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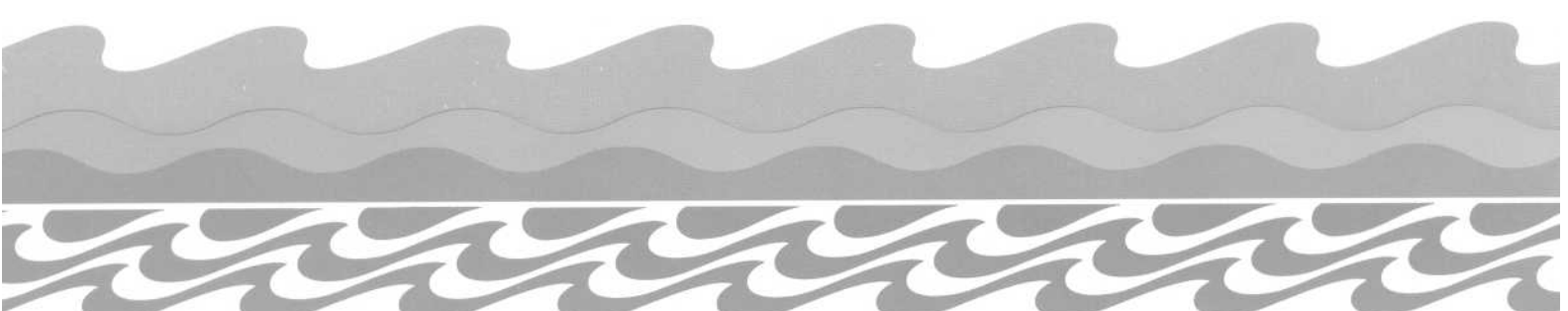
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MECODEMA LAEVICEPS BROUN : AN ASSESSMENT OF THE PRIORITY FOR CONSERVATION

(Short Answers in Conservation Science)

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**MECODEMA LAEVICEPS BROUN:
AN ASSESSMENT OF THE PRIORITY
FOR CONSERVATION**



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Front Cover: *Mecodema laeviceps* Broun 1904. Reproduced from Britton, E.B.
1949. Transactions of the Royal Society of New Zealand 77: 533-
581. (Plate 73, Fig. 105)

EXECUTIVE SUMMARY AND RECOMMENDATIONS

The case for determining the current incidence and distribution of *Mecodema laeviceps* Broun should be treated with high priority. It has been possible to confirm the existence of only five specimens, including the type, but there may also be a further female specimen collected at the same time as the type. A live specimen of this species appears not to have been found for 30 years. Furthermore, there are no records from localities which have any form of protected status. Of the two localities for which the most precise records are available, namely Mt Teviot and Oturehua, the environment may have been developed agriculturally at the former, while the latter has probably not been significantly modified during the period since collection.

It is recommended that the Oturehua and Mt Teviot sites should be visited and a thorough search made for *M. laeviceps*. The Wedderburn area and northern parts of the Ida Valley, which includes Oturehua, should probably be the wider focus of this survey, since most specimens, including the type appear to have come from this area. If positive records are made, the survey should extend to areas with similar habitat in the Maniototo, Ida and Manuherakia Valleys, and the Teviot and Lammerlaw area of the East Otago Plateau. The sustainability of any populations found should be assessed, and on the basis of this, a conservation management plan could be established and implemented.

Since so little is known about the biology and ecology of this species, any information associated with recoveries of specimens should be carefully documented. Specimens should be photographed and released.

INTRODUCTION

This report was commissioned by the Department of Conservation, Dunedin. While preparing lists of invertebrates that should be categorised as 'rare and endangered', concerns about the status of *Mecodema laeviceps* Broun were noted. It was decided that what little information might exist about the known distribution, biology and ecology of this species should be summarised, and recommendations made for field study, so that DOC would then be in a position to develop a strategy for the conservation of *M. laeviceps*.

The objectives of this report are to:

- (1) summarise the taxonomic position of *M. laeviceps*,
- (2) assemble available records of distribution and abundance,
- (3) collate information on biology and ecology,
- (4) synthesise (2) and (3) to determine the apparent conservation needs of *M. laeviceps*,
- (5) recommend action required to evaluate and implement a conservation strategy.

TAXONOMIC STATUS

Order: Coleoptera
Family: Carabidae
Tribe: Broscini
Genus: *Mecodema* Blanchard 1853
Species: *laeviceps* Broun 1904

The description of the genus *Mecodema* Blanchard (Blanchard 1953) is reproduced and discussed in Barratt (1993). *Mecodema laeviceps* Broun was first described in 1904 (Broun 1904) from a single, female specimen sent to him by Mr J. H. Lewis from the Ida Valley (Central Otago). The description is given in Appendix I. However, when Britton (1949) revised the genus, he mentioned the female holotype and another female specimen, in addition to a further specimen from Mount Teviot, collected on 19 November 1944 by Mr R.R. Foord (Appendix II). Broun placed *M. laeviceps* close to *Mecodema lucidum* Castelnau, but it differs from this species in having no post-ocular punctuation, and by being less broad. Broun remarked that the shoulders of the elytra on his specimen of *M. laeviceps* are so narrow that the 'shoulders become quite obsolete'.

Britton (1949) placed *M. laeviceps* in the *spinifer* group of species, which are characterised by having the outer elytral striae more strongly impressed than the inner striae; the lateral margins of the pronotum almost smooth, and rarely parallel behind the sinuation. The aedeagus of *M. laeviceps* is not illustrated, so the Mount Teviot specimen may also have been a female. A photograph of a specimen, and a drawing of the head, pronotum and part of the elytra are reproduced in Appendix II. Britton recognised 15 species as belonging to the *spinifer* group, six species occurring in the North Island and

nine in the South Island of New Zealand. Four of these in addition to *M. laeviceps* have been recorded from Central Otago: *M. hector*, (Hector Mountains), *M. lucidum*, *M. politanum* and *M. impressum* (mountains around Lake Wakatipu). *M. laeviceps* is probably the largest species of this group.

DISTRIBUTION

Knowledge of the distribution of *M. laeviceps* is very limited. Table 1 shows the only records of specimens that have been located to date, and Map 1 shows the localities where they are precisely enough known to mark. The specimen collected in 1920 from the Old Man Range carries no further information. Two specimens have been recorded from the Maniototo/ Ida Valley area, one from Wedderburn and one from Oturehua, the latter being the most recently collected specimen. A further specimen was collected from near Mt Teviot on the East Otago Plateau between Millers Flat and Lake Onslow. Details of the precise locality given to me by the collector, Malcom Foord, shows that the specimen was collected at about 450m some distance from the summit. The map reference is S45° 35' E169° 25', which translates to approximately NZMS1 153 052 218. This is close to Three Brothers Road and just north of a rock outcrop known as 'The Three Brothers'. Details of a further specimen of *M. laeviceps* collected by Ian Townsend from Mt Teviot were forwarded by Landcare, Auckland. However, Ian has examined this specimen again recently, and found that it is not in fact *M. laeviceps*, but seems to be closest to *M. rectolineatum* Castelnau, a species which is part of a complex quite commonly occurring in Otago tussock grasslands.

Additional to these four specimens located in New Zealand collections, is the type, which is housed in the Broun Collection in the British Museum (Rowan Emberson pers. comm.). As mentioned above, this was collected in the Ida Valley by J.H. Lewis and described by Broun in 1904. The other female specimen which Britton mentions in his revision (Britton 1949), but not mentioned by Broun (1904) may have been collected at the same time as the type by Lewis, retained in his own collection until his death, and sent to the British Museum at a later date.

All specimens have been recovered from the Central Otago Ecological Region (Maniototo, Manorburn and Old Man Ecological Districts).

Table 1: Label details for known *M. laeviceps* specimens held in collections. The exact wording of labels has been reproduced as far as possible for locality.. Also included are specimen location, locality codes, Ecological regions and Districts (see text). Records are presented in chronological order for collection date.

Specimen Location	Label details				Locality Code	Ecological Region	Ecological District
	Locality	Date	Collector	Other info.			
Broun Collection, British Museum, London, UK	Ida Valley	1904 or before	J.H. Lewis	♀	CO	Central Otago	Maniototo
Museum of NZ, Wellington	Old Mans Range (presumably Old Man Ra.)	4 Apr 1920	G. Howes and (A.C) O'Connor Colln.		CO	Central Otago	Old Man
Auckland Institute and Museum (AMNZ)	Mt Ida (original label) Wedderburn near Mt Ida (label presumed to have been copied from original)	22 Oct 1923	C. E. Clarke Collection		CO	Central Otago	Maniototo
Landcare NZ, Auckland (NZAC)	Mt Teviot	19 Nov 1944	M.R.R. Foord	Second label: 'E.B. Britton det. Comp. with Type'; Third label: 'E.S. Gourlay, Acc. 1970 Ent. Div.' Approx. 450m. Examined by J.I. Townsend and confirmed as ♀.	CO	Central Otago	Manorburn
Canterbury University	Oturehua, Central Otago	20 Oct 1964	P.M. Johns	479m; ♂ with genitalia extruded; under large rock amongst rocks; NZMS1 S134 613 740. ID by J.I. Townsend.	CO	Central Otago	Maniototo

Locality Codes after Crosby *et al* (1976); Ecological Regions and Districts after McKewen (1987).

Institutions and individuals which were contacted but have no *M. laeviceps* in their collections:
 Otago Museum, Canterbury Museum, Mr J.I. Townsend, Lincoln University Entomology Department Museum,
 Canterbury Museum