**Family: Tenebrionidae**

**Common name:** **Darkling beetles, false wireworms (larvae)**

**Order:** Coleoptera

**Family:** Tenebrionidae

**Taxonomic Name:** *Mimopeus parallelus* Watt, 1988

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NM

**Area Office:** South Marlborough

**Description:** A dark reddish-brown to reddish-black, darkling beetle (Watt 1988). The male is 10.4 mm long by 5.6 mm wide (based on holotype) (Watt 1992).

*Body length: 10.4 mm*

**Type Locality:** Banks of George Creek, lower Clarence Valley (near Clarence Bridge), Marlborough (Watt 1988).

**Specimen Holdings:** NZAC.

**Distribution:** Known only from the lower Clarence Valley (Watt 1988).

**Habitat:** Found under stones on river flats, usually around the bases of shrubs such as *Discaria* (matagouri) and a small leaved *Coriaria* (tutu). Larvae found under the same stones, but in the soil below, rather than directly beneath the stones (Watt 1988). Klimaszewski & Watt (1997) state that *Mimopeus* occasionally feeds on live plant tissue.

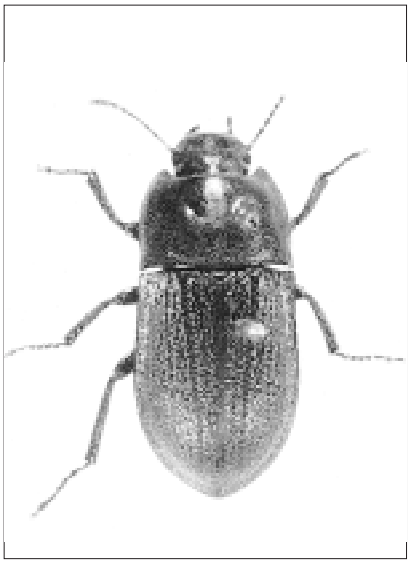
**Threats:** Not known.

**Work Undertaken to Date:** Two day survey in 1999/2000 (I. Millar pers. comm. 1999).

**Priority Research, Survey, and Monitoring:** 1) Survey to obtain an estimate of distribution and abundance, and determine whether this species is of conservation concern.

**Management Needs:** -

**Contacts:** Ian Millar.



*Permission: Manaaki Whenua Press.*
*Watt 1992, p 60, Fig. 35.*

**Order:** Coleoptera

**Family:** Tenebrionidae

**Taxonomic Name:** *Zeadelium gratiosum* (Broun, 1893)

**Common Names:** -

**Synonyms:** *Philoneis gratiosum* (Hudson 1951), *Pheloneis gratiosum* (Watt 1992), *Adelium gratiosum* (Broun 1880).

**M&D Category:** I

**Conservancy Office:** NM, WC, CA

**Area Office:** Golden Bay, Buller, Greymouth, Hokitika, North Canterbury, Waimakariri

**Description:** A shining, coppery-black, and slightly reddish, darkling beetle. The joints are pale rusty red-brown apart from the last joint of the palpi and the first joint of the antennae, which are pitchy-black (Broun 1893). The body is 17.9 mm long, and 8.3 mm wide (Watt 1992). The larva is dark bronzy-brown, and about 19 mm long when fully extended (Hudson 1951).

*Body length: 17.9 mm*

**Type Locality:** Capleston, Westland.

**Specimen Holdings:** NHML, MONZ, NZAC.

**Distribution:** Has been collected from Capleston, Westland (Watt 1992); Mt Glasgow 914 m; Otira River (AMNZ); Rahu Saddle, Inangahua Gorge; Boulder Lake, Nelson District; Orator Creek, Boulder Lake; Lewis Pass 1219 m; c 1066 m below Morgan Tarn, Paparoas (1984); Kirwans Hill 1219 m (MONZ, NZAC); Armstrong Reserve, Banks Peninsula (Johns 1986); around Arthur's Pass and the Waimakariri River (Hudson 1951). Possibly from Ada Pass 975 m; Mt Misery 490-1160 m; Cannibal Gorge, Upper Maruia River; Lewis Pass 1066 m; Mt Haast; Lake Tennyson, Marlborough; Barrack Creek, Otira Gorge 457 m, Westland; west of Chasm Creek, Westland; Mt Greenland, Westland (NZAC).

**Habitat:** This species have been collected from beech forest and tussock (NZAC). The main populations are found in dense, high rainfall, *Nothofagus* forests of the main alpine chain and north-west Nelson. The population isolated on Banks Peninsula is associated with relict *Nothofagus* forest (Johns 1986).

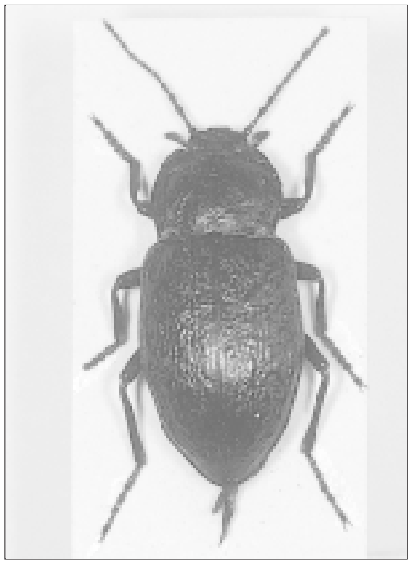


*Photo: Andrew Townsend.*

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Search suitable sites to clarify distribution and abundance (E. Kennedy pers. comm. 2000).

**Management Needs:** -

**Contacts:** Peter Johns.

**Family: Ulodidae (formerly Zopheridae)**

**Common name:** **False darkling beetles**

**Order:** Coleoptera

**Family:** Ulodidae (formerly Zopheridae)

**Taxonomic Name:** *Syrphetodes* sp.

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NL

**Area Office:** Kerikeri

*Body length: 12 mm*

**Description:** A mottled brown beetle, with a rough, knobbly back. The body is about 12 mm long.

**Type Locality:** Not described.

**Specimen Holdings:** NZAC.

**Distribution:** Waipoua Forest, 457 m; Waimatenui (Maddison 1991), eastern side of Waipou (historic) (AMNZ).

**Habitat:** Occur at altitudes over 300 m (Maddison 1991). Generally speaking, both stages of *Syrphetodes* species are found under loose bark of standing dead trees or logs and in rotten branches. Adults are also found on the underside of logs (Klimaszewski & Watt 1997).

**Threats:** Potential threats include rodent, possum, and hedgehog predation (Brook 1999c).

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey forested ranges in the Waipoua, Tutamoe, Mataraua, Waimatenui, and Waima areas, to determine the distribution and abundance of this species (Brook 1999c).

**Management Needs:** -

**Contacts:** -

*See Plate 3, No. 17.*

*Photo: Andrew Townsend.*

**Order: Diptera (Gr. *di*, two + *pteron*, wing)**

**Common name:** **Flies, ngaro**

**Family: Asilidae**

**Common name:** **Robber flies**

**Order:** Diptera

**Family:** Asilidae

**Taxonomic Name:** *Neoitamus* "tawahi" Macfarlane

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NL

**Area Office:** Whangarei

**Description:** An undescribed robber fly.

**Type Locality:** Not formally described.

**Specimen Holdings:** -

**Distribution:** Found on Aorangi Island and Tawhiti Rahi Island of the Poor Knights Islands group (Macfarlane 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** Pigs eradicated from Aorangi in 1936 (Powell 1938 cited in Penniket 1981).

**Priority Research, Survey, and Monitoring:** 1) Survey to obtain an estimate of distribution and abundance, and determine whether this species is of conservation concern.

**Management Needs:** -

**Contacts:** Rod Macfarlane.

**Order:** Diptera

**Family:** Asilidae

**Taxonomic Name:** *Neoitamus* "tetatus" Macfarlane

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NL

**Area Office:** Kaitaia

**Description:** An undescribed robber fly.

**Type Locality:** Not formally described.

**Specimen Holdings:** -

**Distribution:** Found on Great Island and South West Island in the Three Kings Islands group (Macfarlane 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** Goats introduced to Great Island 1889, eradicated from Great Island in 1946 (Turbott 1948).

**Priority Research, Survey, and Monitoring:** 1) Survey to obtain an estimate of distribution and abundance, and determine whether this species is of conservation concern.

**Management Needs:** -

**Contacts:** Rod Macfarlane.

**Order:** Diptera

**Family:** Asilidae

**Taxonomic Name:** *Neoitamus smithii* (Hutton, 1901)

**Common Names:** Inland common robber fly (Scott & Emberson 1999)

**Synonyms:** *Asilus smithii* (Hutton 1901)

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** Raukapuka, Aoraki

**Description:** A dark brown fly, with grey hairs on the abdomen. The legs are black and hairy. The wings are nearly colourless, with black veins. The male is 11 mm long, with the wing 10 mm long, the female is 12 mm long, with the wing 11 mm long (Hutton 1901).

*Body length: 12 mm*

**Type Locality:** Ashuburton.

**Specimen Holdings:** NZAC, OMNZ.

**Distribution:** Ashburton (Hutton 1901); Mt Algidus 609 m; Mt Rosa; Mt Cook 1371 m; Peel Forest; Porter River; Cass; White Rock; Lewis Pass; Grey River (Macfarlane 1992), and around the terminus of glaciers by Mt Cook (R. Macfarlane pers. comm. 2000).

**Habitat:** Mainly collected from upland tussock communities. It appears to prefer stony ground, and perhaps short grassland (R. Macfarlane pers. comm. 1999).

**Threats:** Not known. May be vulnerable to habitat degradation (R. Macfarlane pers. comm. 1999).

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey areas in Canterbury where this species has been collected before to determine if it is still present there. If it is present, obtain an estimate of its distribution and abundance.

**Management Needs:** -

**Contacts:** Rod Macfarlane.

*Photo: Andrew Townsend.*

**Order:** Diptera

**Family:** Asilidae

**Taxonomic Name:** *Saropogon* "rereke" Macfarlane

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WC

**Area Office:** Hokitika

**Description:** A black robber fly with white transverse stripes on the abdomen (Macfarlane 1992).

**Type Locality:** Not formally described.

**Specimen Holdings:** -

**Distribution:** Found in the Otira area on the West Coast of the South Island (Macfarlane 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Otira area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** Rod Macfarlane.

**Order:** Diptera

**Family:** Asilidae

**Taxonomic Name:** *Saropogon chathamensis* Hutton, 1901

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Chatham Islands

*Body length: 10 mm*

**Description:** A purplish-brown fly, with golden hairs. The wings are tinged brownish, with pitch-brown veins. The legs are rusty red-brown. The female body is 10 mm long, and the wing 10 mm long (Hutton 1901).

**Type Locality:** Chatham Islands (Hutton 1901).

**Specimen Holdings:** NZAC.

**Distribution:** Restricted to the Chatham Islands. It has been found at Wharekauri, Tioriori, and Te Matarae on Chatham Island; Pitt Island; Mangere Island (Macfarlane 1992); South East (Rangatira) Island (NZAC).

**Habitat:** Uncertain, but has been found in grassland to shrub areas behind sand dunes (Macfarlane 1992).

**Threats:** Not known.

**Work Undertaken to Date:** Last collected in 1991?

**Priority Research, Survey, and Monitoring:** 1) Survey the Chatham Islands group to determine the distribution and abundance of this species, and whether it is in need of conservation action.

**Management Needs:** -

**Contacts:** Rod Macfarlane.

*Photo: Andrew Townsend.*

**Order:** Diptera

**Family:** Asilidae

**Taxonomic Name:** *Zosteria novazealandica* Daniels, 1987

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NM

**Area Office:** Motueka

*Body length: 22 mm*

**Description:** A brownish-yellow to yellowish-black fly, with a yellow abdomen appearing like it is covered with a fine dust (pruinose) and covered with yellow hairs. The wings are transparent and glassy, with mainly deep brown to black veins, although some are yellow. The body is c. 22 mm long, the wing c. 14 mm long (Daniels 1987).

**Type Locality:** Dun Mountain tramline, Roding River source at Wooded Peak, 731 m (Daniels 1987).

**Specimen Holdings:** -

**Distribution:** Dun Mountain tramline, Roding River source at wooded peak, 731 m (Daniels 1987).

**Habitat:** Upper beech forest, at 650-800 m is the most likely habitat, although the scrub interchange zone is also a possibility. This species may be most active in January/ February (Macfarlane et al. 1997). The altitude from which Gourlay collected the specimen, combined with it being on the tramline means that it was almost certainly collected from beech forest, some distance prior to the serpentine zone on Mt Dun (I. Millar pers. comm. 2000).

**Threats:** Not known. Wasps (*Vespula* sp.) may influence prey availability (Macfarlane et al. 1997).

**Work Undertaken to Date:** Searched for on two occasions in consecutive summers without success (I. Millar pers. comm. 2000).

**Priority Research, Survey, and Monitoring:** 1) Survey higher altitude beech forest in the Bryant Range (I. Millar pers. comm. 2000).

2) Survey any relatively undisturbed grasslands and tussocks at the headwaters of the Motueka River on Red Hill and the Porter Ridges, and southwards (Macfarlane 1992).

**Management Needs:** -

**Contacts:** Rod Macfarlane.

**Family: Blephariceridae**

**Common name:** **Net-veined midges, net-wing midges, cascade flies**

**Order:** Diptera

**Family:** Blephariceridae

**Taxonomic Name:** *Nothohoraia micrognathia* Craig, 1969

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WC

**Area Office:** Buller

**Description:** A delicate fly, with iridescent violet on the wings (Foord 1990). The male is 4.9 mm long, the female 5.2 mm long, and the mature larva 3 - 5 mm long. The male wing is about 6 mm long (Craig 1969).

*Body length: 5.2 mm*

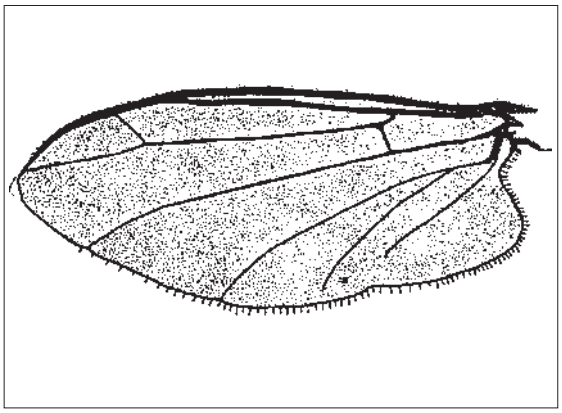
**Type Locality:** Fuchsia Creek, lower Buller Gorge (Craig 1969).

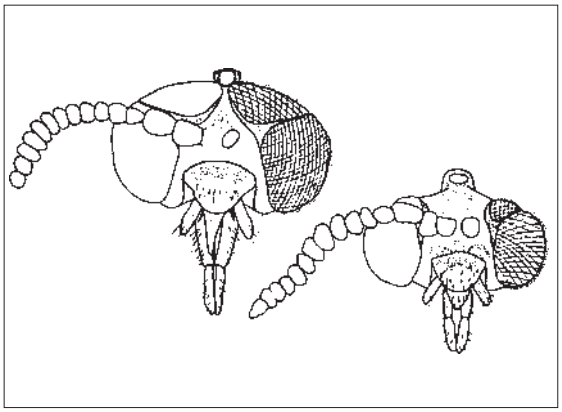
**Specimen Holdings:** -

**Distribution:** Fuchsia Creek, lower Buller Gorge (Craig 1969).

**Habitat:** Larvae live on rocks in fast flowing streams (Foord 1990).

**Threats:** Not known.





*Top: Male wing.*
*Bottom: Left: Front view of male head.*
*Right: Front view of female head.*
*Permission: SIR Publishing. Craig 1969, p 133, Figs. 51, 52, 55.*

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey streams in the Buller Gorge area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** Kevin Collier, Ian Millar.

**Family: Muscidae**

**Common name:** **House flies**

**Order:** Diptera

**Family:** Muscidae

**Taxonomic Name:** *Exsul singularis* Hutton, 1901

**Common Names:** Bat-winged fly (Scott & Emberson 1999), batwinged cannibal fly (Meads 1990a)

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WC, CA, SL, OT

**Area Office:** Buller, Franz Josef, South Westland, Waimakariri, Aoraki, Wanaka, Wakatipu, Te Anau.

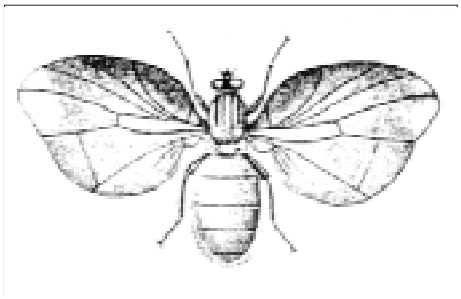
*Body length: 15 mm*

**Description:** A mostly black fly, with broad, enlarged wings in the male, but not the female (Patrick 1996b). The darkly pigmented male wings are about 13 mm long and 10 mm wide. The thorax has two distinct black longitudinal stripes on a dark grey background (Hutton 1901).

**Type Locality:** Milford Sound (Hutton 1901)

**Specimen Holdings:** NZAC, OMNZ, AMNZ, CMNZ, MONZ, LUNZ, NHML (Patrick 1996b).

**Distribution:** The fly may have a natural distribution from northern Fiordland to at least the Paparoa Range, West Coast. Since 1980 specimens have been collected from Castle Rocks (1520 m), Franz Joseph; Chancellor Dome (1250-1550 m), Fox Glacier; Mark Range (1100-1370 m), Westland; Arawhata River (760 m), Westland; Martyr River (1130 m), south Westland; Cameron Flat, Otago Lakes; Homer Tunnel (850 m); Paparoa Range. Additional sites collected from prior to 1980 include Milford Sound; the Routeburn Valley; Tutuko Beach, Darran Mountains; Arthurs Pass; Mount Moltke (1830 m), Franz Joseph; Bold Peak (1650 m), Humboldt Mountains; Dart River, Paradise, Lake Wakatipu; Mount Earnslaw (1400 m); Te Anau (Milford) Track; McKinnon Pass, Fiordland (Patrick 1996b); Awe Burn (1919); Cleddau Canyon (1946); Lochnagar Ridge, Paparoa Range; Mt Grey, Turret Ranges (R. Harrison pers. comm. 2000).



*Permission: G. Gibbs. Hudson 1951, Plate B, Fig. 1*

**Habitat:** Inhabits low-alpine to alpine meadows, particularly around streams. Often found sun-bathing on larger flat-topped lichen-encrusted rocks in or beside streams. Specimens have been collected from between 760 m and 1830 m (Patrick 1996b).

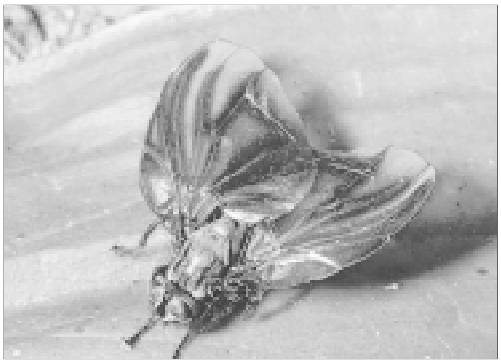


*Photo: Brian Patrick.*

**Threats:** Not known. Patrick (1996b) recommends removing from the list of threatened species in light of information from the field literature and collections.

**Work Undertaken to Date:** Literature and collection review conducted. Parts of Fiordland and the West Coast have been surveyed (B. Patrick pers. comm. 2000). Female currently being described (R. Harrison pers. comm. 2000).

**Priority Research, Survey, and Monitoring:** -

**Management Needs:** 1) Recommend that this species is removed from the list based on current available information.

**Contacts:** Brian Patrick, Roy Harrison.

**Family: Mystacinobiidae**

**Order:** Diptera

**Family:** Mystacinobiidae

**Taxonomic Name:** *Mystacinobia zelandica* Holloway, 1976

**Common Names:** New Zealand bat fly (Foord 1990, Scott & Emberson 1999)

**Synonyms:** -

**M&D Category:** I High Priority

**Conservancy Office:** NL

**Area Office:** Kerikeri

**Description:** A wingless, blind fly (Foord 1990) with reduced eyes. The head, thorax, and appendages are pale brown, the abdomen mainly creamish, opaque and membranous. The legs are long and bristly, with claws at the end, which are adapted for movement over bat fur. The body is 4.0 - 9.0 mm long in the male, and 4.5 - 8.5 mm long in the female. Creamish-white eggs are laid in clusters in roost wood, they are elongate-oval, measuring 1.5 by 0.3 mm (Holloway 1976). Males can produce a high-pitched 'zizzing' sound, like a high speed dentist's drill, by vibrating membranes near where the wings should be (Holloway 1976).

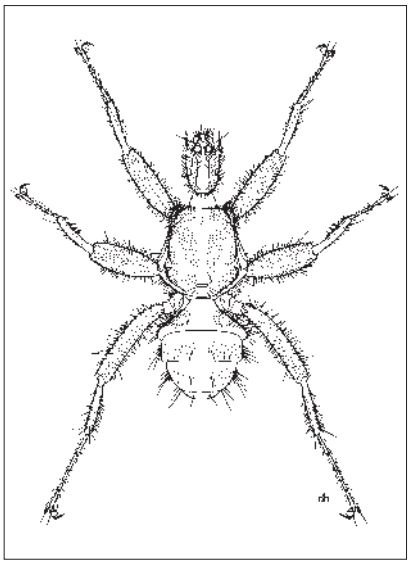
*Body length: 9 mm*

**Type Locality:** Kauri Sanctuary, Omahuta State Forest, Northland (Holloway 1976).

**Specimen Holdings:** MONZ, NZAC (Holloway 1976).

**Distribution:** Kauri Sanctuary, Omahuta State Forest, Northland; Little Barrier Island (Holloway 1976); Puketi Forest (Maddison 1991).

**Habitat:** Lives in large communities in roosts of the New Zealand short-tailed bat (*Mystacina tuberculata*) in hollow trees. A temperature of around 30°C is required for development and survival. Eggs are deposited mostly in fissures and beetle tunnels, in dry wood (Holloway 1976). Larvae and adults feed on the bat guano found in the roosts (Holloway 1976; Daniel 1979).



*Male.*
*Permission: SIR Publishing.*
*Holloway 1976, p 282, Fig. 3.*

**Sign of Presence:** Remains of eggs in roost wood or in guano below the roost (B. Holloway pers. comm. 2000).

**Threats:** This flies future depends upon the continuing survival of the New Zealand short-tailed bat, which provides food (guano), transport, and maintains the required temperature in the roost.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) When surveying bat roosts, observe how many have populations of *M. zealandica* present. This will allow an estimate of the distribution to be obtained over time.

**Management Needs:** -

**Contacts:** Beverley Holloway.

**Family: Tanyderidae**

**Order:** Diptera

**Family:** Tanyderidae

**Taxonomic Name:** *Mischoderus marginatus* (Edwards, 1923)

**Common Names:** -

**Synonyms:** *Tanyderus marginatus* (Edwards 1923b)

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Poneke

**Description:** A fly with a light ochreous head clothed with long brown hair. The front part of the thorax is dark brown in the middle, light ochreous at the sides, the middle part of the thorax is light grey with three brown stripes. The abdomen is dark brown on top, with rather narrow oblique white markings on each side of abdominal segments 2 - 6. The legs are yellowish and have long, conspicuous hairs. The wing ground-colour is mainly whitish, with the greater part of the surface covered by dark brown markings. The veins are yellowish. The wings are 17 mm long, 5 mm wide. The body is 15 mm long (Edwards 1923b).

*Body length: 15 mm*

**Type Locality:** In dense forest, ravine below reservoir, Wainui-o-mata, Wellington (Edwards 1923b).

**Specimen Holdings:** NZAC.

**Distribution:** Wainuiomata,Tararua.

**Habitat:** Adults associated with clean stony streams. Larvae not known (Collier 1992a). The holotype was taken in dense forest (Palma et al. 1989).

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey Wainuiomata and Tararua areas in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** Peter Johns, Kevin Collier.

**Order:** Diptera

**Family:** Tanyderidae

**Taxonomic Name:** *Mischoderus neptunus* (Edwards, 1923)

**Common Names:** -

**Synonyms:** *Tanyderus neptunus* (Edwards 1923a)

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Poneke

**Description:** A fly with fairly extensive and confluent dark areas on the wings (Edwards 1923a). Similar to a crane fly in appearance.

**Type Locality:** Wainuiomata,Wellington (Edwards 1923a).

**Specimen Holdings:** NHML.

**Distribution:** Wainuiomata,Wellington (Edwards 1923a).

**Habitat:** Adults associated with clean stony streams. Larvae not known (Collier 1992a).

**Threats:** Not known.

**Work Undertaken to Date:** -

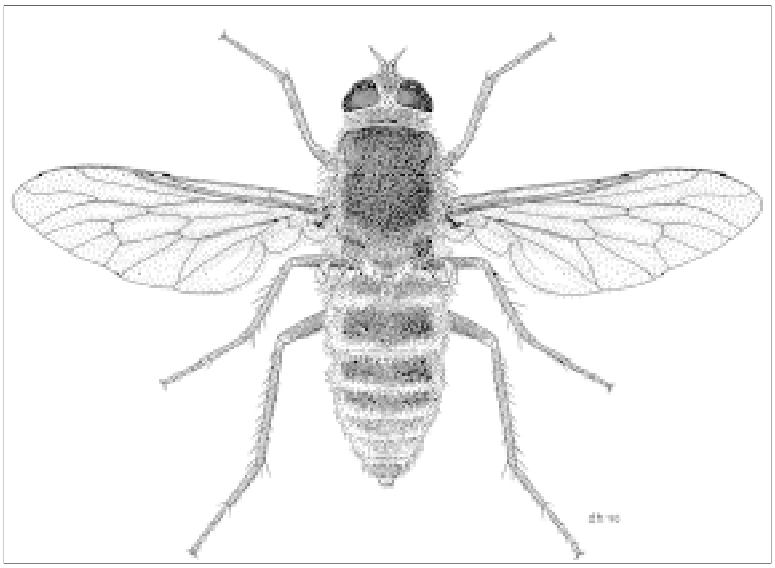
**Priority Research, Survey, and Monitoring:** 1) Survey Wainuiomata area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** Peter Johns, Kevin Collier.

**Family: Therevidae**

**Common name:** **Stiletto flies**



*Example of a typical male* Anabarhynchus *fly,* Anabarhynchus innotatus.
*Permission: Manaaki Whenua Press. Lyneborg 1992, p 74, Fig. 1.*

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus albipennis* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** Twizel

*Body length: 10 mm*

**Description:** A white-grey fly, with grey-black to grey-brown bands on the middle part of the thorax. The legs are mostly yellow-brown. The whitish wings are 7.5 mm long, transparent and glassy. The stigma and veins are pale brownish, and there are traces of brown along the veins. The body is about 10 mm long, and mostly covered with densely matted woolly hairs. The female is unknown (Lyneborg 1992).

**Type Locality:** Mackenzie, Lake Pukaki (Lyneborg 1992).

**Specimen Holdings:** ZMKD (Lyneborg 1992).

**Distribution:** Lake Pukaiki (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** Known from one male specimen only (Lyneborg 1992).

**Priority Research, Survey, and Monitoring:** 1) Survey Lake Pukaki to try and find additional specimens. If found, survey surrounding areas to determine the distribution and abundance of this species, and whether it is in need of conservation action.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus atratus* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** Waimakariri

*Body length: 10 mm*

**Description:** A slightly shiny, blackish fly, with ill marked greyish stripes on the middle part of the thorax, and blackish, slightly shiny bands on the abdomen. The legs are mostly blackish. The grey-brown wings are 7.5 mm long, transparent and glassy. The stigma and veins are dark brownish, and there are narrow brownish streaks along the veins closest to the body. The body is about 10 mm long. The female is unknown (Lyneborg 1992).

**Type Locality:** North Canterbury-Westland, Arthurs Pass, 750 m (Lyneborg 1992).

**Specimen Holdings:** NZAC (Lyneborg 1992).

**Distribution:** Arthurs Pass (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** Known from one male specimen only (Lyneborg 1992).

**Priority Research, Survey, and Monitoring:** 1) Survey Arthurs Pass to try and find additional specimens. If found, survey surrounding areas to determine the distribution and abundance of this species, and whether it is in need of conservation action.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus embersoni* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** Waimakariri

*Body length: 12 mm*

**Description:** A grey-black fly with blackish legs becoming brownish towards the 'feet'. The grey-brown wings are 9.5 mm long, transparent and glassy. The stigma is pale brownish, and the veins brown to brown-black. The body is 10 - 12 mm long, and mostly covered with densely matted woolly hairs (Lyneborg 1992).

**Type Locality:** North Canterbury, Craigieburn, Mt Wall, 1050 m (Lyneborg 1992).

**Specimen Holdings:** LUNZ (Lyneborg 1992).

**Distribution:** Mt Wall, Craigieburn (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Mt Wall area of the Craigieburn Range to determine the distribution and abundance of this species, and whether it is in need of conservation action.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus flaviventris* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Poneke

*Body length: 10.5 mm*

**Description:** A grey-brown unpatterned fly, with narrow yellow-brown to yellow-red lateral areas on the abdomen. The legs are yellow-brown. The wings are 8.4 mm long, transparent and glassy, with a yellowish tinge near the base. The veins are pale yellow-brown, and the stigma darker brownish. The body is about 10.5 mm long, and mostly covered with densely matted woolly hairs. The female is unknown (Lyneborg 1992).

**Type Locality:** Wellington (Lyneborg 1992).

**Specimen Holdings:** NHML (Lyneborg 1992).

**Distribution:** Wellington (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** Not collected since 1906 (Lyneborg 1992).

**Priority Research, Survey, and Monitoring:** 1) Survey the Wellington area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus fluviatilis* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NM

**Area Office:** South Marlborough

**Description:** A bluish white-grey unpatterned fly, with grey-black legs. The greyish wings are 7.8 - 9.8 mm long, transparent and glassy. The veins are blackish and the stigma dark brown. The body is 10 - 12 mm long, and mostly covered with densely matted woolly hairs (Lyneborg 1992).

*Body length: 12 mm*

**Type Locality:** Kowhai River, Kaikoura (Lyneborg 1992).

**Specimen Holdings:** NZAC (Lyneborg 1992).

**Distribution:** Kowhai River, Kaikoura (Lyneborg 1992).

**Habitat:** Possibly bare sandy ground (I. Millar pers. comm. 1999).

**Threats:** Unknown.

**Work Undertaken to Date:** Looked for at Kowhai River without success. A 2-day survey is planned for 1999/2000 (I. Millar pers. comm. 1999).

**Priority Research, Survey, and Monitoring:** 1) Survey the Kowhai River area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** Ian Millar.

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus fuscofemoratus* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** OT

**Area Office:** Coastal Otago

**Description:** A grey-brown/white-grey fly, with pure greyish on the sides. The legs are brownish-grey becoming yellowish-brown towards the 'feet'. The greyish wings are 6.8 mm long, transparent and glassy. The veins and stigma are brownish and translucent. The body is about 9 mm long and mostly covered with densely matted woolly hairs. Female unknown (Lyneborg 1992).

*Body length: 9 mm*

**Type Locality:** Dunedin, Portobello (Lyneborg 1992).

**Specimen Holdings:** OMNZ (Lyneborg 1992).

**Distribution:** Portobello, Dunedin (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Portobello area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus hudsoni* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Poneke

*Body length: 7.5 mm*

**Description:** A greyish fly, with three weak brown longitudinal stripes on the middle part of the thorax. The legs are yellow-brown. The uniformly grey-brown wings are 5.9 mm long, transparent and glassy. The veins and stigma are brown-black. The body is about 7.5 mm long, and mostly covered with densely matted woolly hairs. The female is unknown (Lyneborg 1992).

**Type Locality:** Wellington, karaka (*Corynocarpus laevigatus*) grove beyond Ohiro Bay (Lyneborg 1992). N.B. Ohiro Bay is likely to be a mis-spelling of Owhiro Bay.

**Specimen Holdings:** Hudson Collection MONZ.

**Distribution:** Karaka grove beyond Owhiro Bay, Wellington.

**Habitat:** Not known. Has been collected from a karaka (*Corynocarpus laevigatus*) grove.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Owhiro Bay area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus indistinctus* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** Waimakariri

**Description:** A uniformly greyish fly, with blackish legs. The grey-brown wings are 6.4 mm long, transparent and glassy. The veins and stigma are brown-black. The body is about 7 mm long, with the head and thorax covered with densely matted woolly hairs, and long, whitish pile present on the abdomen. The female is unknown (Lyneborg 1992).

*Body length: 7 mm*

**Type Locality:** North Canterbury, Westland, Arthurs Pass National Park, Andrews Stream (Lyneborg 1992).

**Specimen Holdings:** CISB (Lyneborg 1992).

**Distribution:** Arthurs Pass National Park, Andrews Stream (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Andrews Stream area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus olivaceus* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** Waimakariri

**Description:** A white-grey fly, with three broad olivaceous yellow-grey lateral bands on the thorax. The abdomen has brown-black anterior bands which contrast strongly with the white-grey hairy posterior. The legs are blackish. The wings are 6.8 - 7.0 mm long, and strongly speckled, with broad dark brown streaks along the veins leaving the centre of the wing cells whitish, transparent and glassy. The veins and stigma are brown-black. The body is 8 - 9 mm long, and mostly covered with densely matted woolly hairs. The male is unknown (Lyneborg 1992).

*Body length: 9 mm*

**Type Locality:** Bealey River, North Canterbury (Lyneborg 1992).

**Specimen Holdings:** NZAC (Lyneborg 1992).

**Distribution:** Bealey River, North Canterbury (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Bealey River area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus simplex* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** North Canterbury

*Body length: 5 mm*

**Description:** A brown-grey fly, with an irregular pattern on the thorax, and polished-black down the middle of the abdomen. The legs are blackish becoming brownish towards the 'feet'. The wings are 3.7 mm long, and dark greyish-brown on the outer half, especially in streaks along the veins with the half closest to the body being slightly more translucent and glassy. The veins and stigma are brown-black. The body is about 5 mm long, and mostly covered with densely matted woolly hairs. This is by far the smallest *Anabarhynchus* in New Zealand. The female is unknown (Lyneborg 1992).

**Type Locality:** Port Hills, North Canterbury (Lyneborg 1992).

**Specimen Holdings:** CMNZ (Lyneborg 1992).

**Distribution:** Port Hills, Mid Canterbury (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Port Hills area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus waitarerensis* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Kapiti

**Description:** A greyish fly, with three dark brownish stripes on the thorax, and blackish bands on the abdomen. The legs are blackish becoming brownish towards the 'feet'. The dark grey wings are 6.6 - 7.2 mm long, transparent and glassy. The veins are brown-black and the stigma pale brownish. The body is 7 - 9 mm long, and mostly covered with dense matted hairs (Lyneborg 1992).

*Body length: 9 mm*

**Type Locality:** Waitarere Beach, Levin (Lyneborg 1992).

**Specimen Holdings:** MONZ (Lyneborg 1992).

**Distribution:** Waitarere Beach, Levin (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Waitarere Beach area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

*See Plate 3, No. 18.*

*Photo: Andrew Townsend.*

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Anabarhynchus wisei* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** OT

**Area Office:** Wakatipu

**Description:** A grey-brown fly with a greyish abdomen. The thorax has a covering of rather long, erect, black pile. The legs are brownish. The grey-brown wings are 11 mm long, transparent and glassy. The veins and stigma are brownish. The body is 14.2 mm long, and mostly covered with pile. It is separated from all other stiletto flies by the presence of two strong bristles on its prosternum (the plate on the thorax by the front pair of legs). The male is unknown (Lyneborg 1992).

*Body length: 14.2 mm*

**Type Locality:** Central Otago, Routeburn (Lyneborg 1992).

**Specimen Holdings:** AMNZ (Lyneborg 1992).

**Distribution:** Routeburn, Central Otago (Lyneborg 1992).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Routeburn area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -

**Order:** Diptera

**Family:** Therevidae

**Taxonomic Name:** *Ectinorhynchus furcatus* Lyneborg, 1992

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** North Canterbury

**Description:** A blackish fly, with two white-grey stripes on the middle part of the thorax. The abdomen appears whitish from above. The legs are brownish-black. The wings are brownish tinged and 8.6 mm long. The stigma and areas around the cross-veins are brown-black. The body is about 10 mm long and covered in places by pile and densely matted woolly hairs. The female is unknown (Lyneborg 1992).

*Body length: 10 mm*

**Type Locality:** Lake Tennyson, Marlborough, 1220 m (Lyneborg 1992).

**Specimen Holdings:** NZAC (Lyneborg 1992).

**Distribution:** Lake Tennyson, Marlborough (Lyneborg 1992).

**Habitat:** Not known.

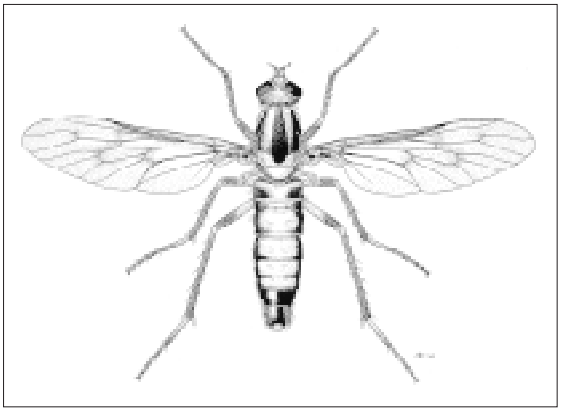
**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Lake Tennyson area in an attempt to locate this species and determine its distribution and abundance.

**Management Needs:** -

**Contacts:** -



*Example of a typical male* Ectinorhynchus *fly,*
Ectinorhynchus castaneus.
*Permission: Manaaki Whenua Press. Lyneborg 1992, p 74, Fig. 2.*

**Family: Tipulidae**

**Common name:** **Crane flies, daddy-long-legs, matua wairoa, matua waeroa, daddies, Te-tatau-o-te-whare-o-Maui. Larvae are sometimes called leather jackets (Foord 1990)**

**Order:** Diptera

**Family:** Tipulidae

**Taxonomic Name:** *Austrolimnophila* sp.

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** CA

**Area Office:** North Canterbury

*Body length: 13 mm*

**Description:** A flightless crane fly 10 - 13 mm long (P. Johns pers. comm. 1999).

**Type Locality:** Not described.

**Specimen Holdings:** PJNZ.

**Distribution:** Otepatotu Scenic Reserve, Banks Peninsula (P. Johns pers. comm. 1999).

**Habitat:** An autumn/winter species (P. Johns pers. comm. 1999).

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey the Otepatotu Scenic Reserve area in an attempt to locate this species and determine its distribution and abundance.

**Managements Needs:** -

**Contacts:** Peter Johns.

**Order:** Diptera

**Family:** Tipulidae

**Taxonomic Name:** *Gynoplistia troglophila* Alexander, 1962

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NM, WC

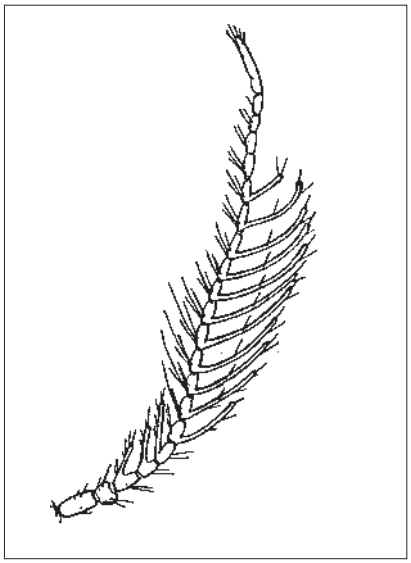
**Area Office:** Golden Bay, Buller

**Description:** A large cinnamon brown cranefly. The wings are 24 - 26 mm long, faintly yellowed, and have a conspicuous brown mottled pattern, including abundant dots in virtually all cells. The body is about 25 - 27mm long, and the antenna 6.5 - 6.8 mm (Alexander 1962, Townsend 1974). The species can be identified by looking at the male antennae, which have 21segments, 14 of which are branched (Alexander 1962).

**Type Locality:** A dry upper level of Wet Neck Cave, Paturau (Alexander 1962).

*Body length: 27 mm*

**Specimen Holdings:** NZAC.



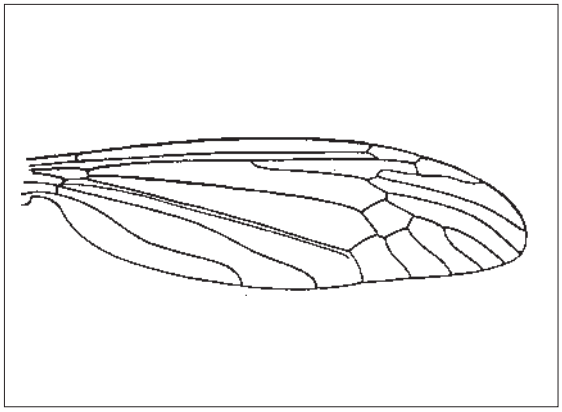
**Distribution:** Wet Neck Cave, Paturau, west Nelson (Alexander 1962; Johns 1991; Collier 1992b); Armageddon, Fox River; Cairns Catacombs, Punakaiki (Johns 1991).

**Habitat:** Adults usually found in upper dry levels (Collier 1992b) of caves, close to the entrance. No larvae yet found, but if they are similar to other members of the genus they may be predatory and found in specific habitats such as rotten wood, damp soils, stony stream bottoms, alpine bogs, and stream muds. They are unlikely to live in the mud and gravels found on cave floors owing to the lack of food there (Johns 1991).

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey caves in the Paturau area and the West Coast, in an attempt to locate this species and determine its distribution and abundance (I. Millar pers. comm. 1999).



**Management Needs:** -

**Contacts:** Peter Johns.

*Top: Male antenna.*
*Bottom: Male wing showing venation.*
*Permission: SIR Publishing. Alexander 1962, p 138, Figs. 1, 2.*

## Order: Hemiptera (Gr. *hemi*, half + *pteron*, wing)

**Common name:** **Bugs**

**Characteristics:** Mouthparts modified as a piercing beak. Forewings membranous or partially thickened.

### Family: Acanthosomatidae

**Order:** Hemiptera

**Family:** Acanthosomatidae

**Taxonomic Name:** *Rhopalimorpha (Lentimorpha) alpina* Woodward, 1953

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WC, SL

**Area Office:** Greymouth, Te Anau

**Description:** A yellowish-brown, elliptical bug, with the back sometimes tinged with reddish or orange. The male body is 8.07 - 8.20 mm long, the female 8.98 - 9.77 mm (M-C Lariviere 1995).

*Body length: 9.77 mm*

**Type Locality:** McKinnon Pass (M-C Lariviere 1995) (N.B. should be MacKinnon Pass).

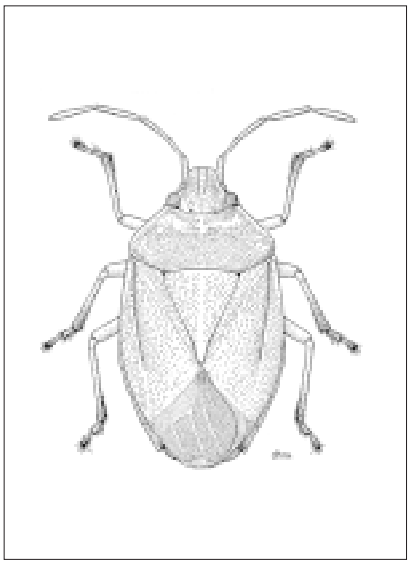
**Specimen Holdings:** AMNZ, NZAC, LUNZ.

**Distribution:** Croesus Knob, Paparoa Ranges; Mt Dewar, E; Lochnagar Ridge, Mt Priestly - Mt Dewar basins; MacKinnon Saddle, Milford Track, Fiordland National Park; Dun Mt; Mt Owen (M-C Lariviere 1995); Mt Domett; Blue Creek, Mt Owen 1158-1250 m; Possible specimen from Lewis Pass 1994 (NZAC).

**Habitat:** Has been collected in sod, under a rock (M-C Lariviere 1995), and on silver beech (*Nothofagus menziesii*) (NZAC). Most commonly found around 1000-1300 m. Adults collected in November, December and January. This bug has only limited dispersal capabilities (M-C Lariviere 1995).

**Threats:** Not known.

**Work Undertaken to Date:** Taxonomy, distribution and ecology work done on the species (Lariviere 1995). Currently updating distribution information (M-C Lariviere pers. comm. 2000).



*Permission: Manaaki Whenua Press.*
*Lariviere 1995, p 66, Fig. 7.*

**Priority Research, Survey, and Monitoring:** -

**Management Needs:** 1) Dependent on the outcome of the updated distribution results currently being worked on by M-C Lariviere.

**Contacts:** Marie-Claude Lariviere.

**Family: Cicadidae**

**Common name:** **Cicadas**

**Order:** Hemiptera

**Family:** Cicadidae

**Taxonomic Name:** *Maoricicada myersi* (Fleming, 1971)

**Common Names:** Orongorongo black cicada, Myers' cicada

**Synonyms:** *Cicadetta myersi* (Fleming 1971), *Melampsalta iolanthe* (of Myers, 1926, not *Cicada iolanthe* Hudson, 1891) (Wise 1977).

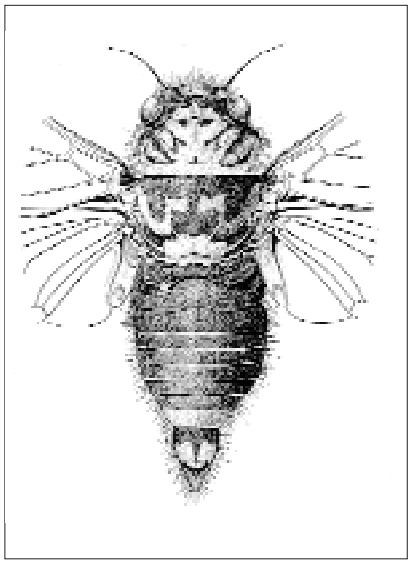
**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Poneke

**Description:** A small dark grey to black cicada with subdued paler areas on the back. These areas are fawn, or greenish, in recently moulted individuals. The body is 13 - 15 mm long, and the wingspan 28 - 33.5 mm They make a 'tut-who-o-o-o's hit it? who-o-o-s it hit it?' sound (Fleming 1971; Dugdale & Fleming 1978). *Maoricicada* species are distinguished from all other New Zealand cicadas mainly by the lack of pigment in a marginal linear cell near the front tip of the wings, by the predominantly dark body with short black, grey or yellowish hairs (Dugdale 1971a), and males by their lack of an alarm call when held (J. Dugdale pers. comm. 2000).

*Body length: 15 mm*



*Permission: SIR Publishing. Fleming 1971, p 455, Fig. 4.*

**Type Locality:** Gully west of Orongorongo River, Wellington.

**Specimen Holdings:** MONZ, NHML, NZAC.

**Distribution:** Known from a few localities in an area of about 6 km$^2$ in the Orongorongo Valley. Has been found at the bed and sides of the most prominent stream reaching the coastal plain between the Wainuiomata and Orongorongo River and the adjacent short gully to the west; steep gulch on the west side of Orongorongo River (east face of Cape Turakirae); the bulldozed road up the Orongorongo River, from 1.4 to 2.5 km above the mouth (Fleming 1971); North Basin, Green's Stream, c.1500 m; in the Orongorongo itself at least up to Brown's Stream, 1km above the mouth of Green's Stream (Dugdale & Fleming 1978); rock fan floor of gully debouching on coastal plain, 950 m west of Orongorongo River Mouth; Turakirae Head (Buckley 1998); and three locations around the coastline east from Turakirae Head (R. Stone pers. comm. 2000). (N.B. Some of these localities may be the same as each other, and need to be checked).

*Permission: Manaaki Whenua Press. Meads 1990a, p 54.*

**Habitat:** Virtually confined to the angular fan gravels of short steep streams, and the talus slopes and rock faces of their valley walls (Fleming 1971). They are found up to 600 m above the river bed (Meads 1990a). This cicada feeds and breeds on the herbs and grass of valley walls. Males can be found singing on bare talus and gravel up to about 30 m away from vegetation (Fleming 1971). Their season of emergence covers the period 19 November until 25 January. They probably emerge earlier than this, but rarely on the latter date, and are notably absent in February. They are apparently restricted from extending inland by forest.

**Sign of Presence:** The presence of nymphal exuviae (skins), and the sound of their song, is an indication of presence (J. Dugdale pers. comm. 2000).

**Threats:** Not known.

**Work Undertaken to Date:** Three sites around coastline east of Turakirae head were resurveyed in 1996/97 (R. Stone pers. comm. 2000).

**Priority Research, Survey, and Monitoring:** -

**Management Needs:** 1) Maintain habitat at selected sites.

**Contacts:** Mike Meads.

**Family: Cixiidae**

**Common name:** **Planthoppers**

**Order:** Hemiptera

**Family:** Cixiidae

**Taxonomic Name:** *Confuga persephone* Fennah, 1975

**Common Names:** -

**Synonyms:** -

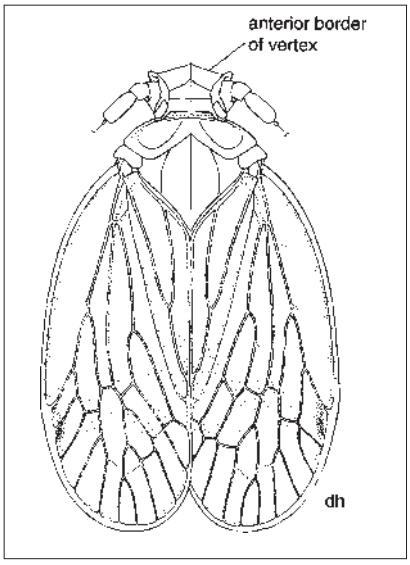
**M&D Category:** A

**Conservancy Office:** NM

**Area Office:** Golden Bay

**Description:** A pale yellowish-brown, planthopper, with creamy-white membranous areas. The tegmina (hard leathery parts of forewing) are dilute yellowish-brown, with brown veins (Fennah 1975). The eyes and ocelli (simple eyes) are reduced and unpigmented (Lariviere 1999). The male is 4.5 mm long, the female 5 mm long (Fennah 1975).

*Body length: 5 mm*




**Type Locality:** Council Cave, Takaka, Nelson (Fennah 1975).

**Specimen Holdings:** -

**Distribution:** Council Cave, Takaka (Fennah 1975). Possibly also from Paynes Ford Scenic Reserve but the specimen was immature and unable to be accurately identified (M-C. Lariviere pers. comm. 1999).

**Habitat:** A cave dweller. Adults have been collected from a limestone cave in December and March, nymphs in October, March, April and June. They feed on the roots of trees which penetrate well beneath the limestone surface (Lariviere 1999).

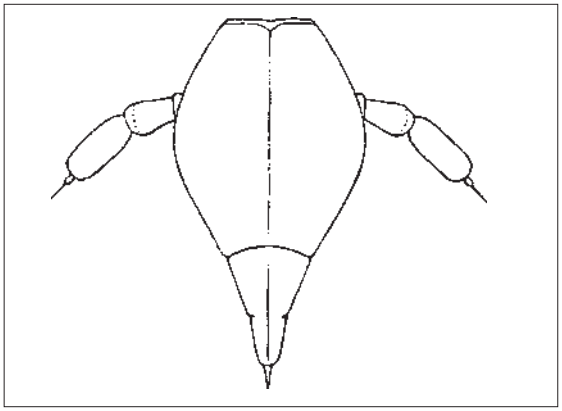
**Threats:** Not known.

**Work Undertaken to Date:** Cave invertebrate survey being conducted 1999/2000.

**Priority Research, Survey, and Monitoring:** 1) Dependent on outcome of survey being conducted 1999/2000.

**Management Needs:** 1) Dependent on outcome of survey being conducted 1999/2000.

**Contacts:** Marie-Claude Lariviere.



*Top: Adult.*
*Bottom: Frontal view of head.*
*Permission: Manaaki Whenua Press.*
*Lariviere 1999, p 70, Fig. 104, p58, Fig. 16.*

**Order:** Hemiptera

**Family:** Cixiidae

**Taxonomic Name:** *Huttia nigrifrons* Myers, 1924

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** NL, AU, WK, BP, EC/HB, TT, WL

**Area Office:** Kaitaia, Kerikeri, Whangarei, Warkworth, Auckland, Tauranga, Opotiki, Gisborne, Ruapehu, Poneke.

**Description:** A dark yellowish-brown to chocolate-brown planthopper, sometimes tinged with olive. There are sharply defined dark brown or blackish marks on the head and forewings. The forewings are transparent and glassy with yellowish-brown veins. The legs are also yellowish-brown. The male body is 4.3 - 5.3 mm long, the female 4.71 - 5.8 mm long (Lariviere 1999).

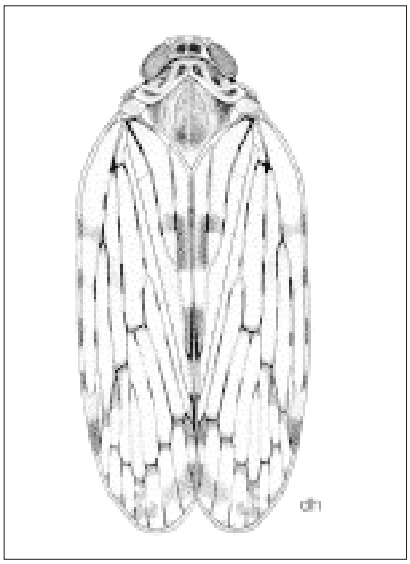
*Body length: 5.8 mm*

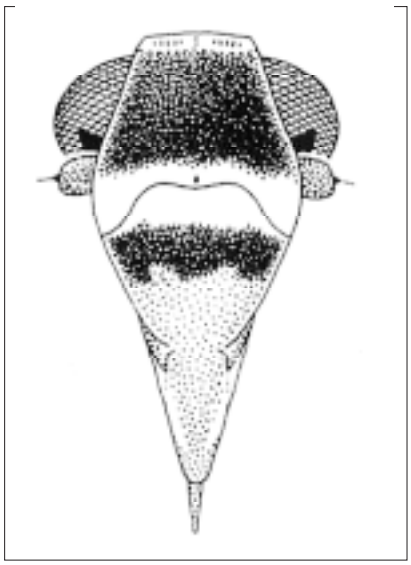
**Type Locality:** Upper Hutt (Lariviere 1999).

**Specimen Holdings:** NZAC, UCNZ, AMNZ.

**Distribution:** Found throughout the North Island including Motuti River; Ngaroku Stream, North Cape; Te Paki Coastal Reserve; Te Paki Trig Track; Tutukaka Harbour; Waikare River; Te Matua Ngahere, Waipoua State Forest; Mount Manaia, Whangarei Heads; Destruction Gully, Huia; Mangatangi Valley, Hunua Range; Sharps Bush, Waitakere Range; Little Barrier Island at the Bunkhouse area, and Thumb Track; Wright Rd end, Aongatete Lodge Track, Kaimai-Mamaku Forest Park; Waenga Bush, Lottin Point Rd; Te Puia Hut, Orete Forest; Waimana Valley and Waiaroho, Urewera National Park; Ohakune, Upper Hutt (Lariviere 1999).

**Habitat:** Lowland mixed podocarp-broadleaf forests and their margins, where it is mostly found on podocarp trees. It has also been collected from coastal shrubs; the podocarps rimu (*Dacrydium cupressinum*), and monoao (*Halocarpus kirkii*); on miro (*Prumnopitys ferruginea*), and found once on young tree ferns. Adults mostly collected in October, November (Lariviere 1999).





*Left: Adult.*
*Right: Frontal view of head.*
*Permission: Manaaki Whenua Press.*
*Lariviere 1999, p 71, Fig. 105, p58, Fig. 17.*

**Threats:** None known. A fairly well distributed but never locally abundant species (Lariviere 1999).

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) None required.

**Management Needs:** 1) None required at present.

**Contacts:** Marie-Claude Lariviere.

**Order:** Hemiptera

**Family:** Cixiidae

**Taxonomic Name:** *Malpha cockrofti* Myers, 1924

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WC

**Area Office:** Buller, Hokitika

**Description:** A brownish-yellow planthopper, tinged with orange or red. The forewings are transparent and glass-like, and marked with chocolate-brown. The veins are orange-brown or alternately brown and whitish, becoming somewhat thickened and continuously dark towards the wing-tips. The legs are brownish-yellow tinged with orange. The male body is 3.95 - 4.06 mm long (3 specimens checked), the female 4.06 - 4.39 mm long (2 specimens checked) (Lariviere 1999).

*Body length: 4.39 mm*

**Type Locality:** Otira.

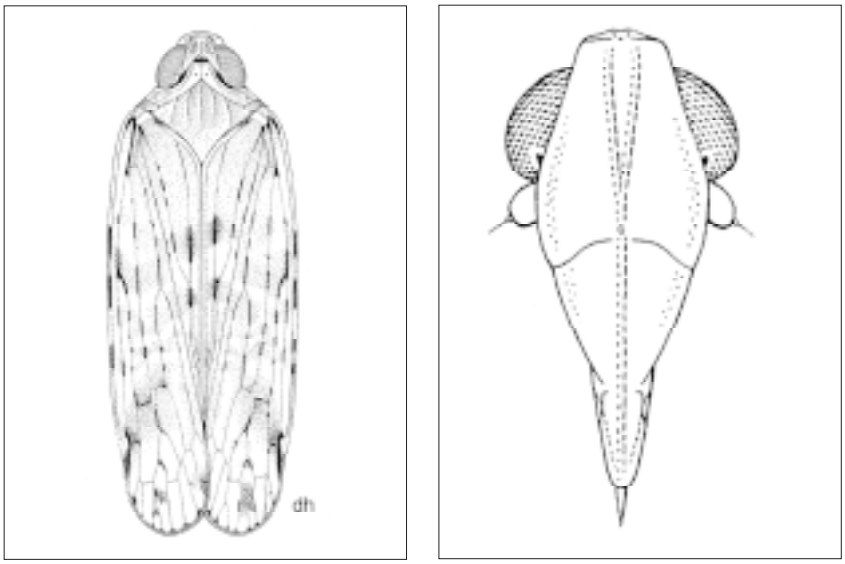
**Specimen Holdings:** NZAC (Lariviere 1999).

**Distribution:** Known from the west coast of the South Island at Dublin Terrace, Buller Gorge; Fletchers Creek; adj. Croesus Knob, Paparoa Range; Bucklands Peak; Otira (Lariviere 1999).

**Habitat:** Occurs in lower mountains to subalpine habitats. Has been beaten from leatherwood (*Olearia colensoi*), and one specimen from *Celmisia* flowers (Lariviere 1999).

**Threats:** Not known.

**Work Undertaken to Date:** -




*Left: Adult.*
*Right: Frontal view of head.*
*Permission: Manaaki Whenua Press.*
*Lariviere 1999, p 71, Fig. 108, p59, Fig. 19.*

**Priority Research, Survey, and Monitoring:** 1) Survey to obtain an estimate of distribution and abundance, and determine whether this species is of conservation concern.

**Management Needs:** -

**Contacts:** Marie-Claude Lariviere.

**Order:** Hemiptera

**Family:** Cixiidae

**Taxonomic Name:** *Malpha muiri* Myers, 1924

**Common Names:** -

**Synonyms:** *Malpha iris* (Lariviere 1999).

**M&D Category:** I

**Conservancy Office:** WL, WC

**Area Office:** Poneke, Wairarapa, Greymouth

**Description:** A pale yellowish-brown planthopper, sometimes tinged with orange or red, marked with brown. The forewings are transparent and glassy, with either pale yellowish-brown veins close to the body, or alternately brown and whitish veins, becoming thicker and continuously dark as they progress towards the tips of the wings. The legs are yellowish. The male body is 3.81 - 4.31 mm long (3 specimens examined), the female 4.51 - 5.29 mm long (2 specimens examined) (Lariviere 1999).

*Body length: 5.29 mm*

**Type Locality:** Mt Alpha, 1097 m, Tararua Ranges.

**Specimen Holdings:** NZAC (Lariviere 1999).

**Distribution:** Mt Alpha, Tararua Range; York Bay; Lewis Pass (Lariviere 1999).

**Habitat:** Has been collected from the undergrowth of shrubby *Senecio* and *Olearia* in a *Nothofagus* forest (Lariviere 1999).

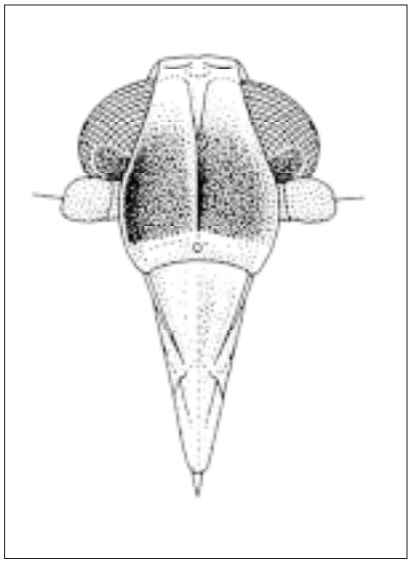
**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey to obtain an estimate of distribution and abundance, and determine whether this species is of conservation concern.

**Management Needs:** -

**Contacts:** Marie-Claude Lariviere.



*Frontal view of head.*
*Permission: Manaaki Whenua Press.*
*Lariviere 1999, p 29, Fig. 20.*

*Photo: L. L. Deitz.*
*Permission: Landcare Research (NZ) Ltd.*

**Order:** Hemiptera

**Family:** Cixiidae

**Taxonomic Name:** *Semo harrisi* (Myers, 1924)

**Common Names:** -

**Synonyms:** *Huttia harrisi, Semo westlandiae* (Lariviere 1999).

**M&D Category:** I

**Conservancy Office:** NM, WC, CA, OT, SL

**Area Office:** Motueka, Buller, Greymouth, Hokitika, Franz Josef, South Westland, Coastal Otago, Aoraki, Te Anau, Southern Islands, Murihiku

*Body length: 5.17 mm*

**Description:** A pale yellowish or brownish planthopper, often with a rusty tinge. The forewings are opaque brown or whitish-brown, often pale in the proximal third (near the point of attachment to the body). There are rather large brown patches or heavy brown mottling across the midportion of the forewings, with smaller scattered spots towards the wing-tips. The veins are yellowish-brown. The legs are yellowish-brown to dark brown. The male body is 3.48 - 4.40 mm long, the female 3.73 - 5.17 mm long (Lariviere 1999).

**Type Locality:** West Coast, South Island.

**Specimen Holdings:** NZAC, UCNZ, LUNZ, OMNZ (Lariviere 1999).

**Distribution:** Has been recorded from the west coast of the South Island; western Stewart Island; Owaka, eastern Southland (see Lariviere 1999 for full details).

**Habitat:** Inhabits montane to subalpine shrublands and grasslands, often in the vicinity of streams. Apparently in podocarp-broadleaf forest on Stewart Island. Found mainly on *Dracophyllum* species, including *D. traversii* and *D. longifolium*. It has also been recorded from mingimingi (*Coprosma propinqua*), mountain holly (*Olearia ilicifolia*), *Hebe* sp., tussocks, and other, yet undetermined, subalpine plants (Lariviere 1999).

**Threats:** Not known.

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey to obtain an estimate of distribution and abundance, and determine whether this species is of conservation concern.

**Management Needs:** -

**Contacts:** Marie-Claude Lariviere.

**Family: Pentatomidae**

**Common name:** **Shield bugs, stink bugs**

**Order:** Hemiptera

**Family:** Pentatomidae

**Taxonomic Name:** *Hypsithocus hudsonae* Bergroth, 1927

**Common Names:** -

**Synonyms:** *Hynsithocus hudsonae* (in error for *Hypsithocus*)(Bergroth 1927)

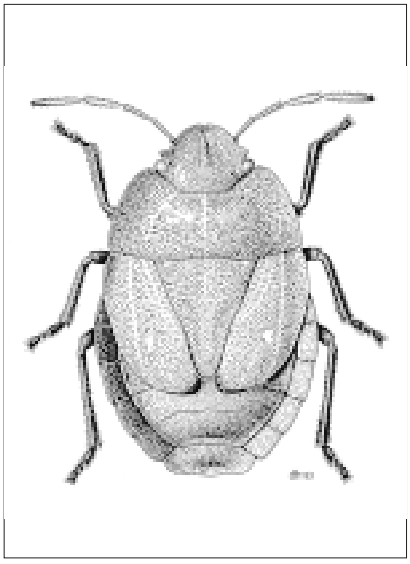
**M&D Category:** I High Priority

**Conservancy Office:** OT

**Area Office:** Wakatipu, Central Otago

**Description:** A dark brown or black shield bug, with coarse irregular punctures on the back. The basal portion of the hemelytra (forewing), and connexivum (side of abdomen) are narrowly greenish-white or yellowish-white. The antennae are 5-segmented, and brownish-orange to brownish-black. The calli (lumps on the top of the pronotum) are creamy brown. The scutellum (triangular part on the top-side of the thorax) sometimes has a whitish spot and a creamy white margin around the tip. The corium (thickened front part of the forewing) sometimes has a creamy spot on the central upper surface. Ocelli (simple eyes) are lacking. The male body is 6.77 - 7.55 mm long, the female 8.33 - 9.24 mm long (Lariviere 1995). This is a unique species on a global scale (Lariviere pers. comm. 1999).

*Body length: 9.24 mm*



*Permission: Manaaki Whenua Press. Lariviere 1995, p 68, Fig. 15.*

**Type Locality:** Above the bushline at Lake Wakatipu (Bergroth 1927).

**Specimen Holdings:** AMNZ, NZAC.

**Distribution:** This species has a restricted, disjunct distribution in subalpine and alpine environments in Central Otago (Lariviere 1995). It has been collected from the Remarkables 1371 m; Old Man Range 1432 m; south ridge, Mt Dick 1463 m, Eyre Mountains; Ben Lomond; a possible specimen from the Rock and Pillar Range 1220-1311 m (NZAC); Harris Mountains; Richardson Mountains; Umbrella Mountains (Edwards 1999).

**Habitat:** Occurs in subalpine and alpine environments in Central Otago (Lariviere 1995). Has been found under *Pimelea* sp.; on snow mountain daisy (*Celmisia viscosa*) (NZAC); crawling around on mat plants; and from *Hebe odora* on a couple of occasions. *Hebe odora* is the likely host plant (Lariviere 1995).

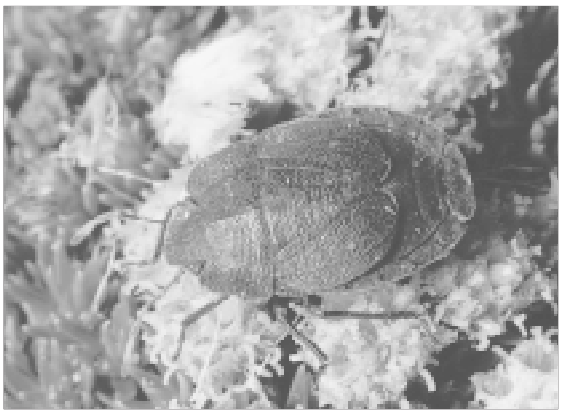


*Photo: Brian Patrick.*

**Threats:** Occurs in habitats that are currently at risk (Lariviere 1995), and because this species has limited dispersal power, the loss of patches of habitat could lead to local population extinctions. Only known from five populations (Lariviere 1995).

**Work Undertaken to Date:** Taxonomy, distribution and ecology work done on the species (Lariviere 1995). Currently updating distribution information (Lariviere pers. comm. 2000).

**Priority Research, Survey, and Monitoring:** 1) Survey suitable sites in and around the Remarkables, Old Man Range, Eyre Mountains, Ben Lomond, and Rock and Pillar Range.

**Management Needs:** -

**Contacts:** Marie-Claude Lariviere.

**Family: Reduviidae**

**Common name:** **Assassin bugs**

**Order:** Hemiptera

**Family:** Reduviidae

**Taxonomic Name:** *Empicoris aculeatus* (Bergroth, 1927)

**Common Names:** -

**Synonyms:** *Ploeariodes aculeatus* (Bergroth 1927)

**M&D Category:** I

**Conservancy Office:** AU

**Area Office:** Warkworth

**Description:** A brownish assassin bug with a narrow abdomen, and whitish legs. The female is 4 mm long, 4.5 mm long including tegmen (the hard leathery forewing). The wing cases are subtransparent and glassy, with dark grey almost black spots, becoming smaller and lighter-grey closer to the body. The wings are also subtransparent and glassy, and dusky at the tips (Bergroth 1927). It is possible that this may be the same species as *Empicoris angulipennis* (M-C Lariviere pers. comm. 1999).

*Body length: 4.5 mm*

**Type Locality:** Northern Auckland (Bergroth 1927).

**Specimen Holdings:** -

**Distribution:** Northern Auckland (Bergroth 1927). It is suspected that the distribution is wider than can be assumed from the original descriptions, which is just about all that has been published on the subject (M-C Lariviere pers. comm. 1999).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** Marie-Claude Lariviere is producing a catalogue of all New Zealand Heteroptera.

**Priority Research, Survey, and Monitoring:** 1) Determine if this is the same species as *Empicoris angulipennis*.

**Management Needs:** -

**Contacts:** Marie-Claude Lariviere.

**Order:** Hemiptera

**Family:** Reduviidae

**Taxonomic Name:** *Empicoris angulipennis* (Bergroth, 1927)

**Common Names:** -

**Synonyms:** *Ploeriodes angulipennis* (Bergroth 1927)

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Wairarapa

**Description:** A brownish assassin bug, with short white silvery hairs on parts of the head. The abdomen is narrow, opaque, and dark brown, almost black, with a greyish bloom. The forelegs are dark brown, almost black, the hindlegs are whitish, with eight dark brown, almost black, rings around them. The basal (closest to point of attachment) part of the elytra is whitish, with two rows of dark grey, almost black, spots. The spots of the exterior row are small and narrow, those of interior row are larger, rounded, and divided into half by a white median vein. The rest of the elytra is greyish-brown with white veins, and rather densely reticulated with white. The male is 5.4 mm long, 6.4 mm including tegmina (hard leathery forewings) (Bergroth 1927). It is possible that this may be the same species as *Empicoris aculeatus* (M-C Lariviere pers. comm. 1999).

*Body length: 6.4 mm*

**Type Locality:** Masterton (Bergroth 1927).

**Specimen Holdings:** -

**Distribution:** Masterton (Bergroth 1927). It is suspected that the distribution is wider than can be assumed from the original descriptions, which is just about all that has been published on the subject (M-C Lariviere pers. comm. 1999).

**Habitat:** Not known.

**Threats:** Not known.

**Work Undertaken to Date:** Marie-Claude Lariviere is producing a catalogue of all New Zealand Heteroptera.

**Priority Research, Survey, and Monitoring:** 1) Determine if this is the same species as *Empicoris aculeatus*.

**Management Needs:** -

**Contacts:** Marie-Claude Lariviere.

**Order:** Hemiptera

**Family:** Reduviidae

**Taxonomic Name:** *Empicoris seorsus* (Bergroth, 1927)

**Common Names:** -

**Synonyms:** *Ploeariodes seorsus* (Bergroth 1927)

**M&D Category:** I

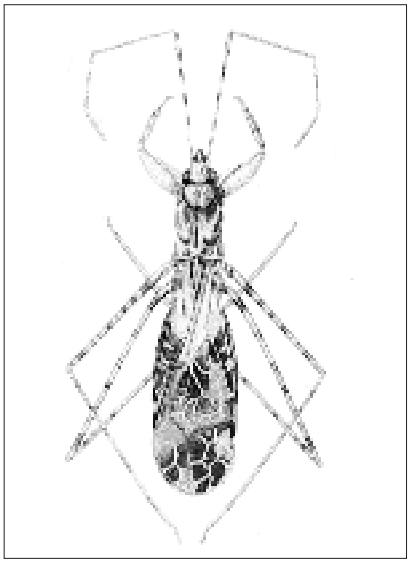
**Conservancy Office:** NL, AU, WK, WL

**Area Office:** Whangarei, Auckland, Hauraki, Poneke

**Description:** A short and robust, rusty red-brown assassin bug, with the elytra brownish-yellow at the base. The abdomen is oval, being 2.5 to 3 times broader than the thorax. The forelegs are reddish-brownish-yellow, with the mid and hindlegs being paler in colour. The male is 3.3 mm long, the female 3.7 mm long (Bergroth 1927). This is a highly distinctive species, from a global perspective (M-C. Lariviere pers. comm. 1999).

*Body length: 3.7 mm*

**Type Locality:** Wainui State Forest, Wellington (Wygodzinsky 1979).



**Specimen Holdings:** NZAC.

**Distribution:** Wainui State Forest, Wellington; Kennedy Bay Rd, Coromandel Peninsula; stream bank at Wattle Bay, Auckland City (Wygodzinsky 1979); Puweto Valley, Aorangi, Poor Knights Island (NZAC).

**Habitat:** Has been found in leaf litter, on a stream bank (Wygodzinsky 1979), and on a dead weeping matipo (*Myrsine divaricata*) (NZAC).

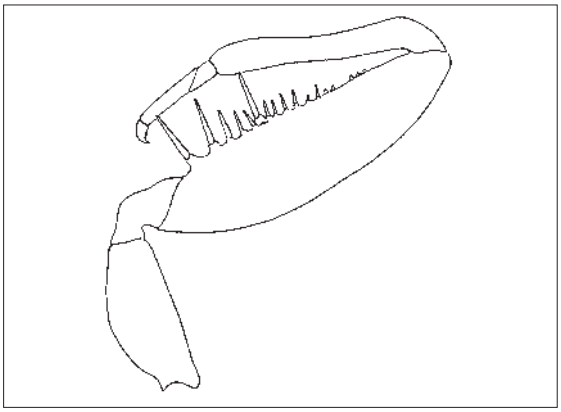
**Threats:** Not known.

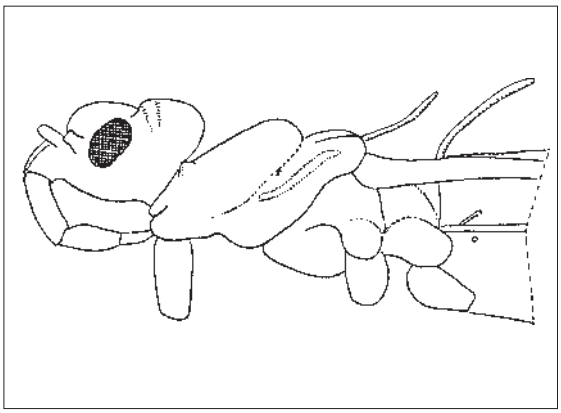
**Work Undertaken to Date:** Marie-Claude Lariviere is producing a catalogue of all New Zealand Heteroptera.

**Priority Research, Survey, and Monitoring:** 1) Survey sites at which this species has previously been collected to get an estimate of abundance in those sites. If found, expand search to try and obtain an estimate of distribution.

**Management Needs:** -

**Contacts:** Marie-Claude Lariviere.





*Top: Adult.*
*Left: Foreleg.*
*Right: Anterior portion of male body, lateral aspect.*
*Permission: SIR Publishing.*
*Wygodzinsky 1979, p 54, Fig. 1, p 55, Figs. 2a, c.*

## Order: Lepidoptera (Gr. *lepidos*, scale + *pteron*, wing)

**Common name:** **Moths and butterflies**

**Characteristics:** Wings covered with scales

## Family: Crambidae

**Common name:** **Grass moths, crambus moths, tussock moths**

**Order:** Lepidoptera

**Family:** Crambidae

**Taxonomic Name:** *Orocrambus* "Mackenzie Basin"

**Common Names:** -

**Synonyms:** -

**M&D Category:** I High Priority

**Conservancy Office:** CA

**Area Office:** Twizel

*Wingspan: 27 mm*

**Description:** A glossy, greenish-brown-grey crambid moth. The female is very small, and short-winged (B. Patrick pers. comm. 1999).

**Type Locality:** Not described.

**Specimen Holdings:** -

**Distribution:** Locally common in south-eastern Mackenzie country only (B. Patrick pers. comm. 1999).

**Habitat:** Stony short tussock grassland, in flat areas of dry Mackenzie country (B. Patrick pers. comm. 1999). Adults emerge in late summer-early autumn (Patrick & Dugdale 2000).

**Sign of Presence:** Adult males come to light (B. Patrick pers. comm. 1999).

**Threats:** Intensification of farming, ploughing, and modification of habitat (Patrick & Dugdale 2000).

**Work Undertaken to Date:** Surveyed across Mackenzie country. Intensive searching for adult female resulted in finally locating the tiny adults (B. Patrick pers. comm. 1999).

**Priority Research, Survey, and Monitoring:** 1) Basic information on hosts and distribution needed.

2) Systematics required to sort out relationships (B. Patrick pers. comm. 1999).

**Management Needs:** 1) Maintain habitat at selected sites.

**Contacts:** Graeme White, Brian Patrick.

*See Plate 1, No. 13, No. 14.*

*Top: Male.*
*Bottom: Female.*
*Photos: Brian Patrick.*

**Order:** Lepidoptera

**Family:** Crambidae

**Taxonomic Name:** *Orocrambus fugitivellus* (Hudson, 1950)

**Common Names:** -

**Synonyms:** *Crambus fugitivellus* (Hudson 1951)

**M&D Category:** I High Priority

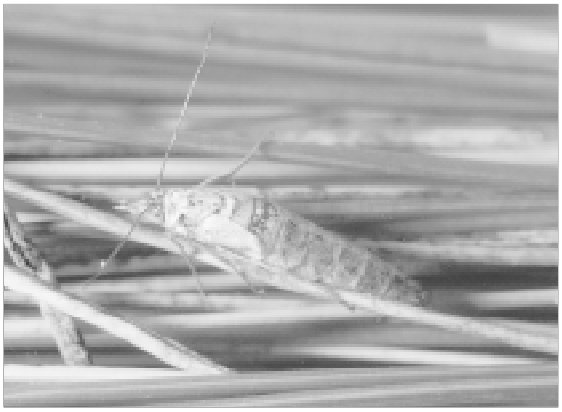
**Conservancy Office:** CA

**Area Office:** Twizel

**Description:** A small, striped, diurnal moth (B. Patrick pers. comm. 1999). The body is mostly white. The forewings are bronzy-yellow with a slight tinge of brown, much paler towards the base, with a moderately broad white streak along the front edge, another longitudinally through the middle of the wing, and a shaded white band along the hind edge. The hindwings are white, very faintly tinged with brown, and clouded with darker yellow with a slight tinge of brown on the outer edges (Hudson 1951). The female has extremely short wings (B. Patrick pers. comm. 1999). The male has a wingspan of 18 - 19 mm (Gaskin 1975).

*Wingspan: 19 mm*

**Type Locality:** Mackenzie country, Canterbury (Hudson 1951).



*Top: Male.*
*Bottom: Female.*
*Photos: Brian Patrick.*

**Specimen Holdings:** Hudson Collection MONZ, NZAC, OMNZ.

**Distribution:** Known only from the Mackenzie plains at, Old Haldon Road area, Grays River Flats, east Mackenzie plains 580 m (Gaskin 1987; Patrick 1992b).

**Habitat:** Biology and host are unknown (Patrick & Dugdale 2000). It has been found only in one small area of exotic grassland with some native sedges, in a seasonally wet area (Patrick 1992b). Gaskin (1987) lists it as being in short reddish unidentified grasses. The flight period is believed to be January/ February (Gaskin 1975; Patrick 1992b).

**Threats:** Development of the habitat, and intensification of farming (Patrick 1992b; B. Patrick pers. comm. 1999).

**Work Undertaken to Date:** Much survey work has been done in the area (B. Patrick pers. comm. 1999).

**Priority Research, Survey, and Monitoring:** 1) Monitor with and without grazing to ascertain best regime.

2) Determine biology and host plant(s) (B Patrick pers. comm. 1999).

**Management Needs:** 1) Maintain habitat at selected sites.

**Contacts:** Graeme White, Brian Patrick.

*See Plate 1, No. 15, No. 16*

**Order:** Lepidoptera

**Family:** Crambidae

**Taxonomic Name:** *Orocrambus sophronellus* (Meyrick, 1885)

**Common Names:** -

**Synonyms:** *Crambus sophronellus* (Hudson 1951)

**M&D Category:** I High Priority

**Conservancy Office:** CA, OT

**Area Office:** Waimakariri, Wakatipu.

**Description:** A moth with uniformly greyish forewings, thinly speckled with brown. The female wingspan is 18 mm. The male is unknown. The illustration given by Hudson (1928, pl. xx, fig. 43) as the male of *O. sophronellus,* is in fact of a form of *O. cyclopicus* (Gaskin 1975).

*Wingspan: 18 mm*

**Type Locality:** ?Christchurch Mid Canterbury (Dugdale 1988). More likely to be Castle Hill Basin (Patrick & Dugdale 2000).

**Specimen Holdings:** NHML.

**Distribution:** Mid Canterbury (Patrick & Dugdale 2000).

*Top: Male.*
*Bottom: Female.*
*Photos: Brian Patrick.*

**Habitat:** Grasslands, short tussock, larvae likely on hard tussock (*Festuca novaezelandiae*) (Peat & Patrick 1999).

**Threats:** Development of valley floors (Peat & Patrick 1999).

**Work Undertaken to Date:** Has not been positively recollected recently, but several similar specimens collected. Surveyed Central Otago and Mackenzie Country (B. Patrick pers. comm. 1999).

**Priority Research, Survey, and Monitoring:** 1) Determine if *Orocrambus sophronellus, O. lindsayi*, and *O. sophistes* are separate species or all the same species because there is similarity in their original descriptions. *O. lindsayi* is a likely synonym of *O. sophistes. O. sophronellus* is not illustrated correctly in Hudson (1928), and may be the same species as *O. sophistes* (B. Patrick pers. comm. 1999).

**Management Needs:** 1) Maintain habitat at selected sites.

**Contacts:** Graeme White, Brian Patrick.

*See Plate 1, No. 17, No. 18.*

**Family: Geometridae**

**Common name:** **Looper moths, tawhana, geometrid moths, earth measurers, geometers, yardstick moths**

**Order:** Lepidoptera

**Family:** Geometridae

**Taxonomic Name:** *Asaphodes stinaria* (Guenee, 1868)

**Common Names:** -

**Synonyms:** *Xanthorhoe stinaria* (Dugdale 1971b), *Camptogramma stinaria, Larentia stinaria* (Meyrick 1884)

**M&D Category:** A

**Conservancy Office:** WC, OT (previously also TT, WG, EC/HB, WL, CA, SL)

**Area Office:** Coastal Otago, Wakatipu, South Westland

**Description:** A moth with mid-brown forewings, and paler brown hindwings. The forewings have two narrow white transverse bands on them. The outer band occurs about 3 mm in from the outside edge of the wing, and spans the entire width. The inner band occurs about 6.5 mm in from the outside of the wing, and only spans about two-thirds of its width, starting at its hind edge and tapering to a point. The wingspan is about 25 mm (Hudson 1928).

*Wingspan: 25 mm*

**Type Locality:** Christchurch, Canterbury (B. Patrick pers. comm. 1999).

**Specimen Holdings:** AMNZ, NHML, CMNZ, NZAC, MONZ, OMNZ.

**Distribution:** Formerly found from Hawkes Bay/Taupo to Invercargill (B. Patrick pers. comm. 1999). It has been collected from the foot of Mt Hutt (Meyrick 1884); Matukituki River, Wanaka (Philpott 1904); Lake Wanaka; Invercargill; Dunedin; Queenstown (Philpott 1917a); Waiouru; Puketiritiri, Napier; Mt Grey; Christchurch; Otira; Otatara, near Invercargill (Hudson 1928); Clinton River; Pompolona; slopes of Mackinnon Pass (Clarke 1933); Waiho Gorge; Niagara (Hudson 1939); Gorge Hill, Homer (Howes 1946); Upper Clutha, Kawarau Gorge (Patrick 1994f); Rongahere Gorge, base of Blue Mountains 1963 (Patrick 2000); Franz Joseph Glacier 1964; Beaumont State Forests (NZAC); Mohaka River, Kaweka Range, Hawkes Bay; Titahi; Eglington Valley; near Mossburn (MONZ); Maruia Springs (CMNZ). May possibly be extinct in the eastern areas (Patrick & Dugdale 2000). Since 1964, it has only been found at 10 sites: the eastern entrance to Kawarau Gorge, Five Mile Creek, Bobs Cove, The Gorge and Fernhill (Queenstown); Devils Staircase (Lake Wakatipu); Kidds Bush (Lake Hawea); junction of Muir Creek and Haast River, Teapot Flat (Jackson River) (Patrick 2000) and most recently at Trotters Gorge Scenic Reserve (B. Patrick pers. comm. 2001).

*Photo: Andrew Townsend.*

**Habitat:** Philpott (1917b) stated that it 'frequents rough herbage in the vicinity of forests', and it is believed that it is a forest edge or grassland species (Patrick 2000). It has been found associated with damp grassy openings in forested areas (Sherley 1990a). Larvae of the genus feed on forest floor, wetland, coastal and inter-tussock herbs (Patrick 2000). The host plant may possibly be a *Ranunculus* spp (Ranunculaceae) (Patrick & Dugdale 2000), however, this has not been ascertained yet (B. Patrick pers. comm. 1999). Other candidates, based on congeneric species that have been reared, include native daisy (Asteraceae), *Hydrocotyle* (Apiaceae), a native chickweed *Stellaria* (Caryophyllaceae), *Plantago* (Plantaginaceae), or *Cardamine* (Brassicaceae) (Patrick 2000).

**Threats:** Habitat modification and destruction. Possibly the drying out of damp forest edges is a factor (Patrick 2000).

**Work Undertaken to Date:** Survey and attempted rearing of eggs from female to ascertain host (Patrick 2000). Much survey work done across the South Island in apparently suitable habitat, by B.H. Patrick and B. Lyford (Patrick 2000).

**Priority Research, Survey, and Monitoring:** 1) Ascertain host plant, and determine host range (Patrick 2000).

**Management Needs:** 1) Once the host range has been ascertained, rehabilitation of the species could be undertaken (Patrick & Dugdale 2000) through the planting out of additional host plants and/or translocations of the moth to suitable sites.

**Contacts:** Bryan Lyford, Brian Patrick.

*See Plate 1, No. 5*

**Order:** Lepidoptera

**Family:** Geometridae

**Taxonomic Name:** *Gingidiobora nebulosa* (Philpott, 1917)

**Common Names:** -

**Synonyms:** *Xanthorhoe nebulosa* (Philpott 1917b)

**M&D Category:** I High Priority

**Conservancy Office:** NM, CA, OT

**Area Office:** South Marlborough, North Canterbury, Coastal Otago

*Wingspan: 32 mm*

**Description:** A moth with a whitish-yellow body, slightly tinged with brown, and with fine sprinkles of dark brown, almost black. The forewings and hindwings are yellow with a slight tinge of brown-greyish white (Philpott 1917b). The male antennae are bipectinated (feathery). The larvae are green and smooth (Craw 1987).

**Type Locality:** Coverham, Marlborough (Philpott 1917b; Dugdale 1988).

**Specimen Holdings:** NZAC, MONZ.

**Distribution:** Found in Marlborough and east Otago in the Macraes Ecological District (Patrick 1997a) at Coverham (Philpott 1917a); Kaikoura 1963 & 1975; Jacks Pass, Marlborough 1979 (NZAC); Clarence River at the Bluff (MONZ).

**Habitat:** Found at coastal to montane rock sites (B. Patrick pers. comm. 1999). The larvae feed at night on *Gingidia* species (Apiaceae)(Patrick & Dugdale 2000), including *Gingidia montana* (Craw 1987; Patrick 1997b). The herb host is now confined to cliff sites due to grazing pressure (B. Patrick pers. comm. 1999).

**Sign of Presence:** Notches in host plant leaves (*Gingidia montana*) (B. Patrick pers. comm. 1999).

**Threats:** Host plant is grazed by sheep and goats (I. Millar pers. comm. 1999). All known sites are unprotected and at risk from modification through herbicide use and ungulate browsing (Patrick & Dugdale 2000).

**Work Undertaken to Date:** Larvae have been reared from both disjunct populations to confirm hosts. Adults have been light-trapped, to understand variability and distribution. Much survey work has been undertaken across the South Island, in apparently suitable habitat, by B.H. Patrick and B. Lyford (B. Patrick pers. comm. 1999). Now believed to comprise a species complex (B. Patrick pers. comm. 2000).

*Photo: Brian Patrick.*

**Priority Research, Survey, and Monitoring:** 1) General survey required (I. Millar pers. comm. 1999), especially in Marlborough (B. Patrick pers. comm. 1999).

2) Taxonomic work needed to determine whether the Otago species is a distinct species to the Marlborough species. Both populations are threatened (B. Patrick pers. comm. 1999).

**Management Needs:** 1) Undertake wild animal control at suitable sites, especially those in established reserves (B. Patrick pers. comm. 1999).

**Contacts:** Robin Craw, Brian Patrick.

*See Plate 1, No. 6*

**Order:** Lepidoptera

**Family:** Geometridae

**Taxonomic Name:** *Notoreas* "South Shag River"

**Common Names:** -

**Synonyms:** -

**M&D Category:** I High Priority

**Conservancy Office:** OT

**Area Office:** Coastal Otago

*Wingspan: 21 mm*

**Description:** A striking orange, black and white moth. Male antennae bipectinated (feathery) (Craw 1986). Larvae are pinkish-purple (Patrick 1993).

**Type Locality:** Not described.

**Specimen Holdings:** -

**Distribution:** North Otago coast, immediately south of Shag River mouth and opposite Palmerston (Patrick 1993; Patrick 1998).

**Habitat:** Found on a coastal cliff slip-face 50 m wide (Patrick & Dugdale 2000). Host is *Pimelea* cf *urvilleana* (Thymeleaceae) (Patrick 1993). These moths are diurnal (dayflying) (Craw 1986; Patrick 1998).

**Threats:** The area is vulnerable to storm damage (Patrick & Dugdale 2000), and cattle grazing (B. Patrick pers. comm. 2000). Trampling and dislodging is a real threat to the host plant. Weed encroachment can restrict available seed set sites and shade out host plants (L. Sinclair pers. comm. 2000).

**Work Undertaken to Date:** -

**Priority Research, Survey, and Monitoring:** 1) Survey areas around Shag River in an attempt to locate additional populations of this species (Patrick & Dugdale 2000). At Cornish Point and Shag Point there are reasonable populations of the host, but more work is needed to determine if the moth is present. If not it could be introduced there to enhance the species' survival. Both areas are biogeographically within range (B. Patrick pers. comm. 2000).

**Management Needs:** -

**Contacts:** Robin Craw, John Dugdale, Brian Patrick.

*See Plate 1, No. 1.*

*Top: Adult.*
*Bottom:* Notoreas *caterpillar on* Pimelea.
*Photos: Brian Patrick.*

**Order:** Lepidoptera

**Family:** Geometridae

**Taxonomic Name:** *Notoreas* "Taranaki Coast"

**Common Names:** -

**Synonyms:** -

**M&D Category:** I High Priority

**Conservancy Office:** WG, NM

**Area Office:** Stratford, Golden Bay

**Description:** A striking orange, black and white moth. Male antennae are bipectinated (feathery) (Craw 1986). The larvae are pinkish-purple (Patrick 1993).

*Wingspan: 16 mm*

**Type Locality:** Not described.

**Specimen Holdings:** -

**Distribution:** Has been found in Taranaki and north-west Nelson (B. Patrick pers. comm. 2000), including Oeo Cliffs, Wanganui; Egmont; Cape Farewell; west Whanganui (Patrick & Dugdale 2000); Pihama (Patrick 1993b; Patrick 1998).

**Habitat:** Host is *Pimelea* (Thymeleaceae). These moths are diurnal (dayflying) (Craw 1986).

**Sign of Presence:** Early signs of caterpillar presence include small holes in leaf bases, and leaves eaten down to lower cuticle (L. Sinclair pers. comm. 2000).

**Threats:** Threatened because the host plant is threatened (B. Patrick pers. comm.). The six populations in Taranaki, including Oeo, are at risk (Patrick & Dugdale 2000, L. Sinclair pers. comm. 2000). Cattle trampling, weed encroachment, and human activities (i.e. trampling, off-road vehicles) can threaten the host plant (A. Rebergen pers. comm. 2000; L. Sinclair pers. comm. 2000).

**Work Undertaken to Date:** A patch of herbfield at Normandy Rd on the south Taranaki coastline has been weeded to encourage *Pimelea* to flourish (*Rare Bits* No. 31 December 1998). Recently a presence absence survey has been conducted at 46 south Taranaki coastal sites (report in prep.). Active management and management trials underway in recent years at five locations (Good's property, Oeo; Lynskey's property, Oeo; Puketapu Rd, Pihama; Arawata Rd, Opunake; Normandy Rd, Manaia (T. Holmes pers. comm. 2000).

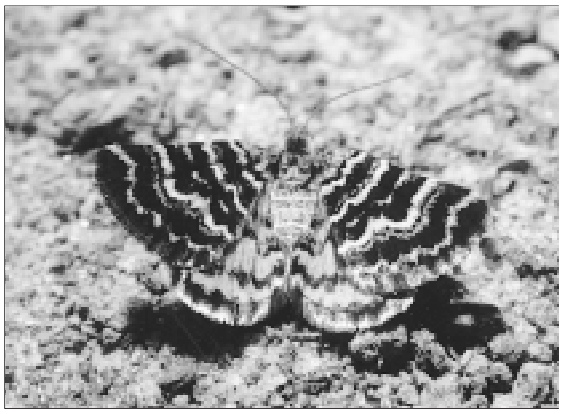


*Photo: Brian Patrick.*

**Priority Research, Survey, and Monitoring:** 1) More survey is required in north-west Nelson to determine the southern distribution limit (B. Patrick pers. comm. 2000).

**Management Needs:** 1) Maintain habitat at selected sites.

**Contacts:** Robin Craw, John Dugdale, Brian Patrick, Lisa Sinclair.

*See Plate 1, No. 2.*

**Order:** Lepidoptera

**Family:** Geometridae

**Taxonomic Name:** *Notoreas* "Wellington"

**Common Names:** -

**Synonyms:** -

**M&D Category:** I

**Conservancy Office:** WL

**Area Office:** Poneke, Wairarapa

*Wingspan: 18 mm*

**Description:** A striking orange, black and white moth. Male antennae bipectinated (feathery) (Craw 1986). Larvae are pinkish-purple (Patrick 1993).

**Type Locality:** Not described.

**Specimen Holdings:** -

**Distribution:** Wellington coast, Titahi Bay; Lake Kohangapiripiri; White Rock (Mataopera Stream); Te Humenga Point near Cape Palliser (B. Patrick pers. comm. 1997; Patrick 1998); Black Rocks. Old records from Mt Victoria, Wellington (R. Craw pers. comm. 2000).

**Habitat:** Found amongst low, stunted shrubs on coastal gravel beaches, cliffs, hills, screes and terraces (R. Craw pers. comm. 2000). Host is *Pimelea* cf *urvilleana* (Thymeleaceae) (Patrick & Dugdale 2000). These moths are diurnal (dayflying) (Craw 1986).

**Threat**s: Grazing of host plant by introduced herbivores a potential problem.

**Work Undertaken to Date:** Wellington and Wairarapa coasts have been surveyed (B. Patrick pers. comm. 2000).

**Priority Research, Survey, and Monitoring:** 1) Survey to determine distribution.

**Management Needs:** 1) Maintain habitat at selected sites.

**Contacts:** Robin Craw, John Dugdale, Brian Patrick, George Gibbs.

*See Plate 1, No. 3.*

*Photo: Brian Patrick.*

**Order:** Lepidoptera

**Family:** Geometridae

**Taxonomic Name:** *Xanthorhoe bulbulata* (Guenee, 1868)

**Common Names:** -

**Synonyms:** *Cidaria bulbulata, Larentia bulbulata* (Meyrick 1884)

**M&D Category:** A

**Conservancy Office:** OT (previously also SL, WC, CA, NM, WL, WG)

**Area Office:** Wakatipu

*Wingspan: 24 mm*

**Description:** A moth with dull grey forewings, and bright orange hindwings. Conspicuous in flight, it becomes inconspicuous when resting with its wings closed (Philpott 1907). It is both day-flying and nocturnal (Patrick 2000).

**Type Locality:** Christchurch, Mid Canterbury (Dugdale 1988).

**Specimen Holdings:** NHML, MONZ, NZAC.

**Distribution:** Formerly widespread in the grasslands of the eastern South Island (Sherley 1990a). It has been collected from Castle Hill, Christchurch 731 m; Dunedin (Meyrick 1884); Mt Linton (Philpott 1901); New River (Philpott 1904); Invercargill; Ben Lomond; Takitimu Mountains (Philpott 1917b); Oreti River (Clarke 1933); Kekerengu; Christchurch; Lake Pukaki; Lake Wakatipu (Hudson 1928); Awapiri (Marlborough); Hyde; Ranfurly; Waipori (Hudson 1939); Upper Clutha, Kawarau Gorge; Maniototo (Patrick 1994f); Riverton; the Canterbury area including Hoon Hay, Governers Bay, Bottle Lake (Patrick 2000), Mt Grey (NZAC); Mt Karetu; Pukeatua; Queenstown (1979) (Patrick 2000); Greenhills; Wedderburn (NZAC); Obelisk; Otatara; Nevis (MONZ). No individuals have been seen since the Kawarau Gorge collection in 1991 (Patrick 2000).

**Habitat:** This species has been found occurring from sea level to elevations of about 914 m (Hudson 1928). Philpott (1917) states that it is found 'amongst rough herbage in open situations'. The host plant is unknown, but may possibly be the cress *Ischnocarpus novae-zelandiae*. This cress is a threatened species with a stronghold in western Otago (Patrick & Dugdale 2000; B. Patrick pers. comm. 1999). New Zealand mint (*Mentha cunninghamii*) is another possible host (Patrick 2000).

**Threats:** Possible that host decline has resulted in decline of this species (Patrick & Dugdale 2000). If the host association has been correctly guessed, then host decline is due to stock browse, confining the plant to cliff refuges (B. Patrick pers. comm. 1999).

*Photo: Brian Patrick.*

**Work Undertaken to Date:** Only two specimens reported in the last 50 years (Patrick & Dugdale 2000). Much survey and searching has been conducted for both larvae and adults, with little success (B. Patrick pers. comm. 1999).

**Priority Research, Survey, and Monitoring:** 1) Survey suitable sites in an attempt to find this species, and determine its distribution and abundance. Target areas of known extensive populations of possible host plants.

2) Determine host plant.

**Management Needs:** 1) Maintain habitat at key sites with the possible host plant present in western Otago (Patrick 2000).

**Contacts:** Robin Craw, John Dugdale, Brian Patrick.

*See Plate 1, No. 7.*

**Family: Hepialidae**

**Common name:** **Ghost moths**

**Order:** Lepidoptera

**Family:** Hepialidae

**Taxonomic Name:** *Heloxycanus patricki* Dugdale, 1994

**Common Names:** Sphagnum porina (Scott & Emberson 1999)

**Synonyms:** -

**M&D Category:** I High Priority

**Conservancy Office:** OT, SL

**Area Office:** Coastal Otago, Central Otago, Murihiku

**Description:** A yellowish-fawn or smoky grey-brown moth, with a wingspan of 40 - 45 mm in males, and 48 - 55 mm in females. The hindwings are yellowish-fawn, fawnish-brown, or smoky brown, with the abdomen the same colour as the hindwings (Dugdale 1994). The female is a poor flier. Adults emerge early winter in alternate years e.g. 1999, 2001, 2003 (B. Patrick pers. comm. 1999).

*Wingspan: 55 mm*

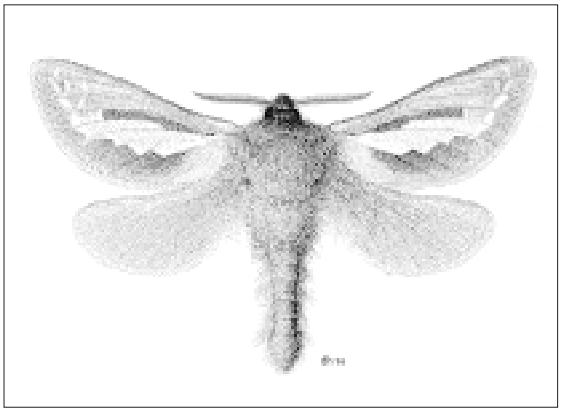
**Type Locality:** Dansey Pass, Central Otago.

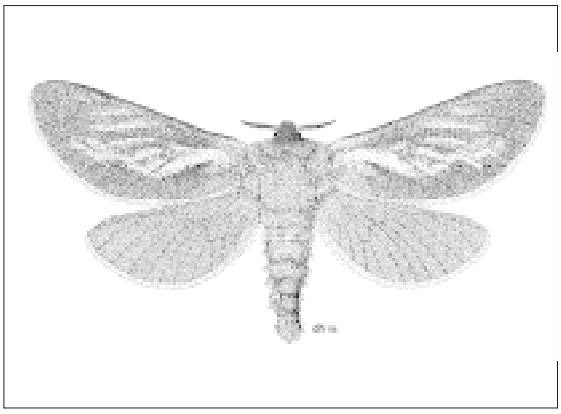
**Specimen Holdings:** NZAC (Dugdale 1994).

*Photo: Brian Patrick.*

**Distribution:** Known only from localities south of the Waitaki River (Dugdale 1994). Has been collected from Centre Hill; Rock and Pillar Range; Great Moss Swamp; Lammermoor Range; Lammerlaw Range; South Rough Ridge; Old Man Range, Fraser Basin; Danseys Pass; Swampy Hill; Mt Maungatua; Black Swamp Road; Longwood Range, Bald Hill; Pukerau Bog; Slopedown Range, Mokoreta No.2; Catlins-Cairn Road, Hokonui Hill Bog, Tussock Creek Mire, Ajax Bog; Seaward Moss; Manapouri, Home Creek Bog; Blue Mountains; and Scolloys Flat. Larvae also from Takahe Valley, Fiordland; Table Hill, Stewart Island; pupa from Mt Luxmore, Fiordland.

**Habitat:** A semiaquatic species found in coastal to alpine moss bogs (B. Patrick pers. comm. 1999) and mires, on flat ground or





*Left: Male.*
*Right: Female.*
*Permission: Manaaki Whenua Press.*
*Dugdale 1994, p 82, Figs. 45, 47.*

blanket bogs on sloping ground (Dugdale 1994). Their host plants are mosses, especially *Sphagnum* in and at the margins of bogs and seepages (Patrick & Dugdale 2000). Has been found from sea level to 1500 m (B. Patrick pers. comm. 1999).

**Sign of Presence:** Empty pupal cases on moss bogs in April-June, on odd-numbered years (e.g. 1999, 2001, 2003), south of Waitaki River (B. Patrick pers. comm. 1999).

**Threats:** Habitat in lowland *Sphagnum* bogs at risk from moss harvesting, particularly in otherwise legally protected areas (Patrick & Dugdale 2000). Recreational vehicles on bogs, drainage of wetlands, and forestry are other threats. Despite being widespread in eastern areas of Otago/Southland, it is uncommon or threatened at many sites (B. Patrick pers. comm. 1999).

**Work Undertaken to Date:** Larvae reared and host association confirmed, they feed on mosses, especially *Sphagnum* species. Adults widely surveyed, uncommon at many sites surveyed. Many sites have disappeared between the time of discovery in 1979 and present day (B. Patrick pers. comm. 1999).

**Priority Research, Survey, and Monitoring:** -

**Management Needs:** 1) Maintain habitat of southern wetlands, both low altitude and alpine. *Sphagnum* poaching is a continual threat (B. Patrick pers. comm. 1999).

**Contacts:** John Dugdale, Brian Patrick.

*See Plate 1, No. 8.*