

THE WILDLIFE GARDEN AT THE NATURAL HISTORY MUSEUM: DEVELOPMENTS OF THE FLORA AND FAUNA UPDATE 2018-2019 - TWENTY-FOUR YEARS OF SPECIES RECORDING

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INTRODUCTION

The purpose of the current report is to present a summary of species reported over the past year since the last Garden update (Ware *et al.* 2018). For the taxonomic groups covered in this article 23 new species have been added to the Wildlife Garden list, including two flies new to Britain and a Nationally Notable wasp. These new additions are listed at the end of this article. The number of species so far recorded in the Wildlife Garden now stands at 3,422.

The Wildlife Garden continues to be recognised both as a valuable environmental and educational resource. In 2018 the Natural History Museum Wildlife Garden won two awards in the Brighter Kensington and Chelsea Scheme. It was awarded the Princess Alice Countess of Athlone Environmental Award and First Prize in the Educational Award.

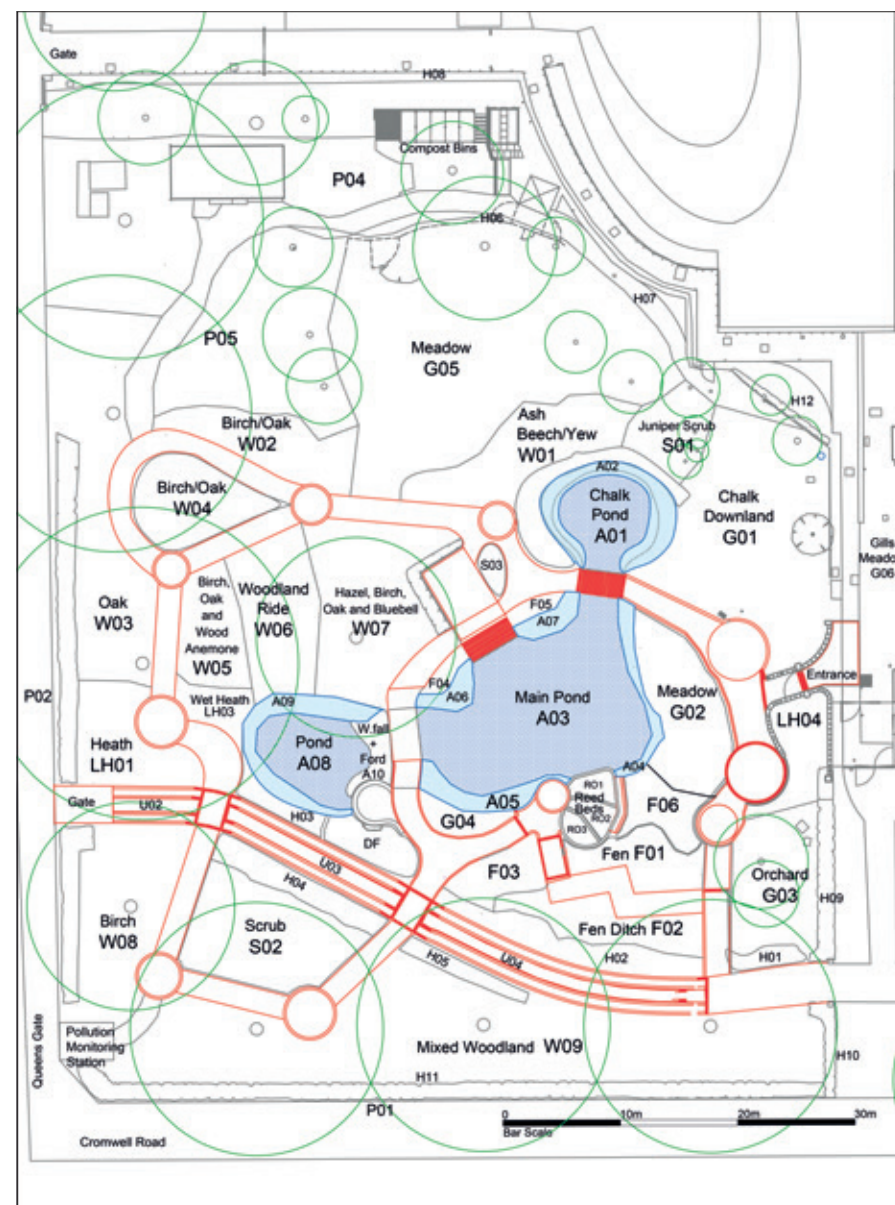
FLORA

VASCULAR PLANTS and HABITAT MANAGEMENT UPDATE

NICKY REILLY

All plant communities continue to be managed and enhanced in line with British lowland habitats. This is achieved with help from a team of dedicated and skilled volunteers and the Museum's small flock of Greyface Dartmoor sheep.

Restoration of the reed beds (R01, R02, R03) began in February 2019 to re-establish a single stand of Common Reed *Phragmites australis*. Plants from the adjacent fen habitat (F01), including Lesser Pond-sedge *Carex acutiformis*, Jointed Rush *Juncus articulatus*, Greater Pond-sedge *Carex riparia*, Pendulous Sedge *Carex pendula* and Purple-loosestrife *Lythrum salicaria*, had spread into the reed beds. The beds were weeded and planted



Wildlife Garden Habitats. © Trustees of the Natural History Museum

with an additional 200 Common Reed plug plants. The water levels of the pond have been adjusted so that the bed is now permanently flooded, reducing the survival of invasive terrestrial plants. Intensive weeding will be required until the reed is dominant again. The Hairy Dragonfly *Brachytron pratense* and the young Moorhen family could be seen in this habitat, almost immediately after flooding.

Neutral (G05, G02, G06, G07) and chalk grassland (G01) habitats were once again grazed between August and November. The meadow (G05) showed a considerable increase in numbers of the hemi-parasitic Yellow-rattle *Rhinanthus minor*, with a noticeable reduction in the quantity of grass, such as Perennial Rye-grass *Lolium perenne*. A detailed survey using 1 metre square quadrats has begun in order to compare the species mix following a survey reported on twenty years ago (Ware 1999). Goat's-beard *Tragopogon pratensis* has significantly increased in numbers and habitats this year. Originally planted in the meadow (G05) in 2007, it has struggled to establish but this year a number of flowering plants (10-50) were present in grasslands adjacent to the Waterhouse building (G06 and G07), both managed as neutral grassland habitats since 2012 (Ware *et al.* 2016). Less welcome was the dominance of Barren Brome *Anisantha sterilis* in G07. The early establishment of this annual in 2019 was possibly encouraged by the March heatwave, with little competition. The barbed awns are a problem for sheep and seed heads were manually removed. In future, early cutting (preferably with a scythe) would remove the flowering stems, allowing sufficient herbage for later grazing.

The Garden's orchids have had mixed success this year. Leaf rosettes of Bee Orchids *Ophrys apifera*, observed in spring 2019, had increased to 15. However, just two of these plants came into flower, with rather poor inflorescences. Two new strong-growing, self-seeded plants were also recorded in flower on the chalk mound in the woodland area (W01) and in the fen (F02). Common Spotted-orchids *Dactylorhiza fuchsii* continue to multiply in the woodland ride (W06), the canopy of adjacent woodland habitats needs managing to ensure sufficient light is maintained in the woodland ride for these orchids to continue to flourish. Common Spotted-orchids also maintain a presence in the meadow (G05), chalk grassland (G01) and woodland (W09). The Summer Lady's-tresses *Spiranthes aestivalis*, planted by the waterfall (A10) in 2013 (Ware *et al.* 2016), did not emerge this year. Two Broad-leaved Helleborine *Epipactis helleborine* persist in the woodland (W01), but, at the time of writing flower spikes have not yet appeared.

An Austrian Pine *Pinus nigra*, at the side of heathland habitat (LH01), was removed this spring to allow space and light for nearby smaller Scots Pine *Pinus sylvestris* and Gorse *Ulex europaeus*, the latter once again providing, for the second consecutive year, a dense habitat for nesting Long-tailed Tits *Aegithalos caudatus*.

The orchard (G03) looked very pretty in early June with more than 100 non-native Rosy Garlic *Allium roseum*, which had possibly previously been misidentified as Field Garlic *Allium oleraceum*. Royal Fern *Osmunda regalis* was planted by the waterfall (A10) in 2006, but did not thrive, with no further sightings of the fern until this year when a large frond was visible!

Plant-insect associations continue to be observed and the additions, including two dragonfly species (see Odonata update below), demonstrate the importance of rigorous but sensitive habitat management for improved biodiversity. A Hummingbird Hawk-moth

Royal Fern *Osmunda regalis*. © Nicky Reilly

Macroglossum stellatarum, a regular species since 2013, appeared rather timely at the Garden's butterfly event held on 11 August 2018, first feasting on the nectar of Purple-loosestrife *Lythrum salicaria* by the main pond and then ovipositing on Hedge Bedstraw *Galium album* in the chalk grassland (G01). Larvae were later observed at this location during September 2018. Other plant-insect associations were mentioned in the 2018 update. It is a tribute to all those involved in 24 years of biological recording and records management, that enables such lifecycles to be protected and encouraged, through sensitive habitat management.



BRYOPHYTES

LEN ELLIS and CAROLINE WARE

The annual bryophyte survey was carried out this year on 4 March and 3 April. A total of 37 species were recorded. These included the two species reported new to the list last year (Ware *et al.* 2018): the liverwort *Frullania dilatata* and the moss *Fissidens viridulus*. A further two species were added to the list this year: *Zygodon viridissimus*, which has colonised logs forming a stag beetle log pile in woodland area W08, and *Syntrichia cf. virescens* found on the paving of the ford area between the waterfall (A10) and main pond (A03). In spite of the hot, dry summer last year, the vulnerable *Cryphaea heteromalla* was still present during the current survey though in impoverished condition and not fruiting. Similarly, *Cratoneuron filicinum* was still present in the reed bed. However, restoration work in the reed bed since April threatens the survival of this moss species.

Not surprisingly the most species-rich habitats for bryophytes in the Garden are the areas of rocks where competition with flowering plants is minimal. Seventeen species of bryophyte were recorded around the waterfall including the new arrival *Syntrichia cf. virescens* and 12 species, including the liverwort *Lunularia cruciata*, in and around the rocks and paving of the dinosaur footprints. The most species-rich vegetated habitat remains the heathland (LH04) with six species growing amongst the Heathers and four species which have colonised the retaining wall built in 2012. The meadow (G05) is the most species-rich grassland habitat with six species of moss growing in the turf, though there is a surprising absence of *Rhytidiadelphus squarrosus* which is generally present in most dry neutral grasslands as well as lawns.

Brachythecium rutabulum remains the dominant moss in the Garden, followed by *Bryum capillare* which is present on walls and fences within the Garden as well as boundary walls alongside Cromwell Road and Queen's Gate. The presence of *Leptodictyum riparium* is increasing, from wet habitats, chalk stream and waterfall to log piles in three of the woodland areas and heathland (LH01).

FAUNA

INVERTEBRATES

ODONATA

JOE BEALE

Two new species have been added to the list since Ware *et al.* (2016) bringing the Wildlife Garden list to 15 species.

A Willow Emerald Damselfly *Chalcolestes viridis* was at the main pond on 13 August 2018 and observed ovipositing on Willow stems on 20 August and 3 September by Joe

Main Pond. © Joe Beale



Above left: Willow Emerald Damselfly *Chalcolestes viridis* egg scars. © Joe Beale

Above right: Willow Emerald Damselfly *Chalcolestes viridis*. © Joe Beale

Beale. There were up to three individuals noted at any one time until the last sighting of two on 10 October. This species dramatically increased its range in London in 2018. On 21 May 2019 volunteer Ollie Burrows reported a hawker dragonfly patrolling around the main pond and Joe Beale found it was a male Hairy Dragonfly *Brachytron pratense*, finding a mating pair later that day and another mating pair on 27 May, when the female appeared to oviposit briefly. A patrolling male was regularly seen from the first sighting until 5 June 2019.

Ruddy Darter *Sympetrum sanguineum* was erroneously omitted from the list in Ware *et al.* (2016) but had in fact been recorded on a number of occasions during 2003-2006. Interestingly, it was not recorded again until 2018, when JB noted up to two on numerous occasions around the main pond, ford and surrounding areas from 3 July until 27 August.

HYMENOPTERA

DAVID NOTTON

On 5 July 2019 the vespid wasp, *Microdynerus exilis*, was found by the main pond. This Notable B species is new for the Wildlife Garden list. A hole-nester, this wasp may use Bramble stems or beetle holes in dead wood in sunny locations and preys on weevil larvae (Curculionidae).

COLEOPTERA

MAXWELL V.L. BARCLAY, MICHAEL GEISER AND KATY POTTS

In 2016, 356 species of beetles from 47 families were known from the Natural History Museum's Wildlife Garden (Barclay in Ware *et al.* 2016). Ware *et al.* (2017) added a further ten species and Barclay in Ware *et al.* (2018) six more, including one additional

family (Tetratomidae), bringing the total to 372 species in 48 families. This is just under half the British families and 9% of British species (4072 species in 103 families known from the UK, according to Duff (2012)). This is impressive for a small urban site.

During the weekend of the 29-30 June 2019, we (the authors of this section) ran a stall in the Wildlife Garden for the Great Exhibition Road Festival, where we invited members of the public to collect insects and try to identify and record them at a table. This proved popular, with over 200 attendees on each day. A Robinson moth trap was also run during the night of the 29 June and examined in the morning.

A number of insects of interest were recorded, including four species that were new for the Wildlife Garden list. These were:

Anthrenus fuscus Olivier 1789 (Dermestidae)

Malthinus balteatus Suffrian 1851 (Cantharidae)

Cryptophilus integer Heer 1841 (Erotylidae)

Cryptocephalus pusillus Fabricius 1777 (Chrysomelidae)

Anthrenus fuscus, a small species of 'Carpet Beetle' generally developing in birds' nests, was found nectaring together with *A. sarnicus* on umbellifers in the meadow, where one of the three *Cryptocephalus pusillus* specimens was also noted (the other two being from the light trap). The light trap also yielded a single specimen of the tiny *Cryptophilus integer*, a comparatively recent introduction to the British list, associated with compost. This species also adds a new family, Erotylidae (the so-called 'Pleasing Fungus Beetles') to the Garden list. The single example of *Malthinus balteatus* was beaten from the branches of the Oak tree above the Honey Bee display while demonstrating the beating tray to a group of children. This species was formerly given a rarity status of 'Notable B' but was downgraded in the latest review as it appears to have spread and it was at that time reported from 122 hectads post-1980 (Alexander 2014).

Other species already on the list, but of interest, included a number of ladybirds: 14-spot, 10-spot and Orange Ladybirds were relatively common, and a few Harlequin Ladybirds were observed, the latter mostly as larvae or pupae. No 7-spot or 2-spot Ladybirds were seen. Among the smaller species, *Rhyzobius chrysomeloides* and *R. lophanthae* were present feeding on scale insects on the Gorse, *Stethorus punctillum* was swept in the meadow, and a single specimen of the generally very rare *Clitostethus arcuatus* was collected by Tom McCarter from the underside of an Ash leaf at the edge of the meadow. Examination of wood piles revealed several examples of the small introduced scarab *Saprosites natalensis*, which seems to have become commoner in central London in recent decades, as well as Lesser Stag Beetle *Dorcus parallelipipedus*, which is apparently well established in the Garden in spite of observed predation by Magpies as well as mortality on the pavement by Queen's Gate on warm summer evenings.

During the weekend's collecting, a number of recently-added species such as *Scirtes hemisphaericus* (Scirtidae), *Bruchidius villosus* and *Plagioderma versicolora* (both Chrysomelidae) were found still to be present.

Earlier in June 2019, Scientific Associate Hitoshi Takano had noted a specimen of the Rosemary Beetle *Chrysolina americana* (Linnaeus 1758) (Chrysomelidae) at the edge of the Garden, bringing the total of new additions to the Garden list for 2019 to five. The Wildlife Garden list now stands at 377 beetle species, in 49 families.



Hummingbird Hawk-moth *MacroGLOSSUM stellatarum*. © Joe Beale

LEPIDOPTERA

DAVID C. LEES

Three new moths have been added to the Garden list in the past year. On 30 May 2019 there were two tortricids *Phtheochroa schreibersiana* (a distinctive species that only started turning up in Middlesex around 2017) and *Spilonota laticana* in the MV light trap and both are new to the Garden. The Twenty-plume Moth *Alucita hexadactyla* was also found in the Garden in the past year. Although this is a relatively common species it had not been recorded previously.

Of interest were several Hummingbird Hawk-moth *MacroGLOSSUM stellatarum* larvae, found on bedstraws in the chalk downland in early September. This followed sightings of an adult investigating those areas earlier in the summer. This moth is an uncommon visitor but has bred before.

A Seraphim *Lobophora halterata* was caught during the spring; the second year running this species has been recorded suggesting it is probably resident in the Garden. Nicky Reilly recorded a Cinnabar Moth during the day on 18 Apr 2019, an exceptionally early record.

A live Spring Usher *Agriopsis leucophaearia* was found inside the Museum on 21 February 2019. The moth was found by the 8th floor lift in the Darwin Centre. This geometer has not been recorded in the Garden but the proximity of this recent record suggests it may be found there in future.

DIPTERA

DUNCAN SIVELL

The previous Garden update (Ware *et al.* 2018) mentioned the discovery of a cryptochetid fly, a new species and family for Britain, by David Notton in the meadow (G05). The species has now been confirmed as *Cryptochetum iceryae* (Whitmore *et al.* 2019) which was first described in Australia and has been used as a biological control agent of

Cottony Cushion Scale *Icerya purchasi* in the Americas and in Israel. Although this fly has not been recorded in Europe before the scale insect host has been reported a number of times in London and has been found on Gorse *Ulex europaeus* in the Wildlife Garden by Caroline Ware.

Another fly new to Britain was recorded from the edge of the same meadow (G05). *Sciapus pallens* is a relatively large and distinctive dolichopodid fly (Meuffels and Grootaert 1990). Sixteen adults were found in a Malaise trap sample that ran from mid-June to mid-July 2018. A search through older Malaise samples from 2012 and 2013, set at the same location, uncovered a single individual of same species from May 2013. These numbers suggest *Sciapus pallens* has been in the Garden for at least six years and is now well established. More details of this discovery will be published in a separate article.

Another seven Diptera species have been added to the Garden list over the past year. The fact that this includes two common and widespread hoverfly species (*Meliscaeva auricollis* and *Platycheirus scutatus*) shows that, despite the discovery of species new to Britain, the Diptera are still an under-recorded group in the Garden. The current Diptera list stands at 274 species from 56 families, or approximately 4% of the British fauna.

VERTEBRATES

BIRDS

JOE BEALE

Since the last report and up to 30 June 2019 one more species has been recorded: Firecrest *Regulus ignicapilla*. This was a singing male bird found on 8 September 2018 and observed moving around various habitat compartments by Joe Beale. The site list remains at 65 species as the 2018 report included a duplicated name in the total.

Sightings of less common species included Fieldfare *Turdus pilaris* remains found on 14 November 2018, thought to have been predated by a Peregrine *Falco peregrinus*. Florin Feneru saw a Woodcock *Scolopax rusticola* on 31 October 2018 (the first since January 1997) and one was found dead below Museum windows near the Garden on 23 March 2019. Overhead, a Peregrine was seen on 20 August 2018, a Common Buzzard *Buteo buteo* on 3 April 2019 and two Greylag Geese *Anser anser* flew past on 15 April 2019. Migrant Chiffchaffs *Phylloscopus collybita* passed through in autumn on 1-2 Oct 2018 and in spring on 25 March and 17 April 2019. Green Woodpecker *Picus viridis* sightings were on 29 January and 5 June 2019. Wintering Redwings *Turdus iliacus* peaked at eight birds on 12 February 2019.

Breeding species in 2019 were much the same as the previous report with Long-tailed Tit *Aegithalos caudatus* attempting to nest in the Gorse again, but the nest was apparently predated by a Magpie *Pica pica*, which had its own nest nearby. Great Tit *Parus major* and Blackbird *Turdus merula* bred. Robins *Erithacus rubecula* fledged young, as did Wren *Troglodytes troglodytes*. Coal Tit *Periparus ater* adults were seen feeding fledglings in May, with Blue Tits *Cyanistes caeruleus* observed doing so in June. Blackcap *Sylvia atricapilla* sang on various occasions but this species was not proven to have bred. Moorhens *Gallinula chloropus* again had their usual two broods at the main pond.

LIST OF SPECIES NEW TO THE WILDLIFE GARDEN

FLORA

BRYOPHYTES

Orthotrichaceae

Zygodon viridissimus

Pottiaceae

Syntrichia cf. *virescens*

FAUNA

ODONATA

Aeshnidae

Brachytron pratense Hairy Dragonfly

Lestidae

Chalcolestes viridis Willow Emerald
Damsel fly

COLEOPTERA

Dermestidae

Anthrenus fuscus

Cantharidae

Malthinus balteatus

Erotylidae

Cryptophilus integer

Chrysomelidae

Chrysolina americana
Cryptocephalus pusillus

DIPTERA

Keroplastidae

Orfelia discoloria

Anisopodidae

Sylvicola cinctus

Dolichopodidae

Gymnopterus aerosus
Sciapus pallens (new to Britain)

Syrphidae

Meliscaeva auricollis
Platycheirus scutatus

Tephritidae

Philophylla caesia

Cryptochetidae

Cryptochetum iceryae (new to Britain)

Fanniidae

Fannia parva

HYMENOPTERA

Vespidae

Microdynerus exilis (Nationally notable B)

LEPIDOPTERA

Alucitidae

Alucita hexadactyla Twenty-plume Moth

Tortricidae

Phtheochroa schreibersiana
Spilonota laricana

BIRDS

Regulidae

Regulus ignicapilla Firecrest

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the Wildlife Garden database and to Salma Ahmed, Peter Alsbury and Willie Ross for their time adding records.

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