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HAWKDUN ECOLOGICAL DISTRICT INVERTEBRATE SURVEY

by

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by
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ABSTRACT

The results of a literature search and survey of the invertebrates of the Hawkdun Ecological District are presented and discussed. A total of 227 native insect species in 14 orders and 12 spider species were found and an annotated list is appended. To complement an ecological survey, key areas for the protection of invertebrate communities are listed.

1. INTRODUCTION / METHODS

The object of this survey was threefold:

- To sample the characteristic invertebrate species of the Hawkdun Ecological District, Waitaki Ecological Region (Fig. 1), and recommend key areas for protection that include these species;
- To complement the representative areas recommended for native plant and ecological protection (Grove 1992); and
- To ensure that the natural processes present in this ecological district, of which the native insects and plants are an integral part, are fully represented in the recommended areas for protection.

A literature search revealed very few early insect records from this ecological district. J.H. Lewis collected beetles and moths in the early 1900s on the Ida Range (Lewis 1901) and later C.E. Clarke collected there, describing several moths from this material in the 1920s. A survey of the moths of the Tara Hills Research Station in the mid 1980s had one of its study sites at 950 m on the Ewe Range, just inside this district's boundary (Patrick 1989). Fifty-five species were trapped by night in that survey using a 12 volt powered eight watt ultraviolet tube over one complete summer season. Thirty-four of these species were found in this survey and are listed in Appendix 1. The balance are low altitude widespread species.

Several moth species have their type locality on the Ida Range. They are:

Asaphodes ida (Clarke 1926)	Eweburn Stream, Mt Ida
Epichorista mimica Philpott 1930	Mt Ida
Harmologa toroterma Hudson 1925	Mt Ida
Leptocroa asphaltis (Meyrick 1911)	Mt Ida
Orocramhus lindsayi Gaskin 1975	Mt Ida

The majority of the invertebrates listed in Appendix 1 were collected during eight excursions (three overnight) to the Hawkdun and Ida Ranges since 1979. Some additional insect material (mainly moths and grasshoppers) was collected by the survey team and included as part of these results.

Insects were collected by hand or net by day in both grassland and aquatic environments. Night-time collecting was achieved by both searching vegetation with a torch or attracting flying species to an eight watt ultraviolet light. Additionally some spiders (Arachnida) were collected.

The crests of the Ida (Fig. 2 and 4) and Hawkdun Ranges (Fig. 6, 7 and 8) were both sampled at different times in the summer season to detect the seasonal changes in the insect fauna. The lower slopes of the ranges were also sampled including the wetlands near Mt Buster. The river terraces of the Otematapaio River were given a cursory sample.

A dried collection of identified representative specimens is stored by the following persons:

Hymenoptera	A.C. Harris	Otago Museum, Dunedin
Diptera	A.C. Harris	Otago Museum, Dunedin
Lepidoptera	B. Patrick	Private collection, Dunedin
Mecoptera	B. Patrick	Private collection, Dunedin
Herniptera	B. Patrick/A.C. Harris	Private collection, Dunedin
Coleoptera	B. Barratt	Private collection, Mosgiel
Trichoptera	J. Ward	Canterbury Museum, Christchurch
Ephemeroptera	T Hitching	Canterbury Museum, Christchurcy
Orthoptera	P Johns/A.C. Harris/ B. Patrick	Canterbury University, Christchurch, Otago Museum and private collection, Dunedin
Odonata	B. Patrick	Private collection, Dunedin
Megaloptera	B. Patrick	Private collection, Dunedin
Plecoptera	I. McLellan	Private collection, Westport
Arachnida	R.R. and L.M. Forster	Otago Museum, Dunedin

LOCALITY MAP

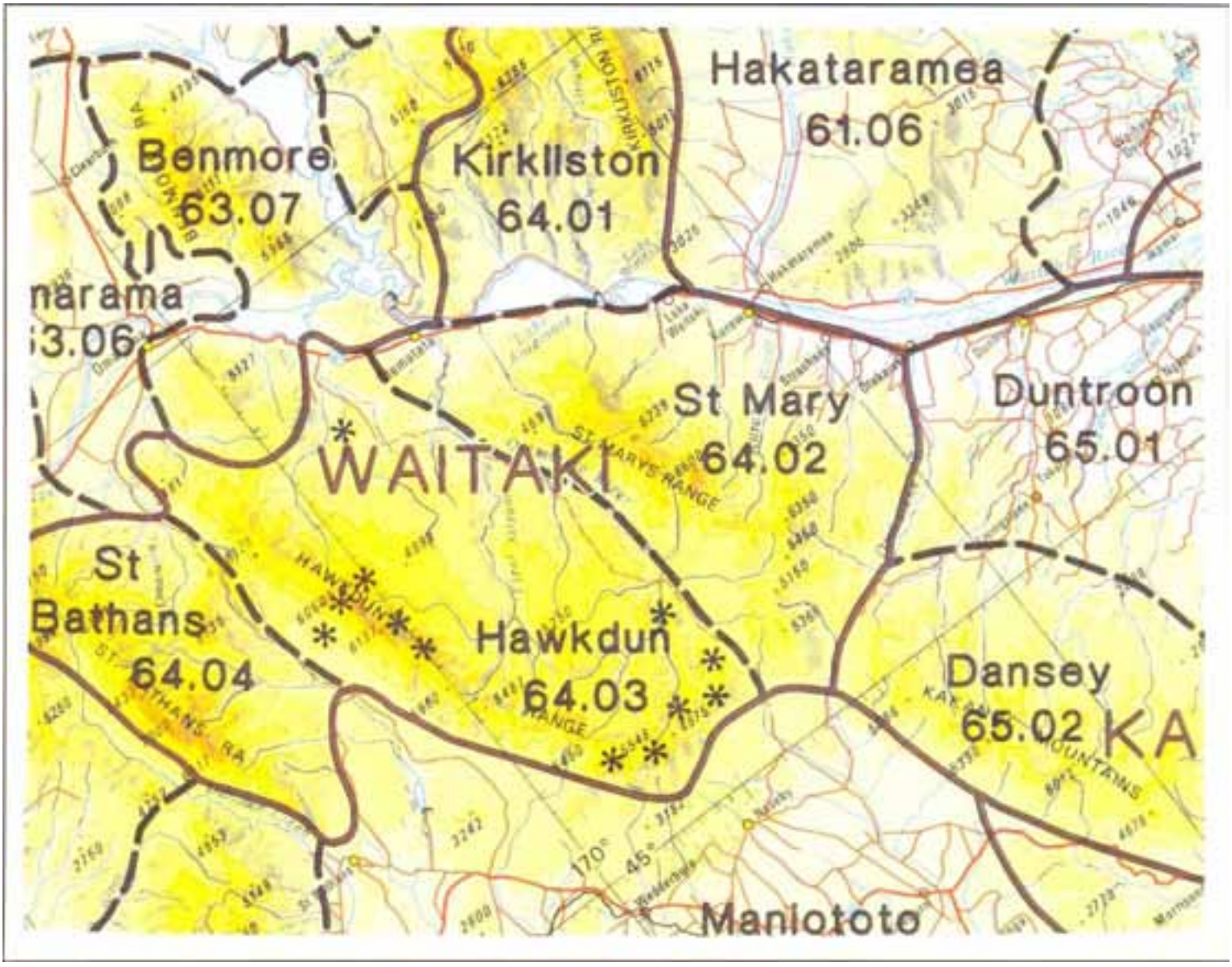

Figure 1: **Map of Hawkdun Ecological District in Waitaki Ecological Region. Scale 1:500,000. Asterisks mark to key areas for the conservation of the characteristic insects and their habitats in the Hawkdun Ecological District**

Figure 2: Long Spur, Ida Range looking west over the large block of plateau country.

Figure 3: This diurnal new species in the genus *Notoreas* frequents fellfield and open areas where *Kelleria villosa,* the larval hostplant exists.

Figure 4: Naturally open areas are common on greywacke substrate. This one east of Mt Ida, at 500 m on Long Spur.

Figure 5: *Maoricicada phaeoptera is* conspicuous by its singing male in high alpine parts of the Hawkdun and Ida Ranges.

2. RESULTS

A total of 227 native species in 14 orders of insects and 12 spiders were found in the Hawkdun Ecological District. These are listed, with annotations, in Appendix 1.

Much less collecting time was spent on this survey than on the nearby Dansey Ecological District (Patrick 1991), hence the much lower number of insects, especially moths found. It can reasonably be expected that many additional species listed for the Dansey Ecological District will be present here also. Despite the lower number of species listed, some characteristics of the fauna are apparent.

1. The insect fauna is not as diverse as that on the schist block mountains of Central Otago, but it does display some interesting biogeographic features.

   Firstly, as with the flora, a number of insect species are confined to the mountains of North Otago/South Canterbury (Kakanui Mountains, St Marys Range, Kirkliston Range, Ohau Range, etc.). The two new species of giant weevil (*Lyperobius*) and the undescribed diurnal moths (*Notoreas* and *Gelophaula)* are some of the species in this faunal element. Secondly, again as in the flora, a number of species typical of Central Otago alpine areas are present at their northern limit of distribution. The caddisfly (Psilochorema *cheirodes),* grasshopper (*Paprides dugdali*) and the moths (*Asaphodes ida, Scoparia* famularis and *Eudonia xysmatias*) are examples. Thirdly, a group of species characteristic of the greywacke mountains of Canterbury are present at or near their southern limit of distribution. The giant weta (*Deinacrida connectens*), the caddisfly (*Zelolessica cheira*), the moth (*Notoreas ischnocyma)* and black cicada (*Maoricicada phaeoptera*) *(Fig.* 5) are examples. Lastly, some species more common and typical of western or main divide mountains were found such as the moth (*Asaphodes omichlias*). This is also found on the Kakanui Mountains (Patrick 1991), its eastern limit in Otago. The schist-greywacke boundary in the eastern portion of the ecological district near Mt Buster is important as a transition zone of typically schist fauna and greywacke fauna (Table 1).

Table I - Insects displaying a schist-greywacke allopatry.

Only on Schist	Only on Greywacke	Distribution Elsewhere
Prodontria n.sp.		North Otago
Hemideina maori		Otago
	Lyperobius n.sp. 1 & 2	South Canterbury
Tmetolophota n.sp.		Otago
Psilochorema cheirodes		Otago
Eudonia xysmatias		Otago
	Brachaspis nivalis	Canterbury
	Deinacrida connectens	Canterbury
	Notoreas n.sp.	South Canterbury
	Notoreas ischnocyma	Canterbury
	Zelolessica cheira	Canterbury
'*Heloxycanus patricki*'		Otago-Southern NZ

2. Some nationally rare species are found in the ecological district. A large weevil *Lyperobius* n.sp. is soon to be described and will have its type locality as the Ida Range (R Craw, pers. comm.). It occurs down to 900 m on its larval and adult host plant, *Aciphylla aurea*. The large adults are up to 28 mm long and may have been once more common at lower altitude, prior to the introduction of predators, judging from the early records of the species (R Craw, pers. comm.). A smaller, also undescribed species of *Lyperobius* occurs on the highest parts of both the Hawkdun and Ida Ranges where its host is *A. dobsoni* or *A. gracilis*. Both species have a compact distribution which includes adjacent mountain ranges just outside this ecological district (St Marys, Kakanui, St Bathans, Ohau Mountains).

The geometrid moth *Asaphodes ida* was described from seven specimens collected in February 1923 at the Eweburn Stream near Mt Ida. The species has rarely been seen since. It has not been recollected on the Ida Range, but a specimen was found in the Manorburn Ecological District, to the south, in February 1989 at 900 m (Patrick 1989). (The same or a new and very similar species has been found in the Rakeahua Valley, Stewart Island (Patrick *et al.* 1992) a most curious distribution.) The closely related *A. recta* is an uncommon autumn emerging species of short tussock grassland. One adult was found during this survey at the base of the Hawkdun Range.

Three other rare moth species have their type locality on the Ida Range. *Orocrambus lindsayi* was described from two brachypterous females and had not prior to this survey, been associated with a male or been recollected. A series of males found at the base of the Hawkdun Range in February 1979 were associated with a brachypterous female that matches very well the description of *O. lindsayi* (Gaskin 1975: 324). The males match the description of *O. ordishi* (Gaskin 1975: 327). *Orocrambus lindsayi* has page priority over *O. ordishi*, but the possible synonymy has yet to be formalised. Both *Harmologa toroterma* (an autumn-emerging species) and *Epichorista mimica* are rare species, the former known elsewhere from a possible record on the Nokomai Range about Garston at 1100 m in March 1987. The latter has not been recollected to date.

3. Typical of eastern South Island grasslands, a late autumn emerging moth fauna is present with diurnal tortricids (*Eurythecta leucothrinca*, Tortricidae new genus and species) and at least one hepialid ('*Aoraia rufivena*' Dugdale MS. name). The new genus and species of tortricid is here at its recorded northern distributional limit, while the hepialids are probably in reality better represented than my records show. For Hepialidae, an additional *Aoraia* ('*A. lenis*' Dugdale M.S. name) species and a new genus and species ('*Heloxycanus patricki*' Dugdale MS. name) are probably present as they are at Danseys Pass (Patrick 1982, 1991) for the same habitat is present on the Ida Range, particularly near Mt Buster.

Figure 6: The eastern end of the Hawkdun Range, looking west to ridges of cushionfield, scree and snowgrass. 1600-1700 m, February 1992.

Figure 7: Fellfield on the crest of the Hawkdun Range at 1860 m looking south-east to Mt Ida. 1992. Flat shrubs of *Dracophylluin inuscoides* dominate the vegetation. February 1992.

Figure 9: Wetlands, tarns and streams beginning on the eastern side of the Hawkdun Range at 1820 m. St Marys Range in background. February 1992.

Figure 8: Large cirques containing wetlands and tarns are found immediately east of the crest (above). *Chionochloa macra* is present over large areas.

4. Apart from the crambid *Q. lindsayi*, and the tortricid E. mimica, a third moth species - a case moth - appears to be confined to this ecological district. It was reared from case-bearing larvae found feeding on algae over rock faces in the headwaters of the Otematata River. The adults that emerged are distinct from other known *Reductoderces* species.

5. The new species in the genus Notoreas, is a striking black and white moth (Fig. 3) that flies rapidly over high-alpine fellfield (Fig. 4 and 7). The larvae probably feed on *Kelleria villosa* in such situations. The species was discovered at Danseys Pass and has since been found on high mountains from east of Lake Hawea to the Kakanui Mountains. A distinct new noctuid in the genus *Tmetolophota* that has been discovered in recent years on the Lammermoor and Nokomai Ranges and the Kawarau Gorge, was found in damp tall tussock near Mt Buster. The species is crepuscular (dusk flying) and apparently local in its occurrence. One undescribed stonefly in the genus *Acroperla* was found in streams on the Ida Range between Mt Buster and Long Spur. Among the caddisflies the short-winged form of *Hydriobiosis chalcodes* found on the Hawkdun Range at 1720 m (Fig. 9), has so far been rarely recorded, being known only from the high-alpine zone of two Central Otago ranges. The females are brachypterous.

6. The absence of the oligophagous tortricid *Pyrgotis* n.sp. (nr. *plagiatana* Walker) on *Cassinia* is noteworthy; elsewhere it is widespread in Otago. Additionally the otherwise common shrub *Leonohebe odora* is absent together with its rich insect fauna.

3. CONCLUSIONS

The alpine insect fauna of the Hawkdun Ecological District is distinctive because like that of the Dansey Ecological District, it is transitional. It contains species typical of both Otago and Canterbury in addition to a fauna restricted to the North Otago mountains. Montane grasslands at the base of the Hawkdun Range and on the terraces of the Otematapaio River have a fauna typical of open grasslands of both the Mackenzie Basin and Central Otago. The diurnal moths, grasshoppers and cicadas are conspicuous components of this fauna. The aquatic fauna of the Otematapaio River at this altitude was not sampled.

To adequately conserve and nurture this insect fauna, a range of key habitats must be delineated and subsequently protected from disturbance such as tracking, grazing by domestic stock, wild pigs or goats and planned fires. Buffering from these factors will allow the natural processes of this ecological district to proceed, ensuring that both insect habitats and species survive.

Key Areas for insect conservation in this ecological district are (see Fig. 1):

1 Mt Buster wetlands and adjacent damp grassland/seepages
2 Ida Range summit from Mt Buster to Mt Ida including Long Spur (Fig. 2 and 4)
3 Hawkdun Range summit plateau including sequence of three cirques and wetlands (Fig. 6-9)
4 Otematapaio River terrace grass land/herb field
5 Rock face communities in Otematata headwaters
6 Shrublands in Otematata headwaters (e.g., Blue Duck Creek)
7 Ida/Hawkdun Ranges western slopes from valley floor grasslands to summits.

The map (Fig. 1) shows only a generalised position for these key areas because some are relatively flexible in their precise location. For more site specific details refer to Grove (1992).

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5. REFERENCES

Gaskin, D.E. 1975. Revision of the New Zealand Crambini (Lepidoptera: Pyralidae: Crambinae). New *Zealand journal of zoology* 33: 186-187.

Grove, P 1992. Hawkdun Ecological District. A Survey Report for the Protected Natural Areas Programme. Unpublished thesis Otago University Botany Department.

Lewis, d. H. 1901. Lepidoptera of Mount Ida. *Transactions and proceedings of New Zealand Institute* 33: 186-187.

Patrick, B.H. 1989. Lepidoptera, Cicadidae, Acrididae of the Manorbum Ecological District. *Science & Research Internal Report No. 60*. Department of Conservation, Wellington. 16p.

Patrick, B.H. 1982. Lepidoptera of Danseys Pass, Otago. *New Zealand entomologist* 7(3): 332-340.

Patrick, B.H. 1989. Survey of the Lepidoptera at Tara Hills Research Station. *New Zealand entomologist* 12: 42-48.

Patrick, B.H. 1991. Insects of the Dansey Ecological District. *Science & Research Series No. 32.* Department of Conservation, Wellington. 21p.

Patrick, B.H., Rance, B.D., and Barratt, B.I.P. 1992. Alpine insects and plants of Stewart Island. Otago *Conservancy Miscellaneous Series No. 9.* Department of Conservation, Dunedin. 59p.

APPENDIX I
Hawkdun Ecological District Irsect Species List

Location codes: I = Ida Range and Mt Buster; H = Hawkdun Range and Ewe Range

	Adult Emergence	Altitude (metres)	Location	
PLECOPTERA				
Austroperlidae				
Austroperla cyrene (Newman)	Dec-Feb	1020-1380	I	H
Gripopterygidae				
Acroperla/Nesoperla n.sp,	Dec-Feb	1020-1380	I	H
Zelandobius childi McLellan	Dec	1350	I	
Zelandobius macburneyi McLellan	Dec	1370	I	
Eustheniidae				
Stenoperla maclellani Zwick	Dec	1380		
Notonemouridae				
Spaniocercoides howesi McLellan	Feb	1500		H
EPHEMEROPTERA				
Austroclima jollyae Towns and Peters	Feb	1500		H
Deleatidium autumnale Phillips	Dec	1350		I
D. vernale Phillips	Feb	1500		H
DERMAPTERA				
Labiduridae				
Pareisolabis sp.				H
ODONATA				
Uropetala chiltoni Tillyard	Feb	1020		H
MEGALOPTERA				
Archichauliodes diversus (Walker)	Feb	to 1020		H
DICTYOPTERA				
Parallepsidion inaculedtum Johns				H
Celatoblatta quinquemaculata Johns				H
ORTHOPTERA				
Gryilidae				
Pteronemobius bigelowi Swan				
Acrididae				
Brachaspis nivalis (Ilutton)		1300-1750	I	H
Paprides dugdali Bigelow		500-1250	I	
Sigaus australis (Hutton)		500-1400	I	H
Phaulacridium marginale (Walker)		to 900	I	H
Stenopelmatidae				
Deinacrida connectens Ander		1400-1600	I	H
Hemideina maori (Pictet and Saussure)		1300-1500	I	
Hemiandrus pallitarsus (Walker)				H

Location codes: I = Ida Range and Mt Buster; H = Hawkdun Range and Ewe Range

	Adult Emergence	Altitude (metres)	Location
TRICHOPTERA			
Hydrobiosidae			
Costachorema callistum McFarlane	Feb	1020	
Hydrobiosis chalcodes McFarlane	Feb	1720	H
Psilochorema cheirodes McFarlane	Dec-Feb	1250-1500	H
P. macroharpax McFarlane	Feb	1020	H
Tiphobiosis n.sp.	Feb	1020-1720	H
Helicophidae			
Zelolessica cheira McFarlane	Feb	1020-1500	H
Hydropsychidae			
Aoteapsyche colonica (McLachlan)	Feb	1020	H
Oeconesidae			
Oeconesus mayri McLachlan	Dec	1250	I
MECOPTERA			
Microchorista philpotti (Tillyard)	Dec	1340	I
HEMIPTERA			
Tibicinidae			
Maoricicada phaeoptera Dugdale and Fleming		1300-1500	I H
M. clamitans Dugdale and Fleming		1300	I
M. campbelli (Myers)		650	I
Kikihia angusta (Walker) Widespread in grasslands, also Ewe Range		600-1300	I H
Nabidae			
Nabis maoricus Walker			H
Miridae			
Reuda mayri White			H
Lygaeidae			
Hudsona anceps (Buch. White)			H
Nysius htttoni (White)			H
Metagerra truncata Malipatil			H
Cymus novaezelandiae Woodward			H
Pentatomidae			
Dictyotus caenosus (Westwood)			H
Delphacid			
Sulix tasmani			H
Anchodelphax haghon (Fennah)			H
DIPTERA			
Limoniinae			
Limonia sp.			H

Location codes: I = Ida Range and Mt Buster; H = Hawkdun Range and Ewe Range

	Adult Emergence	Altitude (metres)	Location
Scatopsidae			
Scatopsidae limonia sp.			H
Scatopse fuscipes			H
Bihionidae			
Philia crinita Hardy			H
Acroceridae			
Ogcodes huttoni			H
Asilidae			
Saropogon discus			H
Syrphidae			
Helophilus antipodus			H
Syrphus ortas			H
S. novaezeandiae			H
Tachinidae			
Hexamera alcis (Walker)			H
Calcager incidens (Curran)			H
C. vorians (Malloch)			H
Plagiomyia turbidium (Hutton)			H
Gracilicera politiventris (Malloch)			H
Occisor inscitus (Hutton)			H
Macquartia vexata Hutton			H
Erythronychia australiensis (Shiner)			H
Trypherina grisea (Malloch)			H
Protohystricia huttoni (Malloch)			H
Sciomyzidae			
Heliosciomyza subspinicosta Tonnoir and Malloch			H
Trypedidae			
Trypanea alboapicata Malloch			H
T. wattii Malloch			H
Ephydiidae			
Psilopa metallica (Hutton)			H
Hydrellia tritici Harrison			H
H. novaezelandiae Harrison			H
H. enderbii (Hutton)			H
Sphaeroceridae			
Leptocera thoniasi Harrison			H
L. luteilabris (Rondani)			H
Agromyzidae			
Cerodontha denticornis (Penzer)			H
Chloropidae			
Oscinosoma badia (Hutton)			H
Diplotoxa neozelandica Harrison			H

Location codes: I = Ida Range and Mt Buster; H = Hawkdun Range and Ewe Range

	Adult Emergence	Altitude (metres)	Location
COLEOPTERA			
(BIPBC) denotes species number in B.I.P. Barralt Collection			
? (altitude) denotes specimens collected by J. Fraser, no altitude on labels.			
Carabidae			
Migadopine sp. 8 (BIPBC)		1650	H
Oregus aereus White		1100	H
Megadromus sp cf. *curtulus* (Broun)		1100	H
Demetrida moesta Sharp		1650	H
Demetrida sp cf. *sinuata* Broun		1450	I
Scopodes prasinus Bates		1650	H
S. edwardsi Bates		1650	H
S. versicolor Bates		?	H
Staphylinidae			
Creophilus oculatus (F.)		?	H
Scirtidae			
Scirtid sp.1		?	H
Scirtid sp.2		?	H
Scarahaeidae			
Odontria variegata Given		1650	H
Pyronota punctata Given		1650	H
P. edwardsi Sharp		?	H
Byrrhidae			
Pedilophorus lewisi Broun		1650	H
Epichorius sp.		?	H
Elateridae			
?*Conoderus* sp.		?	H
Trogossitidae			
Trogossitid sp.		?	H
Melyridae			
Acantharthrus sp nr. *planifrions* (Broun)		1650	H
?*Dasytes* sp.		?	H
Coccinellidae			
Adoxellus sp cf. *prolongatus* Broun		?	H
Coccinella 11-punctata L.		?	H
C. leonina F.		?	H
Adalia bipunctata (L)			
Tenebrionidae			
Mimopeus lewisiana (Sharp)		1100	H
Artystona obscura Sharp		?	H
A. rugiceps Bates		?	H

Location codes: I = Ida Range and Mt Buster; H = Hawkdun Range and Ewe Range

	Adult Emergence	Altitude (metres)	Location	
Oedemeridae				
Selenopalpus rectipes Broun		?		H
Cerambycidae				
Xylotoides sp.		?		H
Chrysomelidae				
Allocharis sp. 8 (BIPBC)		1650		H
Allocharis sp, 19 (BIPBC)		1650		H
Adoxia sp.		?		H
Curculionidae				
Lyperobius n.sp. 1 On *Aciphylla gracilis*		1500	I	
Lyperobius n.sp. 2 On *Aciphylla dobsoni*		1850		H
Peristoreus veronicae (Broun) *On Cassinia*		1650		H
?*Rhopalomerus* sp.		?		H
Liparogetus sp, 1 (BIPBC)		1650		H
Anagotus lewisi group (Broun)		(tussock feeder)		H
Inophloeus sp. 1 (BIPBC)		1650		H
Irenimus sp. 1		?		H
Irenimus sp. 35 (BIPBC)		1650		H
LEPIDOPTERA				
Hepialidae				
"Aoraia rufivena Dugdale MS name"	March	850	I	
Wiseana jocosa (Meyrick)	Dec	1385	I	
W. mindca (Philpott)	Dec	to 1250	I	H
W. umbraculata (Guenee)	Dec	1385	I	
Nymphalidae				
Argyrophenga andpodum Doubleday	Nov-Mar	to 1500	I	H
A. janitae Craw	Dec-Jan	1000-1300	I	H
Bassaris gonerilla (Fabricius)	April	1300	I	H
Percnodaimon merula (Hewitson)	Dec-Jan	1350-1840	I	H
Lycaenidae				
Lycaena salustius (Fabricius)	Feb-Apr	1000-1100	I	H
L. boldenarum White	Dec-Feb	400-1600		H
Psychidae				
Orophora unicolor (Butler)		1300-1500	I	H
Reductoderces n.sp. (endemic) Algal larval cases on rock faces	Oct-Nov	880	I	
Gracillariidae				
Caloptilia elaeas (Meyrick) Larvae in *Coriaria*	Nov-Apr	1200	I	
Caloptilia n.sp. Larvae in *Gatrltheria depressa*	Feb-Apr	1000-1200	I	H

Location codes: I = Ida Range and Mt Buster; H = Hawkdun Range and Ewe Range

	Adult Emergence	Altitude (metres)	Location
Carposinidae			
Heterocrossa contactella (Walker)	Dec	1385	I
Gelechiidae			
Megacraspedus calamogonus Meyrick	April	1200-1300	I
Kiwaia cheradias (Meyrick)	Dec	1250-1340	I
Oecophoridae			
Tingena maranta (Meyrick)	Dec	1400	I
Hierodoris frigida Philpott	Dec-Jan	400	
Otematapaio River terraces			
Yponomeutidae			
Proditrix megalynta (Meyrick)	Dec	1385	I
Brachypterous female. Larvae bore in *Chionochloa* tillers.			
Glyphipterigidae			
Glyphipterix acrothecta (Meyrick)	Feb	420	
Otematapaio River terrace			
Choreutidae			
Asterivora symbolaea (Meyrick)	Feb	1040	I H
Larvae on *Celmisia densiflora*			
Asterivora n.sp.		1200	I
Larvae mining *Brachyglottis bellldoides* leaves.			
Tortricidae			
Eurythecta leucothrinca Meyrick	April	1200	I
Diurnal species with brachypterous female			
Epichorista lindsayi Philpott	Jan	1500	I
Gelophaula n.sp.	Feb	1680	H
Larvae feed in *Celmisia* stems.			
A small diurnal species known from Mt Kyeburn and Ohau Mountains.			
Epichorista mimica Philpott			I
Harmologa toroterma Hudson			I I
Harmologa n.sp. (narrow forewings)		1200	I
Larvae on *Cassinia*. Diurnal adults			
Genus and species nov.	Mar-Apr	700-1300	I H
Diurnal, white striped adults with brachypterous females.			
Crambidae			
Antiscopa elaphra (Meyrick)	Jan	1385	I
Eudonia deltophora (Meyrick)	Jan	900-1500	I H
E. sabulosella (Walker)	Jan	to 1200	I
E. cataresta (Meyrick)	Dec	1000-1385	I H
E. quaestoria (Meyrick)	Dec	1385	I
E. chalara (Meyrick)	Dec	1385	I
E. crypsinoa (Meyrick)	Dec	1385-1400	I
E. trivirgata (F and R)	Dec	1385	I
E. paltomacha (Meyrick)	Dec	1385-1500	I H
E. oculata (Philpott)	Dcc	1000-1680	I H

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	Adult Emergence	Altitude (metres)	Location
E. xysrnatias (Meyrick)	Dec	1200	I
E. feredayl (Knaggs)	Feb	1040	H
Mnesictena flavidalis (Doubleday)	Jan	1000	I H
Orocrambus paraxenus (Meyrick)	Jan	1000-1500	I
O. corruptus (Butler)	Dec	1340-1700	I H
O. cyclopicus (Meyrick)	Feb	300-500	
O. aethonellus (Meyrick)	Dec	1385	I
O. crenaeus (Meyrick)	Dec-Feb	1385-1500	I H
O. dicrenellus (Meyrick)	Dec-Feb	1300-1500	I H
O. lindsayi Gaskin (= *O. ordishi* Gaskin)	Feb	800-850	I H
O. machaeristes Meyrlck	Dec-Jan	1680	H
O. melampetrus Purdie	Dec-Jan	1680	H
O. phllpotti Gaskin	Dec-Jan	1500	H
O. vlttellus (Doubleday)	Dec-Jan	to 1040	H
O. scoparioides Philpott	Dec-Jan	1200	H
Scoparia sideraspis Meyrlck	Jan	1400-1680	I H
S. claranota Howes	Dec	1385	I
S. niphospora (Meyrick)	Feb	1040	H
S. famularis Philpott	Feb	1680	H
Scoparia n.sp.	Feb	1040	H
Tawhitia pentadactyla (Zeller)	Feb	800-900	H
Pterophoridae			
Pterophorus innotatalis Walker	Feb	420	
Larvae on *Dichondra.* Otematapaio river terrace.			
Platyptilia repletalis Walker	April	1200-1300	I
Stenoptilia arites (Meyrick)	Dec	1385	I
Geometridae			
Anachloris suhochraria (Doubleday)	Feb	420	
Otematapaio River terrace			
Aponotoreas anthracias (Meyrick)	Dec-Feb	1300-1600	I H
A. insignis (Butler)	Jan-Mar	900-1300	I H
Arctesthes catapyrrho (Butler)	April	600-1220	I
Asaphodes oraria (Philpott)	Dec	1385	I
A. nephelias (Meyrick)	Feb	1700	H
A. omichlias (Meyrick)	Feb	1500	H
A. recta (Philpott)	March	820	H
A. ida (Clarke)			I
Dasyuris anceps (Butler)	Jan-Feb	900-1500	I H
D. hectori (Butler)		1750	I
Large dark, diurnal species recorded by Lewis (1901)			
Helastia corcularia (Guence)	Feb	420	
Otematapaio River terrace.			
Notoreas n.sp. aff. *perornata* (Walker)	Nov-Dec	600-1450	I H
N. paradelpha (Meyrick)	Nov-Dec	1350-1450	I H
N. galaxias Hudson	Feb	1680	H
N. ischnocyrna Meyrlck	Feb	1680	H
Notoreas n.sp.	Feb	1650	H
Paranotoreas brephosata (Walker)	Dec-Feb	500-1650	I H
Xanthorhoe occulta Philpott	Dec-Feb	1000-1385	I H

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	Adult Emergence	Altitude (metres)	Location
Noctuidae			
Aletia cuneata Philpott		1200	I
A. sistens (Guenee)	Mar-Apr	1000	I
A. obsecrata Meyrick	Dec	1385	I
A. sollennis Meyrick	Dec	1385	I
A. moderata (Walker)	Feb	1040	H
Bityla deftgurata (Walker)	Dec-Apr	1000	I
Graphania phricias (Meyrick)	Jan	to 1200	I H
G. mutans (Walker)	Dec	to 1385	I
G. lithias (Meyrick)	Dec	to 1385	I H
G. disjungens (Walker)	Dec	to 1385	I
G. paracausta (Meyrick)	Dec	to 1385	I
G. ustistriga (Walker)	Feb	to 1040	H
G. nullifera (Walker)	Feb	1040	H
G. mollls (Howes)	Feb	to 1040	H
Ichneutica cana Howes	Dec	1385	I
L homerica Howes	Dec	1385	I
L ceraunias Meyrick	Dec	1385	I
I. notata Salmon	Dec-Feb	1040-1385	I H
Physetica caerulea (Guenee)	Dec;	1385	I
Tmetolophota arotis (Meyrick)	Dec	1385	I
T. acontistis (Meyrick)	Dec	1385	I H
T. lissoxyla (Meyrick)	Feb	1040	H
T propria (Walker)	Feb	1040	
*Tmetolophot*a n.sp.	Dec	1280	I
Arctiidae			
Metacrias huttoni (Butler)	Jan	1200	H
HYMENOPTERA			
Pompilidae			
Priocnends ordishi Harris			H
P crawi Harris			H
Specidae			
Podagritus albipes			H
Podagritus n.sp.			H
Colletidae			
Leioprotus n.sp.			H
Formicidae			
Chelaner antarcticus			H
ARACHNIDA			
Lycosidae			
Lycosa sp.			H
Lycosa hilaris			H
Theriidae			
Achaearanea sp.			H

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	Adult Emergence	Altitude (metres)	Location
Tetragnathidae			
Tetragnatha sp.			H
Tetragnatha hiracanthium			H
Salticidae			
Miturga sp.			H
Trite sp.			
Araneidae			
Colaranea sp.			H
Stiphiidae			
Cambrigea sp.			H
Unknown Family			
Cryelaranea sp.			H
Bodumna sp.			H
Chiracenthium strioticun			H