

Calton Hill, Edinburgh

Report on site visit with Calton Hill Conservation Trust

Craig Macadam, May 2024

Introduction

Calton Hill is a semi natural area of grassland, broad-leaved woodland, bare ground, and rocky outcrops located in the centre of Edinburgh. Covering approximately 10 hectares, it is a popular tourist destination with panoramic views across the city and along the Forth estuary from the hilltop, various monuments and observatory, and a network of paths around and over the hill.

The Calton Hill Conservation Trust held a pollinator walk at Calton Hill on 25th May 2024 lead by staff from Buglife Scotland. This report details the species found during the walk which covered the period between 10:00 and 12:30. Eight participants took part and followed a route from the National Monument, along Regents Walk to Hume Walk, returning to the National Monument via the Parliament Cairn.

The weather for the visit was overcast with sunny spells. There was a strong breeze on the exposed top of the hill, with more sheltered conditions along Regents Walk. Insects were collected using standard insect nets (30cm diameter) either by netting from vegetation or while the insect was in flight. Insects were also observed and photographed in situ on vegetation.

Collected specimens were examined on site with photographs taken for later identification where necessary. The purpose of the event was to introduce participants to the pollinators found on Calton Hill, rather than to undertake a comprehensive survey. Recommendations are however made for future surveys of the site and to inform habitat management work.

Results

24 insect taxa were recorded from six orders.

Honeybees (*Apis mellifera*) were abundant on Broom (*Cytisus scoparius*) near the Nelson Monument. Notably there were few other insects found at this location, apart from a single Buff-tailed Bumblebee (*Bombus terrestris*) worker. It is possible that breezy conditions, combined with the poor floral diversity, contributed to the paucity of insects at this location.

In contrast, the more sheltered conditions and the diversity of flowering plant species along Regents Walk yielded a higher diversity of pollinating insects. Hoverflies including the Pellucid Hoverfly (*Volucella pellucens*), Tapered Hoverfly (*Eristalis pertinax*), and Tiger Hoverfly (*Helophilus* sp.) were found on Cow Parsley (*Anthriscus sylvestris*). These three

hoverflies have larvae that develop in standing water which is rich in decaying organic matter.

Other fly families recorded were the Lauxaniidae, Pipunculidae, and Calliphoridae, the latter represented by the Greenbottle (*Lucilia* sp.)

Early Bumblebee (*Bombus pratorum*) workers were common on wildflowers, particularly Borage (*Borago officinalis*), where the hoverfly (*Syrphus* sp.) was also recorded. Tree Bumblebee (*Bombus hypnorum*) and Common Carder Bee (*Bombus pascuorum*) were also collected in flight in this area.

The sheltered conditions along Regents Walk were ideal for butterflies, however only two species were encountered, the Wall (*Lasiommata megera*) and the Small White (*Pieris rapae*). It is likely that further species would be encountered here during the year.

Three species of solitary bee were recorded, the Orange-tailed Mining Bee (*Andrena haemorrhoa*), the Orange-legged Furrow Bee (*Halictus rubicundus*), and an unidentified *Andrena* sp. These species all nest in the ground either in short swards or along the sides of paths.

Numerous ladybirds were encountered along Regents Walk, particularly where the rock outcrop meets the road. Species recorded included the Two-spot Ladybird (*Adalia bipunctata*), the Ten-spot Ladybird (*Adalia decempunctata*), and larvae of the Seven-spot Ladybird (*Coccinella septempunctata*). Also present in large numbers was the non-native Harlequin Ladybird (*Harmonia axyridis*). Another non-native species encountered was the Light Brown Apple North (*Epiphyas postvittana*) which was accidentally introduced into the UK in the 1930s and has since spread rapidly across the country. Below the rock outcrop there were also numerous specimens of the Hairy Shieldbug (*Dolycoris baccarum*), and on the wall of Calton Hill Drive there were numerous Large Black Ants (*Formica fusca/lemanii*).

Conclusions

Whilst very limited, this event has shown that Calton Hill provides useful habitats for a variety of pollinator species. Further surveys throughout the spring and summer would likely considerably increase the number of species recorded from the site. It is recommended that a regular butterfly transect is established around the site following the methodology used in the UK Butterfly Monitoring Scheme (<https://ukbms.org/get-involved>). Similarly, a BeeWalk Transect could also be established following the methodology published by the Bumblebee Conservation Trust (<https://beewalk.org.uk>). Ad-hoc Flower-Insect Timed (FIT) Counts (<https://ukpoms.org.uk/fit-counts>) could be undertaken at different places around Calton Hill to monitor the diversity and abundance of pollinators visiting flowers.

Foraging opportunities for pollinators were limited on the top of the hill. The only flowering plants observed in this area during this visit were Broom, Pignut (*Conopodium majus*) and some plants in raised beds in the grounds of the Nelson Monument. Pollinators would benefit from a greater diversity of wildflowers, although it is recognised that the high numbers of visitors to the hill may make it difficult establish flower-rich areas.

There has been some 'guerrilla gardening' along the Regents Walk. Whilst this provides useful forage for a range of pollinators, the species sown here include many non-native species which can have a limited flowering period and attract fewer insects. These areas should be supplemented with native wildflower species which provide nectar and pollen sources from spring to autumn. Recommended species include Coltsfoot (*Tussilago farfara*) and dead-nettles (*Lamium* sp.), Ox-eye daisies (*Leucanthemum vulgare*), trefoils and vetches (*Fabaceae*), and knapweed (*Centaurea* sp.), heathers (*Ericaceae*) and scabious (*Knautia arvensis* and *Succisa pratensis*). Including Wood Sage (*Teucrium scorodonia*) and Rock Rose (*Helianthemum nummularium*) could also benefit the Bordered Brown Lacewing (*Megalomus hirtus*) and Northern Brown Argus (*Aricia atraxerxes*) respectively. Both of these species are of conservation concern, and are present on nearby Arthur's Seat.

Annotated Species List

Beetles (Coleoptera)

Coleoptera: Chrysomelidae

a flea beetle (*Longitarsus* sp.) - a small leaf beetle with enlarged femora that allows it to jump when disturbed. The larvae and adults feed on a variety of plants.

Coleoptera: Coccinellidae

2-spot Ladybird (*Adalia bipunctata*) - a common and widespread small ladybird species which is typically found in open habitats such as grasslands and ruderal vegetation. Its larvae feed on aphids (Hemiptera: Aphididae). This species is thought to be declining due to predation by Harlequin ladybirds (*Harmonia axyridis*).

7-spot Ladybird (*Coccinella septempunctata*) - a widespread species which is often common in urban areas. Its larvae feed on aphids (Hemiptera: Aphididae).

10-spot Ladybird (*Adalia decempunctata*) - a common and widespread ladybird species which is typically associated with trees and bushes. Its larvae feed on aphids (Hemiptera: Aphididae).

Harlequin Ladybird (*Harmonia axyridis*) - an invasive non-native species which has spread rapidly through the UK. It is an aggressive predator which consumes large number of smaller invertebrates including the larvae of other ladybird species.

True flies (Diptera)

Diptera: Calliphoridae

a Greenbottle (*Lucilia* sp.) - a common genus of Blow-flies known as Greenbottles due to their distinctive green metallic bodies.

Diptera: Lauxaniidae

These brightly coloured small flies are found throughout the UK where they are typically found in the woodland understory. The larvae feed on decaying organic matter in leaf litter, etc.

Diptera: Pipunculidae

Big-headed flies (Diptera: Pipunculidae) - a small family of true-flies with less than 100 species in the UK. The larvae of pipunculids are parasitoids of leafhoppers (Hemiptera: Auchenorrhyncha) and crane flies (Diptera: Tipulidae).

Diptera: Syrphidae

Pellucid Hoverfly (*Volucella pellucens*) - a common and widespread hoverfly species which is found in woodlands and along hedgerows, particularly where there are brambles and umbellifers present.

Tiger Hoverfly (*Helophilus* sp.) - a widespread and common genus of hoverflies which can be found in a variety of habitats. The larvae develop in organically enriched standing water. The adults visit a variety of flowers and can often be found some distance from their breeding sites.

Tapered Dronefly (*Eristalis pertinax*) - a widespread and common hoverfly species which is associated with woodland rides and hedgerows. Its larvae develop in organically enriched standing waters.

a hoverfly *Syrphus* sp. - a widespread genus of hoverfly which is commonly found in urban areas. The larvae feed on aphids (Hemiptera: Aphididae).

True bugs (Hemiptera)

Hemiptera: Pentatomidae

Hairy Shieldbug (*Dolycoris baccarum*) - a distinctive shieldbug species which is common and widely found throughout the UK. It is associated with hedgerows and woodland edges, particularly where Blackthorn is present.

Bees, wasps, ants and sawflies (Hymenoptera)

Hymenoptera: Anthrenidae

Orange-tailed mining bee (*Andrena haemorrhoa*) - a widespread spring-flying solitary bee species. It visits a variety of flowers but is most commonly found on Hawthorn.

Hymenoptera: Apidae

Honeybee (*Apis mellifera*) - a domesticated bee species which is kept in hives. Large numbers of Honeybees were present indicating that there may be a hive nearby. There is evidence that the presence of Honeybees has a negative effect on wild pollinators, through competition for nectar and pollen resources.

Hymenoptera: Bombidae

Tree Bumblebee (*Bombus hypnorum*) - a newly arrived species of bumblebee which is expanding its range northwards. They usually nest above ground in nest boxes, tree holes and roof spaces. A short-tongued species, the Tree Bumblebee feeds from the flowers of bramble, raspberry and cotoneaster.

Buff-tailed Bumblebee (*Bombus terrestris*) - a widespread and common species of bumblebee which can be found in a wide variety of habitats, including urban areas. It feeds on a wide range of plants.

Common Carder Bee (*Bombus pascuorum*) - a common and widespread species which can be found in a wide variety of habitats, including urban areas. It feeds from the flowers of clovers and vetches.

Early Bumblebee (*Bombus pratorum*) - a common and widespread species which can be found in a wide variety of habitats, including urban areas. It feeds from the flowers of plants such as a brambles, raspberries and borage.

Hymenoptera: Halictidae

Orange-legged Furrow Bee (*Halictus rubicundus*) - a common and widespread solitary bee species which can be found in a variety of habitats where it is most commonly found feeding on flowers in the Daisy (Asteraceae) family.

Hymenoptera: Formicidae

Large Black Ant (*Formica fusca* / *Formica lemani*) - a pair of common and widespread ant species. *Formica lemani* has a more northern distribution whereas *F. fusca* has a scattered, highly localised distribution.

Butterflies and moths (Lepidoptera)

Lepidoptera: Nymphalidae

Wall (*Lasiommata megera*) - a common butterfly species which has increased its distribution northwards as far as Edinburgh. This species favours short open grassland with broken or stony turf where the caterpillars feed on a variety of grass species.

Lepidoptera: Pieridae

Small White (*Pieris rapae*) - a Common and widespread butterfly species, its caterpillars feed on wild crucifers and cultivated brassicas.

Lepidoptera: Tortricidae

Light Brown Apple Moth (*Epiphyas postvittana*) - this non-native species originates from Australia and was accidentally introduced into Cornwall in the 1930s from where it has rapidly spread northwards. The larvae feed on a wide variety of plants.