

## INSECTS FROM THE CAVALLI ISLANDS

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### SUMMARY

One hundred and twenty two species of insects and sixteen species of non-insect arthropods are recorded from the Cavalli Islands, Northland, New Zealand. The feeding patterns of *Trioza curta* and the *Lepidoptera* are noted and the presence of the parasite *Litomastix* is commented upon.

### INTRODUCTION

The insects recorded here were collected on the Cavalli Islands over the period 29 December, 1978 to 7 January, 1979.

The Cavalli Islands lie off the east coast of Northland (Hayward 1979, Fig. 1) and consist of one large central island and about thirty smaller ones. Three islands in the group were surveyed; Motukawanui, Hamaruru and Motumuka. Motukawanui, the main island, has previously been cleared for farming; in addition to areas of bush, regenerating manuka scrub and flax there are large areas of gently sloping grassland. Hamaruru to the north and Motumuka to the south are smaller, more craggy islands with the vegetation in the areas sampled being dominated by flax and low manuka/mingimingi scrub.

### METHODS

Insects were collected by sweep-netting grassland and pitfall trapping on Motukawanui and by using a beating sheet under manuka (*Leptospermum scoparium*) and mingimingi (*Cyathodes fasciculata*) on Motukawanui and Motumuka. Insects were also collected from flax (*Phormium tenax*) and young pohutukawa shoots (*Metrosideros excelsa*) on all three islands and from *Cyperus ustulatus* seedheads, radiata pine (*Pinus radiata*) and Norfolk pine (*Araucaria excelsa*) on Motukawanui. Leaf miners were collected on Sodom's apple (*Solanum sodomeum*) and taupata (*Coprosma repens*) on Motukawanui.

Six sweeps of thirty sweeps each were performed. Sweeps 1-3 were in Waiiti Bay on 30 December 1978. Sweep 1 was next to a *Cyperus* swamp where the dominant grasses were Prairie grass (*Bromus unioloides*) and the native grass *Microlaena stipoides*. Sweep 2 lay between the beach and sweep 1—here the vegetation was predominantly kikuyu (*Pennisetum clandestinum*), plantain (*Plantago lanceolata*) and Sodom's Apple. Little

blues (*Zizina otis labradus*), common coppers (*Lycaena salustius*), white butterfly (*Pieris rapae*) and the little brown moth *Scopula rubraria* were common on this piece of the shoreline. Sweep 3 was on the grass slope of Waiiti Bay heading over towards Papatara Bay; the predominant grass was *Microlaena stipoides*.

Sweeps 4 (2/1/79) and 6 (7/1/79) were on the grass slope behind the old homestead in Papatara (Horseshoe) Bay. Grasses here included perennial ryegrass (*Lolium perenne*), soft brome (*Bromus mollis*), *Microlaena stipoides* and yorkshire fog (*Holcus lanatus*).

Sweep 5 was on the grass slope above Kikipaku beach on the northern side of the island where *Microlaena* and plantain dominated.

## RESULTS

Table 1 is a list of all the species collected. Arrangement of orders and families follows CSIRO (1970) and the common names used follow "Standard names for common Insects of New Zealand" (Bulletin 4, Entomological Society of NZ (Inc.)). Sweep numbers are included principally to give an indication of the abundance of different insect species.

**Table 1. Arthropod species collected from the Cavalli Islands, Northland, New Zealand, 29/12/78 to 7/1/79.**

**Key: M = Motukawanui Island; K = Motumuka Island; H = Hamaruru Island; P = pitfall trap; B = beating; S = sweep netting (sweeps 1-6); F = flax (*Phormium tenax*); C = *Cyperus ustulatus* seedheads.**

CLASS COLLEMBOLA			
Tomoceridae	<i>Lepidophorella communis</i> Salmon; common N.Z. springtail	M	P
Entomobryidae	<i>Entomobrya nivalis</i> (L.); common cosmopolitan springtail	K	B
CLASS INSECTA			
ORDER BLATTODEA			
Blatellidae	<i>Ornatiblatta maori</i> (Rehn) (nymphs)	K; M	B; B, C
ORDER MANTODEA			
Mantidae	<i>Orthodera ministralis</i> (F.) praying mantis (nymph & theca)	M	B
ORDER ORTHOPTERA			
Tettigoniidae	<i>Conocephalus</i> sp. tussock katydid (nymphs)	M	S1,3,4,5,6,
Gryllidae	<i>Pteronemobius</i> sp. small field cricket (nymph) <i>Metioche maoricum</i> (Walker); mute cricket (adult female)	M	S5,6
ORDER PSOCOPTERA			
Ectopsocidae	<i>Ectopsocus briggsi</i>	M	B, S5
Elipsocidae	<i>Protopsocus pulchripennis</i>	M	S4
ORDER HEMIPTERA			
	Suborder Homoptera		
	Superfamily Fulgoroidea		
	Unidentified nymphs	M	S1,4 B

Cixiidae	<i>Oliarus oppositus</i> Walker; plant hopper	M	S1,5,6	
Delphacidae	<i>Ugyops pelorus</i> (Fennah)	H	F	
	<i>Sulix tasmani</i> (Muir)	M	S4	
	Unidentified nymphs	M; H	S1,4; F	
Flatidae	<i>Sephenia cinerea</i> Kirkaldy; grey plant hopper	H	F	
Dictyopharidae	<i>Thanatodictya tillyardi</i> Myers; longheaded bracken hopper	H	F	
		M	B	
Cicadellidae	<i>Deltocephalus vetus</i> Knight	M	S4	
Spondyliaspidae	Typhlocybinae—unidentified sp.	M		
	<i>Ctenarytaina</i> sp. probably <i>pollicaris</i> Ferris & Klyver; psyllid	K	B	
Triozidae	<i>Triozia curta</i> (Ferris & Klyver); pohutukawa psyllid	M; H	Pohutukawa	
Aphididae	<i>Macrosiphum euphorbiae</i> (Thomas); potato aphid	H	F	
	<i>Macrosiphum</i> or <i>Acyrtosiphon</i> sp. (immatures)	M	S1	
Pseudococcidae	<i>Trionymus diminutus</i> (Leonardi); N.Z. flax mealy bug	H	F	
	<i>Sarococcus fagi</i>	K	F	
Diaspididae	<i>Poliaspis</i> sp.	K; H	F; F	
Suborder Heteroptera				
Anthocoridae	<i>Cardiastethus poweri</i> White	M	B, S1	
Miridae	<i>Calcorcis norvegicus</i> (Gmelin); potato mirid	M	S2,6	
	<i>Deraecoris maoricus</i> Woodward	M	B	
	<i>Lygus maoricus</i> F.	M	B	
	<i>Sidnia kinbergi</i> (Stal)	M	S1,2,4,6	
	<i>Chaetodus plumalis</i> Eyles	M	S4	
	<i>Chaetodus longiceps</i> Eyles	M	S1,3,4,5	
	<i>Chaetodus reuterianus</i> (White)	M	S1,4	
	Unidentified sp. (S.F. Phylinae)	M	S4	
	Lygaeidae	<i>Nysius huttoni</i> White; wheat bug	M	S4
		<i>Pachybrachius nigriceps</i> (Dallas)	M	S
<i>Rhyppodes clavicornis</i> (Fabr.); Fabrician lygaeid bug		M	S1,2,6	
Pentatomidae	<i>Targarema stali</i> White	K	B	
	<i>Dictyotus caenosus</i> (Westwood) brown shield bug	M	B, S1,3,4,5,	
	<i>Nezara viridula</i> (L.) green vegetable bug	M	B	
ORDER THYSANOPTERA				
Suborder Terebrantia				
	<i>Thrips obscuratus</i> (Crawford) N.Z. flower thrips	M; H	S1;F	
	<i>Ceratothrips frici</i> (Bag.)	M	S4	
	<i>Isoneurothrips australis</i> (Bag.); eucalyptus thrips	M	S5	
Suborder Tubulifera				
	<i>Nesothrips propinquus</i> (Bag.)	M	S5	
	<i>Haplothrips</i> sp.	M	S5,6	
ORDER NEUROPTERA				
Hemerobiidae	<i>Micromus tasmaniae</i> (Walker); Tasmanian lacewing	M	S6	
ORDER COLEOPTERA				
Ptilidae	Unidentified	M	P	

Leiodidae	<i>Paracatops alacer</i> (Broun)	M	P
Staphylinidae	<i>Thyreocephalus orthodoxus</i> (Olliff); rove beetle	M	P
Pselaphidae	Unidentified	M	P
Helodidae	<i>Cyphon</i> sp.	M	S1
Elateridae	<i>Conoderus</i> sp. aff. <i>melliculus</i> (Candeze); wireworm	M	P
Melyridae	<i>Dasytes minutus</i> (Fabr.) metallic flower beetle	H	Pohutukawa
Silvanidae	<i>Cryptamorpha desjardinsi</i> (Geurin); Desjardin's flat beetle	M	
Phycosecidae	<i>Phycosecis limbata</i> (Fabr.)	M	Sand
Phalacridae	<i>Phalacrus</i> sp.	M	S1
Corylophidae	<i>Anisomeristes</i> sp. 6	M; H	P; F
	Unidentified	M	P
Coccinellidae	<i>Rhizobius ventralis</i> (Erichson); bluegum scale ladybird	M	B
	<i>Coccinella undecimpunctata</i> Linnaeus; eleven-spotted ladybird	M	S1,2,5
Lathridiidae	<i>Corticaria hirtalis</i> (Broun); minute scavenger beetle	M	S1,2,4
Oedemeridae	<i>Baculipalpus strigipennis</i> (White)	M	
Cerambycidae	<i>Arhopalus ferus</i> (Mulsant); burnt pine long-horn	M	Pinelog
	<i>Xylotoles gratus</i> (Broun)	M; H	F; F
	<i>Stenellipsis parvula</i> (White)	K; M; H	F; F; F
	<i>Microlamia pygmaea</i> Bates; adults and larvae	K; H	B; F; F
Chrysomelidae	<i>Eucolapsis jucunda</i> (Broun); bronze beetle	K; M	B; B,S2,6
Anthribidae	<i>Euciodes suturalis</i> Pascoe; grass stem anthribid	M	S1,3,4,5
Apionidae	<i>Apion metrosideros</i> Broun; pohutakawa weevil	H	Pohutukawa
Curculionidae	<i>Sericotrogus subaenescens</i> Wollaston	H	F
	<i>Microcryptorhynchus perpusillus</i> (Pascoe)	H	F
	<i>Phloeophagosoma pedatum</i> Wollaston	H	F
ORDER DIPTERA			
Tipulidae	Unidentified	M	S6
Psychodidae	<i>Psychoda</i> sp.	M	P
Culicidae	<i>Opifex fuscus</i> Hutton; saltpool mosquito	M	rockpool
Chironimidae	Unidentified	H	F
Cecidomyiidae	Unidentified	M	P
Sciaridae	Unidentified	M	P,S1,4
Dolichopodidae	Unidentified	M; H	S4; F
Lonchopteridae	<i>Lonchoptera dubia</i> Curran; spearwinged fly	M	S6
Phoridae	Unidentified	M	P
Lauxaniidae	<i>Poecilohetaerella bilineata</i> (Hutton); white-striped litter fly	H	F
Coelopidae	<i>Chaetocoelopa littoralis</i> (Hutton)	M	Kelp
Heleomyzidae	<i>Heloclusia flavitarsis</i> Harrison	M	P
Sphaeroceridae	<i>Leptocera mirabilis</i> (Collin); little dung fly	M	P
	<i>Leptocera</i> sp.	M	P
Agromyzidae	<i>Cerodontha australis</i> Malloch	M	S1,2,4,5,6
Ephydriidae	<i>Hydrellia tritica</i>	M	S4
Drosophilidae	<i>Scaptomyza graminum</i> (Fallen)	M	S6
	<i>Drosophila melanogaster</i> Meigen	M	B
Muscidae	Unidentified	M	P
Calliphoridae	<i>Calliphora stygia</i> (Fabricius); brown blow fly	M	P
Tachinidae	Unidentified	M	P,S6

		ORDER TRICHOPTERA	
Chathamidae	<i>Philanisus plebeius</i> Walker; marine caddis fly	H	F
		ORDER LEPIDOPTERA	
Tortricidae	<i>Bactra noteraula</i> Walsingham	M	S
	? " <i>Tortrix</i> " <i>persecta</i> Meyrick	H	<i>C.repens</i>
Tineidae	<i>Opogona omoscopia</i> (Meyrick)	M	Pine
	<i>Sagephora</i> sp.	M	P
	<i>Monopis ethelella</i> Newman	M	P
Elachistidae	<i>Cosmiotes archaeonoma</i> (Meyrick)	M	S6
Stathmopodidae	<i>Stathmopoda</i> sp.	H	F
Oecophoridae	<i>Cremnogenes</i> sp. A	M	B
	<i>Cremnogenes</i> sp. B	M	S1
Cosmopterigidae	<i>Batrachedra</i> sp.	H	F
Gelechiidae	<i>Scrobipalpa plaesiosema</i> (Meyrick); tomato stem borer	M	<i>S.sodomaeum</i>
Pyralidae	<i>Pareromene selenaea</i> (Meyrick)	H	F
	<i>Pareromene</i> sp.	M	S6
Pterophoridae	<i>Playptilia repletalis</i> (Walker)	M	S6
Pieridae	<i>Pieris rapae</i> (L.); white butterfly	M	S
Lycaenidae	<i>Zizina otis labradus</i> Godart; common blue	M	P
	Unidentified larva	M	S1
Geometridae	<i>Scopula rubraria</i> Doubleday	M	S
	<i>Epicyme rubropunctaria</i> (Doubleday)	M	S
	Unidentified larva	M	S1
Noctuidae	<i>Athetis tenuis</i> (Butler)	M	S6
	<i>Chrysodeixis eriosoma</i> ; green looper caterpillar	M	S
	<i>Ctenoplusia albostrata</i>	M	S
	<i>Mythimna separata</i> (Walker); cosmopolitan armyworm	M	S
		ORDER HYMENOPTERA	
Ichneumonidae	<i>Echthromorpha intricatoria</i> ; white spotted ichneumon	M	S
Braconidae	? <i>Phaenocarpa</i> ?sp.	M	P
Scelionidae	Unidentified Scelioninae	M	S1
	? <i>Trissolcus</i> sp?	M	P
Diapriidae	? <i>Trichopria</i> sp?	M	P
Figitidae	<i>Anacharis zealandicus</i> Ashmead; lacewing parasite	M	S3
Eulophidae	<i>Elasmus</i> sp.	M	S4
	<i>Hemiptarsensus (semialbiclava)</i>	M	S4
	<i>Tetrastichus</i> sp.	M	S1
	"Eulophid" unidentified	M	S4
Encyrtidae	<i>Litomastix</i> sp.; parasite of <i>Chrysodeixis</i>	M	P
Vespidae	<i>Vespa germanica</i> ; german wasp	M	S1
Trypoxylidae	<i>Pison spinolae</i> Schuckard; mason wasp	M	
Colletidae	<i>Leioproctus</i> sp.; native bee	M	B
Apidae	<i>Apis mellifera</i> ; honey bee		
		CLASS ARACHNIDA	
		ORDER ARANEAE	
Theridiidae	<i>Achaeareanea</i> sp.	K; M	B; S1,2,3,5
Pisauridae	<i>Dolomedes</i> sp.	M	S1,4,B
Thomisidae	<i>Diaea</i> sp.	M	B
Clubionidae	<i>Clubiona</i> sp.; brown headed vagrant spiders	M	S3,P
Araneidae	<i>Araneus</i> sp.; orbweb spider	H	
	<i>Argiope protensa</i> ; tailed grass spider	M	S4

Linyphiidae	<i>Laetesia</i> sp.	M	P
Lycosidae	<i>Lycosa</i> spp. wolf spiders	M	P
Dictynidae	<i>Ixeuticus martius</i> black house spider	M	
	ORDER PSEUDOSCORPIONES		
Chernetidae	<i>Opsochernes carbophilus</i>	M	C
	ORDER ACARINA		
Oribatulidae	<i>Ingella bullager</i> Hammer	H	F
	CLASS CRUSTACEA		
	ORDER AMPHIPODA		
	Unidentified	M	P
	ORDER ISOPODA		
Armadillidae	<i>Cubaris</i> sp.	M	Pine

Identifications were carried out by the following experts. Except where specified these scientists are based at the Entomology Division, DSIR, Auckland. Collembola, Neuroptera and Trichoptera, K.A.J. Wise, Auckland Institute and Museum; Blattodea, Mantodea, Orthoptera and Acarina, Dr G.W. Ramsay; Psocoptera, Dr S.K. Wong, P.H.D.S., M.A.F., Levin; Hemiptera, Ms C.F. Butcher; Triozidae, Ms P. Dale, University of Auckland; Thysanoptera, Ms A.K. Walker; Coleoptera, Dr J.C. Watt; Diptera, Dr B.A. Holloway; Lepidoptera, Mr J.S. Dugdale, and Lin Roberts, University of Auckland; Hymenoptera, Mr E. Valentine and Lin Roberts; Arachnida, Dr R.R. Forster, Otago Museum.

The majority of insects collected are lodged in the National Arthropod collection, Entomology Division, DSIR, Auckland. Exceptions are Collembola, Neuroptera and Trichoptera (Auckland Institute & Museum); Psocoptera (Plant Health Diagnostic Station, Levin) and Arachnida (Otago Museum).

## NOTES

The native cockroach *Ornatiblatta maori* appears to be confined to low scrub on the eastern part of the Auckland Province and outlying islands (Johns 1966). It is the only endemic species that is active during the day, though it is also active at night. At the Cavalli Islands I found it by beating mingimingi on Motumuka Island, and by beating manuka and dissecting *Cyperus ustulatus* seedheads on Motukawanui Island.

The pohutukawa psyllid *Trioza curta* is found not only on pohutukawa but also on northern and southern rata (*Metrosideros robusta* and *M. umbellata*) and *Eugenia maire*. The nymphs feed in pits on the young leaves of all these trees and may badly deform young plants until they escape into adult foliage. (Pam Dale pers. comm.)

Mr J. Dugdale has given me the following information on the host plants of the Lepidoptera. ?“*Tortrix*” *persecta* starts life as a miner in leaves of *Coprosma* spp. then becomes a leaf roller; *Bactra noteraula* feeds on *Cyperus* spp. *Opogone omoscopa*, which was found under the bark of a

Norfolk pine, eats dead and dying plant tissue as does *Stathmopoda* sp. which was found in dead flax stalks; *Sagephora* sp. feeds on dead wood and *Monopis ethelella* on fur and wool. *Cosmiotes archaenoma* is a leaf-miner in grasses, *Cremnogenes* species are litter feeders and the *Pareromene* species, moss feeders; *Playptilia repletalis* and *Scopula rubraria* eat Plantaginaceae; *Pieris rapae*, Brassicaceae and *Zizinia otis labradus*, Fabaceae. *Batrachedra* sp. is a predator of scales—I found it eating the white scale *Poliaspis* on the back of flax fronds. The *Scrobipaepa plaesiosema* larva was found mining Sodom's apple leaves—its common name is tomato stem borer. *Epicyme rubropunctaria* feeds on *Haloragis* and *Geranium* species, *Ctenopplusia albostrigata* on *Erigeron* and *Aster* spp., *Mythimna separata* on maize and other grasses and *Chrysodeixis eriosoma* on a wide range of plants (Roberts 1979). *Athetis tenuis* is a windblown migrant from Australia.

The presence of the green looper caterpillar *Chrysodeixis eriosoma* on the Cavalli Islands is not unexpected but it is interesting to note the presence of its chalcid egg parasite *Litomastix* sp.. *Litomastix* was introduced to NZ from Australia in 1969 and releases in the Auckland region began in 1970. I have collected *Litomastix* in a number of locations well away from the original release sites (e.g. the northern tip of the Coromandel Peninsula) but these have usually been holiday resorts where introduction was most likely achieved by bach owners bringing with them seedlings already contaminated with both host and parasite. Since there are no cultivated gardens on the Cavallis, their introduction there seems more likely to have been wind assisted.

Among the Arachnida, the *Lycosa* and *Araneus* were of particular interest. The *Lycosa* is probably an introduced species and the *Araneus* was a species new to Dr Forster who believes that while it may be an endemic species from the far north, it could well be an Australian immigrant.

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