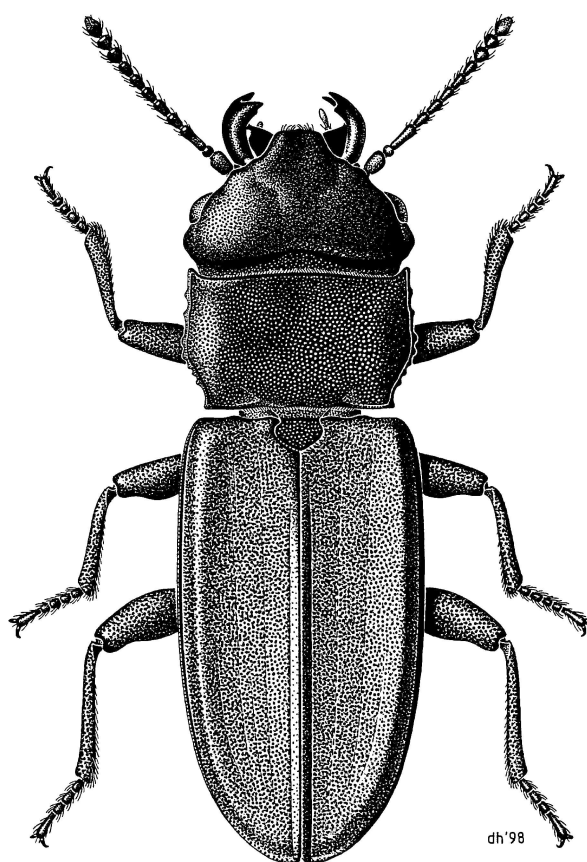


# Beetles of Conservation Interest from the Three Kings Islands

A report submitted to the Department of Conservation,  
Northland Conservancy



*Platisus zelandicus*

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**Cover illustration:** *Platysus zelandicus* courtesy of Des Helmore, Landcare Research

## Introduction

The aim of this report is to summarise the current state of knowledge of seven species of Three Kings Islands' beetles that have a high conservation value and are considered to be vulnerable species. The report provides information on taxonomy, non-technical identification, biology, habitat, distribution and conservation for each species. This information may encourage field staff to study these species (and others) during visits to the islands. The species covered here are mainly larger, less mobile (mostly flightless) species, which are especially susceptible to predation. There are many other species - mostly smaller, less apparent species - that are also worthy of consideration, but require more specialised entomological knowledge to study and are beyond the scope of this report.

This report also aims to draw attention to the very high conservation value of the islands' beetle fauna as a whole and the need to develop a conservation management strategy for this fauna.

## The Three Kings Islands Beetle Fauna

The Three Kings Islands (ca. 471 ha) have a diverse beetle fauna with around 228 species representing 44 families (Marris, unpublished data). By comparison, Watt (1982) recorded 167 species from the Poor Knights Islands (ca. 286 ha) and Emberson (1998) recorded 286 species from the much larger and more distant Chatham Islands (97217 ha).

The outstanding feature of the Three Kings Islands beetle fauna is the very high level of endemism. Watt (1986) commented that no other northern New Zealand island group shows comparable levels of endemism, and that even the far more isolated Chatham Islands have a much lower proportion of endemism. At species level, 35% (26 of 75) described species known from the Three Kings Islands are endemic and a similar proportion of the undescribed fauna is thought to be endemic (Marris, unpublished data). Watt (1982) recorded 14% of the Poor Knights Islands' beetles as endemic, while Emberson (1998) recorded 27.6% of the Chatham Islands' beetle species as endemic. At genus level, the Three Kings Islands have six described endemic beetle genera: *Gourlayia* (Carabidae), *Heterodoxa* and *Pseudopisalia* (both Staphylinidae), *Partystona* and *Zomedes* (both Tenebrionidae) and *Tribasileus* (Anthribidae). There are probably another seven endemic undescribed genera from the islands (Marris, unpublished data). By comparison, the Poor Knights Islands have no endemic beetle genera (Watt, 1982) (the Poor Knights Islands weevil genus *Karocolens* was synonymised with *Hadramphus* by Craw (1999)), while the Chatham Islands have four: *Thinocafius* (Staphylinidae), *Chathamneus* (Scydmaenidae), *Thotmus* and *Patellitergum* (both Curculionidae) (Emberson, 1995; Emberson, 1998).

One species, *Platysus zelandicus*, is the only representative of the family Cucujidae in New Zealand. Moreover, this Three Kings Islands endemic is the only example of a beetle family restricted to an island locality and not found on the New Zealand mainland.

Invertebrate collecting on the Three Kings Islands has been limited to a handful of visits, most notably the 1970 DSIR expedition to the islands (Ramsay, 1971). Some of the islands and islets of the group have only been visited briefly or not at all. Consequently, the fauna is poorly known. No checklist of the beetle fauna is available, although, there are taxonomic reviews of some beetle groups (e.g. Britton, 1964 - Carabidae; Cameron, 1950 - Staphylinidae: Aleocharinae; Given, 1954 - Scarabaeidae; Holloway, 1963 and 1982 - Lucanidae and Anthribidae; Watt, 1992 - Tenebrionidae). A high proportion of the beetle species remains undescribed.

A checklist of Three Kings Islands beetle species is currently being compiled for future publication (Marris *et al.*, in prep.). This checklist will record all known taxa and will note their distribution (within the Three Kings Islands and their wider distribution), whether endemic or not and other relevant points.

## Beetle Conservation

The greatest single threat to the Three Kings Islands beetle fauna (for the larger species at least) is the accidental introduction of mammalian predators. It is extremely fortunate that over the period of human occupation of the Three Kings Islands, and during subsequent visits to the islands, no mammalian predators have been introduced there. Incidents such as the arrival of ship rats (*Rattus rattus*) on Big South Cape Island have demonstrated the devastating impact of introduced predators on the larger beetle species in particular (Watt, 1975). There is also strong anecdotal evidence of the equally devastating impact of house mice (*Mus musculus*) on smaller beetle species (Marris, 2000).

The impact of forest clearance by Maori (and later by goats introduced to Great Island) on the beetle fauna is unclear. Species with close host-plant associations may have become rare, or even been exterminated, when host species were reduced in numbers or became locally extinct. Kuschel and Worthy (1996) commented that the devastation to vegetation and soil caused by goats has presumably led to the local extinction of a series of bush floor litter endemics on Great Island. Fortunately these species escaped extinction due to their presence on outer islands of the Three Kings group, principally South West Island (Kuschel and Worthy, 1996).

There are many other risks that threaten the islands' beetle fauna. These include fire, the introduction of adventive predators, parasites or pathogens, and the introduction of weed species that may alter the islands' habitats. Dymock (2000), for example, considered the risk of vespine and polistine wasps establishing on the Three Kings Islands to be high and that a range of insect species would be at risk due to predation by these wasps. Ant species, such as the Argentine ant (*Linepithema humile*) and bigheaded ants (*Pheidole* spp.), are further examples of species that pose a high risk to the Three Kings Islands' terrestrial invertebrate fauna if they were to establish.

## Summary

This report only scratches the surface of the requirements for beetle conservation on the Three Kings Islands. It is clear, however, that the Three Kings Islands are among the most entomologically important islands in the New Zealand subregion. No other comparable area in New Zealand has such a high concentration of endemic beetle genera and species. This very high level of endemism highlights the need for effective conservation management of this fauna as a whole.

Priorities for future conservation management are:

- **Further beetle faunal survey work** - to improve the currently poor state of knowledge of the fauna, especially for the outer islands of the Three Kings group.
- **Improved biological and ecological knowledge** - to enhance the understanding of species' ecology, particularly for rare or endangered beetle species.
- **Active predator prevention and monitoring programmes** - to minimise the risk of the establishment of mammalian predators.
- **Effective quarantine measures** - to prevent the introduction and establishment of alien flora and fauna

## Key to abbreviations, terms and symbols

n. gen.	- new genus. A presently undescribed genus.
n. sp.	- new species. A presently undescribed species.
Category B	- the second priority threatened species category for conservation of Molloy and Davis (1994)
Category C	- the third priority threatened species category for conservation of Molloy and Davis (1994)
Category I	- species about which little is known, but based on existing knowledge are considered to be under threat as defined by Molloy and Davis (1994)
■	- recorded as present.
□	- not recorded as present.
AMNZ	- Auckland Institute and Museum, Auckland
LUNZ	- Entomology Research Museum, Lincoln University
NZAC	- New Zealand Arthropod Collection, Landcare Research, Auckland

## Glossary of taxonomic terms

carina	- an elevated ridge or keel
costae	- elevated ridges rounded at their crest
elytra	- the hardened forewings of a beetle generally covering the abdomen
elytral declivity	- the downward sloping posterior part of the elytra
emarginate	- notched at the margin
labrum	- the upper 'lip' of an insect's mouthparts
pronotum	- the dorsal part of the prothorax (the first thoracic segment)
rostrum	- a snout-like extension of the head
rugose	- wrinkled and knobbed surface
striae	- longitudinal impressed lines extending from the base of the elytra
tergum	- the sclerite (hardened plate) on the dorsal surface of a segment
tubercle	- a knob-like protuberance

## ***Amychus* new species**

<b>Scientific Name:</b>	<i>Amychus</i> n. sp.
<b>Common Name:</b>	None.
<b>Family:</b>	Elateridae.
<b>Type Locality:</b>	Not applicable.
<b>Conservation Status:</b>	Listed in category I in Molloy and Davis (1994).

Two *Amychus* species, *A. granulatus* (the Cook Strait click beetle) and *A. candezei* (the Chatham Islands click beetle), are listed in Molloy and Davis (1994) in Category B and C respectively and are protected by the Wildlife Amendment Act 1980 (Anonymous, 1981).

**Description:** *Amychus* n. sp. are large (19 to 25mm), elongate, moderately strongly dorso-ventrally flattened beetles. They are easily distinguished from click beetles in other genera by their relatively broad body form and their dull, roughened, bark-like upper surface (Fig. 1). Features of this and other click beetle species are the acute hind angles of the pronotum and the clicking mechanism on the underside of the thorax. The clicking mechanism enables the head and pronotum to flex against the hind part of the body allowing upturned beetles to right themselves and possibly acting as a startle mechanism against predators. Contrary to Meads' (1990) comments, all *Amychus* beetles are capable of clicking.

*Amychus* larvae (Fig. 2) are slender, elongate, slightly dorso-ventrally flattened and have a distinctive double-pronged abdominal apex (tergum 9)(Fig. 2 - inset). The larvae are orange-brown to brown in colour. Only one larva of *Amychus* n. sp. is known, from South West Island, but no habitat information is given in the label data. This specimen is held in the Auckland Museum collection. *Amychus candezei* larvae range up to 28 mm in length.

**Similar species:** *Amychus* n. sp. is distinguishable from all other Three Kings Islands elaterids by its large size, broad body shape and by its dull, bark-like upper surface.

**Biology/Habitat:** Adult *Amychus* n. sp. are nocturnal and are most commonly found on tree trunks at night but have also been collected under logs and by pitfall trapping. On Great Island, most have been collected from Tasman Valley. *Amychus* n. sp. adults tend to favour old, large, knot-holed trees that probably offer refugia for the beetles by day. The beetles are probably relatively long lived. *Amychus candezei* and *A. granulatus* adults have been collected virtually throughout the year.

Adult *A. candezei* and *A. granulatus* have been observed feeding on sap oozing from tree trunks (Marris, 1996). Meads (1990) claimed that they feed on lichens and algae on tree trunks.

*Amychus* n. sp. are brachypterous, with the wings barely reaching the apex of the elytra. It is unlikely that they are capable of flight. By comparison, *Amychus candezei* and *A. granulatus* are micropterous with wings reduced to vestigial stubs.

Nothing is known about the biology of *Amychus* n. sp. larvae although it is likely to be similar to that of other *Amychus* species. Larvae of *A. candezei* and *A. granulatus* have been collected from in rotten wood, leaf litter and among the roots of tussock grasses. The larvae are probably predatory but may also feed on organic matter and roots.

**Distribution:** Three Kings Is distribution: Great I. ■, North East I. □, South West I. ■, West I. □, Princes Is □

Other distributions: Endemic to the Three Kings Islands.

**Threats:** *Amychus* n. sp. is not currently considered to be endangered or in decline.

The primary threat to this species is predation by introduced mammals. *Amychus* beetles are large, flightless and slow moving, making them vulnerable to predation. *Amychus granulatus* is known from subfossil remains from Waikari, North Canterbury (Worthy and Holdaway, 1996), and presumably once had a relatively widespread South Island distribution. It was probably eliminated from the mainland by mammalian predators and is now restricted to predator-free offshore islands. Loss of suitable habitat and habitat disturbance may have caused the extinction of *A. granulatus* on North Brother Island (Marris, 1996). *Amychus candezei* is now limited to predator free islands in the Chathams group although specimens were recorded from Chatham Island as recently as 1967 (Emberson *et al.*, 1996).

It is likely that *Amychus* n. sp. is a true primary Three Kings Islands endemic. If this species was a secondary endemic (i.e., restricted to relict populations localities due to mainland, predator-induced extinction), populations would be expected to occur on other northern offshore islands such as the Poor Knights Islands.

**Work to date:** Limited, non-targeted collecting.

**Management required:** Further surveying of outer islands in the Three Kings group may extend the known distribution of this species. Information on larval and pupal habitats would aid in the understanding of the biology of this species. A taxonomic description of *Amychus* n. sp. is planned by J. Marris, Lincoln University.

**Illustrations:** See Fig. 1 and 2. *Amychus candezei* and *A. granulatus* are illustrated in Meads (1990).

Figure 1: *Amychus* n. sp. adult, dorsal view

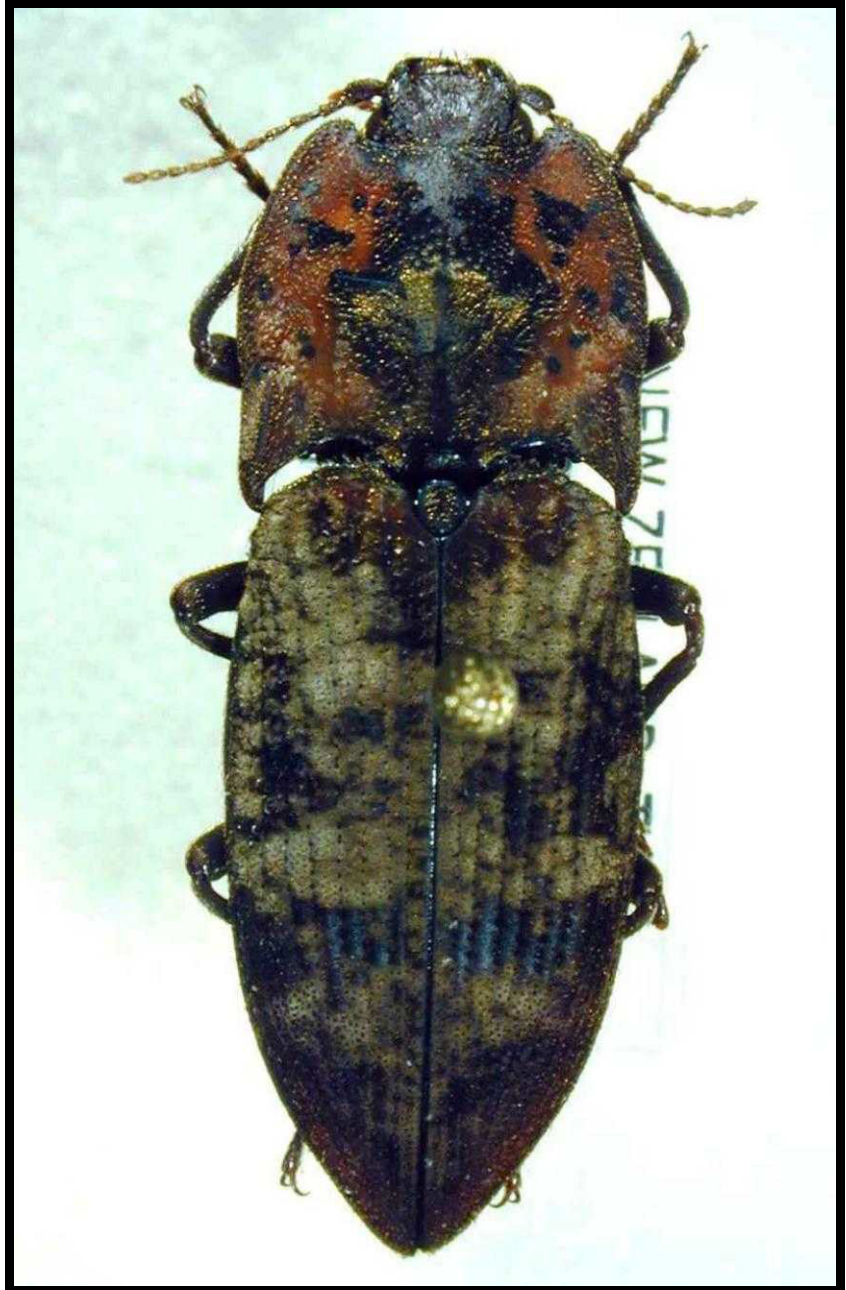
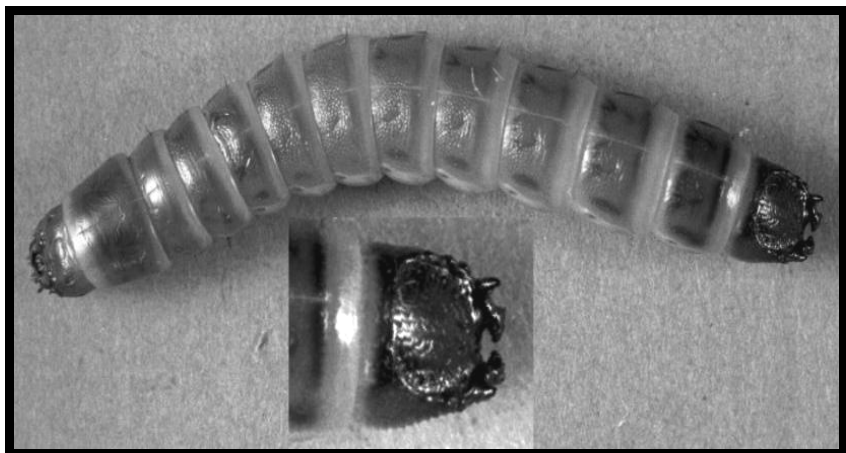


Figure 2: *Amychus* larva, dorsal view (inset - detail of tergum 9)





## ***Anagotus fairburni* - Flax weevil**

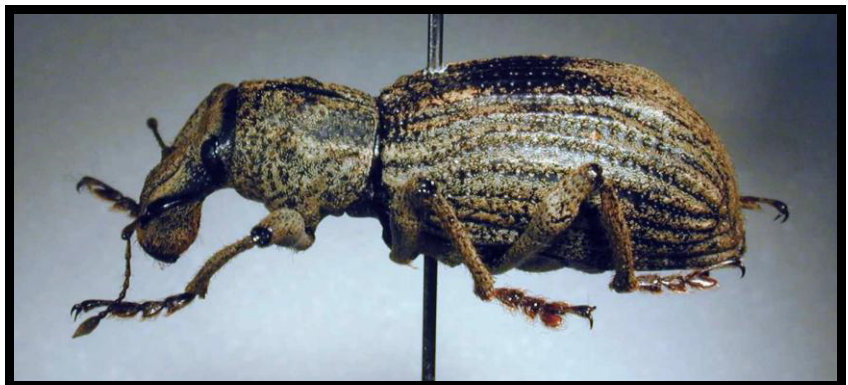
- Scientific Name:** *Anagotus fairburni* (Brookes 1932)
- Synonyms:** *Phaeophanus fairburni* Brookes 1932 (original description; Brookes, 1932)  
*Phoxoteles fairburni* (Brookes 1932) (new combination; Marshall, 1937)  
*Anagotus fairburni* (Brookes 1932) (new combination; Kuschel, 1982)
- Common Name:** Flax weevil.
- Family:** Curculionidae (Subfamily Brachycerinae).
- Type Locality:** D'Urville Island. Held in NZAC.
- Conservation Status:** Listed in category C in Molloy and Davis (1994). Protected by the Wildlife Amendment Act 1980 (Anonymous, 1981).
- Description:** *Anagotus fairburni* (Fig. 3, 4) is a large (length 20-25 mm), stout-bodied, flightless, weevil. As with most other weevils, it is easily recognised by its elongate, snout-like head shape and elbowed antennae. *Anagotus fairburni* range in colour from orange-brown through to dark brown and black in older, more worn specimens. The elytra have moderately strong costae, lightly punctured striae, median pairs of tubercles near the base of the elytra and at the base of the elytral declivity, and a lateral pair mid way down the elytral declivity.
- The larvae are large (20 mm), legless and have a brown head capsule and cream body (see illustration in Miller, 1984).
- Similar species:** Very similar in appearance to *Anagotus* n. sp. (see comments for *Anagotus* n. sp.). *Anagotus fairburni* is similar in size and appearance to *A. turbotti* but lacks the white lateral and posterior markings and the spine-like tubercles near the apex of the elytra as seen in *A. turbotti*. *Anagotus rugosus* (see comments for *Anagotus turbotti*) is also similar in appearance but can be distinguished by its smaller size, white lateral markings and rugose dorsal surface.
- Biology/Habitat:** Adults and larvae are associated with flax (*Phormium* species). Adults hide among the dead leaves and debris at the bases of flax plants during the day but can be seen feeding on leaves at night (Meads, 1980). Feeding damage by adults results in notching of flax leaf edges. This damage is indicative of the presence of the weevil, however, care should be taken not to confuse flax weevil damage with damage caused by caterpillars of the flax notcher moth, *Tmetolophota steropastis* (Meyrick). Examples of flax weevil and flax notcher damage are given in Miller (1984) and Scheele (1997).
- Flax weevil eggs are laid under the leaf edges of a fans of leaves (see illustration in Miller, 1984). The larvae feed on the fleshy bases of flax stems, killing the leaves at the base. Pupae are found in the ground in oval cocoons of flax fibre and rotting vegetable matter (Miller, 1984). Adult weevils can live for more than a year in captivity (Meads, 1980).

- Distribution:** Three Kings Is distribution: Great I. □, North East I. □, South West I. ■, West I. □, Princes Is □
- Other distributions include: Poor Knights Is, Little Barrier I., Aldermen I., Mt Holdsworth (Tararua Range), Stephens I., D'Urville I., Outer Chetwode I., Maud I., Trio I., Motungarara I., Mt Stokes, Dun Mountain, and islets off Stewart Island (NZAC records, Ramsay et al., 1988). This weevil has probably been eliminated from many of the mainland localities by rodent predation (Ramsay et al., 1988). Meads (1980) records *A. fairburni* as having been recently collected from the Tararua Range.
- Threats:** The primary threat to this species is predation by introduced mammals. Flax weevil is now almost exclusively restricted to rodent-free islands.
- Work to date:** Limited, non-targeted collecting on the Three Kings Islands.
- Management required:** Further surveying of outer islands in the Three Kings group may extend the known distribution of this species. A taxonomic study is needed to enable *A. fairburni* to be distinguished from *Anagotus* n. sp.
- Illustrations:** See Fig. 3 and 4. Also see Meads (1980), Miller (1984) (adults, eggs, larvae, pupae and leaf damage) and Scheele (1997) (adults and leaf damage).
- Notes:** *Anagotus fairburni* specimens from the Three Kings Islands differ from specimens from other localities in having a relatively broader pronotum.

Figure 3: *Anagotus fairburni*, dorsal view



Figure 4: *Anagotus fairburni*, lateral view



## **Anagotus new species**

- Scientific Name:** *Anagotus* n. sp.
- Common Name:** None.
- Family:** Curculionidae (Subfamily Brachycerinae)
- Type Locality:** Not applicable.
- Conservation Status:** No formal status.
- Description:** *Anagotus* n. sp. (Fig. 5, 6) is a large (around 20 mm in length), stout-bodied, flightless, weevil. These weevils range in colour from golden-, orange-brown to dark brown depending on age and amount of wear. The elytra have distinct costae and strongly punctured striae. As with *A. fairburni*, the elytra have median pairs of tubercles near the base of the elytra and at the base of the elytral declivity, and a lateral pair mid way down the elytral declivity.
- Similar species:** *Anagotus* n. sp. bears a very close resemblance to *A. fairburni* (see above). It is uncertain as to which characters can be reliably used to distinguish between these two species, but the following characters may be useful. In lateral view *Anagotus* n. sp. has relatively prominent, broadly triangular, raised flanges on the lateral margins of the rostrum just behind the antennal insertions. By comparison, *A. fairburni* has less prominent flanges but a distinct median carina running along the dorsal surface of the rostrum. The rostrum of *Anagotus* n. sp., in dorsal aspect, is narrower than that of *A. fairburni*. The elytral costae of *Anagotus* n. sp. are more strongly raised, the punctures of the striae are deeper, and the elytral tubercles are more prominent, than in *A. fairburni*.
- Anagotus* n. sp. is also similar in appearance to *A. turbotti* and *A. rugosus* but lacks the white lateral markings seen in these species. See comments for *A. fairburni* and *A. turbotti* for further details.
- Biology/Habitat:** The adult beetles are nocturnal. Some NZAC specimens were reared from the sedge *Cyperus ustulatus*. Specimens from South West Island were collected from on *Phormium* and in *Meryta* forest.
- May (1987) records *Anagotus* sp. B from the Poor Knights Islands as having been reared from the live rhizome of *C. ustulatus*. The Poor Knights species is apparently the same as that from the Three Kings Islands. Another Poor Knights Islands species, *Anagotus* sp., was discussed by Kuschel (1982) and listed by Watt (1982). However, this is a separate species again from *Anagotus* n. sp. discussed here and May's (1987) *Anagotus* sp. B.
- Distribution:** Three Kings Is distribution: Great I. ■, North East I. □, South West I. ■, West I. □, Princes Is □
- Identification of South West Island's specimens is uncertain.
- Other distributions: Poor Knights Islands (see note above).
- Threats:** *Anagotus* n. sp. is a large, flightless and relatively slow moving weevil. As with other *Anagotus* species it is probably highly vulnerable to attack from predatory mammals, particularly rats.
- Work to date:** Specimen collection and larval rearing.

**Management required:**

Priority should be placed on clarifying the taxonomy of this species to confirm that it is a separate species from *A. fairburni* and, that being true, to establish definitive characters for the identification of this species.

Further information on larval biology and its host plant association would assist management.

As for *A. fairburni*, avoidance of the introduction of predatory mammal species is the primary management requirement for the conservation of this species.

Further survey work is needed to confirm the species' presence on Great Island (the last records of this species are from 1970) and to establish its presence, or otherwise, of *Anagotus* n. sp. on outer islands of the Three Kings Islands group.

**Illustrations:**

See Fig. 5 and 6.

**Notes:**

Specimens of *Anagotus* n. sp. from the Three Kings Islands are held in NZAC under the manuscript name of *Anagotus* 'triregius'. This species name has not been published. Most were collected during the 1970 Entomology Division, DSIR expedition to the islands. An additional specimen from the Poor Knights Islands (presumably May's (1987) *Anagotus* sp. B) is included with this material.

Figure 5: *Anagotus* n. sp., dorsal view



Figure 6: *Anagotus* n. sp., lateral view



## ***Anagotus turbotti* - Turbott's weevil**

- Scientific Name:** *Anagotus turbotti* (Spiller 1942)
- Synonyms:** *Phaeophanus turbotti* Spiller 1942 (original description; Spiller, 1942)  
*Anagotus turbotti* (Spiller 1942) (new combination; Kuschel, 1982)
- Common Name:** Turbott's weevil
- Family:** Curculionidae (Subfamily Brachycerinae)
- Type Locality:** Poor Knights Islands (Aorangi). Specimen held in AMNZ
- Conservation Status:** Category B in Molloy and Davis (1994). Listed as a protected species in the Wildlife Amendment Act 1980 (Anonymous, 1981).
- Description:** *Anagotus turbotti* (Fig 7, 8) is a large, stout-bodied, flightless, weevil (18-25 mm) similar in size and shape to *A. fairburni* (see above) but with conspicuous white markings along the sides of the prothorax, along the sides and apex of the elytra and on the legs. It features prominent dorsal and lateral pairs of short, broad, spine-like tubercles at the base of the elytral declivity.
- Similar species:** On the Three Kings Islands, *A. turbotti* could be confused with the similarly sized flax weevil, *A. fairburni*, and *Anagotus n. sp.* (see above). *Anagotus turbotti* can be separated from these species by its white lateral and posterior markings and by the prominent elytral tubercles. Another *Anagotus* species, *A. rugosus*, shares the white lateral markings of *A. turbotti* but is generally smaller (length 14-18 mm), has a more rugose dorsal surface and has less prominent tubercles on the elytral declivity.
- Anagotus turbotti* is most closely related to *A. stephenensis*, now restricted to Stephens Island. *Anagotus turbotti* has less strongly contrasting white markings than *A. stephenensis*.
- Biology/Habitat:** Adults are nocturnal and have been collected from karaka (*Corynocarpus laevigatus*) on Muriwhenua and Aorangi Islands in the Poor Knights Islands group. There is no habitat data associated with specimens collected from the Three Kings Islands. Adults of the closely related *Anagotus stephenensis* are consistently found on ngaio (*Myoporum laetum*) (Kuschel and Worthy 1996). The larvae of *A. turbotti* are woodborers. May (1987) recorded the rearing of Poor Knights Islands' specimens from live wood of karaka (*Corynocarpus laevigatus*) and ngaio (*Myoporum laetum*).
- Distribution:** Three Kings Is distribution: Great I. ■, North East I. □, South West I. □, West I. □, Princes Is □
- Other distributions: Hen and Chicken Islands (Muriwhenua Island) and the Poor Knights Islands (Aorangi and Tawhiti Rahi)
- Threats:** *Anagotus turbotti* is a large, flightless and relatively slow moving weevil. As such it is especially vulnerable to attack by predatory mammals, particularly rats. The presence of the fossil remains of *Anagotus stephenensis* in the South Island mainland shows that this species was previously much more widespread (Kuschel and Worthy 1996). *Anagotus stephenensis* is now known only from a relict distribution on Stephens Island. The extinction of *A. stephenensis* from mainland and other island populations is undoubtedly due largely to predation by rodents.

*Anagotus turbotti* was probably once more widespread but is now restricted to three predator-free island groups.

**Work to date:**

Specimen collection. Larval rearing study (May 1987).

**Management required:**

Avoidance of the introduction of predatory mammal species is the primary management requirement for the conservation of this species.

Further survey work is required to confirm the species' presence on Great Island (the last records of the species are from 1970) and to establish its presence, or otherwise, on outer islands.

The lack of knowledge of the basic biology of this species, particularly the identification of larval host plants, is a major impediment to its conservation. Biological information and data on population size would be required if new populations of *A. turbotti* were to be established on other islands.

**Illustrations:**

See Fig. 7 and 8. Also Meads (1990).

**Notes:**

Around fourteen specimens of *Anagotus turbotti* from the Three Kings Islands are held in NZAC. All were collected from Great Island, with some specimens labelled as collected from "Castaway Camp". These specimens were collected during the 1970 DSIR Entomology Division expedition to the islands. One specimen is also held in AMNZ.



Figure 7: *Anagotus turbotti*, dorsal view



Figure 8: *Anagotus turbotti*, lateral view



## Harpalini new genus and new species

<b>Scientific Name:</b>	Harpalini n. gen. & n. sp.
<b>Common Name:</b>	None.
<b>Family:</b>	Carabidae (Tribe Harpalini)
<b>Type Locality:</b>	Not applicable.
<b>Conservation Status:</b>	No formal status. Known from only 8 specimens (7 in NZAC, 1 in AMNZ). More specimens may be held in the Fairburn Collection, Whangarei Museum.
<b>Description:</b>	Harpalini n. gen. & n. sp. (Fig. 9) is a medium sized (length around 13 mm), glossy black, ground beetle with strong elytral striae. This species is most easily identified by its very prominent, forward-projecting mandibles (Fig. 10) which are about the same length as the head of the beetle, and its deeply emarginate labrum.
<b>Similar species:</b>	Similar in size to <i>Parabaris gurlayi</i> (see illustration in Britton (1964)). Harpalini n. gen. & n. sp. can be distinguished most easily from this, and other similar sized ground beetles from the Three Kings Islands, by its greatly enlarged mandibles.
<b>Biology/Habitat:</b>	<p>Little is known of the biology of this species. Specimen label data show specimens were collected from a rotten log (1 specimen), under stones (3) and under a boulder on a rocky shore (1). The only specific localities given are for Great Island specimens from Castaway Camp (near Castaway Stream at the neck of the island) and the Tasman Valley. The greatly enlarged mandibles of this species indicate that it is most likely a specialist feeder of some sort, possibly on snails, millipedes or amphipods.</p> <p>Larvae of this species are unknown.</p>
<b>Distribution:</b>	<p>Three Kings Is distribution: Great I. ■, North East I. □, South West I. ■, West I. □, Princes Is □</p> <p>Other distributions: Endemic to the Three Kings Islands.</p>
<b>Threats:</b>	Unknown. Harpalini n. gen. & n. sp. may be vulnerable to predation by introduced mammals.
<b>Work to date:</b>	Limited, non-targeted collecting.
<b>Management required:</b>	<p>Survey work is required to confirm the species' presence on Great and South West Islands. Further surveying of outer islands in the Three Kings Islands group may extend the known distribution of this species.</p> <p>Basic ecological information, such as habitat and prey preferences would aid in the understanding of the biology of this species. The record of Harpalini n. gen. &amp; n. sp. from among beach stones is surprising given that all other records are from forest habitats. Further searching of littoral habitats would be worthwhile.</p>
<b>Illustrations:</b>	See Fig. 9 and 10.
<b>Notes:</b>	Specimens of Harpalini n. gen. & n. sp. in NZAC are held under the unpublished manuscript name of ' <i>Rexharpalus ferox</i> '.

**Figure 9:** Harpalini n. gen. & n. sp., dorsal view



**Figure 10:** Harpalini n. gen. & n. sp. head and mandibles, dorsal view



## ***Pilacolaspis* new species**

<b>Scientific Name:</b>	<i>Pilacolaspis</i> n. sp.
<b>Common Name:</b>	None.
<b>Family:</b>	Chrysomelidae (Subfamily Eumolpinae).
<b>Type Locality:</b>	Not applicable.
<b>Conservation Status:</b>	No formal status. It is known from only five specimens held in NZAC.
<b>Description:</b>	<i>Pilacolaspis</i> n. sp. (Fig. 11) is a moderately elongate, medium sized (length around 12 mm) beetle with a metallic bronze-green coloured body covered in short, fine, white hairs and with reddish-brown legs. Other features useful in identifying this species are the long antennae (about 2/3 <sup>rd</sup> the length of the body), the prominent shoulders of the elytra and the strongly protuberant compound eyes.
<b>Similar species:</b>	No other species on the Three Kings Islands closely resemble <i>Pilacolaspis</i> n. sp.
<b>Biology/Habitat:</b>	<p>Nothing is known of the biology of this species. Specific collection localities are given for Castaway Camp (near Castaway Stream at the neck of the island) and the Tasman Valley. The only habitat information given on specimen labels is for one specimen found "on <i>Meryta</i> leaf at night". A specific association with <i>Meryta</i> would be surprising given that by 1946 only one specimen of <i>Meryta</i> had survived grazing by goats on Great Island (Turbott, 1948). Moreover, Baylis (1948) stated that the specimen was "little more than a seedling rooted on an inaccessible cliff".</p> <p>According to Lawrence <i>et al.</i> (1999) adult eumolpine chrysomelids are foliage-feeders that occur on a wide variety of host plants and all known larvae occur in the soil and feed on roots. Larvae of <i>Pilacolaspis</i> n. sp. are unknown.</p>
<b>Distribution:</b>	<p>Three Kings Is distribution: Great I. ■, North East I. □, South West I. □, West I. □, Princes Is □</p> <p>Other distributions: Endemic to the Three Kings Islands.</p>
<b>Threats:</b>	<p>Unknown. The relatively large size of this species would make it susceptible to predation by introduced mammals. However, the probable subterranean habitat of larvae and pupae and arboreal habitat of adults would lessen this risk.</p> <p>Chrysomelid beetles are often monophagous or have a limited range of host plants. This may be significant to the conservation of this species if it is associated with any of the endemic plant species found on the Three Kings Islands, particularly those that are rare or have a limited distribution.</p>
<b>Work to date:</b>	Limited, non-targeted collecting.

**Management required:**

*Pilacolaspis* n. sp. was last collected in 1970. Survey work is required to confirm the species' presence on Great Island. Further surveying of outer islands in the Three Kings Islands group may extend the known distribution of this species.

Basic ecological information, such as any host plant associations, would aid in the understanding of the biology of this species. A possible association with *Meryta* (as indicated by specimen label data) should be investigated.

**Illustrations:**

See Fig. 11.

**Notes:**

All of the five known specimens are held in NZAC and were collected by E. S. Gourlay in 1963 (1 specimen) and during the DSIR's 1970 expedition to the islands (4). One specimen is labelled "*Pilacolaspis elephantopus* Gourlay, Det. E.S. Gourlay n.sp. 1963", however, this name was never published.

Craw and Watt (1987) considered this species to be referable to the genus *Pilocolaspis*. The described species of *Pilocolaspis* are restricted to the South Island. The Three Kings Islands species is by far the largest in the genus with all other species under 7 mm in length.

Figure 11: *Pilacolaspis* n. sp., dorsal view



## ***Platysus zelandicus***

- Scientific Name:** *Platysus zelandicus* Marris & Klimaszewski, 2001
- Synonyms:** None.
- Common Name:** None.
- Family:** Cucujidae
- Type Locality:** Three Kings Islands, Great Island. Held in NZAC.
- Conservation Status:** No formal status. *Platysus zelandicus* is the only representative of the family Cucujidae in New Zealand. The genus also occurs in eastern Australia and Tasmania. The family Cucujidae is the only beetle family found in New Zealand that is not represented on the mainland.
- Description:** Adult *P. zelandicus* (Fig. 12, 13) range from 12 to 17 mm in length, are elongate-oval in shape and are coloured dark brown. The most distinctive feature of this species is the very strongly dorso-ventrally flattened body shape (Fig. 13).
- Larvae (Fig. 14) range up to 36 mm in length and are elongate, parallel-sided and strongly flattened. They are easily recognised by their distinctive forked apparatus at the apex of the abdomen (tergum 9).
- Similar species:** None on the Three Kings Islands.
- Biology/Habitat:** *Platysus zelandicus* adults and larvae are typically found subcortically, particularly on large, old kanuka (*Kunzea ericooides*) trees where wind damage has caused bark to separate from the trunk. Some larvae have been collected from under bark flakes of pohutukawa (*Metrosideros excelsa*) and one larva was collected from under rocks in a scree slope under puka (*Meryta sinclairii*) forest. Although the adult beetles have fairly well developed wings, it is not known if they are capable of flight.
- Adults and larvae of *P. zelandicus* are believed to be predacious. *Platysus zelandicus* larvae have been reared on mealworm larvae.
- Platysus zelandicus* pupae are unknown. One mature larva was collected from under rocks, suggesting that larvae may migrate from their usual subcortical habitat to the ground to pupate.
- Distribution:** Three Kings Is distribution: Great I. ■, North East I. □, South West I. ■, West I. ■, Princes Is □
- Other distributions: Endemic to the Three Kings Islands. Several *Platysus* species are known from the eastern Australia and Tasmania.
- Threats:** *Platysus zelandicus* adults are relatively large, slow moving beetles, and are probably vulnerable to predation by mammalian predators. The subcortical habitat of the larvae would probably protect them from predation to some extent.
- Work to date:** Specimen collection. Larval rearing (Watt *et al.* 2001).
- Management required:** Survey for the presence of this species on North East Island.



**Illustrations:**

See Fig. 12, 13 and 14. Also see Watt *et al.* (2001) and Klimaszewski and Watt (1997).

**Notes:**

Known from only 12 adult specimens and around 50 larvae in NZAC and LUNZ.

**Figure 12:** *Platysus zelandicus*, dorsal view



**Figure 13:** *Platysus zelandicus*, lateral view



Figure 14: *Platysus zelandicus* larva, dorsal view



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