

Christchurch District Plan Site of Ecological Significance

Site Significance Statement

Site name: Breitmeyers

Site number: SES/A/3

Physical address of site: 153 Breitmeyers Road, Little River

Summary of Significance:

This site is significant because it contains a relatively large example of representative and rare lowland podocarp/hardwood forest. It supports two nationally At Risk plant species, two that are uncommon within the ecological region or ecological district, a nationally rare, un-described fungus, two nationally threatened invertebrates, one that is endemic to Banks Peninsula and one that is uncommon in the ecological district. It also provides important habitat for invertebrates including two nationally threatened moths. The site supports the only known population of one of these species, *Epichorista lindsayi*, a nationally threatened day-flying moth.

Site Map



Additional Site Information

Ecological District: Akaroa

Area of SES (ha): 18.39

Central point (NZTM): E1584138, N5153581

Site Description

The Breitmeyers Site is located between Waiwera and Breitmeyers Roads, above and east of the Okana River and the township of Little River. It is situated on relatively gently sloping west facing hill slopes between approximately 50 and 160 m above sea level. Two streams, small tributaries of the Okana River flow through the site. The Department of Conservation identified this site as a Recommended Area for Protection (RAP 3 - Breitmeyers) (Wilson 1992). A small area (0.48 ha) in the north-eastern part of the site is protected by a Banks Peninsula Conservation Trust covenant and has stock-proof fencing around it (Hutchison 2009).

The vegetation consists of secondary growth lowland hardwood-kanuka forest with occasional large remnant emergent remnant podocarp trees (lowland totara (*Podocarpus totara*), matai (*Prumnopitys taxifolia*), and kahikatea (*Dacrycarpus dacrydioides*)). Juveniles of all three species of podocarp are present and regeneration of lowland totara is particularly notable with numerous individuals in all age classes. The main canopy species are mahoe (*Melicytus ramiflorus*), kanuka (*Kunzea robusta*) and narrow-leaved lacebark (*Hoheria angustifolia*), with lesser amounts of titoki (*Alectryon excelsus*), kowhai (*Sophora microphylla*), and kaikomako (*Pennantia corymbosa*). The sub-canopy is reasonably diverse, with a wide variety of tree species such as pigeonwood (*Hedycarya arborea*), rohutu (*Lophomyrtus obcordata*), kawakawa (*Piper excelsum*), lemonwood (*Pittosporum eugenioides*), kohuhu (*Pittosporum tenuifolium*), small-leaved milk tree (*Streblus heterophyllus*), and akeake (*Dodonaea viscosa*). The understorey is mostly dominated by unpalatable species, with small leaved coprosma/mikimiki (*Coprosma areolata*, *C. rhamnoides*, and *C. rotundifolia*) being the most common shrub species. Climbers are abundant throughout the site, particularly pohuehue (*Muehlenbeckia australis*), native passionfruit (*Passiflora tetrandia*), native jasmine (*Parsonsia heterophylla*), and leafless bush lawyer (*Rubus squarrosus*). The understorey inside the fenced covenant is starting to regenerate well, with noticeably higher numbers of palatable seedlings and ferns than outside the fence (Wildland Consultants unpubl. data 2014a).

Indigenous birds recorded from the site are New Zealand wood pigeon (*Hemiphaga novaeseelandiae novaeseelandiae*), bellbird (*Anthornis melanura melanura*), grey warbler (*Gerygone igata*), South Island fantail (*Rhipidura fuliginosa fuliginosa*), shining cuckoo (*Chrysococcyx lucidus lucidus*), brown creeper (*Mohua novaeseelandiae*) and silvereye (*Zosterops lateralis lateralis*) (Wilson 1992, Wildland Consultants unpubl. data 2014a).

Extent of Site of Ecological Significance

The boundary of the site is the outside extent of both forest patches.

Assessment Summary

The Breitmeyers Site has been evaluated against the criteria for determining significant indigenous vegetation and significant habitats of indigenous fauna listed in Appendix 3 of the Canterbury Regional Policy Statement (Environment Canterbury, 2013) referring also to the Wildland Consultants (2013) Guidelines and advice from the relevant Specialist Ecologist Groups. Under these criteria the site is ecologically significant because it meets the representativeness (criteria 1 and 2), rarity/distinctiveness (criteria 3, 4 and 5), diversity and pattern (criterion 7) and ecological context criteria (criteria 8 and 10).

Assessment against Significance Criteria

Representativeness

- 1. Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.***

The site is significant under this criterion.

With the exception of the understorey, which has historically been degraded by stock and animal pests and is mostly dominated by unpalatable species, the structure and composition forest is representative. Occasional large emergent remnant podocarps (lowland totara, matai, and kahikatea) and juveniles of all three species of podocarp are present and podocarp regeneration, particularly of lowland totara is outstanding (Hutchison 2009). The canopy is good condition and has a representative range of hardwood species and the subcanopy is relatively diverse, with a wide variety of tree species (Wildland Consultants unpubl. data 2014a).

The site also supports a representative assemblage of indigenous Lepidoptera that is considered to be typical of north-facing indigenous lowland podocarp/hardwood forest (Wildland Consultants unpubl. data 2014b). A list of the invertebrate species recorded at the site is provided in Appendix 2.

- 2. Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.***

The site is significant under this criterion.

At approximately 24 ha, the site is a large example of indigenous lowland forest within the Akaroa Ecological District and is significant under this criterion.

Rarity/Distinctiveness

3. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment.

The site is significant under this criterion.

It supports secondary growth lowland hardwood-kanuka forest with occasional large emergent remnant podocarp trees (totara, matai, and kahikatea). Banks Peninsula, including the Akaroa Ecological District, was almost entirely forested prior to the arrival of humans (Harding 2009, Wilson 2013). Harding (2009) estimates that the original extent of podocarp/hardwood forest in the Akaroa Ecological District (ED) (as a % of the ED) was 51 - 75%. Both lowland forest and old growth forest has been reduced to a fragment of its former extent at the Region and ecological district scales. The present extent of all old growth forest is estimated to be approximately 800 ha or <1% of its original extent (Wilson 2009) and the extent of all indigenous forest (excluding manuka and/or kanuka) in the ED is estimated to be 10% of the ecological district (New Zealand Landcover Database (Version 4)).

This site also meets this criteria at the Level IV land environment scale. The majority of the indigenous forest within the site is on an Acutely Threatened land environment (F3.1a) where 9.9% indigenous vegetation is left on this land environment nationally (Walker et al. 2007).

4. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district.

The site is significant under this criterion.

It has two nationally At Risk plant species, two that are uncommon within the ecological region or ecological district, a nationally rare, un-described fungus, two nationally threatened invertebrates, one that is endemic to Banks Peninsula and one that is uncommon in the ecological district.

Plants

Nationally At Risk plant species (de Lange et al. 2013) recorded from the site (Wildland Consultants unpubl. data 2014a) are:

- *Coprosma virescens* (At Risk - Declining)
- Fierce lancewood (*Pseudopanax ferox*) (Nationally Uncommon) (both adults and juveniles).

Plant species recorded from the site (Wildland Consultants unpubl. data 2014a) that are "uncommon to rare or very local" on Banks Peninsula (Wilson 2013) are:

- velvet fern (*Lastreopsis velutina*)
- bamboo rice grass (*Microlaena polynoda*)

Bamboo rice grass was frequently encountered at the site, including a number of very large patches and the site appears to be a stronghold for this species.

A nationally rare, un-described fungus *Amanita* 'Noddy's flycap' was found in the northern patch of forest in 2014. This is only the third record of this species in the South Island, and the 11th record for New Zealand (Wildland Consultants unpubl. data 2014a).

Invertebrates

The intactness and size of the forest within the site means it has retained a suite of indigenous invertebrate species that are now of very restricted occurrence. Three of the moth species have not been recorded anywhere else on Banks Peninsula and this is the first record of two of them on Banks Peninsula (Wildland Consultants unpubl. data 2014b).

The site has two Nationally Threatened moths (Wildland Consultants unpubl. data 2014b):

- *Stathmopoda albimaculata* (Threatened - Nationally Endangered)
- *Epichorista lindsayi* (Threatened - Nationally Endangered)

Epichorista lindsayi is a day flying moth associated with *Microlaena polynoda*. This site supports the only known population of this species which was re-discovered here after 79 years (Wildland Consultants 2014c).

One invertebrate that is endemic to Banks Peninsula has been recorded from the site (Wildland Consultants unpubl. data 2014b):

- A cicada (*Kikihia* 'new species')

One invertebrate that is uncommon in the Akaroa Ecological District has been recorded from the site (Wildland Consultants unpubl. data 2014b):

- Looper moth (*Chrysolarentia subrectaria*) – this site is one of three known locations where this species occurs on Banks Peninsula.

5. The site contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally.

The site is significant under this criterion.

It has four plant species (Wildland Consultants unpubl. data 2014a) at their southern national limit on Banks Peninsula and one species at its southern regional limit (Wilson 2013):

- Titoki (*Alectryon excelsus*) (southern national limit)
- Akeake (*Dodonaea viscosa*) (southern national limit)
- Native passion vine (*Passiflora tetrandra*) (southern national limit)
- Kawakawa (*Piper excelsum*) (southern national limit)
- Pigeonwood (*Hedycarya arborea*) (southern regional limit)

6. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

The site is not significant under this criterion. It does not contain indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors. It is not significant under this criterion.

Diversity and Pattern

7. *Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.*

The site is significant under this criterion.

While the indigenous forest at the site is relatively homogenous, it supports a diverse range of plant, bird and invertebrate species.

Seventy-two indigenous plant species, seven indigenous forest birds and 132 invertebrates (of which 109 are moths and butterflies) have been recorded from the site (Wildland Consultants unpubl. data 2014a, 2014b).

The site also contains a diverse indigenous invertebrate fauna. A recent survey (Wildland Consultants unpubl. data 2014b) which targeted Lepidoptera (moths and butterflies) found 127 indigenous species, of which 107 were moths and butterflies. A list of the invertebrate species recorded at the site is provided in Appendix 2.

Ecological Context

8. *Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.*

The site is not significant under this criterion. It is relatively isolated within the wider landscape and does not provide or contribute to an important ecological linkage or network, although like many of Banks Peninsula's indigenous forest patches it is likely to play some role as part of network of forest patches that assist the movement and dispersal of indigenous fauna within the wider landscape. The site does not provide an important buffering function.

9. *A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.*

The site is not significant under this criterion. There are no wetlands within the site.

10. *Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.*

The site is significant under this criterion.

It provides important habitat for a range of common indigenous forest bird species and provides important habitat for a high diversity of indigenous moths and butterflies (Wildland Consultants unpubl. data 2014b). It supports the only known population of the Threatened - Nationally Endangered day-flying moth *Epichorista lindsayi* which was re-discovered here in 2014 after 79 years (Wildland Consultants 2014c) and provides habitat for the Threatened - Nationally Vulnerable moth *Stathmopoda albimaculata* and a cicada (*Kikihia* sp.) that is endemic to Banks Peninsula.

Site Management

Existing Protection Status

A small area (0.48 ha) in the north-eastern part of the site is protected by a Banks Peninsula Conservation Trust covenant (Hutchison 2009).

Threats and risks	Management recommendations	Support package options
<ul style="list-style-type: none"> • Biodiversity pest plants. The site has a serious common barberry (<i>Berberis glaucocarpa</i>) infestation, particularly on the north side of the northern patch of forest. Other high priority existing pest plant threats are hawthorn (<i>Crataegus monogyna</i>), karo (<i>Pittosporum ralphii</i>) (a non-local native), cherry laurel (<i>Prunus laurocerasus</i>) and cherry plum (<i>Prunus cerasifera</i>) (Wildland Consultants unpubl. data 2014a). • Ongoing invasion via dispersal of seeds by birds and wind. 	<ul style="list-style-type: none"> • Consider control of common barberry. Control of this species is a high priority at this site. • Consider ongoing control and monitoring of other biodiversity pest plants. 	<ul style="list-style-type: none"> • Advice and guidance to landowner about pest plant incursions. • Possible assistance with pest plant control. • Advice and guidance to landowner about monitoring of pest plants. Possible assistance with monitoring.
<ul style="list-style-type: none"> • Loss of the only known population of the day-flying moth <i>Epichorista lindsayi</i> 	<ul style="list-style-type: none"> • Seek advice on appropriate management and monitoring for this species at this site. 	<ul style="list-style-type: none"> • Discuss appropriate management and monitoring with landowner and provide assistance where appropriate.

References

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- Wildland Consultants (2014b). *Banks Peninsula Entomological Survey: Breitmeyers*. Unpublished data collected by Brian Patrick for the Christchurch City Council. (CCC TRIM: 14/249668).
- Wildland Consultants (2014c). *Conservation Status of Five Data Deficient Moth Taxa: Epichorists lindsayi, "Cnephasia" paterna, Stathmopoda endotherma, Gymnabathra ambigua and Scythris "stripe"*. Contract Report No. 3419. Prepared for the Department of Conservation. 15 pp.
- Wilson, H.D. (1992). Banks Ecological Region: Port Hills, Herbert and Akaroa Ecological Districts. *Protected Natural Areas Programme Survey Report No. 21*. Department of Conservation, Canterbury. 342 pp.
- Wilson, H.D. (2013). *Plant Life on Banks Peninsula*. Manuka Press, Cromwell. 412 pp.

Assessment completed by: Scott Hooson
Date: 2 September 2014

Statement completed by: Scott Hooson
Date: 2 September 2014

Statement updated by: XXX
Date: XXX

PLEASE NOTE THIS STATEMENT IS BASED ON INFORMATION AVAILABLE AT THE TIME OF WRITING. DUE TO THE DYNAMIC NATURE OF ECOSYSTEMS, FUTURE REASSESSMENT OF THE SITE MAY BE NECESSARY TO REFLECT ANY CHANGES IN KNOWLEDGE OF ITS ECOLOGICAL SIGNIFICANCE.

Appendix 1: Plant Species List

Sourced from Wildland Consultants unpubl. data (2014a).

Scientific Name	Common Name(s)
Indigenous species	
<i>Alectryon excelsus</i>	titoki
<i>Arthropodium candidum</i>	grass lily, repehinapapa
<i>Asplenium appendiculatum</i>	ground spleenwort
<i>Asplenium gracillimum</i>	
<i>Asplenium hookerianum</i>	Hooker's spleenwort
<i>Calystegia tuguriorum</i>	NZ bindweed
<i>Carmichaelia australis</i>	native broom, common broom
<i>Carex forsteri</i>	cutty grass
<i>Clematis foetida</i>	yellow clematis
<i>Coprosma areolata</i>	mingimingi, mikimiki
<i>Coprosma rhamnoides</i>	mingimingi, mikimiki
<i>Coprosma rotundifolia</i>	round-leaved coprosma, mikimiki
<i>Coprosma virescens</i>	mikimiki
<i>Crassula colligata</i>	stonecrop
<i>Dacrycarpus dacrydioides</i>	kahikatea, white pine
<i>Dichelachne crinita</i>	plume grass
<i>Dichondra repens</i>	Mercury Bay weed, dichondra
<i>Dodonaea viscosa</i>	akeake
<i>Echinopogon ovatus</i>	hedgehog grass
<i>Euchiton species</i>	cudweed
<i>Fuchsia excorticata</i>	tree fuchsia, kotukutuku
<i>Geranium aff. microphyllum</i>	native geranium
<i>Griselinia littoralis</i>	broadleaf, kapuka
<i>Haloragis erecta</i>	toatoa
<i>Hedycarya arborea</i>	pigeonwood, porokaiwhiri
<i>Helichrysum lanceolatum</i>	niniao
<i>Hoheria angustifolia</i>	narrow-leaved lacebark, houhere
<i>Hydrocotyle heteromeria</i>	pennywort
<i>Hydrocotyle moschata</i>	pennywort
<i>Ileostylus micranthus</i>	green mistletoe
<i>Korthalsella lindsayi</i>	dwarf mistletoe
<i>Kunzea robusta</i>	kanuka
<i>Lagenophora strangulata</i>	parani
<i>Lastreopsis velutina</i>	velvet fern
<i>Leptinella dioica</i>	button daisy
<i>Lophomyrtus obcordata</i>	rohutu, NZ myrtle
<i>Meliccytus ramiflorus</i>	mahoe, whiteywood
<i>Melicope simplex</i>	poataniwha
<i>Microlaena polynoda</i>	bamboo rice grass
<i>Muehlenbeckia australis</i>	large-leaved pohuehue
<i>Muehlenbeckia complexa</i>	scrub pohuehue, wire vine
<i>Myoporum laetum</i>	ngaio
<i>Myrsine australis</i>	red mapou, red matipo
<i>Myrsine divaricata</i>	weeping matipo, weeping mapou

<i>Parsonsia heterophylla</i>	native jasmine, akakaikiore
<i>Passiflora tetrandra</i>	native passion vine
<i>Pellaea rotundifolia</i>	round-leaved fern, tarawera
<i>Pennantia corymbosa</i>	kaikomako, ducks foot
<i>Piper excelsum</i>	kawakawa
<i>Pittosporum eugenioides</i>	lemonwood, tarata
<i>Pittosporum tenuifolium</i>	kohuhu, black matipo
<i>Pneumatopteris pennigera</i>	gully fern, pakau
<i>Podocarpus totara</i>	lowland totara
<i>Polystichum oculatum</i>	shield fern
<i>Polystichum vestitum</i>	prickly shield fern, puniu
<i>Prumnopitys taxifolia</i>	matai, black pine
<i>Pseudopanax arboreus</i>	five-finger, whauwhaupaku
<i>Pseudopanax crassifolius</i>	lancewood, horoeka
<i>Pseudopanax ferox</i>	fierce lancewood
<i>Ripogonum scandens</i>	supplejack, kareao
<i>Rubus cissoides</i>	bush lawyer, tataramoa
<i>Rubus schmidelioides</i>	bush lawyer, tataramoa
<i>Rubus squarrosus</i>	leafless bush lawyer, tataramoa
<i>Rytidosperma unarede</i>	danthonia
<i>Scandia geniculata</i>	climbing aniseed
<i>Senecio glomeratus</i>	groundsel, fireweed
<i>Sophora microphylla</i>	kowhai, small-leaved kowhai
<i>Streblus heterophyllus</i>	small-leaved milk tree, turepo
<i>Uncinia leptostachya</i>	hook grass
<i>Uncinia uncinata</i>	hook grass
<i>Urtica ferox</i>	ongaonga, tree nettle
<i>Wahlenbergia gracilis</i>	NZ harebell
Exotic species	
<i>Achillea millefolium</i>	yarrow
<i>Agrostis capillaris</i>	brown top
<i>Anthoxanthum odoratum</i>	sweet vernal
<i>Berberis glaucocarpa</i>	barberry
<i>Callitriche stagnalis</i>	starwort
<i>Cirsium arvense</i>	Californian thistle
<i>Conyza species</i>	fleabane
<i>Crataegus monogyna</i>	hawthorn
<i>Dactylis glomerata</i>	cocksfoot
<i>Digitalis purpurea</i>	foxglove
<i>Epilobium ciliatum</i>	tall willowherb
<i>Euphorbia peplus</i>	petty spurge, milkweed
<i>Holcus lanatus</i>	Yorkshire fog
<i>Hypochoeris radicata</i>	catsear
<i>Juncus bufonius</i>	toad rush
<i>Juncus effusus</i>	soft rush
<i>Lolium perenne</i>	ryegrass
<i>Mentha pulegium</i>	pennyroyal
<i>Orobanche minor</i>	broomrape
<i>Pittosporum ralphii</i>	karo
<i>Plantago lanceolata</i>	narrow-leaved plantain
<i>Plantago major</i>	broad-leaved plantain

<i>Prunus laurocerasus</i>	cherry laurel
<i>Prunus cerasifera</i>	cherry plum
<i>Prunella vulgaris</i>	selfheal
<i>Ranunculus repens</i>	creeping buttercup
<i>Ranunculus sceleratus</i>	celery-leaved buttercup
<i>Rosa rubiginosa</i>	sweet briar, briar rose
<i>Rubus fruticosus</i>	blackberry
<i>Rytidosperma racemosum</i>	danthonia
<i>Sambucus nigra</i>	elderberry
<i>Solanum chenopodioides</i>	velvety nightshade
<i>Solanum dulcamara</i>	bittersweet
<i>Teline monspessulana</i>	Montpellier broom
<i>Trifolium repens</i>	white clover
<i>Ulex europaeus</i>	gorse

Appendix 2: Invertebrate Species List

Sourced from Wildland Consultants unpubl. data (2014b).

* = exotic species

ORDER/Family/genus/species	Common Name
MECOPTERA	scorpionfly
Nannochoristidae	
<i>Nannochorista philpotti</i>	
NEUROPTERA	lacewings
Hemerobiidae	
* <i>Drepanacra binocula</i>	
* <i>Micromus tasmaniae</i>	
HEMIPTERA	
Tibicinidae	cicadas
<i>Amphipsalta zelandica</i>	<i>clapping cicada</i>
<i>Kikihia</i> new species	<i>green cicada</i>
Pentatomidae	shieldbug
<i>Dictyotis caenosus</i>	
Miridae	
<i>Bipuncticoris</i> species	
ORTHOPTERA	
Tettigoniidae	katydid
<i>Conocephalus bilineatus</i>	
Gryllidae	cricket
<i>Pteronemobius bigelowi</i>	
Acrididae	grasshoppers
<i>Phaulacridium marginale</i>	
Anastostomatidae	tree weta
<i>Hemideina femorata</i>	
COLEOPTERA	
Carabidae	ground beetles
<i>Megadromus antarcticus</i>	
<i>Neocicindella latecincta</i>	<i>tiger beetle</i>
Cerambycidae	
<i>Prionoplus reticularis</i>	<i>huhu</i>
Coccinellidae	
<i>Coccinella leonina</i>	<i>ladybird</i>
Scarabaeidae	chafers
<i>Odontria striata</i>	<i>striped chafer</i>
<i>Odontria</i> species	
<i>Pyronota festiva</i>	
HYMENOPTERA	
Ichneumonidae	ichneumon
<i>Netelia producta</i>	
Formicidae	ant
<i>Monomorium antarcticum</i>	
Pompilidae	spider wasp

<i>Epipompilus insularis</i>	
Vespulidae	
* <i>Vespula vulgaris</i>	common wasp
LEPIDOPTERA	
Hepialidae	porina moths
<i>Wiseana copularis</i>	
<i>Wiseana umbraculata</i>	
Tineidae	
<i>Erechthias fulguritella</i>	
* <i>Monopis ethelella</i>	
<i>Opogona comptella</i>	
<i>Opogona omoscopa</i>	
<i>Sagephora phortigera</i>	
<i>Tinea mocholota</i>	
Psychidae	
<i>Liothula omnivora</i>	
Glyphipterigidae	
<i>Glyphipterix alchyoessa</i>	
<i>Glyphipterix nephoptera</i>	
<i>Glyphipterix erastis</i>	
<i>Glyphipterix zelota</i>	
Cosmopterigidae	
<i>Microcolona limodes</i>	
Elachistidae	
<i>Cosmiotes ombrodoxa</i>	
Lyonetiidae	
<i>Bedellia psammitis</i>	
Plutellidae	
<i>Chrysorthenches porphyritis</i>	
<i>Plutella antiphona</i>	
Carposinidae	
<i>Heterocrossa gonosemana</i>	
Depressariidae	
<i>Eutorna symmorphia</i>	
Gelechiidae	
<i>Anisoplaca achyrota</i>	
Oecophoridae	
<i>Barea exarcha</i>	
<i>Gymnobathra flavidella</i>	
<i>Gymnobathra parca</i>	
<i>Gymnobathra sarcoxantha</i>	
<i>Gymnobathra tholodella</i>	
<i>Izatha huttoni</i>	
<i>Leptocroca scholaea</i>	
<i>Stathmopoda albimaculata</i>	
<i>Stathmopoda horticola</i>	
<i>Tingena marcida</i>	
<i>Tingena macarella</i>	
<i>Tingena melinella</i>	
<i>Trachypepla spartodeta</i>	
<i>Trachypepla euryleucota</i>	
Pterophoridae	plumemoth
<i>Platyptilia repletalis</i>	

<i>Pterophorus innotatalis</i>	
Tortricidae	leaf rollers
<i>Capua semiferana</i>	
<i>Cnephasia jactatana</i>	
<i>Ctenopseustis obliquana</i>	
<i>Epichorista lindsayi</i>	
<i>Harmologa amplexana</i>	
<i>Merophyas leucaniana</i>	
<i>Planotortrix excessana</i>	
<i>New genus and species</i>	
<i>Cryptaspasma querula</i>	
Thyrididae	
<i>Morova subfasciata</i>	
Pyralidae	
<i>Patagoniodes farinaria</i>	
Crambidae	
<i>Deana hybreasalis</i>	
<i>Eudonia asterisca</i>	
<i>Eudonia colpota</i>	
<i>Eudonia feredayi</i>	
<i>Eudonia luminatrix</i>	
<i>Eudonia minualis</i>	
<i>Eudonia philerga</i>	
<i>Eudonia leptalea</i>	
<i>Eudonia sabulosella</i>	
<i>Eudonia submarginalis</i>	
<i>Eudonia aff. minualis</i>	
<i>Musotima nitidalis</i>	
<i>Orocrambus flexuosellus</i>	
<i>Orocrambus ramosellus</i>	
<i>Orocrambus vittellus</i>	
<i>Scoparia halopis</i>	
<i>Scoparia minusculalis</i>	
<i>Scoparia ustimcaula</i>	
<i>Udea flavidalis</i>	
<i>Udea marmarina</i>	
<i>Uresiphita maoralis</i>	
GEOMETRIDAE	
<i>Asaphodes beata</i>	
<i>Austrocidaria gobiata</i>	
<i>Austrocidaria similata</i>	
<i>Chrysolarentia subrectaria</i>	
<i>Chloroclystis inductata</i>	
<i>Declana junctilinea</i>	
<i>Epiphyrne undosata</i>	
<i>Homodotis megaspilata</i>	
<i>Helastia cinerearia</i>	
<i>Helastia corcularia</i>	
<i>Hydriomena deltoidata</i>	
<i>Pasiphila bilineolata</i>	
<i>Pasiphila urticae</i>	
<i>Poecilasthena schistaria</i>	
<i>Pseudocoremia indistincta</i>	

<i>Pseudocoremia leucelaea</i>	
<i>Pseudocoremia pergrata</i>	
<i>Pseudocoremia suavis</i>	
<i>Scopula rubraria</i>	
<i>Xyridacma ustaria</i>	
Noctuidae	
<i>Cosmodes elegans</i>	
<i>Feredayia graminosa</i>	
<i>Graphania infensa</i>	
<i>Graphania insignis</i>	
<i>Graphania lignana</i>	
<i>Graphania morosa</i>	
<i>Graphania mutans</i>	
<i>Graphania plena</i>	
<i>Graphania rubescens</i>	
<i>Graphania ustistriga</i>	
<i>Persectania aversa</i>	
<i>Proteuxoa comma</i>	
<i>Tmetolophota atristriga</i>	
Erebidae	
<i>Rhapsa scotoscialis</i>	
<i>Schrankia costaestrigalis</i>	
Lycaenidae	coppers/ blues
<i>Lycaena "comon copper" complex</i>	
<i>Lycaena feredayi</i>	
<i>Zizina oxleyi</i>	southern blue
Nymphalidae	admirals
<i>Vanessa gonerilla</i>	red admiral
Pieridae	white butterfly
<i>*Pieris rapae</i>	
PHASMIDA	stick insects
<i>Clitarchus hookeri</i>	