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Scaphidiinae
(Insecta: Coleoptera: Staphylinidae)

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Dedication

Because of the extensive work by one of us in Nepal and other regions of the Himalayas (Ivan Löbl) and our respect for mountaineering and the quest for knowledge, we dedicate this work to Sir Edmund Hillary and Sherpa Tensing to mark the 50th anniversary of their ascent to the summit of Mt Everest in 1953 (new species honouring each of these men are included in the study). We would also like to dedicate this study to those who have inspired us deeply by their science, art, and heroism: Alfred Russel Wallace, for his biogeography and natural history; Charles Michener and John Lawrence, for their comprehensive work on their favourite groups of insects (bees and beetles, respectively); Ernst Shackleton, for his enduring expedition to Antarctica; and Jerry Garcia and David Lynch for their contributions to art, music, and culture.
Class Insecta
Order Coleoptera
Family Staphylinidae
Subfamily Scaphidiinae

Scaphidiine beetles

The subfamily Scaphidiinae is composed of approximately 1400 species worldwide, and until very recently was considered a separate family from Staphylinidae (rove beetles). All species have a very similar robust body form, most species are black in colour and shiny; but, on closer inspection, excellent features can be used to distinguish the species. All scaphidiines feed on fungus and often have very well defined host-use patterns. Some species are found in termite nests of fungus-cultivating species in Asia and Africa. Some scaphidiines also have associations with slime moulds (Myxomycetes), amoeboïd creatures once classified as fungi, but having bodies that are multinucleate and slither across the soil in search of food and for a place to fruit and distribute their spores. Their rather interesting body form, morphology, and biology make this group one of the more intrinsically interesting members of Staphylinidae.

A stable classification for the entire world fauna does not exist for Scaphidiinae, but New Zealand is particularly important to its development because it contains some of the most primitive members of the group. In an effort to make this group more accessible, we revise the New Zealand’s fauna that is composed of 21 endemic and 2 introduced species, 15 of which are described as new. A key to the species is provided and diagnoses for the genera include characters diagnostic for larvae. Distribution and other biological information is summarised for each species. Cyparium is recorded for the first time in New Zealand and is represented by two new species. This is particularly significant since this genus is rather primitive, is generally tropical, and in this part of the world has

(continued overleaf)
been reported only from Java. Our New Zealand species are very similar to at least one member found in South Africa. The endemic genus *Brachynopus* originally included one species but is here expanded to include three additional species. We also describe the genus *Notonewtonia*, which has two members; this genus has strange fovea-like structures on the hypomeron. Both these genera are very primitive members of the tribe Scaphisomatini. The remaining species belong to the widespread genera *Baeocera* and *Scaphisoma*. The genus *Baeocera* includes 12 species (10 new) and the species *Baeocera actuosa*, found commonly on slime moulds, and which is the only species of New Zealand scaphidine with a subapical gonostyle (a process on the female ovipositor or egg laying structure). The genus *Scaphisoma* includes three species – two introduced and one endemic.

While some species are widespread throughout the country, other species are more regionally distributed, like a group of species of *Baeocera* present in the northwestern Nelson portion of the South Island. About half the New Zealand species are flightless and lack well-developed hind wings for flight. Most species are mainly forest dwelling and are collected by leaf litter sifting or by hand collecting from host fungi. The most common species is the flightless *Brachynopus latus*, a species that can be collected easily in pitfall traps and by examining the undersides of rotten logs with encrusting fungi. Rarely collected species, such as members of *Cyparium* and *Notonewtonia*, may be indicative of certain microhabitats that are threatened or rare.

Contributor Ivan Löbl was born in Bratislava, capital of Slovakia. As a child he became interested in biology and during his early teenage years started to rear and collect insects; in particular, Orthoptera, beetles, and butterflies. During his college studies he concentrated on beetles and insects; in particular, Orthoptera, beetles, and butterflies. During his early teenage years started to rear and collect insects; in particular, Orthoptera, beetles, and butterflies. During his college studies he concentrated on beetles and insects; in particular, Orthoptera, beetles, and butterflies. During his early teenage years started to rear and collect insects; in particular, Orthoptera, beetles, and butterflies. During his college studies he concentrated on beetles and insects; in particular, Orthoptera, beetles, and butterflies. During his early teenage years started to rear and collect insects; in particular, Orthoptera, beetles, and butterflies. 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Scaphidiinae. A few weeks after completing his PhD he left Slovakia for Switzerland where he was offered a position as research officer and eventually served as head of the Department of Entomology at the Museum d’Histoire Naturelle (Museum of Natural History) in Geneva. Ivan considered curatorial work very important and spent most of his professional and much of his free time working with insect collections; as a result there is a well-curated beetle collection present at the museum in Geneva. He has published over 200 papers and this work was facilitated by visits to university and museum insect collections throughout Europe, North America, Japan, and Australia. He has made extensive collection trips to 24 countries ranging from Canada to New Caledonia and from Nepal to Lombok, and has sampled an impressive number of species of arthropods (there are many epithets bearing Ivan’s name). Some of the specimens he collected are, sadly, from areas where much of the habitat has disappeared due to destructive human activity, and the collections made from many of the forests in the Himalayas and Ivory Coast serve as unique reminders of destroyed ecosystems. Since retirement, Ivan continues to work on the taxonomy of staphylinids (subfamilies Scaphidiinae and Pselaphinae) and on the Catalogue of the Palaearctic Coleoptera.

Contributor Rich Leschen was born in Newport, Arkansas, and grew up in St Louis, Missouri. From his early years he has been interested in paleontology and herpetology, and when very young spent hours tracing the arthropods featured in Libby Hyman’s famous treatise on invertebrates.

(continued overleaf)
Though interested in many subjects, ranging from science fiction to music (as a kid he read Larry Niven and as a teenager he became a Grateful Dead fan), his family always thought he would eventually have a professional title ending in -ologist! He decided to make a career in science and become interested in beetles, which is not fiction. While a Masters student studying fungus beetles at the University of Arkansas (Fayetteville), Rich collected Scaphidiinae and described the larva of *Scaphisoma punctatum*. A mutual friend and amateur beetle collector, Karl Stephan (Red Oak, Oklahoma), suggested Rich contact Ivan Löbl regarding his interests, and the three of them eventually published a review of *Scaphisoma* occurring in the Ozark region of the United States. Ivan and Rich met at the 1988 International Congress of Entomology (Vancouver, Canada) and every evening retired to the beer tent to discuss beetles, beetle specialists, and other fine things in life. Rich recalls that he had a lump in his throat when they said goodbye at the conference and knew he had made a friend for life. Their meeting began a long-term collaboration and they continue to work on the phylogenetic relationships of the Scaphidiinae. Though systematics research is declining and seems to be under threat almost everywhere, including New Zealand, Rich continues his work on world Coleoptera and has published over 70 papers, many of the important studies being on higher classification and evolution of Staphylinoidae and Cucujoidae and placing New Zealand beetle fauna in a global context. He invests much of his time promoting systematics and entomology through his work, and presently serves as science editor of the *New Zealand Entomologist*, is co-editor of the *Handbook of Zoology* on Coleoptera (with Rolf Beutel, Hamburg, Germany), and is Vice-President of the New Zealand Entomological Society.

With Giulio Cuccodoro, he has also edited a Festschrift dedicated to Ivan. As a pastime, Rich plays guitar and mandolin and divides his interests between Classical North Indian music and traditional American Bluegrass; two very different musical forms rooted in history and needing safe haven from pop culture. He remains a loyal Grateful Dead fan.

O ana tino rōpū puoro), i āhua mōhio tonu tana whānau, i te mutunga iho, ka noho mai ko te kупu ‘kaimātāi’ ki mua i tana tūranga māhi tūturu! Whakatau ana ia ko te ao pūtaiao tana tino hiahia, ā, ka tipu i konā tana manako ki ngā pītara — ko te pūtaiao tūturu hoki tēnei — ehara kau anā i te paki noa! I a ia e mahi ana i tana Tohu Paerua, he tiroti pītara noho harore te kaupapa, i te Whare Wānanga o Arkansas (Fayetteville), ka kohia e Rich ētahi Scaphidiinae, ki whakaahuatia anō hoki ngā torongū o te *Scaphisoma punctatum*. Tērā tētahi hoa o Rich rāua ko Ivan, he tangata anō tēnei i minamina ki te kohikohi pītara hei runaruna māna, ko Karl Stephan te ingoa (nō Red Oak, Oklahoma). Ka toko ake i a Karl te whakaaaro kia whakapātai atu a Rich ki a Ivan mō te wāhi ki tō rāua ngākau nui ki ngā pītara kai harore. Ka mea ā, ka puta i te tokotoru nei tētahi tirohanga hou ki ngā *Scaphisoma* o te rohe Ozark o Amerika. I tūtahi a Ivan rāua ko Rich i te Whakarauikatanga Mātai Pepeke o te Ao 1988 (i tū ki Vancouver, Kānata). Tō ana te rā, haere ana te tokorua nei ki te tēneti iu pia ki te kōrero rero mō ngā pītara, mō ngā tohunga pītara, me ērā atu hanga āhureaka o te ao. Ki tā Rich, ka eke ki te wā poroporoaki i tāua hui, ki nui tana matapōuri, otirā me te mōhio anō kua noho hoa pīrpono rāua ko Ivan, ā, mau ake nei. Mahi tahi ai rāua mai i tāua wā, ā, e mahi tonu nei ki te whewhera i te whanaungatanga i waenga i ngā Scaphidiinae. Ahakoa kei te tīmū te tai ki ngā rangahautanga whakapapa huri noa i te ao, i Aotearoa anō hoki, kei te pūmā tonu ngā whakapuanga kaha a Rich ki ngā Coleoptera o te ao, ā, neke atu i te 70 ngā tuhinga kua puta i a iā. Ko te maha tonu o anā rangahautanga nui kua aro whāhi ki ngā whakarōpūtanga whakarunga me te kunenga mai o ngā Staphylinoidea me ngā Cucujoidae, kua whai anō ki te whakaauti i te wāhi ki ngā pītara o Aotearoa i roto i te huihuiinga pītara nui tonu o te ao. Whakapau kaha ai a Rich ki te whakatairanga i te whakapapa me te mātai pepeke i roto i āna mahi. Ko ia hoki te ētīta pūtaiao o te *New Zealand Entomologist*, tētahi o ngā ētīta o te *Handbook of Zoology* mō te Coleoptera (ko Rolf Beutel, o Hamburg, Germany, ko ia anō tētahi), ā, ko ia te Perehitene Taurua o te Rōpū Mātai Pepeke o Aotearoa. Nā rāua ko Giulio Cuccodoro i ētīta tētahi Kohinga Tuhinga e whakamui ana i a Ivan. He runaruna nāna te whakatangi i te ētīta me te mandolin, ko te puoro Onamata o Ínìa ki te Raki me te ‘American Bluegrass’ te karawhiu. Inā te rerekē o ēnei momo puoro, tētahi i tētahi, engari e rua e rua, he taonga tuku iho me maimoa rawa e kore ai e tāmnia e ngā puoro o ēnei rā. Waihoki, kei te mau tonu tana minamina nui ki a Grateful Dead.

Translation by H. Jacob
Huatau Consultants, Levin
ABSTRACT

The 23 species of New Zealand scaphidiine Staphylinidae are revised and illustrated, with 1 genus and 15 species described as new. *Cyparium* is represented by 2 new species: *C. earlyi* n. sp. and *C. thorpei* n. sp. The originally monotypic genus *Brachynopus* now includes 4 species: *B. apicellus* (Broun) (new combination), *B. latus* Broun (= *Baeocera fulvicollis* Broun, new synonymy), *Brachynopus rufus* (Broun) (new combination; = *Baeocera armata* Broun, new synonymy), and *Brachynopus scutellaris* (Redtenbacher) (new combination; = *Scaphisoma tenellum* Pascoe, new synonymy; = *Baeocera rufipes* Broun, new synonymy). *Notonewtonia* n. gen. is described and includes 2 species: *N. thayerae* n. sp. (type species) and *N. watti* n. sp. The genus *Baeocera* includes 12 species: *B. abrupta* n. sp., *B. actuosa* (Broun) (new combination), *B. benolivia* n. sp., *B. elenae* n. sp., *B. epipleuralis* n. sp., *B. hillaryi* n. sp., *B. karamea* n. sp., *B. punctatissima* n. sp., *B. sternalis* Broun, *B. tekootii* n. sp., *B. tensingi* n. sp., and *B. tenuis* n. sp.. The genus *Scaphisoma* includes 3 species: *S. hanseni* n. sp., *S. corcyricum* Löbl (introduced from the Mediterranean), and *S. funereum* Löbl (introduced from Australia and established). A key is provided to all of the species and diagnoses for the higher taxa, including larval information where available.

Two genera are endemic to New Zealand (*Brachynopus* and *Notonewtonia*), whereas *Baeocera* and *Scaphisoma* are very diverse and distributed worldwide. *Cyparium* is rather restricted in distribution and is mainly circumtropical and absent from Australia and New Caledonia: the 2 rare New Zealand species are related to South African species. Although some species are rather widespread (most notably *Brachynopus scutellaris* and *Scaphisoma hanseni*) other species are more regionally distributed. The centre for diversity of New Zealand species is in northern South Island where there are several similar-looking allopatric species of *Baeocera*. The most commonly collected species is the flightless *Brachynopus latus* that is found in many habitats, including pastures. Otherwise species are mainly forest dwelling and are taken most easily by leaf litter sifting or by hand collecting from host fungi. Rarely collected species, such as members of *Cyparium* (known from 3 specimens) and *Notonewtonia* (known from under 20 specimens), each genus with 2 species, may be indicative of certain microhabitats that are threatened and these species should be attributed conservation status.

Twelve of the 21 endemic New Zealand species are flightless, and island members of *Brachynopus scutellaris* are brachypterous or apterous. Scaphidiines are strictly fungus feeding and are found on Polyporaceae, Corticiaceae, and Myxomycetes. *Brachynopus* species are found breeding mainly on resupinate corticioid and polyporoid Basidiomycetes where larvae build canopy retreats. Species of *Baeocera* are associated mainly with Myxomycetes whereas adults of *Scaphisoma hanseni* are found commonly on *Phellinus kamahi*.

Keywords. Staphylinidae, Scaphidiinae, taxonomy, classification, key, new species, new synonymy, distribution, ecology, biology, species endemism, fauna.


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**ACKNOWLEDGMENTS**

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**INTRODUCTION**

Scaphidiinae presently contains approximately 1400 described species worldwide (Löbl 1997) but many areas require detail study, including the Australasian region. Species diversity is highest in tropical regions, and diminishes towards higher latitudes and tends to be low in higher altitudes. Before this study the endemic New Zealand fauna consisted of eight described species, with 10 species listed by Hudson (1934). The first scaphidiine described from New Zealand was *Scaphisoma scutellare* Redtenbacher (1867) followed by seven species treated by Broun (1880, 1881, 1886, and 1914) including one species described by Pascoe (1876) that was placed into synonymy by Reitter (1880) and one of Broun’s species of *Scaphisoma* that was later transferred to Leiodidae (Klimaszewski et al. 1996, see Newton 1998). To date, no additional species have been described from the country, although Kuschel (1990) reported seven from Lynfield, Auckland (including natural history information) and Klimaszewski (1996) listed a total of 15 species. As indicated by Klimaszewski et al. (1996), the generic concepts of New Zealand scaphidiines required revision as some species were placed in wrong genera. As is the case with many south temperate Coleoptera, many species described over 100 years ago were placed into existing European genera based solely on similarity, and the basic body form of scaphisomatines (see frontispiece) would not help coleopterists of that time to place taxa. A Eurocentric view of the taxonomic world, coupled with the poorly known limits of some of the scaphisomatine genera, lead to paraphyletic taxa and dubious generic placement of some of the New Zealand species. In this paper we revise the New Zealand species, comment on generic limits, and provide a key to 23 species. Biological information is also summarised for each species.

**SYSTEMATICS OF SCAPHIDIINAE**

The subfamily Scaphidiinae is a member of the Oxytelinae group of Staphylinidae (Lawrence & Newton 1982), which includes Apateticinae, Osorininae, Oxytelinae, Piestinae, and Trigonurinae. Unlike most members of the oxyteline group, and the majority of Staphylinidae, scaphidiines do not have the typical flexible staphylinoid body form, but are box-like and highly convex, with the elytra covering most of the abdomen. When seen on fungus-covered logs, the species appear as if they are shiny black pearls that are often fast-running, these features make them easily recognised as scaphidiines.

Based on larval characters, Kasule (1966) was the first to recognise Scaphidiinae as a subfamily of Staphylinidae, despite their long taxonomic history as separate families. It has been a slow process for coleopterists to accept the firm placement of Scaphidiinae within staphylinids, and many works published after Kasule’s (1966) paper treat scaphidiines as a separate family (see review in Leschen & Löbl 1995), despite numerous adult characters that support the correct familial placement (Lawrence & Newton 1982; Newton & Thayer 1992).

Scaphidiinae is unequivocally monophyletic based on many adult characters (Leschen & Löbl 1995; Hansen 1997a), including the 5-segmented antennal club, pronotum with a high-volume, and sternites III and VII longer than the others (see Thayer 2003 for a more complete list of characters). Larvae have a unique crenulated labral margin (Newton 1991).

Although the direct sister relationships are uncertain within the oxyteline group, Scaphidiinae appear to be most similar to Apateticinae (Leschen & Löbl 1995), and share at least two characters: abdomen strongly tapering toward the apex, and elongate elytra covering tergites 1 and 2. The phylogenetic study by Hansen (1997a) based on larval and adult characters showed a polyphyletic oxyteline group, and reinstated the subfamily Scaphidiinae as a family Scaphidiinae (-idae) is sister taxon to the remaining Staphylinidae sensu stricto, and these together are the sister taxon to Scydmaenidae. Another study by Beutel & Molenda (1997) also showed a paraphyletic oxyteline group, but with a largely unresolved Staphylinidae based on characters derived from the larval head. The theoretical study by Ballard et al. (1998) included a preliminary study of molecular and morphological characters that also showed that the oxyteline group (in this case *Oxytelus* and *Cyparium*) were not monophyletic, although the sets of morphological characters and terminal taxa were not sampled exhaustively.

Scaphidiine workers recognise a classification of Scaphidiinae that includes four tribes (Löbl 1997), with Scaphisomatini having the highest number of described species and the most enigmatic phylogenetic relationships. Leschen & Löbl (1995) studied the phylogenetic relationships among the scaphidiine tribes, and the genera contained in Cyperiini (Africa, Asia, Neotropical, North America, New Zealand), Scaphiini (Holarctic, Southeast Asia), and Scaphidiini (world wide except New Zealand and Pacific Islands) and demonstrated the monophyly of Scaphisomatini, a tribe that includes five subtribes reflecting higher categories defined by Achard (1924). Also note that the tribes Heteroscapphiini and Toxidiini are included within Scaphisomatini and these issues will be addressed in another paper (Leschen & Löbl, in prep.).
**UNIQUE FEATURES OF THE NEW ZEALAND FAUNA**

No phylogeny for the entire subfamily Scaphidiinae is presently available. However, some general patterns and comments can be made about the New Zealand endemic fauna. At first glance, the presence of the widespread taxa *Scaphisoma* and *Baeocera* in New Zealand is a feature common to many landmasses throughout the world and does not seem so unusual. The presence, however, of a single endemic species of *Scaphisoma* that is moderately common to both the North and South Islands and limited possibly to a single fungal host is unusual, especially since *Scaphisoma* is the largest genus in the subfamily, and is very diverse in Australia and New Caledonia. *Baeocera* consists of at least two or more species groups, with a radiation of flightless species mainly in the Nelson region as part of a larger group containing all species apart from *B. abrupta* and *B. actuosa*. The latter species is unusual for *Baeocera*, because of its rather elongate 11th antennomere (Fig. 85) and form of ovipositor (Fig. 103), and while we consider it a member of this genus, it was previously placed in *Scaphoxium* (Klimaszewski et al. 1996). Most members of *Baeocera* and *Scaphisoma hansenii* appear to have affinities with Australia and New Caledonia based on aedeagal characters.

The presence of *Cyparium* in New Zealand may seem rather surprising since the genus has a mainly circumtropical distribution and is absent from Australia and New Caledonia. The rarity of the two New Zealand species invokes further mystery, but these species are more likely related to members living in South Africa, and are part of a Gondwanan group of this genus.

Two genera are endemic to New Zealand. *Brachynopus* contains four species, and these are quite different from each other with *B. latus* and *B. scutellaris* sharing a tripartite sclerite in the internal sac (present also in *Alexidia* Reitter; Löbl & Leschen 2003). Based on unpublished phylogenetic information, *Brachynopus* appears to be the sister taxon to *Notonewtonia*, the other endemic genus, consisting of two species that have a shallow fovea present on the hypomeron (Fig. 8, 9). *Brachynopus* and *Notonewtonia* are placed at a relatively basal position in the tribe Scaphisomatini (Leschen & Löbl, unpubl.), but together with the presence of Gondwanan *Cyparium*, these provide evidence in support of an ancient fauna maintained in New Zealand.

Additional phylogenetic information can be found in the taxonomic sections below.

As a final note, the rarely collected species of *Cyparium* and *Notonewtonia* may be indicative of certain microhabitat requirements we fully do not appreciate. Both being members of moderately primitive lineages adds important value to these species as New Zealand endemics, and they should be attributed conservation status.

**COLLECTING, DISSECTING, AND OTHER METHODS**

The use of three standard collecting methods will ensure high capture rates and informative biological data for scaphidiines.

1. **Mass collections**, made by sifting leaf litter and rotten wood and fungi, which is placed into Berlese funnels or Winkler extractors (Besuchet et al. 1987) produces a high yield of scaphidiines, especially wingless species.

2. **Flight intercept traps** (FIT, such as those described by Peck & Davies 1980 and Masner & Goulet 1981) have been most useful for capturing specimens of flight-capable species. When set in prime habitats, consisting of fallen trees and leaf litter, FITs are very productive.

3. **Hand collecting from fungi**, especially at night for nocturnal species, is the best method for capturing live material, making host associations, and locating larvae, which are usually concealed in frass-covered tunnels of Basidiomycetes or among sporocarps of Myxomycetes.

After material has been collected, labelled, and sorted, Ivan Löbl uses a European method for extracting and mounting male genitalia. Males are identified and selected for dissection (recognised by the presence of modified protarsomerers that are slightly dilated and bear tenent setae, and some species may have a patch of setae on the metaventrite). The specimens are removed from their points or cards and placed into a weak solution of ammonium hydrate for up to 5 minutes to soften the sclerites (material removed directly from ethanol is easier to dissect). The specimen is removed from the ammonium hydrate and placed on moistened filter paper to limit mobility while dissecting. The aedeagus is removed using pins that are inserted into the tip of the abdomen. Once the aedeagus is extracted from the specimen, the rest of the body is air dried and remounted while the genitalia are placed into isotopanol alcohol. A smooth droplet of Canada balsam, diluted with xylene as necessary, is placed on an acetate card and, with a small pin dipped in balsam, the aedeagus is picked up from the alcohol and placed into the droplet and manipulated to the preferred orientation (usually some with the parameres down so that the internal sac is clearly visible and others in lateral view). The specimens are checked at 24 h intervals for orientation (using xylene for thinning) until the aedeagus is stabilised in the mount. The acetate card is pinned below the specimen and can be removed and easily observed with a compound microscope. It is important that the preparations and pins
used for dissection are kept clean. The wingless species of *Baeocera* and *Brachynopus* are very compact and have elytra that are securely ventrally wrapped around the lateral portion of the abdomen — these are difficult to dissect and one should be careful with specimens from small series. Though dissected mouthparts and other structures can be mounted in the same way as the aedeagi, we examined microstructures mainly through whole mounts on permanent slide mounts according to the methods explained in Leschen & Löbl (1995) and Leschen (2003).

The length of specimens is measured from the middle of the anterior pronotal margin to the inner apical angle of the elytra. The relative length ratio of the antennomeres is measured from both pinned and slide-mounted specimens, and microsculpture is described as seen in a stereomicroscope at high magnification.

Material examined is based mainly on specimens held in NZAC, but also in those collections listed in the acknowledgments. Lectotype, holotype, and syntype material is listed in the body of the text and additional material examined is listed in Appendix 1; 2-letter area codes follow Crosby *et al.* (1998). Label data of older type material is presented with its original syntax with comments in brackets ( [ ] ) and a slash (/) to indicate different labels. Lectotypes and paralectotypes are designated for species described by Broun and Redtenbacher to fix the use of lectotypes and paralectotypes are designated for species in NZAC, but also in those collections listed in the study, the pattern of host use matches that for congeneric taxa in other regions. Many species are specialists on slime moulds (Lawrence & Newton 1980; Newton & Stephenson 1990), whereas others occur on relatively persistent wood-rotting fungi (Newton 1984; Ashe 1984; Leschen 1988). These two classes are also basically related to morphological features seen in the larval mouthparts. Many species of *Baeocera* are strictly associated with Myxomycetes, though there is no apparent specialisation on any one taxon of myxomycete. This is true for *Baeocera actuosa*, for which host records are numerous. In some cases, adults may use a wide array of hosts unrelated to the larval host, for example, *B. actuosa*, where adults are not restricted to slime moulds, and yet the larvae are. Larvae of *Baeocera* have a fan-shaped pseudomola (see Leschen 1993) that they use for puncturing or grinding the fungal spores of slime moulds.

*Brachynopus latus* and *B. scutellaris* have been collected mainly on resupinate corticioid and polyporoid genera (e.g., *Schizopora*) though records for stipitate or bracken polyporoids exist (e.g., *Coltricia*). These two species are part of an entire guild of specialist beetles in New Zealand restricted largely to resupinate fungi that grow on the undersides of rotting branches. The larvae of these two species build canopy retreats (Fig. 83) that can be seen very clearly on the fungi on which they feed. These larvae feed mainly on the hymenium or hyphae of basidiomycetes, do not specialise on spore feeding, and have a pseudomola composed of elongate spines.

A case of monophagy may occur in *Scaphisoma hanseni*, which is restricted mainly to the polypore *Phellinus kamahi*, where adults may be present in large numbers. The larvae of this species have not been collected, which suggests that oviposition may be very restrictive or occurs on an entirely different fungal substrate.

*Brachynopus* and *Scaphisoma* adults have a radulate galea (Fig. 75, 78, 81, 88, 89), composed of rows of rake-like spines that may function in the removal of rather tough fungal tissue. This is in contrast to the brush-like galea present in *Baeocera* which is a rather common feature throughout Coleoptera and may be related, at least in *Baeocera*, to spore feeding. Mycophagy in New Zealand Coleoptera will be discussed at greater length in a separate publication by RABL.

### MORPHOLOGY

For gross structure we adopt the terminology used by Lawrence & Britton (1991) and Lawrence *et al.* (1999), and for some of the specific terms for scaphidiine characters used for identification we used the terminology discussed in Leschen *et al.* (1990) and that used traditionally by staphylinid workers. Many structures listed below are labelled in the following figures: ventral body (Fig. 1), dorsal body (Fig. 2), aedeagus (Fig. 20, 21, 35, 36).
**Surface and Internal Cuticular Features**

*Fovea*: invaginations of the cuticle often having internal setae. These are present only on the hypomeron of *Notonewtonia* (Fig. 8, 9).

*Microsculpture*: small cuticular surface features in the form of transverse lines or small pits or punctures. Punctate microsculpture in *Scaphisoma* consists of transverse combs that are clearly visible in SEM, but are not apparent on pinned specimens.

*Punctures*: pit-like impressions that extend shallowly into the cuticle and are often marked by a seta and/or a pore.

*Setae*: hair-like extensions of the cuticle.

**Head and Its Appendages**

*Antenna*: consisting of 11 antennomeres including a 5-segmented club; the form of the antennae are clavate (*Cyparium*, Fig. 2, 3) or filiform with a loosely articulated club (remaining taxa, see Fig. 4–19); antennomere 3 is usually elongate (Fig. 84) or occasionally short and triangular (Fig. 17–19); antennomere 11 is elongate in *Baeocera actuosa* (Fig. 85).

*Frons*: anterodorsal portion of the head between the eyes. The distance separating the eyes is referred to as the interocular space.

*Labium*: ventral mouthparts that include the mentum, ligula, prementum, and labial palpi (Fig. 76, 79, 82, 86, 87, 90).

*Mandible*: dorsoventrally flattened appendage consisting mainly of apical teeth, a membranous prostheca, and a basal striate mola (Fig. 74, 77, 82, 86, 87, 90).

*Maxilla*: tripartite appendage located below the mandible consisting of an outer palp of 3 segments (palpomeres) and a palpiger, a middle galea, and inner lacinia (Fig. 75, 78, 81, 86, 88, 89). The shape of the terminal palpomere is an important feature that is used to discriminate among scaphidiine genera; an aciculate palpomere is shown in Fig. 87 whereas a normal (or tapering) palpomere is shown in Fig. 81.

*Mentum*: posterior sclerite of the labium.

*Tentorium*: internal structure (endocarina) which may have an anterior median spine(s) arising from a bridge-like corporotentorium.

**Thorax**

*Corbiculum*: Internal setose structure derived from the prothoracic spiracle and consisting of internally directed setae and an outer membrane with distinct pores (Fig. 91–95).

*Pronotum*: dorsal sclerite of the prothorax consisting of a disc (middle portion of the structure), lateral carinae, hypomera (the deflexed portions of the pronotum), posterior pronotal lobe (the posterior lobe that often projects behind to cover the scutellum), and posterior or basal angles.

*Prosternum*: ventral portion of the prothorax which is reduced in scaphidiines; a spine may be present (Fig. 96).

**Pterothorax**

*Mesoventrite*: ventral portion of the mesothorax that meets the metaventrite posteriorly between the mesocoxae (Fig. 98), articulating with the metaventrite by means of an internal articulation which may be absent due to fusion, and posteriolaterally marked by the anapleural line; anterior structures include the prepectus (=mesosternal space) and mesocoxal rests (Fig. 97); mesal structures include a paxillum, and mesoventral, secondary, and medial lines.

A “mesepimeron” may be present in front of the anapleural line, but this may not be homologous to a true mesepimeron (Leschen et al. 1990). A well-developed mesotrochantin and mesepimeron are present in apateticines and other members of the oxyteline group, but in scaphidiines the mesotrochantin is lost, either by fusion with the coxa, or through incorporation with the ventrites (possibly as the “mesepimeron”). What is present, and visible externally, is a well-defined sclerite in Scaphiini and Scaphidiini, which is present or absent in Scaphisomatini but absent in Cypariini. A well-developed mesepimeron is usually marked internally by a ridge, but in Scaphisomatini this is not true and we refer to this structure as the mesepimeral line.

*Metaventrite*: ventral portion of the metathorax, which articulates anteriorly with the mesoventrite by an intercoxal process (which may be fused with the mesoventrite), and posteriorly with the first ventrite of the abdomen and may have a median discrimin or longitudinal groove, distinct primary setae, mesocoxal lines (=femoral or submesocoxal lines), premetacoxal lines on the external surface, and a metacoxal process which may also give rise to an intercoxal plate resting between the metacoxae. The space enclosed by the mesocoxal lines is called the mesocoxal area. The metaventrite may also have setiferous sex patches in males of some species. The metendosternite is an internally bifurcate structure which functions in muscle attachment; dorsal arms may branch distal or proximal to the base.

*Metepimeron*: pleural region of the metathorax.

*Scutellum*: portion of the pteronotum that is usually visible between the elytral bases; but may be reduced or hidden (e.g., Fig. 2, 4–7).

**Abdomen**

*Abdominal ventrite 1*: first abdominal ventrite which
may have a metacoxal bead (not shown) along the anterior margin, metacoxal lines (=submetacoxal lines), and primary setae; the area between the metacoxal lines and the anterior portion of the ventrite is the metacoxal area (the metacoxal interval is the distance between the metacoxal line and the anterior portion of the ventrite); the abdominal process is an anterior extension present between the metacoxae and sometimes having a transverse line (Fig. 99).

**Aedeagus:** male intromittent organ of the trilobed type whereby the phallobase (=tegmen) is reduced, as in most staphylinids, and the articulated parameres attach to the basal bulb; there is a median lobe consisting of a larger, bulbous proximal part and a narrow apical lobe, and an internal sac (Fig. 22) which contains various sclerites within it, mainly the flagellum and guide sclerite. The flagellum is the sclerotised part of the ejaculatory duct (Fig. 36, 48), which is mainly membranous (many species lack sclerites in the internal sac). Sometimes the membranous duct can be traced within the flagellum, but often not, and so the term may be not always be correctly applied. The flagellum may be partly fused with, or completely isolated from, other sclerites within the internal sac. Other elongate sclerites contained in the internal sac may not be true flagella, for example the elongate sclerites in *Brachynopus* (Fig. 26–29) have no obvious duct within them and are not called flagella, whereas those in *Baeocera* do (the membranous duct is illustrated in Fig. 36). In some *Baeocera* the basal part of the ejaculatory duct is clearly visible (Fig. 48, 51) but this is rarely seen in other genera. Guide sclerites (Fig. 36, 48) are present only in some groups of *Baeocera*.

**Intersegmental membranes:** membranes present between the abdominal ventrites that may have a brick-wall pattern (Fig. 100).

**Ovipositor:** female genitalia and egg laying structure consisting of paired basal gonocoxites usually with an apical gonostyle or stylus (Fig. 101, 102); the gonocoxite of consisting of paired basal gonocoxites usually with an apical

**Hind wings:** typically well developed in most taxa, but reduced in others.

**Legs:** consisting of the basal coxa (with a small trochanter that is hidden) (Fig. 96, 104), a short trochanter, elongate femur (Fig. 105, 106) and tibia (Fig. 107–109), and 5-segmented tarsus (Fig. 110), with tarsomere 5 having a well-developed empodium (Fig. 112), empodial setae which may number 0, 1 (Fig. 112), or 2 (Fig. 111), and tarsal claws. A triangulate process may be present at the apex of the metacoxa (Fig. 104); a well-defined ctenidium (row of setae) may be present on the profemur (Fig. 105), and males have tenent setae on the protarsus (Fig. 110) and sometimes the mesotarsus.

**DESCRIPTIONS**

**Scaphidiinae Latreille, 1807**

**Adult diagnosis.** Body broadly oval to somewhat parallel-sided, compact and usually very convex and shiny. Head retracted and hypognathous; neck absent. Antennae filiform or clubbed (Cypariini); inserted on frons between eyes; insertion visible in dorsal view, but below a very weak ridge. Elytra long and truncate; 1–2 abdominal segments exposed in dorsal view. Prosternum poorly developed in front of coxae; protrochantor always concealed. Abdomen with 6 visible sterna and 0–2 pairs of paratergites per segment. Tarsal formula 5–5–5.

**Larval diagnosis.** Body round in cross-section; slightly or not flattened. Head prognathous; neck absent; 5 or 6 stemmata present. Anterior margin of labrum emarginate and toothed or crenulate. Mandible with apices bifid and strongly dentate; subapical pseudomola present (absent in Scaphidiini and Scaphiini); basal molar lobe absent. Urogomphi articulate (reduced or absent in some taxa); 2- or 1-segmented.

**Comments.** Adult diagnoses are provided in Newton *et al.* (2000) and larval diagnoses are available in Newton (1991). The New Zealand fauna contains 16 subfamilies (Klimaszewski & Watt 1997, Klimaszewski *et al.* 1996) and adult scaphidiines are easily distinguished from other staphylinids by their compact body form with a high pronotal volume and the 5-segmented antennal club (which is filiform in Scaphisomatini). A subfamily key is available in Klimaszewski & Watt (1997). Larval scaphidiines can be distinguished from other staphylinid larvae by the pres-
ence of a pseudomola and a crenulated labral margin. The New Zealand fauna contains 5 genera (2 endemic) and 23 species (21 endemic).

**KEY TO GENERA**

1 Antenna clavate with a well developed club (Fig. 2, 3); protibia with outer row of well developed spines (Fig. 2, 3) .................. ...(p. 16)... Cypariini: *Cyparium*
   —Antenna filiform with a loosely articulated club (Fig. 4); protibia without well developed spines (Fig. 107,108) .............................................................. Scaphisomatini... 2

2(1) Antennomere 3 short and triangulate (Fig. 17–19); metacoxal line present (Fig. 1); anterior bead of pronotum obliterated at middle; membranes of abdomen not brick-wall patterned ...... ...(p. 38)... Scaphisoma
   —Antennomere 3 elongate (Fig. 84); metacoxal line absent; anterior bead of pronotum present at middle; membranes of abdomen brick-wall patterned (Fig. 100) .............................................................. 3

3(2) Terminal maxillary palpomere aciculate (Fig. 86); profemoral ctenidium present (Fig. 105) .................. ...(p. 27)... Baecocera
   —Terminal maxillary palpomere tapering but not aciculate (Fig. 87); profemoral ctenidium absent (Fig. 106) ... 4

4(3) Metacoxae contiguous; fovea present on the hypomeron (Fig. 8, 9); empodial setae absent .......... ...(p. 24)... Notonewtonia
   —Metacoxae separated (Fig. 1); prothoracic fovea absent; 2 empodial setae present (Fig. 111) .................. ...(p. 18)... Brachynopus

**Cypariini Achard, 1924**

*Cypariini* Achard, 1924

*Type genus*: *Cyparium* Erichson, 1845

**Adult diagnosis.** Eye not emarginate near antennal insertion. Gular suture present and reaching submentum. Antenna clavate, not very slender, slightly flattened and symmetrical; antennomere 8 not reduced. Prosternum in front of coxa poorly or well developed (New Zealand taxa). Procoxal cavity internally closed by the fusion of the prosternum and hypomeron. Mesoventrite carinate and without a paxillum. Abdominal paratergites present, though may be reduced in number. Scutellum visible in dorsal view. Abdominal spiracle 8 usually present (sometimes atrophied). Pro- and mesostibiae spinose laterally.

**Larval diagnosis.** Head with 6 stemmata present. Pseudomola present and in the form of a lobe. Urogomphus present and 2-segmented.

**Comments.** *Cyparium*, the only member of Cypariini, contains 48 species known from most major biogeographical regions, but notably absent from southern South America, the western part of the Palaearctic, and Australia. No representatives of *Cyparium* have been found in New Guinea, New Caledonia, Fiji, and other Pacific islands even though there are large collections of scaphidiines from these areas.

The two species present in New Zealand appear to be members of a southern Gondwanan group, limited to New Zealand and South Africa based on examination of *C. piceum* Reitter from the Cape region. This group can be recognised from all other members of *Cyparium* by the antennal insertions that are widely separated, lack of a well developed frontal ridge on the head, and a prosternum which is long in front of the procoxa. Distal antennal insertions are also present in undetermined species from Mexico and Malaysia. The New Zealand species are possibly sister taxa based on their rather elongate and parallel-sided body, though this feature is present in some South American forms.

Larvae have been described for one species, *Cyparium sibiricum*, by Kompantsev & Pototskaya (1987) and a general description is found in Newton (1991). Adults and larvae have been collected mainly from Agaricales, coral fungi (Clavariaceae), and tooth fungi (Hydnaceae) (Newton, 1984; Kompantsev & Pototskaya, 1987; Leschen 1988). The biology of the New Zealand species is unknown.

*Cyparium thorpei* and *C. earlyi* are known from a total of 3 specimens, a form of rarity that may be rather unusual for the genus, because in other areas *Cyparium* specimens can be easily collected in high numbers using flight intercept traps (FITs) and directly from their host fungus. Five years of collecting fungi and placing FITs around the country (including Mangamuka to specifically catch *C. thorpei*) have not produced additional specimens. The rarity of these species may be indicative of a life history pattern different from other members of the genus.

**Cyparium Erichson, 1845**

*Cyparium* Erichson, 1845: 3. Type species *Cyparium palliatum* Erichson, 1845, by monotypy.


**Cyparium earlyi new species**

*Fig. 2; Map 17*

**Diagnosis.** Body form elongate; dorsal surfaces coarsely punctate. Antennae widely separate; frontal ridge absent. Prosternum well developed, medial carina absent. Two
Cyparium thorpei new species

Fig. 3; Map 18

Diagnosis. Body form elongate; dorsal surfaces glabrous with very fine punctures. Antennae widely separate; frontal ridge absent. Prosternum well developed, medial carina present. Two or 4 primary setae present on abdominal ventrite 1; all setae erect. Disc of elytron lacking punctate rows. Length of longest protibial spine less than half the width of the tibia.

Description. Length 3.05–3.15 mm. Body form elongate, colour uniformly black or red-black, except for ochreous apex of abdomen. Legs very dark brown. Antennae ochreous, antennomeres 7–10 of club darkened. Thorax and elytra lacking microsculpture. Punctuation almost even and very fine on head, thorax, elytra, and abdomen. Pubescence distinct. Head with frons at narrowest point between eyes 0.37 mm wide. Clypeus not impressed laterally, with basal part in same plane as frons; frontal ridge absent. Antennae with insertions widely separate; with antennomeres 3 and 4 subequal in length, 3 about 1.2 × as long as 5 and about 2 × as long as 6; antennomere 6 about as long as wide; antennomere 7 longer than wide, following three antennomeres subequal to 7, becoming gradually wider, antennomere 10 about 2 × as wide as long (without stalk). Pronotum 0.70 mm long, 1.35 mm wide; lateral contours arcuate, near base almost straight; lateral and anterior marginal striae exposed in dorsal view. Prosternum well developed; length about equal to that of procoxa; medial carina absent. Exposed part of scutellum flat, wider than long. Elytra conspicuously elongate and weakly narrowed apically, longer than wide, about 2.1 × as long as pronotum; disc lacking punctate rows. Lateral elytral contours weakly arcuate, lateral ridge visible in dorsal view; sutural striae shallow, extended laterally along basal margin slightly beyond outer 1/3 of basal width; adsutural area flat, impunctate. Hind wings fully developed. Metacoxal process of metaventrite flat, with prominent angles, margin concave. Exposed abdominal segments with very weak microsculpture consisting of punctures; abdominal ventrite 1 with 2 curled or suberect setae (1 broken off in the holotype), following ventrites each with 2 suberect setae. Tibiae slightly curved, length of longest protibial spine less than 1/2 width of tibia; protarsi of male with tarsomeres 1–3 equally, moderately widened, bearing ventral tenent setae; mesotarsomeres not widened.

Comments. Known from a single specimen collected in Fiordland, which is missing the right antenna and the left metatarsus.

Distribution (Map 17). South Island.

– / FD.

Material examined. 1 specimen only. Holotype male, NZ: FD, Fiordland NP, S Borland V, 750 m, 6 Feb 1982, J W Early, litter amongst tussock and Hebe, LCNZ 82/9 (LUNZ).

Etymology. Named in honour of John Early as collector of this species and for his contributions to New Zealand entomology.
weak punctures, and relatively more setae on the venter with 2 primary setae on ventrite 1.

**Distribution** (Map 18). North Island.

**Material examined.** Holotype and 1 paratype. **Holotype** female, NZ: TO, Mt Ruapehu, 1160 m, Whakapapa Village, 14 Mar 2002, S E Thorpe, shaken from wood on ground in Nothofagus forest (AMNZ).

**Etymology.** Patronymic for Stephen Thorpe, one of the collectors of this species and an eager amateur coleopterist.

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**Scaphisomatini** Casey, 1893

Scaphisomatini Casey, 1893  
**Type genus:** Scaphisoma Leach, 1815

**Adult diagnosis.** Eye emarginate or not near antennal insertion. Gular suture poorly developed or absent and not reaching submentum. Antenna very slender and filiform, flattened and typically asymmetrical, forming a loose antennal club; antennomere 8 reduced. Prosternum reduced, not visible in front of coxae. Procoxal cavity internally closed by the fusion of the prosternum and hypomeron. Mesoventre with a paxillum. Abdominal paratergites absent or reduced in number. Scutellum scarcely if at all visible. Abdominal spiracle 8 absent. Tibiae rarely strongly spinose.

**Larval diagnosis.** Head with 5 stemmata present. Pseudomola present and variable; never in the form of an elongate lobe. Urogomphus typically 2-segmented, but sometimes 1-segmented or absent.

**Comments.** The tribe Scaphisomatini is the largest tribe in Scaphidiinae with 37 genera and 1092 species, at last count prior to this study, and is distributed worldwide. We are presently investigating the generic level relationships of the tribe and we use this study as the basis for determining the generic limits of *Brachynopus* and erecting the genus *Notonewtonia*.

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**Brachynopus** Broun, 1881

*Brachynopus* Broun, 1881: 664. Type species: *Brachynopus latus* Broun, 1881; by monotypy.


**Description.** Length 1.50–2.60 mm. Body about as convex dorsally as ventrally; outline suboval, strongly narrowed apically. Dorsal vestiture reduced. Labral setae present and simple or apically notched. Mandible bidentate apically, apices short and blunt; subapical serrations present (at least on left mandible); prostheca well developed, lacking long fine setae. Maxillary palpus normal (tapering); 2 subapical setae present on palpus 2; palpus 3 swollen, shorter and thicker than palpus 4. Galea wider than long or somewhat narrower (*B. apicellus*, Fig. 75); brush apical and radulate; long apical setae absent. Lacinia with apical setae or teeth arranged into rows; inner and basal setae of lacinia elongate or absent, but apical setae extending to subapical area. Hypopharynx with (*B. latus*) or without 2 setae on the adoral surface; setae spinate if present. Labial palp 3–segmented; palpomere 1 distinctly shorter than 2; 3 small, shorter, or subequal to the combined length of 1 and 2; terminal labial palpomere not aciculate, inserted apically or subapically and slightly curved or straight; subapical palpomere with one seta. Mentum with anterior edge straight; surface setose. Anterior edge of submentum emarginate. Submaxillary area of head with microtubulate or foveate ducts. Gular area with or without transverse cluster of pores. Frontoclypeal suture present. Eye entire; interocular distance small. Antennal insertion below slight ridge and present at midline of eye. Antenna inserted near margin of frons; filiform; antennomeres 3 and 4 elongate; antennomeres 3–6 and 8 similar, long, not widened mesally, moderately flattened, becoming slightly thicker toward apex; antennomeres 7, 9, and 10 symmetrical, with mesal side widened gradually toward apex; larger than antennomere 8; antennomere 11 oval, almost symmetrical. Anterior tentorial tendon absent or present. Pronotum with basal lobe weakly developed. Prothoracic corbiculum present or absent. Anterior margin of procoxal cavity asetose or setose. Hypomeron in lateral view completely visible; apex not projecting beyond pronotum; fovea, impressions, or carinae absent; margined ventrally and apically, with apical margin sinuate; ventral margin not prominent. Prothoracic carina prominent with a bead; not completely visible in dorsal view. Anterior margin of pronotum with a bead. Posterior angle of pronotum rounded and not extending below ventral edge of elytra; extending to anapleural suture or not. Prosternal spine present. Mesoventre with prepectus; secondary
lines present; median lines absent. Mesoventral lines present; connecting with mesocoxal cavity, impunctate; not parallel with outer margins of procoxal rests. Mesepimeron present with oblique line; about 1/3 width of metaventral width. Mesepisterna large. Width of mesosoma greater or less than intercoxal process; coxa round. Meso- and metaventral separate with a distinct suture or partially fused with an internal ridge. Mesocoxa greater or less than intercoxal process; coxa round. Mesepimeron present with oblique line; about 1/3 width of metacoxal process of metaventrite almost equally wide. Metaventrite relatively short, with sides shorter than lateral parts of mesepisterna; fused with metepisterna or not; anapleural suture completely obliterate or weakly indicated; with or without setose patch; primary setae present and located on the disc; transverse premetaxoal lines absent; discrimen absent; intercoxal plate present as a single plate. Metepisternal suture present. Metepisternum visible in ventral view; posterior line absent. Metendosternum with stern present. Scutellum visible in dorsal view or concealed below elytra; width about 1/2 or 1/3 entire width of pteronotum; transverse basal line or carina complete and forming a trapezoid. Metaxoae separate. Brick-wall membranes present on abdominal ventrites 1–4. Ventrite 1 with wide abdominal process, slightly narrower than metaxoal process of metaventrite; without intercoxal line; metaxoal lines absent; metaxoal bead impunctate and close to and parallel to coxal cavity. Primary setae present on ventrites 1–5; 2 on each segment. Abdominal vestiture absent. Paratergites absent on segment 4. Hind wings present, reduced, or absent. Elytron expanded ventrally, strongly narrowed apically with conspicuous narrow margin; with or without basal stria; sutural stria complete or not; basal and sutural striae connected; supraepipleural area large, slightly narrowed toward base, much wider than epipleura; epipleura weakly narrowed toward apex, stria present, joined to lateral striae at apical angles; lateral striae arcuate in lateral view; sutural spines present or absent; apical serrations absent. Metaxoal process of metaventrite digitiform. Profemoral etendium absent. Mesofemora in cross-section rounded or slightly flattened; subapical seta present and not spine-like. Tibiae robust, subcylindrical, smooth. Mesotibia distinctly longer than mesotarsus; 2 ventral mesotibial spines present, equal or subequal to each other and about as long as 2/3 of tarsomere 1. Metatarsus smooth; mesotarsomere 1 equal to, less than, or greater than the length of tarsomere 2. Empodium bisetose. Internal sac of aedeagus elongate and symmetrical with tripartite basal sclerites. Female coxites with apical styl bearing long setae.

**Larval diagnosis.** Head with 5 stemmata present. Pseudomola present and in the form of a dense field of elongate spines, not as an elongate lobe. Urogomphus 2-segmented.

**Comments.** Prior to our study, *Brachynopus* consisted of a single species, *B. latus*, and to this genus we add the following 3 species as new combinations (see following descriptions): *Brachynopus apicellus* (Broun), *B. rufus* (Broun), and *B. scutellaris* (Redtenbacher). The placement of these species is largely based on an unpublished phylogenetic study where *B. apicellus* and *B. rufus* were included as terminal taxa and *B. scutellaris* and *B. latus* were considered congeneric. In the cladistic analysis, details of which will be published subsequently, we demonstrate that *Brachynopus* is monophyletic and is the sister taxon to *Notonewtonia*, a group restricted to New Zealand. These 2 genera form a sister group to most of the remaining members of Scaphisomatini, apart from *Birocera* Löbl and *Bironium* Csiki, which are the basalmost members of the tribe.

*Brachynopus* is clearly a primitive taxon that is difficult to separate from all other genera. It is diagnosed by plesiomorphic characters and there appear to be no unique characters supporting its monophyly. The taxon is supported by a combination of characters and can be distinguished from other members of Scaphisomatini based on those features listed in the diagnosis, and especially the normal maxillary palpi with the terminal palpus tapering, unmodified antennomeres 3 and 4, and profemoral etendium absent. Meanwhile, the members of *Brachynopus* are all very different and well defined, but each species has characters that may align them with other genera outside of this New Zealand group. For example, all members but *B. apicellus* have a prothoracic corbiculum, a feature that is present in many derived scaphisomatines. *Brachynopus latus* and *B. scutellaris* have a tripartite basal sclerite in the internal sac that is present also in *Alexidia* (Löbl & Leschen 2003).

The larval diagnosis is based on specimens of *B. latus* and *B. scutellaris*.

**Key to Brachynopus species**

1. Elytron bicoloured with a distinct pattern (Fig. 7) ........ (p. 20)... **apicellus**
   —Elytron unicoloured (Fig. 4–6) ........................ 2

2(1) Base of pro- and meso- tibiae with well developed spines (Fig. 6) ........................ (p. 22)... **rufus**
   —Base of pro- and meso- tibiae without well developed spines (Fig. 107) ................................. 3

3(2) Epipleuron wide; body strongly narrowed apically (Fig. 4) ........................ (p. 21)... **latus**
   —Epipleuron narrow; body not strongly narrowed apically (Fig. 5) ........................ (p. 23)... **scutellaris**
Brachynopus apicellus (Broun), new combination

Fig. 7, 28, 29, 74–76; Map13
Scaphisoma apicella Broun, 1880: 160.

Diagnosis. Body oval in outline and strongly narrowed apically; elytron bicolorous. Galea narrow. Lacinia with apical teeth arranged into rows; inner and basal setae absent. Terminal labial palpmere inserted apically and slightly curved. Submaxillary area of head with foveate ducts. Gular area with pores. Prothoracic corbiculum absent. Anterior margin of procoxal cavity asetose. Posterior angle of pronotum not extending to anapleural suture. Mesocoxal lines arcuate. Metaventrite not fused with metepisterna; setal patch present in male. Scutellum visible in dorsal view; width about 1/3 entire width of pteronotum. Microsculpture present on abdominal ventrites 1–4. Hind wings reduced to narrow flap. Elytron without coarse punctures; basal stria present; sutural spines present. Pro- and mesotibia without basal spines; mesotibial spines subequal in length. Length of mesotarsomere 1 greater than tarsomere 2. Sclerite of internal sac asetose. Mesepimera small, with inner margin reaching mid-width of metepisterna. Ventral side of thorax and abdomen extremely finely punctate. Metaventrite with 1 pair of erect setae; not fused with metepisterna. Anterior metacoxal process of metaventrite slightly wider than posterior process. Mesocoxal lines arcuate, slightly asymmetrical; mesocoxal areas about as long as 2/3 of shortest interval to metacoxae. Exposed part of metepisterna large, parallel-sided, with conspicuous deep and wide impression along straight inner margin. Abdominal ventrites with microsculpture consisting of punctures. Ventrites 1–5 each with 1 pair of erect setae. Female coxites apical, styli bearing long setae. Tibiae robust, curved, not narrowed basally; pro- and mesotibia without basal spines; mesotibial spines subequal in length. Length of mesotarsomere 1 greater than tarsomere 2.

Male. Protarsomeres 1–3 widened and bearing tenent setae. Metaventral setal patch present in male. Apex of abdominal ventrite 5 arcuate. Apex of ventrite 6 slightly prominent in middle. Aedeagus as in Fig. 28, 29; sclerite of internal sac elongate.

Comments. Brachynopus apicellus can be distinguished from other members of the genus by its rather rounded body form, narrow supra-epipleural space, absence of spines at the base of the pro- and mesotibia, and bicolorous elytron. The form of the mouthparts is very unusual, especially the lacinia which has rows of bristles (Fig. 75), and these characters together with the absence of a corbiculum make the generic placement of this species uncertain.

Only 1 of the 3 specimens listed by Broun (1880) was located in the BMNH, and this was designated the lectotype.
**Brachynopus latus Broun**  
Fig. 4, 20–22, 84, 87–95, 97–102, 104, 106, 112; Map 14

*Brachynopus latus* Broun, 1881: 664.  
*Baeocera fulvicollis* Broun, 1886: 891.  
**New synonymy.**

**Diagnosis.** Body oval in outline and strongly narrowed apically; elytron unicolorous. Galea wider than long. Lacinia with apical, inner, and basal setae present. Hypopharynx without setae on the adoral surface. Terminal labial palpomere inserted apically and strongly curved. Submaxillary area of head with foveate ducts. Gular area without transverse cluster of pores. Prothoracic corbiculum present. Anterior margin of procoxal cavity setose. Posterior angle of pronotum not extending to anapleural suture. Mesocoxal lines asymmetrically arcuate. Metaventrite fused with metepisterna with suture absent; setose patch absent. Scutellum concealed below elytra; width about 1/3 entire width of pteronotum. Elytra widest near base, from widest point very weakly narrowed anteriorly; lateral striae starting at base, arcuate in anterior half, not extending along basal margin, joined with epipleural and apical striae; apical margin oblique, inner apical angle posterior to outer apical angles, sutural striae greatly shortened, usually distinct in apical 1/3 of sutural length, sometimes longer and extending about up to elytral mid-length; sutural spines absent. Supra-epipleural area slightly wider than epipleura at base, almost 3× as wide as epipleura at widest point near mid-length of elytron. Epipleura gradually narrowed apically. Discal punctuation dense and very shallow, usually consisting of punctures of variable sizes, but larger than pronotal punctures. Wings strongly reduced, absent or remaining as very narrow rudiments.

Galea wider than long. Lacinia with apical, inner, and basal setae present. Hypopharynx without setae on adoral surface. Terminal labial palpomere inserted apically and strongly curved. Submaxillary area of head with foveate ducts. Gular area without transverse cluster of pores. Prothoracic corbiculum present.

Venter with dense, extremely fine punctuation. Anterior margin of procoxal cavity setose. Posterior angle of pronotum not extending to anapleural suture. Mesocoxal lines asymmetrically arcuate. Shortest interval between mesocoxae and metacoxae smaller than width of intercoxal process. Abdominal ventrites 1–4 with microsculpture consisting of punctures. Legs relatively short, tibiae almost straight, evenly thick. Pro- and mesotibia without basal spines; mesotibial spines subequal. Length of mesotarsomere 1 slightly less than length of tarsomere 2.

**Male.** Protarsomeres 1–3 widened and bearing tenent setae. Abdominal ventrites 5 slightly emarginate at apical margin. Ventrite 6 with small, triangular medio-apical process, emarginate at each side of latter. Aedeagus as in Fig. 20–22; basal sclerite of internal sac tripartite.

**Description.** Length 1.55–2.0 mm, about 1.5× as long as wide. Body typically black, or prothorax lighter than elytra and most of venter. Elytral apex, apical abdominal segments, mouthparts and appendages usually ochreous. Pubescence very fine and recumbent on pronotum, hypomera, and elytra, moderately long on metaventrite and abdomen. Antennae long, antennomeres 3 and 4 subequal, antennomere 5 slightly longer than antennomeres 4 and 6, antennomere 8 about as long as and slightly wider than antennomere 3. Body oval in outline and strongly narrowed apically; lateral contours of pronotum and elytra almost contiguous and rounded. Pronotum with very fine punctuation. Scutellum concealed below elytra; width about 1/3 entire width of pteronotum. Elytra widest near base, from widest point very weakly narrowed anteriorly; lateral striae starting at base, arcuate in anterior half, not extending along basal margin, joined with epipleural and apical striae; apical margin oblique, inner apical angle posterior to outer apical angles, sutural striae greatly shortened, usually distinct in apical 1/3 of sutural length, sometimes longer and extending about up to elytral mid-length; sutural spines absent. Supra-epipleural area slightly wider than epipleura at base, almost 3× as wide as epipleura at widest point near mid-length of elytron. Epipleura gradually narrowed apically. Discal punctuation dense and very shallow, usually consisting of punctures of variable sizes, but larger than pronotal punctures. Wings strongly reduced, absent or remaining as very narrow rudiments.

Galea wider than long. Lacinia with apical, inner, and basal setae present. Hypopharynx without setae on adoral surface. Terminal labial palpomere inserted apically and strongly curved. Submaxillary area of head with foveate ducts. Gular area without transverse cluster of pores. Prothoracic corbiculum present.

Venter with dense, extremely fine punctuation. Anterior margin of procoxal cavity setose. Posterior angle of pronotum not extending to anapleural suture. Mesocoxal lines asymmetrically arcuate. Shortest interval between mesocoxae and metacoxae smaller than width of intercoxal process. Abdominal ventrites 1–4 with microsculpture consisting of punctures. Legs relatively short, tibiae almost straight, evenly thick. Pro- and mesotibia without basal spines; mesotibial spines subequal. Length of mesotarsomere 1 slightly less than length of tarsomere 2.

**Male.** Protarsomeres 1–3 widened and bearing tenent setae. Abdominal ventrites 5 slightly emarginate at apical margin. Ventrite 6 with small, triangular medio-apical process, emarginate at each side of latter. Aedeagus as in Fig. 20–22; basal sclerite of internal sac tripartite.

**Comments.** *Brachynopus latus* can be distinguished from other members of the genus by its round body form, large epipleural area, and lack of spines at the base of the pro- and mesotibia. Examination of the syntypes of *Baeocera fulvicollis*, all specimens of which are teneral, resulted in the synonymy of this species with *B. latus*.

*Brachynopus latus* is the most common species collected scaphid in its range and has been collected in many habitats, including pastures, and almost anywhere where dead wood is present (Kuschel 1990; Leschen *et al.* in prep.). Larvae of *Brachynopus latus* prepare canopy retreats like many other scaphid species (Leschen 1996). Larvae feeding upside down on the hymenium layer of *Coltricia* (Fig. 83) were observed to invert their bodies horizontally.
before inserting a faecal pellet into the canopy structure.

Fungal hosts (larval records indicated by an asterisk *).


**Diagnosis**

Baeocera rufa (Fig. 6, 26, 27, 108, 110, 111; Map 15

**Brachynopus rufus** (Broun), new combination

Fig. 6, 26, 27, 108, 110, 111; Map 15

*Baeocera rufa* Broun, 1885: 891.

*Baeocera armata* Broun, 1886: 891. New synonymy.

**Diagnosis.** Body oval in outline and weakly narrowed apically; elytron unicolorous (apex may be lighter in colour). Galea wider than long. Lacinia with apical, inner, and basal setae present. Terminal labial palpomere inserted subapically and almost straight. Submaxillary area of head with microtubulate ducts. Gular area without transverse cluster of pores. Prothoracic corbiculum present. Anterior margin of procoxal cavity setose. Posterior angle of pronotum extending to anapleural suture. Mesocoxal lines arcuate. Metaventrite fused or not with metepisterna. Scutellum concealed below elytra or with small tip exposed; width about 1/3 entire width of pteronotum. Microsculpture absent or indistinct on abdominal ventrites

1–4. Hind wings present. Elytron with well developed punctures; basal stria present; sutural spines present. Pro- and mesostibia with basal spines; mesotibial spines subequal in length. Length of mesotarsomere 1 greater than tarsomere 2. Sclerite of internal sac elongate.

**Description.** Length 1.8–2.2 mm. Body about 1.6× as long as wide, reddish-brown to black, apex of elytra, femora, and tibiae usually slightly lighter, apical abdominal segments, antennae, and tarsi lighter brown or ochreous. Body with pubescence very fine and recumbent. Antennae long, with antennomere 4 longer than antennomere 3, slightly shorter than antennomere 5, antennomeres 5 and 6 equally or almost equally long; antennomeres 4 and 8 equally long. Body oval in outline and weakly narrowed apically; lateral contours of pronotum and elytra separately arcuate. Pronotum with lateral striae not visible in dorsal view; punctuation moderately sparse and extremely fine, even on entire disc; basal angles slightly prominent, touching (or almost touching) anterior margin of metepisterna; extending to anapleural suture. Minute tip of scutellum exposed or concealed; width about 1/3 entire width of pteronotum. Elytra with well developed punctures; widest in posterior basal 1/4, moderately narrowed anteriorly apically, with lateral contours partly oblique, apical margins truncate, inner apical angle situated posterior to line of outer apical angles, sutural striae entire, shallow, curved along base and joined with lateral striae to form basal striae. Lateral striae slightly arcuate in lateral view, joining epipleural striae near broadly rounded apical angles of elytra; sutural spines present. Supra-epipleural areas almost twice as wide as epipleura near base, epipleura and supra-epipleural areas parallel-sided anteriorly, gradually narrowed from level of metepimera toward apex. Hind wings fully developed.

Mandibles with subapical tooth acute, larger than short blunt apical tooth. Mesal margin of mandibles with subapical, flat comb of setae, lacking long, subapical setae. Galea wider than long; lacking long, fine, apical setae. Lacinia with robust apical hooks; apical, inner, and basal setae present. Palpomere 3 of maxillary palpi long, gradually thickened apically, thicker at apex than base of palpomere 4. Labial palpi with palpomere 1 reduced, very short, length of palpomeres 1 and 2 combined shorter than palpomere 3; palpomere 3 inserted subapically and almost straight. Submaxillary area of head with microtubulate ducts. Gular area without transverse cluster of pores. Prothoracic corbiculum present.

Venter extremely finely punctate. Anterior margin of procoxal cavity setose. Thorax and abdominal ventrite 1 lacking microsculpture, following ventrites with indistinct microsculpture consisting of punctures. Metaventrite with anterior intercoxal area distinctly wider than posterior metacoxal process; fused or not with metepisterna.
Mesocoxal lines regularly, strongly arcuate, maximum length of mesocoxal areas about 1/2–2/3 of shortest interval between mesocoxal lines and metatibae. Exposed part of mesepimera large, extending beyond inner margin of metepisterna. Exposed portion of metepisterna parallel-sided, grooved along inner margin. Tibiae slightly curved, evenly thick; pro- and mesotibia with basal spines; mesotibial spines subequal in length. Length of mesotarsomere 1 greater than tarsomere 2.

**Male.** Protarsomeres 1–3 widened and with tenent setae. Ventrite 6 prominent in middle to form rounded process. Aedeagus as in Fig. 26, 27; sclerite of internal sac elongate.

**Comments.** *Brachynopus rufus* can be distinguished from other members of the genus by its rather rounded body form, narrow epipleural area, presence of spines at the base of the pro- and mesotibia, and generally unicolorous elytron. Examination of a single type specimen *Baeocera armata* Broun, which was teneral, resulted in the synonymy of this species with *B. rufus*.

**Fungal hosts.** Basidiomycetes: undetermined corticioid.

**Distribution** (map 15). Northern half of the North Island.

ND, AK, CL, WO, BP, TO, GB / –.


**Brachynopus scutellaris** (Redtenbacher), new combination

Fig. 5, 23–25; Map 16

*Scaphisoma scutellare* Redtenbacher, 1867: 32.

*Scaphisoma tenellum* Pascoe, 1876: 48. Synonymy by Reitter, 1880: 44.

*Baeocera scutellaris* (Redtenbacher). Incorrect generic placement by Reitter, 1880: 44.

*Baeocera rufipes* Broun, 1886: 833. New synonymy.

**Diagnosis.** Body elongate-oval in outline and weakly narrowed apically; elytron unicolorous. Galea wider than long. Lacinia with apical, inner, and basal setae present (basal and inner setae absent in some specimens). Terminal labial palpomere inserted apically and strongly curved. Submaxillary area of head with foveate ducts. Gular area without transverse cluster of pores. Prothoracic corbiculum present. Anterior margin of procoxa cavity setose. Posterior angle of pronotum not extending to anapleural suture. Mesocoxal lines parallel to coxae. Metaventrite fused with metepisterna; setose patch absent. Scutellum visible in dorsal view; width about 1/2 entire width of pteronotum. Microsculpture present on abdominal ventrites 1–4. Hind wings present or reduced. Elytron strongly punctate; basal stria absent; sutural spines present in some specimens. Pro- and mesotibia without basal spines; mesotibial spines equal in length to each other. Length of mesotarsomere 1 subequal and slightly less than tarsomere 2. Basal sclerite of internal sac tripartite.

**Description.** Length 1.50–2.60 mm. Body variable, but mainly dark reddish-brown, apex of elytra and abdomen usually lighter (specimens from TH are red). Thorax and elytra, or thorax only, rarely ochreous. Antennae, femora, and tibiae as body or slightly lighter, tarsi usually distinctly lighter. Body with pubescence very fine and recumbent. Head without trace of frontoclypeus suture. Eyes not emarginate. Antennae long, with antennomeres 4 and 6 about equally long, slightly longer than antennomere 3 and shorter than antennomere 5; antennomere 8 about as long as and distinctly thicker than antennomere 3. Body elongate-oval in outline and weakly narrowed apically; lateral contours of pronotum and elytra separately arcuate. Pronotum with lateral striae not or barely visible in dorsal view; punctuation dense, very fine and shallow, punctures becoming usually larger toward base; basal angles not prominent apically, reaching about mid-line of mesepisterna and not extending to anapleural suture, anterior to exposed anterior margin of metepisterna. Minute tip of scutellum exposed; width about 1/2 entire width of pteronotum. Elytra moderately narrowed apically, with lateral contours partly oblique, apical margin truncate, angle situated posterior to line of outer apical angles, sutural striae shortened, extending from apex up to about anterior 1/3 of sutural length, sometimes only to mid-length, or longer and reaching anterior 1/4 of sutural length; strongly punctate; sutural spines present in some specimens. Lateral striae curved basally, not extending along basal margin of elytra to form basal striae. Supra-epipleural areas not strongly widened, about twice as wide near base as epipleura, gradually narrowed apically. Epipleura obsolete near apical angles of elytra. Hind wings fully developed or reduced to an elongate flap with wing veins present.

Mandibles with subapical long fine setae and wide comb setae. Lacinia with apical hooks and apical and subapical long fine setae. Galea wider than long. Lacinia with apical, inner, and basal setae present (inner and basal setae absent in some specimens). Labial palpi with palpomere 1 slightly...
longer than palpmere 2, combined length of palpmere 1 and 2 subequal to length of palpmere 3; palpmere 3 inserted apically and strongly curved, short, swollen. Submaxillary area of head with foveate ducts. Gular area without transverse cluster of pores. Prothoracic corculium present.

Venter extremely finely punctate. Anterior margin of procoxl cavity setose. Thorax lacking microsculpature, abdominal ventrites 1–4 with distinct microsculpature consisting of punctures. Mesocoxal lines regularly arcuate and parallel to coxa, maximum length of mesocoxa about 1/4–1/3 length of shortest interval between meso- and metacoxae. Exposed portion of mesepisterna short, not exceeding inner margin of meseipisterna; meseipisterna laterally much shorter than lateral parts of metaventrite. Metaventrite large, with 1 pair of erect setae, length between meso- and metacoxae exceeding width of intercoxl process; fused with meseipisterna but clearly delimited by more or less angulate line; setose patch absent. Exposed portion of metaventrite parallel-sided. Tibiae barely curved, evenly thick; pro- and mesotibia without basal spines; mesotibial spines equal in length to each other. Length of mesotarsosome 1 subequal and slightly less than tarsomere 2.

**Male.** Protarsomeres 1–3 widened and with tenten setae. Apical margin of ventrite 5 truncate. Ventrite 6 prominent in mide to form triangular process. Aedeagus as in Fig. 23–25; basal sclerite of internal sac tripartite.

**Comments.** *Brachynopus scutellaris* can be distinguished from other members of the genus by its rather elongate body form, narrow epipleural area, absence of spines at the base of the pro- and mesotibia, and unicolorous elytron (which is present in most specimens). Examination of the type specimens *Scaphisoma tenellum* Pascoe and *Baeocera rufipes* Broun resulted in the synonymy of these species with *Brachynopus scutellaris*. Comparison of specimens of this species with those of *Brachynopus latus* confirms that the placement of this genus is correct, especially with regard to the unusual tripartite sclerite of the aedeagus.

*Brachynopus scutellaris* is perhaps one of the most variably sized scaphidiines known to us, with a distribution throughout New Zealand including offshore islands (recorded under Scaphisomatiini new genus sp. 1 for the Chatham Islands in Emberson 1998). Populations of this species usually have well developed hind wings, but Chatham Islands’ populations are brachypterous. An aberrant specimen with an unusually rugose elytron was noted by May (1958). This species is quite abundant and has been collected from dead wood (see list of species by Kuschel 1990 who listed this species in ‘*Baeocera*’). Larvae of *B. scutellaris* prepare canopy retreats and are quite conspicuous on small rotting branches infected with encrusting Basidiomycetes.

**Fungal hosts** (larval records indicated by an asterisk*). Myxomycetes: *Arcyria incarnata, Fuligo septica, Physarum cf. leucophaeum, Stemnostis, Trichia floriformis*, undetermined plasmodium. Basidiomycetes: *Bjerkandra adusta, Ganoderma, Hyphodontia*, *Inonotus nothofagi, Phellinus kamahi*, *Poria sp.*, *Schizopora, Trametes (=Coriolus?)*, *Trametes versicolor*, white rot on *Nothofagus*, undetermined corticioids*, undetermined polyopes (listed as brackets, resupinate, and *Fomes* type).

**Distribution** (Map 16). Throughout New Zealand.

TH / ND, AK, CL, BP, TK, TO, GB, HB, WI, WN, WA / SD, NN, BR, WD, MB, KA, NC, MC, OL, SC, DN, FD, SL, SI / CH.


*Notonewtonia* new genus

Type species: *Notonewtonia thayerae* n. sp.

**Diagnosis.** Maxillary palpus normal (tapering). Antennomeres 3 and 4 elongate; 7, 9, and 10 symmetrical. Galea wider than long; brush apical and paniculate. Surface...
of mentum setose. Anterior margin of pronotum with a bead. Hypomerons with anterior fovea. Prothoracic corbliculum absent. Metacoxal lines present on metaventrite. Metendosternum with stem present. Membranes of abdo-

**Description.** Length 2.40–2.80 mm. Shape of the body robust, narrowed in *N. thayerae*. Dorsal vestiture reduced. Labral setae present and apically frayed. Mandible bidentate apically, subapical serrations present (at least on left mandible); prostheca with flat comb of setae, lacking long, fine subapical setae. Maxillary palpus normal (tapering); 3 subapical setae present on palpus 2; 3 long, about as long as 4, moderately thickened apically. Galea wider than long or slightly narrowed; brush apical and punctate. Inner and basal setae present on lacinia. Hypopharynx setose. Labial palp 3-segmented; palomere 1 small, 2 much larger than 1, elongate, palomeres 1 and 2 each about as long as palomere 3; terminal labial palpmere not aciculate, inserted subapically and straight; subapical palpmere with 1 seta. Mentum with anterior edge straight; surface setose. Anterior margin of submentum invaginate. Submaxillary area of head with microtubulate ducts. Gular area with transverse cluster of pores. Frontoclypeal suture present. Eye entire; interocular distance small. Antenellar insertion below slight ridge and present at midline of eye. Antenna filiform; antennomeres 3 and 4 elongate; antennomeres 7, 9, and 10 symmetrical. Anterior tentorial tendon present. Prothoracic corbliculum absent. Anterior margin of procoxal cavity setose. Hypomeron in lateral view completely visible; apex projecting beyond pronotum or not; fovea present. Prothoracic carina prominent with a bead; not completely visible in dorsal view; straight in lateral view. Anterior margin of pronotum with a bead. Posterior angle of pronotum acute and slightly prominent, not extending below ventral edge of elytra; not extending to anapleural suture and covering anterior margin of mesepimera. Prosternum with spine present. Mesoventerfive with prepectus; secondary lines present; median lines absent. Mesoventral lines present; connecting with mesocoxal cavity, impunctate; not parallel with outer margins of prosternal rests. Mesepimera present and about 1/3 length of width of metaventrite. Mesocoxa equal to or less than width of the intercoxal process; coxa round or transverse. Meso-and metaventrites separate. Mesocoxal lines arcuate or parallel to coxa, impunctate. Metaventrite with or without setose patch; primary setae present and located on the disc; transverse premetacoxal lines absent; discrimen absent; intercoxal plate present as a single plate. Metepisternal suture present and impunctate. Metepisternum visible in ventral view; posterior line absent. Metendosternum with stem present. Scutellum visible dorsally; width about 1/2 entire width of pteronotum; transverse basal line or carina complete and forming a trapezoid. Metacoxae contiguous. Brick-wall membranes present on abdominal ventrites 1–4. Abdominal process on ventrite 1 with intercoxal line; metacoxal lines absent; metacoxal bead impuncate; primary setae present. Primary setae present on ventrites 2–4; 2 on each segment. Abdominal vestiture absent. Paratergites absent. Hind wings present. Elytron with basalar stria present; sutural striae shortened or elongate; basal and sutural striae connected or not; epipleural stria present; sutural spines and apical serrations absent. Metacoxal process of metaventrite digitate. Profemoral eldosternalium absent. Mesofemora in cross-section rounded; subapical seta present and not spine like. Tibiae smooth. Mesotibia distinctly longer than mesotarsus; 2 ventral mesotibial spines present, subequal, about as long as 2/3 of tarsome 1. Metatarsi smooth; length of mesotarsosme 1 greater than tarsomer 2 and 3 combined. Empodium asetose.

**Comments.** The endemic genus *Notonewtonia* is described for two new species that are unique in Scaphidiinae in having shallow foveae on the hypomeron. Other characters defining this genus are listed in the diagnosis.

The biology of the included species is unknown, and most specimens were found singly and were collected mainly in flight intercept traps.

**Etymology.** Combination of the prefix *notos*, Greek for South, combined with Newton, which is patronymic for Al Newton, one of the collectors of this new genus and for his contributions to staphyliniform systematics.

**Notonewtonia thayerae new species**

Fig. 8, 30, 31, 77–79, Map 19


**Description.** Length 2.40–2.65 mm. Body outline narrow, about 1.75x as long as wide, black, femora and tibiae slightly lighter, apical abdominal segments, antennae and tarsi much lighter, ochreous or light brown. Head, thorax, elytra, and abdominal ventrite 1 with relatively long, recumbent pubescence. Head with fronsopaque suture completely evanescent; frons with 2 impressions. Eyes very weakly.
notched. Antennae with antennomeres 4–6 almost equally long, their lengths each distinctly longer than antennomere 3; antennomere 8 slightly longer than antennomere 3. Galea with interspersed apical rows of long, fine, setae. Anterior margin of prementum sinuate. Pronotum at base conspicuously narrower than elytra, with lateral striae not visible in dorsal view; lateral striae sinuate in lateral view, punctuation evenly very fine and dense; posterior angles of pronotum projecting beyond pronotum. Hypomera with 2 ventral setose foveae, anterior fovea larger than posterior one; margins at anterior and posterior ventral angles expanded to form flat, smooth areas. Tip of scutellum exposed. Elytra at widest posterior basal 1/3, relatively strongly narrowed basally, moderately narrowed posteriorly, with lateral margins rounded near base, apical margin truncate, inner apical angle situated posterior to line of outer apical angles; sutural striae strongly shortened, evanescent before reaching anterior half of sutural length; lateral striae curved anteriorly and extending along base to form basal striae ending near scutellum. Lateral striae shallow, straight. Epipleural striae becoming gradually finer apically, obsolete before reaching apical 1/4 of lateral length of elytra; epipleura moderately narrow, distinctly wider than supra-epipleural area anteriorly, about equally wide to epipleura in middle. Elytral punctuation dense and relatively coarse. Hind wings fully developed, functional. Mesepimera about as long as interval to mesocoxa, not in same plane as mesepisterna and sharply delimited by latter. Mesoventral disc and middle part of metaventrite with dense and moderately coarse punctuation, lateral parts of metaventrite sparsely and very finely punctate. Width of mesocoxa less than width of the intercoxal process; transverse. Metaventrite with patch of setae. Mesocoxal lines strongly arcuate and asymmetrical; mesocoxal areas large, only slightly shorter than shortest interval to metacoxae. Exposed part of metepisterna parallel-sided, suture straight, partly fused. Abdominal ventrites lacking microsculpture. Profemora with ctenidium of very fine, setae. Anterior margin of prementum concave. Pronotum at base moderately narrower than elytra, with lateral striae not visible in dorsal view; lateral striae sinuate in lateral view, punctuation evenly very fine and dense. Posterior pronotal angles obtuse, touching anterior margin of mesepimeron and not projecting beyond pronotum. Hypomeron with 1 asetose fovea. Width of mesocoxa more than width of the intercoxal process; round. Metaventrite without setose patch; mesocoxal lines parallel to coxae. Basal and sutural striae connected. Profemora without ctenidium.

Material examined. Holotype and 16 paratypes — see Appendix 1 for collection details of specimens. Holotype. male, New Zealand, [BR], 1.8 km N Punakaiki, 50 m, 19.xii.1984-20.i.1985 hdwd.- podo.-nikau for. A. Newton/M. Thayer 719 window trap, barcode NZAC04010512 (NZAC).

Etymology. Patronymic for Margaret Thayer, one of the collectors of this new species and in recognition for her contributions to staphylinid systematics.

Notonewtonia wattii new species
Fig. 9, 32, 33, 80-82; Map 20


Description. Length 2.7–2.8 mm. Body outline broad, about 1.7× as long as wide, black, femora and tibiae not or slightly lighter than body. Abdominal apex, antennae, and tarsi dark brown. Head and body with pubescence very short and fine, inconspicuous at high (200×) magnification. Head with frontoclypeal suture completely evanescent; frons lacking impressions. Eyes very weakly notched. Antennae with antennomeres 4–6 almost equally long, distinctly longer than antennomere 3; antennomere 8 slightly longer than antennomere 3. Galea without interspersed apical rows of long, fine, setae. Anterior margin of prementum concave. Pronotum at base moderately narrower than elytra, with lateral striae not visible in dorsal view; lateral striae sinuate in lateral view, punctuation evenly very fine and dense. Posterior pronotal angles obtuse, touching anterior margin of mesepimeron and not projecting beyond pronotum. Hypomeron with 1 anterior shallow fovea, consisting of an anterior margin raised to form 2 separate ridges; upper ridge deflected dorsally and extended posteriorly parallel lower ridge, lower ridge forming ventral margin of hypomeron. Tip of scutellum exposed. Elytra widest at posterior basal 1/5, weakly narrowed basally, moderately narrowed posteriorly, with lateral margins rounded near base, oblique posterior basal 1/4, apical margin truncate, inner apical angle situated to about same level as outer apical angles, sutural striae very fine, parallel to suture, extended from apex to base and curved along basal margins to form basal striae joined to lateral striae. Lateral
and epipleural striae moderately deep, straight, gradually converging to lateral margins, epipleural striae evanescent near to apical angles of elytra, epipleura and supra-epipleural areas equally wide. Elytral punctuation sparse and very fine, at base and on most central surface of disc similar to that on pronotum, coarser on lateral portions of disc. Hind wings fully developed, functional. Mespimerina small, with inner margin in line with inner margin of metepisterna. Mesoventral disc moderately coarsely punctate, metaventrite with extremely fine punctuation and 1 pair of erect setae; setose patch absent. Width of mesocoxa more than width of the intercoxal process; shape of coxa round. Mesocoxal lines almost parallel to coxal cavities, impunctate; mesocoxal areas short, about 1/4 length of shortest interval to metacoxae. Exposed part of metepisterna narrow, slightly widened anteriorly, wider at apex, with suture wide and deep, slightly curved. Abdominal ventrites with microsculpature consisting of punctures. Ventrites 1–5 each with 1 pair of erect setae. Styli of female coxites apical, microsculpture consisting of punctures. Ventrites 1–5 each deep, slightly curved. Abdominal ventrites with widened anteriorly, wider at apex, with suture wide and longer than width of the intercoxal process; shape of coxa round.

Male. Protarsomerers 1–3 widened and bearing tenent setae. Apex of abdominal ventrite 5 arcuate. Apex of ventrite 6 expanded to form triangular lobe. Aedeagus as in Fig. 32, setae. Apex of abdominal ventrite 5 arcuate. Apex of ventrite bearing long setae. Profemora without ctenidium. Tibiae robust, subcylindrical, not narrowed basally.

**Comments.** *Notonewtonia watti* can be distinguished easily from *N. thayerae* by the absence of setae within a single hypomeral fovea, and complete sutural striae extending to the base of the elytra.

**Distribution** (Map 20). North Island.


**Etymology.** Patronymic for Charles Watt, one of the collectors of this new species and in recognition for his contributions to New Zealand entomology (especially Coleoptera).

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**Baeocera Erichson, 1845**


*Sciatriphes* Blackburn, 1903: 100. Type species: *Sciatriphes latens* Blackburn, 1903. By monotypy. First synonymised in ICZN, 1982.


*Amaloceroschema* Löbl, 1967: 1 (subgenus). Type species:
present. Mesoventrite with* or without prepectus (mesoventral space); secondary lines absent; median lines absent (*B. tenuis* or present (opened* or closed posteriorly and sometimes parallel to coxae). Mesoventral lines present; connecting with mesoscoxal cavity, impunctate* or not; not parallel with outer margins of procoxal rests. Mesepimeron present or absent. Mesocoxa wider* (subequal in *B. actuosa*), equal to, or narrower than, intercoxal process; coxa round. Meso- and metaventrites separate*, fused (*B. actuosa*), or partially fused; internal ridge present* or absent (*B. actuosa*). Mesoscoxal lines arcuate* or parallel to coxae; impunctate, finely*, or coarsely punctate. Metaventrite with or without* setose patch; primary setae present and located on the disc; transverse premetacoxal lines absent; discrinen absent; intercoxal plate present as a single plate. Metepisternal suture present; punctate (*B. tenuis* or not*. Metepisternum visible in ventral view; posterior line absent. Metendosternum with stem present. Scutellum visible dorsally or concealed below elytra; width about 1/2 or 1/3* entire width of pteronotum; transverse basal line or carina complete and forming a trapezoid. Metacoxae contiguous* or separate. Brick-wall membranes present on abdominal ventrites 1–4. Ventrite 1 without intercoxal line on abdominal process; metacoxal lines present and parallel to coxae; metacoxal bead punctate (*B. actuosa* or impunctate (finely punctate)*; primary setae present; elongate punctures or striae present or absent*. Primary setae present on ventrites 2–4; 2* or 4 on each segment (absent in some *B. actuosa*). Abdominal vestiture absent. Paratergites absent or 1 may be present on segment 6. Hind wings present or absent. Elytron with basal stria present or absent; sutural striae shortened or elongate; basal striae absent* and length of sutural striae variable; epipleural stria present* or absent (some specimens of *B. epipleuralis*); sutural spines and apical serrations present or absent*. Metacoxal process of metaventrite triangular (*B. actuosa* or digitate*. Profemoral ctenidium present. Mesofemora in cross-section rounded; subapical seta present and not spine-like. Tibiae smooth. Mesotibia distinctly longer than mesotarsus; 2 ventral mesotibial spines present and subequal to each other, about as long as 2/3 of tarsomere 1. Metatarsi smooth; mesotarsomere 1 slightly greater than 2* or 2 and 3 combined (*B. actuosa*), or equal to or less than 2. Empodium unisete.

**Larval diagnosis.** Head with 5 stemmata present. Pseudomola present and fan shaped; never in the form of an elongate lobe. Urogomphus 1-(*B. actuosa*), 2-segmented, minute or absent.

**Comments.** The genus *Baeocera* is widely distributed and diverse, with over 200 species, and morphologically difficult to define. The generic description here is derived from characters present in taxa that are presently placed in the genus, though preliminary cladistic data show that *Baeocera* is a paraphyletic taxon, especially with respect to the placement of some Asian and Indonesian species. Despite the question of monophyly, we believe that all members we place in the *Baeocera* below firmly belong to the genus, including *B. actuosa* (see below). Many of the microstructure observations are based on complete dissections of *B. actuosa, B. elenae, B. epipleuralis, and B. tenuis*, but many of the characters need to be examined in the remaining species. Nevertheless, only those variable characters important for identification are listed in the following descriptions.

The composition and phylogenetic relationships of the New Zealand *Baeocera* reveals some interesting patterns. Perhaps most striking is the absence of members of the *B. lenta* group (Löbl 1992), a group that is widely distributed, species-rich, and present in Asia, New Guinea, Fiji, and Australia. The placement of *B. actuosa* and *B. abrupta* is uncertain at this point.

All species, except for *B. actuosa* and *B. abrupta*, are apterous and share the following aedeagal characters: flat and striate (at least in its apical portion) flagellum and presence of a basal flagellar guide-sclerite (Cornell 1967). Though the shape of the aedeagus varies in this group, the two preceding characters unify most of the New Zealand taxa into one group and may include at least one species from Australia, *B. latens* (Blackburn). The bodies of this group are highly convex, apart from *B. tenuis*, which is rather flattened and is very similar to *B. latens*. *Baeocera latens* differs from this group by having long sutural striae that extend along the elytral base, ventrite 1 with a basal row of striae, and notched parameres. This group of species can be further subdivided into those taxa with the tibiae strongly narrowed toward the base (especially the metafemur) and those species with very weakly narrowed tibiae.

Most members of *Baeocera* are collected easily by sifting leaf litter and rotten, fungus-covered logs. Some members can be taken from their host fungus, which are typically slime moulds.

**Key to Baeocera species**

In contrast to the other keys presented elsewhere in this work, this key requires dissections of male specimens for couplets 8–11 to confirm species identity (distributions are listed for these species which may help facilitate identification for these species). The species *B. benolivia, B. elenae, B. karamea, B. hillaryi*, and *B. tensingi*, are all externally similar and can only be distinguished from each other by genitalic characters. They all have a strongly convex body, and the mesepimeral line and hind wings are
absent. The diversity of this group is centered mainly in the northwest Nelson part of the South Island and we refer to this group as the Nelson group.

1. Tibiae narrow at base (Fig. 109), thickened apically, metatibiae at apex 1.5 to almost 2x as wide as at base ......................................................... 2

—Tibiae subcylindrical (Fig. 107), robust at base, metatibiae not or slightly thickened toward apex .... 7

2(1) Elytra with sutural striae distinct (Fig. 10), extending from apex up to anterior 1/4–1/5 of sutural length. Lateral parts of metaventrite very finely punctate. Antennomere 11.5x longer than antennomere 10 (Fig. 85) ........................................... ...(p. 30)... actuosa Broun

—Elytra with sutural striae very fine (Fig. 11–15), usually shorter than 1/5 of sutural length. Epipleura entirely or to large extent delimited by lateral striae. Metaventrite lacking microsculpture ....... ...(p. 29)... epleuralis sp. n.

3(2) Punctuation on lateral portions of metaventrite as that on pronotum and elytra, very fine or obsolete. If metaventral punctuation slightly coarser than eelybral punctuation, aedeagus as Fig. 37–39, 40–42 ............. 4

—Punctuation much coarser on lateral portions of metaventrite than on pronotum and elytra ........... 5

4(3) Mesepimeral line absent. Elytra usually completely lacking epipleural striae (Fig. 12) or with epipleural striae strongly shortened. Epipleura entirely or to large extent delimited by lateral striae. Metaventrite lacking microsculpature ...........(p. 32)... sp. n.

—Mesepimeral line present (Fig. 1). Elytra with distinct epipleural and lateral striae. Metaventrite with very fine microsculpture .......(p. 29)... sp. n.

5(3) Mesepimeral line absent. Aedeagus with wide flagellum (Fig. 48, 51) ......................................................... 6

—Mesepimeral line present. Aedeagus with narrow flagellum (Fig. 45) .......(p. 34)... sp. n.

6(5) Elytra with sutural striae very short, present only in apical, inclined portion of elytra (Fig. 14) ......................... ..................................................... ...(p. 36)... tekooti sp. n.

—Elytra with sutural striae longer, extending to about mid-length of suture (Fig. 15) ................................. ...(p. 35)... sternalis Broun

7(1) Mesepimeral line distinct (Fig. 1). Small species (1.20–1.30 mm), body relatively flat dorsally (Fig. 16), uniformly reddish brown. North Island ......................... ...................................................(p. 37)... sp. n.

—Mesepimeral line obsolete. Larger species (1.35–1.75 mm), body strongly convex dorsally (Fig. 14), reddish brown to black, sometimes bicoloured. Northern portion of the South Island ........................................... 8

8(7) Aedeagus with basal bulb about 2x as long as apical process of median lobe. Ventral contours of apical process distinctly convex (lateral view) (Fig. 58). Buller region ...........................(p. 37)... tensingi sp. n.

—Aedeagus with apical process of median lobe slightly shorter than basal bulb (Fig. 61) ...................... 9

9(8) Internal sac with long flagellum. Guide-sclerite weakly sclerotised and very narrow overlapped apically by flagellum (Fig. 64, 66). Buller, Nelson, and northern Westland regions ...........................(p. 32)... eleanae sp. n.

—Internal sac with flagellum short. Guide-sclerite robust, thick in apical part and strongly sclerotised (Fig. 56, 62, 66), or very short ................................. 10

10(9) Membranes of internal sac with very fine scale-like structures (Fig. 67, 68). Guide-sclerite very short, not reaching up to mid-length of flagellum. Parameres distinctly sinuate and gradually narrowed apically. Known only from Karamea Bluff in northwest Nelson ........................................... ...(p. 34)... karamea sp. n.

—Membranes of internal sac lacking scale-like structures (Fig. 54–56, 60–63). Guide-sclerite long, ending distinctly at posterior mid-length of flagellum. Parameres not or weakly sinuate, equally wide in middle 1/3 ......................................................... 11

11(10) Internal sac with guide-sclerite straight in middle part and hook-like at tip (Fig. 63), flagellum widest at middle. Buller ...........................(p. 31)... benolivia sp. n.

—Internal sac with guide-sclerite arcuate and gradually narrowed apically, not hook-like at tip (Fig. 56). Known only from Oparara River gorge ......................................................... ...(p. 33)... hillaryi sp. n.

Baeocera abrupta new species
Fig. 11, 37–39; Map 1


Description. Length 1.0–1.20 mm. Body strongly convex
dorsally and moderately convex ventrally, dark brown to black, apical part of elytra and entire abdomen usually lighter. Legs and antennae lighter than body, ochreous. Punctuation almost even, extremely fine on dorsal and ventral sides of body, pubescence of body short and recumbent, distinct. Prothorax lacking microsculpture. Abdomen with extremely fine microsculpture, elytra and metaventrite with usually distinct microsculpture. Eyes moderately large, length about 2/3 that of shortest interocular space. Antennae with antennomere 3 relatively short and thick, strongly narrowed basally; antennomere 4 slightly longer and narrower than antennomere 3; antennomere 5 slightly longer and barely thicker than antennomere 4; antennomere 6 short and relatively wide, about as long and wide as antennomere 3; antennomeres 7 and 8 each much larger than antennomere 6, slightly elongate, longer than antennomere 5; each about 1.5× as long as wide; antennomere 8 distinctly smaller than antennomere 7; antennomeres 9 and 10 relatively short and wide, slightly longer than wide, each about 2× as wide as antennomeres 8; antennomere 11 oval, slightly larger than antennomere 10. Lateral contours of pronotum and elytra almost continuously arcuate. Pronotum with basal angles obtuse, prominent, covering anterior part of metepisterna. Lateral pronotal margins arcuate in lateral view. Scutellum completely covered by pronotal lobe. Elytra weakly narrowed apicically, with sutural striae very fine and very short, usually distinct in apical, inclined 1/4–1/3 of elytra. Epipleural striae very fine, parallel to margins in anterior 1/2–2/3, converging to margins posteriorly. Epipleura narrower than supra-epipleura. Mesepimeral line distinct, longer than interval to mesocoxae. Mesocoxal lines strongly arcuate, length of mesocoxal areas almost 1/2 that of shortest interval to metacoxae. Metepisterna wide, almost parallel-sided, with suture deep, slightly sinuate to straight. Hind wings fully developed, functional. Tibiae straight, tibiae thickened toward apex, metatibiae at apex about 1.5–1.7× as wide as near base.

**Male.** Protarsomeres 1–3 slightly enlarged, with tenent setae. Abdominal antennomere 6 with mesal lobe small, acute, triangular. Aedeagus (Fig. 37–39) with apical process tapering, much shorter than basal bulb and almost straight ventrally (lateral view). Internal sac with flagellum very long and evenly very slender, looped basally. Accessory lateral sclerite present. Flagellar guide-sclerite absent. Membranes of internal sac with very fine scale-like structures. Parameres weakly arcuate at dorsal and lateral views.

**Female.** Coxites narrow; styli apical, bearing long setae.

**Comments.** This is the smallest species of *Baeocera* in the New Zealand fauna and can be distinguished easily from all of the other species by its size, presence of a mesepimeral line, and lack of punctures on the metaventrite. It has been collected rather infrequently in dead wood (Kuschel 1990, listed as genus 1 species 1).

**Distribution** (Map 1). North Island.

ND, AK, CL, WO, BP, GB, TO, WN / –.

**Fungal hosts.** Basidiomycetes: *Ganoderma* sp.

**Material examined.** Holotype and 68 paratypes — see Appendix 1 for collection details of specimens. **Holotype**, New Zealand, AK, Lynfield, Tropicana Drive, 11 Sep 1976, G. Kuschel, hollow *Metrosideros excelsa*, barcode NZAC04009017 (NZAC).

**Etymology.** Named for its very distinctive characters.

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**Baeocera actuosa** (Broun, 1881), new placement

Fig. 10, 34–36, 85, 86, 96, 103, 105, 109; Map 2

*Scaphisoma actuosum* Broun, 1881: 664.

*Scaphoxium actuosum* (Broun). Placement by Klimaszewski et al., 1996.

**Diagnosis.** Body strongly convex dorsally. Antennomere 11 greatly elongate. Mesepimeral line absent (or very weakly impressed). Lateral portion of metaventrite finely punctate. Elytron with sutural stria elongate, extending to apical 1/2; epipleural stria present. Tibia narrow at base. Aedeagus with narrow flagellum, flagellum long; basal bulb short in relation to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present. Gonocoxite short and hook-like with subapical stylus.

**Description.** Length 1.20–1.85 mm. Body strongly convex dorsally and ventrally, uniformly reddish-brown to black, or thorax darker than elytra and abdomen. Apical abdominal segments ochreous. Appendages usually distinctly lighter than body. Punctuation almost even, very fine on dorsal and ventral sides of body, pubescence of body short and recumbent, distinct. Thorax and elytra lacking microsculpture. Eyes large, length about as long as shortest interocular space. Antennae with antennomeres 3–6 slender, subcylindrical, similar in size; antennomere 5 slightly longer than adjoining segments; antennomeres 7 and 8 similar, elongate, much wider than antennomere 6, antennomere 8 only slightly smaller than antennomere 7, much narrower than antennomere 9, antennomeres 9 and 10 similar, widened apically; antennomere 11 about 1.5× as long as antennomere 10, usually partly parallel-sided. Lateral contours of pronotum and elytra discontinuous. Pronotum with basal angles obtuse, covering anterior part of metepisterna. Lateral pronotal margins arcuate in lateral view. Tip of scutellum hidden. Elytra weakly narrowed apically, with sutural striae deep, distinct, extending from apex up to anterior 1/4–1/5 of sutural length. Epipleural structures. Parameres weakly arcuate at dorsal and lateral views.
The placement of this species into Scaphoxium with styli subapical, bearing short setae. Parameres arcuate and accessory lateral sclerite absent. Membranes of internal sac with distinct spine-like structures. Aedeagus (Fig. 34–36) with apical process blunt, much shorter than basal bulb, sub-triangular, medio-apical lobe. Aedeagus with very slender in basal and apical portion, widened in middle, looped. Accessory lateral sclerite absent. Flagellar guide-sclerite present, robust with an apical hook. Tibia robust at base. Aedeagus with wide, short flagellum; basal bulb long compared to apical process; membranes of internal sac without very fine scale-like structures; Parameres arcuate at dorsal view, sinuate at lateral view.

**Female.** Coxites wide, gradually narrowed apically, with styli subapical, bearing short setae.

**Comments.** Baeocera actuosa is quite unlike other members of the genus, based on several unique features, including its rather acute posterior pronotal angles, elongate antennomere 11 and the unusual gonoxites. The hook-like gonoxite is also present in the North American species B. picea Casey and B. nana Casey, a character not discussed by Löbl & Stephan (1993), and have been collected from slime moulds (e.g., Lawrence & Newton 1980). The placement of this species into Scaphoxium by Klimaszewski et al. (1996) was based on similarities of B. actuosa to members of Scaphoxium distributed in Australasia. However, B. actuosa and other members of the genus differ from Scaphoxium by a number of characters, especially the explanate hypomeron, and including the following: subapical serrations of the mandible absent, galeal brush paniculate; hypopharynx setose, apex of submentum invaginate, acute posterior pronotal angles, anterior pronotal bead present, form of mesosternal lines (connecting with coxal cavity), primary setae of metaventrite located in the disc and those of the abdomen present, profemoral stenidium present, presence of 2 well developed tibial spines (reduced to 1 in Scaphoxium), and empodium unisetose.

This is one of the most commonly collected species of Baeocera and is captured frequently in flight intercept traps. It may also be taken commonly from its host — myxomycete fungi — and in dead wood (Kuschel 1990).

Broun (1881) mentioned 2 specimens collected from around Whangarei Harbour (Parua) but we only located a single specimen, which is designated as the lectotype.


**Baeocera benolivia** new species

Fig. 60–63; Map 3

**Diagnosis.** Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line absent. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/5; epipleural stria present. Tibia robust at base. Aedeagus with wide, short flagellum; basal bulb long compared to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present, robust with an apical hook. Gonoxoxite elongate with apical stylus.

**Description.** Length 1.45–1.60 mm. Body strongly convex dorsally, moderately convex ventrally, almost uniformly reddish brown or pronotum slightly lighter than elytra, apex of abdomen distinctly lighter. Femora and tibiae coloured similar to body, tarsi and antennae lighter. Punctuation very fine on pronotum and abdomen, somewhat less fine on elytra, more or less coarse on lateral parts of metaventrite. Pubescence of body very short and recumbent. Thorax, elytra, and abdomen lacking microsculpture, or elytra with barely visible microsculpture. Eyes moderately small, length about 1/2 shortest interocular space. Antennae with antennomere 3 narrowed basally, antennomere 4 subcylindrical, about as long as antennomere 3; antennomeres 5 and 6 barely wider than antennomere 4; antennomere 5 distinctly longer than antennomere 4, antennomere 6 about as long as antennomere 4; antennomere 7 about as long as long and slightly wider than antennomere


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6, elongate; antennomere 8 about as wide as antennomere 7 and as long as antennomere 6, distinctly longer than wide; antennomeres 9 and 10 elongate, each about twice as wide as antennomere 8; antennomere 11 oval, distinctly longer than antennomere 10. Lateral contours of pronotum and elytra almost continuously arcuate. Pronotum with basal angles obtuse, prominent, touching metepisternum or overlapping their inner anterior angle. Lateral pronotal margins arcuate in lateral view. Scutellum completely covered by pronotal lobe. Elytra weakly narrowed apically, with sutural striae strongly shortened, visible only near elytral apices. Epipleural striae deep, converging to margins posteriorly. Supra-epipleura wider than epipleura, gradually narrowed apically. Mesepimeral line obsolete. Mesocoxal lines strongly arcuate, length of mesocoxal areas slightly smaller than the shortest metacoxal interval. Metepisterna narrow, parallel-sided, with suture deep, straight. Hind wings strongly reduced, present as minute rudiments. Tibiae straight, metatibiae at apex slightly wider than near base.

**Male.** Protarsomeres 1–3 slightly enlarged, with tenent setae. Abdominal antennomere 6 with small, triangular, mesal lobe. Aedeagus (Fig. 60–63) with apical process distinctly shorter than basal bulb, tapering, almost straight ventrally (lateral view), curved at tip. Internal sac with flagellum wide and short, widest at middle or posterior middle, distinctly striate. Flagellar guide-sclerite robust, hook-like at tip. Accessory lateral sclerite present. Membranes of internal sac lacking spine-like or scale-like structures. Parameres weakly sinuate at dorsal view, weakly arcuate at lateral view.

**Comments.** This species can be distinguished from other members of the Nelson group by the features present in the aedeagus.

**Distribution** (Map 3). Northern area of the West Coast of the South Island.

— / BR.

**Material examined.** Holotype and 6 paratypes — see Appendix 1 for collection details of specimens. **Holotype** information: New Zealand, BR, Capleston, 8 Nov 1971, J. C. Watt, moss 71/137 Beech Forest Utilization Project, barcode NZAC04012349 (NZAC).

**Etymology.** Patronymic for Ben Smart and Olivia Hope, in memory of their tragic death in the Marlborough Sounds in January 1998.

**Baeocera elenae new species**

Fig. 64–66, 107; Map 4

**Diagnosis.** Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line absent. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/5; epipleural stria present. Tibia robust at base. Aedeagus with narrow flagellum, flagellum elongate; basal bulb long compared to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present, robust with proximal end folded. Gonocoxite elongate with apical stylus.

**Description.** Length 1.35–1.60 mm. With the characters of *B. benolivia*. Elytra usually with distinct microsculpture, punctation fine, about as fine as that present on the pronotum. Antennae with antennomeres 5 and 6 wider, antennomere 6 usually distinctly shorter than antennomere 3; antennomere 8 very short, only slightly longer than wide. Epipleural striae variable, often fine and shortened apically. Lateral portions of metaventrite with a few distinct, relatively coarse punctures, or punctation very fine to obsolete. Mesocoxal area shorter than or about as long as shortest metacoxal interval.

**Male.** Aedeagus (Fig. 64–66) with apical process much shorter than basal bulb, tapering, sinuate ventrally (lateral view). Internal sac with flagellum long, evenly narrow, distinctly striate, sinuate. Flagellar guide-sclerite wide at proximal end, strongly narrowed distally, its section overlapped by flagellum very narrow, at proximal end folded or strengthened. Accessory lateral sclerite present. Membranes of internal sac lacking obvious spines or scale-like structures. Parameres weakly curved at dorsal view, distinctly sinuate at lateral view.

**Comments.** This is the most widespread species of the Nelson group and can be distinguished from other members by the features present in the aedeagus; though specimens from Punakaiki have weak or absent punctation which is not characteristic of this group in general.

**Distribution** (Map 4). Northern South Island.

— / NN, BR, WD, KA, NC.

**Fungus hosts.** Myxomycetes: undetermined species.


**Etymology.** Named after Elena Hilario, partner and best friend of the junior author.

**Baeocera epipleuralis new species**

Fig. 12, 40–42; Map 5

**Diagnosis.** Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line usually absent. Lateral portion of metaventrite usually finely punctate.
Elytron with sutural stria short, extending to apical 1/4; epipleural stria present or absent. Tibia narrow at base. Aedeagus with wide, elongate flagellum; basal bulb equal to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present. Gonocoxite elongate with apical stylus.

**Description.** Length 1.20–1.45 mm. Body strongly convex dorsally and ventrally, reddish brown to black, pronotum sometimes bicoloured, anteriorly lighter than at base. Femora and tibiae similar to body or slightly lighter, tarsi and antennae distinctly lighter than body. Apical abdominal segments brown to light ochreous. Punctuation almost even, very fine on dorsal and ventral sides of body, lateral parts of metaventrite with punctures sometimes slightly coarser than those on dorsal side of body and abdomen. Pubescence of body short and recumbent, distinct. Thorax, elytra, and abdomen microsculptured. Eyes moderately large, length about 2/3 that of shortest interocular space. Antennae with antennomeres 3 and 4 sub-cylindrical, antennomere 3 slightly longer than antennomere 4; antennomeres 5 and 6 moderately thickened apically, distinctly wider than antennomere 4; antennomere 5 about as long as antennomere 3; antennomere 6 slightly shorter than antennomere 4; antennomeres 7 and 8 elongate, distinctly wider than antennomere 6, antennomere 7 about as long as antennomere 4; antennomere 8 as long as antennomere 6; antennomeres 9 and 10 relatively short and wide, slightly longer than wide, each about twice as wide as antennomere 8; antennomere 11 oval, slightly larger than antennomere 10. Lateral contours of pronotum and elytra separately arcuate. Pronotum with basal angles obtuse, prominent, covering anterior part of metepisterna. Lateral prontal margins arcuate in lateral view. Scutellum completely covered by prontal lobe. Elytra weakly narrowed apically, with sutural striae very fine and very short, usually distinct in apical 1/4 of elytra. Epipleural striae usually completely obsolete, if present shortened and very fine. Epipleural striae, if present, narrow, about as narrow as supra-epipleural area. Mesepimeral lines completely obsolete. Mesocoxal lines arcuate, length of mesocoxal areas about 2/3 of shortest interval to metacoxae. Metepisterna usually wide, with suture straight, rarely deep, usually very fine, sometimes interrupted or indicated by puncture row. Hind wings strongly reduced, present as very narrow and short rudiments. Tibiae straight, metatibiae at apex about 1.7x as wide as at near base.

**Male.** Protarsomeres 1–3 slightly widened, with tenent setae. Abdominal ventrite 6 with medio-apical lobe short, triangular. Aedeagus (Fig. 40–42) with apical process tapering, longer than basal bulb and almost evenly arcuate ventral contours (lateral view). Internal sac with flagellum long, evenly moderately narrow toward apex, distinctly striate. Flagellar guide-sclerite narrow, with basal portion curved and relatively long, apical part partly overlapped by flagellum and sinuate. Accessory lateral sclerite present. Membranes of internal sac with very fine spine-like structures. Parameres sinuate at dorsal and lateral views (narrower in Martinborough specimens).

**Female.** Coxites with styli apical, bearing long setae.

**Comments.** *Baeocera epipleuralis* usually lacks epipleural striae; but specimens from the North Island have these striae more or less distinct, the pronotum often bicoloured, and also the metepisternal suture strongly impressed. We consider these North Island populations to be members of the same species as confirmed by genitalia characters.

**Distribution** (Map 5). North Island and northern South Island.

**Material examined.** Holotype and 214 paratypes — see Appendix 1 for collection details of specimens. **Holotype information:** New Zealand, NN, 15 Mile Creek, 30 km SW Collingwood, 23 May 1982, S. & J. Peck, barcode NZAC04012046 (NZAC).

**Etymology.** Named for the lack of the epipleural line in some of the specimens.

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*Baeocera hillaryi* new species

**Fig. 54–56, Map 6**

**Diagnosis.** Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line absent. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/5; epipleural stria present. Tibia robust at base. Aedeagus with wide flagellum, flagellum short; basal bulb long compared to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present (arcuate and narrow). Gonocoxite elongate with apical stylus.

**Description.** Length 1.50–1.60 mm. Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line absent. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/5; epipleural stria present. Tibia robust at base. Aedeagus with wide flagellum, flagellum short; basal bulb long compared to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present (arcuate and narrow). Gonocoxite elongate with apical stylus.

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**Baeocera hillaryi** new species

**Fig. 54–56, Map 6**

**Diagnosis.** Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line absent. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/5; epipleural stria present. Tibia robust at base. Aedeagus with wide flagellum, flagellum short; basal bulb long compared to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present (arcuate and narrow). Gonocoxite elongate with apical stylus.

**Description.** Length 1.50–1.60 mm. Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line absent. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/5; epipleural stria present. Tibia robust at base. Aedeagus with wide flagellum, flagellum short; basal bulb long compared to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present (arcuate and narrow). Gonocoxite elongate with apical stylus.
antennomere 4, antennomere 6 about as long as antennomere 4; antennomere 7 about as long as and slightly wider than antennomere 6, elongate; antennomeres 9 and 10 elongate, each about twice as wide as antennomere 8; antennomere 11 oval, distinctly longer than antennomere 10. Lateral contours of pronotum and elytra almost continuously arcuate. Pronotum with basal angles obtuse, prominent, touching metepisterna. Lateral pronotal margins arcuate in lateral view. Scutellum completely covered by pronotal lobe. Elytra weakly narrowed apically, with sutural striae strongly shortened, visible only near elytral apices. Epipleural striae deep, converging to margins posteriorly. Supra-epipleura wider than epipleura, gradually narrowed apically. Metepisterna narrow, parallel-sided, with suture deep, straight. Hind wings strongly reduced, present as minute rudiments. Tibiae straight, metatibiae at apex slightly wider than near base.

Male. Protarsomeres 1–3 slightly enlarged, with tenent setae. Abdominal antennomere 6 with mesal lobe small, triangular. Aedeagus (Fig. 54–56) with apical process much shorter than basal bulb, tapering apically, weakly arcuate ventrally (lateral view), not curved at tip. Internal sac with flagellum moderately long, narrowed apically, distinctly striate. Flagellar guide-sclerite large, arcuate, widest in middle, gradually narrowed toward tip. Accessory lateral sclerite present. Membranes of internal sac lacking spine or scale-like structures.

Female. Coxites narrow with stylus apical, bearing long setae.

Comments. This species is known only from the Oparara River area. This species can be distinguished from the other members of the Nelson group by genitalic characters. The association of the female specimens with males was based on the sharing of locality data.

Distribution (Map 6). Northern West Coast of the South Island:


Etymology. The name refers to the locality where this species was collected.

Baeocera karamea new species

Fig. 67, 68, Map 7


Description. Length 1.50–1.55 mm. In external characters very similar to B. hillaryi but with elytral punctuation as fine as that of pronotal disc and with microsculptured pronotum. Mesepimeral line distinct, except near hypomeral edge. Aedeagus as in Fig. 67, 68, internal sac with guide-sclerite arcuate and gradually narrowed apically, not hook-like at tip.

Comments. Baeocera karamea is known only from Karamea Bluff where there are perhaps other endemic species of beetles, including an undescribed genus and species of flightless Leioididae.

Distribution (Map 7). Northern West Coast of the South Island:


Etymology. The name refers to the locality where this species was collected.

Baeocera punctatissima new species

Fig. 13, 43–45, Map 8

Diagnosis. Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line present. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/3; epipleural stria present. Tibia narrow at base. Aedeagus with narrow, elongate flagellum; basal bulb longer in length than apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present (reduced). Gonocoxite elongate with apical stylus.

Description. Length 1.25–1.65 mm. Body strongly convex dorsally and ventrally, usually uniformly reddish brown, to black, sometimes pale yellow-brown. Femora
and tibiae slightly lighter than body, apical abdominal segments and antennae distinctly lighter than body. Punctuation extremely fine on pronotum, centre of metaventrite, and on abdominal ventrites, obsolete on elytra, coarse on lateral parts of metaventrite. Pubescence of body short and recumbent, usually barely visible on pronotum and elytra. Pronotum, elytra, and abdomen microsculptured, elytral microsculpture usually distinct, pronotal microsculpture barely visible. Eyes moderately small, length smaller than that of shortest interocular space. Antennae with antennomeres 3 and 4 subcylindrical; antennomere 3 longer than antennomere 4; antennomeres 5 and 6 each slightly wider than antennomere 4; antennomere 5 about as long as antennomere 3; antennomere 6 shorter, about as long as antennomere 4; antennomeres 7 to 8 elongate, each distinctly wider than antennomere 6, antennomere 7 about as long as antennomere 5, antennomere 8 about as long as antennomere 6; antennomeres 9 and 10 distinctly longer than wide, each about twice as wide as antennomere 8; antennomere 11 oval, longer than antennomere 10. Lateral contours of pronotum and elytra separately arcuate. Pronotum with basal angles obtuse, prominent, covering anterior part of metepisterna. Lateral pronotal margins arcuate in lateral view. Scutellum completely covered by pronotal lobe. Elytra moderately narrowed apically, with sutural striae very fine and shallow, usually present in apical 1/3 of sutural length, or extending up to sutural mid-length. Epipleural striae distinct. Epipleura narrower than supra-epipleura, gradually narrowed posteriorly. Mesepimeral lines distinct, about as long as interval to mesocoxae. Mesocoxal lines arcuate, mesocoxal areas large, about as long as shortest intervals to metacoxae. Metepisterna moderately wide, with suture usually deeply impressed and punctate. Hind wings absent. Tibiae straight and punctate. Hind wings completely reduced. Tibiae very weakly curved, metatibiae at apex about 1.5× as wide as at base.

**Distribution** (Map 8). Mainly eastern South Island, particularly Canterbury.
– / SD, BR, KA, NC, MC, DN.

**Material examined.** Holotype and 136 paratypes — see Appendix 1 for collection details of specimens. **Holotype** information: New Zealand, MC, Mt Somers, Petrifying Creek, 610 m, 2 Feb 1976, G. W. Ramsay, litter 76/37, barcode NZAC04011980 (NZAC).

**Etymology.** Named for the distinctive punctures present on the lateral margin of the metaventrite.

**Baeocera sternalis** Broun, 1914

Fig. 15, 49–51, Map 9

*Baeocera sternalis* Broun, 1914: 173

**Diagnosis.** Body strongly convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line absent. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria elongate, present in apical 1/2 or 1/3; epipleural stria present. Tibia narrow at base. Aedeagus with wide, elongate flagellum; length of basal bulb about equal to apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present. Gonocoxite elongate with apical stylus.

**Description.** Length 1.25–1.35 mm. Body strongly convex dorsally and ventrally, uniformly light reddish brown to very dark, almost black. Apical abdominal segments, femora, and tibiae slightly lighter than body, tarsi and antennae much lighter than body. Punctuation very fine to obsolete on dorsal side of body and on abdominal ventrites, distinct on middle part of metaventrite, coarse and dense on lateral sides of metaventrite. Pubescence of body short and recumbent, distinct on pronotum and on elytra. Thorax and elytra lacking microsculpture, abdomen with extremely fine microsculpture. Eyes moderately small, length about 1/2 shortest interocular space. Antennae as in *B. tekoootii*. Lateral contours of pronotum and elytra continuously arcuate. Pronotum with basal angles obtuse, prominent, barely touching anterior part of metepisterna. Lateral pronotal margins arcuate in lateral view. Scutellum completely covered by pronotal lobe. Elytra moderately narrowed apically, with sutural striae fine and shallow, extending from apices about up to sutural mid-length. Epipleural striae distinct. Epipleura narrower than supra-epipleura, gradually narrowed posteriorly. Mesepimeral lines obsolete. Mesocoxal lines arcuate, mesocoxal areas small, barely as long as 1/2 shortest intervals to metacoxae. Metepisterna moderately wide, with suture impressed, straight and punctate. Hind wings completely reduced. Tibiae very weakly curved, metatibiae at apex about 1.5× as wide as at base.

**Male.** Protarsomeres 1–3 slightly widened, with tenent setae. Abdominal ventrite 6 with triangular medio-apical lobe. Aedeagus (Fig. 42–45) with apical process slightly shorter than basal bulb, tapering, evenly arcuate ventrally, tip not curved. Internal sac with flagellum long, relatively narrow, sinuate, with striate section limited to apical area and not clearly visible. Flagellar guide-sclerite weakly developed, almost indistinct, accessory lateral sclerite absent. Membranes of internal sac lacking spine- or scale-like structures. Parameres distinctly sinuate at dorsal view, almost straight at lateral view.

**Female.** Coxites narrow with styli apical, bearing long setae.

**Comments.** This species is very similar to *B. sternalis*, with which it shares a sympatric distribution, and externally differs by the presence of a mesepimeral line.
Male. Protarsomeres 1–3 slightly widened, with tenent setae. Abdominal ventrite 6 with medio-apical lobe small, triangular. Aedeagus (Fig. 49–51) with apical process moderately shorter than basal bulb, tapering apically, evenly arcuate ventrally (lateral view). Internal sac with flagellum moderately long, widened apically, distinctly striate. Flagellar guide-sclerite moderately thick and annular at base, bent at middle and slender in overlapped apical half. Accessory lateral sclerite present. Membranes of internal sack lacking spine-like structures. Parameres weakly curved in apical part at dorsal view, weakly sinuate at lateral view.

Female. Coxites narrow with styli apical, bearing long setae.

Comments. This species is very closely related to B. tekootii, though this species has the flagellum of the internal sac of the aedeagus shorter and more curved and the sutural stria is longer. It is also very similar in appearance to the more commonly collected species B. punctatissima, but differs from this species by the absence of a mesepimeral line.

Broun (1914) described this species based on specimens from Pudding Hill, McLennans Bush, and from a series collected from leaf mould collected in April and May 1912 by Mr. T. Hall. We located three specimens labelled McClennants’ (a misspelling of McLennans Bush in Broun’s original paper), two specimens from Pudding Hill, and one specimen collected in 1912 from mould (two specimens labelled “3539,” the reference number for B. sternalis in Broun (1914) are probably not syntypes). Pudding Hill and McLennans Bush are located to the west of Methven (MC) at the base of Mt Hutt (Watt 1977). The syntype series of 6 specimens represents 2 separate species. The specimens in the BMNH are designated as lectotype and paralectotype for B. sternalis (see below). The syntype specimens present in NZAC belong to a separate species, and are removed from the type series of B. sternalis and described under B. punctatissima.

Distribution (Map 9). Marlborough Sounds and eastern South Island.


Baeocera tekootii new species

Fig. 14, 46–48; Map 10


Description. Length 1.25–1.55 mm. Body strongly convex dorsally and ventrally, usually uniformly reddish brown to black, elytra sometimes lighter or darker than pronotum, or partly darkened. Legs slightly lighter than body, antennae distinctly lighter than body. Apical abdominal segments brown. Punctuation extremely fine to obsolete on dorsal side of body and on abdominal ventrites, distinct on middle part of metaventrite, usually coarse on lateral sides of metaventrite. Pubescence of body short and recumbent, distinct on pronotum, barely visible on elytra. Pronotum, elytra, and abdomens microsculptured, pronatal microsculpture sometimes obsolete, elytral microsculpture usually very fine, rarely conspicuous. Eyes moderately small, length smaller about 1/2 that of shortest interocular space. Antennae with antennomere 3 narrowed basally; antennomeres 4 subcylindrical, shorter than antennomere 3; antennomeres 5 and 6 each slightly wider than antennomere 4; antennomere 5 about as long as antennomere 3; antennomere 6 shorter, about as long as antennomere 4; antennomeres 7 and 8 each distinctly wider than antennomere 6, antennomere 7 about as long as antennomere 5, antennomere 8 slightly longer than wide, as long as antennomere 6; antennomeres 9 and 10 distinctly longer than wide, each about twice as wide as antennomere 8; antennomere 11 oval, longer than antennomere 10. Lateral contours of pronotum and elytra continuously arcuate. Pronotum with basal angles obtuse, prominent, covering anterior part of metepisterna. Lateral pronotal margins arcuate in lateral view. Scutellum completely covered by pronotal lobe. Elytra moderately narrowed apically, with sutural striae very fine and shallow, usually present in apical 1/4 of sutural length, rarely extending somewhat more anteriorly. Epipleural striae distinct. Epipleura narrower than supra-epipleura, almost parallel up to line of apex of abdominal ventrite 1, narrowed posteriorly.

Mesepimeral lines completely obsolete. Mesocoxal lines arcuate, mesocoxal areas large, about as long as 1/2–3/4 of shortest intervals to metacoxae. Metepisterna moderately wide, with suture sometimes impressed, usually indicated by straight puncture row. Hind wings reduced to very narrow, short rudiments. Tibiae straight, metatibiae at apex about 1.7–2.0x as wide as at near base.

**Male.** Protarsomerses 1–3 slightly widened, with tenent setae. Abdominal ventrite 6 with medio-apical lobe small, blunt-triangular. Aedeagus (Fig. 46–48) with apical process distinctly shorter than basal bulb, tapering, oblique to weakly arcuate ventrally (lateral view), not curved at tip. Internal sac with flagellum flat, long, evenly wide or slightly widened toward apex, distinctly striate. Flagella guide-sclerite bent, with base short, moderately robust and usually circular, apical part longer and slender, blunt at apex. Accessory lateral sclerite apparently absent. Membranes of internal sac lacking spine- or scale-like structures. Parameres sinuate in dorsal and lateral views.

**Female.** Coxites narrow with styli apical, bearing long setae.

**Comments.** Some specimens from Northland (e.g., Puketi State Forest, Waipoua State Forest, and Whangarei) have conspicuously strong elytral microsculpture, but the aedeagal and other characters demonstrate that these populations belong to this species. This species is relatively abundant and has been collected mainly in leaf litter (Kuschel 1990, listed as *Scaphisoma sternale*).

**Distribution** (Map 10). North Island and northern South Island.

ND, AK, CL, WO, BP, GB, TK, TO, HB, RI, WN / SD, KA.

**Material examined.** Holotype and 232 paratypes — see Appendix 1 for collection details of specimens. **Holotype** information: New Zealand, GB, Taikawakawa, 21 Sep 1992, G. Hall & R. Henderson, sifted litter 92/58, barcode NZAC04011917 (NZAC).

**Etymology.** Patronymic for Te Kooti, the famous Maori leader and warrior who was exiled to Chatham Islands, but later was pardoned.

**Baeocera tensingi new species**

*Fig. 57–59; Map 11*

**Diagnosis.** Body moderately convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line present. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/3; epipleural stria present. Tibia robust at base. Aedeagus with wide, short flagellum; basal bulb long compared to apical process; membranes of internal sac with very fine scale-like structures; guide-sclerite present, wide and robust. Gonocoxite elongate with apical stylus.

**Description.** Length 1.65–1.75 mm. In external characters very similar to *B. hillaryi*, but larger, with elytral punctuation extremely fine, as that on pronotum, and eyes barely as long as 1/2 shortest interocular space. Aedeagus (Fig. 57–59) with apical process much shorter than basal bulb, tapering, weakly sinuate ventrally (lateral view), slightly curved at tip. Internal sac with flagellum relatively short, widened apically, distinctly striate. Flagellar guide-sclerite conspicuously strongly sclerotised, with large basal portion, joined to oblique rod, not or irregularly narrowed at tip. Accessory lateral sclerite present. Membranes of internal sac with fine scale-like structures. Parameres weakly sinuate at dorsal view, curved in basal 1/2 and almost straight in apical 1/2 at lateral view.

**Comments.** This species can be distinguished from other members of the Nelson group by the features present in the aedeagus.

**Distribution** (see Map 11). Known only from the Buller area of the West Coast, South Island.

− / BR.

**Material examined.** Holotype and 2 paratypes — see Appendix 1 for collection details of specimens. **Holotype** information: male, New Zealand, BR, Tawhai SF, Big Red Rd 3 km S of Reefton, 28 Jan 1972, J. McBurney, litter 72/76, Beech Forest Utilization Project, barcode NZAC04011680 (NZAC).

**Etymology.** Patronymic for Sherpa Tensing Norgay who assisted Sir Edmund Hillary to the top of Mt. Everest in 1953.

**Baeocera tenuis new species**

*Fig. 16, 52, 53, Map 12*

**Diagnosis.** Body moderately convex dorsally. Antennomere 11 moderately elongate. Mesepimeral line present. Lateral portion of metaventrite coarsely punctate. Elytron with sutural stria short, extending to apical 1/3; epipleural stria present. Tibia robust at base. Aedeagus with wide flagellum, flagellum elongate; basal bulb slightly longer than apical process; membranes of internal sac without very fine scale-like structures; guide-sclerite present. Gonocoxite elongate with apical stylus.

**Description.** Length 1.20–1.30 mm. Body moderately convex dorsally, relatively flat ventrally, almost uniformly reddish brown, apical part of elytra and entire abdomen usually lighter. Legs and antennae lighter than body, ochreous to yellowish. Punctuation extremely fine but distinct on pronotum, almost obsolete on elytra and abdomen, fine to
metaventral punctation is variable within this species. Pubescence of body very short and recumbent, often indistinct on elytra. Prothorax and pterothorax lacking microsculpture. Elytra and abdomen with usually distinct microsculpture. Eyes moderately small, length about 1/3 that of the shortest interocular space. Antennae with antennomere 3 narrowed basally, antennomere 4 subcylindrical, about as long as antennomere 3; antennomeres 5 and 6 widened, distinctly wider than antennomere 4; antennomere 5 longer than 6, about as long as antennomere 4; antennomere 7 about as long as and wider than antennomere 6, elongate; antennomere 8 about as wide as and shorter than antennomere 7, barely longer than wide; antennomeres 9 and 10 short and wide, each about twice as wide as antennomere 8, antennomere 9 barely longer than wide, antennomere 10 distinctly longer than wide; antennomere 11 oval, longer than antennomere 10. Lateral contours of pronotum and elytra almost continuously arcuate. Pronotum with basal angles obtuse, prominent, touching metepisterna. Lateral pronotal margins arcuate in lateral view. Scutellum completely covered by pronotal lobe. Elytra weakly narrowed apically, with sutural striae very fine and short, visible in, or slightly anterior to, apical 1/3 of sutural length. Epipleural striae deep, converging to margins posteriorly. Supra-epipleural epipleura wider than epipleura, abruptly narrowed apically. Mesepimeral line distinct, longer than interval to mesocoxae. Mesocoxal lines strongly arcuate, length of mesocoxal areas about as, or longer than, shortest metacoxal interval. Metepisterna wide, almost parallel-sided, with suture deep, straight. Hind wings strongly reduced, present as minute rudiments. Tibiae straight, metatibiae at apex slightly wider than near base.

**Male.** Protarsomeres 1–3 slightly enlarged, with tenent setae. Abdominal antennomere 6 with mesal lobe minute, acute, triangular. Aedeagus (Fig. 52, 53) with apical process much shorter than basal bulb, tapering apically, very weakly sinuate ventrally, tip not curved, relatively robust. Internal sac with flagellum flat, long, not or moderately narrowed apically, distinctly striate. Flagella guide-sclerite short, with obtuse tip overlapped by flagellum. Accessory lateral sclerite present. Membranes of internal sac lacking spine- or scale-like structures. Parameres sinuate at dorsal view, arcuate at lateral view.

**Female.** Coxites narrow with styli apical, bearing long setae.

**Comments.** Among the species with robust tibiae, this is the only one having relatively long sutural striae, though these may not be clearly seen and must be observed in diffused light. The dorsoventrally compressed reddish body though is characteristic of this species. Note that the metaventral punctuation is variable within this species.

**Distribution** (map 12). North Island.

**Material examined.** Holotype and 23 paratypes — see Appendix 1 for collection details of specimens. **Holotype** information: New Zealand, TO, Ohakune Mountain Rd, near Mangowhero Lodge, 28 Nov 1985, R. C. Craw, sifted litter 85/70, barcode NZAC04011561 (NZAC).

**Etymology.** Named for the characteristic slender body form.

**Scaphisoma Leach, 1815**

*Scaphisoma Leach, 1815: 89. Type species: *Silpha agaricina* Linnaeus, 1758, by monotypy.*

*Scaphosoma Agassiz, 1846. Unjustified emendation.*

*Scaphionemurus Casey, 1900: 58. Type species: Scaphisoma bruchi LeConte, 1860, by original designation.*


*Scaphosoma Achard, 1924: 29. Type species: Scaphosoma antennatum Achard, 1919; by original designation. Synonymy by Löbl, 1970.*


*Simioscapheoma Pic, 1928d: 49 (subgenus). Type species: Scaphisoma bruchi Pic, 1928; by monotypy.*


**Description** (characters which are variable in the genus but are present in all New Zealand species are indicated by an asterisk (*) with the exceptions indicated). Body length usually 1–3 mm. Body moderately convex dorsally, ventrally more convex than dorsally. Dorsal vestiture reduced* or well developed. Labral setae present and simple (reduced)* or apically notched. Mandible unidentate apically, subapical serrations absent or present. Maxillary palpus normal (tapering); palpomere 4 elongate, at base about as thick as apex of preceding palpomere, tapering towards apex, not expanded and lacking marginal sulcus; 1, 2, or more setae present on palpus 2. Galea wider than...
long; brush apical and radulate. Inner and basal setae present on mesal margin of lacinia. Hypopharynx with 2 setae on the adoral surface (absent in S. hanseni). Labial palp 3-segmented; palpomere 2 short and wide, 3 elongate and curved, longer than palpomeres 1 and 2 combined; terminal palpomere not aciculate, inserted subapically and strongly curved; subapical palpomere with 1 seta. Mentum with anterior edge straight; surface setose* or with spines. Submentum with anterior margin invaginate. Submaxillary area of head with or without* microtubulate ducts. Gular area with or without* transverse clusters of pores. Frontoclypeal suture present. Eye entire or notched; interocular distance small. Antennal insertion below slight ridge or completely exposed (S. corcyricum); present at midline of eye. Antenna filiform; antennomere 3 usually shorted and triangulate*, or rarely elongate; 4 elongate* or short; antennomeres 7, 9, and 10 asymmetrical. Anterior tentorial tendon present. Prothoracic corbiculum absent. Anterior margin of procoxal cavity setose. Hypomeron concave-pressed and in lateral view completely visible; apex projecting beyond pronotum or not*; fovea absent. Prothoracic carina prominent with a bead; visible in dorsal view (S. hanseni) or not completely visible; straight or ventrally curved* in lateral view. Pronotum with basal lobe well developed; anterior margin with bead obliterated at middle; posterior angle acute; extending below ventral edge of elytra* or not; extending to anapleural suture* or not. Prosternum with spine present. Mesoventrite with spine present. Metasomal plate absent. Secondary lines present or absent*; median lines present and open, or absent*. Metasomal plate present or not*; connecting with mesoscolex cavity, impunctate or punctate; not parallel with outer margins of procoxa rests. Metepisternum present*, fused with mesoscolex, or absent; length variable. Mesoscolex wider than intercoxa process; coxa round. Meso- and metasternites fused without an internal ridge; sulcus present or absent*. Mesoscolex lines arcuate or parallel to coxa; impunctate or punctate (S. hanseni). Metasomal plate without setose patch; primary setae present and located on the disc; transverse premetasomal lines or bead present (S. hanseni); discrinen absent; intercoxaal plate absent. Metepisternal suture present and impunctate. Metepisternum visible in ventral view; posterior line present or absent*. Metepisternum with stem absent. Scutellum visible or concealed* below elytra; width of scutellum about 1/3 entire width of pteronotum; transverse basal line or carina complete and forming a trapezoid. Metacoxae widely separate. Brick-wall membranes absent between abdominal ventrites 1–4. Abdominal process on ventrite 1 without intercoxaal line; metacoxal lines present and arcuate or parallel (S. hanseni) to coxa; metacoxal bead punctate; primary setae present. Primary setae present on ventrites 2–4; 2 on each segment. Abdominal vestiture absent. Paratergites present or absent* on segments 4 and 6. Hind wings present* or absent. Elytron with basal stria present or absent* (poorly developed in S. hanseni); suture striae shortened or elongate; suture striae connected (S. hanseni) or not; epipleural stria present with interval between it and margin very narrow; suture spines and apical serrations present* or absent. Metacoxal process of metasomal plate digitate. Profemoral ctenidium present. Mesofemora rounded in cross-section; subapical seta present and not spine-like. Tibiae smooth. Mesotibia distinctly longer than mesotarsus; 2 ventral mesotibial spines present, with spines subequal* or equal to each other (the longest spine with its greatest length about as long as 2/3 of tarsomere 1). Metatarsi smooth; mesotarsomere 1 longer than tarsomere 2. Empodium unisetose. Female coxites with apical styls.

**Larval diagnosis.** Head with 5 stemmata present. Pseudomola present as a dense group of short strong teeth; never in the form of an elongate lobe. Urogomphus 2-segmented or sometimes 1-segmented.

**Comments.** Scaphisoma contains over 600 described species and has virtually a worldwide distribution, with a notable absence from Chile and southern Argentina, and the tundra of the northern New World. This species diversity is associated with a large degree of character variation as indicated in the above description.

The previous records of *Scaphisoma* from New Zealand were based on misidentifications (e.g., Kuschel 1990 lists 4 species of *Scaphisoma*). Nevertheless, at least 3 species of *Scaphisoma* occur in New Zealand, 1 of which is endemic and widely distributed. The remaining 2 species are introduced from the Mediterranean and Australia, respectively. The New Zealand *Scaphisoma* fauna is depauperate compared to the diverse faunas of New Caledonia (27 species) and Fiji (8 species) (Löbl 1980, 1981).

**Key to Scaphisoma species**

1 Antennae with length of antennomeres 3 and 4 combined about as long as antennomere 5, antennomere 4 about 3× as long as wide (Fig. 17, 19). Elytra typically bicoloured. Punctuation very fine on elytra, lateral portions of metasomal plate and abdominal ventrite 1. Body length 1.2–1.7 mm .................................................. 2

—Antennae with length of antennomeres 3 and 4 combined much shorter than antennomere 5, antennomere 4 about 2× as long as wide (Fig. 18). Elytra with subapical or apical, poorly delimited, pale fascia. Punctuation relatively coarse on elytra, lateral parts of metasomal plate and abdominal ventrite 1. Body length 1.9–2.1 mm. .................................................. *(p. 40)*... *corcyricum* Löbl
Scaphisoma corcyricum Löbl, 1964

Fig. 18, 73; Map 21

Scaphisoma corcyricum Löbl, 1964: 1

Scaphisoma corcyricum; Löbl, 1970: 749

**Diagnosis.** Body colour generally black; elytron with sub-apical fascia. Antennae with length of antennomeres 3 and 4 combined shorter than antennomere 5. Eye weakly notched. Punctuation coarse on elytra. Metacoxal lines strongly arcuate.

**Description.** Length 1.9–2.1 mm. Body black or black with reddish lustre, apical portion of elytra usually dark reddish with a pale subapical fascia, mouthparts, apical abdominal segments, and appendages ochreous. Prothorax sometimes lighter than elytra and reddish brown. Punctuation dense, distinct, very fine on head, pronotum, and exposed abdominal tergites, relatively coarse on elytra, metaventrite, and first exposed abdominal ventrite. Following abdominal ventrites apparently impunctate. Thorax, elytra, and first exposed abdominal ventrite lacking microsculpture, following ventrites with conspicuous microsculpture consisting of punctures. Antennae moderately long. Length/width ratios of antennomeres as follows: III: 4/3.5; IV: 5/3.5; V: 11/4; VI: 10/4.5–5; VII: 19–20/7; VIII: 10–12/5; IX: 17–18/7; X: 16–18/7–8; XI: 20–23/8. Antennomere 4 flattened, almost parallel-sided, antennomere 5 barely widened mesally, following antennomeres distinctly widened mesally. Pronotum with lateral margins arcuate, lateral margin keels barely visible in dorsal view. Exposed tip of scutellum minute. Elytra with lateral margins arcuate, lateral margin keels not or barely exposed in dorsal view, apical margins slightly rounded, inner apical angle lying posterior to outer apical angles, sutural margin not raised anteriorly, raised in posterior 2/3, adstural area flat anteriorly, sutural striae fine, parallel with suture in middle, converging apically, not or barely curved outward near base, reaching base at each side of pronotal lobe and not extending along basal margins of elytra. Hind wings fully developed. Mesepimeral line longer than interval to mesocoxa. Metaventrite flattened in middle, lacking mediobasal impressions, not microsculptured. Mesocoxal line arcuate, finely punctate; mesocoxal area 0.03–0.04 mm long. Metepisternum flat, in same plane as lateral part of metaventrite, strongly narrowed anteriorly, with fine suture. Apex of pygidium emarginate. Ventrite 1 about as coarsely punctate as metaventrite except for very finely punctate apical area; metacoxal lines strongly arcuate, distinctly punctate; metaventral area 0.13–0.14 mm long. Tibiae slender, straight.

**Male.** Protarsomeres 1–3 widened. Aedeagus symmetrical, moderately sclerotised. Median lobe with large basal bulb, distal process narrow, arcuate, tapering. Parameres narrow, sinuate in dorsal view, slightly curved in lateral view, slightly longer than basal bulb, lacking lobes or apophyses. Internal sac tubular, with weakly sclerotised rod.

**Distribution (Map 21, New Zealand).** Europe: Croatia, Greece, Turkey, Cyprus. **New Zealand:** AK.

**Material examined from New Zealand.** 4 non-type specimens — see Appendix 1 for collection details of specimens.

**Comments.** Comparison of New Zealand specimens with the type material from the Mediterranean confirms that this species is obviously introduced. *Scaphisoma corcyricum* is a member of the *S. agaricinum* group (Löbl 1970) which includes the widely distributed *S. agaricinum* (Linnaeus) and *S. inopinatum* Löbl and the more restricted species: *S. italicum* Tamanini, *S. loebli* Tamanini, and *S. palumboi* (Ragusa). These species are restricted to the Palaearctic region and are found widely throughout most of Europe and eastward to Eastern Siberia and Mongolia. The aedeagi of these species provide reliable diagnostic features for the group. *Scaphisoma corcyricum* may be separated from its relatives by its very short antennomere 4 in combination with its relatively large body size. These characters also serve to separate it from the species present in New Zealand.

**Present status of *S. corcyricum* in New Zealand.** The status is uncertain because there is only one collection made of the species, and it is unclear if the species has established. There have been many introductions of beetles and other invertebrates to New Zealand, especially from Australia and Europe (see Kuschel 1990), and *S. corcyricum* may have arrived to New Zealand with the cut flower or grape vine trades.

Scaphisoma funereum Löbl, 1977

Fig. 19, 71, 72; Map 22

Scaphisoma funereum Löbl, 1977: 31

**Diagnosis.** Body colour generally dark brown to black; elytron with subapical fascia. Antennae with length of antennomeres 3 and 4 combined about as long as antennomere 5. Eye strongly-notched. Punctuation fine on elytra. Metacoxal lines strongly arcuate.
**Description.** Length 1.25–1.40 mm. Head and most of body very dark brown to almost black, hypomera sometimes slightly reddish. Elytra with pale, ochreous or yellowish, well delimited subapical fasciae, or with apical 1/4–1/3 light ochreous or yellowish. If apical area darkened, still much lighter than elytral centre. Antennae slightly infuscate. Mouthparts and legs darker and more reddish than subapical elytral fasciae. Apical abdominal segments light ochreous. Punctuation of body entirely sparse and very fine, barely visible at high magnification. Body, apical abdominal segments excepted, lacking microsculpture. Antennae relatively long. Antennomere 4 cylindrical, following antennomeres widened mesally. Length/width ratios of the antennomeres as follows: III: 3/3; IV: 7/2; V: 10/2.5; VI: 12/3.5; VII: 14/4.5; VIII: 11/3.5; IX: 15/4.5; X: 15/4.5; XI: 18/5. Pronotum with lateral margins arcuate, lateral margin keels not exposed in dorsal view. Exposed tip of scutellum minute. Elytra with lateral margins arcuate, lateral margin keels exposed in dorsal view, apical margins slightly rounded, inner apical angle lying posterior to outer apical angles, suture not raised, ad sutural area flat, sutural striae fine, parallel with suture in middle, converging apically, slightly diverging anteriorly, curved outward near base, reaching base at each side of pronotal lobe and not extending along basal margins of elytra. Hind wings fully developed. Mesepimeral line slightly shorter than interval to mesocoxa. Metaventrite weakly convex in middle, lacking mediobasal impressions, not microsculptured, very finely punctate. Mesocoxal line strongly arcuate, very finely punctate; mesocoxal area 0.04–0.05 mm long. Metepisterna flat, in same plane as lateral part of metaventrite, strongly narrowed anteriorly, with fine suture. Apical abdominal segments with microsculpture consisting of punctures. Propygidium with punctuation moderately dense, well delimited, coarser than that of elytra. Pygidium with punctuation similar to that of propygidium near base, becoming fine and sparsely arcuate to apical margin. Apical margin of pygidium truncate. Ventrite 1 lacking microsculpture, punctuation similar to metaventrite; metacoxal line strongly arcuate, distinctly punctate; metacoxal area 0.06–0.07 mm long. Tibiae slender, straight.

**Male.** Protarsomeres 1–3 widened. Aedeagus weakly sclerotised. Median lobe with strongly reduced basal bulb, distal process very narrow, arcuate, with acute tip. Parameres extremely slender, each bearing narrow, hyaline, apical apophysis.

**Comments.** Comparison between New Zealand specimens and the types from Australia confirms that this species is introduced. Based on aedeagal characters (aedeagal characters, such as the long parameres with apical part abruptly narrowed and weakly sclerotised), *Scaphisoma funereum* is closely related to other members of distinctive group that includes *S. leai* Löbl and *S. glabripenne* Löbl from Lord Howe Island, and *S. coarctatum* Löbl from the Indonesian island of Buru (Löbl 1977). It may be easily distinguished from *S. leai* and *S. glabripenne* by the presence of the mesepimeral line, and from *S. coarctatum* by the sutural striae starting at the basal margin of the elytra, close to the pronotal lobe.

*Scaphisoma funereum* has been collected from *Amanita muscaria*, which tends to grow beneath pines in New Zealand, and was listed by Kuschel (1990) under the name *Scaphisoma* sp. 2, as well as among the grasses *Carex* and *Uncinia*. This species has also been collected from pastures in the Auckland area (Leschen et al. unpubl.) as is typical for many introduced taxa, including some species from Australia.

**Distribution** (map 22, New Zealand). **Australia:** New South Wales and Queensland. **New Zealand:** North Island.

ND, AK, CL, BP, TO / --.

**Material examined from New Zealand.** 15 non-type specimens — see Appendix 1 for collection details of specimens.

**Fungal hosts.** Basidiomycetes: *Amanita muscaria*, undetermined fleshy fungus.

**Scaphisoma hansenii new species**

Fig. 17, 69, 70; Map 23

**Diagnosis.** Body colour generally dark brown to tan or light brown, never black; elytron without subapical fasciae. Antennae with length of antennomeres 3 and 4 combined about as long as antennomere 5. Eye weakly notched. Punctuation coarse on elytra. Metacoxal lines parallel.

**Description.** Length 1.4–1.7 mm. Colour variable, most of body uniformly light to dark brown, or head and pronotum darker than elytra; apical and lateral parts of elytra usually lighter than inner part of elytral disc. Tip of abdomen, tarsi, mouthparts, and antennae similar as apical part of elytra or lighter. Thorax and elytra lacking microsculpture, very finely and sparsely punctate. Antennae relatively short. Antennomere 4 subcylindrical, following antennomeres widened. Length/width ratios of antennomeres as follows: III: 1/1; IV: 7/2.5; V: 10/3; VI: 10/4; VII: 15/6; VIII: 9/4; IX: 14/6; X: 13/6; XI: 18/7. Pronotum with arcuate lateral margins, lateral margin of carinae visible at dorsal view. Minute tip of scutellum exposed. Elytra moderately narrowed apically, with arcuate lateral and apical margins. Inner apical angle lying posterior to outer apical angles. Sutural striae distinct, parallel to sutural margin, curved along base and outwards, extending out to middle 1/3 or sometimes out to middle of the elytral base. Adsutural area (=area between sutural margin and...

Sutural striae flat, with punctation as fine as but denser than that on elytral disc. Hind wings fully developed. Mesepimeral line slightly shorter than interval to mesocoxa. Metaventrite without basomedian impressions, evenly convex in middle. Mesocoxal lines arcuate; mesocoxal area about 0.04–0.05 mm long. Metepisterna flat, in same plane with lateral parts of metaventrite, strongly narrowed anteriorly, with fine suture. Tibiae slender, slightly curved. Exposed abdominal tergites with microsculpture consisting of punctures. Punctuation of pygidium very fine and sparse near apex, becoming dense and relatively coarse toward base. Propygidium with very irregular, relatively coarse punctuation. Abdominal ventrite 1 lacking microsculpture, with punctuation moderately dense and fine on most of median area, very fine on medio-apical and lateral areas. Metacoxal lines entirely parallel or weakly arcuate internally and parallel to basal margin externally. Metacoxal areas narrower than mesocoxal areas, barely 0.02 mm long at largest point. Following ventrites with microsculpture consisting of micropunctures and very finely punctate.

Male. Protarsomeres 1–3 slightly widened. Aedeagus (Fig. 69, 70) 0.40–0.45 mm long, symmetrical. Median lobe moderately sclerotised. Basal bulb oval, margined apically, lacking ventral tubercle, with dorsal membrane large, not clearly delimited. Distal process of median lobe inclined, with straight ventral wall, slightly swollen dorsally, moderately narrowed apically, with blunt tip. Dorsal valves long, overlapping in middle portion. Internal sac with 2 slender, almost straight, rods and appearing transversally striate. Parameres slender, appearing almost straight in dorsal view, sinuate in lateral view, largely overlapped by median lobe in dorsal view, extending slightly posterior to tip of median lobe, slightly widened apically.

Comments. The aedeagal characters of *S. hanseni* (such as the long and narrow median lobe, presence of a flagellum, and narrow parameres) indicate a possible relationship to *S. instabile* Lea and *S. neboissi* Löbl, both from Australia, and *S. notulum* Fauvel from New Caledonia. *Scaphisoma hanseni* can be easily distinguished from all Australian congeners, and *S. notulum*, by the extremely narrow metacoxal areas in combination with the abdominal punctuation and microsculpture.

Despite the wide distribution and common occurrence of this species, larvae have not been collected. Kuschel (1990) reported this species as *Scaphisoma* sp. 1 from *Phellinus punctatus* (=*Fuscosopora dryophila*) throughout the year.

Distribution (Map 23). Throughout New Zealand.

ND, AK, CL, WO, BP, TK, TO, WN / SD, NN, BR, WD, MB, DN, SL.


Etymology. The species is named in honour of the late Michael Hansen, whose contribution to the knowledge of beetles, especially staphyliniforms, was very significant.
REFERENCES


L. Collection details for specimens deposited.

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3 paratypes.

**Baecocera punctatissima** new species (p. 34)


**Baecocera sornalis** Broun, 1914 (p. 35)

20 specimens. **South Island: SD:** 5, Outer Chetwood Is, Te Kakaho, 11–16 Feb 1988, M. H. Bowyer, yellow pan trap in shoreline vegetation; C. A. Muir, yellow pan trap in flax; C. A. Muir, litter under flax & ferns; 1, Queen Charlotte Sd, Bay of Many Coves, 6 Jan 1973, JWWM, in from *Nothofagus truncata* / mixed broadleaf forest. **KA:** 10, 7 km NW of Lewis Pass, 9 Jan 1998, RABL, C. Carlton, *Coprosma*; Macropiper leaf litter, 3, Puhupahi Res, Kaituna, 13 Oct 1998, AKW, 6633 (1 MHN). **MC:** 1 (lectotype), M. L. Kennan. 23 Apr 1912, Broun (BMNH).

**Baecocera techootii** new species (p. 36)


**Baecocera hillaryi** new species (p. 33)

2 paratypes. **South Island: NN:** 2, Karamea, Oparara R, 27 Apr 1963, J. T. Townsend, litter 63/14 (1 MHN).

**Baecocera karamae** new species (p. 34)

3 paratypes. **South Island: NN:** 3, Karamea Bluff, 9 Feb 1999, RABL, RJBH, berlesate, RL75 (1 MHN).
Baecoptera Mannerheim, 1841

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Baecoptera tenebris new species (p. 37)

2 paratypes. South Island: BR, 1 Tawhai SF, 9 Nov 1971, GWR, litter 71/128; 1, Victoria FP, Rahu SR, Rahu CK, 700 m, 18 Feb 1992, D. Burckhardt.

Baecoptera teeni new species (p. 37)


Brachynopus apicellus (Broun, 1880) (p. 20)

Brachynopus latus Broun, 1881 (p. 20)
litter 82/43; 1, Whau Saddle, 1 Mar 1982, GH, litter 82/42; 1, Great Barrier I, Port Fitzroy, 8–12 Apr 1982, JCW, pit trap 82/54; 6, Kaiarara Valley, 12 Apr 1982, JCW, litter 82/52; 27 Nov 1975, JCW, ex flowering Leptospermum scoparium; 9, Little Windy Hill, 23–Oct–
Cyphomera early new species (p. 16)
Holotype only. South Island: FD.

Cyphomera thorpei new species (p. 17)

Notonetonia thyacereae new species (p. 25)

Scaphisoma corcyricum Löbl, 1964 (p. 40)

Scaphisoma funereum Löbl, 1977 (p. 40)

Scaphisoma hansenii new species (p. 41)
Appendix 2. Geographical coordinates of collecting localities for specimens. Coordinates should read as 00°00’S/000°00’E (W for Chatham Islands (CH)). The 2-letter area codes follow Crosby et al. (1998).

15 Mile Creek, NN ........................................ 4045/17225

Abby Caves, ND ............................................ 3543/17419
Abbottsford, DN ........................................... 4553/17030
Ahaura, BR .................................................. 4221/17132
Ahimanawa Range, TO/HS .................................. 3905/17635
Akatarawa, WN ............................................ 4058/17506
Akatore, Allison Reserve, DN ........................... 4607/17011
Aldigus, MC .................................................. 4314/17121
Ainseed Valley, NN ........................................ 4123/17309
Aorangi, Poor Knights Islands, ND ...................... 3529/17444
Aorere Saddle, Heaphy Track, NN ....................... 4053/17226
Disappointment Cove, Resolution Island, FD 4535/16640
Duck Creek, AK ........................................ 3624/17441
Dudas Bush, Clevedon, AK .................. 3659/17522
Dun Track Saddle, Wooded Peak, NN .......... 4119/17322
Dun Mt, NN ....................................... 4119/17322
Dundas Hut Ridge, WN .................... 4044/17527
Dyers Pass, MC .................................. 4337/17239
Egmont Plateau, TK ................................ 3918/17403
Elie Bay, SD ....................................... 4181/17359
Epsom, AK ......................................... 3654/17446
Erua, TO ............................................ 3914/17524
Eves Valley, NN ............................... 4120/17304
Fabians Valley, MB ............................. 4129/17332
Fairy Falls Track, AK ......................... 3659/17431
Fanal Island, Mokohinau Islands, ND ........ 3555/17554
Fern Flat, Te Karoa Scenic Reserve, ND .... 3508/17333
Flagstaff Reserve, Hochstetter State Forest, BR ........................................ 4229/17147
Fletchers Creek, BR ................................... 4159/17150
Flora Hut, NN ..................................... 4111/17244
Flora Saddle, Arthur Range, NN ............ 4111/17244
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Fig. 1 Ventral view of schematic scaphidiine.
Fig. 2–3 Dorsal outline of body; lateral view of protibia on left. Scale bar = 1 mm.
**4 Brachynopus latus**

**5 Brachynopus scutellaris**

**6 Brachynopus rufus**

**7 Brachynopus apicellus**

**Fig. 4–19** Dorsal outline of body; lateral to right. Scale bar = 1 mm.
8 *Notonewtonia thayerae*

9 *Notonewtonia watti*
10 Baeocera actuosa

11 Baeocera abrupta

12 Baeocera epipleuralis

13 Baeocera punctatissima
14 *Baeocera tekootii*

15 *Baeocera sternalis*

16 *Baeocera tenuis*
17 *Scaphisoma hansenii*

18 *Scaphisoma corcyricum*

19 *Scaphisoma funereum*
Fig. 20–25 Aedeagi and internal sacs. (20–22) *Brachynopus latus*: (20) aedeagus, dorsal; (21) aedeagus, lateral; (22) internal sac, dorsal. (23–25) *Brachynopus scutellaris*: (23) aedeagus, dorsal; (24) aedeagus, lateral; (25) internal sac, dorsal. Scale bar: 20, 21, 23 = 0.2 mm; 22, 25 = 0.1 mm.
Fig. 26–29  Aedeagi. (26–27) *Brachynopus rufus*: (26) dorsal; (27) lateral. (28–29) *Brachynopus apicellus*: (28) dorsal; (29) lateral. Scale bar = 0.2 mm.
Fig. 30–33  Aedeagi. (30–31) Notonewtonia thayerae: (30) dorsal; (31) lateral. (32–33) Notonewtonia watti: (32) dorsal; (33) lateral.  Scale bar = 0.2 mm.
Fig. 34–39  Aedeagi and internal sac. (34–37) *Baeocera actuosa*: (34) aedeagus, dorsal; (35) aedeagus, lateral; (36) internal sac, lateral. (37–39) *Baeocera abrupta*: (37–38) aedeagus, dorsal; (39) aedeagus, lateral. Scale bar = 0.1 mm.
Fig. 40–45 Aedeagi and internal sacs. (40–42) *Baeocera epipleuralis*: (40) aedeagus, dorsal; (41) aedeagus, lateral; (42) internal sac, dorsal. (43–45) *Baeocera punctatissima*: (43) aedeagus, dorsal; (44) aedeagus, lateral; (45) internal sac, dorsal. Scale bar: 42 = 0.05 mm; others = 0.1 mm.
Fig. 46–51  Aedeagi and internal sacs. (46–48) Baeocera tekootii: (46–47) aedeagus, dorsal; (48) internal sac, dorsal. (49–51) Baeocera sternalis: (49) aedeagus, dorsal; (50) aedeagus, lateral; (51) internal sac, dorsal. Scale bar = 0.1 mm.
Fig. 52–56 Aedeagi and internal sac. (52–53) Baeocera tenuis: (52) aedeagus, dorsal; (53) aedeagus, lateral. (54–56) Baeocera hillaryi: (54) aedeagus, dorsal; (55) aedeagus, lateral; (56) internal sac, lateral. Scale bar: 52, 53, 56 = 0.1 mm; 54, 55 = 0.2 mm.
Fig. 57–63  Aedeagi and internal sacs. (57–59) *Baeocera tensingi*: (57) aedeagus, dorsal; (58) aedeagus, lateral; (59) internal sacs, lateral. (60–63) *Baeocera benolivia*: (60) aedeagus, dorsal; (61) aedeagus, lateral; (62) internal sac, dorsal; (63) internal sacs, dorsal (left) and lateral (right). Scale bar: 57 = 0.2 mm; others = 0.1 mm.
Fig. 64–68 Aedeagi and internal sac. (64–66) Baeocera elenae: (64) aedeagus, dorsal; (65) aedeagus, lateral; (66) internal sac, dorsal. (67–68) Baeocera karamea: (67) aedeagus, dorsal; (68) aedeagus, lateral.

Scale bar: 66 = 0.5 mm; others = 0.1 mm.
Fig. 69–73  Aedeagi. (69–70) Scaphisoma hanseni: (69) dorsal; (70) lateral. (71–72) Scaphisoma funereum: (71) dorsal; (72) lateral. (73) Scaphisoma corcyricum, dorsal. Scale bar: 73 = 0.2 mm; others = 0.1 mm.
Fig. 74–82 Mandibles, maxillae, and labia. (74–76) *Baeocera apicellus*. (77–79) *Notonewtonia thayerae*. (80–82) *Notonewtonia watti*. Scale bar = 0.1 mm.
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92 *Brachynopus latus*, corbiculum

94 *Brachynopus latus*, detail of corbiculum

96 *Baeocera actuosa*, prosternum

98 *Brachynopus latus*, meso-metaventral junction

93 *Brachynopus latus*, corbiculum

95 *Brachynopus latus*, detail of corbiculum

97 *Brachynopus latus*, mesoventrite

99 *Brachynopus latus*, abdominal process
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101 *Brachynopus latus*, abdominal tip, ventral view

102 *Brachynopus latus*, ventral view of gonocoxite

103 *Baeocera actuosa*, ventral view of gonocoxite

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107 *Baeocera elenae*, mesotibia, posterior view
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110 *Brachynopus rufus*, ventral view of male protarsus

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Map 1 Collection localities, *Baeocera abrupta*

Map 2 Collection localities, *Baeocera actuosa*

Map 3 Collection localities, *Baeocera benolivia*

Map 4 Collection localities, *Baeocera elenae*
Map 5 Collection localities, *Baeocera epipleuralis*

Map 6 Collection localities, *Baeocera hillaryi*

Map 7 Collection localities, *Baeocera karamea*

Map 8 Collection localities, *Baeocera punctatissima*
Map 9 Collection localities, *Baeocera sternalis*

Map 10 Collection localities, *Baeocera tekootii*

Map 11 Collection localities, *Baeocera tensingi*

Map 12 Collection localities, *Baeocera tenuis*
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Map 17 Collection localities, *Cyparium earlyi*

Map 18 Collection localities, *Cyparium thorpei*

Map 19 Collection localities, *Notonewtonia thayerae*

Map 20 Collection localities, *Notonewtonia watti*
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