THE WILDLIFE GARDEN AT THE NATURAL HISTORY MUSEUM: DEVELOPMENTS OF THE FLORA AND FAUNA UPDATE 2020-2021 – TWENTY-SIX YEARS OF SPECIES RECORDING

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INTRODUCTION

This article presents a summary of species recorded in the Wildlife Garden since the last report (Sivell *et al*. 2020). Recording and monitoring in the Wildlife Garden during 2020 and 2021 was again disrupted by the coronavirus pandemic, with repeated lockdowns resulting in staff being forced to work from home and no recording days, such as bioblitz events, taking place. Despite that, recording throughout the past year resulted in the first records in the Wildlife Garden of 11 fly species, a nationally scarce millipede, the first new ant species since 2014, as well as two species new to Britain. In total, 17 additional species from 14 families and six groups were recorded, bringing the number of taxa known from the Wildlife Garden to approximately 3,343. These new species records are listed at the end of the article.

MONITORING AND RECORDING

SYLVIA MYERS

Over the last year we have been refining our survey methods across the grounds in order to build on previous data, survey according to national schemes where possible and extend surveys beyond the Wildlife Garden. Surveys have been disrupted due to coronavirus lockdowns and restrictions on staff and volunteers being on site. Our records are now being stored in iRecord so they are accessible to all who want them and the old MS Access database has been retired.

Butterflies

In spring 2020 staff from the Natural History Museum met with Andrew Wood, Hertfordshire and Middlesex County Recorder for Butterfly Conservation. Creation of a formal Butterfly Conservation registered transect was discussed; however, due to the upcoming works on the grounds and lockdown, registering the transect has been paused until grounds works are finished. The transect route (taking in the whole museum grounds) has, however, been planned and is being walked weekly, when conditions are suitable, to give a baseline comparison before and after garden works.

Moths

Regular moth trapping continues in the Wildlife Garden. Like most of our monitoring, trapping paused during lockdowns, so there is little 2020 data. Since March 2021 we have determinedly been putting the moth trap out but the cold wet weather at the start of 2021 meant very low moth numbers. Hopefully as the weather warms there will be more in the trap and perhaps some new records from the Garden to share in the next *London Naturalist*.

Dragonflies and damselflies

In August 2020 timed fixed-point monitoring of the Odonata using the Wildlife Garden ponds was began, carrying out three surveys over August and September. Seven species were recorded, including the Brown Hawker *Aeshna grandis* which has not been recorded in the Garden since 2003. Surveys will resume in June 2021, hopefully catching sight of some of the earlier emergers.

Vascular plants

Over 2020 and 2021 an up-to-date inventory of all the vascular plants in the Wildlife Garden is being created with frequent surveying throughout the spring and summer, ensuring coverage of all areas of the Garden over all seasons. This will hopefully give a good point of comparison for the floral diversity after the new grounds designs and highlight any plants that need to be taken extra care of during the grounds works.

Birds

Weekly bird walks have been performed in the Wildlife Garden whenever eases in lockdown have allowed staff on site. Taking advantage of the break in continuity we adjusted the route in March 2021 so that it takes in the whole grounds and avoids paths that will not exist in the new grounds designs. A Stock Dove *Columba oenas*, was observed in the Garden in February 2020, only the second time recorded on site (first sighting 2019). No other rarities have been observed over the last year but it has been wonderful to see signs of Great Tits *Parus major*, Blue Tits *Cyanistes caeruleus*, Carrion Crows *Corvus corone*, Magpies *Pica pica*, Long-tailed Tits *Aegithalos caudatus*, Moorhens *Gallinula chloropus* and Wrens *Troglodytes troglodytes* breeding on (or near) site over spring 2021. Outside the surveys, two Woodcocks *Scolopax rusticola* were discovered by Max Barclay in November 2020, sadly deceased, presumably having flown into the windows of DC2. The only previous record of a Woodcock is from 1997 when: '[It] was observed as it flew into the southwest tower or indentation between it and entomology block, was injured, tail moving up and down and lying on back opening and closing its beak, tail relaxed and all movement ceased, there is muddy mark and a feather'.

OTHER SURVEYING

Malaise and pitfall trapping around the grounds has been continuing as part of the Urban Nature Project's science strand. As catches are processed through classical and eDNA methods records across the grounds will be gathered. An extensive newt survey is currently being undertaken which will be written up in a future *London Naturalist*

issue once full results are available. As always, Wildlife Garden staff and NHM scientists are making casual records when they can. The Darwin Tree of Life Project, which is attempting to map the genomes of the majority of British species, has been a particular driver of collection over the last year.

BRYOPHYTE SURVEY

CAROLINE WARE & LEN ELLIS

At the start of 2020 Caroline Ware and Len Ellis carried out a bryophyte survey of the Wildlife Garden. 28 species of moss and four species of liverwort were recorded. No new species for the Garden were recorded in 2020, but it was noted *Oxyrrhynchium speciosum*, new in 2018, was still present on the chalk grassland and the abundance of *Didymodon insulanus* on the dinosaur footprints was noted to have increased since 2019.

HEMIPTERA AND COLEOPTERA

MAXWELL V.L. BARCLAY

The Natural History Museum Wildlife Garden continues to play an important role as a 'sentinel point' for monitoring the UK's changing insect fauna, because of the warm London microclimate, and the proximity on the one hand of potential sources of insect importation with plants and other commercial goods throughout the capital, and on the other hand, of a community of scientists able to identify species as they appear. The earliest British records of a number of insect species were from the Garden and many have since been found to occur over a much wider area.

2020 was no exception, with a highlight being the capture in early August of a single adult male specimen of the Brown Marmorated Shield Bug *Halyomorpha halys* (Stål) (Pentatomidae) (fig. 1) using a pheromone lure hung on a Juniper bush at the edge of the 'meadow'. This was one of the first two records of this east Asian pest species to be found in an outdoor situation in Britain, the other being from Rainham Marshes, Essex, also in August 2020. The finds were published by Powell *et al*. (2021) along with a discussion of the species' potential for establishing in Britain, and the story was reported in many of the national newspapers. Brown Marmorated Shield Bug is established in North America and much of Europe, can be a serious pest of vegetables and soft fruits, and can enter buildings in large numbers in autumn. None have yet been found in the Museum building, although two other recently imported shield bugs have been; a

Figure 1: *Halyomorpha halys* adult.
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single Southern Green Shield Bug *Nezara viridula* (Linnaeus) was reported in winter 2008 (Salisbury *et al*. 2009) and the Mottled Shield Bug *Rhaphigaster nebulosa* (Poda), first reported in the London area by Bantock *et al*. (2011), has regularly been found overwintering in the 'Origin of Species' gallery that overlooks the Garden since about 2014. Neither of these has been added to the list for the Wildlife Garden but it is the only conceivable source of the overwintering adults.

The Coleoptera (beetles) are represented in the Garden by 377 species in 48 families (Barclay in Ware *et al*. 2016), Ware *et al*. (2017), Barclay in Ware *et al*. (2018), Barclay in Sivell *et al*. (2019). The lockdown of 2020 prevented most entomological collecting but a light trap run by Tom McCarter on the warm night of the 10th August yielded 13 beetle specimens of 12 species and eight families. These included the recent additions to the Garden list *Cryptocephalus pusillus* Fabricius (Chrysomelidae) and *Scirtes hemisphaericus* (Linnaeus) (Scirtidae), indicating that they have established populations. The only beetle new for the Garden was the Ivy Woodworm *Mesocoelopus collaris* Mulsant & Rey (Ptinidae), a recent arrival for the British fauna, first reported from the neighbouring London borough of Hammersmith and Fulham (Barclay 2009). The larvae bore in the stems of dead Ivy, which is abundant in the Garden.

DIPTERA

SAM THOMAS

At the start of June 2021 a number of Diptera species new for the Garden were recorded from the woodland around the top pond (A08). These included common and widespread species *Chlorops hypostigma* (Chloropidae), *Coenosia testacea* (Muscidae), *Anthomyia procellaris* (Anthomyiidae), *Minettia longipennis* (Lauxaniidae) and *Fannia armata* (Fanniidae) as well as potentially more local species *Hercostomus nanus* (Dolichopodidae), *Cinochira atra* (Tachinidae) and *Trixoscelis similis* (Trixoscelididae) (fig. 2). That eight new flies for the Garden were collected in around ten minutes of sweeping hints at just how many Diptera species remain to be recorded from the Gardens.

Figure 2: *Trixoscelis similis*.
© Sam Thomas

Leaf mine surveys have continued, with new records for the Wildlife Garden of the leaf-mining Agromyzidae flies *Cerodontha caricicola* in January 2020 and *Phytomyza glechomae* and *Chromatomyia syngenesiae* in May 2021. *C. caricicola* was reared from mines on Pendulous Sedge *Carex pendula*, *C. syngenesiae* was reared from mines on Smooth Sow-thistle *Sonchus oleraceus*

while *P. glechoma* mines were found on Ground-ivy *Glechoma hederacea*. In terms of historic Agromyzidae records from the Garden there are two species that appear to have been recorded as mines for which rearing and dissection is necessary for reliable identification. These are *Chromatomyia horticola* and *Phytomyza spondyii*. While both species are common and may occur in the Garden it would be sensible to remove them from the list until they can be properly confirmed. Given this, the number of Agromyzidae species recorded from the Garden now stands at 19.

OTHER RECORDS OF INTEREST

***Mesopsocus fuscifrons* (Psocoptera) new to Britain – Duncan Sivell**

The previous Wildlife Garden update (Sivell *et al*. 2020) mentioned some barkflies (Psocoptera) that were still awaiting identification. Among these specimens was *Mesopsocus fuscifrons* which is a species new to Britain. This barkfly, which is more normally found around the Mediterranean, is quite distinctive due to its large size, dark forehead and markings on the eye and can be identified using Leinhard (1998). More details of this discovery will be published separately.

***Cylindroiulus parisiorum* – Duncan Sivell**

In April 2021 the Nationally Scarce millipede *Cylindroiulus parisiorum* was found in logs at the foot of a mature Plantier's poplar (*Populus nigra* 'Plantierensis') tree and also in the nearby compost bins. Several individuals were recorded indicating that a population is present within the Wildlife Garden.

Figure 3: *Cylindroiulus parisiorum* female. © Duncan Sivell

Cylindroiulus parisiorum takes its name from the catacombs of Paris, where this species was originally described (Blower 1985). This millipede is widely but sparsely distributed across central Europe. Despite the fact it is a scarce species in Britain (Lee 2015), the majority of European records come from the south of England (Kime & Enghoff 2017).

Cylindroiulus parisiorum belongs to a group of four *Cylindroiulus* millipedes that look very similar and require dissection to be certain of identification. The common *Cylindroiulus britannicus* also occurs in the Wildlife Garden and was found together with *C. parisiorum*. Blower (1985) notes that *C. parisiorum* can be paler than the other three similar species, and this was certainly the case for some individuals which were almost white in appearance with red spots along the flanks. However, other individuals were the more generic mottled brown colour typical of this *Cylindroiulus* group (fig. 3).

The discovery of *C. parisiorum* in the Wildlife Garden may not come as a huge surprise as this species was recorded from Holland Park and Chelsea in the 1980s, and it is also known from Kew Gardens. However, how long this species has been present in the Wildlife Garden is open to speculation. Millipedes have been relatively well recorded over the years suggesting *C. parisiorum* might be a recent colonist, but as *C. parisiorum* can look like the common *C. britannicus* it may have been present in the Garden for longer but has been overlooked.

***Ophion confusus* – Gavin Broad**

The ichneumon wasp *Ophion confusus* was recorded from a light trap in June 2021. A widespread and common species, *O. confusus* was described in 2019 and is very similar to many other *Ophion* species, particularly *O. mocsaryi*. Specimens of '*mocsaryi*' in collections need to be checked for *O. confusus*. This specimen has been flash frozen at -80ºC for potential genome sequencing under the Darwin Tree of Life project.

***Leptothorax acervorum* – Duncan Sivell**

This ant was collected in June 2021 from the trunks of young Ash and mature Poplar trees on the edge of the meadow. Although this is a fairly common and widespread species across Britain it is the first record of a Myrmicine ant species in the Garden. Smaller and more slender than the common *Myrmica* species, which have yet to be seen in the Garden, *L. acervorum* also tends to form much smaller colonies of one queen and less than 20 workers (Pontin 2005) so can create nests in dead branches or large twigs.

LIST OF SPECIES NEW TO THE WILDLIFE GARDEN

HEMIPTERA

Pentatomidae

1. *Halyomorpha halys*

COLEOPTERA

Ptinidae

2. *Mesocoelopus collaris*

DIPTERA

Chloropidae

3. *Chlorops hypostigma*

Muscidae

4. *Coenosia testacea*

Anthomyiidae

5. *Anthomyia procellaris*

Lauxaniidae
6. *Minettia longipennis*
Fanniidae
7. *Fannia armata*
Dolichopodidae
8. *Hercostomus nanus*
Tachinidae
9. *Cinochira atra*
Trixoscelididae
10. *Trixoscelis similis*
Agromyzidae
11. *Cerodontha caricicola*
12. *Phytomyza glechomae*
13. *Chromatomyia syngenesiae*

PSOCOPTERA
Mesopsocidae
14. *Mesopsocus fuscifrons*

DIPLOPODA
Julidae
15. *Cylindroiulus parisiorum*

HYMENOPTERA
Ichneumonidae
16. *Ophion confusus*
Formicidae
17. *Leptothorax acervorum*

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