Order: Orthoptera (Gr. *orthos*, straight + *pteron*, wing)

Common name: **Crickets, katydids, grasshoppers, locusts, & weta**

Family: Acrididae

Common name: **Short-horned grasshoppers, kowhitiwhiti**

Order: Orthoptera

Family: Acrididae

Taxonomic Name: *Brachaspis robustus* Bigelow, 1967

Common Names: Robust grasshopper (Scott & Emberson 1999)

Synonyms: -

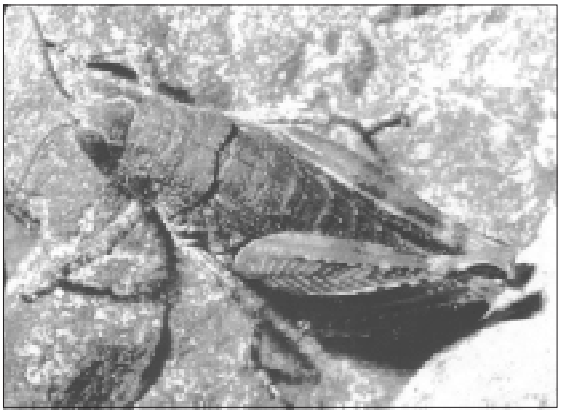
M&D Category: A

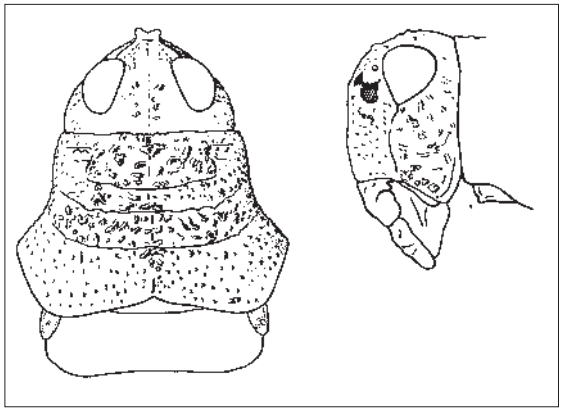
Conservancy Office: CA

Area Office: Twizel

Description: A slate-grey grasshopper, with some individuals having light yellowish, and occasionally orange, patterns on the thorax. The ground colour is variable, especially between habitats of different background colours, with earthen-brown colours more prominent in some areas, and richly patterned black and grey individuals in prominent lichen areas. The inner side of the hind legs has red and indigo-violet flash displays. The antennae are of a similar length to the face. This species can be distinguished from all other grasshoppers by the shape and surface of the pronotum (the body covering immediately behind the head), which is broader than long, and rounded towards the sides. The surface is rough, not smooth, and its hind margin is more or less straight, not wavy (White 1994).

Type Locality: Ahuriri River, North Otago (Bigelow 1967).





Top: Permission: Manaaki Whenua Press. Meads 1990a, p 29.
Bottom: Left: Dorsal view of head and pronotum.
Right: Lateral view of head and pronotum.
Permission: Canterbury University Press. Bigelow 1967, Plate 26, Figs. 26.1, 26.2.

Specimen Holdings: CMNZ.

Distribution: Known from the Mackenzie Basin, Canterbury. It has been found at Kurow, on the Waitaki River (White 1994); Ahuriri River (Bigelow 1967), at the southern limits of the basin; Ohau River delta; Pukaki River; Tekapo River channel; Fork Stream, Balmoral Station; by the Tekapo A Powerhouse; Grays Hills; Snow River; Sawdon Stream (White 1994).

Habitat: This species' microhabitat preferences vary depending on the site, and include diverse loose-stone aggregates as in braided river beds (Ohau River delta, Pukaki River, Snow River, Sawdon Stream), lichen covered embedded stone pavements as in stable terraces and fans (Sawdon Stream young flood terraces, Grays Hill old river terraces, Snow River fan old outwash), fractured non-fluvial stones of recent downcutting flood disturbances (Mackenzie River, Snow River), degrading embankments of loose stone as in gullies on high terrace risers (Tekapo Canal monitoring site). The only obvious common feature is stoniness, and the presence of fine stone pavements (White 1994). Maloney (1992) noted that most sightings of the grasshopper were within 1 m of some form of vegetation, with stone crop (*Sedum acre*) (Ohau River area), and willowherb (*Epilobium* spp.) (Pukaki River), having a relatively high association rate.

Threats: Predation from hedgehogs, cats, skinks and birds (especially banded dotterel) is thought to occur, based on

fragments found in faeces. Spiders may also contribute to losses. Prey switching due to decline in rabbit populations is also a factor which may introduce seasonal predators. Populations in river channels face periodic losses from natural flood events or large hydroelectric river releases (White 1994; G. White pers. comm. 1999). An apparent decline in the Pukaki riverbed population may be due to large flood events in the summer of 1996 (Fraser 1999).

Work Undertaken to Date: Research, survey and monitoring of the populations in the Mackenzie Basin has been undertaken. Patrick & Chisholm (1989) did not find this species near Kurow, but it was still locally common in the Mackenzie Country. White (1994) mentioned that a recent survey of the Kurow and Ahuriri River areas failed to locate either any specimens, or promising habitat. However, searches in some of the other areas were successful. Transects were undertaken at the Pukaki River, Ohau Spit and the lower Ohau riverbed in the summer of 1998/99. Grasshoppers were found at all three sites, but only after extensive searching at the Pukaki River site, and then only 2 specimens (Fraser 1999).

Priority Research, Survey, and Monitoring: 1) Monitor the population in the lower Pukaki River, approximately 6 km above the junction of the Pukaki and Tekapo Rivers, to determine if the reduced numbers found in the last survey are due to a decline in the population or just a fluctuation.

2) Undertake genetic research on southern grasshopper specimens presumed to be *Brachaspis nivalis* to determine whether they are in fact *B. nivalis, B. robustus*, or a new species altogether. Preliminary examination has shown that these grasshoppers are genetically very close to *B. robustus* (Trewick & Wallis pers. comm. 1999). This needs to be resolved because it could alter the conservation status of *B. robustus*.

3) Re-assess grasshopper abundance at Mackenzie River, Sawdon Stream, or Snow River outwash fan. If there is an adequate abundance to statistically demonstrate the effects of predator control, then undertake a 2 year trial of feral cat control at one of three sites (Mackenzie River, Sawdon Stream, or Snow River outwash fan), just before and following the December - January recruitment of new *B. robustus* adults in each of the 2 years. This will allow comparison of adult female survival between the three sites, and test the possibility of enhanced breeding success for the species (White 1994). Remain mindful of cohort effects between years. A 'low' year may follow or precede a year of higher densities due to life-stage cohorts associated with the 2-3 year life-cycle (G. White pers. comm. 2000).

Management Needs: 1) Maintain habitat at the Snow River outwash fan site.

2) Maintain habitat at the Pukaki River site.

3) Liaison between the Department of Conservation and the Electricity Corporation of New Zealand to optimise the cautions and timing of hydroelectric river releases (White 1994). When the Twizel River is running high during a Gate 22 spill into Ohau River, cusecs are additive below Twizel River junction with Ohau River. Hence Ohau delta populations may not be protected by Gate 22 spills that fail to account for high waters in Twizel River e.g. as ocurred in November 1999 (G. Whiter pers. comm. 2000).

4) Maintain sightings database, and train field staff in the identification of this grasshopper (Fraser 1999).

Contacts: Graeme White, Steve Trewick, Simon Morris.

See Plate 2, No. 17.

Order: Orthoptera

Family: Acrididae

Taxonomic Name: *Sigaus piliferus* Hutton, 1898

Common Names: -

Synonyms: -

M&D Category: I High Priority

Conservancy Office: EC/HB

Area Office: Gisborne

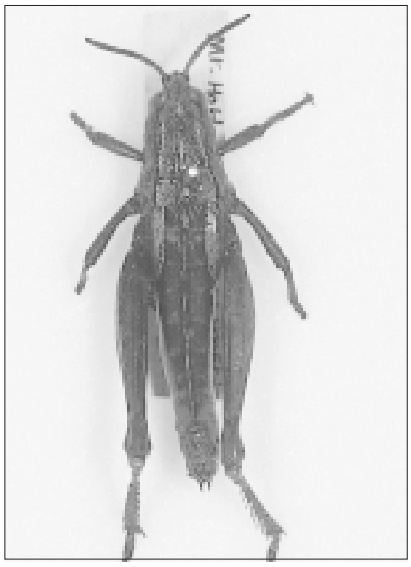
Description: A large brown grasshopper, paler on the upper surface. Most of the body is coarsely pitted or reticulate with many wrinkles. The body is 15 - 22 mm long in the male, 25 - 40 mm long in the female (Bigelow 1967). The hind tibia (lower leg) is very hairy (Hutton 1898).

Type Locality: Auckland (Hutton 1898).

Body length: 40 mm

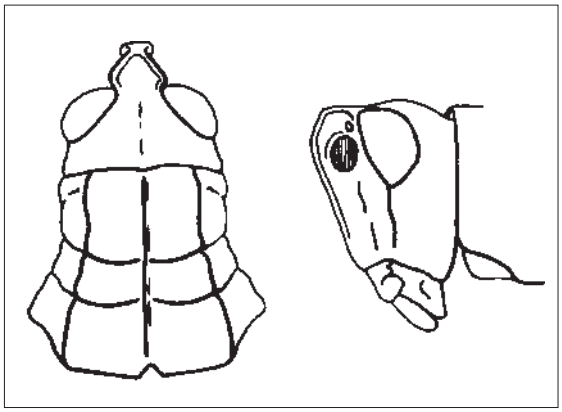
Specimen Holdings: CMNZ, MONZ.

Distribution: Bigelow (1967) stated that it 'probably occurs in all alpine areas of the North Island except for Mt Egmont', however it now appears to be restricted to East Cape (P. Johns pers. comm. 1999). Specimens have been collected from Pohangina Saddle, Eastern Ruahine Ranges 1402 m; Kauaeranga Valley, Coromandel Peninsula; Maungatautari, Cambridge; Rotorua area; Mt Hikurangi, East Cape Peninsula; Waihaha River, Lake Taupo; Tauhara Summit, Lake Taupo; Tongariro National Park District; Kaimanawa Range; Kaweka Range; Waiouru; Taihape-Napier Road; Ruahine Range; Wellington (Bigelow 1967); Scoria Flat, Mt Ruapehu, National Park District; Conical Hill, Upper Waihaha River; Mt Holdsworth 1219 - 1371 m; Mt Hector; Slopes of Tabletop, Tararua Ranges (MONZ).



Habitat: Occurs in lowland to high country open grasslands, scrub, and roadsides (P. Johns pers. comm. 1999). It has been collected from tussock, stream banks, and scree & swamp (CMNZ). It is most common at altitudes above 914 m (Bigelow 1967).

Threats: Predated by mynah birds (*Acridotheres tristis*) (P. Johns pers. comm. 1999).



Top: Photo: Andrew Townsend.
Bottom: Left: Dorsal view of head and pronotum.
Right: Lateral view of head and pronotum.
Permission: Canterbury University Press. Bigelow 1967, Plate 4, Figs. 4.1, 4.2.

Work Undertaken to Date: -

Priority Research, Survey, and Monitoring: 1) Survey suitable sites in the East Cape region to obtain an estimate of the distribution and abundance of this species.

Contacts: Peter Johns, Simon Morris.

Family: Anostostomatidae

Common name: **Bush weta, ground weta, tree weta**

Genus: *Anisoura*

Order: Orthoptera

Family: Anostostomatidae

Taxonomic Name: *Anisoura nicobarica* Ander, 1938

Common Names: Northland tusked weta (Scott & Emberson 1999), Reinga weta, Hokianga weta, Hokianga tusked weta (Ramsay 1979)

Synonyms: *Hemiandrus monstrosus* (Johns 1997)

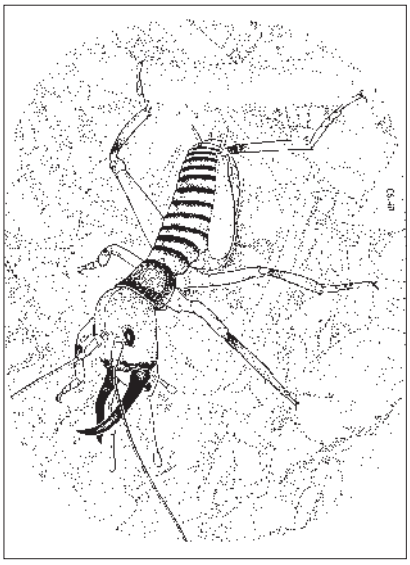
M&D Category: C

Conservancy Office: NL

Area Office: Kaitaia, Kerikeri, Whangarei.

Description: A small bodied, glossy orange-brown weta, with the abdomen strongly banded with yellow. The males are 17 - 23 mm long (Gibbs 1998a), and have protruding tusks at the base of their mandibles, which extend forward and cross each other (Sherley 1998a). The females are up to 33 mm long (R.Parrish pers. comm. 2000).

Body length: 33 mm



Top: Male.
Photo: Andrew Townsend.
Bottom: Drawing: Des Helmore.
Permission: Landcare Research (NZ) Ltd.

Type Locality: Reinga, North Auckland, under log (Palma et al. 1989).

Specimen Holdings: MONZ.

Distribution: Only known from north of a line between Waipoua and Whananaki. Has been found at Orokawa Bay in the Bay of Islands, 1948; Cape Reinga, 1950; Pakanae Valley; Opononi; Kohukohu; Maungapika (Te Paki); Whareana (Te Paki); Whananaki; Kaitaia; Puketi Forest (Sherley 1998a); Herekino; Okaihau; Pakanae (near Opononi); Omahuta Forest; Ahipara (Bellingham 1991); Herekino Gorge area (Messenger 1992); Taranga Bay (S. Trewick & M. Morgan-Richards pers. comm. 1999); Waipoua Kauri Forest (Laidlaw 1956); Maungataniwha Forest, near Pokaka (south Kerikeri); Omapere (A. Booth pers. comm. 2000). Most of the recent sightings have come from the Hokianga region, and most records are of single animals, which has given little indication of their abundance (Sherley 1998a).

Habitat: Most specimens have been located inside manuka (*Leptospermum scoparium*) and kanuka (*Kunzea ericoides*) holes, but specimens have also been found under a log; in the stem of a *Muehlenbeckia* vine growing on totara (*Podocarpus totara*) (Sherley 1998a); in mixed manuka and broad-leaved shrubland; in buildings (Bellingham 1991); on a ponga (*Cyathea dealbata*) frond in forest (Messenger 1991); several specimens in a short rotten tutu (*Coriaria* sp.) branch. The tunnel in the tutu branch was 8 mm in diameter and 92 mm long, with a clean and bright surface, it went straight into the branch for a short distance and then curved sharply and followed the pith (Messenger 1992). Mainly arboreal, they also spend some time on the ground, as evidenced by specimens being collected under logs (Bellingham 1991). They may also use holes in the soil. These weta often plug their holes with a mixture of saliva and wood chips, and they always face the entrance of the hole (Gibbs 1998a).

Threats: Not known. There is no evidence of a decline, and little information on past or present abundance and distribution. Loss of habitat through forest clearance, and the introduction of exotic predators, has probably reduced both the distribution and abundance of the species (Sherley 1998a).

Work Undertaken to Date: 1997: *Hemiandrus monstrosus* made a synonym of *Anisoura nicobarica* (Johns 1997). Recent discoveries have been recorded and informal surveys have been conducted. Attempts to breed the species by Jackie Davidson, Graeme Ramsay and Chris Winks have been unsuccessful (Sherley 1998a).

Priority Research, Survey, and Monitoring: 1) Determine the distribution and abundance.

2) Research the habitat requirements and biology of the species through captive and field studies (Sherley 1998a).

Management Needs: 1) Avoid aerial sowing of grain based 1080 pellets in areas where these weta occur (Hutcheson 1989).

Contacts: George Gibbs, Richard Parrish, Andrea Booth, Mark Bellingham, Paul Barrett, Peter Johns.

See Plate 2, No. 11.

Genus: *Deinacrida*

Common name: **Giant weta**

Order: Orthoptera

Family: Anostostomatidae

Taxonomic Name: *Deinacrida carinata* Salmon, 1950

Common Names: Herekopare weta (Scott & Emberson 1999), Herekopare Island weta, Foveaux Strait giant weta, Herekopare giant weta (Foord 1990).

Synonyms: -

M&D Category: C

Conservancy Office: SL

Area Office: Southern Islands

Description: A small, dull brown-black weta, with no dark pigment spots along the posterior margin of the pronotum (the 'shield' just behind the head). There is a conspicuous crest on abdominal segments 4 - 7 (G. Gibbs pers. comm. 2000).

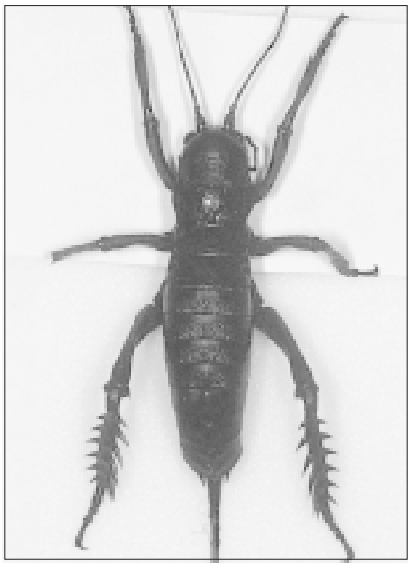
Type Locality: Herekopare Island, Foveaux Strait (Salmon 1950).

Specimen Holdings: MONZ.

Distribution: Found on Pig Island, off Colac Bay, Foveaux Strait; Herekopare Island, off Halfmoon Bay, Stewart Island; and Kundy Island, south-west of Stewart Island. Present in low numbers on Kundy Island (Cooper et al. 1999), and the population size on Herekopare Island is not known. The Pig Island population appears to be large and viable (Sherley 1998a). Presence on all three islands has been noted since 1997 (Edwards 1999).

Habitat: The vegetation of Herekopare Island is quite different from that of Pig Island. The former is comprised of shrub species, and the latter is dominated by *Carex*, sedge, and some woody shrubs (Sherley 1998a). On Pig Island, specimens have been found on cocksfoot (*Dactylis glomerata*), Californian thistle (*Cirsium arvense*), and southern nettle (*Urtica australis*), along pathways near a flaxy slope (Cooper et al. 1999).

Sign of Presence: Faecal pellets are small and not characteristic of other giant weta species (Meads & Notman 1995a).



Female.
Photo: Andrew Townsend.

Threats: Introductions or invasions of rodents are a threat to the long term survival of this species. The former range of this species is not known, but it is assumed that cats and weka have had an impact on their distribution (Sherley 1998a).

Work Undertaken to Date: Surveys of Herekopare and Pig Islands have been completed. Two adult pairs and a pair of nymphs were collected by Mike Meads in March 1993, for observation and captive breeding. The adult females laid eggs before dying in captivity. The eggs failed to hatch (Sherley 1998a). Currently, there are management plans being worked on to capture and relocate weka (Cooper et al. 1999), and to prevent rodent invasion on Pig Island (Edwards 1999).

Priority Research, Survey, and Monitoring: 1) Survey rodent-free islands in the Foveaux Strait/Stewart Island region, including Omaui, Dog, and Rarotoka Islands (Cooper et al. 1999), as well as the known locations of Kundy,

Herekopare and Pig Island, to determine the distribution and abundance of this species.

2) Investigate the potential introduction of *D. carinata* to Codfish Island.

Management Needs: -

Contacts: Andy Roberts, Pete McClelland, George Gibbs.

See Plate 2, No. 1.