Large carabid beetles Stephens Island 30 April - 3 May 1996

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1. Introduction

While visiting Stephens Island (Takapourewa), I surveyed the large carabid species with the aim of learning more about the conservation status of several threatened species. The only survey techniques used were hand searching (usually turning over logs and rocks on the ground) or night searching (looking for active beetles on the surface at night). No large carabids were seen on the surface or on trees at night despite about 4 hours searching on each of three nights so all observations are from animals found under wood or rocks. It is likely that cool night temperatures stopped the beetles from being active at night.

MECODEMA COSTELLUM COSTELLUM

(listed Molloy & Davis 1994 as category A, i.e. one of the highest priority species for conservation action)

Distribution: Endemic subspecies to Stephens Island

Identified by the shape of the pronotum, black elytra and pronotum, and large size. I found only two of these beetles under a log at night by the fence beside Ruston Bush on 1 May. One beetle was still under this log when I looked during the day on 3 May.

I found no specimens of *Mecodema punctellum* (endemic to Stephens Island and listed in Molloy & Davis 1994 as category X, i.e. a species which has not been seen for a number of years but which may still exist). It has not been seen since 1931 (Townsend unpubl.). As this species is a similar size to *M. costellum* I photographed and examined closely the two *M. costellum* that I caught: they had the extensive wrinkles and punctures on the elytra typical of this species and the dorsal surface was matt rather than glossy black (a feature of *M. punctellum* I noticed when I checked the Museum of New Zealand - MONZ - specimens).

MECODEMA OBLONGUM/SULCATUM

(not listed as threatened)

Distribution: This species complex is widespread in the southern North Island and northern South Island (Townsend unpubl.).

Identified using the black dorsal colour, size (see below) and shape of the pronotum. I was unable to distinguish between *M. oblongum* and *M. sulcatum*. Townsend (unpubl.) indicated that these two species may be part of a cline. I am familiar with these species from the lower North Island.

Britton (1949) notes that *M. sulcatum* ranges in length from 14 to 19 mm (with South Island specimens being 17.0-19.0 mm) and *M. oblongum* ranges from 16 to 18 mm. The Stephens Island specimens I caught would fit either species using length.

On Stephens Island they were found mainly in pasture with some around Keeper's Bush.

MEGADROMUS BUCOLICUS

(listed Molloy & Davis 1994 as category I, i.e. a species about which little information exists, but which is considered threatened)

Distribution: *M. bucolicus* is known only from islands in the western Marlborough Sounds (Townsend unpubl.).

Identified using the metallic green colour of the pronotum and elytra, length (c. 21-24 mm), pronotum shape, and the presence of several punctures on the 3rd and 7th elytral intervals. I am familiar with this species from observations made on Maud Island (where it was common in January 1995) and from observations of the closely related *M. capito* from around the lower North Island. Townsend (unpubl.) regards *M. bucolicus* as a different species to *M. capito* but this still has to be formally published.

This species was the most commonly found large carabid on Stephens Island. It was widespread in pasture and forest.

PLOCAMOSTETHUS PLANIUSCULUS

(not listed as threatened)

Distribution: Widespread in the North Island and northern South Island (Townsend unpubl.).

Identified using the black colour of the pronotum and elytra, lack of setiferous punctures on the 3rd and 7th elytral intervals, length (see below), and shape of the pronotum. I am familiar with this species from observations made in the lower North Island and the northern South Island.

This species has either red or black legs at different locations (Townsend 1965) but from what I have seen is consistently coloured at each location. All specimens examined on Stephens Island had black legs.

A separate subspecies (*Plocamostethus planiusculus durvillei*) is described from D'Urville Island based on its small length (18-21 mm) compared to the length of other *Plocamostethus* (25-29 mm) (see Britton 1940). So it was interesting to find that the length of specimens from Stephens Island (which is adjacent to D'Urville) was intermediate between these (22.5-24 mm). The two smallest *Plocamostethus* specimens in the MONZ collection (21.4 and

22.1 mm long) come from Stephens Island and there are several other specimens from a variety of locations in MONZ that are shorter than 25 mm.

All six *Plocamostethus* were found in forest. None were found in farmland.

HOLCAPSIS BROUNIANA

(not listed as threatened)

Identified using shiny black colour of pronotum and elytra, size (see below), and shape of pronotum. As *Holcapsis brouniana* was the only species of this genus listed by Townsend (unpubl.) as being on Stephens Island I assumed all *Holcapsis* specimens to be this species. While the length of the Stephens Island specimens I measured are shorter than those given for the species by Britton (1940), specimens in the MONZ collection are similar in size to those I found on Stephens.

This species was found only around Keeper's Bush but was fairly common there.

ZEOPOECILUS N.SP.

Although I was unclear as to exactly what the *Zeopoecilus* n.sp. (endemic to Stephens Island, Townsend unpubl.) looked like I am familiar with other species in this genus (metallic bronze sheen to dorsal surface, size, and no setiferous punctures on the 3rd, 5th or 7th elytral intervals, Britton 1940). I thought I was most likely to confuse this species with *Megadromus* beetles so I checked each of these for the above characters. No *Zeopoecilus* were identified.

MECODEMA MORIO

A specimen in MONZ is labelled Stephens Is. (13 Sept 1948, Coll. J.T.Salmon) but the locality may be an error. The species is found in Otago and Southland (Britton 1949; Molloy & Davis 1994; E. Edwards, pers. comm.) but there seem to be no other records of this species from Stephens Island. I saw no beetles resembling this species during my visit.

MEGADROMUS HAPLOPUS

There is a specimen of this species labelled Stephens Island (26 May 1902, Lewis Coll.) in the MONZ collection but the locality is "certainly incorrect" according to a note on the specimen from Peter Johns. No beetles resembling this species were noted during my survey.

NOTES ON OTHER INVERTEBRATE SPECIES

The tenebrionids *Mimopeus buchanani*, *Mimopeus opaculus and Mimopeus elongatus* were all common, as were the large *Gymnoplectron* cave weta and *Hemideina* tree weta. Empty *Rhytida greenwoodi stephenensis* shells were commonly found in a brief search of the leaf litter in Keeper's Bush. Only one Cook Strait giant weta (a large female) was found under a piece of wood in a paddock by "The Palace". No *Amychus granulatus* click beetles were seen.

Two ngaio weevils (*Anagotis stephenensis*) were seen at night on ngaio foliage. Peter Gaze found one on 1 May by the fence at the lower end of Ruston Bush where Derek Brown said he had seen them regularly before. I found another (28 mm long) on 2 May by the path along the main ridge at the top of Ruston Bush.

2. Recommendations

As *Megadromus bucolicus* was the most widespread and common of the large carabids on Stephens Island and it is known from Middle Trio, Outer Chetwode, Maud, and D'Urville Islands also (Townsend unpubl.) it seems reasonably secure, so its threatened conservation status should be reviewed. The taxonomic separation between *M. bucolicus* and *M. capito* requires further work.

A revision of the *Plocamostethus* subspecies is warranted given that Stephens Island specimens and several from elsewhere are intermediate in length between the published lengths of the D'Urville Island race and the subspecies from elsewhere.

Only two *Mecodema costellum costellum* were found so this species should remain as a high priority for conservation.

The two endemic species of large carabid (*Mecodema punctellum* and *Zeopoecilus* n.sp.) were not found. *M. punctellum* should remain in 'category X' (Molloy & Davis 1994) and *Zeopoecilus* n.sp. should be added to the threatened list.

3. Acknowledgements

Thanks to Ian Millar for discussion on this project and for providing Townsend's unpublished draft report entitled "Report on the Carabidae of Maud, Stephens and Titi Islands, including relationships to the Marlborough Sounds area, with additional observations on the general fauna". Thanks to Derek Brown and Peter Gaze for logistic support and Richard & Pip de Hamel for looking after us on the island. Danny Bolton safely delivered us to and from the island onboard the 'Spirit of D'Urville'.

4. References

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APPENDIX - Measurements of carabids and a list of those caught

	Measurements (mm)		
	Length	**Pronotum width**	**Elytra width**
Mecodema costellum costellum			
1/5 2 under wood by fence next to Ruston Bush	36.7		
	36.1		
Mecodema oblongum/sulcatum			
30/4 1 in northern paddocks	18.2	4.5	5.0
30/4 1 in Keeper's Bush	19	4.8	5.4
1/5 1 in northern paddocks	16.3	4.4	4.7
1/5 2 by House #1	19.0	5.0	5.9
	17.0	4.7	5.2
2/5 9 in northern paddocks plus several remains in spider webs around lighthouse buildings			
	18.4	4.7	5.7
	17.9	4.4	5.3
	17.3	4.3	5.1
	18.5	4.9	5.2
	17.0	4.4	5.3
	18.3	4.8	5.5
	17.1	4.3	4.9
	16.7	4.6	5.2
	18.6	4.9	5.6
2/5 2 by House #2	18.4	4.6	5.5
	18.5	4.7	5.3
	mean = 17.9 (n = 16)		
		4.6	5.3
	range = 16.3-19.0		
		4.3-5.0	4.9-5.9
Megadromus capito/bucolicus			
30/4 7 in Keeper's Bush	1 x 23		
30/4 1 in Frog Pit			
30/4 1 by House #2	24		
1/5 1 in Keeper's Bush			
1/5 3 live + 1 dead in northern paddocks			
1/5 3 in Nikau stock exclusion area			
1/5 3 by House #1			
1/5 4 by or in Ruston Bush			
2/5 2 in Keeper's Bush			
2/5 5 live + 2 dead by House #2			

Plocamostethus planiusculus	
30/4 1 by Frog Bank	24
1/5 3 in Ruston Bush	22.5
	23.0
	23.7
2/5 2 in Keeper's Bush	23.7
	23.2
	mean = 23.4 (n = 6)
	range = 22.5-24
Holcapsis brouniana	
30/4 1 in Keeper's Bush	15.3
1/5 4 by House #1	14.4 female mating
	with 16.2 male
	15.5
	16.3
1/5 3 in old nursery	
(Keeper's Bush)	15.4
	15.9
	15.6
2/5 4 by House #1	15.9
	15.7
	16.5
	15.7
2/5 2 in Keeper's Bush	15.4
	15.7
	mean = 15.7 (n = 14)
	range = 14.4-16.5