

Butterfly Report 2012-2014

Why Butterflies are Important

Butterflies are one of the UK's most threatened wildlife groups with three-quarters of the species declining either in distribution or population over the last decade.

Butterflies and moths have been recognised by the British Government as indicators of biodiversity. Their fragility makes them quick to react to change so their struggle to survive is a serious warning about environmental change.

New Zealand's butterflies are in a similar situation. Of the 17 native species, only 9 occur in Auckland and 5 more are restricted to the South Island. Of our 9 local species, the forest ringlet has disappeared from the Waitakere Ranges and the red and yellow admirals are not often seen in the urban area, although making a comeback with the cultivation of their nettle food plants.

The ecological importance of butterflies and moths includes the following factors:

- Butterflies are a component of the richness of biodiversity
- They are pollinators of many native plants (lemonwood, manuka, *Hebe* and *Senecio* species to name a few).
- Butterflies are an important element in the food chain and support a range of predators and parasites.
- Potentially control pest plant species.
- Butterflies have been widely used as model organisms to study the impact of habitat loss and fragmentation, and climate change.

The reasons that butterflies are considered to be indicators of ecosystem health and stability include:

- Their dependence on particular plant species (coppers and *Muehlenbeckia*).
- Their vulnerability through seasonal life stages and susceptibility to environment change.
- Some species are seasonally migratory (yellow admiral) and so indicators of wider ecological change.

Auckland Species

Endemic:

Red admiral	<i>Vanessa gonerilla gonerilla</i>	host plant – nettles
Forest ringlet	<i>Dodonidia helmsii</i>	host plant – <i>Gahnia</i>
Common copper	<i>Lycaena salustria</i>	host plant – <i>Muehlenbeckia</i>
Rauparaha's copper	<i>Lycaena rauparaha</i>	host plant – <i>Muehlenbeckia</i>

Self-introduced

Yellow admiral	<i>Vanessa itea</i>	host plant – nettles
Common blue	<i>Zizina otis labradus</i>	host plant – legumes
Long-tailed blue	<i>Lampides boeticus</i>	host plant – legumes
Monarch	<i>Danaus plexippus</i>	host plant – milkweeds

Red and Yellow Admirals

One of the reasons for the low occurrence of red admirals is through weed management of farmland and roadsides with the removal of nettles, the admirals' larval food plant. The native *Urtica incisa* is similar in appearance to the introduced *Urtica dioica*. The introduced nettle is listed as a surveillance plant in the Auckland Regional Pest Management Strategy, and landowners encouraged in eradicating it. To encourage native butterflies to the urban area both nectar sources and larval food plants are needed.

Butterfly conservation in England has taken a landscape-scale approach to restoring habitats for declining butterfly populations with good success in increasing population and ranges of a number of species. Taking on board some of the lessons learnt (Ellis, S, Bourn, N A D and Bulman, C R (2012) Landscape-scale conservation for butterflies and moths: lessons from the UK.)

There is an opportunity for Auckland to increase the red and yellow admiral populations within the urban area. Both admiral species are occasionally seen on Mt Eden, One Tree Hill, Mt Wellington and Rangitoto. Native nettles are being cultivated around Mt Eden and nettles are known to appear around Cornwall Park. It is possible that nettles, either native or introduced still occur on Motutapu, being old pastoral land. Both red and yellow admirals are long-lived (6-12 months) and somewhat migratory when they over-winter, the yellow admiral being self-introduced from Australia.

From the sightings on volcanic cones, it is conceivable that these high points are used as navigation and orientation points. This apart from the warmth derived from the sun by the volcanic outcrops where butterflies like to sun-bask. Further, the varying management regimes with grazing, wooded and natural areas on these volcanic cones provides the opportunity for nettles and nectar sources to establish.

A landscape-scale approach to encouraging admirals would see nettle planting in appropriate locations on the volcanic cones, providing a network of breeding habitats through the urban landscape.

A further reason for decline in both red and yellow admiral populations is the introduction of several parasites to control the small white butterfly which was accidentally introduced in the summer of 1929-30. The caterpillars are parasitised by the Ichneumon fly, and wasps *Pteromalus puparum* and *Apanteles glomeratus*.

Forest Ringlet

The forest ringlet hasn't been recorded in the Waitakere Ranges in the last 20 years. Re-introduction into the Ark in the Park area has been proposed as a possibility (Forest & Bird magazine, February 2006). Historic Auckland locations where the host plant *Gahnia pauciflora* occurs are being checked for any sightings.

Coppers and Blues at Tuff Crater

Around the rim of the sea-breached Tuff Crater in Northcote there is a population of Rauparaha's coppers on the southern side and a mixed population of common and long-tailed blues on the northern side. These butterflies can be easily seen alongside the walking track between the end of September and late April.



Rauparaha's copper

Photo © by Richard Plinston



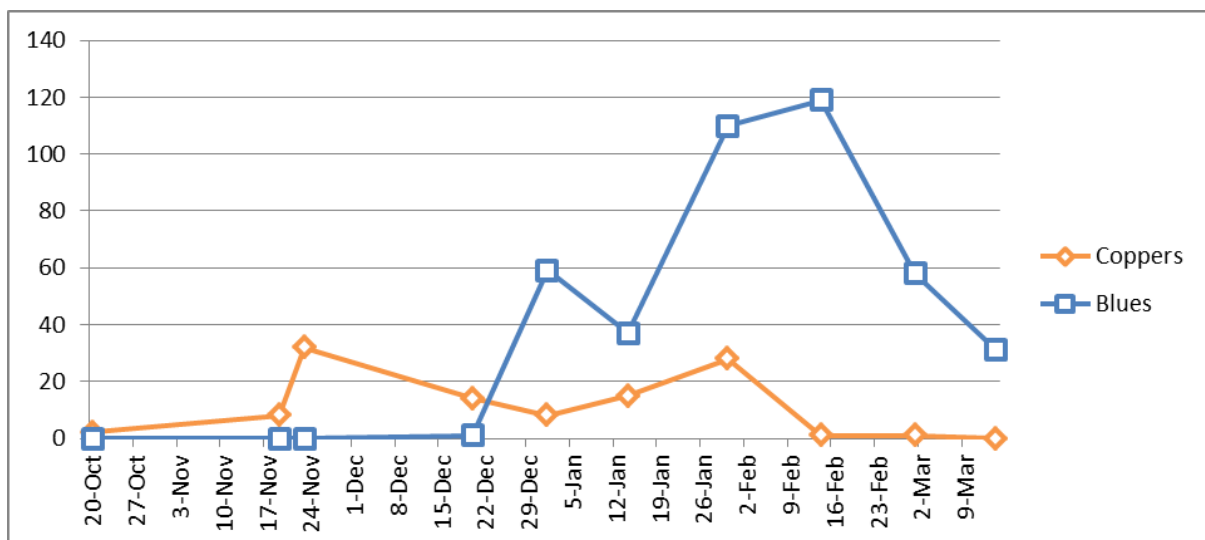
Long-tailed blue

Photo © by Richard Plinston

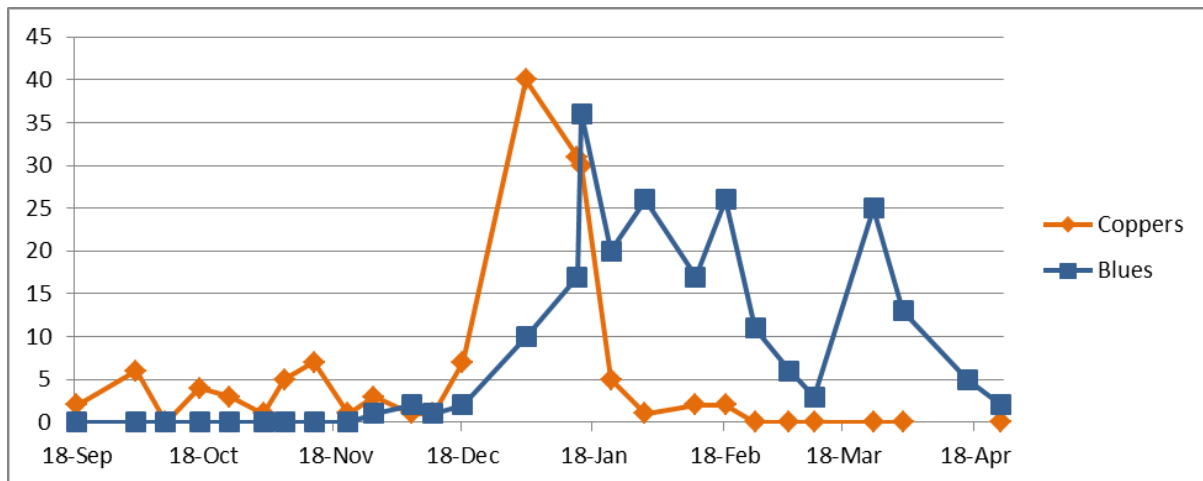
On each side of the crater 500m transects have been set up and butterflies within 10m along each side of the track are counted every week or fortnight from the time they emerge in September until they go into diapause in March or April. Coppers over-winter as caterpillars and blues over-winter as pupae.

Monitoring of these populations now confirms there are two peaks in number of individuals during summer and the intervals between peaks coincides with the length of time it takes from egg to adult for each species; 6-7 weeks for coppers and 5 weeks for blues. The first peak is the emergence of adults from the over-wintering stage, and the second peak is the emergence of new generation adults that will produce the over-wintering stages.

Monitoring 2012-2013



Monitoring 2013-2014



Plans for the 2014-2015 season

Planting of native nettles *Urtica incisa* will be trialled this autumn/winter. If these establish successfully, it is hoped that admirals will be attracted to breed. As these butterflies are migratory (yellows) or far-ranging (reds) and breeding populations are in Mount Eden there is a good chance admirals could be attracted in.

The trial meadow on the south side of Tuff Crater left unmown from October to May will be continued but with mowing to a 50mm minimum cut length from May to early December, and with no mowing from mid-December to the end of February. This same mowing regime is to be repeated for the northern walking track. This will allow more continuous flowering of pasture herbs and seed set.

Next season's monitoring will separately count common blues and long-tailed blues as it appears the long-tailed blues appear earlier in the season and also possibly have a longer season or even over-winter as adults. Monthly counts will be undertaken from May to September to check for over-wintering adults.

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