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**LEPIDOPTERA, CICADIDAE, ACRIDIDAE  
OF THE  
MANORBURN ECOLOGICAL DISTRICT**

by

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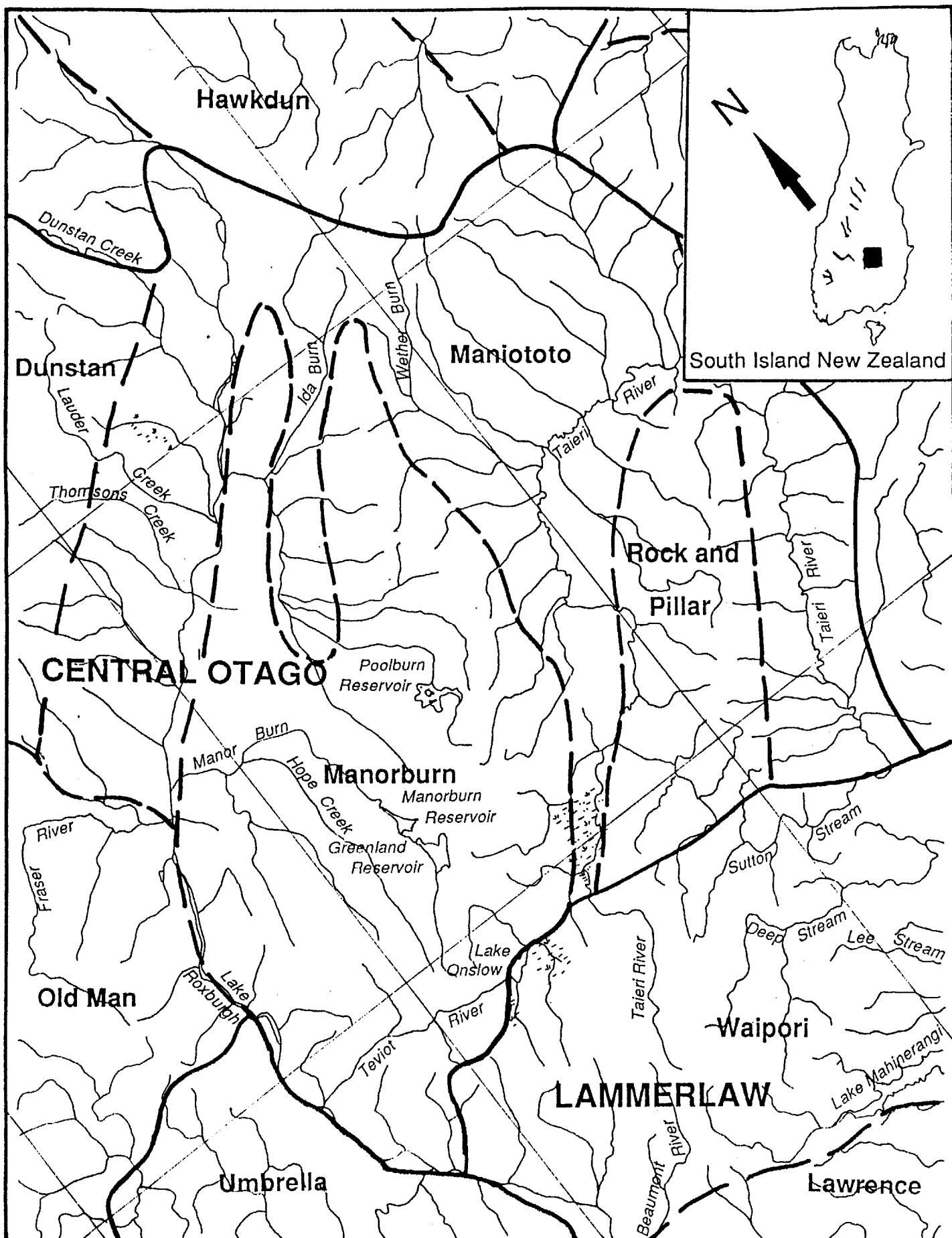
**ABSTRACT**

As part of a formal survey of the Manorburn Ecological District, entomological records from localities within the district were pooled and analysed. A total of 201 species of Lepidoptera, four species of Acrididae and one species of Cicadidae are here recorded from the district. Although no species were found or are known to be endemic to this ecological district, several nationally rare species and many undescribed species are recorded here for the district. The entomological list reflects an even spread of collecting sites from the montane valleys to the alpine grasslands on the highest parts of the district. Biogeographically the insect fauna has close affinities with the Rock and Pillar/Lammermoor Ranges to the east but with some similarity also to the fauna of Mt Benger/Old Man Range to the south. Unlike each of those areas though, it is not an area of high diversity but does contain some important features such as salt pans, tors, shrubland, alpine grassland and cushion field with a highly interesting attendant insect fauna. Key sites for the protection of the known insect fauna are listed.

**Keywords:** Manorburn Ecological District, Lepidoptera, Cicadidae, Acrididae, species list, type localities, rare species, biogeography, saline soils, tors, alpine grassland, shrublands, key sites for conservation.



**Figure 1**      **South Rough Ridge is the highest mountain range in the Manorburn Ecological District.** Cushion vegetation and wetlands are characteristic of the range as is the pictured red tussock grassland with emergent *A ciphylla aurea*.



**Fig. 2 Map of the Manorburn Ecological District in the Central Otago Ecological Region. Scale 1:500 000.**

## 1. INTRODUCTION

During 1988-1989 the Manorburn Ecological District (see fig 2) of the Central Otago Ecological Region (McEwen 1987) was surveyed as part of the Protected Natural Areas Programme by a multi-disciplinary team led by B Fagen (Fagen 1989). Some invertebrates were collected by members of this team. These records together with extensive records from various sites gathered by myself were pooled (see appendix 1) and are here analysed and discussed. For Lepidoptera little has been published on the fauna of the district apart from the records of J H Lewis a resident of Ophir at the turn of the century. These records are published sporadically through G V Hudson's illustrated works (1928, 1939) and included here. Several species were first described from Lewis's specimens from the Ida Valley and Ophir, thus these areas are important type localities for these species (see table 1). Bigelow (1967) collected, records and describes several Acrididae (grasshopper) species from South Rough Ridge amongst other localities. Additionally he records the rare *Sigaus minutus* from Graveyard Gully within the district. Recently Hattenschwiler (1989) used material collected by myself to describe a new species of case-moth in the genus *Scorivdyta*. Original localities for *S.suttonensis*, that are within the district include South Rough Ridge, Raggedy Range, and hills adjacent to Alexandra.

Two large diurnal species of Hepialidae (Poring, swift moths) will shortly be described as new (Dugdale in prep). Two localities (South Rough Ridge and Long Valley Ridge) from within this ecological district will be among the localities for these new species (see fig. 3).

**Table 1: List of species with their Type Locality in the Manorburn Ecological District (Lepidoptera).**

Dichromodes ida Hudson 1905a	Ida Valley
Asaphodes recta (Philpott 1905)	Ida Valley
Eurythecta zelaea Meyrick 1905	Ida Valley
Tingena melanamma (Meyrick 1905)	Ida Valley
Atomotricha lewisi Philpott 1927d	Central Otago
Phylacodes cauta Meyrick 1905	Ida Valley
Cladoxycanus minos (Hudson 1905a)	Ophir

## 2. METHODS

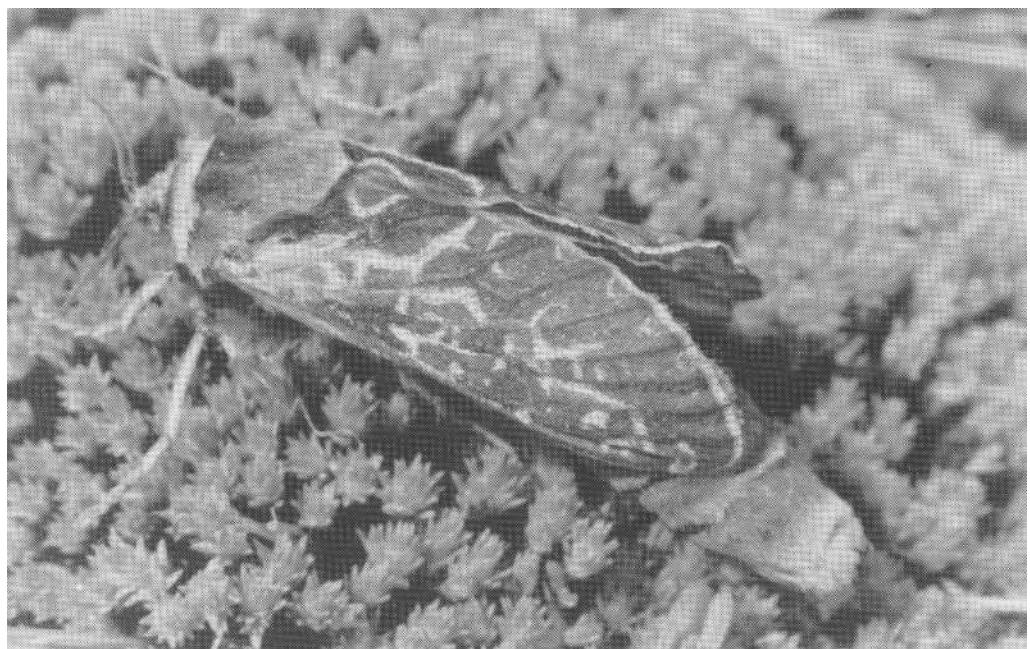
Little collecting was performed by myself during the duration of the formal survey. Most records come from numerous random collecting trips (see Table 2) performed by myself between 1984 and 1989 as part of general Lepidoptera surveys or as part of a survey of saline soil insects (Patrick 1989). Collecting has been both by day and night and the later included the use of a continuous AC powered light-trap in the Ida Valley in March-June 1988. A small collection of both nocturnal and diurnal moths were collected previously by members of the survey team and this has proved invaluable in characterising the fauna as the samples came from sites not collected previously by myself and contained some very important records for the district.

**Table 2: Dates of Collecting Expeditions and Sites Sampled in the Manorburn ED.**

21 Feb 1983	Knobby Ra	grasslands, tors
6 Feb-21 August 1984	Alexandra area	hillsides, tors
15 Dec 1984	South Rough Ridge	700-1160m
23 Feb 1984	South Rough Ridge	grassland/cushionfield
8 April 1985	South Rough Ridge	600-1150m
28 October 1985	Raggedy Range	grassland/cushionfield
22 March 1986	South Rough Ridge	700-1150rn
12 April 1987	Raggedy Range	grassland/cushionfield
20-21 April 1987	Ida Valley	300-600m grassland/tors
27 Sept 1987	North Rough Ridge - east slopes	saline/rocky areas
18 October 1987	Moa Creek, Crawford Hills, Galloway	shrubland, rocky areas
6-8 November 1987	Galloway - Crawford Hills	saline/grassland areas
29 November 1987	Galloway/Moa Creek	saline areas
21 Feb 1988	Galloway	saline areas
1 April 1988	Ida Valley, Raggedy Ra, Moa	saline areas
23 March-4 June 1988	light-trapped Ida Valley at Moa Creek	
3-4 May 1988	Matangi Station - Pinelheugh	700-1000m
3 May 1988	Ida Valley light-trapping	
27 August 1988	Crawford Hills	grasslands
2 November 1989	Galloway	saline areas
17 March 1989	Galloway, Gennan Hills, Long Valley Ridge	saline, cushionfield areas
5 April 1989	Galloway	saline areas

### 3. RESULTS AND DISCUSSION

A total of 201 species of Lepidoptera are listed in Appendix 1 from the Manorburn Ecological District together with four species of Acrididae (Grasshoppers) and one species of Cicadidae (Cicadas). Most of the records are based on my own collecting, with voucher specimens held in my collection. Published records (esp. Hudson 1928) were added to the list for completeness. In these three insect orders/families, no species were found that are endemic to this district although several nationally rare or rarely encountered species were recorded (eg, *Theoxena scissaria*, *Scythris niphozela*, *Parienia mochlophorana*, *A saphodes ida*, *A. cinnabari*, *Dichromodes simulans*). Twelve undescribed species are present in the district including one that was first collected from within the district but is now known outside it. *Phaeosaces* new species has a brachypterous female and is attached to rock tors at 150-400m altitude. First found close to Linnburn Station homestead then on tors close to the Galloway Saline areas, it is now known eastwards on the western flanks of the Rock and Pillar Range above both Patearoa and Paerau. The species list (appendix 1) reflects an even spread of collecting localities in both montane and alpine parts of the district. The alpine lepidoptera fauna consists of around 66 known species, a low number compared to the Rock and Pillar/Lammermoor Ranges with over 218 known species (Barratt and Patrick 1987) even taking into account the intensity of collecting in that published survey. Nonetheless the modest alpine fauna is important as it contains a small number of species not present further eastwards on the Rock and Pillar/Lammermoor Ranges (eg, *A saphodes ida*, *Plutella* sp.). The alpine fauna has its greatest affinity with that of those ranges, as illustrated by the new species of grey and white *A oraia*, which is only found on the three ranges (see fig 3). A vicariant complex (only *A. senex* described) occurs on the Ajax Bog, Blue Mountains, Umbrella Mountains to Remarkables including the Dunstan Mountains and Pisa Range. Both *Aoraia* species present are associated with the alpine grasslands of South Rough Ridge.



**Figure 3:** The brachypterous adult female of a new species of *Aoraia* that occurs amongst alpine cushion vegetation on South Rough Ridge at 1150m.



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**Figure 4:** **Cushion vegetation at 1150m, South Rough Ridge.** The silvery cushions are of *Celmisia argentea* amongst a mosaic of *Oreobolus pectinatus* and *Dracophyllum muscoides*.