
Matukituki River, West Branch, Northwest of Wanaka
Bembidion wanakense
Mt Alfred, near Paradise
Mecodema gratum
Mt Constitution
Mecodema clarkei
Mt Dick
Mecodema affinum
Tarastethus optatus
Mt Dick, Ben Lomond, Mt Ernslaw and Mt Alfred
Mecodema mutabile
Mt Dick, Lake Wakatipu
Mecodema chiltoni
Pterostichus sculpturalis
Mt Dick, near Kingston
Oopterus minor
Mt Earnslaw
Mecodema indiscretum
Queenstown
Demetrida ater
Routeburn
Mecodema costipenne
Tarastethus convexus
Routeburn and Hollyford
Dicrochile insignis
Oopterus suavis
Zolus ocularius

RI Rangitikei

Rangitikei River Flats
Bembidion solitarium
RI/WN Manawatu Gorge
Anchomenus xanthomelus
Pterostichus adoxus
Pterostichus oxymelus
Pterostichus turgidiceps

SC South Canterbury

Albury
Metaglymma rugiceps
Trichosternus crassalis
Peel Forest
Pterostichus sylvius
Temuka
Pterostichus temukensis

SD Marlborough Sounds

Chetwode Islands
Tarastethus insularis
D'Urville Island
Plocamostethus planiusculus durvillei
Picton
Ctenognathus pictonensis
Metaglymma sulcatum
Pterostichus achilles
Pterostichus brounianus
Pterostichus calcaratus
Pterostichus compressus
Pterostichus myrmidon
Rarangi
Holcaspis tripunctata
Stephens Island
Mecodema costellum
Mecodema insulare
Mecodema punctellum
Trichosternus bucolicus
The Brothers
Metaglymma oblonga

SI Stewart Island

Christmas Village, Stewart Island
Holcaspis stewartensis
Mason Bay, Stewart Island
Zecillenus embersoni
Stewart Island
Bembidion anchonoderum stewartense
Diglymma thoracicum
Mecodema rubripes
Mecodema trailli
Pterostichus kirkianus

SL Southland

Bluff
Mecodema philpotti
Invercargill
Anillus marginatus
Cerabilia punctigera
Ctenognathus littorellus
Pterostichus inconstans
Pterostichus insidiosus
Tarastethus southlandicus
Trichosternus agriotes
Trichosternus angulatus
Trichosternus convexus
Trichosternus meritus
Kuriwai Bush, near Wyndham
Pterostichus maiaei
Near Molyneux River (= Puerua River)
Maoria tibialis
Otara
Snofru aemulator
Tuatapere
Mecodema rex
West Plains, Invercargill
Anchomenus sophronitis
Mecodema infimate
Pterostichus lepidulus
Pterostichus philpotti

SN The Snares

Station Point
Oopterus strenuus
The Snares
Diglymma castigatum
Mecodema hudsoni
Synteratus ovalis

TH Three Kings Islands

Great Island
Gourlayia regia
Mecodema regulus
Parabaris gourlayi

TK Taranaki

Base of Mt Egmont
Holcaspis mordax
Midhirst, base of Mt Egmont
Oopterus fulvipes
Mt Egmont
Mecodema longicolle
Pterostichus egmontensis
Zolus atratus
Near Mt Egmont [= Taranaki]
Oopterus sobrinus
Near Taranaki
Mecodema rugicolle
Ratapihipihi Forest
Allocinopus smithi
Taranaki
Pterostichus odontellus
TK Mt Egmont and the Central Plateau, TO
Pterostichus eruensis
TK, base of Mt Egmont and Waitakerei (= Waitakere) Ranges, AK
Anchomenus adamsi

TO Taupo

Erua
Tarastethus phyllocharis
Ohakune
Mecodema florae
Mecodema validum
Oio, Taumarunui
Mecodema dux
Raurimu
Gaioxenus pilipalpis
Tarastethus a. amplipennis
Tarastethus a. labralis
Tarastethus pretiosus
Tokaanu
Mecodema occiputale
Waimarino
Scopodes nigripes
Waiouru
Cicindela waiouraensis

WA Wairarapa

Forty-mile Bush
Allocinopus angustulus
Hastwells
Oopterus laevigatus
Hastwell, Napier, HB
Pterostichus sculptipes
Martinborough
Mecodema subaeneum
Napier [HB] (Hastwells)
Tarastethus strenuus
Near Martinborough
Mecodema arcuatum
Otaraia, near Martinborough
Metaglymma ovicolle

WD Westland

Otira Gorge
Tachys coriaceus
Otira Pass
Scopodes versicolor
Otira River
Pterostichus lobipes
WD Hokitika and Lake Paroa [=? Lake Poerua], BR
Pterostichus integratus

WI Wanganui

Manawatu River, near Palmerston
Bembidium antipodum
Bembidium diaphanum
Pipiriki, Wanganui River
Bembidium actuarium
WI, Palmerston North and WN Karori
Oopterus nigritulus
WN/WI Manawatu Flats, nine miles below the Gorge
Allocinopus ocularius
Anchomenus intermedius
Pterostichus sinuiventris
Tarastethus carbonarius

WN Wellington

Lake Horowhenua
Trichosternus ordinarius
Levin
Mecodema o'connori
Mt Hector
Mecodema hector
Mt Holdsworth, Tararua Range
Mecodema acuductum
Mt Quoin
Ctenognathus simmondsi
Mecodema quoinense
Tarastethus cordipennis
Near Wellington
Anchomenus haastii
Holcaspis praecox
Maoria clivinoides
Oopterus carinatus
Trichosternus cephalotes
Pakuratahi Stream, Rimutaka Range
Bembidium dehiscens
Port Nicholson
Anchomenus elevatus
Broscus aereus
Cicindela parryi
Demetrias lineella
Feronia intermittens
Feronia politissima
Feronia vagepunctata
Feronia vigil
Silverstream
Mecodema bryobium
Takuratahi [= Pakuratahi] and Mt Holdsworth
Pterostichus antennalis
Wellington
Bembidium callipeplum
Cerabilia ruficorne
Ctenognathus actochares
Drimostoma antarctica
Feronia planiuscula
Metaglymma modicum
Pterostichus difformipes
Pterostichus lewisi
Pterostichus vexatus
Scopodes pustulatus
Tarastethus dubius
Trichosternus hudsoni
Tropopterus marginalis
Zolus femoralis
WN, Wadestown and Palmerston North, WI
Oopterus frontalis

WO Waikato

Fred Cave, Te Kuiti
Duvaliomimus caecus
Mt Pirongia
Anillus monticola
Bembidium waikatoense
Pterostichus scitipennis
Tachys oreobius
Ngatira
Dicrochile cephalotes
Ohaupo and Hunua Ranges, AK
Pterostichus sharpianus
Okauia, near Matamata
Mecodema exitiosus
Puriri Cave, Port Waikato
Duvaliomimus styx
Eotachys crypticolus
Te Aroha
Dicrochile cordicolle
Waipuna Caves, Te Kuiti
Duvaliomimus mayae
Prosphrodrus waltoni
Wairere Falls Cave, near Te Kuiti
Neanops pritchardi

ILLUSTRATIONS

Fig. 1 Locality and biology labels.

Fig. 2 Data sheet.

Species name: _____

GEOGRAPHIC DISTRIBUTION

North Island: AK BP CL GB HB ND RI TK TO WA WI WN WO

South Island: BR CO DN FD KA MB MC MK NC NN OL SC SD SI SL WD

Offshore Islands: AN AU BO CA CH KE SN TH

Extralimital distribution: _____

First N.Z. record: _____

ECOLOGY

Altitudinal distribution: Lowland Mountain Subalpine Alpine

Vertical distribution: Arboreal Endogean Planticolous Cavernicolous Epigean Fossorial

Macrohabitat: _____

Microhabitat/Hostplant: _____

Soil moisture: Dry Moist Wet

Light intensity: Open ground Shaded ground

Diel activity: Nocturnal Diurnal Heliophilous Arhythmic

Gregariousness: Gregarious Solitary

BIOLOGY

Adult seasonality: IX X XI XII I II III IV V VI VII VIII

Breeding type: _____

Tenerality: IX X XI XII I II III IV V VI VII VIII

Overwintering type: _____

Feeding type: Omnivorous, mostly predacious Predacious Omnivorous, mostly phytophagous Predacious, molluscophagous

Enemies: _____

Parasites: _____

Defense mechanism: _____

DISPERSAL POWER

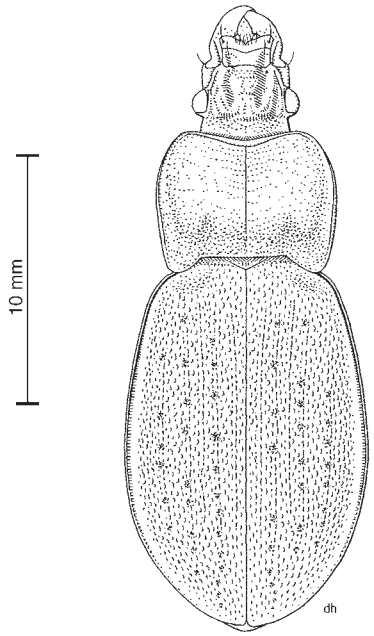
Wing condition: Macropterous Macropterous, probably capable of flight Brachypterous, incapable of flight

Flight power: Occasional flier Regular flier Frequent flier

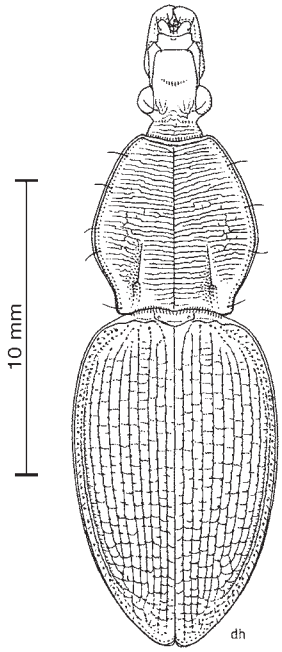
Locomotion: Slow runner Moderate runner Fast runner

Climbing: Occasional climber On trees Regular climber shrubs Frequent climber plants logs

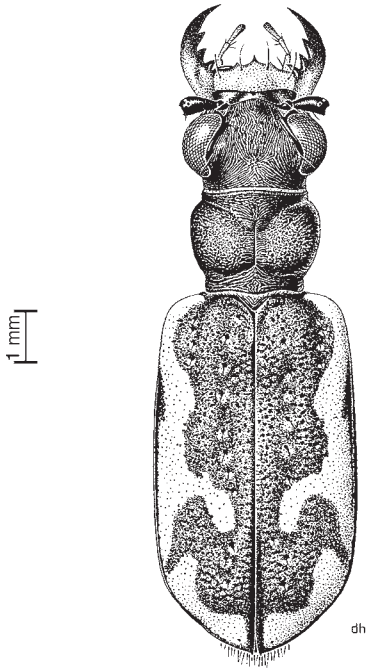
Favoured by human activities: Yes No



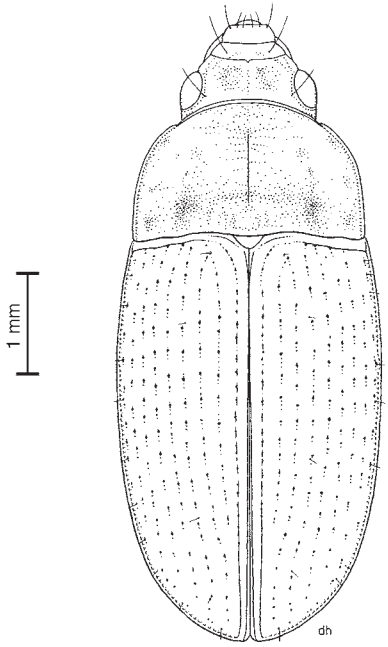
(3) Carabini: *Carabus nemoralis*



(4) Pamborini: *Maoripamborus fairburni*

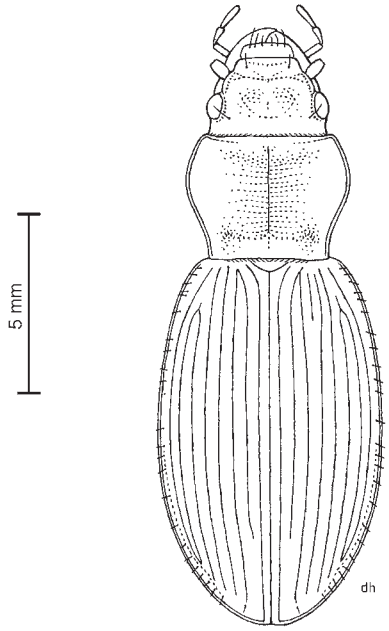


(5) Cicindelini: *Cicindela tuberculata*

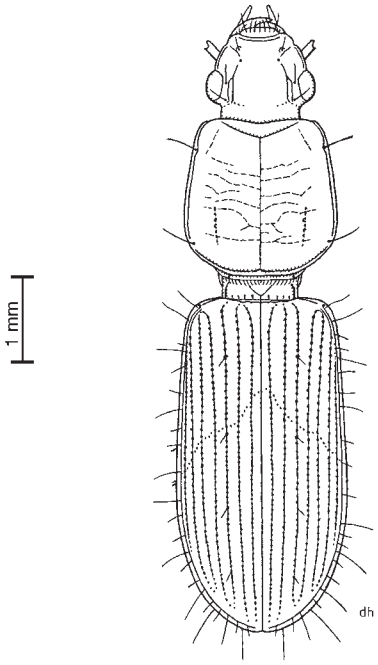


(6) Amarotypini: *Amarotypus edwardsii*

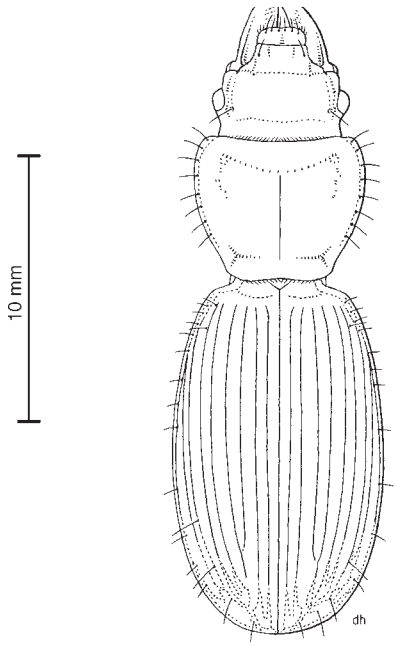
Figs 3–26 Habitus drawings of Carabidae representing the tribes occurring in New Zealand (Illustrator: D. W. Helmore).



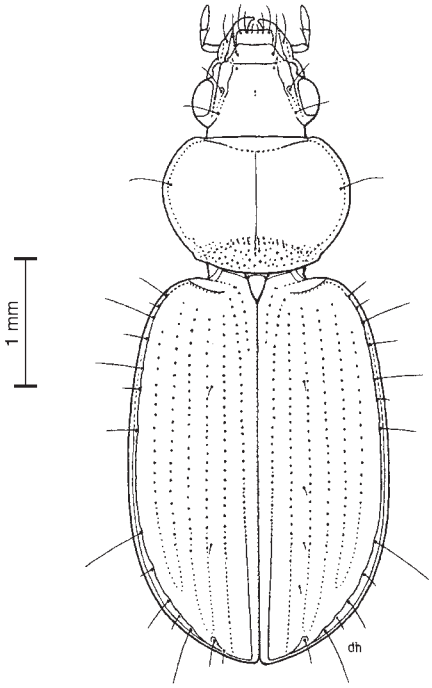
(7) Migadopini: *Loxomerus nebrioides*



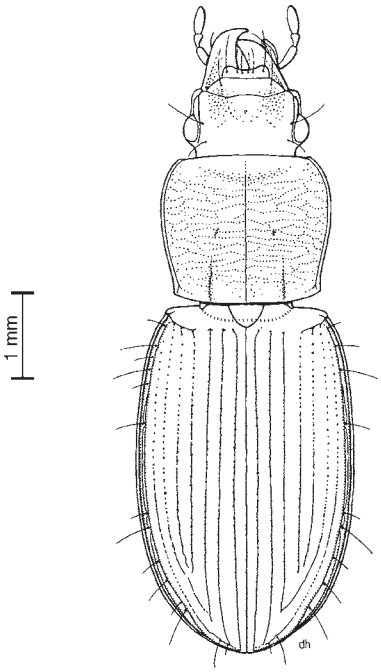
(8) Clivinini: *Clivina basalis*



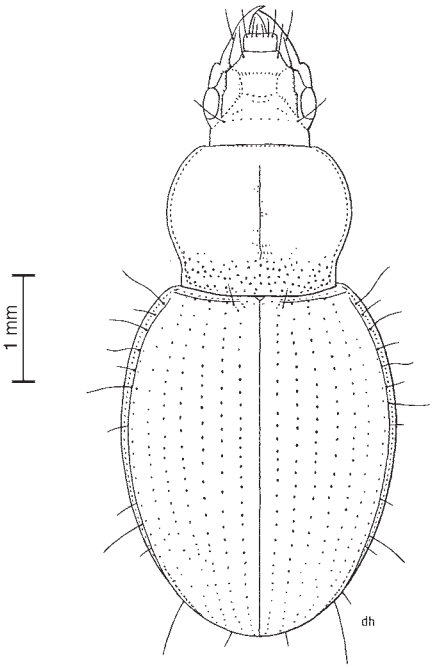
(9) Broscini: *Mecodema fulgidum*



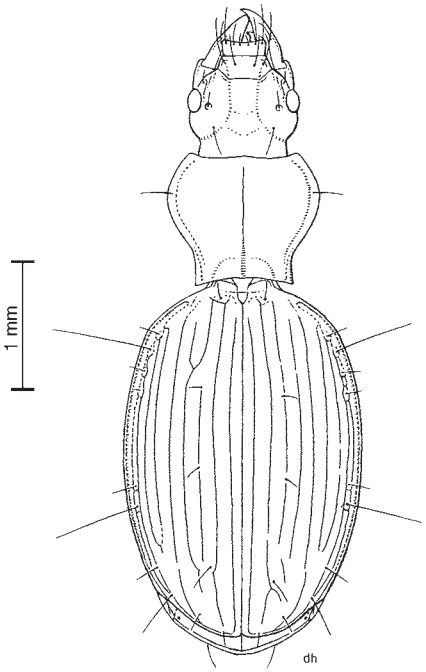
(10) Mecyclothoracini: *Mecyclothorax rotundicollis*



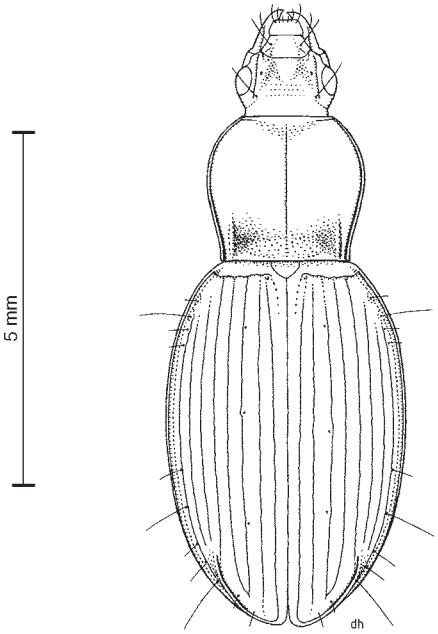
(11) Meonini: *Selenochilus syntheticus*



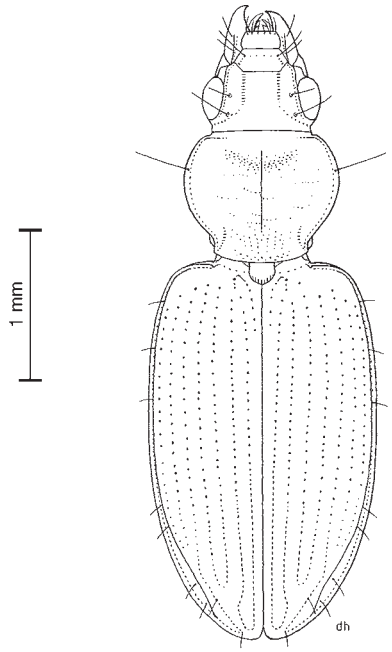
(12) Tropopterini: *Molopsida seriatoporus*



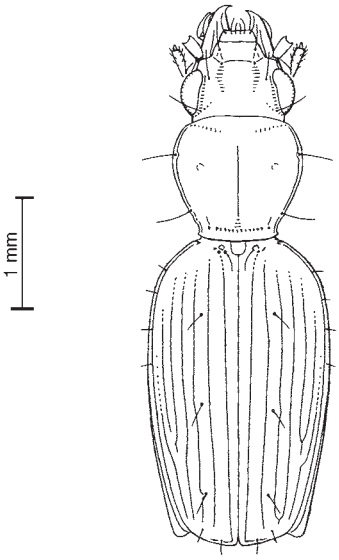
(13) Trechini: *Duvaliomimus styx*



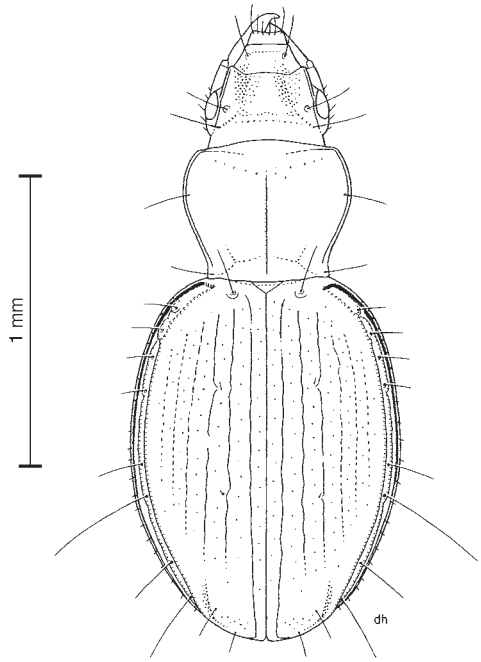
(14) Zolini: *Zolus femoralis*



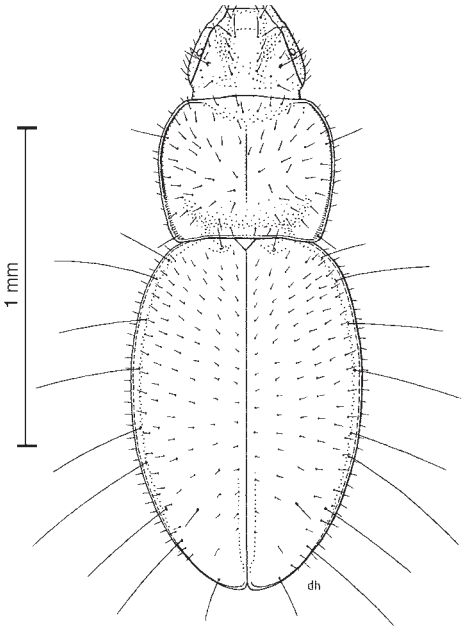
(15) Bembidiini, Bembidiina: *Bembidion anchonoderus*



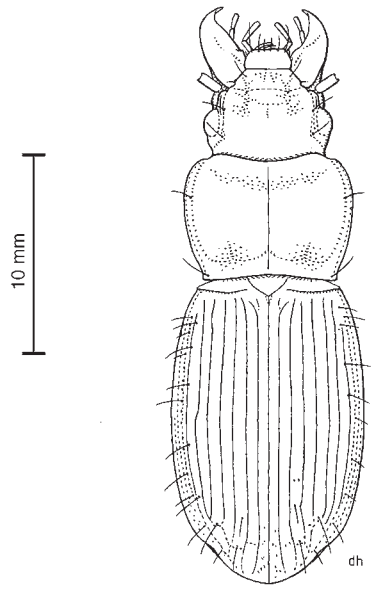
(16) Bembidiini, Bembidiina: *Zecillenus alacris*



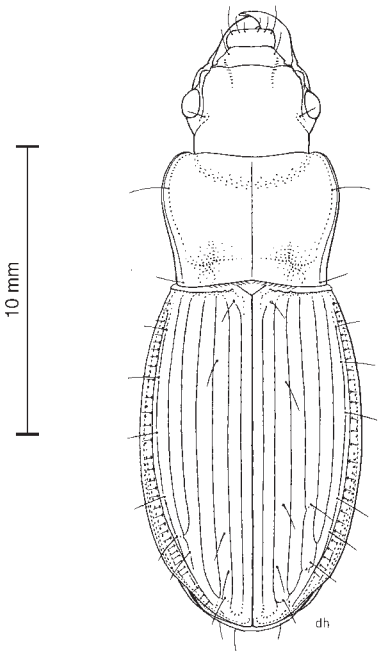
(17) Bembidiini, Tachyina: *Tachys antarcticus*



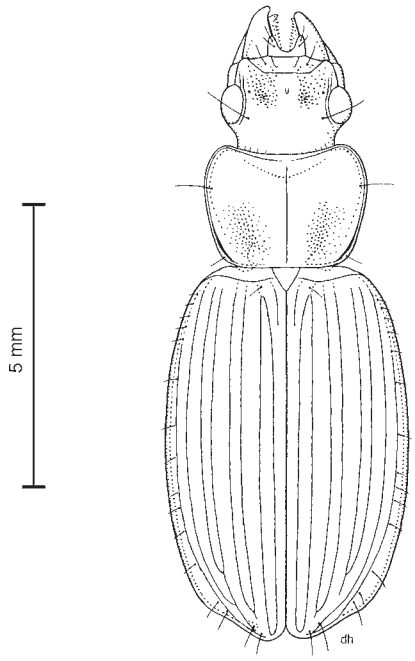
(18) Bembidiini, Anillina: *Nesamblyops oreobius*



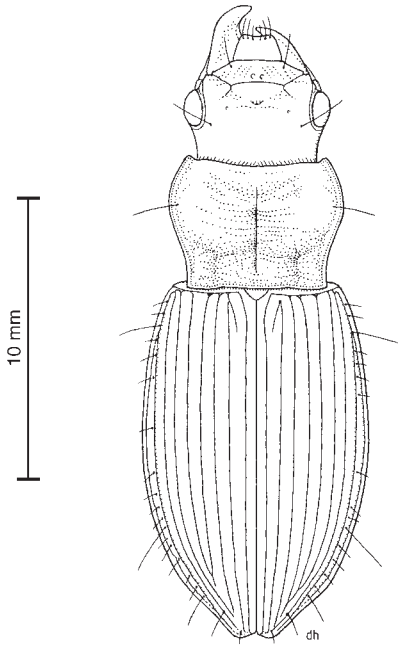
(19) Pterostichini: *Megadromus antarcticus*



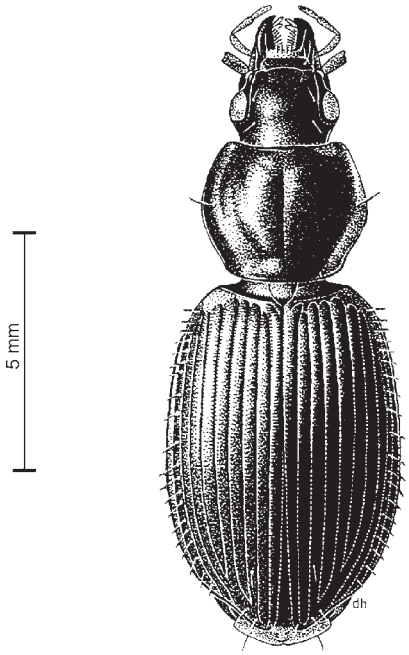
(20) Pterostichini: *Megadromus capito*



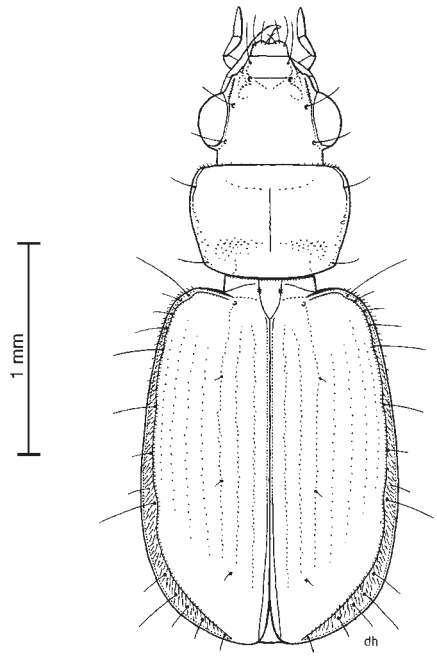
(21) Licinini: *Dicrochile cordicollis*



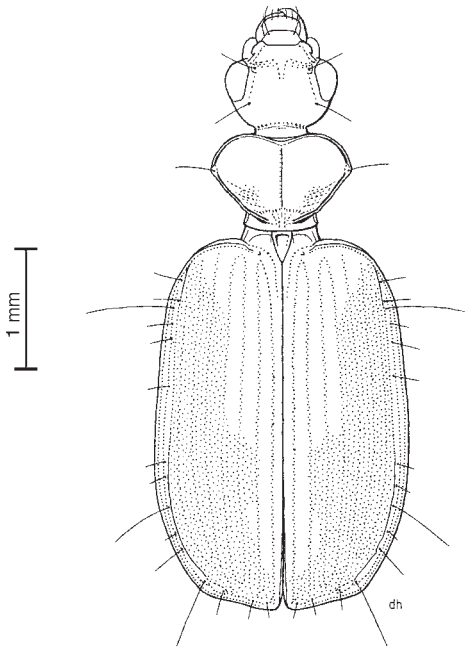
(22) Harpalini: *Allocinopus sculpticollis*



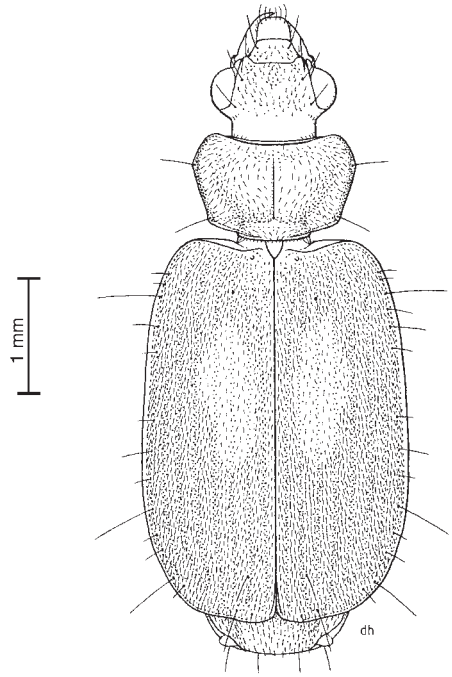
(23) Platynini: *Ctenognathus novaezelandiae*



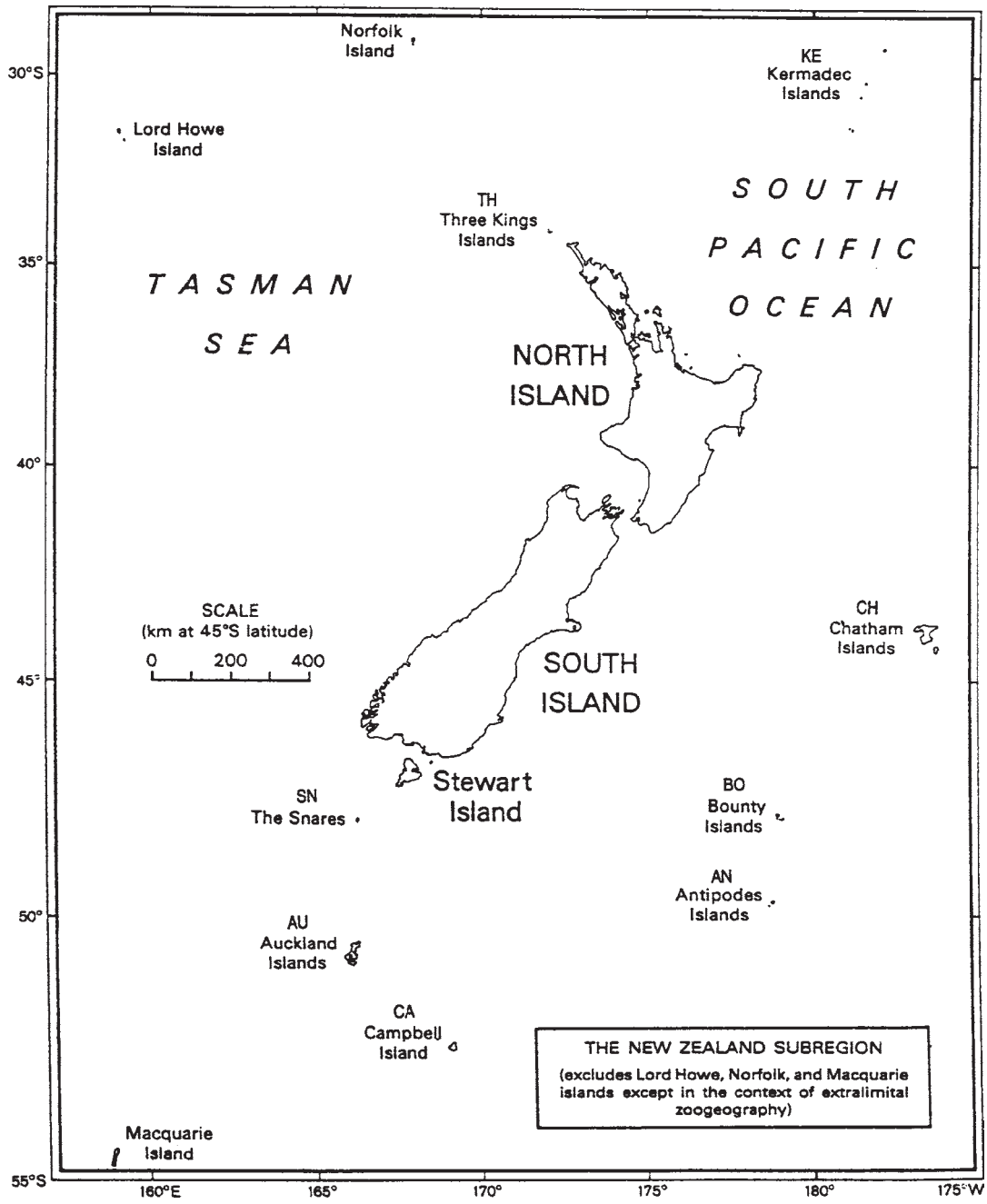
(24) Perigonini: *Perigona nigriceps*



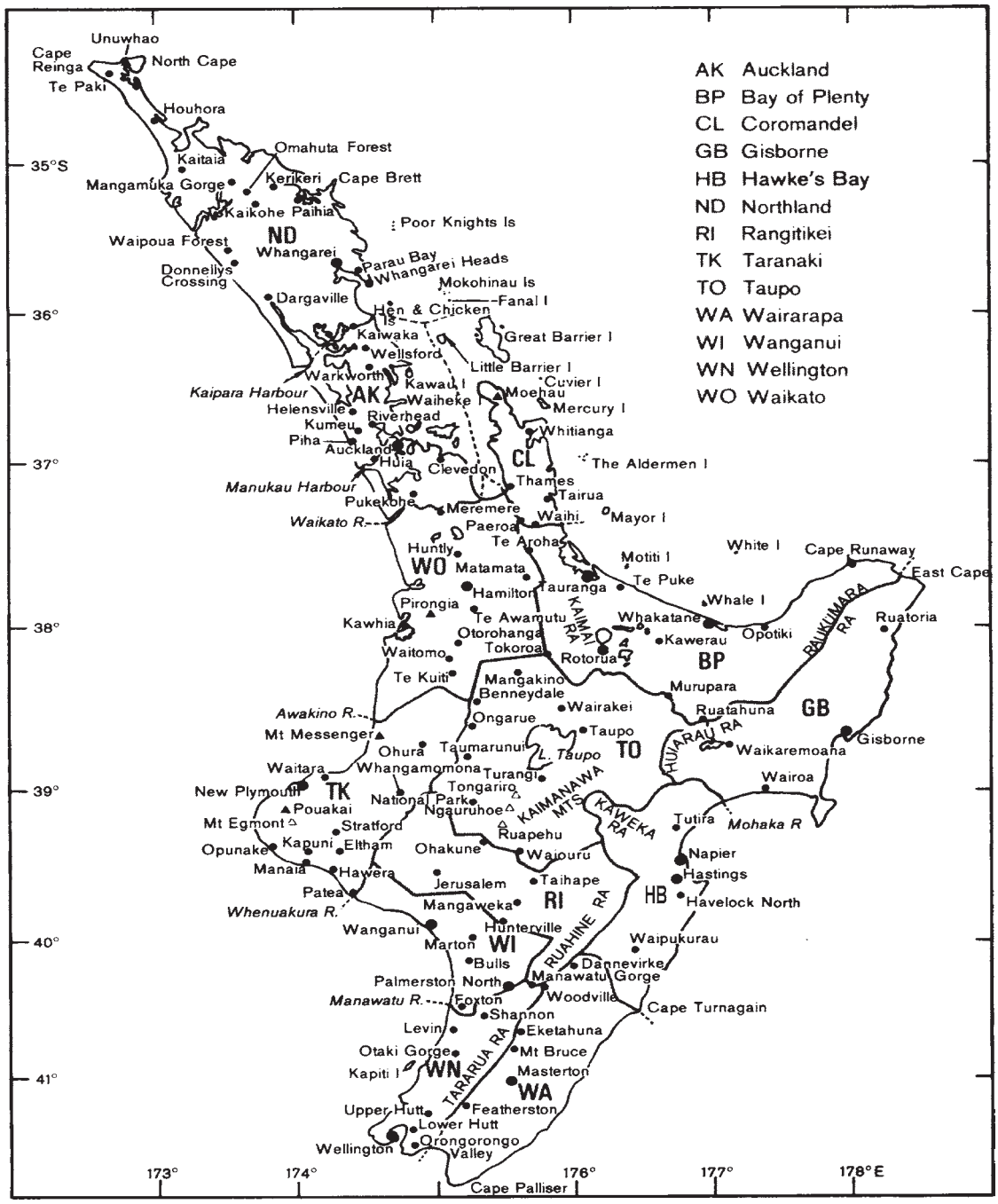
(25) Pentagonicini: *Pentagonica vittipennis*



(26) Lebiini: *Agonocheila antipodum*

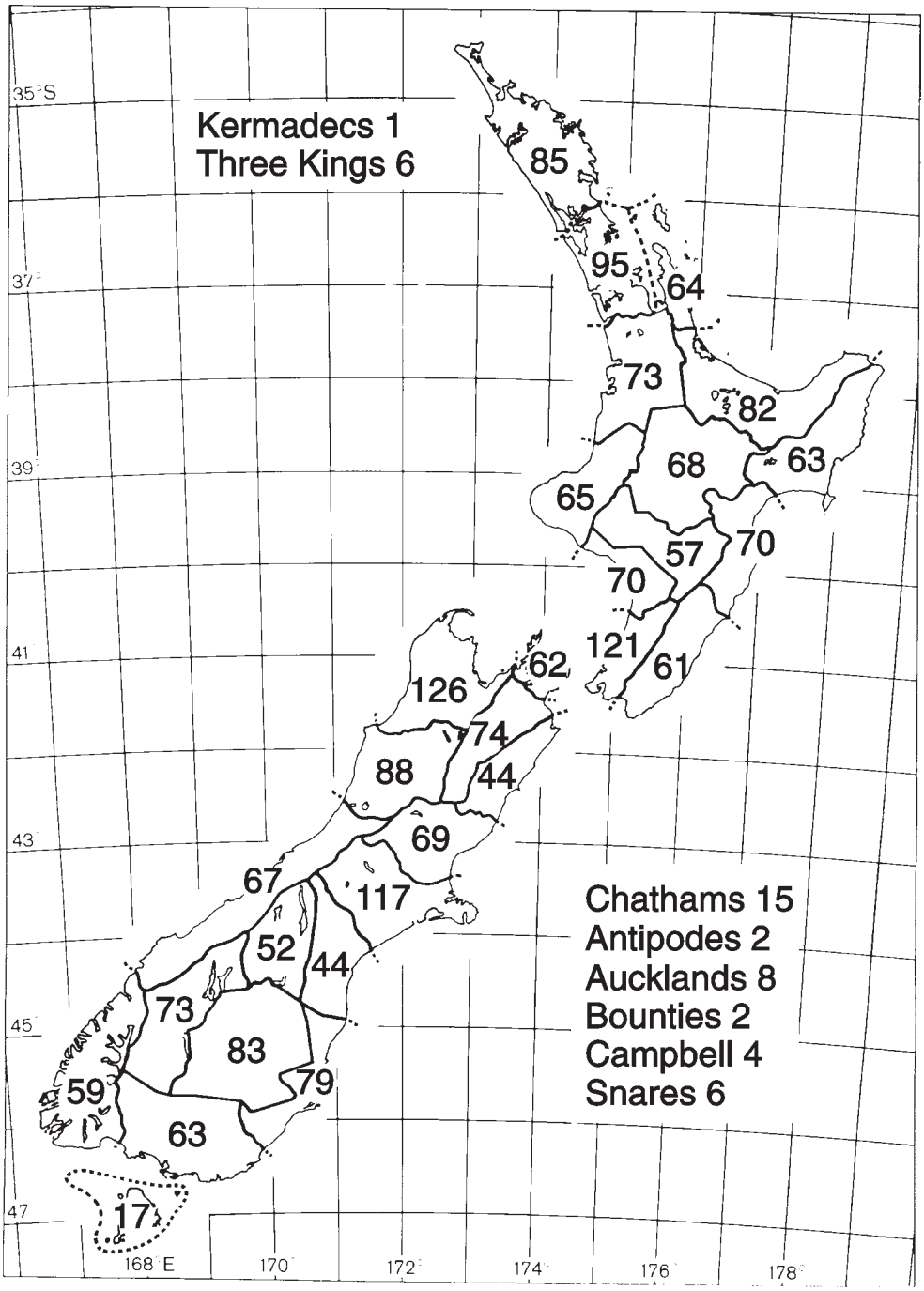


Map 1 The New Zealand subregion with area codes (from Crosby *et al.* 1998).

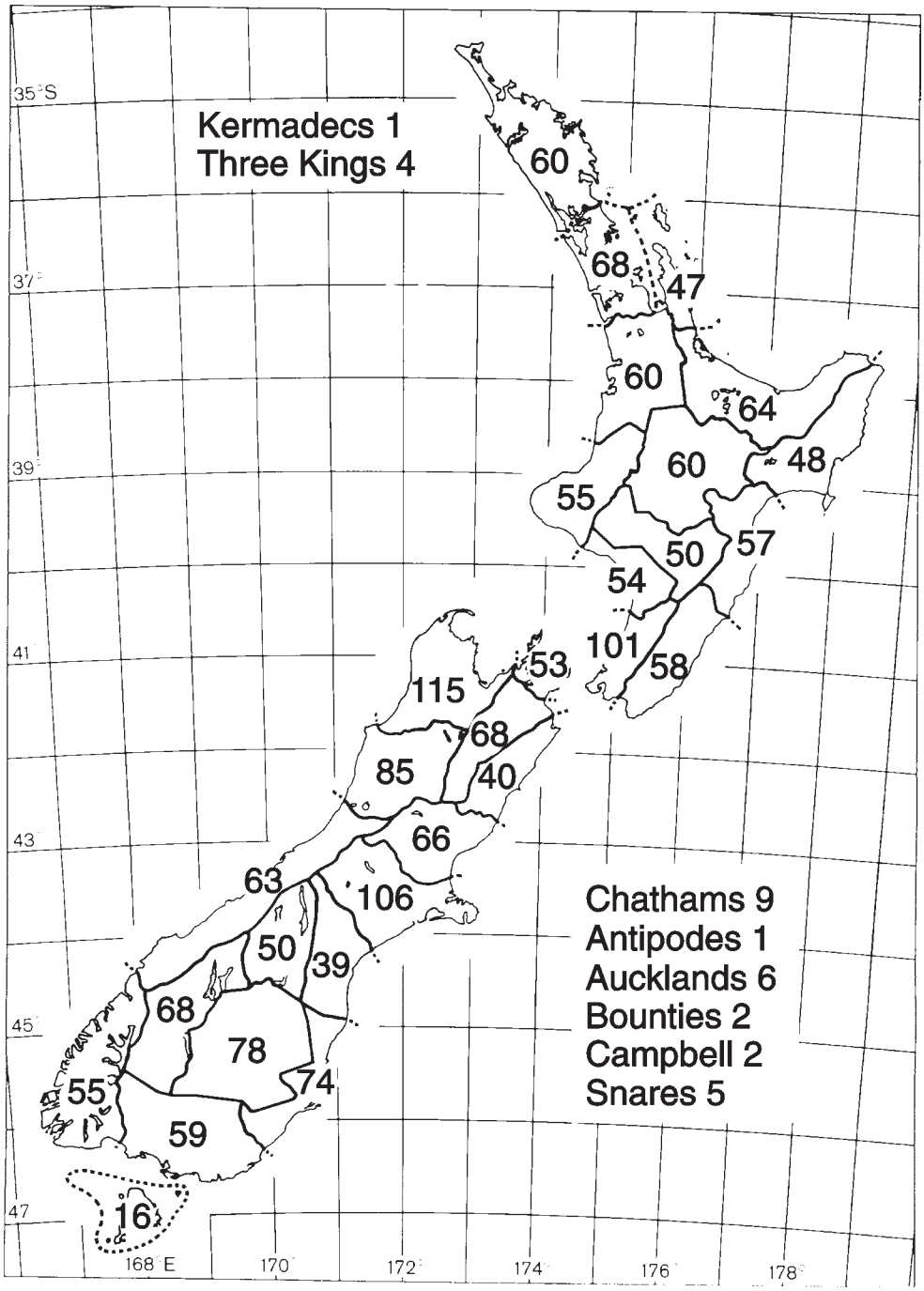


Map 2 Area codes and collecting localities from mainland New Zealand, North Island (from Crosby *et al.* 1998).

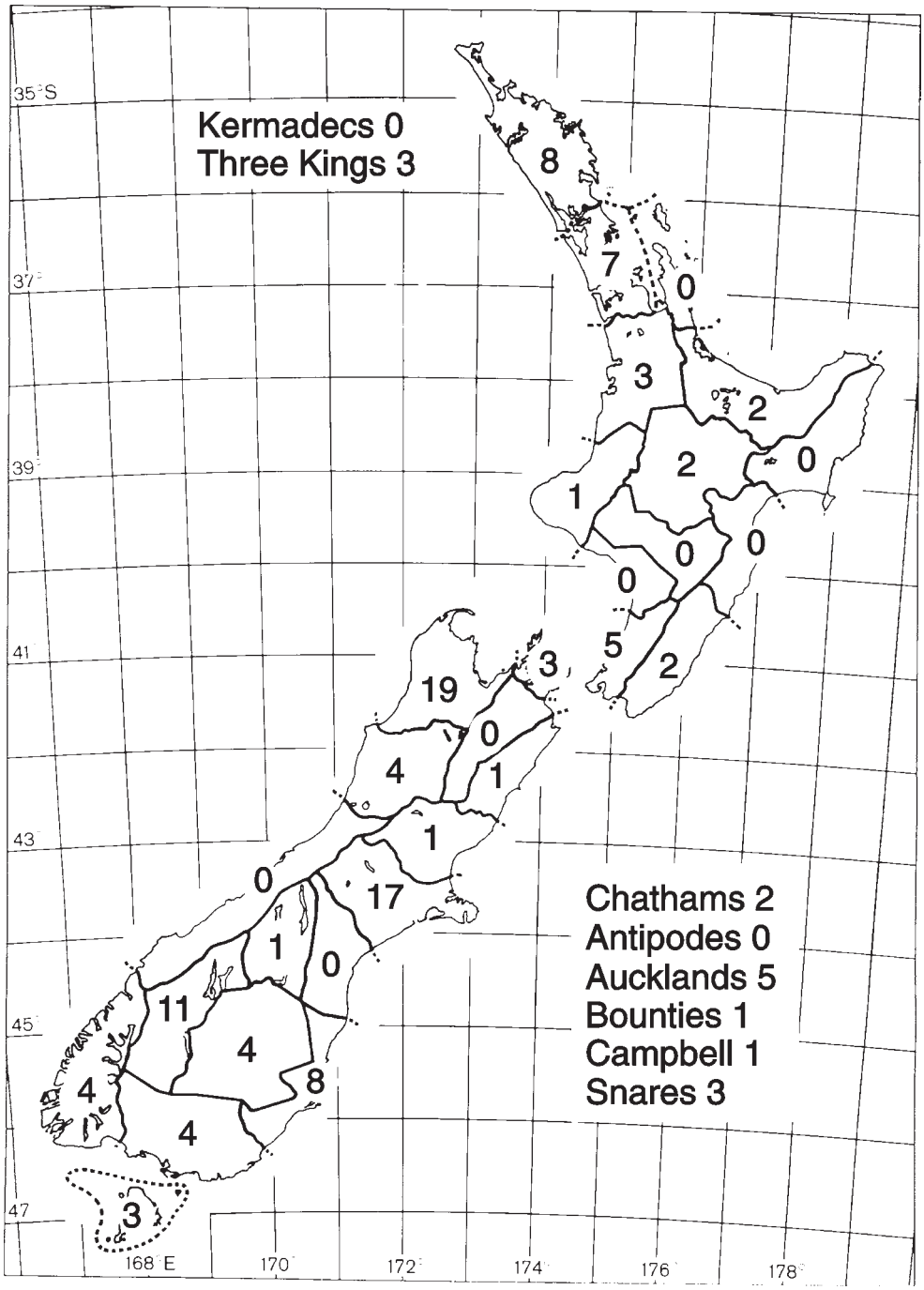
Map 3 Area codes and collecting localities from mainland New Zealand, South Island and Stewart Island (from Crosby *et al.* 1998).



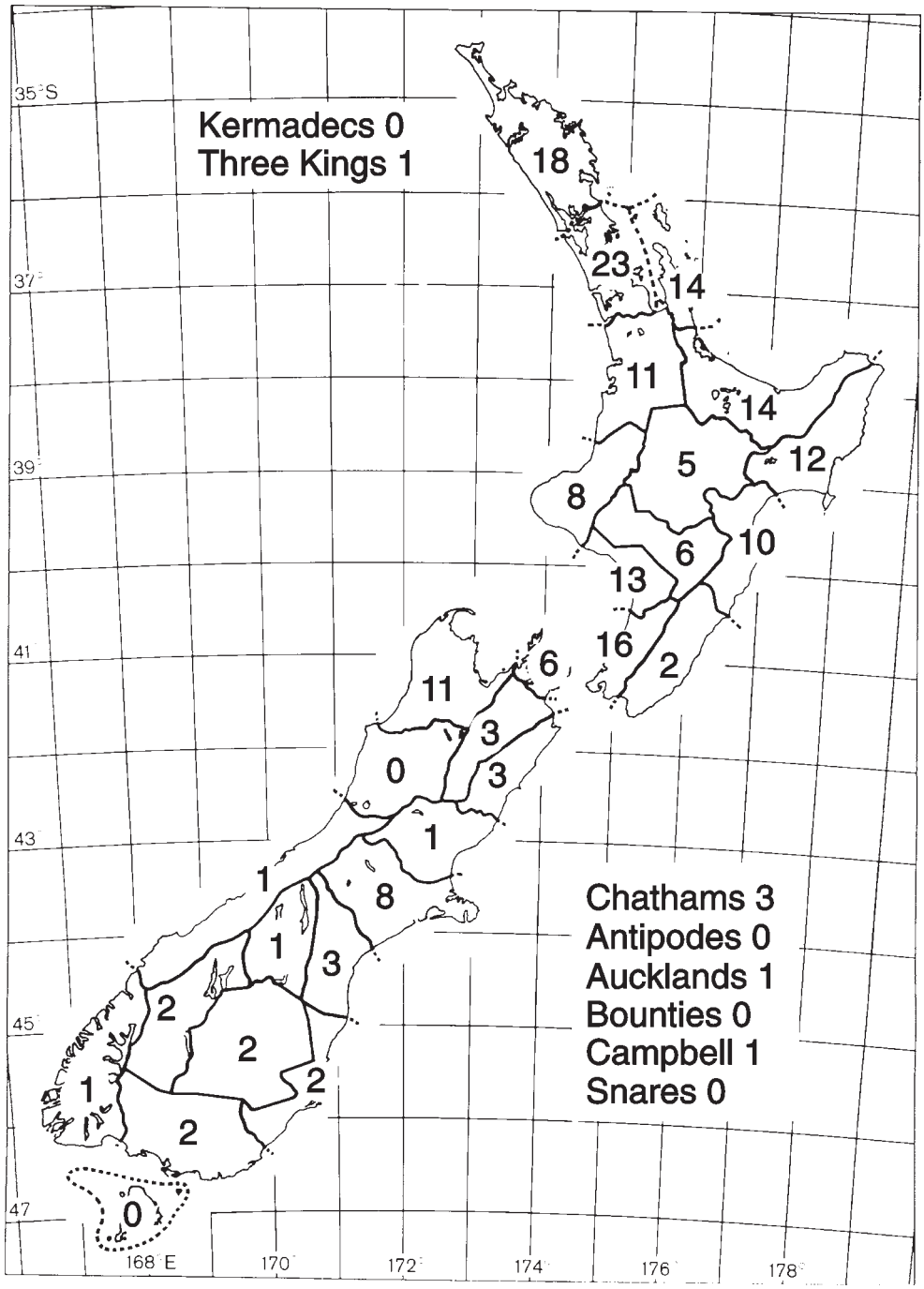
Map 4 Total number of known taxa by areas of New Zealand.



Map 5 Number of known endemic taxa by areas of New Zealand.

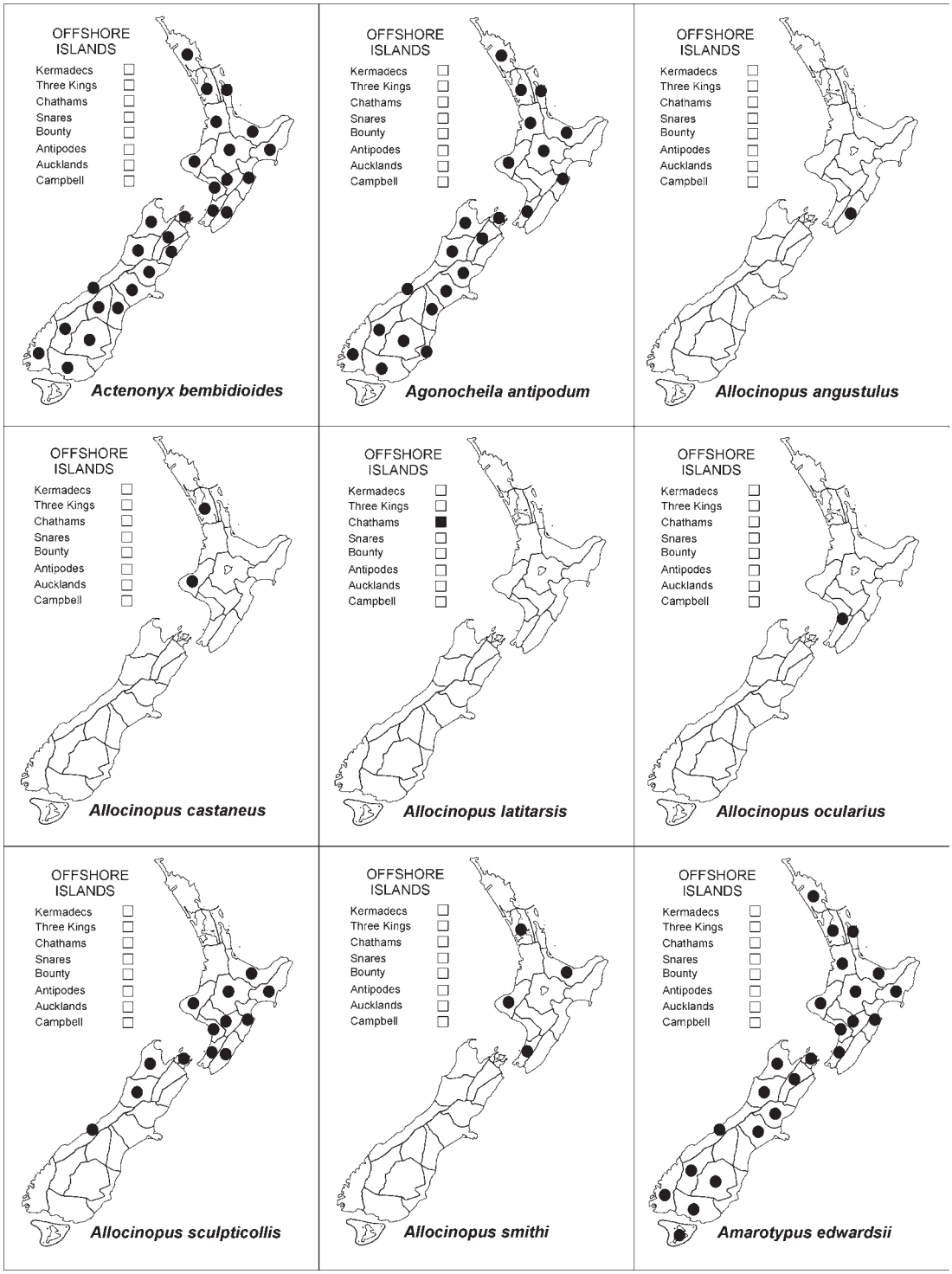


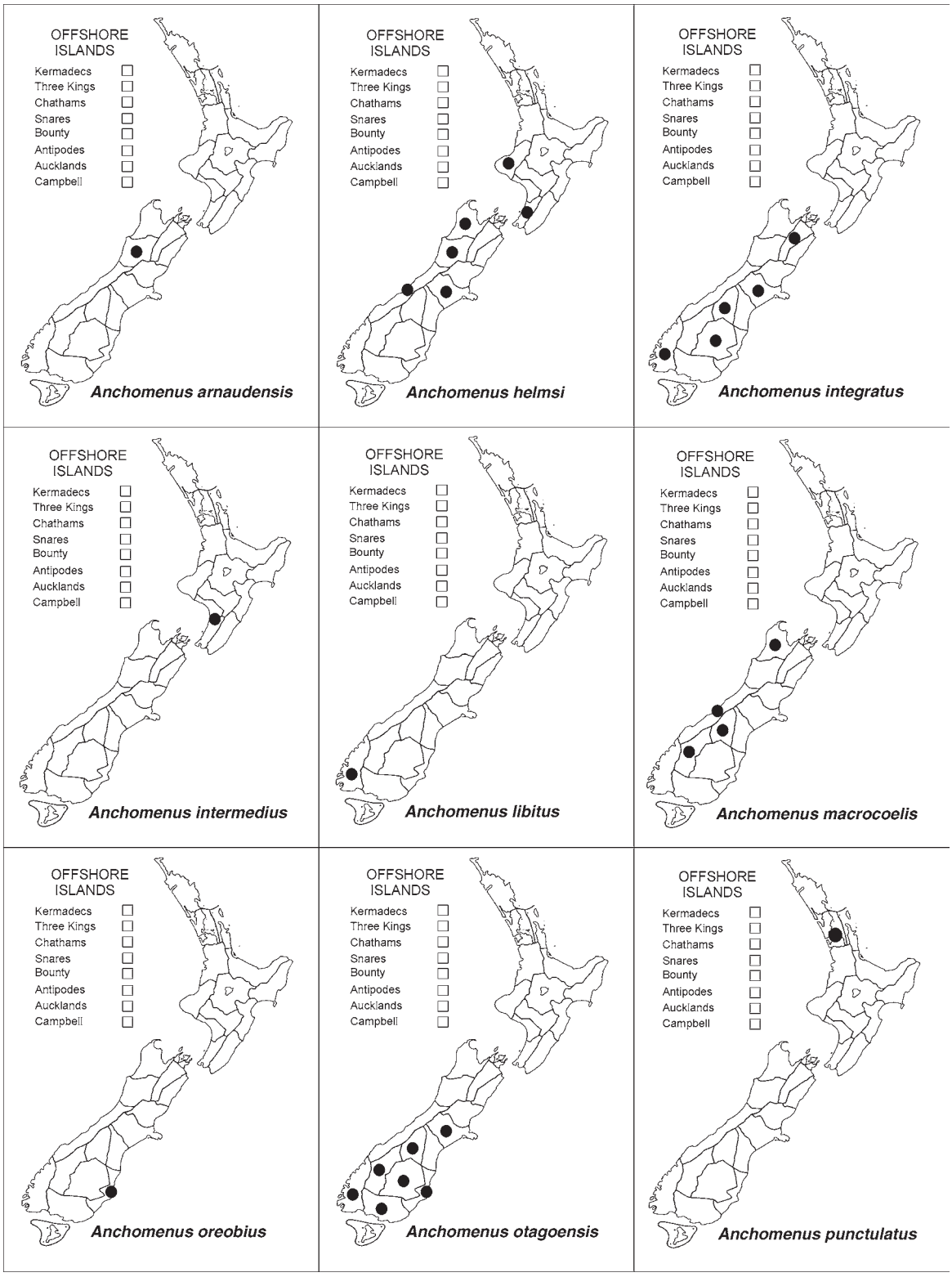
Map 6 Number of taxa known to be restricted to single areas of New Zealand.



Map 7 Number of known adventive taxa by areas of New Zealand.

Species distribution maps (pages 223–270) Presented alphabetically by taxa (for all but 7 species for which the only known information is "New Zealand"). Area boundaries follow the area codes of Crosby *et al*. 1998.

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Kermadecs
Three Kings
Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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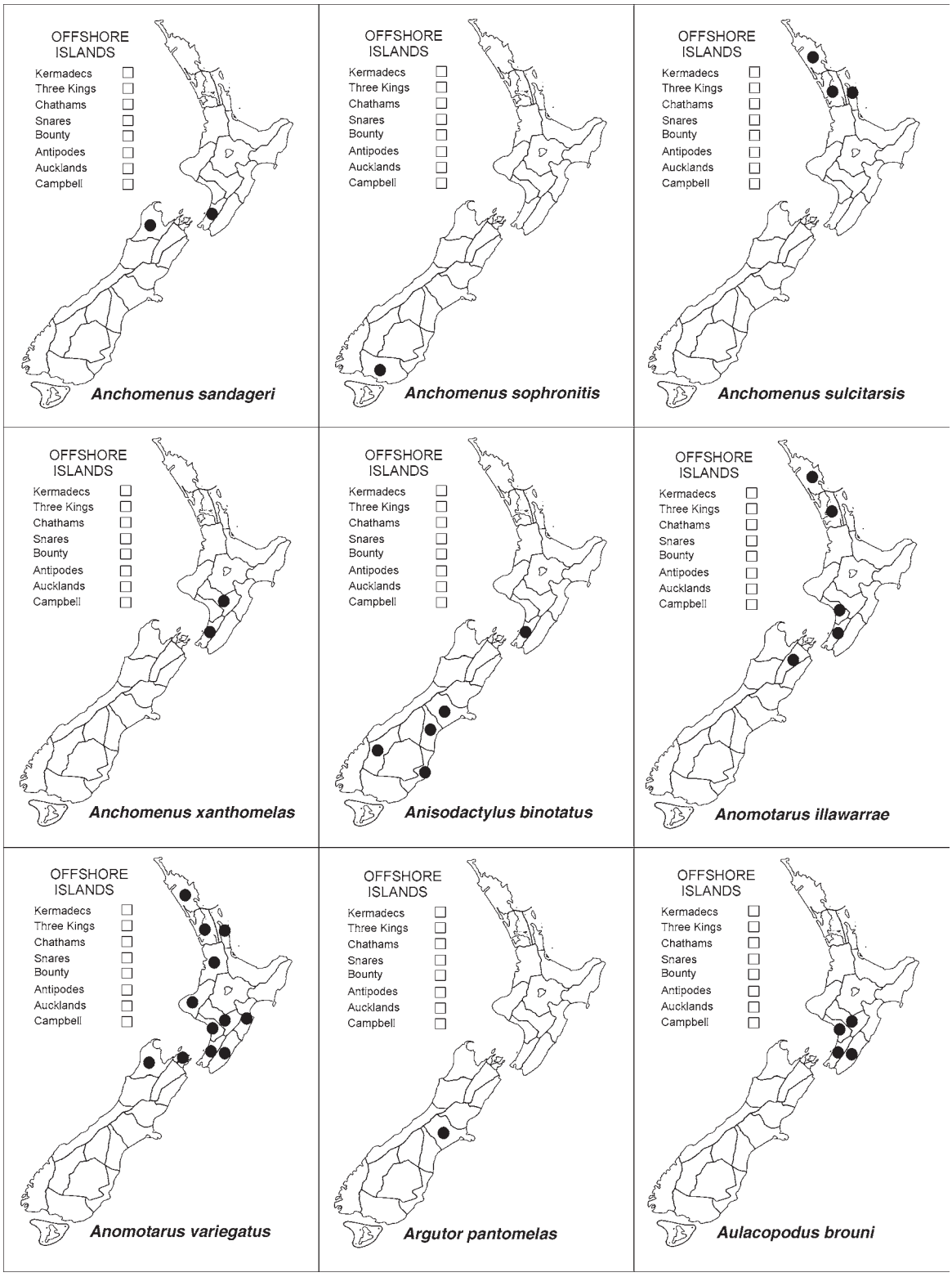
Anchomenus helmsi
Anchomenus integratus
Anchomenus intermedius
Anchomenus libitus
Anchomenus macrocoelis
Anchomenus oreobius
Anchomenus otagoensis
Anchomenus punctulatus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Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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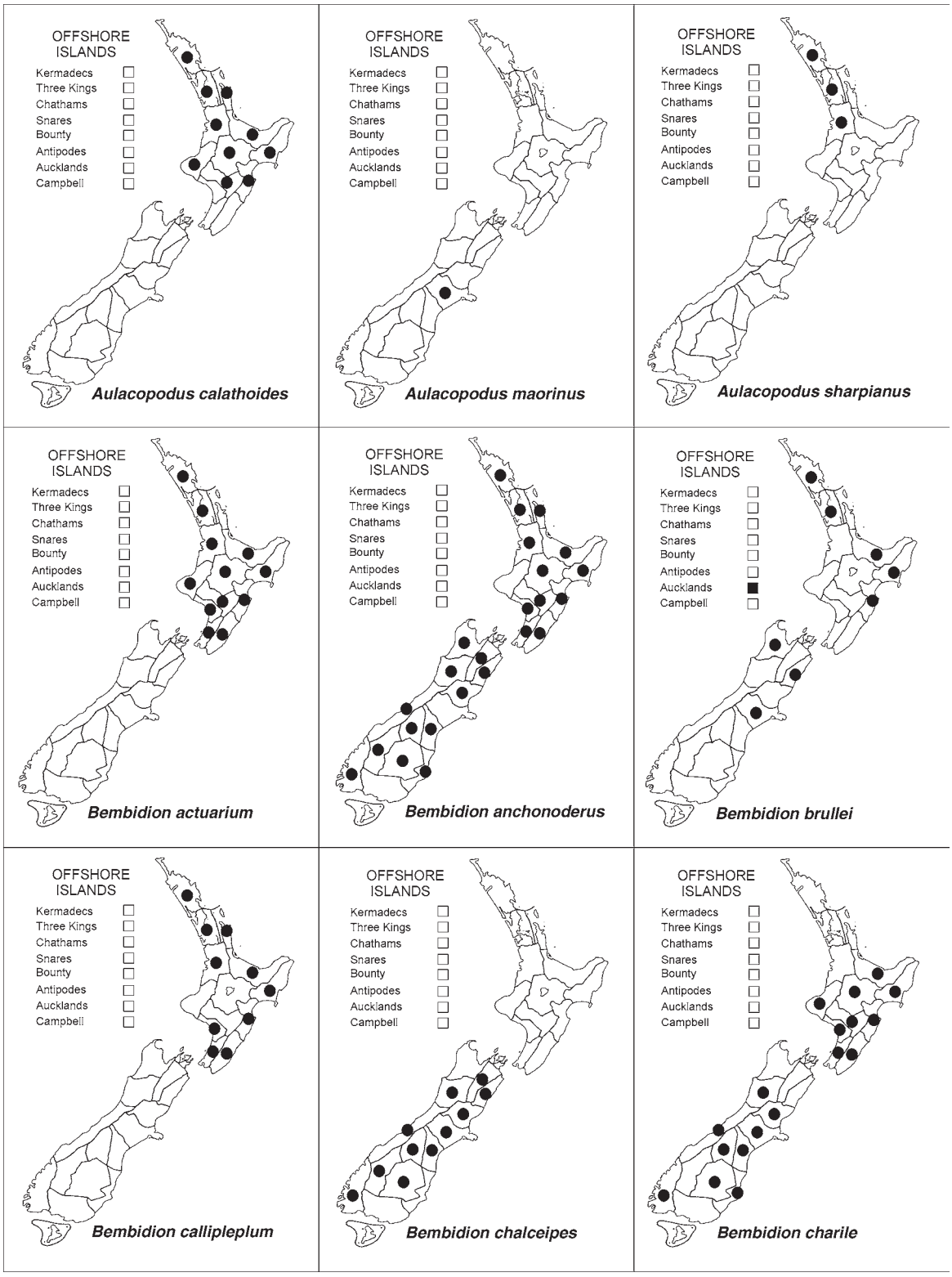
Anchomenus sophronitis
Anchomenus sulcitarsis
Anchomenus xanthomelas
Anisodactylus binotatus
Anomotarus illawarrae
Anomotarus variegatus
Argutor pantomelas
Aulacopodus brouni


OFFSHORE ISLANDS
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Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
Aulacopodus calathoides
Aulacopodus maorinus
Aulacopodus sharpianus
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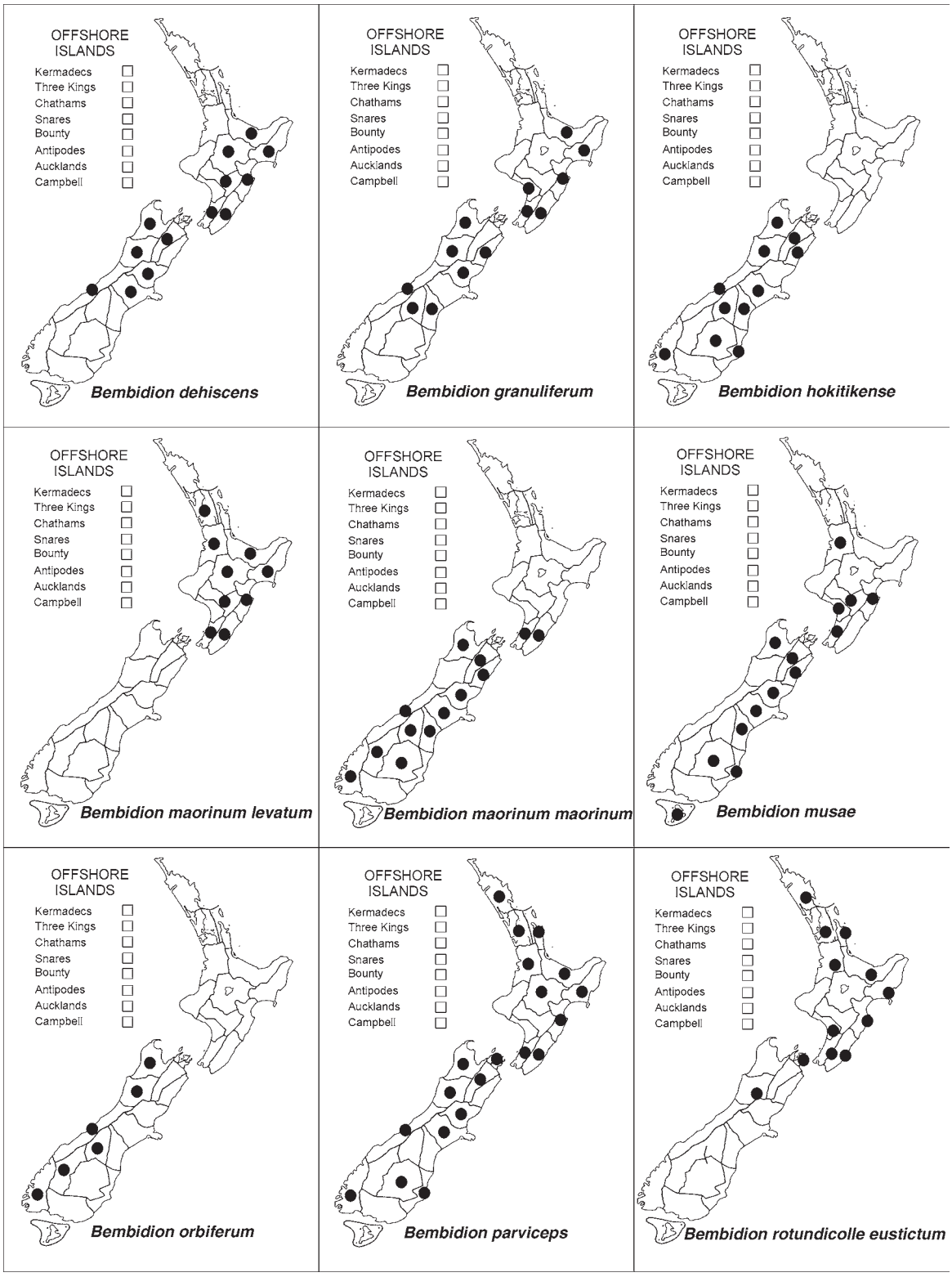
Bembidion anchonoderus
Bembidion brullei
Bembidion callipleplum
Bembidion chalceipes
Bembidion charile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Snares
Bounty
Antipodes
Aucklands
Campbell
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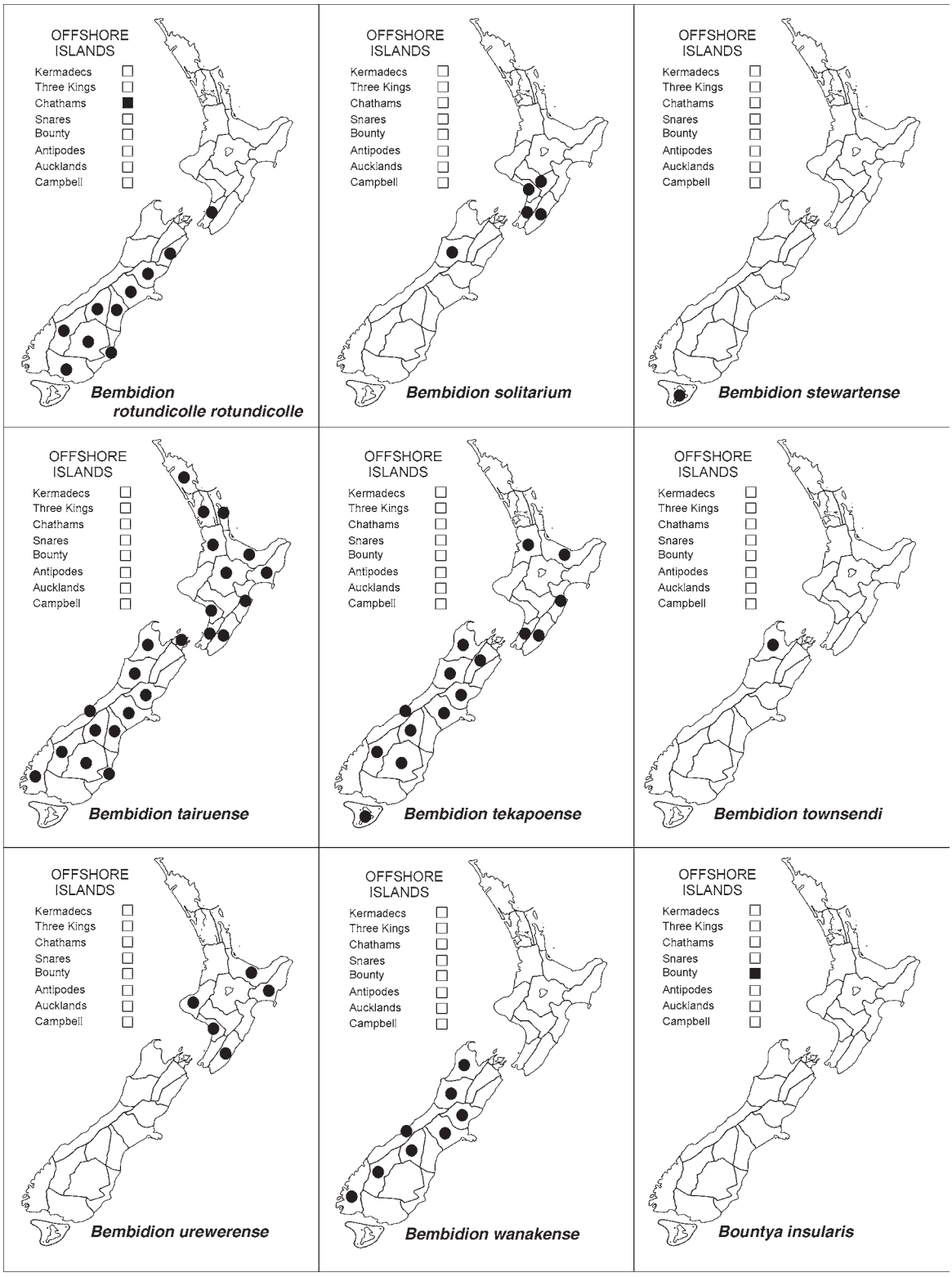
Bembidion granuliferum
Bembidion hokitikense
Bembidion maorinum levatum
Bembidion maorinum maorinum
Bembidion musae
Bembidion orbiferum
Bembidion parviceps
Bembidion rotundicolle eustictum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Kermadecs
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Snares
Bounty
Antipodes
Aucklands
Campbell
Bembidion rotundicolle rotundicolle
Bembidion solitarium
Bembidion stewartense
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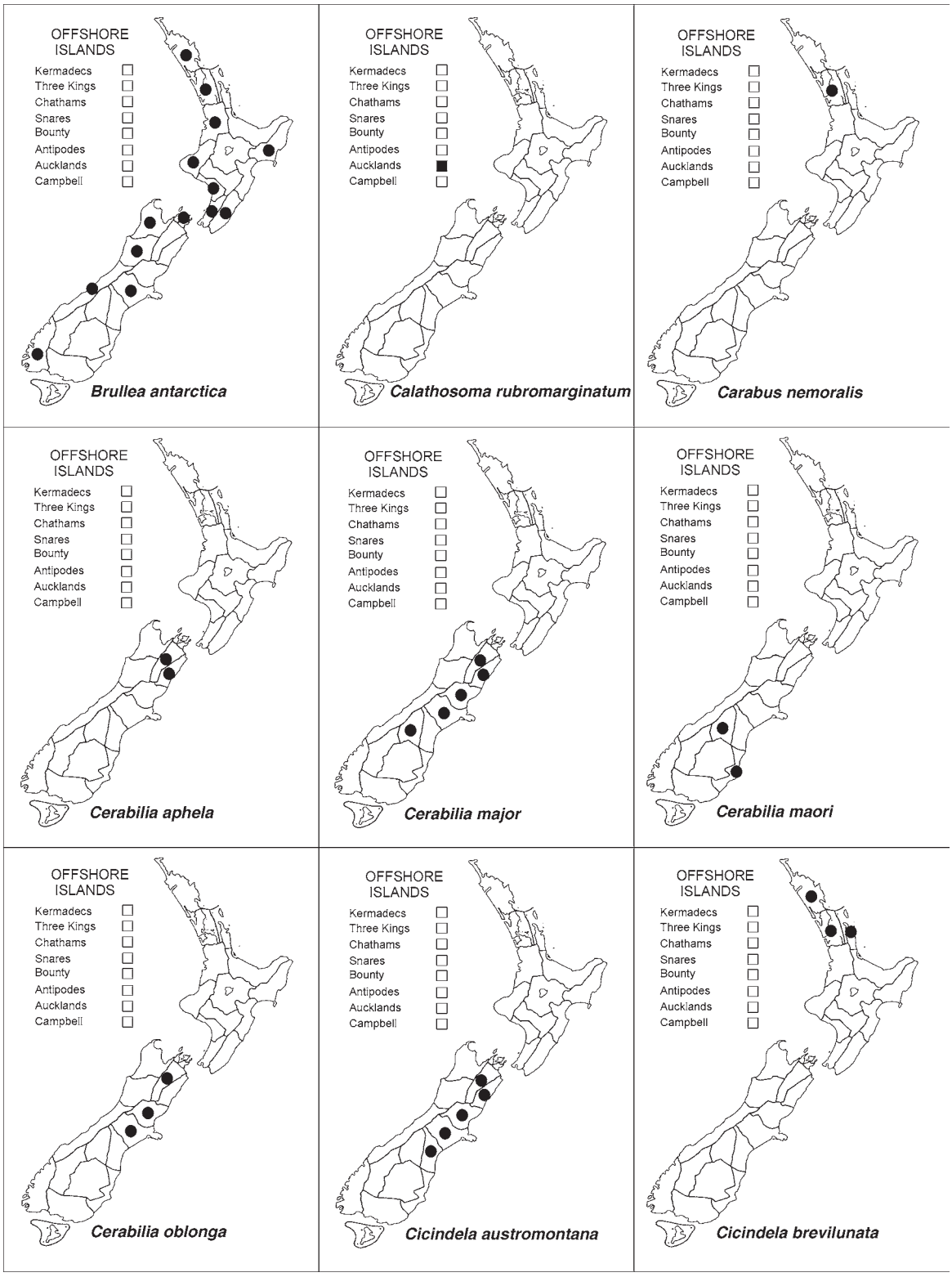
Bembidion tekapoense
Bembidion townsendi
Bembidion urewerense
Bembidion wanakense
Bountya insularis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Kermadecs
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Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
Brullea antarctica
Calathosoma rubromarginatum
Carabus nemoralis
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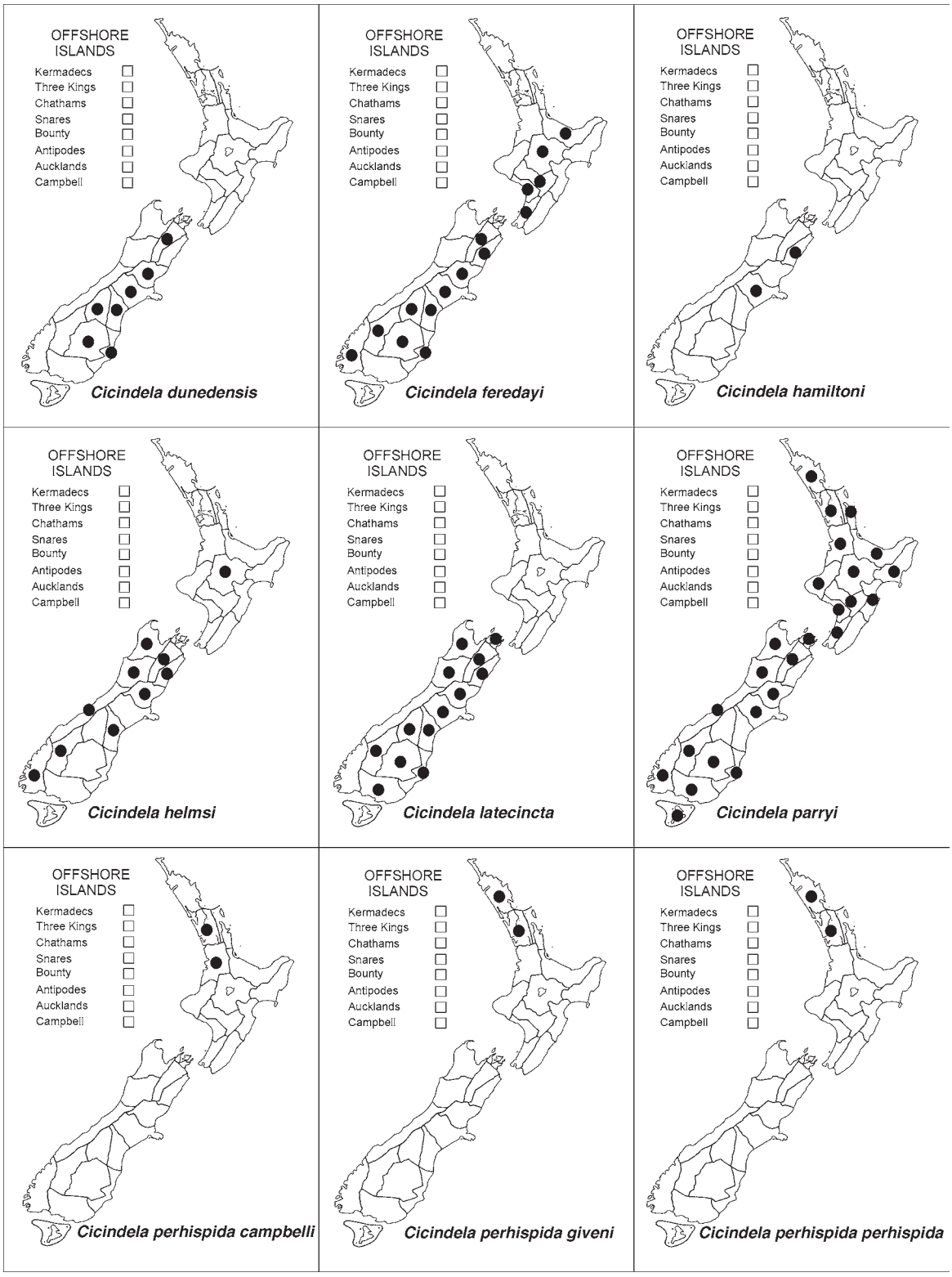
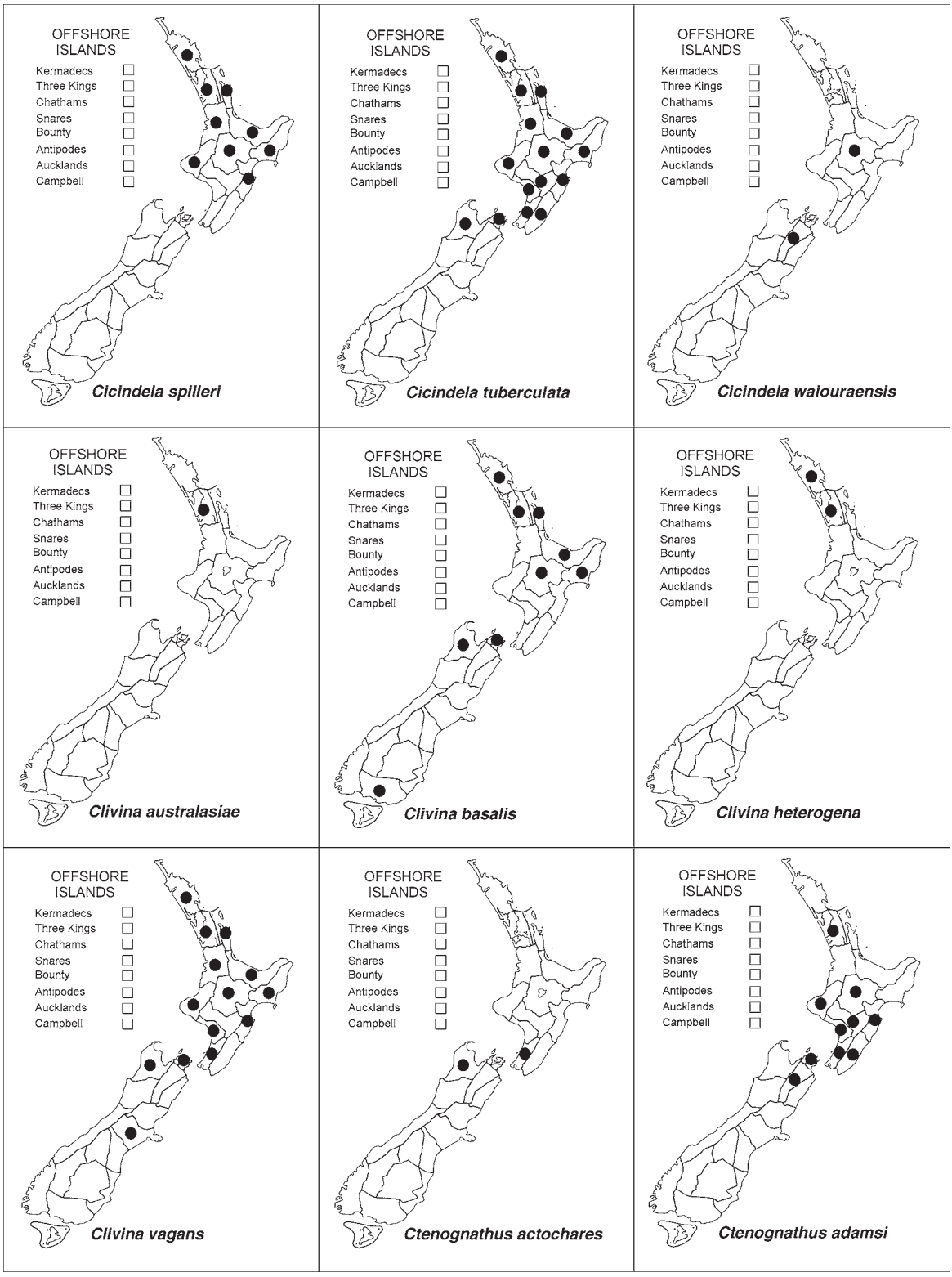
Cerabilia major
Cerabilia maori
Cerabilia oblonga
Cicindela austromontana
Cicindela brevilunata


OFFSHORE ISLANDS
Kermadecs
Three Kings
Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
Cicindela dunedensis
Cicindela feredayi
Cicindela hamiltoni
Cicindela helmsi
Cicindela latecincta
Cicindela parryi
Cicindela perhispida campbelli
Cicindela perhispida giveni
Cicindela perhispida perhispida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Aucklands
Campbell
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Cicindela waiouraensis
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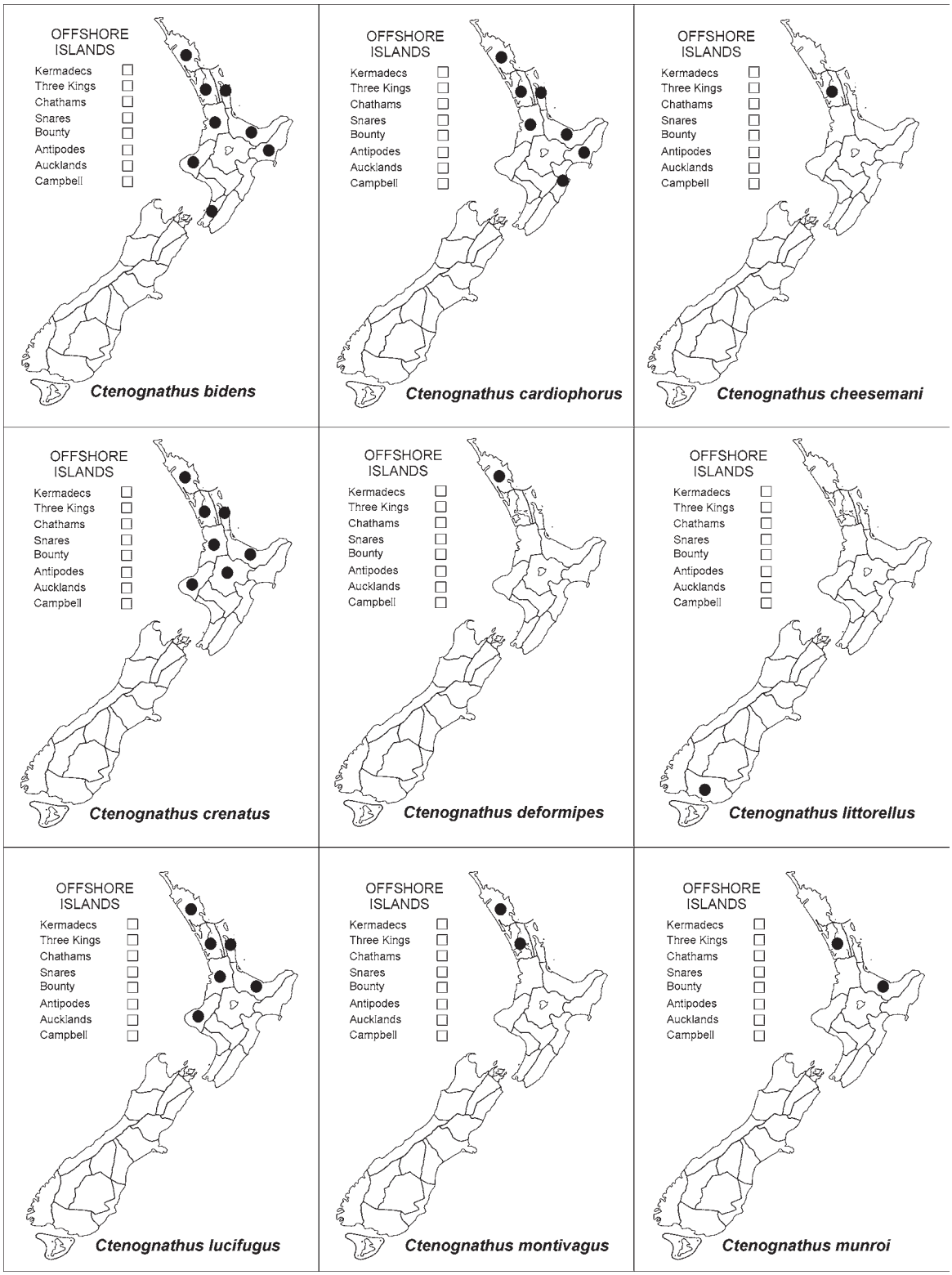
Clivina heterogena
Clivina vagans
Ctenognathus actochares
Ctenognathus adamsi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Ctenognathus cheesemani
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Ctenognathus montivagus
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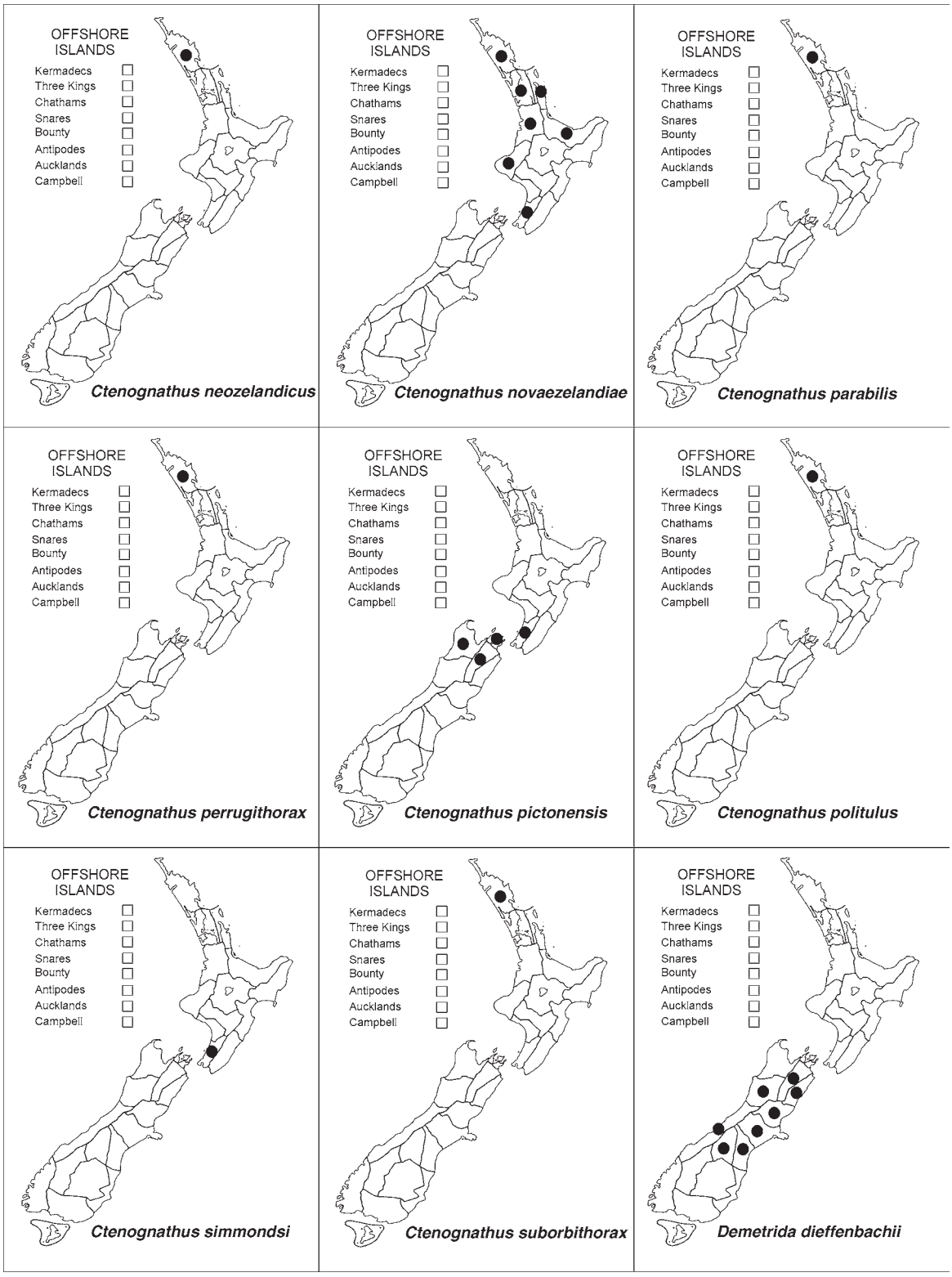
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Ctenognathus neozelandicus
Ctenognathus novaezelandiae
Ctenognathus parabilis
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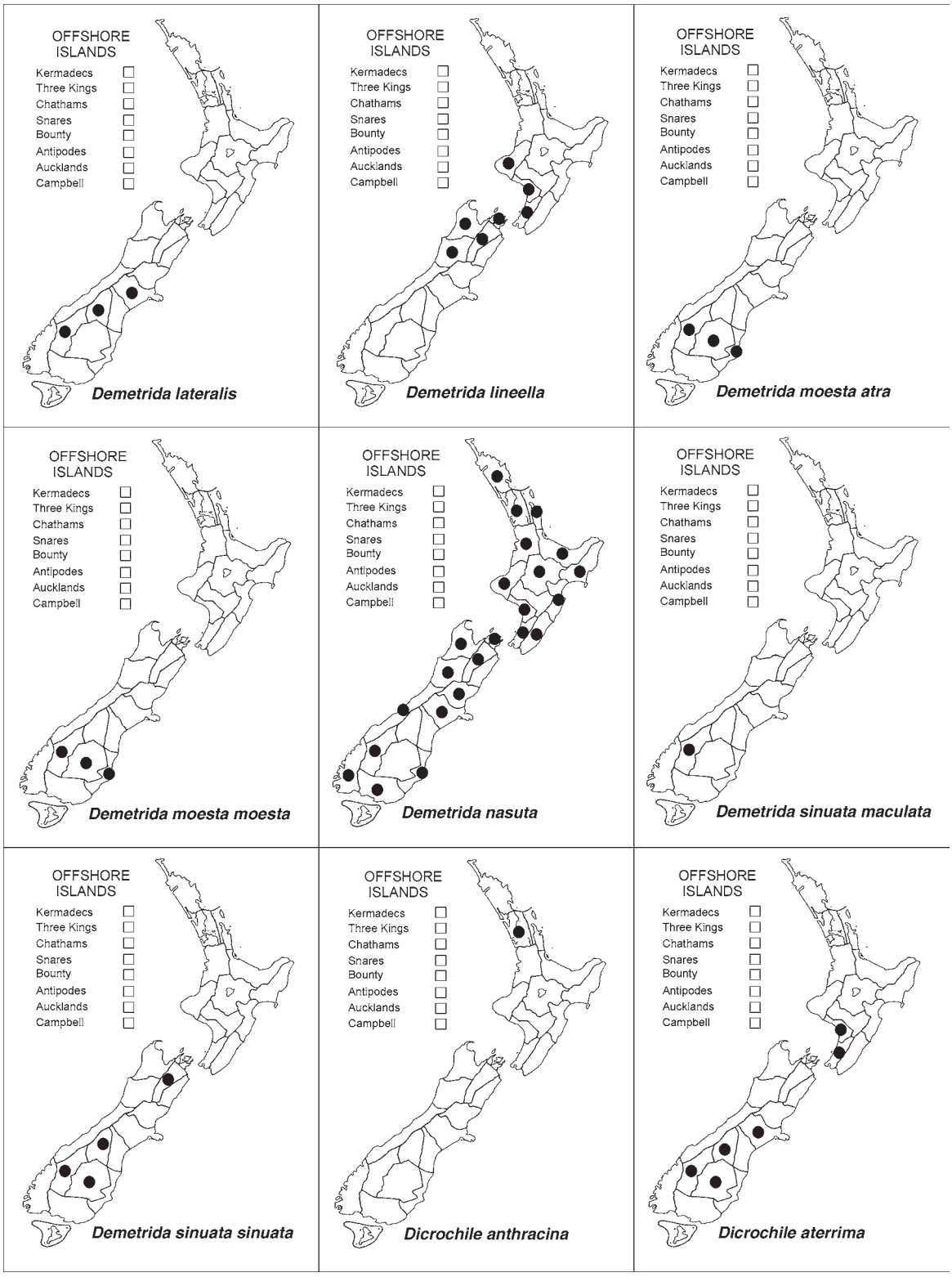
Ctenognathus suborbithorax
Demetrida dieffenbachii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Antipodes
Aucklands
Campbell
Demetrida lateralis
Demetrida lineella
Demetrida moesta atra
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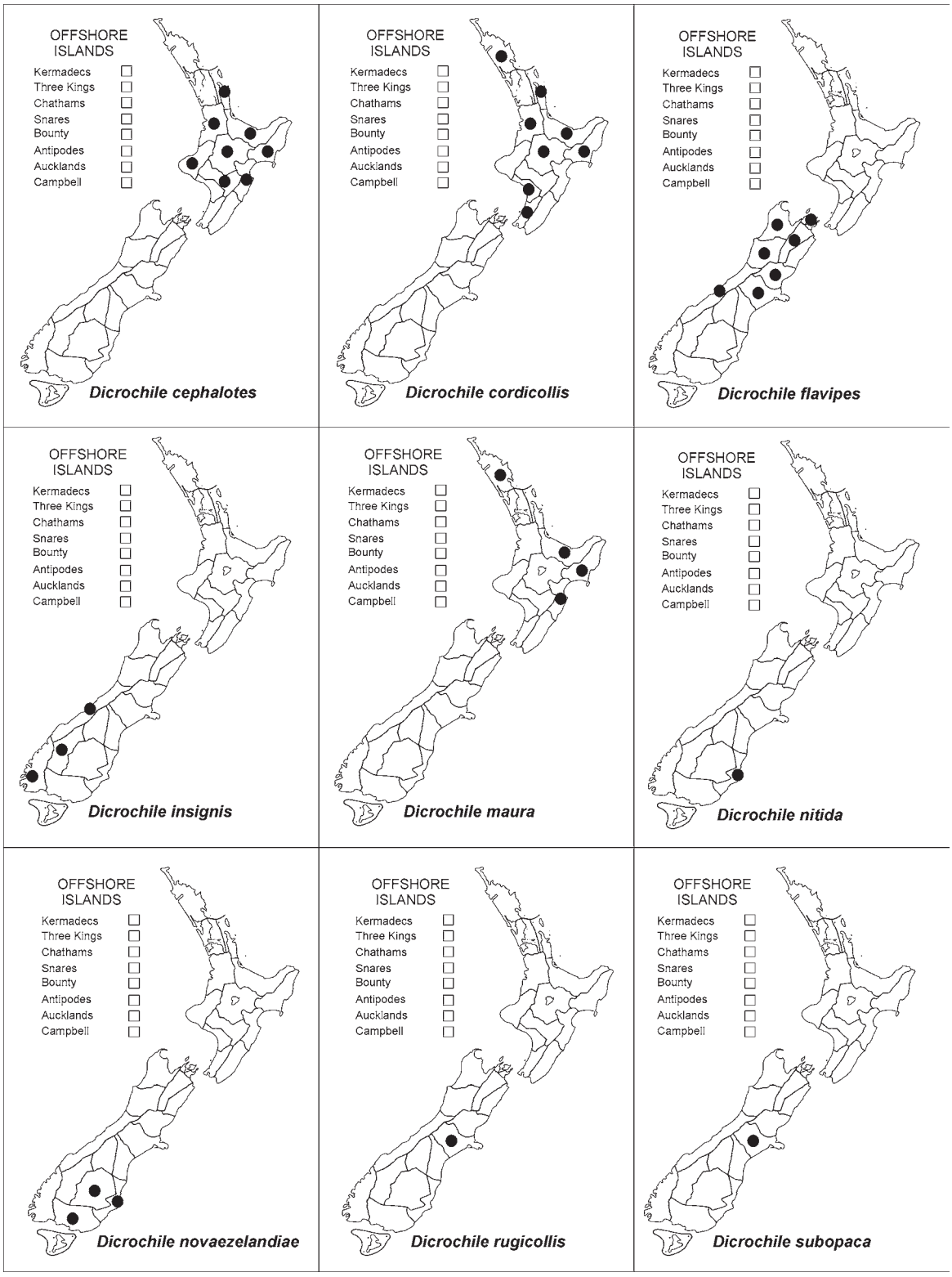
Demetrida sinuata sinuata
Dicrochile anthracina
Dicrochile aterrima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Campbell
Dicrochile cephalotes
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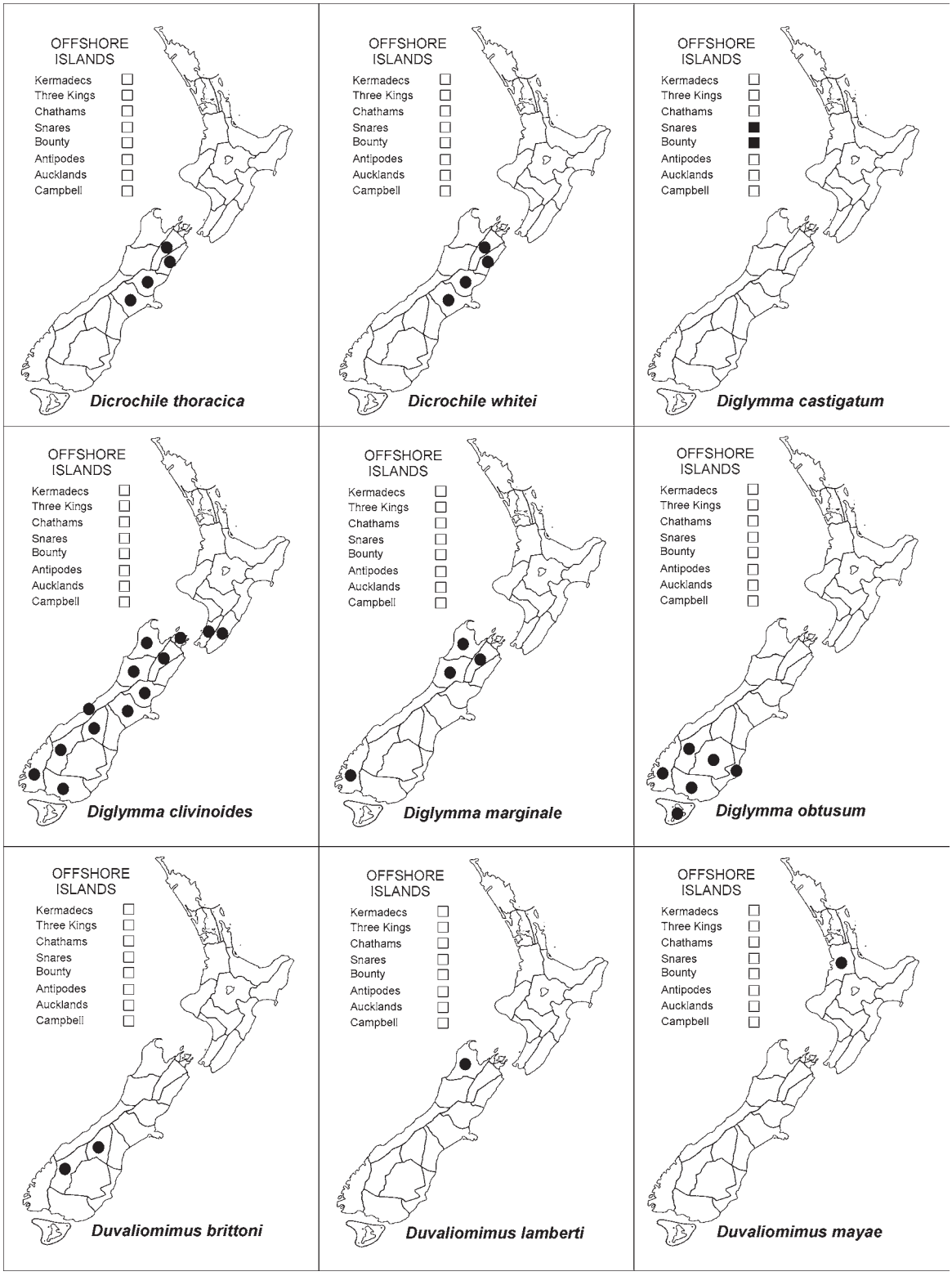
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Campbell
Dicrochile thoracica
Dicrochile whitei
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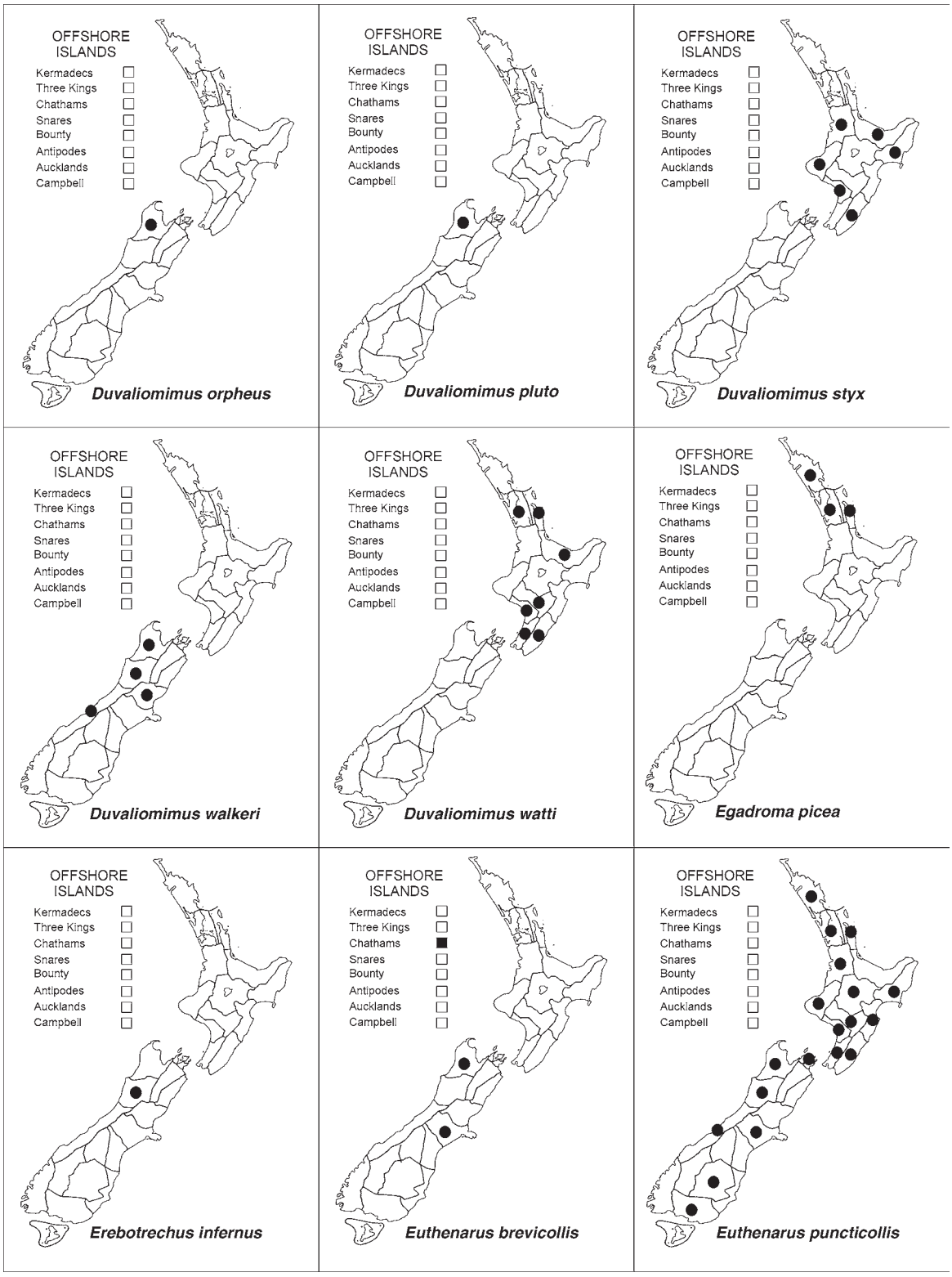
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Snares
Bounty
Antipodes
Aucklands
Campbell
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Duvaliomimus pluto
Duvaliomimus styx
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Duvaliomimus watti
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Erebotrechus infernus
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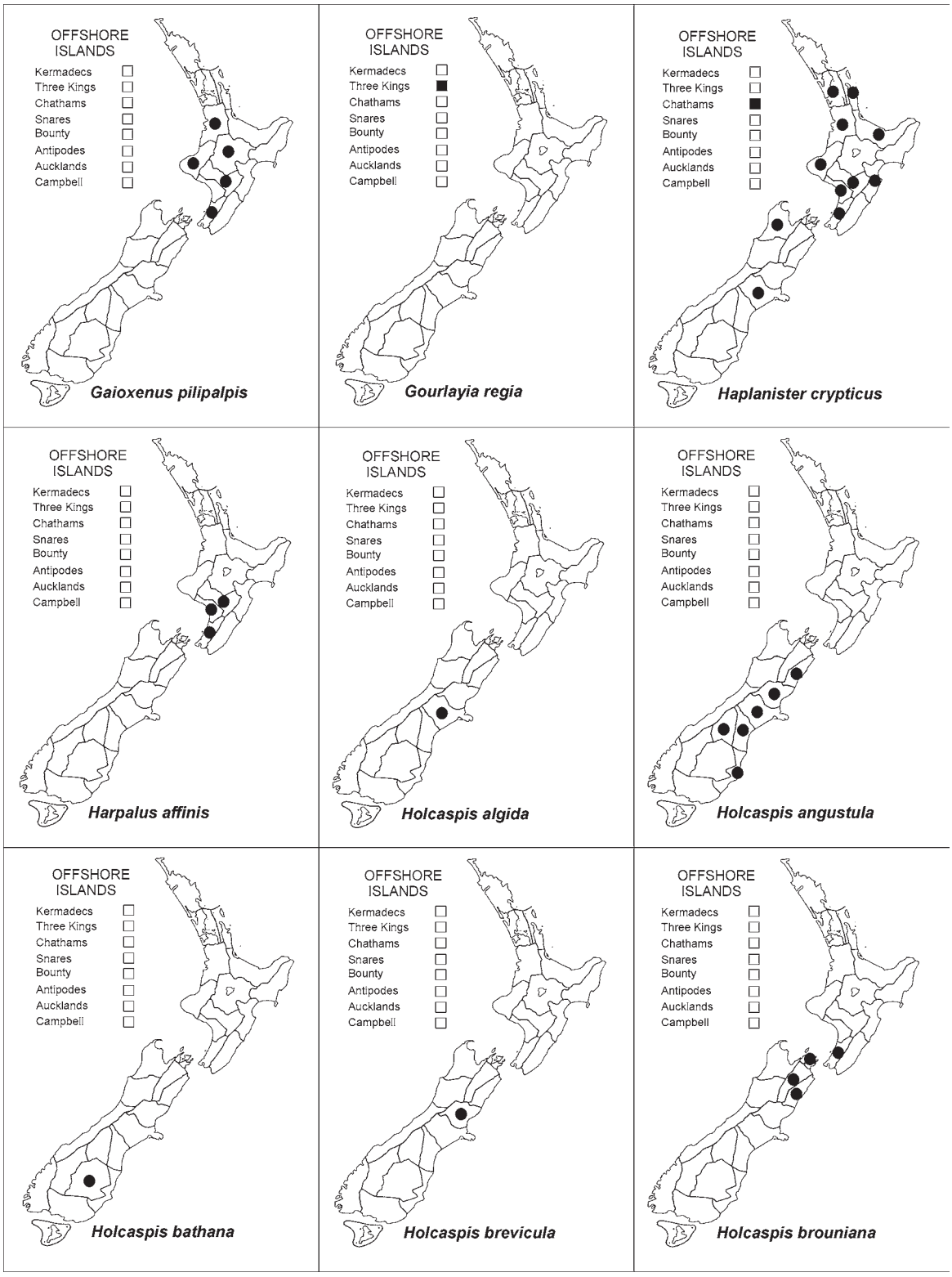
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Antipodes
Aucklands
Campbell
Gaioxenus pilipalpis
Gourlayia regia
Haplanister crypticus
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Holcaspis algida
Holcaspis angustula
Holcaspis bathana
Holcaspis brevicula
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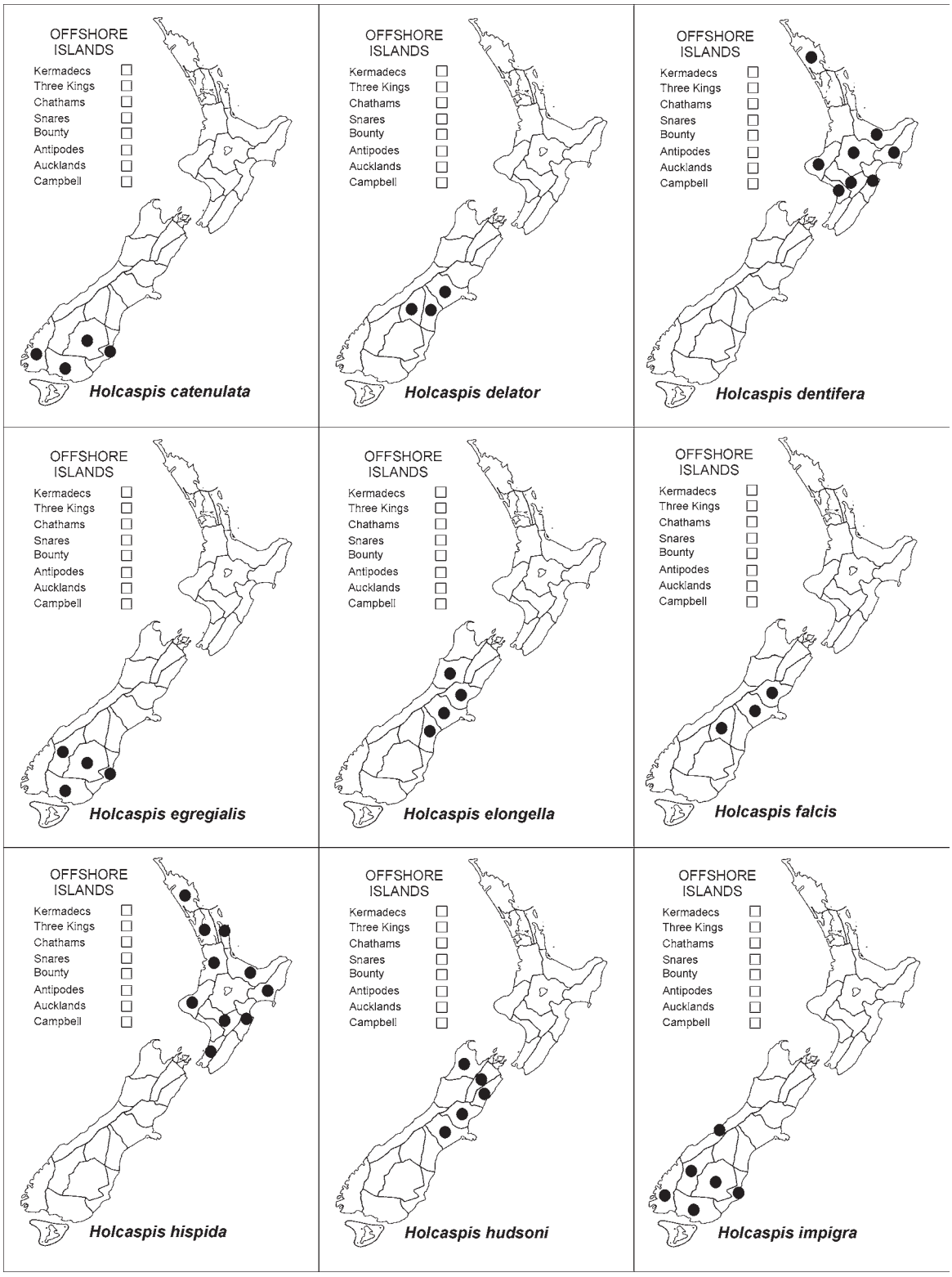
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Campbell
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Holcaspis delator
Holcaspis dentifera
Holcaspis egregialis
Holcaspis elongella
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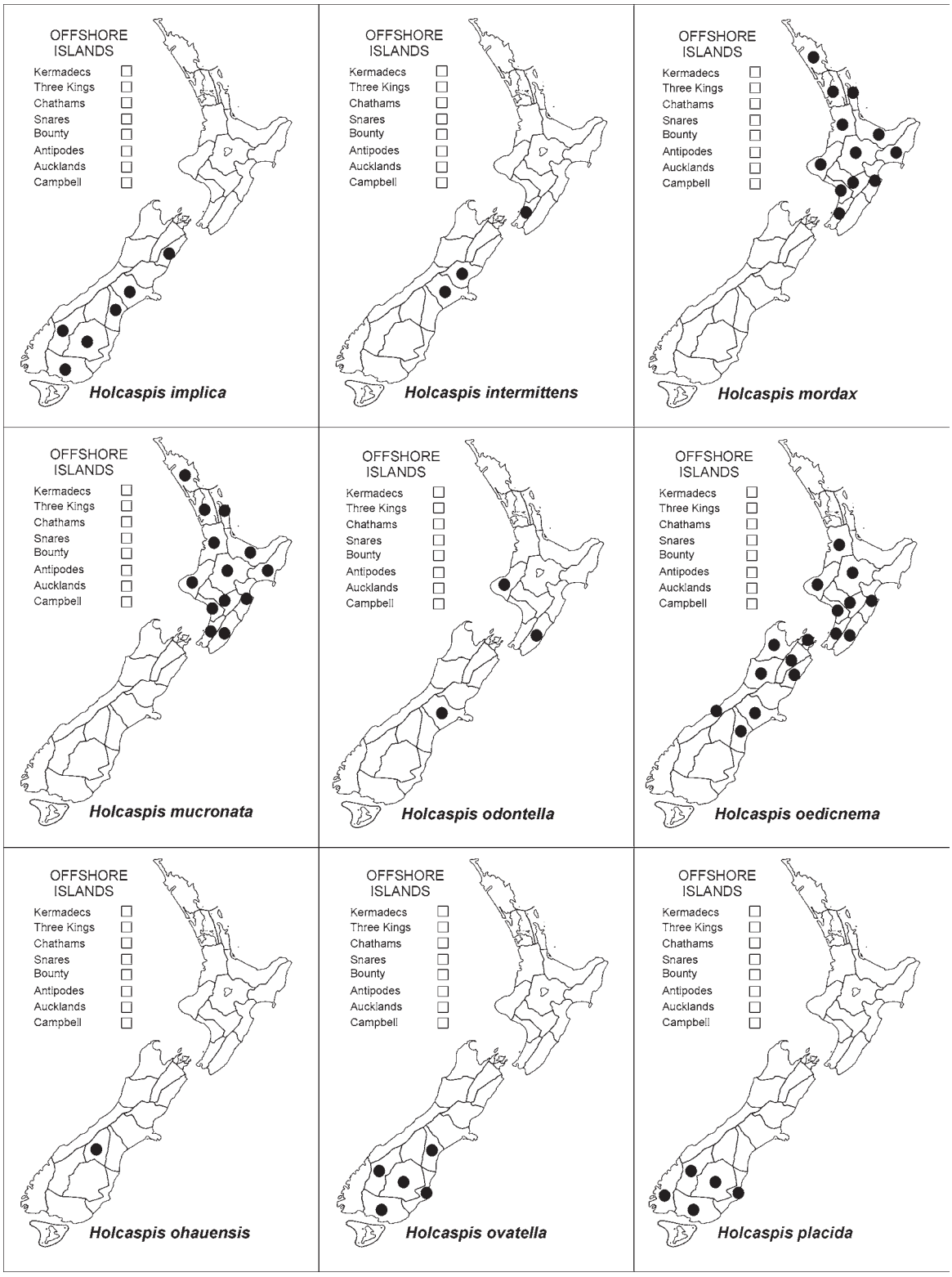
Holcaspis hispida
Holcaspis hudsoni
Holcaspis impigra


OFFSHORE ISLANDS
Kermadecs
Three Kings
Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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Holcaspis ohauensis
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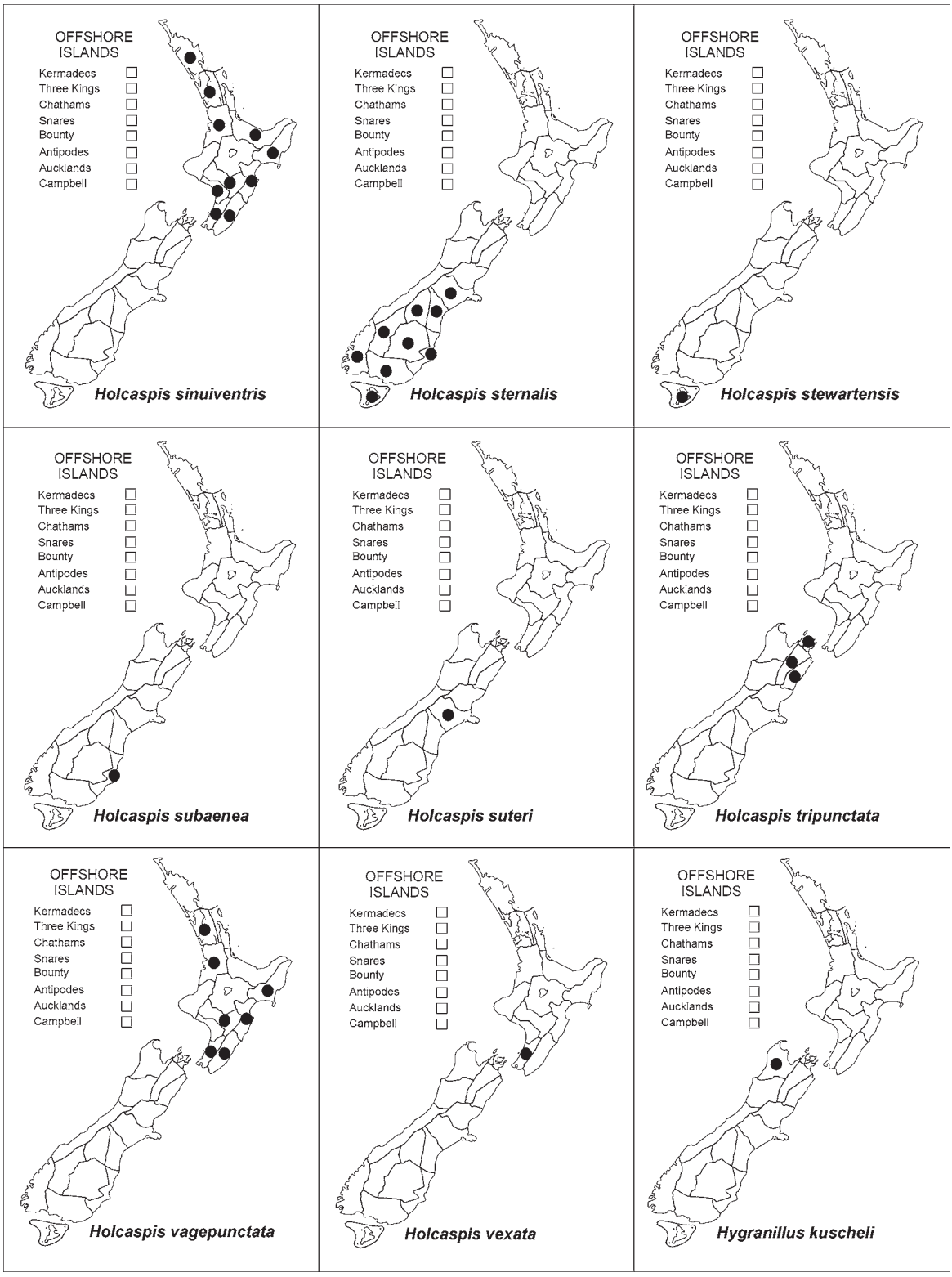
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Bounty
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Campbell
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Holcaspis stewartensis
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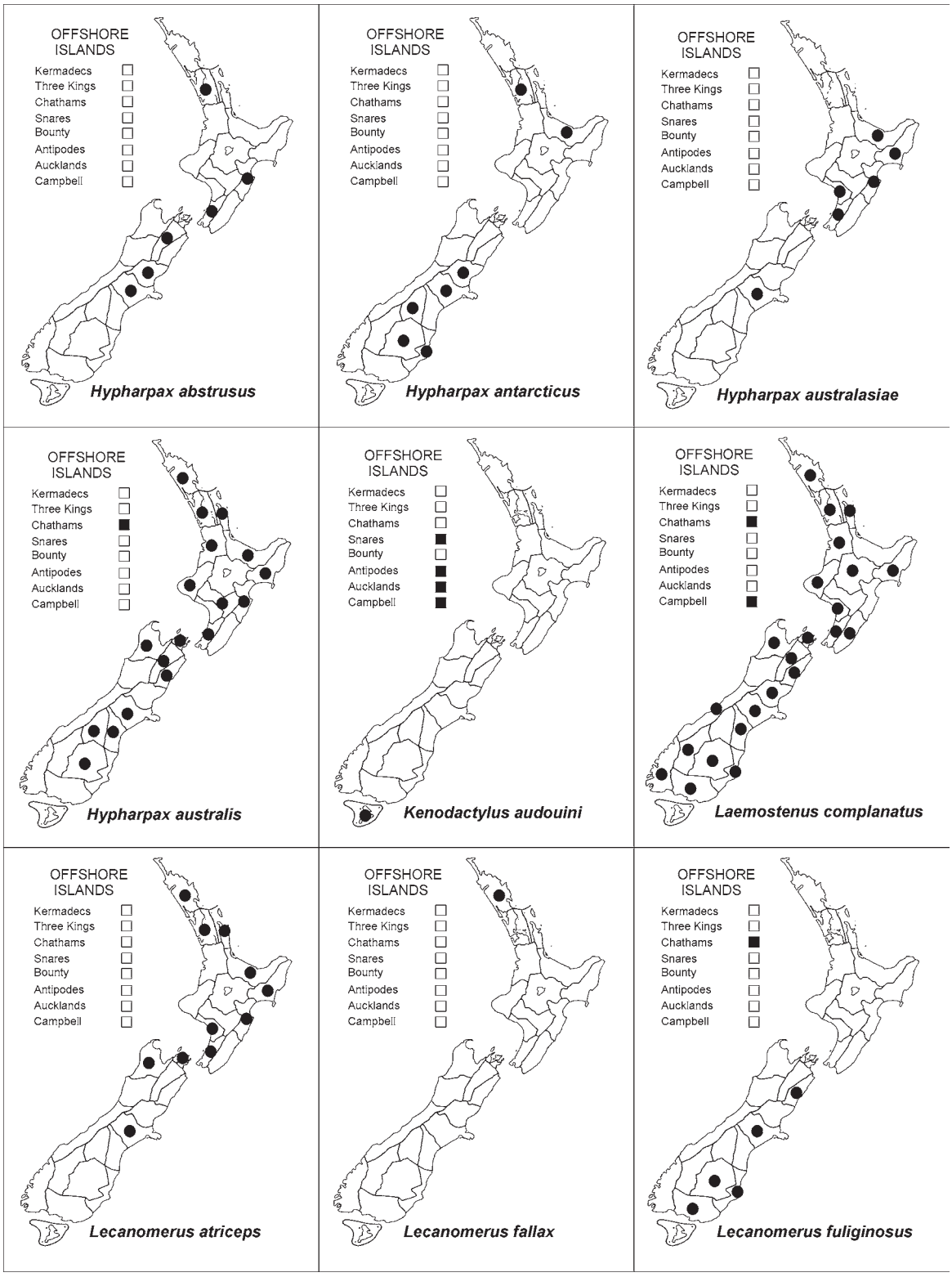
Holcaspis vexata
Hygranillus kuscheli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Bounty
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Hypharpax australasiae
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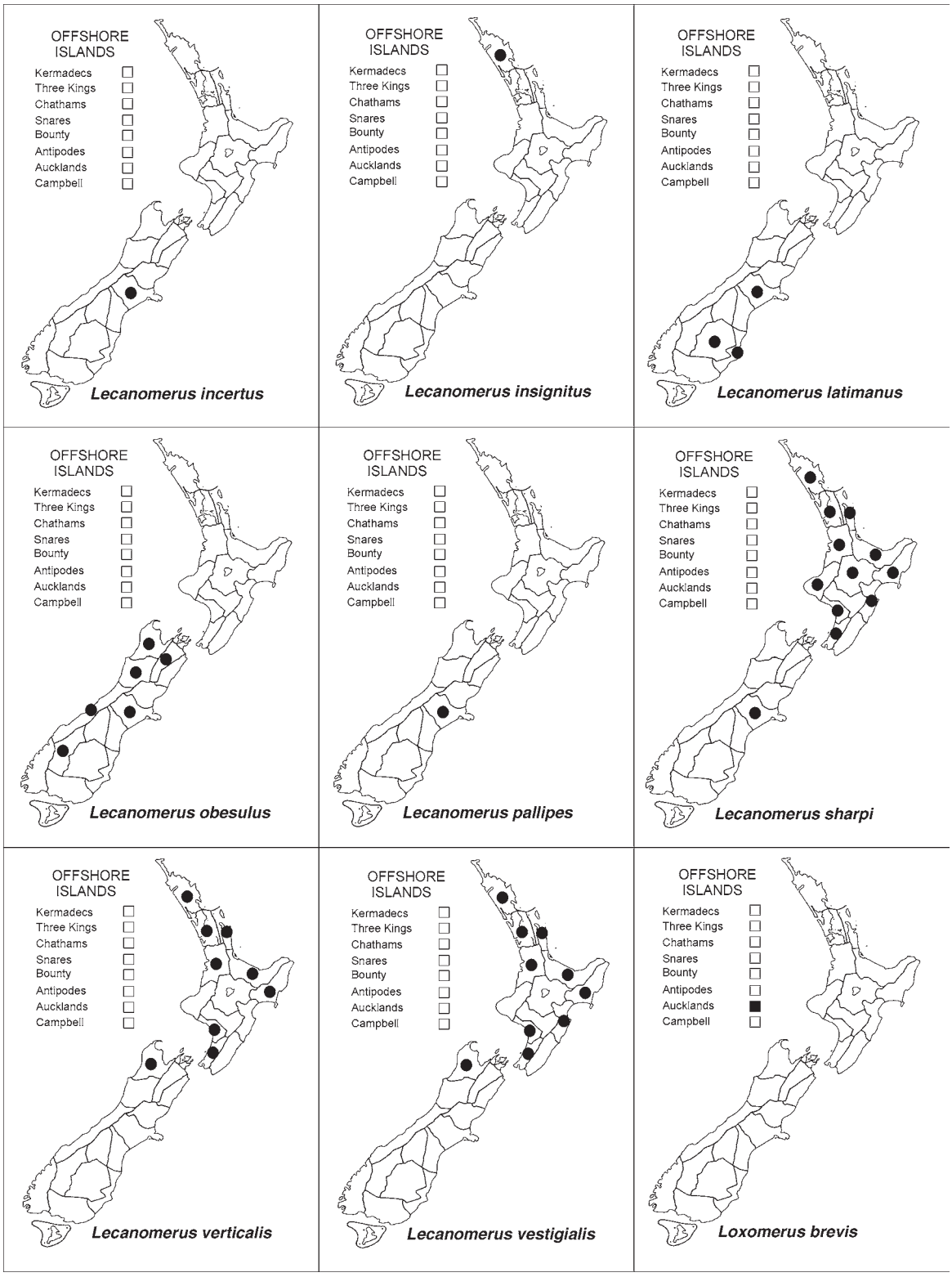
Laemostenus complanatus
Lecanomerus atriceps
Lecanomerus fallax
Lecanomerus fuliginosus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Lecanomerus latimanus
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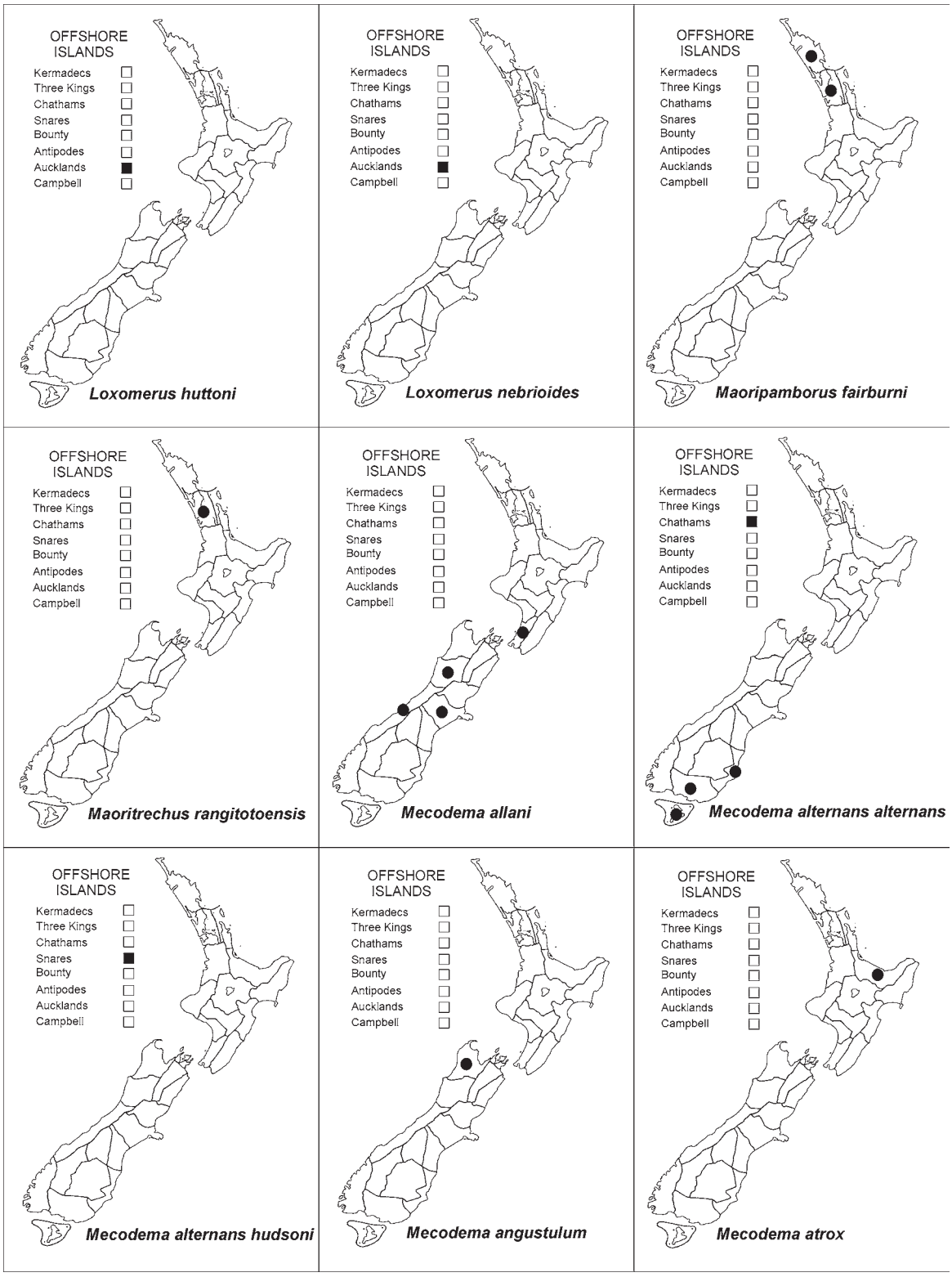
Lecanomerus verticalis
Lecanomerus vestigialis
Loxomerus brevis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Aucklands
Campbell
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Loxomerus nebrioides
Maoripamborus fairburni
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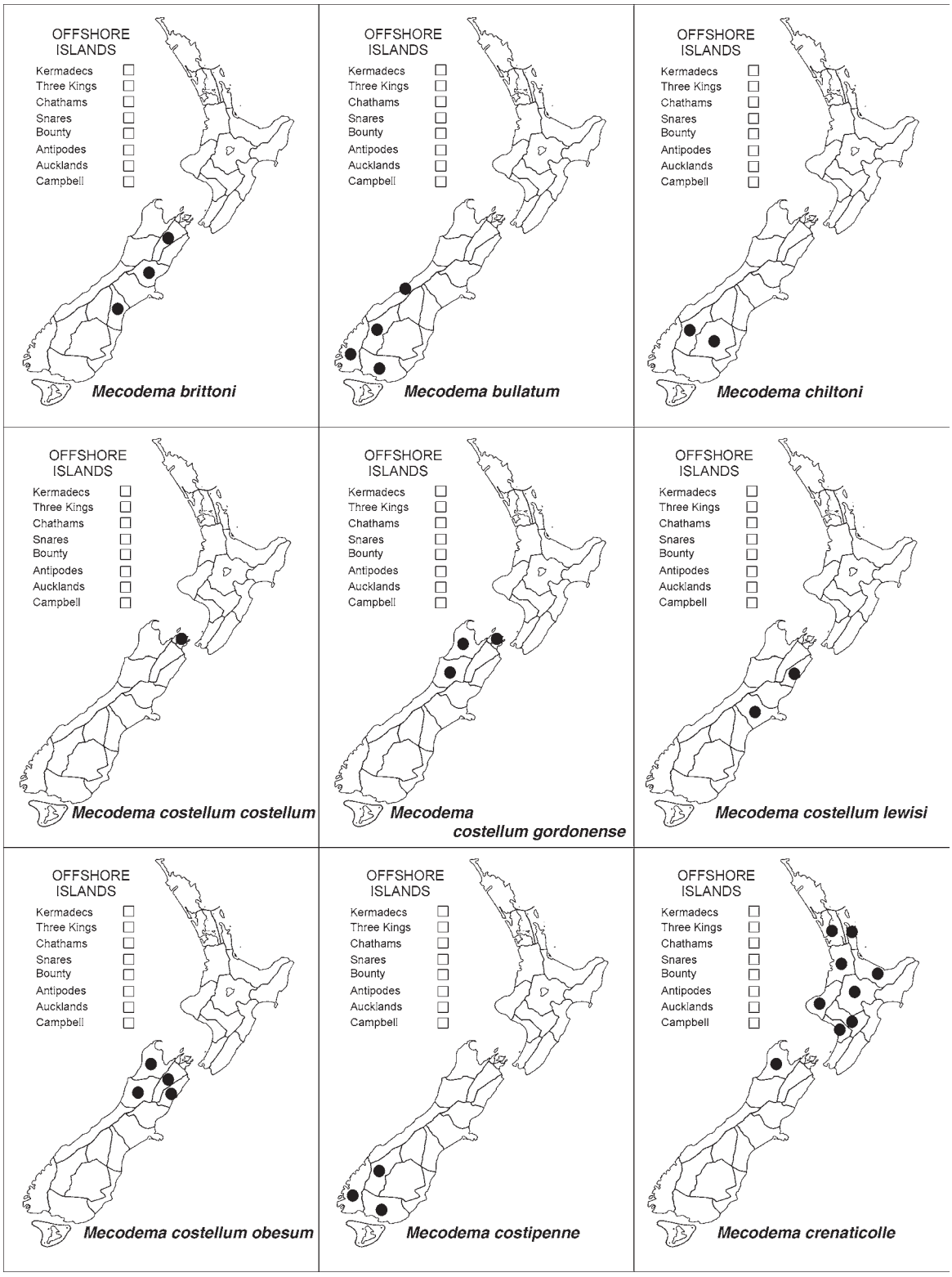
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Mecodema chiltoni
Mecodema costellum costellum
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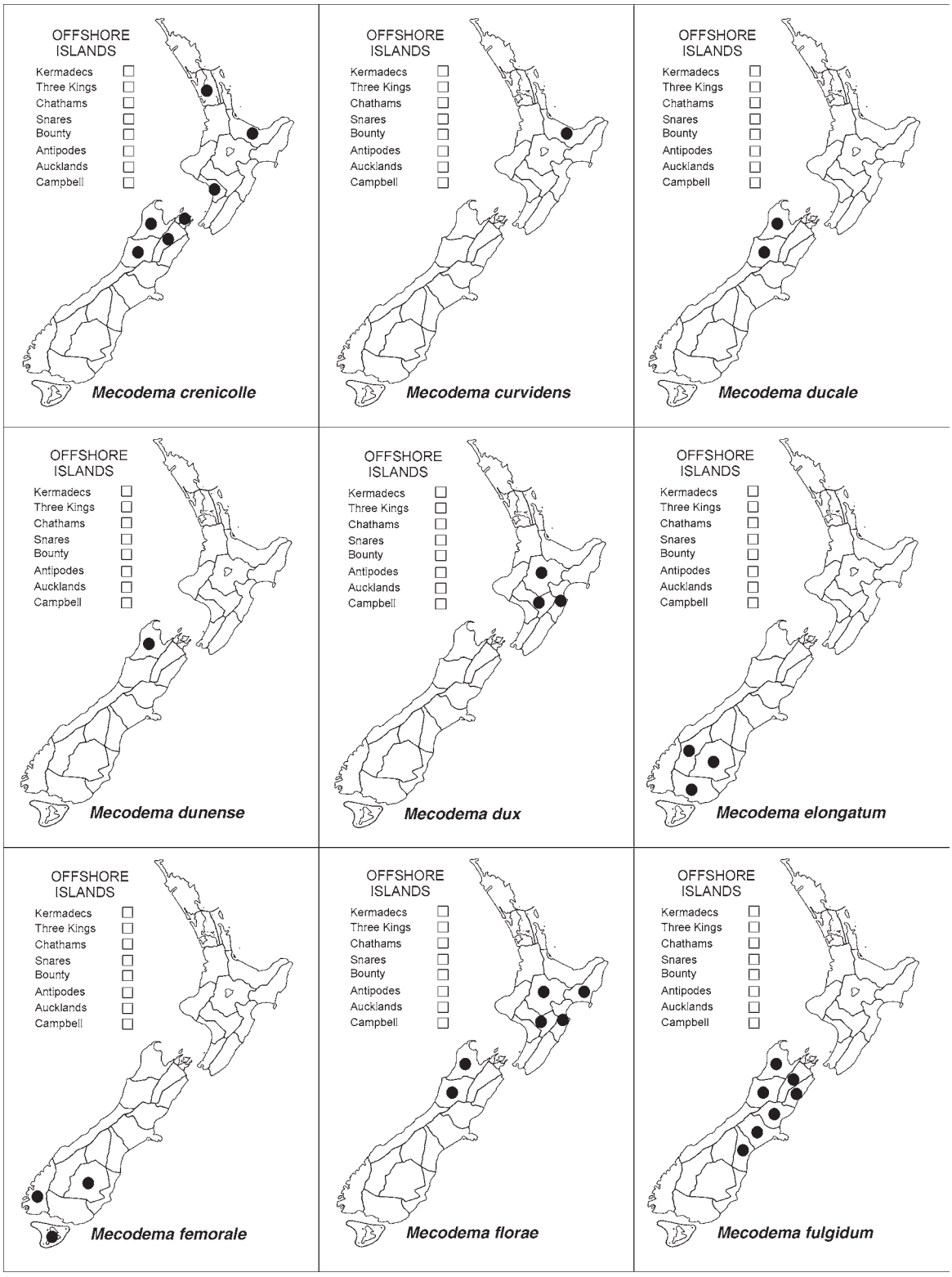
Mecodema costipenne
Mecodema crenaticolle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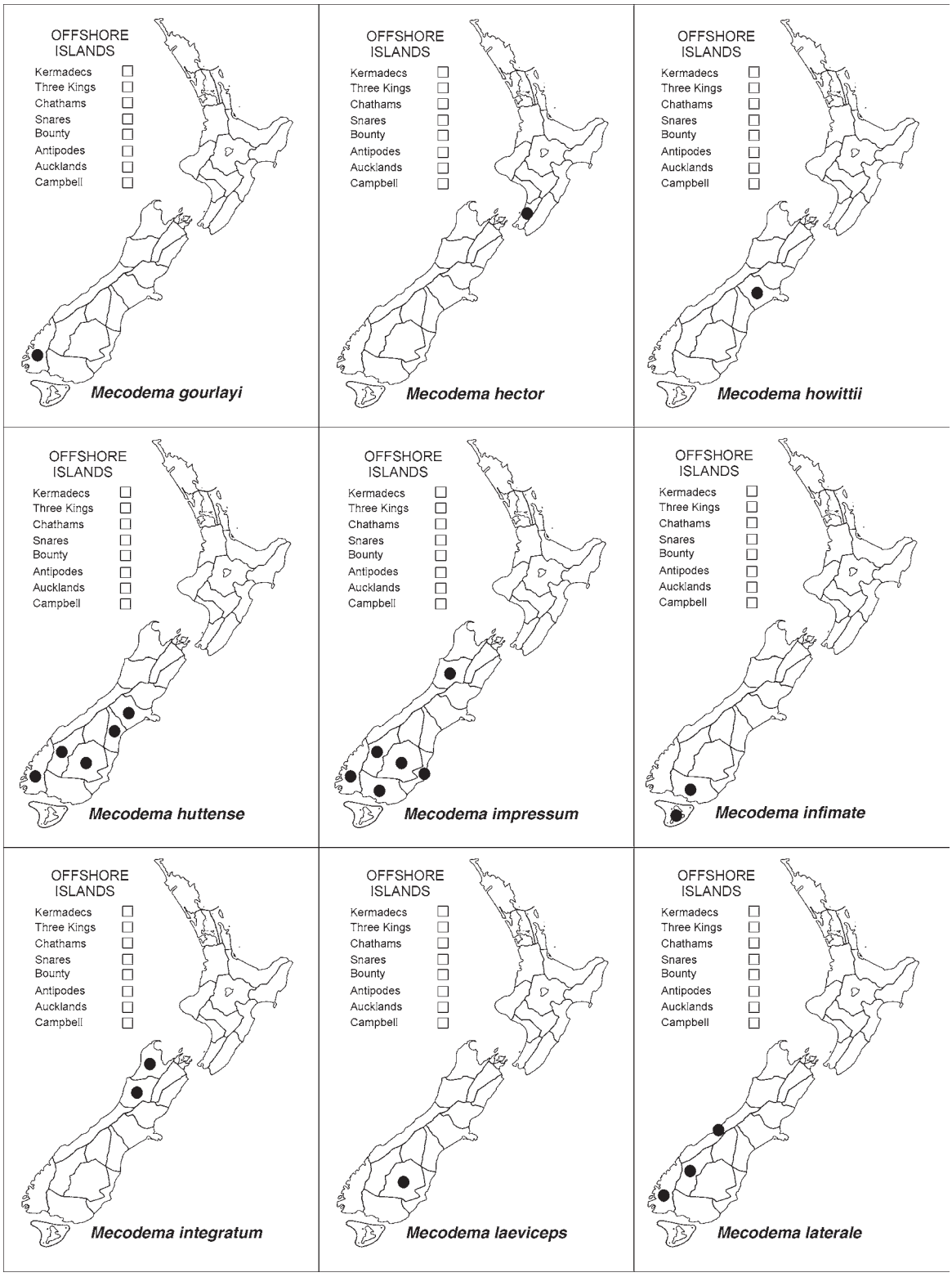
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Campbell
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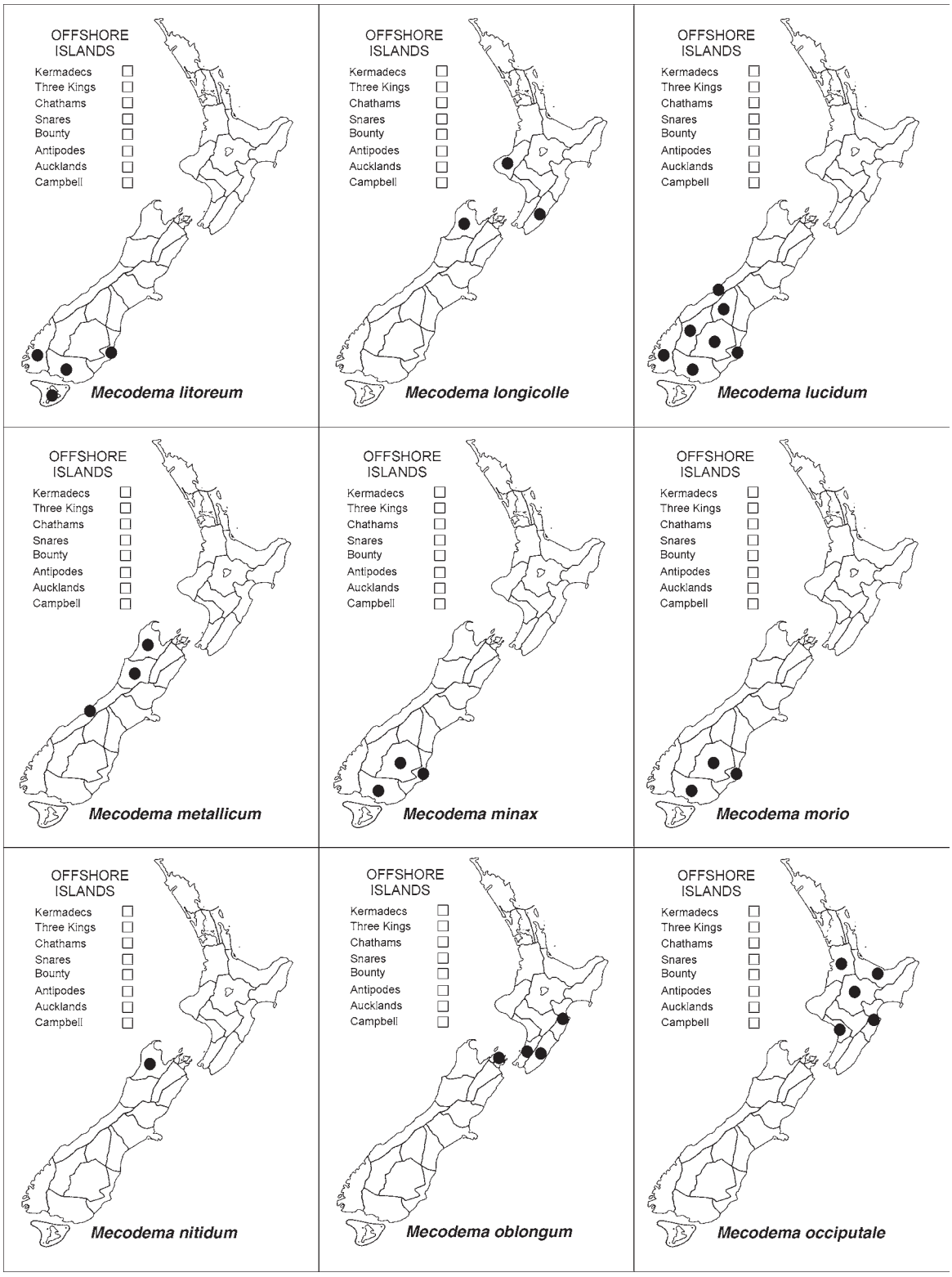
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Antipodes
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Campbell
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Mecodema nitidum
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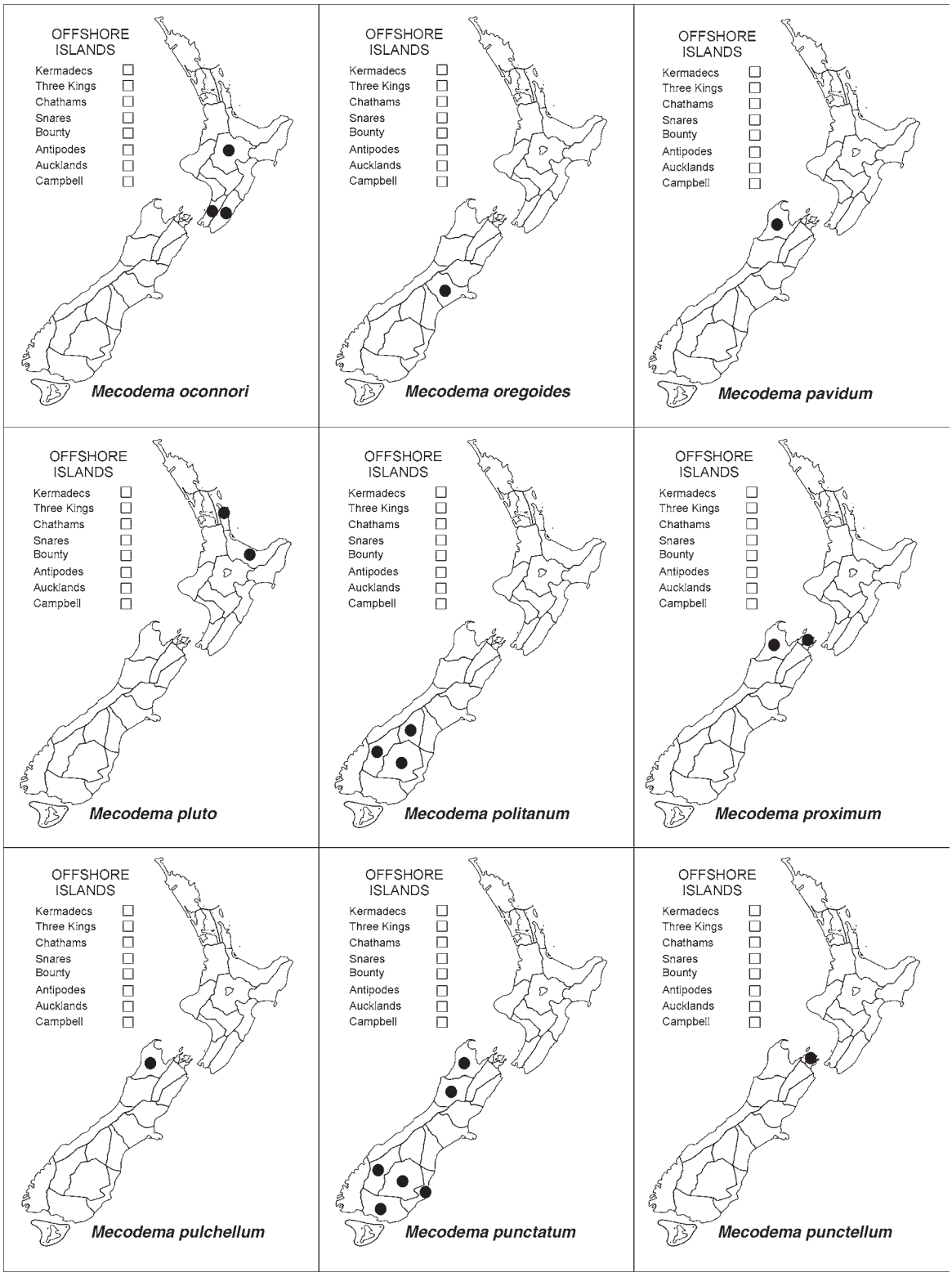
Mecodema occiputale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Campbell
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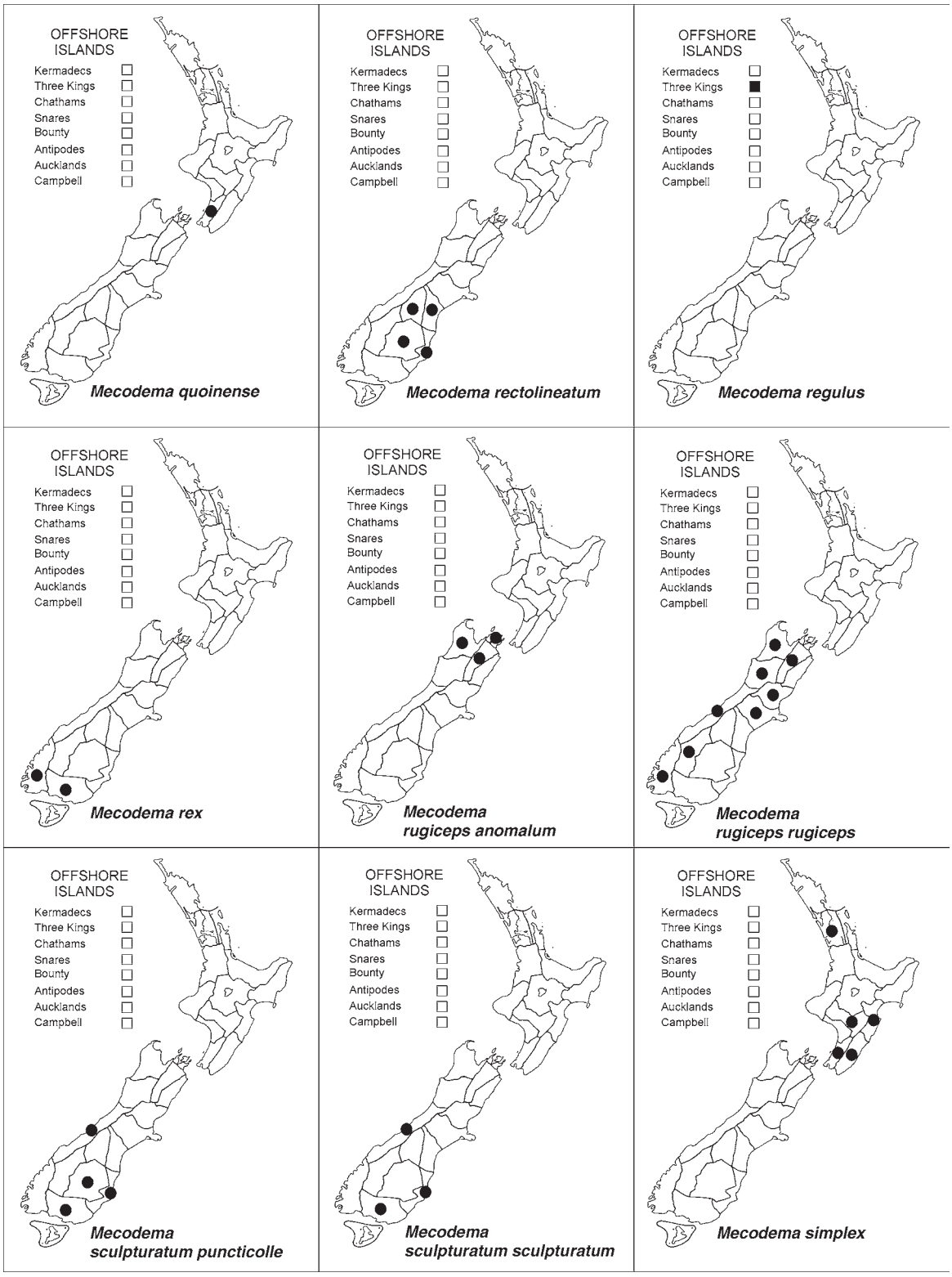
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Bounty
Antipodes
Aucklands
Campbell
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Mecodema regulus
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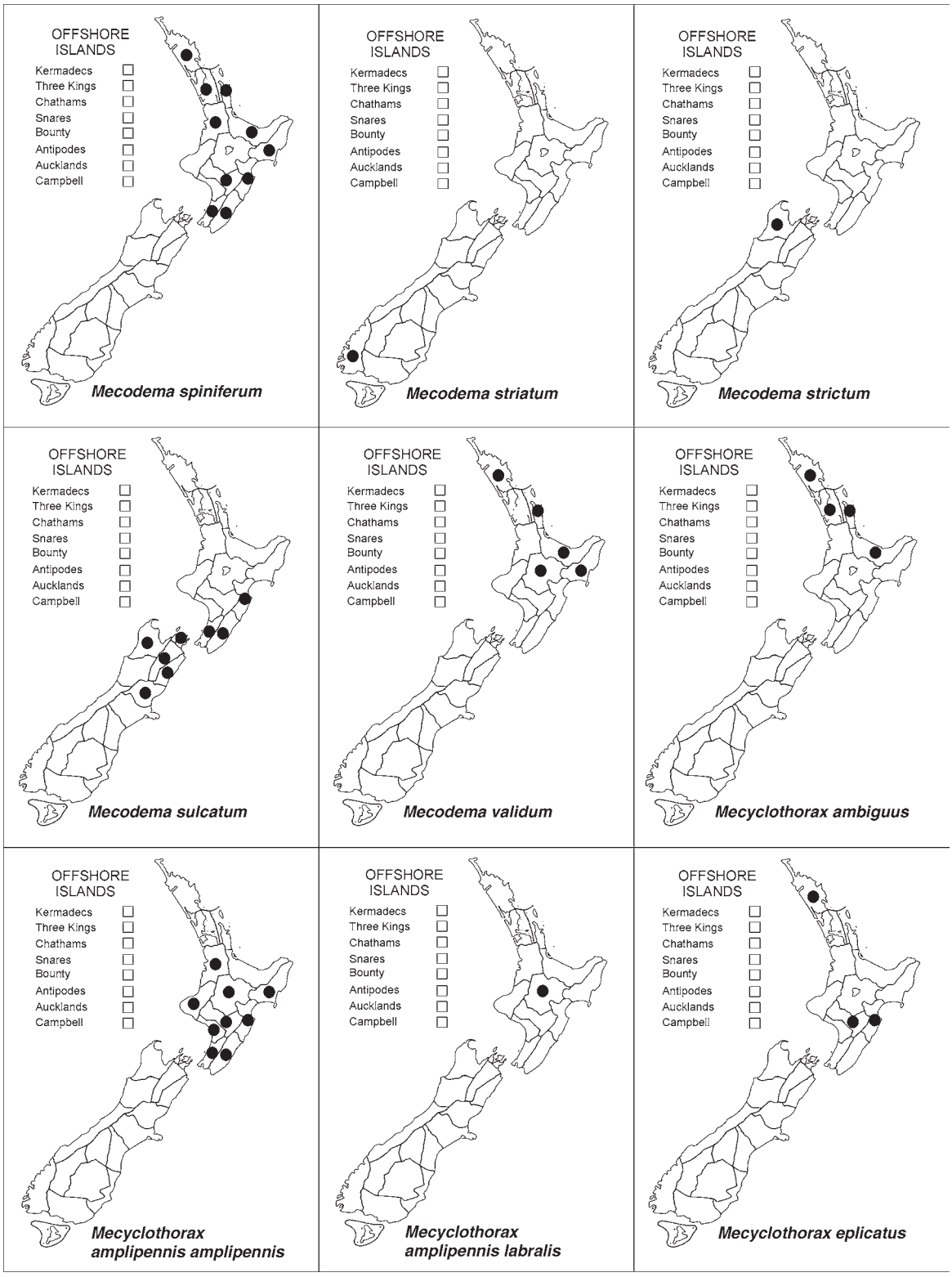
Mecodema simplex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Bounty
Antipodes
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Campbell
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Mecodema striatum
Mecodema strictum
Mecodema sulcatum
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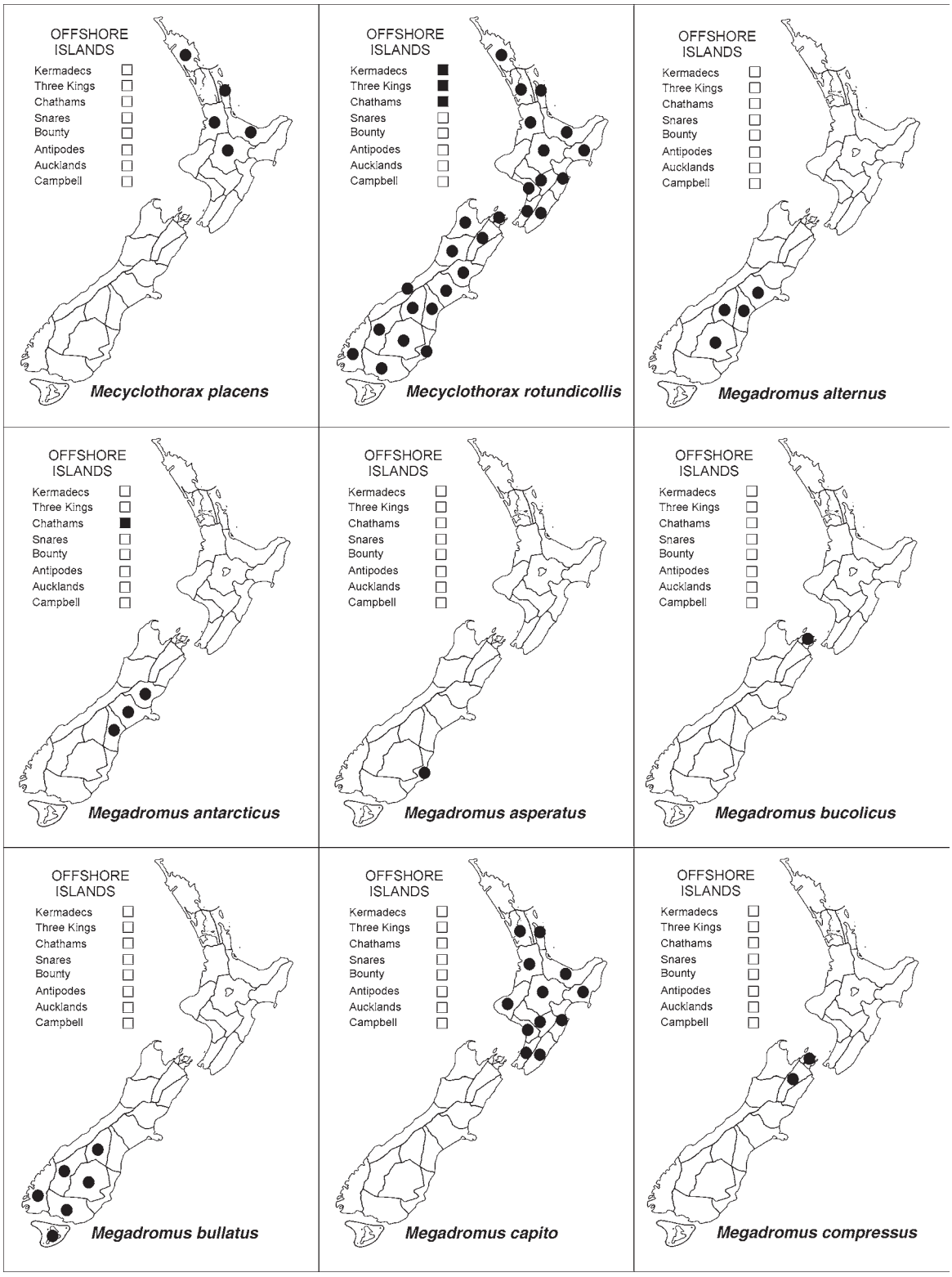
Mecyclothorax amplipennis labralis
Mecyclothorax eplicatus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Antipodes
Aucklands
Campbell
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Megadromus alternus
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Megadromus bullatus
Megadromus capito
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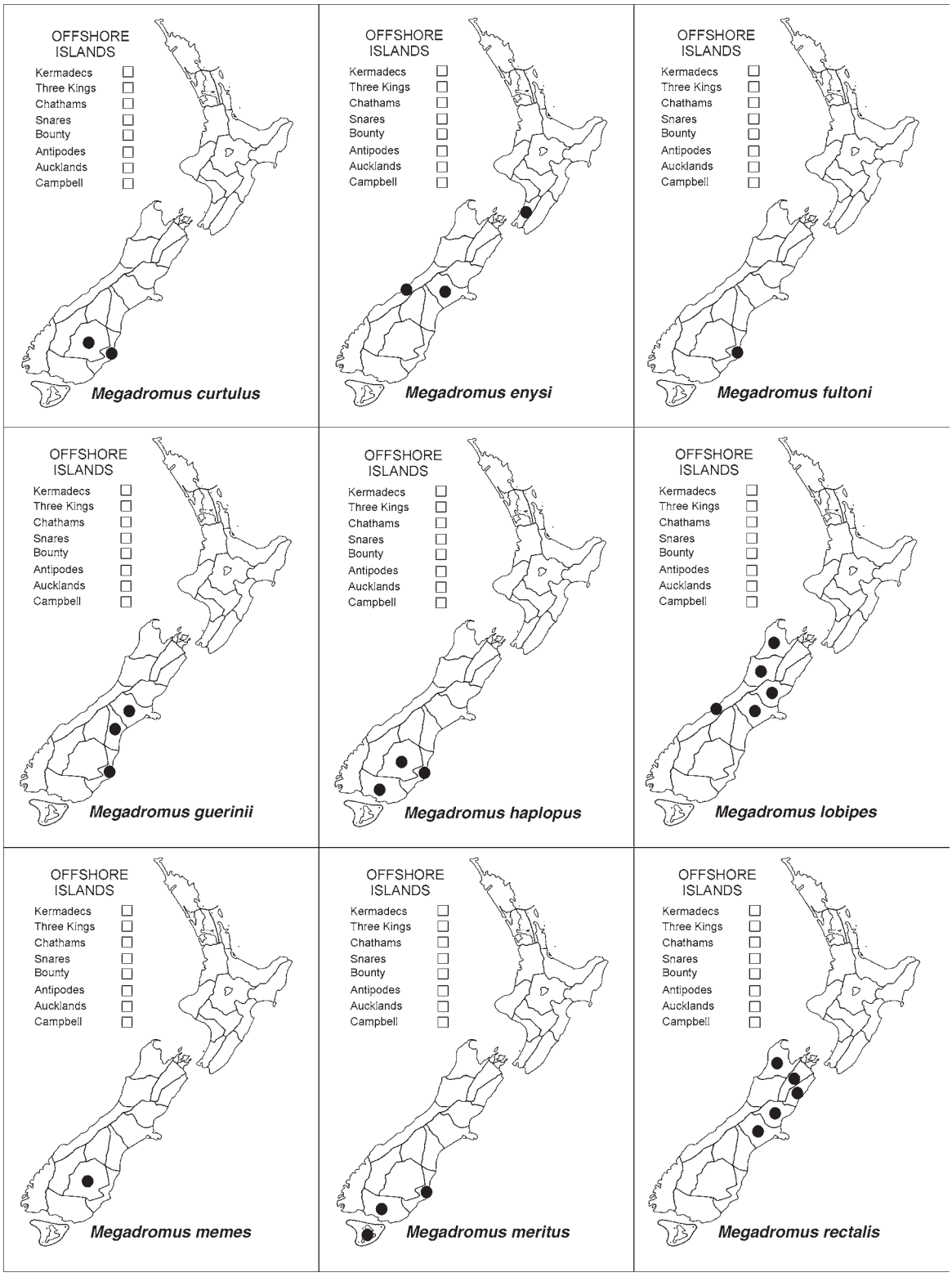
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Antipodes
Aucklands
Campbell
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Megadromus fultoni
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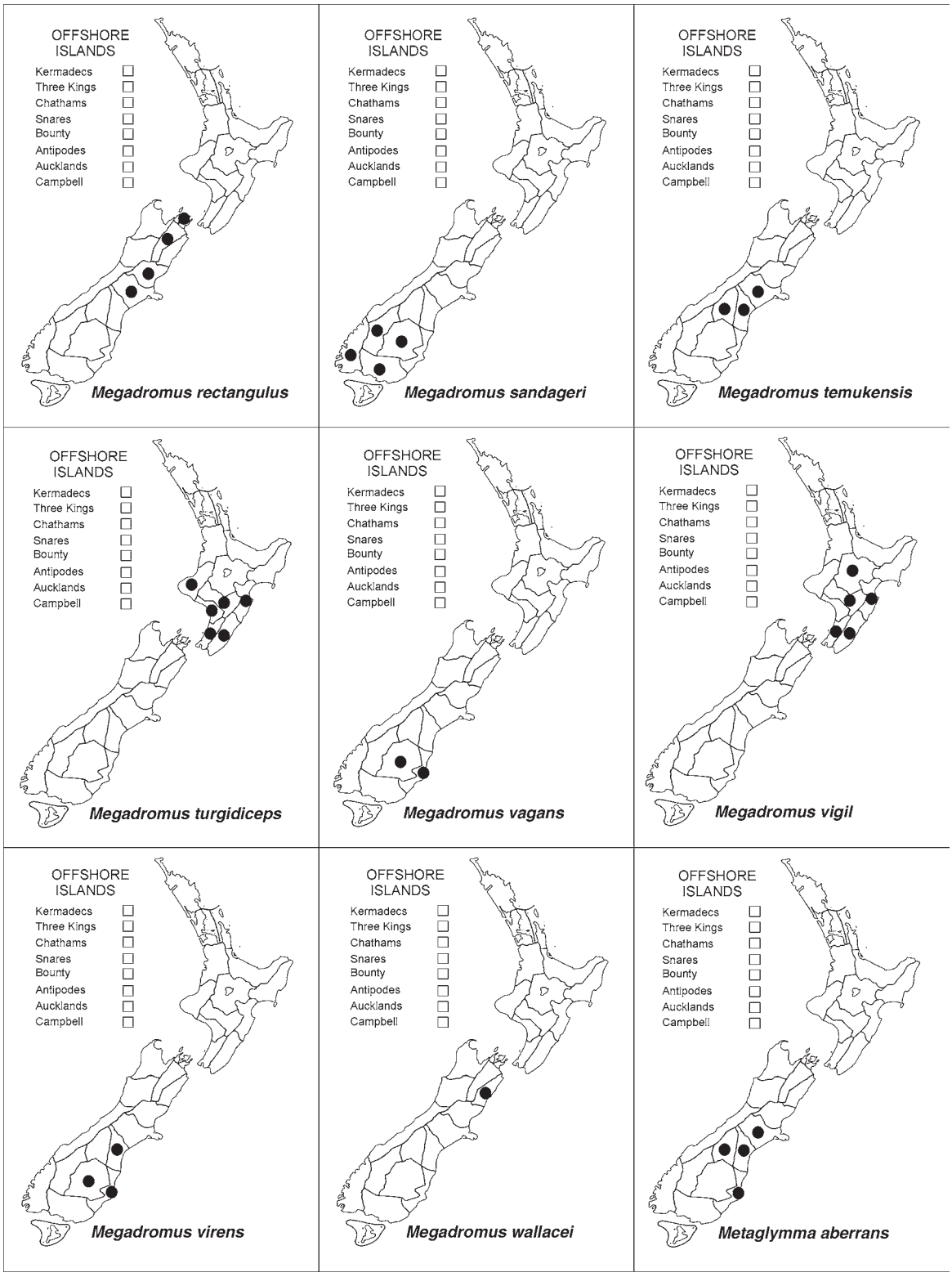
OFFSHORE ISLANDS
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Bounty
Antipodes
Aucklands
Campbell
Megadromus rectangulus
Megadromus sandageri
Megadromus temukensis
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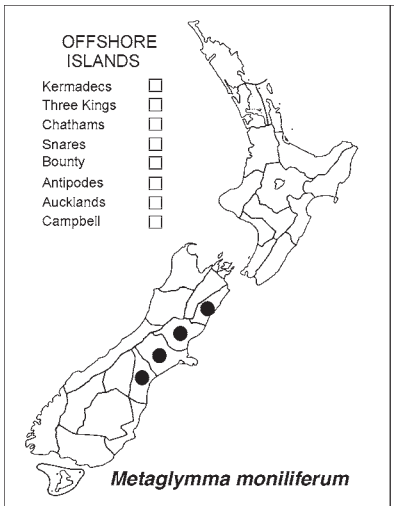
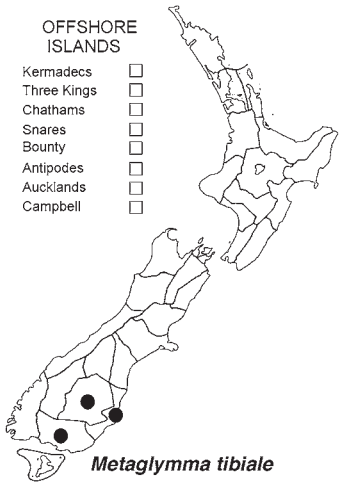
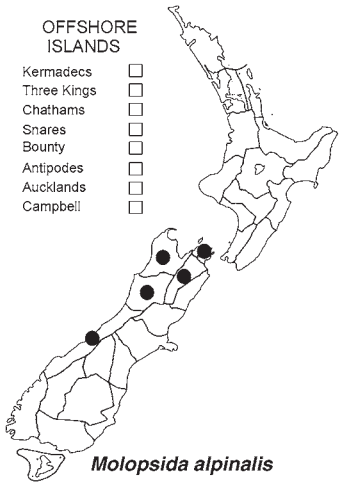
Metaglymma aberrans



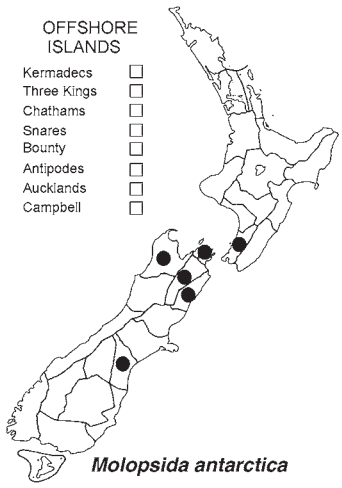
Metaglymma moniliferum



Metaglymma tibiale



Molopsida alpinalis



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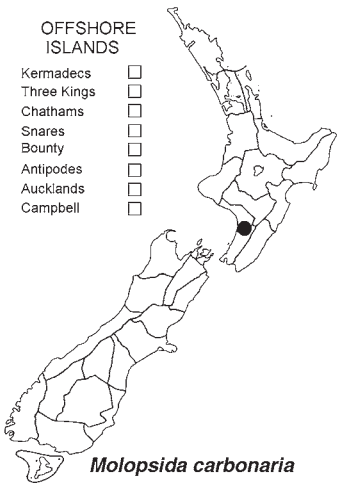

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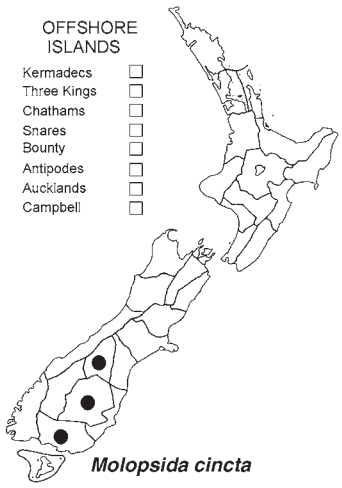

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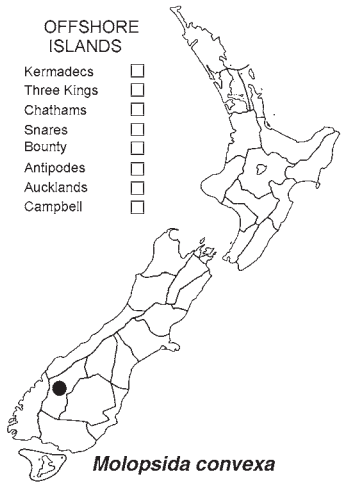

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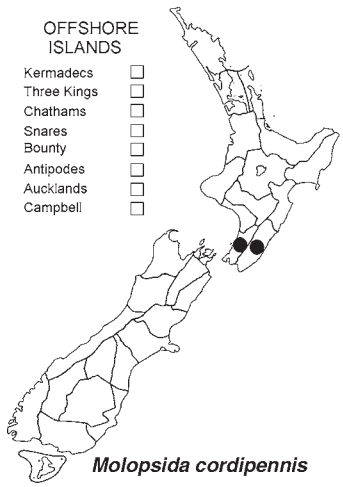

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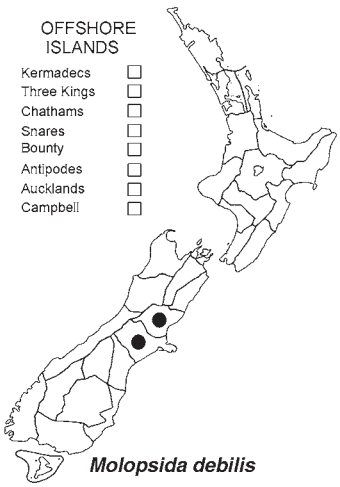

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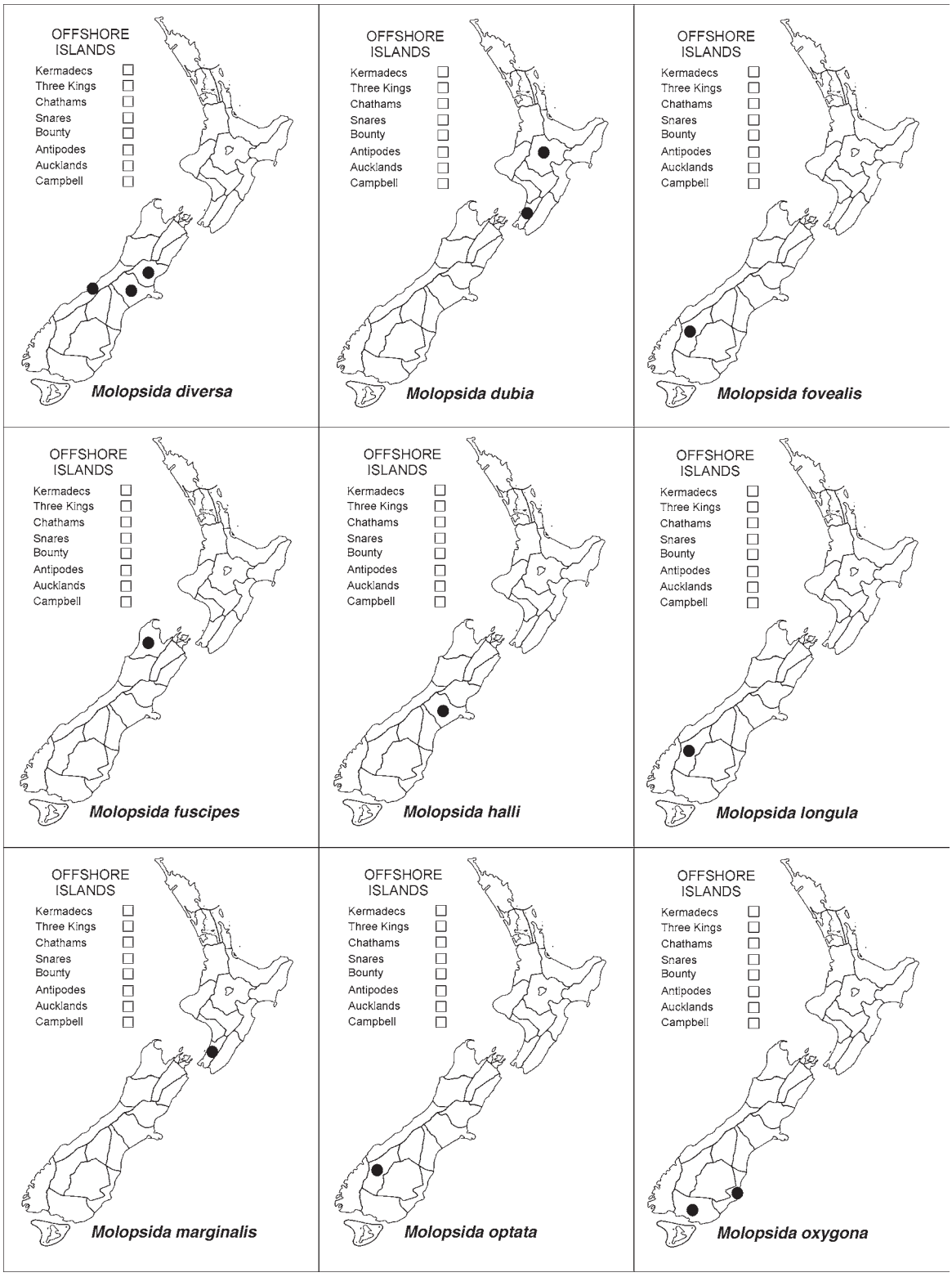
OFFSHORE ISLANDS
Kermadecs
Three Kings
Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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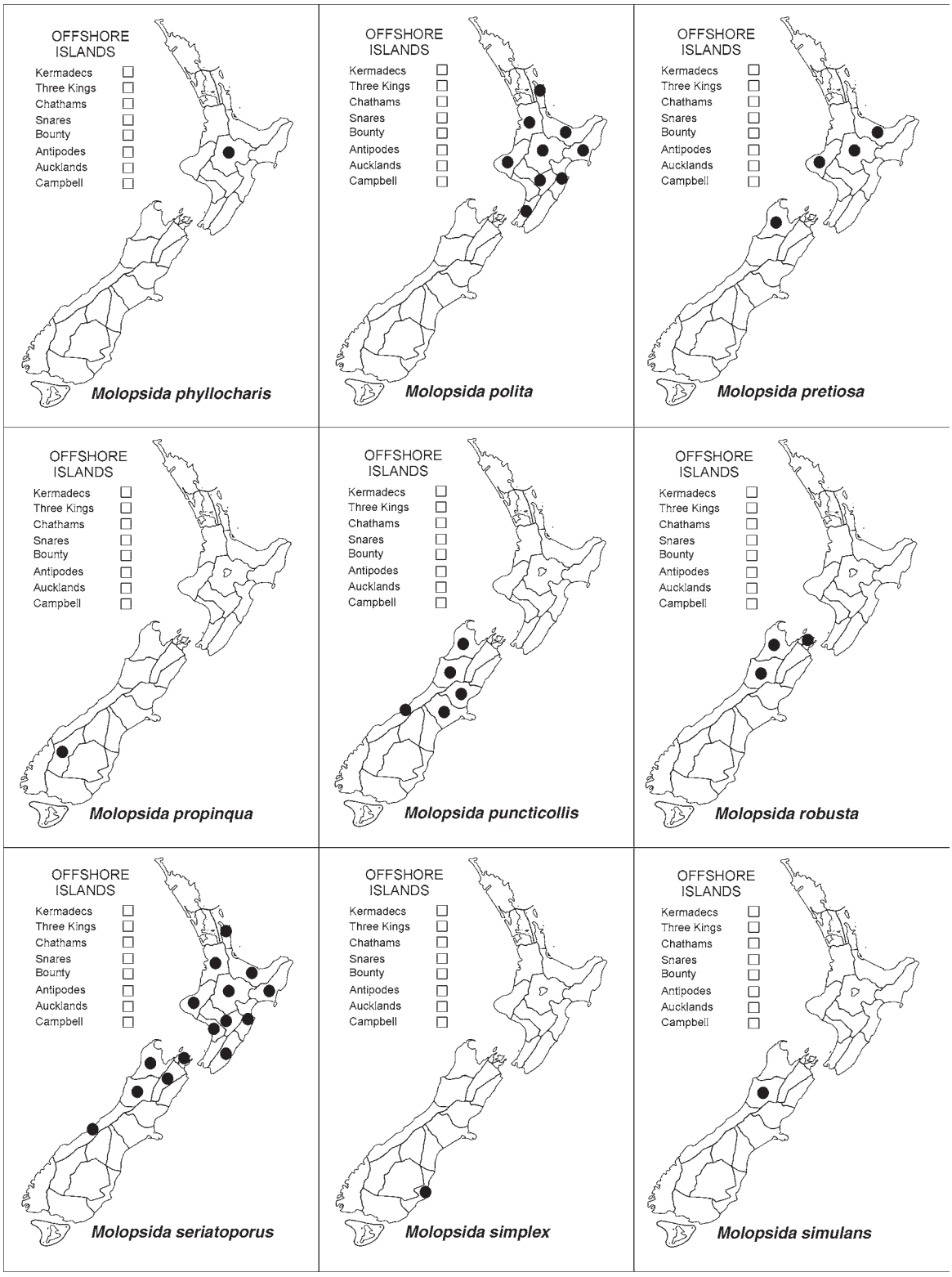
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Aucklands
Campbell
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Molopsida polita
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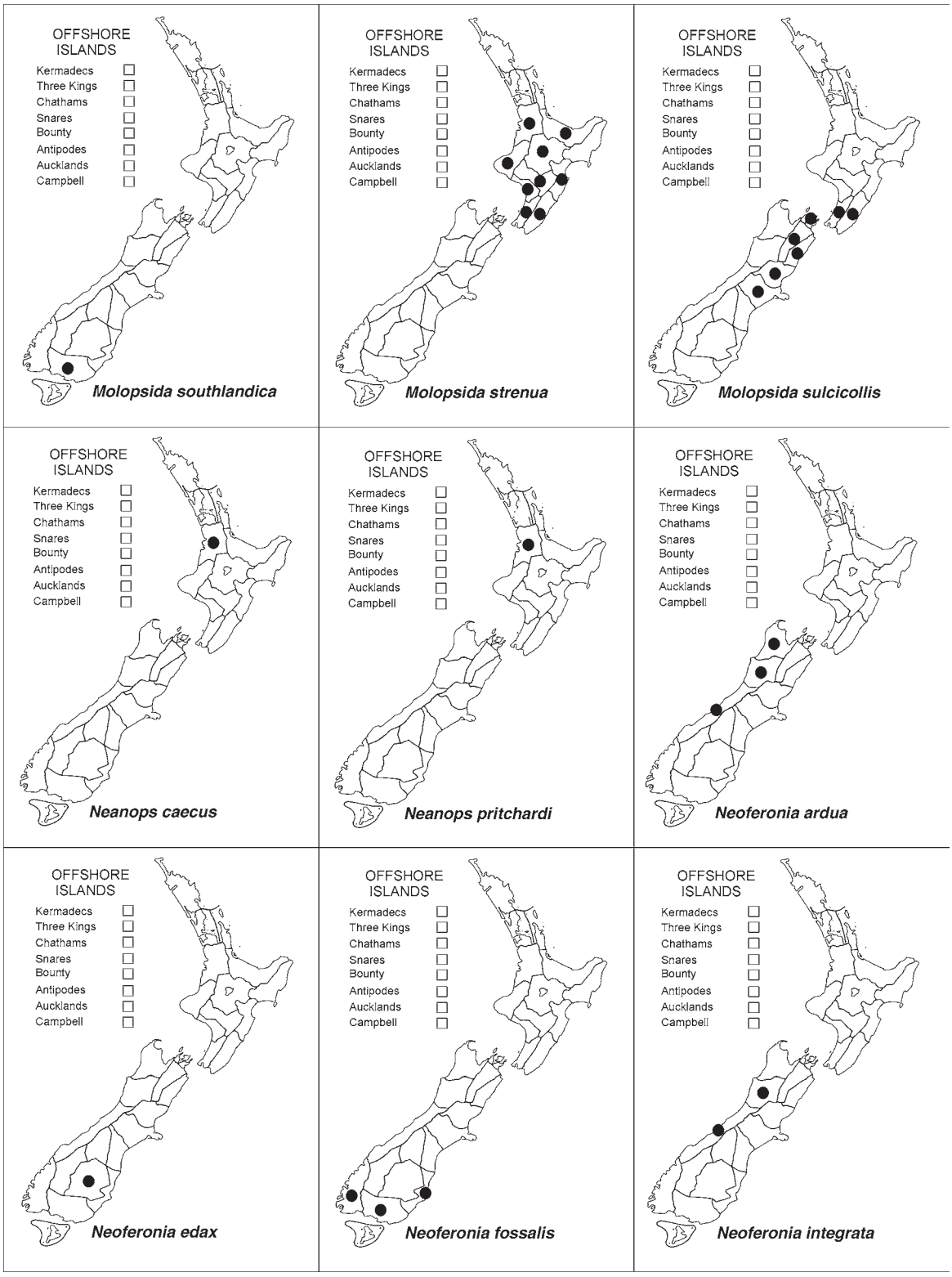
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Campbell
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Neoferonia edax
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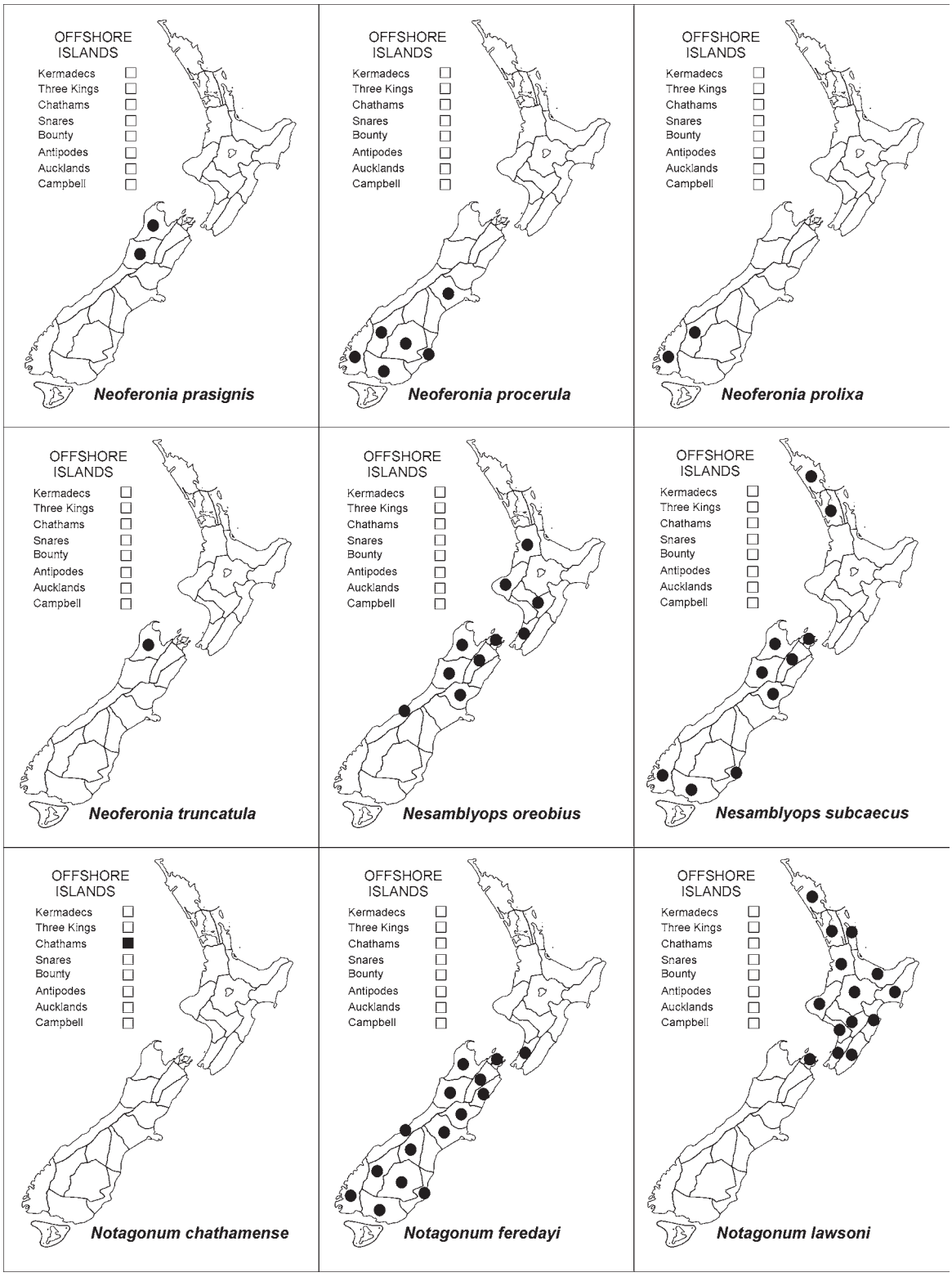
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Snares
Bounty
Antipodes
Aucklands
Campbell
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Neoferonia prolixa
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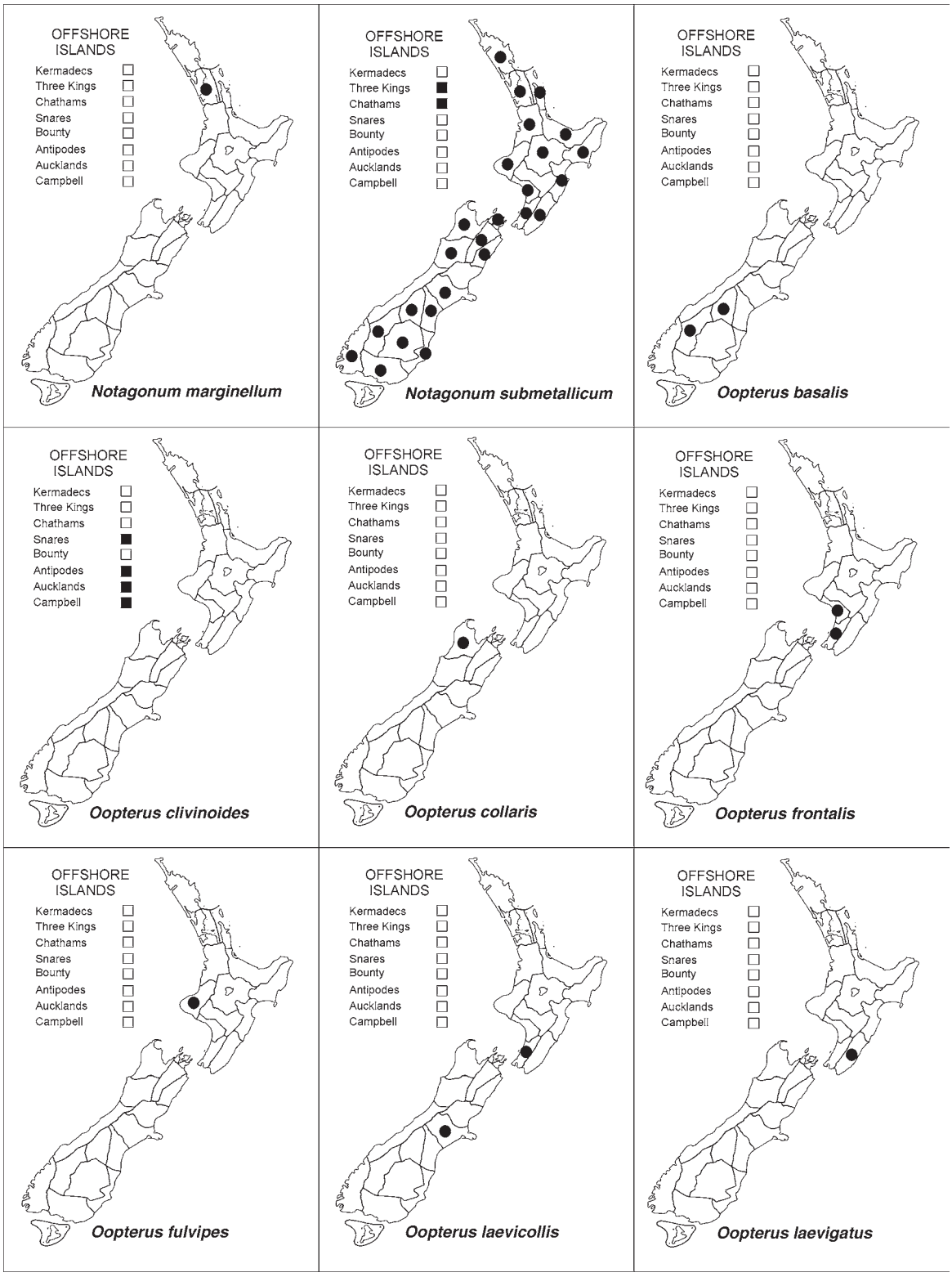
OFFSHORE ISLANDS
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Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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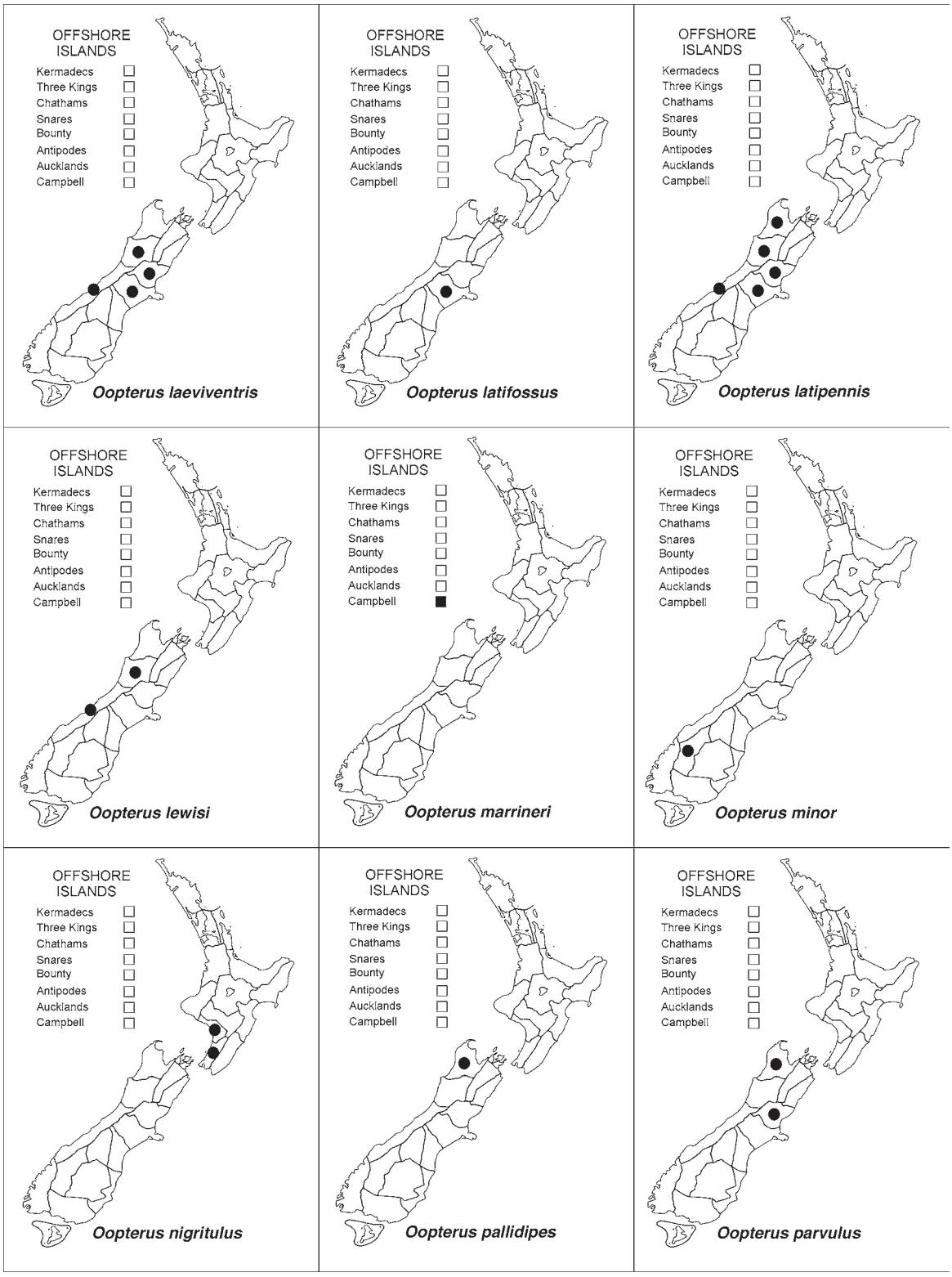
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Bounty
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Campbell
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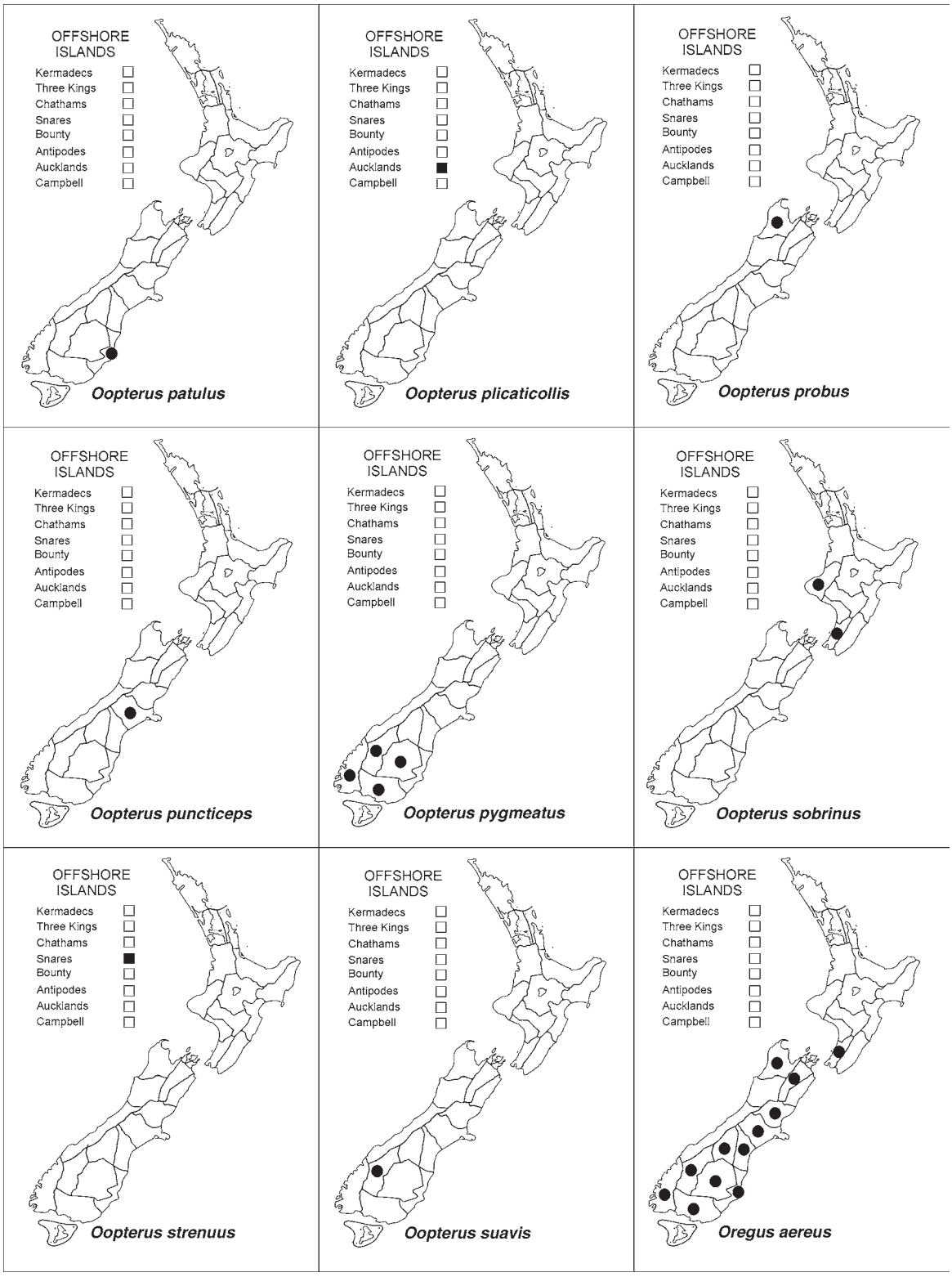
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Campbell
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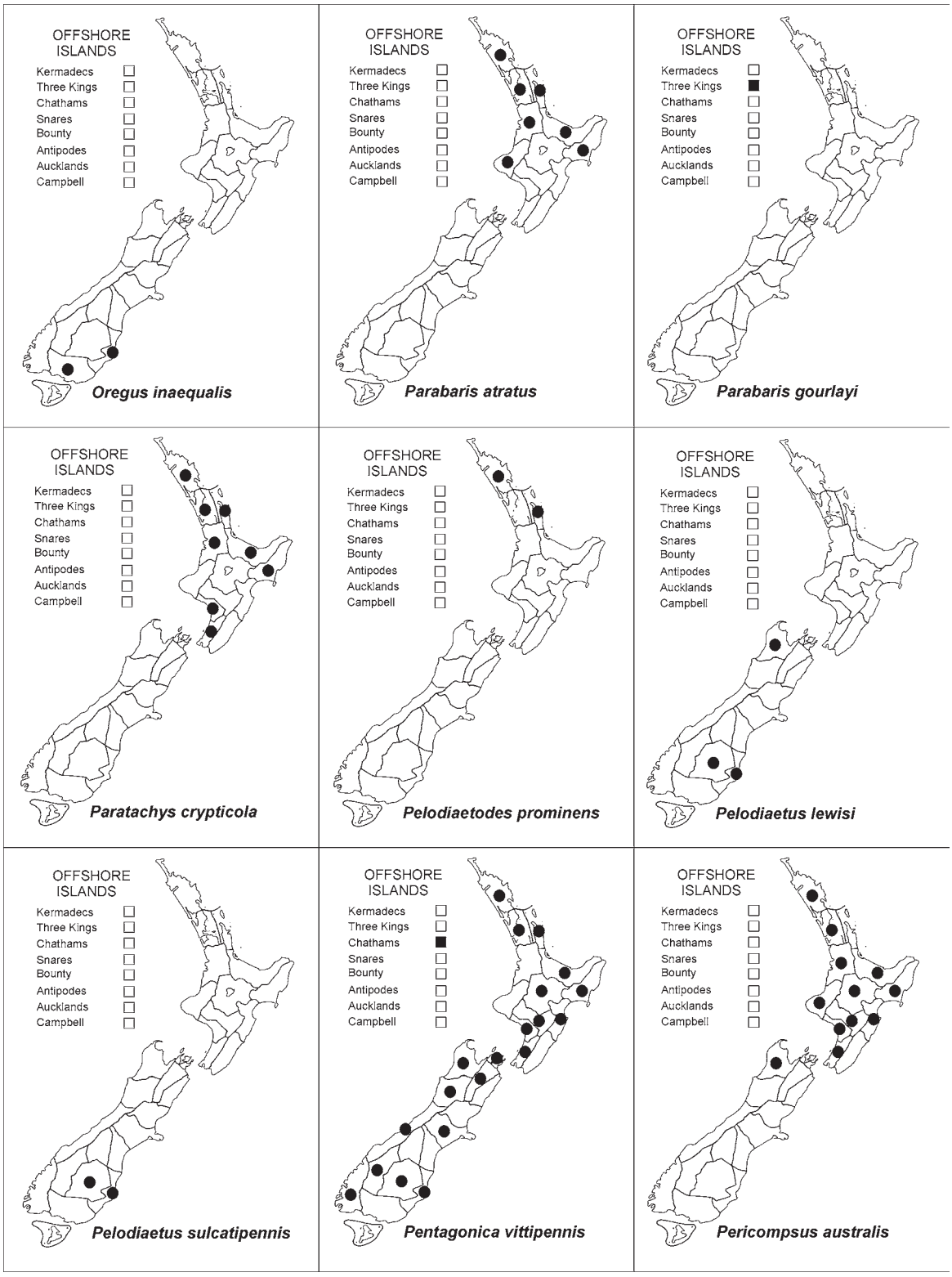
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Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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Parabaris gourlayi
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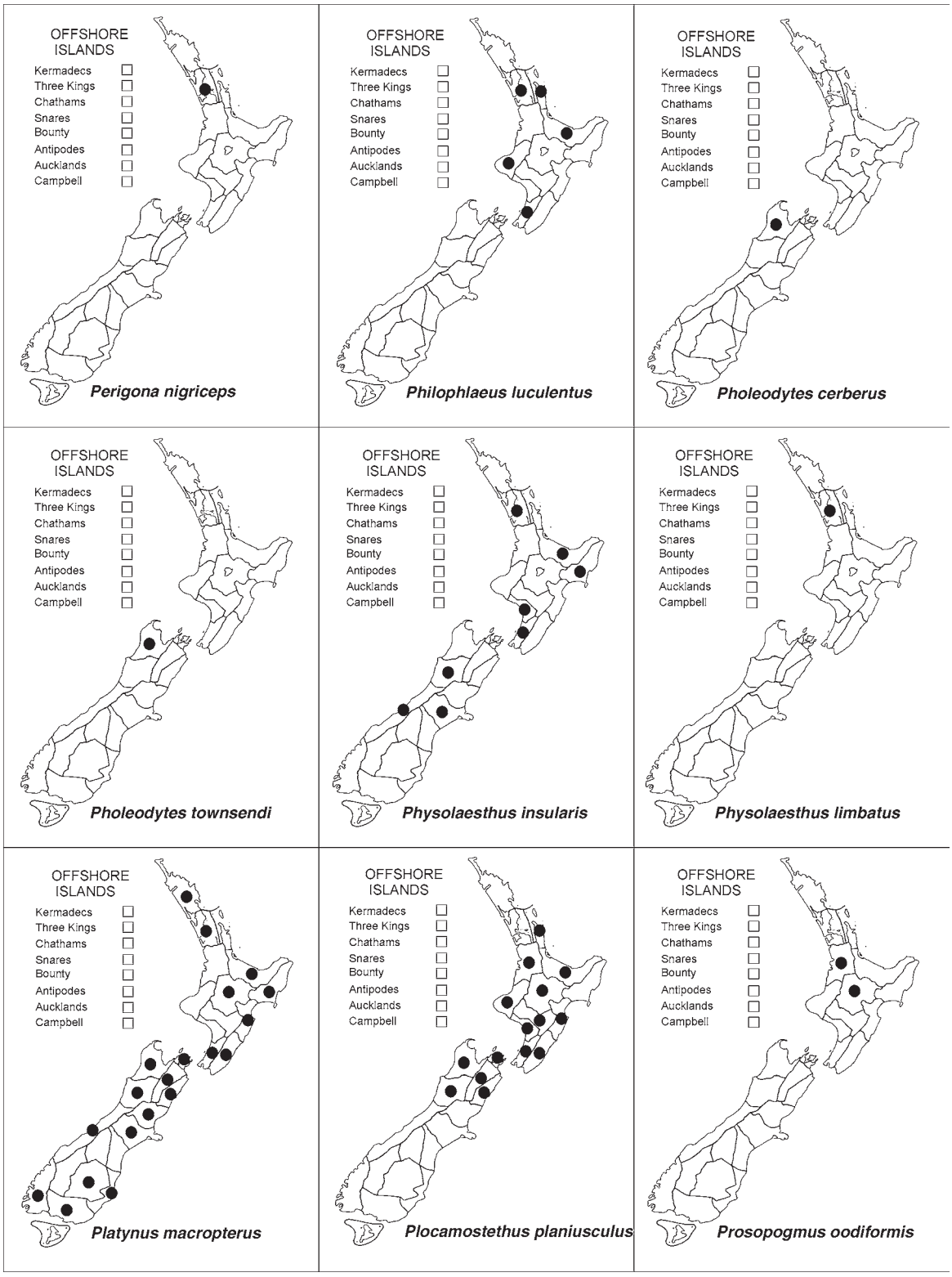
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Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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Pholeodytes cerberus
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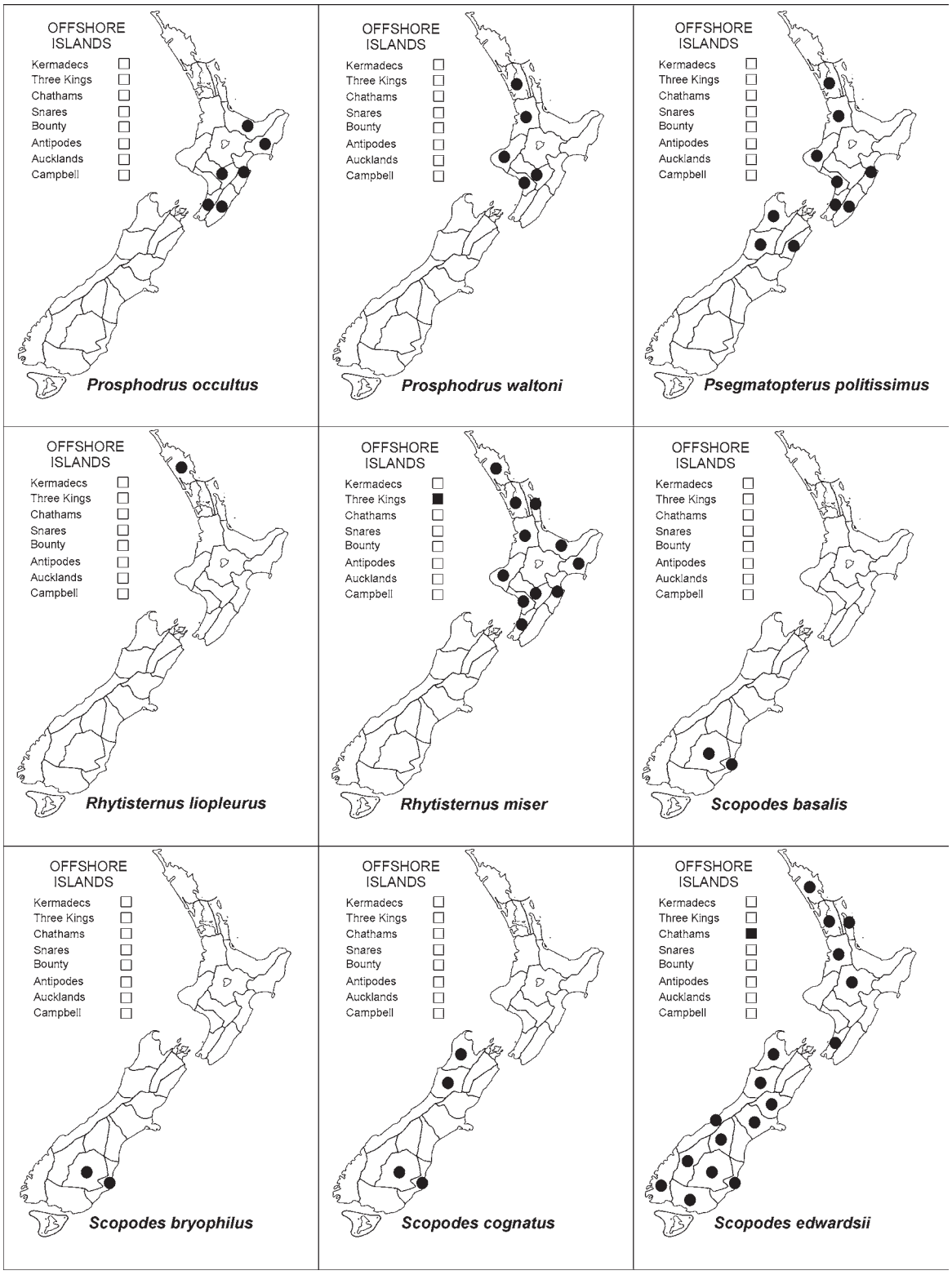
Plocamostethus planiusculus
Prosopogmus oodiformis


OFFSHORE ISLANDS
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Three Kings
Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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Prosphodrus waltoni
Psegmatopterus politissimus
Rhytisternus liopleurus
Rhytisternus miser
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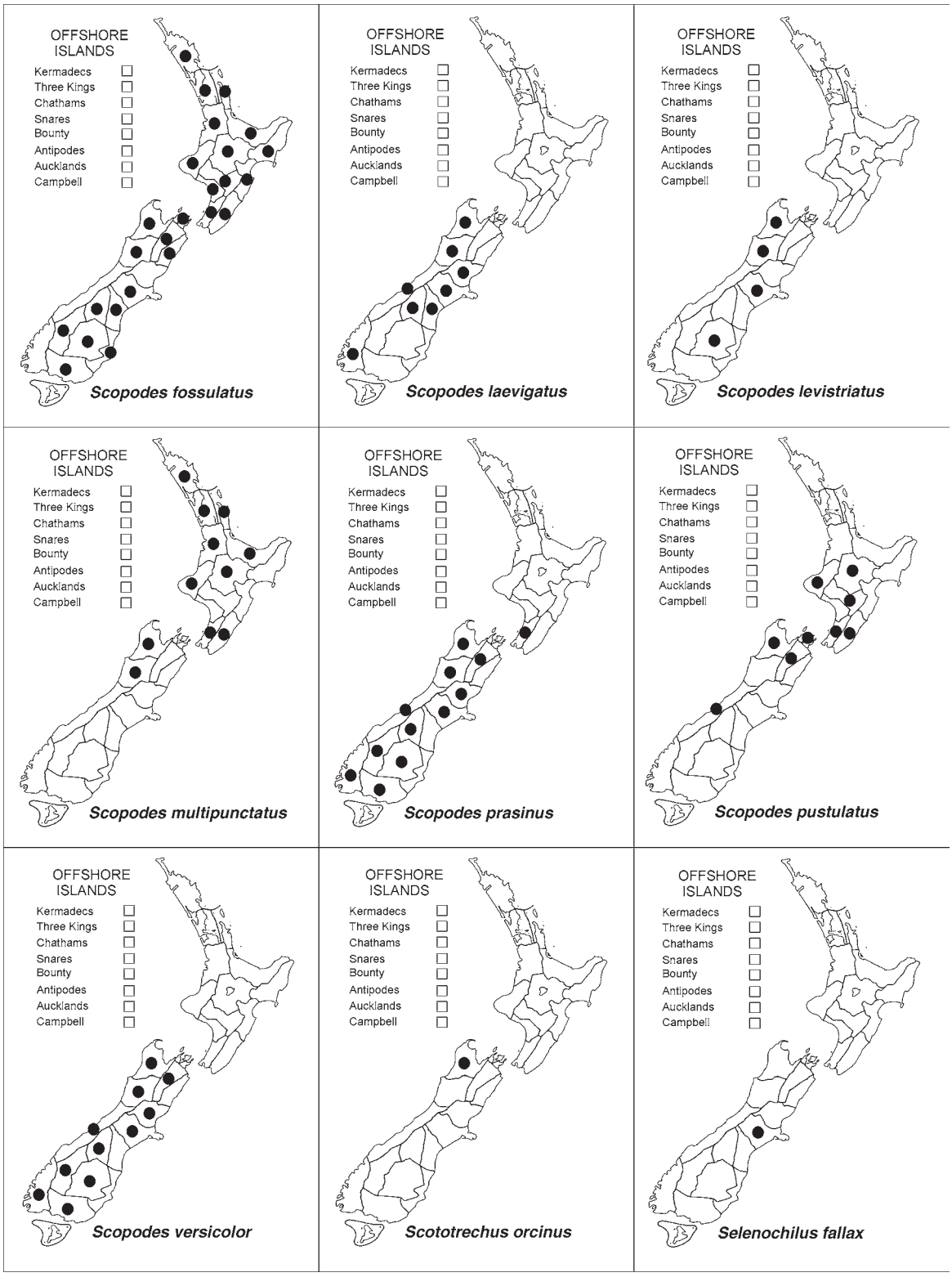
Scopodes bryophilus
Scopodes cognatus
Scopodes edwardsii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Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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Scopodes laevigatus
Scopodes levistriatus
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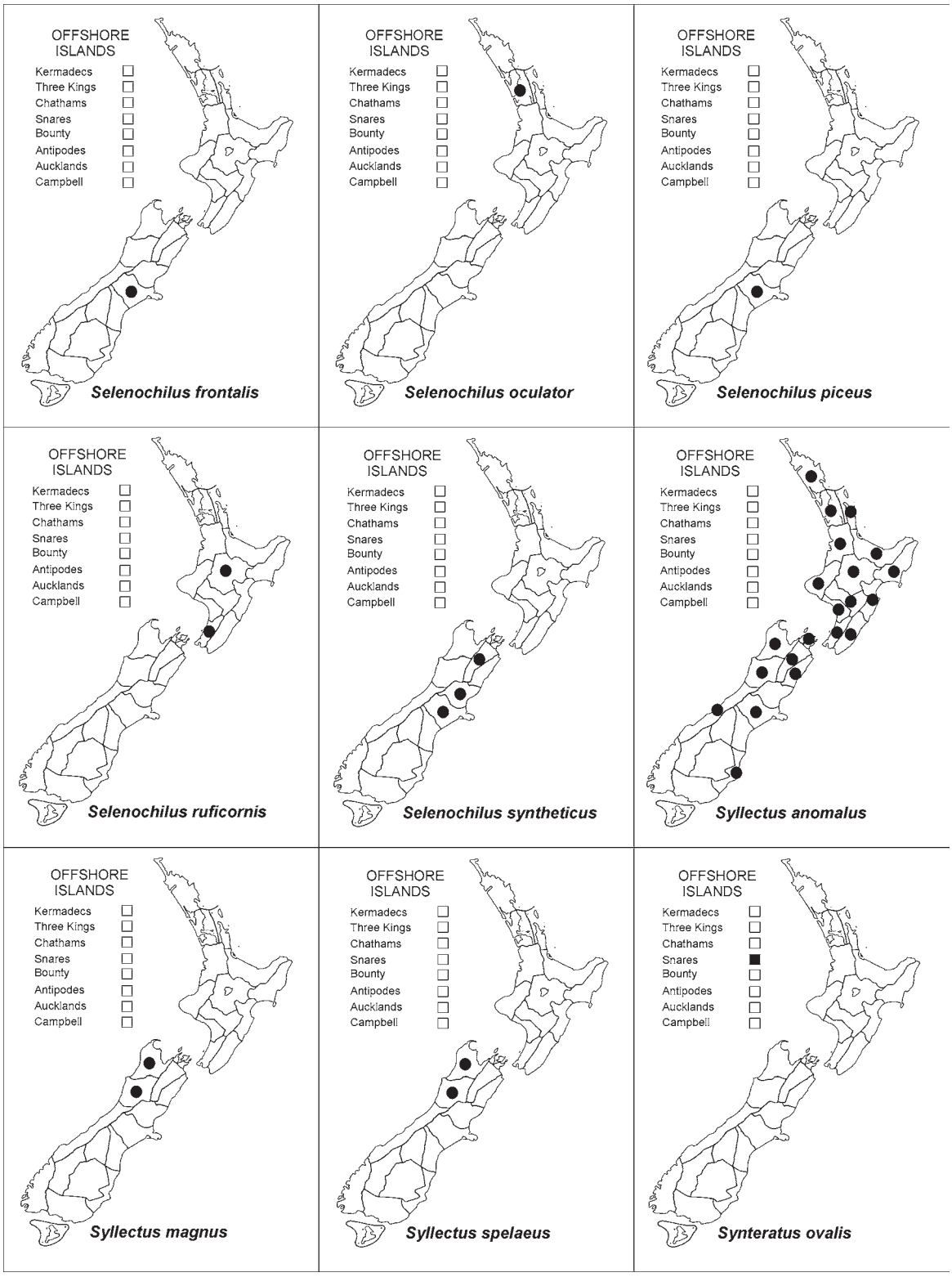
Selenochilus fallax


OFFSHORE ISLANDS
Kermadecs
Three Kings
Chathams
Snares
Bounty
Antipodes
Aucklands
Campbell
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Selenochilus oculator
Selenochilus piceus
Selenochilus ruficornis
Selenochilus syntheticus
Syllectus anomalus
Syllectus magnus
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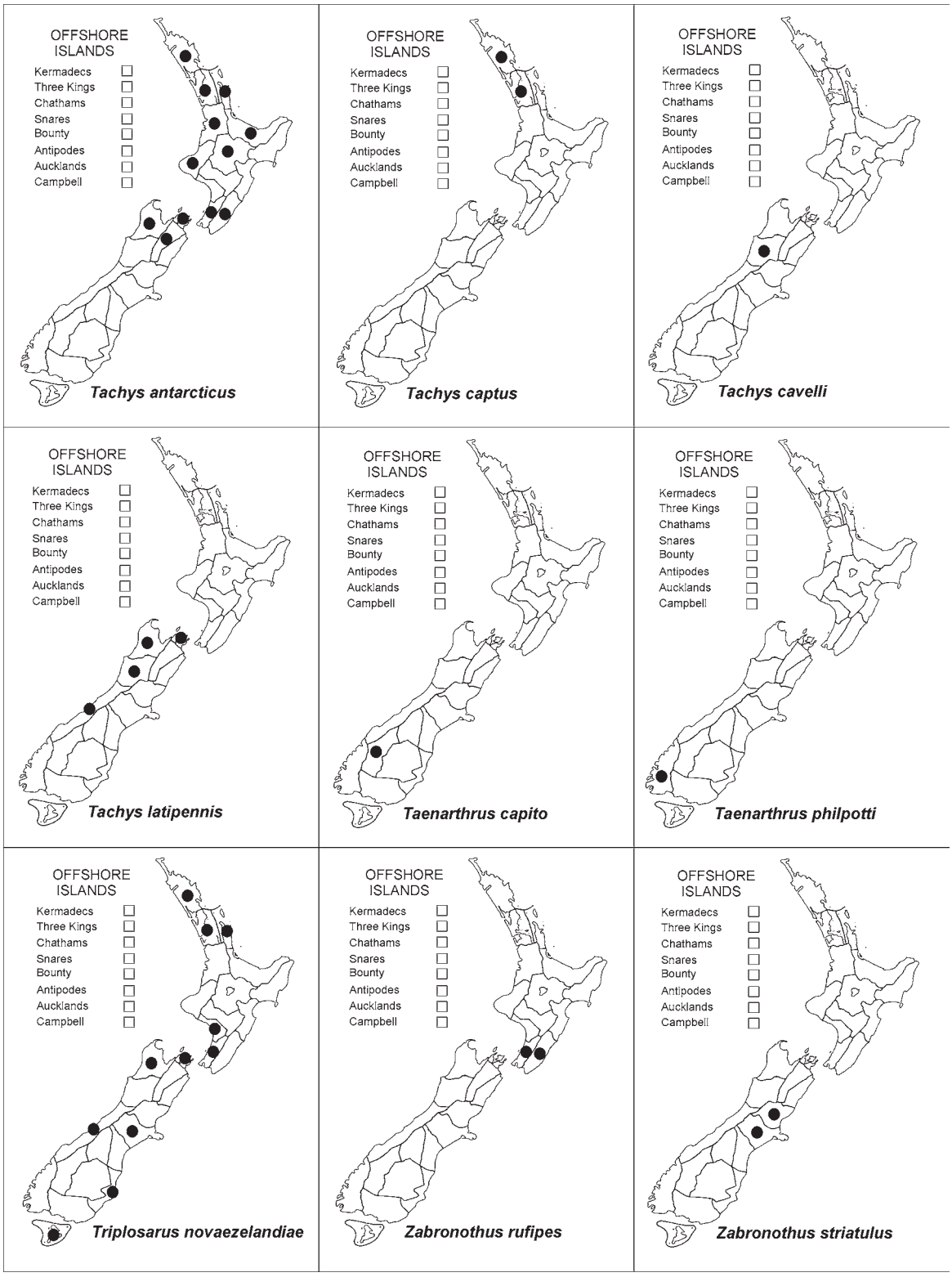
Synteratus ovalis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Antipodes
Aucklands
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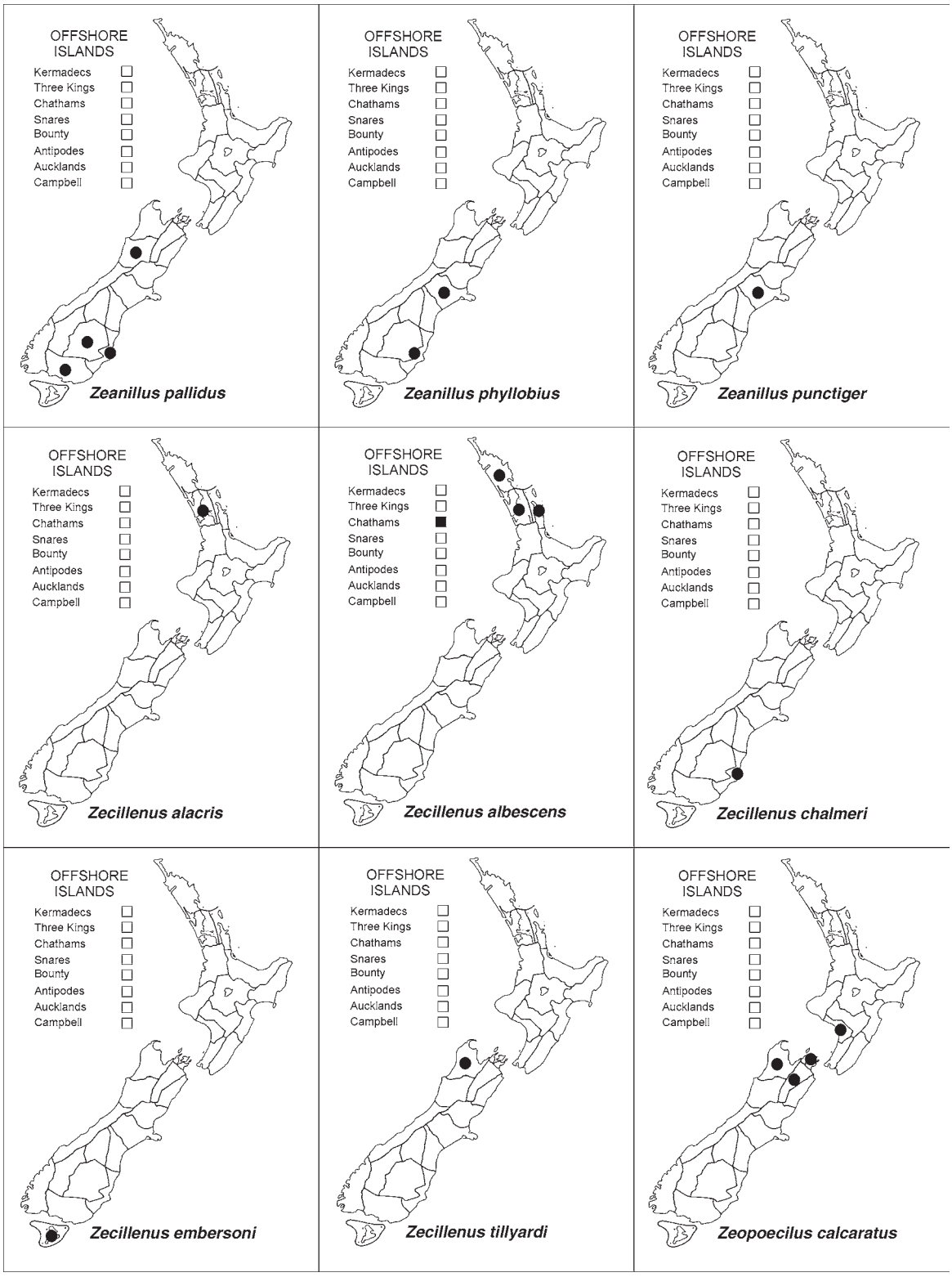
Zabronothus striatulus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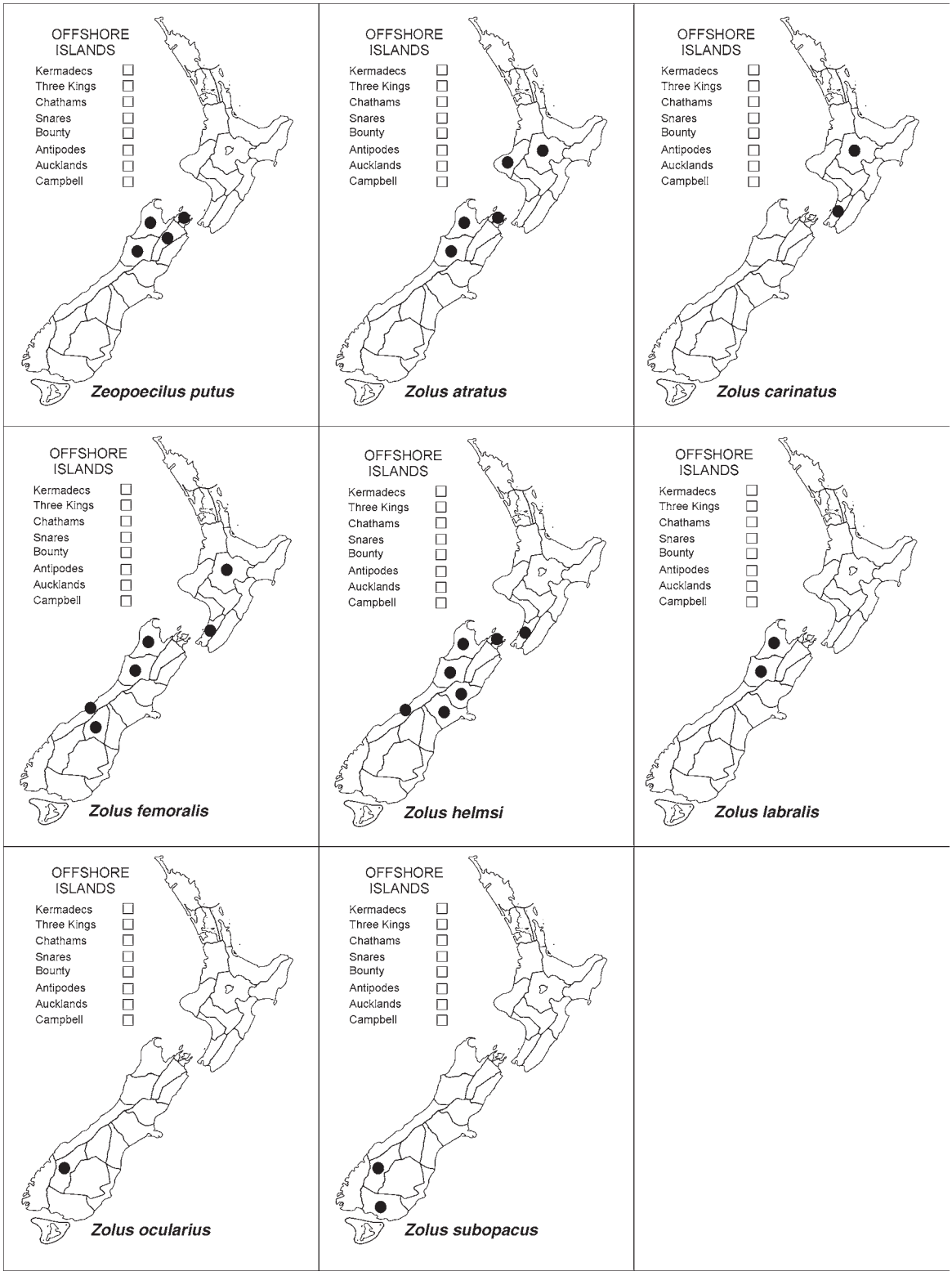
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Aucklands
Campbell
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Zolus atratus
Zolus carinatus
Zolus femoralis
Zolus helmsi
Zolus labralis
Zolus ocularius
Zolus subopacus

TAXONOMIC INDEX

This index covers the nominal taxa mentioned in the text, regardless of their current status in taxonomy. In the case of synonyms, the combinations of generic and specific names listed are those originally published by authors, and may differ from combinations implicit in current usage. Taxa in **bold** indicate valid taxa. The letter "**f**" after a page indicates a **figure**. The letter "**m**" indicates a **distribution map**. The Figures and Distributional maps are on the following pages: **Figures**, pages 209–215; **Distribution maps**, pages 216–270.

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

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

Me whāki te kaituhi i ōna whakaaro ki tētahi o te Kāhui Ārahi Whakarōpūtanga Tuarā-Kore, ki te ģtita rānei i mua i te tīmatanga, ā, mā rātou a ia e ārahi mō te wāhi ki tana tuhinga.

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Te utu (tirohia "Titles in print", whārangi 282). Ko te kōpaki me te pane kuini kei roto i te utu. Me utu te hunga e noho ana i Aotearoa me Ahitereiria ki ngā tāra o Aotearoa. Ko ētahi atu me utu te moni kua tohua, ki ngā tāra Merikana, ki te nui o te moni rānei e rite ana.

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, tonoa mai kia whakahekea te utu. Tekau ōrau te heke iho o te utu ki ngā toa hoko pukapuka.