YOUR LONDON AIRPORT
Gatwick

# GATWICK AIRPORT ANNUAL BIODIVERSITY REVIEW 2020

**Bee Orchid (*Ophrys apifera*) © Rachel Bicker**

## Annual report summarising 2020 biodiversity work at Gatwick Airport and progress with the biodiversity benchmark award

Authored by Rachel Bicker, Biodiversity Advisor (Gatwick Airport Ltd)
March 2021

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# [1] – INTRODUCTION

## [A] – 2020 SUMMARY AND COVID-19 RESPONSE

The COVID-19 pandemic in 2020 had a significant impact on the aviation and tourism industries, with Gatwick Airport's passenger numbers at record lows. Therefore, it was inevitable that the Biodiversity Action Plan would be affected during 2020 as a result of travel restrictions, group-size restrictions, budget constraints and uncertainty all taking its toll on nature conservation activities. However, considerable efforts were delivered for ecological monitoring, habitat works and community engagement.

### Ecological monitoring (surveys)

The nationwide lockdown which commenced on March 23rd led to many planned surveys being postponed or cancelled at a critical time of year for the start of our ecological field season. As nationwide restrictions were gradually eased during the summer, there were budget constraints limiting our ability to complete specialist surveys. For certain wildlife groups and ecological survey methods, there were further restrictions concerning the potential for human-to-mammal transmission (namely Hazel Dormouse and all bat species). In the species review section of this report, each species group includes an opening paragraph to summarise the impacts of the COVID-19 pandemic.

### Habitat works

Many of the planned spring tasks were put on hold and rescheduled, however some of these works are seasonally dependant and the window of time was missed, such as wildflower seeding and spring grassland scything. Once restrictions began to ease, the GGP Project Officer and Gatwick's Biodiversity Advisor were able to review priority habitat actions. Summer conservation volunteering works were able to continue albeit on a smaller scale, with group sizes limited to 6 people or less. It was fortunate timing that our self-led Volunteer Reserve Managers (VRMs) had been set up in 2019. This group then received additional training in COVID-19 risk assessments and tool-hygiene, before recommencing their programme of routine, small-scale habitat management tasks. Regular larger-scale contractor works, such as grassland hay cut and collect, invasive species management and scrub control, generally continued as normal.

### Community engagement

Guided walks, forest schools, on-site workshops, wildlife events and work experience placements were significantly disrupted. Efforts were made during the period of lowest restrictions to engage people in an outdoor setting, through the Wellbeing in the Wild sessions run by GGP. Several events were also delivered online by the GGP Project Officer. Further details can be found in section 4 - Community Engagement (page 48).

Below is a timeline of COVID-19 events with descriptions on how they impacted Gatwicks biodiversity programme.

| | |
|---|---|
| March 23rd | The first COVID-19 (CV19) national lockdown was implemented by the UK Government; all ecology survey work postponed or cancelled. The furlough scheme began and a significant number of Gatwick staff were furloughed. Sussex Wildlife Trust staff along with the Gatwick Greenspace Partnership Project Officers were also furloughed. Grounds maintenance contractors were able continue operating on a reduced maintenance programme of work. |
| May 13th | Lockdown eased, social distancing implemented and two people from different households were permitted to meet outdoors. Ongoing budget constraints meant that contracted monitoring was not able to recommence. |
| June 1st | Further easing of restrictions, with groups of up to 6 people allowed to meet outdoors. Biodiversity Advisor was brought back from furlough for a three week period to carry out essential site checks, general biological recording and structured surveys where possible. |
| End of June | Gatwick Greenspace Partnership Project Officer was brought back from furlough for two weeks to carry out site safety inspections, essential habitat management works and writing risk assessments and procedures to enable safe conditions for volunteers to return. |
| Early July | Further easing of restrictions as multiple households were permitted to meet outside. Gatwick Greenspace Project Officer was taken off furlough on a part-time basis. The Gatwick Volunteer Reserve Managers (VRMs) were permitted to continue works on sites under new Covid-19 Health & Safety Procedures and Risk Assessments written by the Sussex Wildlife Trust. Summer habitat works continued on the biodiversity sites with a small team of specially trained VRMs. |
| Early August | Biodiversity Advisor was brought back part-time from furlough with gradually increasing hours, reviewing task progress with GGP Project Officer to deliver priority and time-sensitive actions. |
| September 14th | Restrictions around group sizes (rule of 6) came back into effect. Autumn habitat works continued including work from VRMs, framework contractors and tree surgeons. A high number of habitat targets were met from September to November. |
| November | New lockdown in November meant VRMs were not able to continue with habitat works. Biodiversity Advisor and GGP Project Officer commenced COVID-19 secure working in a pair or lone working where feasible, prioritising small habitat tasks. |

## [B] – YEAR HIGHLIGHTS

- Challenges overcome during COVID-19 pandemic:
  - Additional habitat management by **Volunteer Reserve Managers**
  - Additional **biological records** collected during lockdown from local residents
  - COVID-19 secure outdoor **nature and wellbeing** sessions
  - Online delivery of **events and workshops**
- Notable species found on the sites in 2020 include: **Black Redstart** *Phoenicurus ochruros*, **Duck Potato** *Sagittaria latifolia*, **Bee Orchid** *Ophrys apifera*, **Pyramidal *Orchid*** *Anacamptis pyramidalis*, and three **undescribed species of fungi** new to science through DNA extraction work
- Further processing of malaise trap samples (2013/2014) yielded two Nationally Scarce species of hoverfly for our sites, ***Cheilosia carbonaria*** and ***Ferdinandea ruficornis***
- A new record of two **Nightingale** *Luscinia megarhynchos* territories confirmed on site
- Publication of the **Long-horned Bee** research study by University of Sussex in the Journal for Insect Conservation
- Completed first 'cut-and-collect' of selected road verges for wildflower enhancements
- Continued Airside monitoring work to determine movements of mammals through boundary fence
- Baseline tree safety inspections for entire Gatwick estate, capturing extent of **Ash Dieback** disease issue. Remedial works planned for 2021

The audit for the Biodiversity Benchmark Award for 2020 is due in spring 2021.

## [C] – WILDLIFE HIGHLIGHTS

**Bee Orchids** *Ophrys apifera* under shuttle monorail
© Rachel Bicker

***Claussenomyces caeruleomarginatus*** (provisional name for this undescribed species of fungus) © Nick Aplin

**Pyramidal Orchid** *Anacamptis pyramidalis*
© Rachel Bicker

**Pennyroyal** *Mentha pulegium*
Wildlife and Countryside Act 1981 Schedule 8 – Endangered
© Rachel Bicker

**Nightingale** *Luscinia megarhynchos* - Red Listed
© Dean Samsudin

**Barn Owl** *Tyto alba*, River Mole at Brockley Wood.
© John Taw

**Peregrine Falcon** *Falco peregrinus* near South Terminal
© Mick Page

**Bluebells** *Hyacinthoides non-scripta*. Picketts Wood, Land East © Sara Marchant

**Roe Deer** *Capreolus capreolus* kid and doe © Dean Samsudin

**Black Redstart** *Phoenicurus ochruros* male
© Tom Simpson

**Black Redstart** *Phoenicurus ochruros* female or 1st year male © Tom Simpson

# [2] – SPECIES REVIEW

## [A] – INTRODUCTION

*Authored by Rachel Bicker, Biodiversity Advisor for Gatwick Airport Ltd*

The following section provides a summary of our species monitoring for the past year. Summary tables of protected and 'notable species' for different wildlife groups have been compiled. Notable species are those which currently have an official conservation designation, are uncommon, or have some ecological significance in the local area.

Certain species groups have been adopted as Biodiversity Performance Indicators (BPIs) by Gatwick to show continual biodiversity protection and enhancement. COVID-19 impacts meant little structured data was collected to measure progress against annual BPIs in 2020, so these will be reviewed again in 2021. Our next five year review 2018-2023 (to be published in early 2024) will provide a summary of our progress against all of our baseline BPIs.

### 2020 - Local community help

**River Mole, North West Zone** © John Taw

Along with data collated via the structured ecological surveys, casual wildlife records are also collected each year from individuals using the iRecord and BirdTrack biological recording platforms. This year in particular has shown the value of casual recording, with additional species records helping to fill in our gaps in data collection. Large parts of our biodiversity areas contain Public Rights of Way and permissive footpaths, and while we already receive much help from volunteer wildlife recorders, this year it seemed a broader group of people were able to try their hand at this. People who lived locally to the area were collecting

wildlife observations during COVID-19 lockdown walks, while staff and volunteers living some distance away were unable to access the sites. By submitting sightings either directly to the Biodiversity Advisor, or via a local Facebook page, this additional data gathered by members of the public has reached the Sussex Biodiversity Record Centre, and will be passed on to the relevant wildlife recording schemes.

BirdTrack

British Trust for Ornithology Tools

PEGI 3

This app is available for all of your devices

http://www.birdtrack.net

iRecord App

UK Centre for Ecology and Hydrology Tools

PEGI 3

This app is available for all of your devices

https://www.brc.ac.uk/irecord/

## [B] – BIOLOGICAL RECORDS SUMMARY

Below is the latest summary extract from the Sussex Biodiversity Records Centre (SxBRC), showing the wildlife statistics for our sites. By the end of 2020, a total of **2,432 species** were recorded in and around Gatwick's biodiversity areas. The summary extract includes a small buffer of 0.25km to the airport boundary. This is to compensate for mobile species which can be recorded near or on the airport boundary.

**Table 1. Biological record statistics for Gatwick Airport to date**

| Statistic | No. | Comments | No. |
|---|---|---|---|
| Total Records | 30857 | (all in SxBRC database) | |
| **Total Species** | **2432*** | * Any discrepancies with year totals are likely due to higher resolution in this year's extract | |
| **Section 41 species | 72 | | |
| Records to 2012 | 9302 | Species from 1980-2011 | 806 |
| Records from 2012 to 2020 | 21556 | species from 2012 to present | 2023 |
| Most recorded species | 349 | Blue Tit | |
| 203 + biological recorders | | | |

**Rare and threatened species listed under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006.

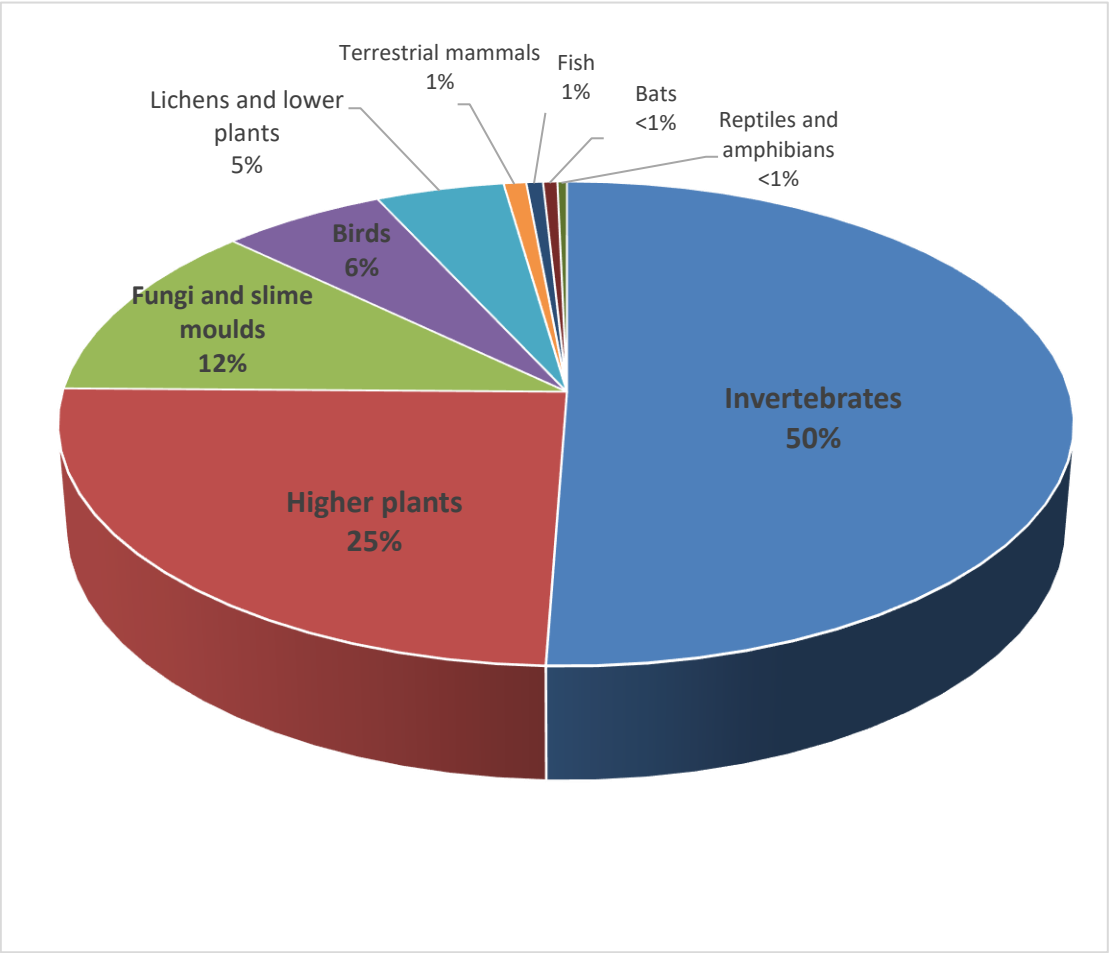



Fig 1. Species group breakdown for all Gatwick Airport records as of 2020

## [C] – SPECIES GROUPS

## AMPHIBIANS

**Pool/Marsh Frog juvenile** *Pelophylax* sp. © Rachel Bicker (2018)

Prior to the March COVID-19 lockdown being implemented, one amphibian torching survey out of four was completed. Although restrictions on movements were later eased, furlough and budget constraints meant that no further surveys could take place. March through to May is a key time for amphibians, with the warming climate likely affecting phenology and causing breeding to begin earlier in most species. As restrictions eased, the main portion of the amphibian breeding season was already ending. Several casual records were picked up later in the year via site walkovers and refugia checks; these records have been included in the table below.

**Table 2. Last year recorded for all amphibian species**

| Common name | Species name | NWZ | LERL |
|---|---|---|---|
| Common Frog | *Rana temporaria* | 2019 | 2020 |
| Common Toad | *Bufo bufo* | 2018 | 2020 |
| Great Crested Newt | *Triturus cristatus* | 2020 | 2019 |
| Green/Water Frog | *Pelophylax sp.* | 2020 | - |
| Palmate Newt | *Lissotriton helveticus* | N/A | 2020 |
| Smooth Newt | *Lissotriton vulgaris* | 2020 | 2020 |

A population of non-native **Green/Water Frogs** in the North West Zone seems to have increased in recent years (initial records were made in 2017). Their calls are heard in summer particularly along the straightened section of the River Mole, closest to the airfield. An assumption was these were **Marsh Frogs** *Pelophylax ridibundus*. However, Amphibian and

Reptile Conservation (ARC) have advised that confirming the exact species would involve assessing multiple external characters, a closer analysis of the call, or ideally molecular (DNA) methods. Future attempts will be made to identify this population of frogs to species-level, as it is important to monitor potential changes to both our native and non-native amphibian populations.

## Amphibian torchlight surveys

A single torchlight survey of Great Crested Newts (GCN) and other amphibians in our biodiversity ponds was conducted on an evening in March, prior to lockdown. Conditions on this evening were challenging, with wind causing strong ripples on two exposed ponds, and the others with low visibility and water turbidity due to recent rainfall.

A total of 5 GCN were seen in Charlwood Park Pond 1 (CP1), and the challenging conditions meant this was likely to be an underestimate.  No other GCN were detected at ponds on this evening. Surveys during 2019 indicated GCN were present in all four ponds, and that CP1 currently holds our biggest population, with a peak count of 15 individuals.

Great Crested Newt (Triturus cristatus) male. © Rachel Bicker (2015)

Table 3. Newt survey torching results March 2020

| Great Crested Newts | | | | | |
|---|---|---|---|---|---|
| Date: 12/03/2020 | GCN Male | GCN Female | GCN Sex Unknown | GCN Total | Eggs (Y/N) |
| LERL Pond 3 | | | | | |
| LERL Pond 4 | | | | | |
| Charlwood Park P1 | 2 | 3 | | 5 | |
| Charlwood Park P2 | | | | | |
| **Other amphibians** | | | | | |
| Date: 12/03/2020 | Male Smooth | Male Palmate | Unknown S/P | Common Frog | Common Toad |
| LERL Pond 3 | 1 | | | 12 | 145 |
| LERL Pond 4 | 6 | 2 | 11 | 2 | |
| Charlwood Park P1 | | | | | |
| Charlwood Park P2 | 2 | | 4 | | |
| **Conditions** | | | | | |
| Date: 12/03/2020 | Water turbidity | Air temp. (°C) | Weather | Surf. Cov. (%) | |
| LERL Pond 3 | 3 | 6 | clear, WSW 15 | 10 | |
| LERL Pond 4 | 3-4 | 6 | clear, WSW 15 | 35 | |
| Charlwood Park P1 | 1 | 6 | clear, WSW 15 | 5 | |
| Charlwood Park P2 | 2-3 | 6 | clear, WSW 15 | 10 | |

## BATS

The ICUN's Bat Specialist Group issued guidance on surveys during the COVID-19 pandemic, with recommendations that non-essential close-contact surveys were to be postponed. This was to avoid the risk of human-to-bat transmission of SARS-CoV-2 through environmental exposure, or potentially via direct contact through handling. Therefore, no bat box checks took place at Gatwick this year. While many bat activity surveys were resuming across the UK as lockdown restrictions eased, due to time and budget constraints we were unable to carry out planned activity surveys at Gatwick. As a result, all four visits to selected transects were cancelled. A single record of a Common Pipistrelle was made during summer by the airside operations team, recovered dead from the airfield; unknown as to whether this was the result of a plane collision or death by natural causes.

Common Pipistrelle *Pipistrellus pipistrellus*
© Rachel Bicker (2017)

Table 4. Last year recorded for all bat species: activity surveys, box checks and casual records.

| Common Name | Species Name | NWZ | LERL | Airfield/other Gatwick area |
|---|---|---|---|---|
| Bechstein's Bat | *Myotis bechsteinii* | 2017 | 2014 | 2019 |
| Brandt's Bat | *Myotis brandtii* | - | 2011 | 2019 |
| Brown Long-eared Bat | *Plecotus auritus* | 2017 | 2016 | 2019 |
| Common Pipistrelle | *Pipistrellus pipistrellus* | 2017 | 2017 | 2020 |
| Daubenton's Bat | *Myotis daubentonii* | 2017 | 2005 | 2012 |
| Leisler's Bat | *Nyctalus leisleri* | 2019 | - | 2016 |
| Nathusius's Pipistrelle | *Pipistrellus nathusii* | 2017 | - | 2019 |
| Natterer's Bat | *Myotis nattereri* | 2019 | 2010 | 2017 |
| Noctule Bat | *Nyctalus noctula* | 2017 | 2019 | 2019 |
| Serotine | *Eptesicus serotinus* | 2017 | 2017 | 2019 |
| Soprano Pipistrelle | *Pipistrellus pygmaeus* | 2019 | 2019 | - |
| Whiskered Bat | *Myotis mystacinus* | 2019 | - | 2019 |

## BIRDS

In 2020, plans were made to change our linear transect methodology for breeding bird surveys to a territory-mapping approach, more closely aligned with the Common Bird Census method. These surveys were due to begin just prior to the start of the March COVID-19 lockdown, after which furlough and budget constraints led to all formal breeding bird surveys being cancelled. This approach will now be implemented in 2021.

Black Redstart *Phoenicurus ochruros* male © Tom Simpson

The focus in 2020 instead has been on casual records made during site walkovers and targeted checks, with records logged using the iRecord and BirdTrack apps. Data was largely gathered by Gatwick's Biodiversity Advisor during brief visits in the summer, but records were also contributed by other Gatwick staff, local residents and volunteers. Casual recording is the next best thing to structured surveys, providing in this case a year presence/absence list. Limitations to casual records are that recording effort may be inconsistent, along with a lack details such as breeding or count data for our notable species.

The unusually warm weather in spring and through summer may have caused slightly earlier breeding in some species. The Biodiversity Advisor was able to return to Gatwick's sites towards the end of June, therefore data from the beginning of the breeding season was largely missed. A single winter bird transect was completed in early December with help from ecologists Tom Forward and Laurie Jackson.

Winter bird survey along the River Mole, NWZ © Rachel Bicker

An adult male Black Redstart *Phoenicurus ochruros* could be heard singing at the South Terminal Signature Flight Support building in June, close to where the Gatwick Environment Team vehicle is parked. This individual remained here all summer and was deemed likely to be breeding. Its presence was still noted in December 2020, although it could very well be

another male which had since moved in. During November a very approachable juvenile was spotted feeding around the new Boeing Hangar, which allowed the Gatwick Greenspace Project Officer to approach with his camera. In late December the Biodiversity Advisor counted up to 3 (one male, 2 juvenile or female) Black Redstarts perched on the blast barrier, adjacent to the same aircraft hangar.

A resident pair Peregrine Falcon *Falco peregrinus* were regularly observed throughout the year around the terminal areas, and occasionally seen flying over the edges of both biodiversity areas.

Lesser Redpoll *Acanthis cabaret* has only been previously recorded around the Land East of the Railway Line sites, and so two in flight (while calling) was a welcome sight along the River Mole in December. Shortly after that particular sighting, a bumper flock of around 9 Bullfinches *Pyrrhula pyrrhula* took off from the upper floodplain scrub line. A cohesive group of around 12 Blackbirds *Turdus merula*, almost certainly winter visitors from northern climes, was also an unusual occurrence.

Local residents and dog walkers were treated to regular views of a Barn Owl *Tyto alba* hunting over the River Mole grasslands during August. Members of public also reported at least one Nightingale *Luscinia megarhynchos* territory along the Mole during summer, close to the children's nursery at Crangal Cottage. The Biodiversity Advisor identified a second territory closer to the more regular site, south-west of Brockley Wood. Wider reports have indicated that it may have been a very good year for numbers of Nightingales in the UK in 2020. However, this could also indicate that the maturation of scrub habitat along the River Mole corridor is reaching good condition and suitable for their breeding.

Birdstrike Management Ltd consultant Jon Middleton recorded two unusual species to the biodiversity areas; a Yellow-browed Warbler *Phylloscopus inornatus* was detected within a mixed flock in Upper Picketts wood in autumn. Jon also recorded a Yellow Wagtail *Motacilla flava* on the edge of the North West Zone, near the old concrete batching site. This is a new bird record for the airport.

While deploying trail cameras, the Biodiversity Advisor flushed three Woodcock *Scolopax rusticola* from the edges of Brockley Wood one day in December. A glimpse of one was later captured on a trail camera.

Woodcock *Scolopax rusticola*

The tables below show the complete list of notable bird species occurring within biodiversity areas at Gatwick, based on structured bird survey data from 2012- 2020 and casual records.

Table 5. Last year recorded for all Red List species (since 2012)

** = Casual record (recorded either off transect or outside of timed survey)*

| Red listed species | Species name | NWZ | LERL |
|---|---|---|---|
| Black Redstart | *Phoenicurus ochruros* | 2020 | - |
| Cuckoo | *Cuculus canorus* | 2017* | - |
| Fieldfare | *Turdus pilaris* | 2020 | 2018 |
| Grey Wagtail | *Motacilla cinerea* | 2019 | 2020* |
| Hawfinch | *Coccothraustes coccothraustes* | - | 2017 |
| Herring Gull | *Larus argentatus* | 2020 | 2016 |
| Lesser Redpoll | *Acanthis cabaret* | 2020 | 2017 |
| Linnet | *Carduelis cannabina* | 2020 | 2016 |
| Marsh Tit | *Poecile palustris* | 2018 | 2020* |
| Mistle Thrush | *Turdus viscivorus* | 2020 | 2019 |
| Nightingale | *Luscinia megarhynchos* | 2020* | 2018* |
| Redwing | *Turdus iliacus* | 2020 | 2020 |
| Skylark | *Alauda arvensis* | 2018 | 2015 |
| Song Thrush | *Turdus philomelos* | 2020 | 2020* |
| Starling | *Sturnus vulgaris* | 2019 | 2019 |
| Turtle Dove | *Streptopelia turtur* | 2017* | - |
| Whinchat | *Saxicola rubetra* | 2017* | 2017* |
| Woodcock | *Scolopax rusticola* | 2020* | 2019* |

Table 6. Last year recorded for all Amber List species (since 2012)

| Amber listed species | Species name | NWZ | LERL |
|---|---|---|---|
| Black-headed Gull | *Chroicocephalus ridibundus* | 2014 | 2020* |
| Bullfinch | *Pyrrhula pyrrhula* | 2020 | 2020* |
| Common Redstart | *Phoenicurus phoenicurus* | - | 2016* |
| Common Sandpiper | *Actitis hypoleucos* | 2016 | 2018* |
| Common Snipe | *Gallinago gallinago* | 2018 | 2018 |
| Dartford Warbler | *Sylvia undata* | - | 2017 |
| Dunnock | *Prunella modularis* | 2020 | 2020* |
| Green Sandpiper | *Tringa ochropus* | - | 2018* |
| Greylag Goose | *Anser anser* | 2016 | - |
| House Martin | *Delichon urbica* | 2019 | 2019 |
| Kestrel | *Falco tinnunculus* | 2020 | 2018 |
| Kingfisher | *Alcedo atthis* | 2020 | 2019 |

| Amber listed species | Species name | NWZ | LERL |
|---|---|---|---|
| Lesser Black-backed Gull | *Larus fuscus* | - | 2017 |
| Mallard | *Anas platyrhynchos* | 2019 | 2019 |
| Meadow Pipit | *Anthus pratensis* | 2019 | 2019 |
| Mute Swan | *Cygnus olor* | | 2019 |
| Reed Bunting | *Emberiza schoeniclus* | 2020 | 2019 |
| Stock Dove | *Columba oenas* | 2020 | 2020* |
| Swift | *Apus apus* | 2019 | 2019 |
| Tawny Owl | *Strix aluco* | 2020 | 2020 |
| Teal | *Anas crecca* | 2017 | - |
| Willow Warbler | *Phylloscopus trochilus* | 2019 | 2019 |

Table 7. Last year recorded for all other Schedule 1 species (since 2012)

| Additional Schedule 1 | Species name | NWZ | LERL |
|---|---|---|---|
| Peregrine | *Falco peregrinus* | 2020* | 2017* |
| Hobby | *Falco subbuteo* | 2017 | 2018 |
| Bearded Tit | *Panurus biarmicus* | 2019 | |
| Greenshank | *Tringa nebularia* | | 2018 |
| Red Kite | *Milvus milvus* | 2018* | 2019* |
| Hobby | *Falco subbuteo* | 2017 | 2018* |
| Little Ringed Plover | *Charadrius dubius* | 2019* | 2019* |
| Firecrest | *Regulus ignicapilla* | | 2019* |
| Barn Owl | *Tyto alba* | 2020* | 2018* |

## Newly installed bird boxes

As part of the new Boeing Hangar post-construction mitigation plans, 24 new bird boxes of varying design, targeting multiple species were installed in January. Locations included around the Gatwick Aviation Museum, Brockley Wood, Goat Meadow, and Gatwick Woodlands in the Land East. These will be monitored for activity from a sensitive distance during future breeding bird surveys.

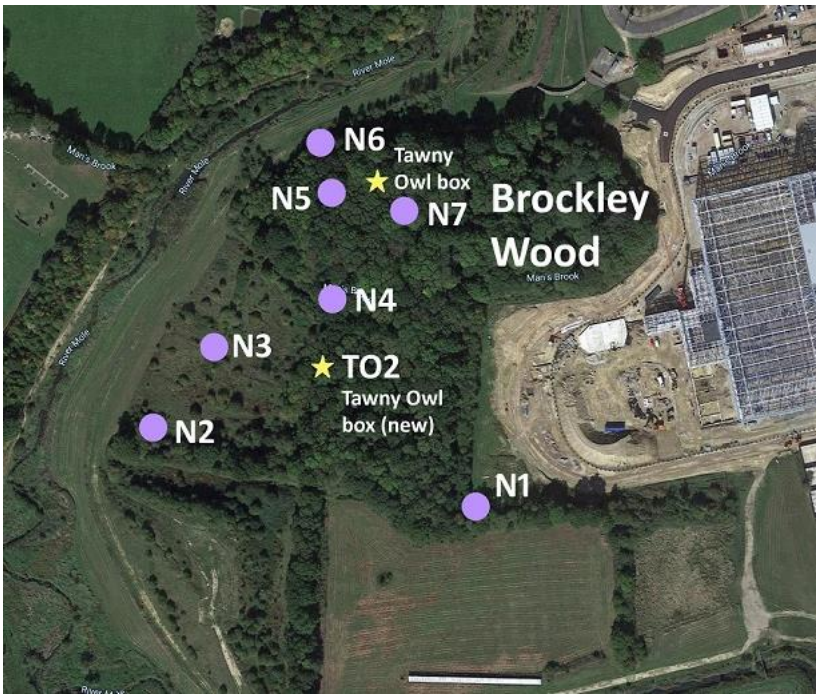


Fig 2. Locations of bird boxes installed in the North West Zone in January 2020

Fig 3. Locations of bird boxes installed in the Land East of the Railway Line in January 2020

## Tawny Owl survey

Tawny Owl *Strix aluco* is an amber listed bird species, often missed from breeding bird surveys due to their nocturnal habits. Surveys have now been carried out in 2019 and 2020, detecting and mapping juveniles via their begging calls. The calling young act as an indicator of an established breeding territory, as well the prevailing breeding conditions of that season. A wider area was checked for the North West Zone this year, encompassing the small patch of woodland at Robands House, adjacent to the Aviation Museum and Westfield Stream.

Toward the end of June, the Biodiversity Advisor assisted naturalist and owl enthusiast David Plummer with a survey, revealing a single juvenile bird calling in Lower Picketts Wood, in a similar location to the previous year's juveniles. A calling female was also located in the North West Zone close to the Westfield Stream site. No further activity was detected in Brockley Wood this year, despite earlier records of calling male and female here in March. Wider reports have indicated that high winter rainfall may have impacted the breeding condition of adult owls in 2020, with smaller clutch sizes. The drought conditions of spring and summer may similarly have negatively impacted small mammal numbers, hindering the capabilities of adult owls to rear multiple young.

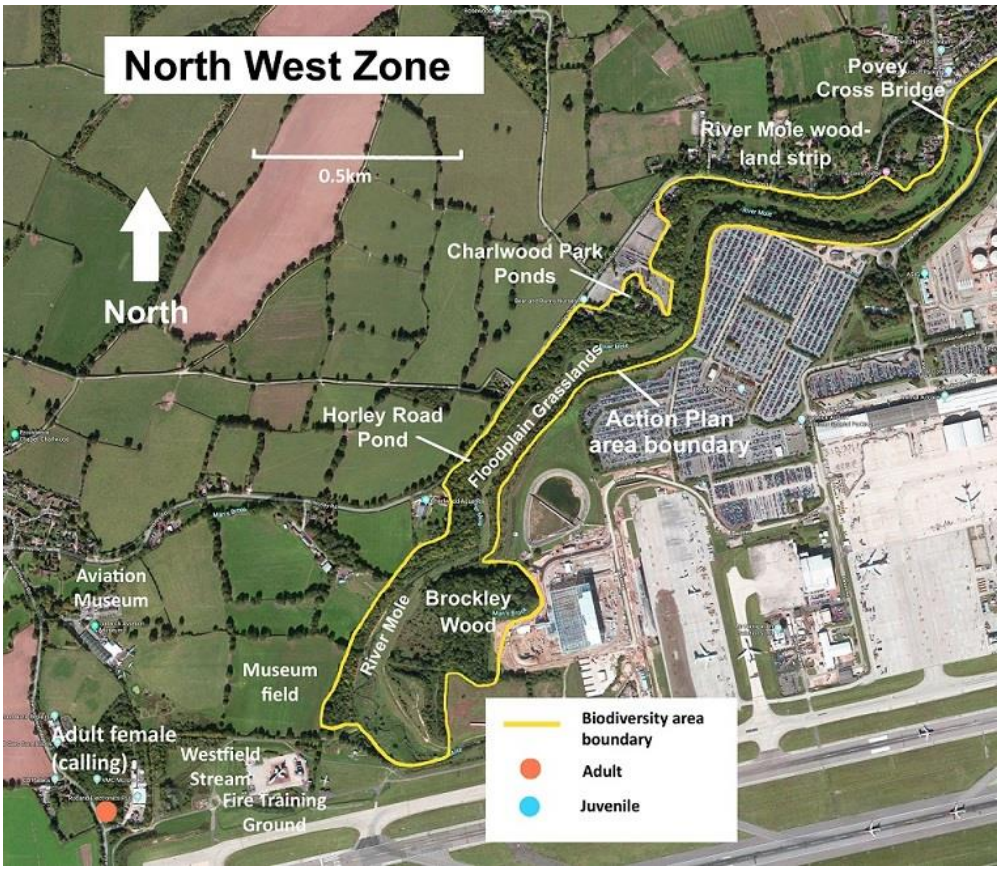



**Fig 4. Female Tawny Owl location during survey conducted in June 2020 North West Zone**

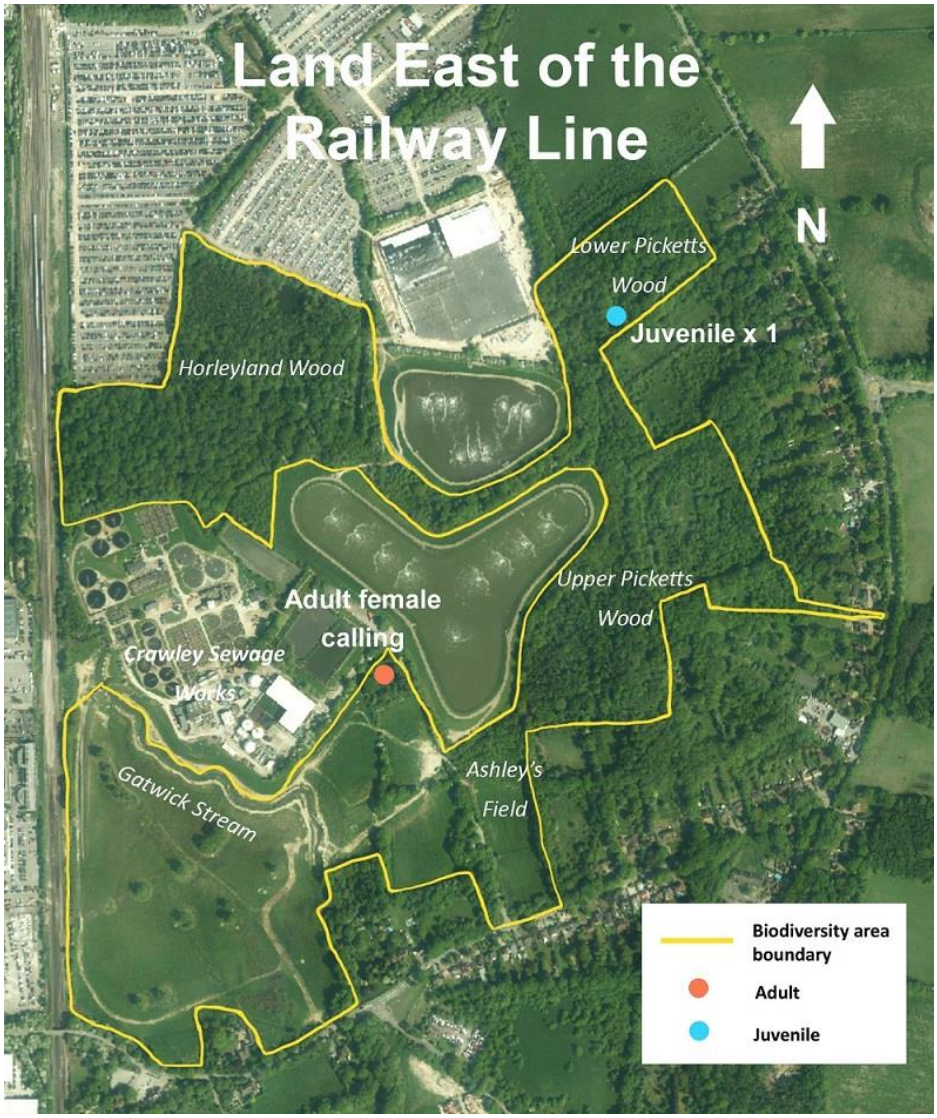



**Fig 5. Adult female Tawny Owl and juvenile in June 2020**
**Land East of the Railway Line**

BOTANY

## Road verges wildflower assessment

Bee Orchids *Ophrys apifera* flowering in June on the monorail verge
©Rachel Bicker

In 2020, two follow-up Road Verge Assessments were planned (one in early summer, one in late summer) for 20 road verges within a Road Verge Management Program, to assess changes in the botanical indicator species abundances since 2019. Due to the COVID-19 restrictions and constraints, a single assessment was conducted by the Biodiversity Advisor in early June, which was earlier in the year compared to 2019 (September). A slightly less intensive cutting regime had taken place across the entire estate due to the COVID-19 restrictions, resulting in increased and prolonged flowering of several species. As a result, several additional earlier flowering species were recorded.

Summary of results:

- There was little difference between the species indicator scores compared to 2019 when averaged across all the verges.
- Two new species of interest included Bee Orchid and Pyramidal Orchid; as a result, orchids are now included as an additional positive indicator group. Goat's Rue was a newly recorded invasive species for the area and has been included in the negative indicators.
- Fewer grass species were recorded in 2020; this was likely due to the limitation of the surveyor abilities in this instance.
- Available forage surveys would provide additional useful information on quantities of flowering plants, as well as pollinator activity levels.
- An updated road verge management plan for Gatwick will be implemented in 2021.

Table 7. Average number of indicator species (across all assessed verges)

| Mean scores | 2019 | 2020 |
|---|---|---|
| Average no. positive indicator species | 5.16 | 5.19 |
| Average no. negative indicator species | 5.05 | 6.38 |

Table 8. Number of parcels in which positive indicator species were recorded
* = new species group detected in 2020

| Positive indicator | Scientific name | No. of parcels |
|---|---|---|
| cat's-ear/hawk-bit | *Hypochoeris sp./Leontodon sp.* | 19 |
| Common Bird's-foot Trefoil Greater Bird's-foot-trefoil | *Lotus corniculatus/Lotus pedunculatus* | 18 |
| White Clover | *Trifolium repens* | 17 |
| Common Ragwort | *Jacobaea vulgaris* | 16 |
| Yarrow | *Achillea millefolium* | 14 |
| Orchids * | Orchidaceae | 8 |
| Common Knapweed | *Centaurea nigra* | 6 |
| Red Clover | *Trifolium pratense* | 5 |
| Oxeye Daisy | *Leucanthemum vulgare* | 4 |
| Common Fleabane | *Pulicaria dysenterica* | 4 |
| Meadow Vetchling | *Lathyrus pratensis* | 3 |
| Meadow Buttercup | *Ranunculus acris* | 2 |
| Agrimony/Fragrant Agrimony | *Agrimonia eupatoria/Agrimonia procera* | 1 |
| Lady's Bedstraw | *Galium verum* | 0 |

Table 9. Verges ranked by number of positive indicator species recorded

| Verge name | No. species recorded | No. positive indicators | 2020 positive ranking | 2019 positive ranking |
|---|---|---|---|---|
| H car park 2 | 42 | 9 | 1st | 4th |
| Dog Kennel 1 | 37 | 8 | 2nd | 1st |
| Dog Kennel 2 | 42 | 7 | 3rd | 2nd |
| North Perimeter 1 | 29 | 7 | 3rd | 2nd |
| Ashdown 1 | 23 | 6 | 4th | 4th |
| North Perimeter 2 | 31 | 6 | 4th | 7th |
| North Perimeter 4 | 25 | 6 | 4th | 3rd |
| North Perimeter 6 | 27 | 6 | 4th | 6th |
| Pond F 2 | 28 | 6 | 4th | 5th |
| CSC 1 | 27 | 5 | 5th | 5th |
| H car park 1 | 26 | 5 | 5th | 8th |
| North Perimeter 3 | 22 | 5 | 5th | 2nd |
| North Perimeter 5 | 27 | 5 | 5th | 5th |
| CSC 2 parking bays | 17 | 5 | 5th | - |
| Ashdown 2 | 12 | 4 | 6th | 6th |
| Gatwick Way 1 | 20 | 4 | 6th | 7th |
| Pond F 1 | 36 | 4 | 6th | 6th |
| Cargo 2 | 18 | 3 | 7th | 6th |
| CSC roundabout | 14 | 3 | 7th | 5th |
| NP5a (Long area) | 27 | 3 | 7th | - |
| Cargo 1 | 15 | 2 | 8th | 7th |

First cut-and-collect of the North Perimeter road verge under Gatwick's monorail ©Rachel Bicker

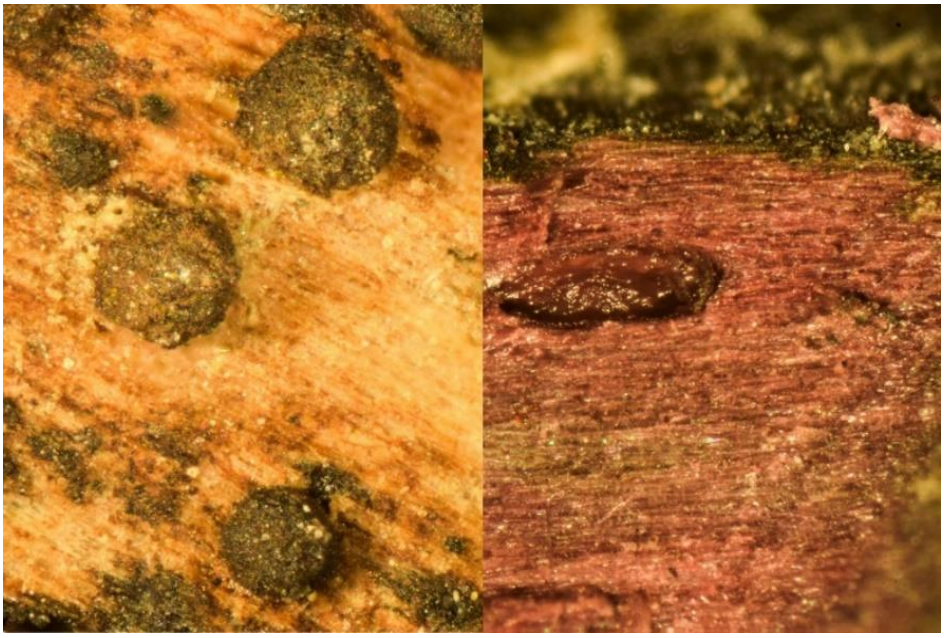
Pennyroyal *Mentha pulegium* in flower on Pond F verge ©Rachel Bicker

## FUNGI

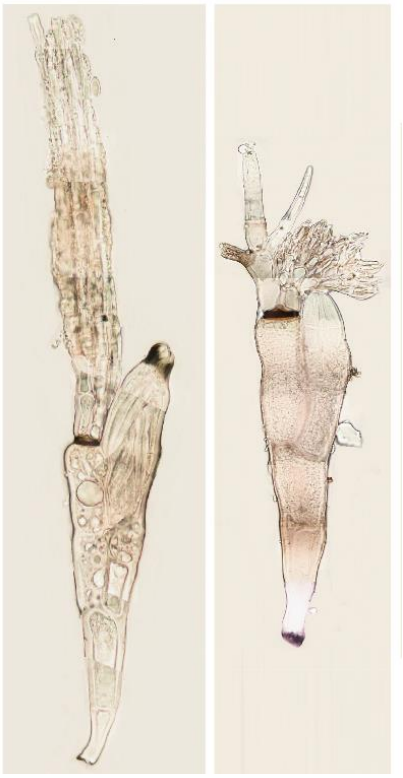
*Authored by Nick Aplin (Sussex Fungi Group) - Microfungi update*

Despite the lack of any formal recording group activity this year, Gatwick's Biodiversity Advisor was able to survey several parts of the Gatwick sites in 2020.

Nick Aplin, Lower Picketts Wood ©Rachel Bicker



*Amniculicola lignicola* New to the UK. ©Nick Aplin



***Laboulbenia anoplogenii*** ©Nick Aplin

A walk down the River Mole resulted in the collection of an aquatic fungus growing on a submerged *Salix* branch. Along with its novel lifestyle and tongue-twisting scientific name, ***Amniculicola lignicola*** is also known to stain wood purple and has not previously been reported in the UK. On the same branch was ***Lophiostoma appendiculatum*** which has less than 5 UK records, demonstrating nicely the undiscovered mycological diversity in these fast-flowing underwater habitats

Two carabidicolous Laboulbeniales records from Gatwick are worth mentioning, ***Laboulbenia anoplogenii*** (on ***Stenolophus mixtus***, reedbed next to River Mole - 2nd UK record) and ***Laboulbenia collae*** (on ***Paranchus albipes***, pond near Horleyland Wood, new to the UK). This overlooked but incredibly diverse group of fungi form poorly understood relationships with their live invertebrate hosts in a range of habitats, but prefer the humid waterside biomes typical of the many ponds, ditches and streams available to them at Gatwick.

***Capitotricha bicolor*** ©Nick Aplin

A notable collection of the rare ***Xeropilidium dennisii*** growing on dead, suspended branches of Rosaceae marked the first time the species has been recorded around Sussex since the British mycologist Dennis first originally described it (as ***Encoelia fuckelii***) in 1968.

***Xeropilidium dennisii*** ©Nick Aplin

***Trichopeziza nidulus*** ©Nick Aplin

Several new site records were created, for example ***Lanzia luteovirescens*** (on *Acer pseudoplatanus* petioles), ***Trichopeziza nidulus*** (on *Lycopus* stems), The beautiful ***Capitotricha bicolor*** (on *Quercus* branches), ***Neonectria punicea*** (on *Fraxinus* trees damaged by Ash dieback) and ***Hercospora tiliae*** (on *Tilia* branches).

Following the surveys the team were able to extract, amplify and analyse DNA from a number of Gatwick collections in 2020, some of which are likely undescribed to science e.g.

*Claussenomyces caeruleomarginatus* nom. prov., *Dialonectria* sp. (on *Fraxinus* branch) and *Helotiales* sp. (on *Salix* branch). Our data will hopefully contribute towards formal descriptions of these species. Furthermore, we hope this and other research may lead to some taxonomic revisions of some of the other species we have recorded and sequenced at Gatwick in 2020.

*Neonectria punicea* ©Nick Aplin

*Hercospora tiliae* ©Nick Aplin

## INVASIVE SPECIES

Gatwick's primary invasive plant species is Himalayan Balsam *Impatiens glandulifera*. Mapping of this and other invasive plant species is carried out on an annual basis, helping to guide management (currently a combination of spraying with glyphosate and pulling up the roots by hand) Although eradication is not likely to be possible, through consistent management we aim for Himalayan Balsam to be reduced to a level which is then manageable by hand.

**Himalayan Balsam** *Impatiens glandulifera* in flower

Goat's Rue *Galega officinalis* is not currently a Schedule 9 species of the Wildlife and Countryside Act 1981, however it has been included within the London Invasive species Initiative (LISI) Species of Concern. It has begun to take hold on several sites around Gatwick, including high up on the banks of the River Mole and across the Westfield Stream site.

Japanese Knotweed *Fallopia japonica* is present in very small patches around Gatwick's estate and has mostly been eradicated by contractors in recent years. There is occasional encroachment into the land running adjacent to the railway line.

Duck Potato *Sagittaria latifolia*, previously recorded as a single specimen in the Gatwick Stream, was newly identified along the River Mole, adjacent to Brockley Wood. Only a small group of 5 or so plants were seen, which hopefully means it will be straight forward to eradicate when the water levels drop again in summer 2021. This has been added as a new task to the BAP action tracker.

American Mink *Neovison vison* is a non-native invasive mammal often found within the River Mole corridor and occasionally seen in the Gatwick Stream. Our usual work in controlling this species through licensed trapping was halted in 2020, due to travel restrictions during the correct time window and budgetary constraints.

### Positive management outcomes for 2020:

- Horleyland Wood: Himalayan Balsam in the woodlands has been greatly reduced, and through 2021 should be effectively managed through the use of volunteers by hand (which ties in with the ongoing Bracken management). The worst affected areas now are on the Thames Water side of the fence, so Gatwick will continue to encourage them to manage the land on their side.

- River Mole northern and middle section: we have observed an overall reduction here, though we will continue with two separate treatments next year.

## Continuing problem areas

- Gatwick Stream: Himalayan Balsam has increased greatly within the netted areas due to access issues and potentially the lack of second treatment in 2020. This will be a priority area for treatment in 2021.
- Brockley Wood end of River Mole: The areas closest to the runway continue to be dense with balsam. An issue with the collapsed netting and lack of safe access means that ideally, we need to create a 'firebreak' immediately downstream of the old netting. We need to ensure that both sides of the river are being accessed by the contractors, and accessing the other bank from Westfield Stream site would help.
- A new species (Duck Potato) was detected this year in very low abundance on the River Mole, which hopefully will be manageable by hand.
- Westfield Stream: No treatment occurred in 2020 of the Goat's Rue, although a later topping cut of this area was completed. Next year earlier spot-treatment of the Goat's Rue will be a priority.

Key:

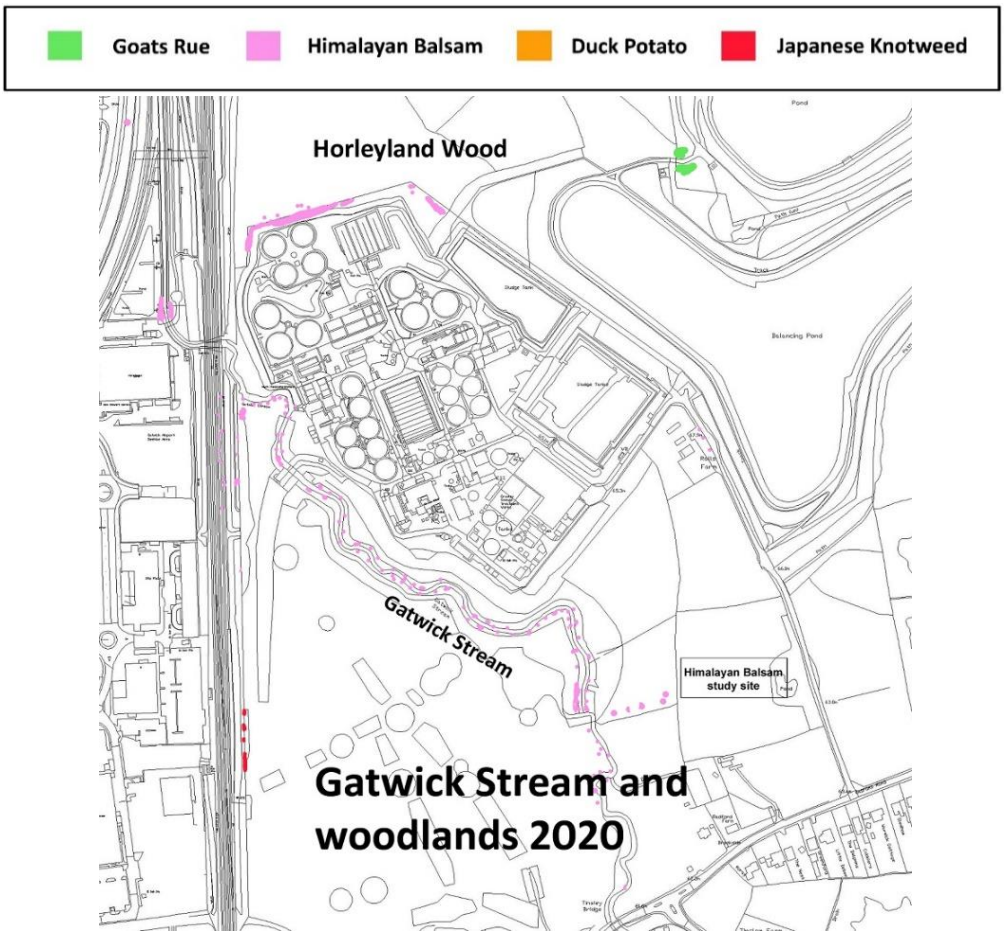



Fig 6. Gatwick Stream Flood Attenuation invasive species

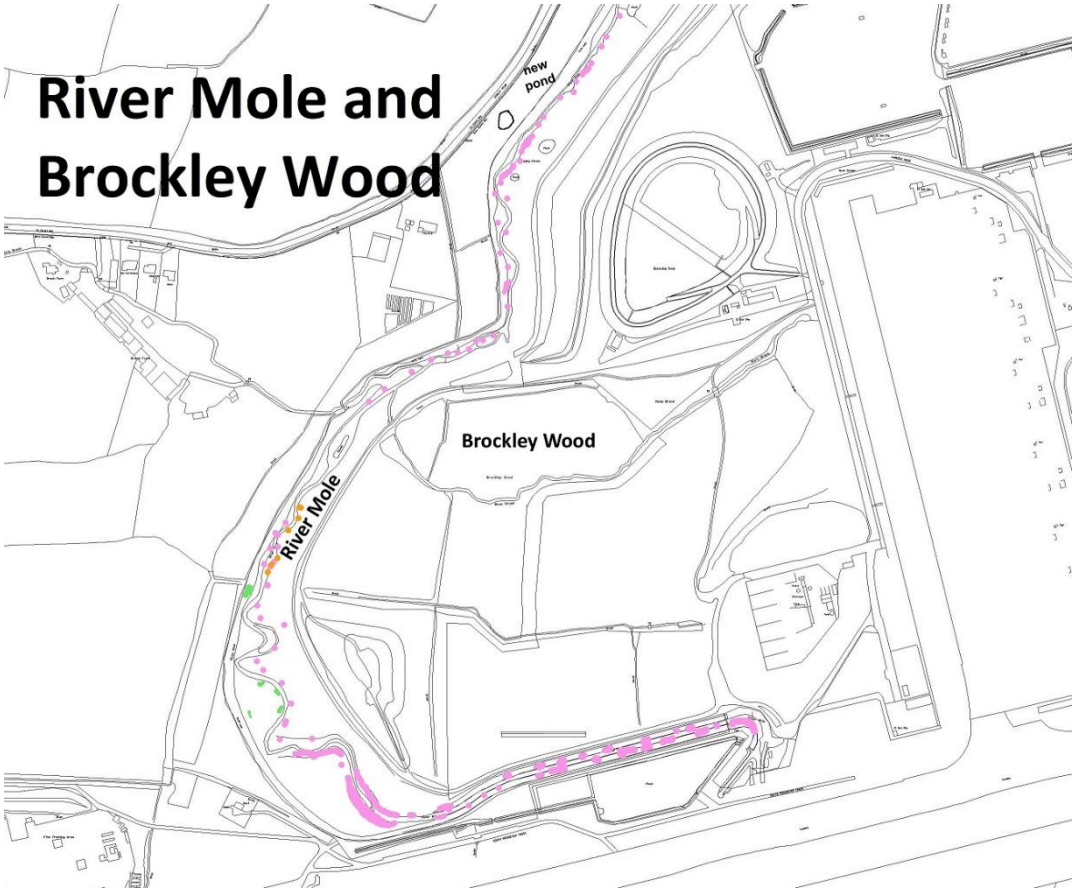



Fig 7. North West Zone invasive species

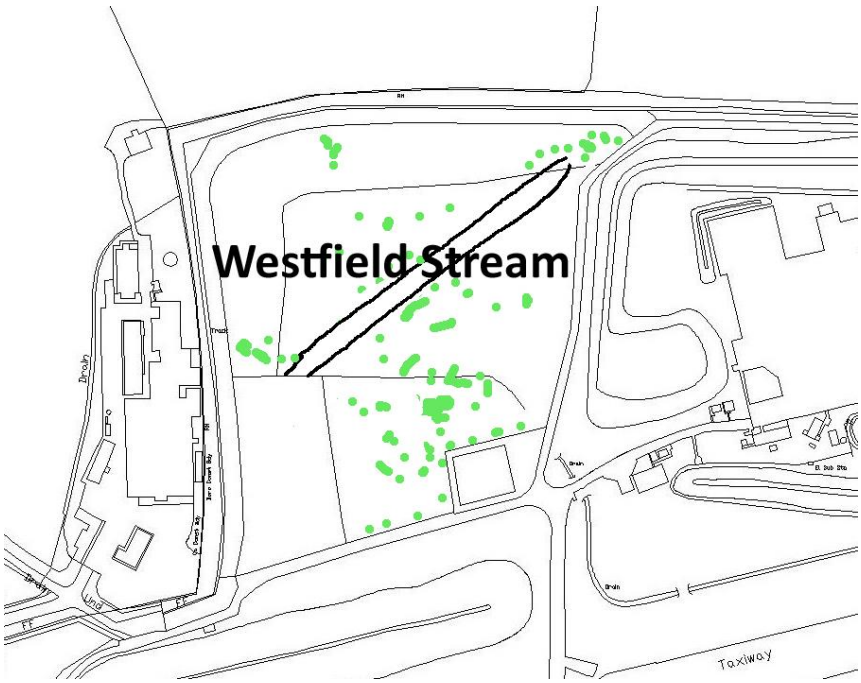



Fig 8. Westfield Stream invasive species (adjacent to North West Zone)

## INVERTEBRATES

Due to the COVID-19 pandemic, many of our more structured invertebrate surveys scheduled for 2020 were disrupted, due to restrictions around travel, furlough and budget constraints. A limited amount of casual recording was carried out by Gatwick's Biodiversity Advisor and volunteers for a few days in June, then again in September. The following invertebrate groups were due to be surveyed but did not go ahead in 2020:

- General recording with visiting natural history groups
- Terrestrial invertebrate surveys
- Bumblebee Transects
- Butterfly transects
- Evening moth trapping and leaf-miner recording
- Riverfly kick-sampling
- Dragonfly casual recording.

### Long-horned Bees (Sussex University PhD)

Gatwick Airport Ltd completed its' final year of sponsorship of the University of Sussex solitary bee PhD research project. As a result of this work, new areas of research into three solitary bee species (Potted Flower Bee, Long-horned Bee and Ivy Bee) and multiple scientific publications were completed during 2017-2020. A paper featuring Gatwick's own population of Long-horned Bees is titled "Population assessment and foraging ecology of nest aggregations of the rare solitary bee, *Eucera longicornis* at Gatwick Airport, and implications for their management." It was published in the Journal of Insect Conservation in August 2020, and the full version is available through open access here: https://link.springer.com/article/10.1007/s10841-020-00266-8

Long-horned Bee *Eucera longicornis* male
© Rachel Bicker

University of Sussex PhD student Gigi Hennessy conducted fieldwork at Gatwick Airport on the Long-horned Bee *Eucera longicornis* during the summers of 2017, 2018 and 2019, estimating population sizes based on mark-recapture studies. The purpose of the study was to determine the population size of the two nesting aggregations, the species' main source of forage and the resource availability surrounding the aggregations, helping to provide future conservation strategies.

Below is a summary of some of the main findings from Gigi's study:

- Through population estimate modelling, in 2019 Aggregation 1 (closest to the runway) was at its highest with an estimate of 440 females and 92 males and Aggregation 2 (closest to Bear and Bunny nursery) with an estimate of 183 females and 55 males. There is a strong skew towards females, which might be indicative of healthy populations with plentiful resources, or may simply be due to the fact males disperse and forage further away from nest sites, therefore were sampled less often.

**Long-horned Bee** burrow © Rachel Bicker

- 90% of the pollen sampled from females was of the pea/trefoil family. 5% of the pollen sampled came from Bramble (the rose family) and 5% other.

**Field work at Aggregation 1** © Gigi Hennessy

- Mark recapture did not show any cross overs of individuals between our two aggregations/ nest sites (which are approx. 1km apart as the crow flies, 1.3km using the river corridor), so any dispersal between them is unlikely to be frequent.
- The two aggregations of *E. longicornis* at are small and relatively isolated but appear to be stable.
- Floral resources are highly abundant near to both sites, potentially allowing their persistence.

- Through management of these existing meadows, continued population monitoring and perhaps genetic analysis of dispersal and gene flow, these two aggregations may persist and potentially grow.
- Management of the immediate landscape surrounding these two aggregations is essential for their conservation.
- Although it is important to maintain clear banks for nesting nearby to the existing aggregations, the presence of bramble itself should also be maintained.
- Continued monitoring of the aggregations is also recommended to ensure that management is effective. Potential survey methods include walking fixed transect routes, focusing on the meadow habitat surrounding the two aggregations, recording the number of *E. longicornis* seen. Another would be counting and monitoring female nest holes.

Long-horned Bee *Eucera longicornis* colour marked females ©Gigi Hennessy

Gigi Hennessy conducting fieldwork in 2017 © Rachel Bicker

## Honeybee Apiary

The honeybee hives have now been situated at Wick Farm (3.5 miles directly north of Gatwick), since September 2019 and are managed by local experienced beekeeper Gillian Sentinella with assistance from Gatwick's Biodiversity Advisor. This apiary acts as a monitoring post for disease and non-native invasive species such as the Asian Hornet *Vespa velutina* and Small Hive Beetle *Aethina tumida*. In 2020, four main colonies and two smaller nuclear colonies (nucs) were been maintained. Toward the end of the year, the nucs were united with the strongest colonies resulting in four main hives for overwintering. Unexpectedly, two out of the four colonies then collapsed in early December. It is likely that new queens will be obtained in 2021 to increase the apiary back to a minimum of four healthy hives. Apart from the usual presence of common *Varroa* mites, no new pests or diseases have been detected in 2020.

Apiary at Wick Farm in summer 2020 © Rachel Bicker

## Butterflies

Ordinarily, two transects under the UK Butterfly Monitoring Scheme are carried out at Gatwick: one in the North West Zone (NWZ), beginning where the River Mole emerges north of the runway, and the other in the Land East of the Railway Line (LERL). In conjunction with the lockdown announcement in late March 2020, the organisation Butterfly Conservation instructed all recorders to cease survey work, which meant transect walks (ordinarily beginning the first week of April) were unable to go ahead. Once restriction were lifted again in early summer, continuing furlough and time constraints meant it was not possible to commence transect walking. Casual-recording days were carried out instead to help generate year species lists for the sites.

Vince Massimo along the River Mole, North West Zone

2020 saw an unusually hot and dry spell throughout spring and early summer, and reports across the UK were of early emergence and high abundance of many species. In June the Biodiversity Advisor joined the butterfly transect volunteer Vince Massimo, carrying out two recording days in late June (13th and 23rd), covering both transects to produce species lists and counts. Days of good weather and conditions were targeted, comfortably meeting the minimum requirement for transect walking. A reasonably comprehensive list was produced, missing only a couple of regular species which might have normally been on the wing in June. Species recorded in 2020 are show in the table below.

Marbled White *Melanargia galathea* copulating ©Vince Massimo

As well as recording butterflies, Vince has a knack for rearing them at home through the egg stage, caterpillar, pupa and finally the emergence of the imago (adult). He documents these developmental processes through photographic series, noting timings and producing species reports for the UK Butterflies website. As a side project over summer, the

Biodiversity Advisor reared six common species found at Gatwick with direction and advice from Vince. It was a very enjoyable process and was helpful for becoming familiar with some of the common UK butterfly species and their life stages.

Orange Tip (*Anthocharis cardamines*) 4th instar caterpillar ©Rachel Bicker

Small White (*Pieris rapae*) freshly emerged adult ©Rachel Bicker

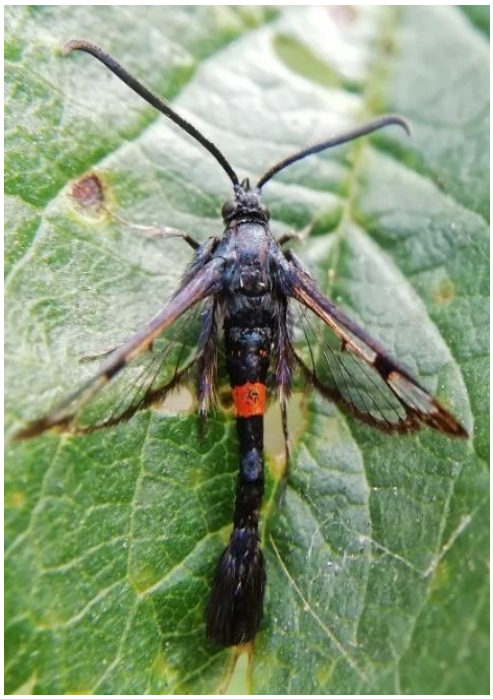
Table 10. Last year recorded for all butterfly species (from 2012 to present day)

| Common name | Scientific | NWZ | LERL |
|---|---|---|---|
| Brimstone | *Gonepteryx rhamni* | 2018 | 2020 |
| Brown Argus | *Aricia agestis* | 2019 | 2019 |
| Brown Hairstreak | *Thecla betulae* | 2019 | 2019 |
| Clouded Yellow | *Colias croceus* | 2018 | 2017 |
| Comma | *Polygonia c-album* | 2020 | 2020 |
| Common Blue | *Polyommatus icarus* | 2020 | 2020 |
| Dingy Skipper | *Erynnis tages* | 2019 | 2016 |
| Essex Skipper | *Thymelicus lineola* | 2019 | 2020 |
| Gatekeeper | *Pyronia tithonus* | 2019 | 2019 |
| Green Hairstreak | *Callophrys rubi* | 2019 | - |
| Green-veined White | *Pieris napi* | 2020 | 2019 |
| Grizzled Skipper | *Pyrgus malvae* | 2019 | - |
| Holly Blue | *Celastrina argiolus* | 2019 | 2020 |
| Large Skipper | *Ochlodes sylvanus* | 2020 | 2019 |
| Large White | *Pieris brassicae* | 2020 | 2020 |
| Marbled White | *Melanargia galathea* | 2020 | 2020 |
| Meadow Brown | *Maniola jurtina* | 2020 | 2020 |
| Orange-tip | *Anthocharis cardamines* | 2019 | 2019 |
| Painted Lady | *Vanessa cardui* | 2019 | 2019 |
| Peacock | *Aglais io* | 2020 | 2020 |
| Purple Emperor | *Apatura iris* | 2016 | - |
| Purple Hairstreak | *Favonius quercus* | 2019 | 2019 |
| Red Admiral | *Vanessa atalanta* | 2020 | 2020 |
| Ringlet | *Aphantopus hyperantus* | 2019 | 2020 |
| Silver-washed Fritillary | *Argynnis paphia* | 2019 | 2020 |
| Small Copper | *Lycaena phlaeas* | 2019 | 2019 |
| Small Heath | *Coenonympha pamphilus* | 2020 | 2020 |
| Small Skipper | *Thymelicus sylvestris* | 2020 | 2020 |
| Small Tortoiseshell | *Aglais urticae* | 2020 | 2020 |
| Small White | *Pieris rapae* | 2020 | 2020 |
| Speckled Wood | *Pararge aegeria* | 2019 | 2020 |
| White Admiral | *Limenitis camilla* | 2017 | 2020 |
| White-letter Hairstreak | *Satyrium w-album* | 2019 | 2018 |

## Clearwing Moths

This day-flying group of moths contains many elusive species, rarely seen without the use of pheromone lures with which to attract the males. Many species are considered rare or scarce, and most are certainly under recorded.

Pheromone lures were deployed by the Biodiversity Advisor through two days in June and two in August, targeting areas of suitable habitat containing potential larval food plants. In June 2020, a single male Red-belted Clearwing *Synanthedon myopaeformis* was recorded at the old Rolls Farm House site (previously recorded here in 2019). The remnants of an old orchard persist here, containing very old apple trees which supports this species.



Red-belted Clearwing *Synanthedon myopaeformis* ©Rachel Bicker

No other clearwing moth species were recorded during 2020.

An improvement to the survey method would be utilising static bucket traps in conjunction with pheromones, allowing the lures to be left unattended on site for short periods of time. Inspection is required at regular intervals to prevent the insects from perishing, however adding small pieces of damp sponge to the bottom of the traps might help their endurance by providing some moisture.

Of the 14 resident species of clearwing moth found in Britain, these 3 have been recorded so far at Gatwick:

- Red-belted Clearwing (2019 and 2020)
- Six-belted Clearwing (2017, 2018 and 2019)
- Sallow Clearwing (2016).

## REPTILES

In 2020, a second survey area was planned for reptile monitoring, as post-construction ecology surveys were due to take place under licence, covering our original survey areas. The Gatwick Aviation Museum (privately-owned) and the Westfield Stream sites both border Gatwick's North West Zone biodiversity area. These sites have been previously noted as containing good habitat for reptiles, however no previous records were found for either of these sites. Refugia were successfully deployed on the sites prior to the COVID-19 lockdown in March, but consequently restrictions around travel and budget constraints meant that all planned reptile surveys were cancelled. The Biodiversity Advisor conducted a single survey in mid-June (during a brief return from furlough) at the Westfield Stream and Gatwick Aviation Museum sites. Several casual records of Grass Snakes were also made in the Land East of the Railway Line area through the summer.

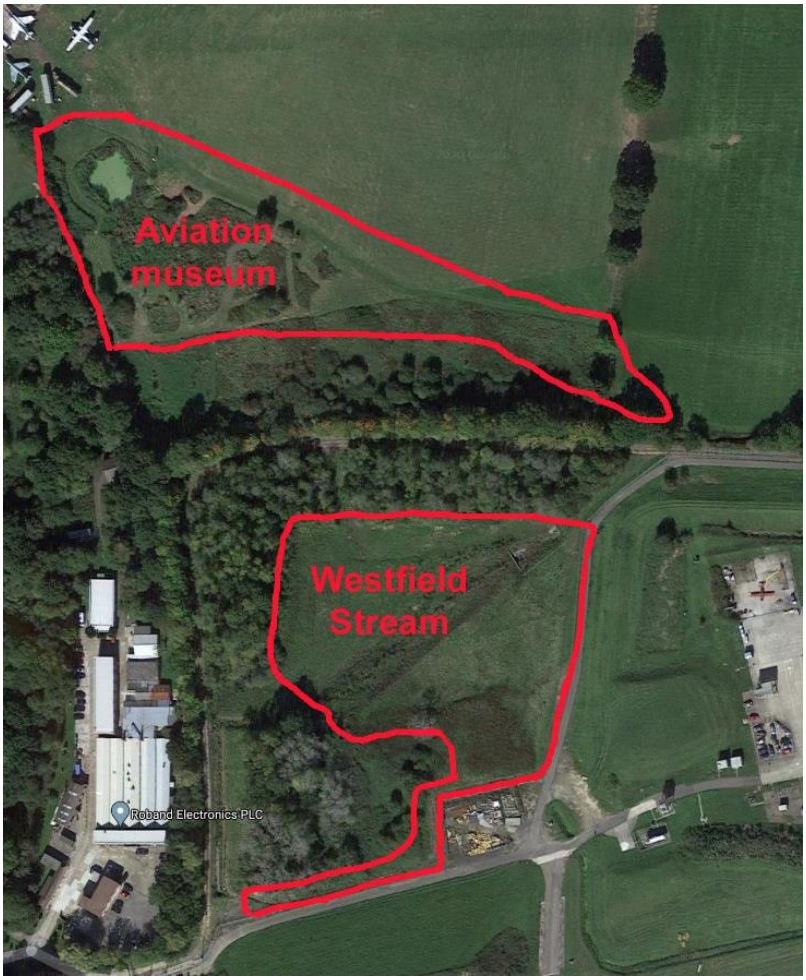



Fig 9. New reptile survey sites in 2020

Reptile survey refugia deployment in Westfield Stream prior to lockdown
©Rachel Bicker

## Westfield Stream

The Westfield Stream grassland is an area immediately north-west of the airfield, which was originally semi-improved and seasonally wet in nature. It consisted of a culverted channel under stony, made-up ground with large stands of rush species, bramble and ruderal vegetation. In 2015 a stream diversion resulted in a section being taken out of culvert, with a wider, open channel dug through the centre of the site. Excavations and broad terraced banks resulted in a greater area of flood attenuation during high flows, and the site is more free draining than previously. Excavated rubble was retained at the edges of the site in the form of bunds and hibernacula, containing logs and brash from vegetation clearance nearby.

The only species of reptile recorded during 2020 was Grass Snake *Natrix helvetica*. A peak count of 4 individuals from 32 matts was made in the Westfield Stream area during the June survey, which included a completely black (melanistic) individual. These unusual black forms of Grass Snake have been previously found within the North West Zone in most survey years, along with striped individuals.

Currently, each survey site contains around 50 refugia including a small number of large tins, several larger (1m x 1m) pieces of shed roofing felts and many more small (0.5m x 0.5m) pieces of onduline. This current collection of refugia are now beginning to disintegrate, and larger matts of hard-wearing onduline have been recommended by the Sussex and Surrey Amphibian and Reptile Group.

Grass Snake *Natrix helvetica* (melanistic form). ©Rachel Bicker

Westfield Stream survey area (TQ 251 404) in 2019

## Hazel Dormice

Hazel Dormouse *Muscardinus avellanarius* © Rachel Bicker (2015)

Under guidance by the People's Trust for Endangered Species (PTES), two main issues were identified in regards to COVID-19 and continuing nest box checks: The first was the rule around movement and practical application of social distancing. The second was the potential risk of transmission of the Covid-19 virus between Hazel Dormice *Muscardinus avellanarius* and monitors. A Disease Risk Analysis (DRA) was undertaken by Zoological Society London investigating the likelihood of Hazel Dormice being affected by SARS-CoV-2 (the virus that causes Covid-19) and the possible implications. The document was summarised and shared with surveyors, providing practical suggestions of things to consider when undertaking Dormouse box checks during 2020. This included not directly handling any Dormice, but checking for the presence of nests within boxes while wearing gloves and face coverings.

Monthly box checks commenced from May through to October by licenced volunteer surveyor Jeremy Cheesman. Despite consistent monthly checks of boxes each year, no further Dormice have been seen at Gatwick since our first confirmed records in 2015 and again in 2016. Installed around 7 years ago, most of the nest boxes in Lower Picketts Wood are beginning to disintegrate. The May 2020 surveys also revealed that 10 of the 19 boxes in Upper Picketts Wood have been lost, presumably stolen during the winter or in early spring.

Gatwick's ancient woodlands contain plentiful mature standing deadwood and potential nesting features in the canopy, which may explain the lack of Dormouse activity in our boxes. Looking ahead, the licenced surveyor and Biodiversity Advisor consider it a low priority to replace the lost and damaged nest boxes, when Dormouse activity levels are so low. Instead it is recommended that Dormouse tubes be deployed around woodland edges, recycling old survey tubes with new wooden inserts constructed by volunteers. This would be a cost-effective way to continue monitoring efforts while still providing a chance of detecting Dormouse activity.

## Terrestrial mammals and the airside fenceline

A project to reduce the size of gaps along the airside fence was deemed likely to restrict movements of mammals to and from airside. The gaps beneath the receiver gate and the fire training ground (AF78) gate were reduced in 2020, and monitoring of mammal movements through remaining gaps was carried out with trail cameras. At least two areas to the west and south-west of the airfield are still being regularly used by both Badgers (*Meles meles*) and Red Foxes (*Vulpes vulpes*). Some observations were made in regard to continuing securing gaps around the airside fence:

• If Badgers movements are restricted i.e. they are unable to access landside for their usual forage routes, they may increase their foraging activity on the airfield

• With the appropriate licenses and at the right time of year, Badger gates/tunnels could be installed, fitted with 'one way flaps' to exclude them from returning to the outlier sett (other main setts have been identified landside, north of the airfield)

• Addressing the concerns of remaining small gaps existing under gates: Badgers and Foxes have much smaller and flatter skulls than humans, and are able to squeeze their head and shoulders through narrow gaps which would be impossible for even a human child to get through.

## [3] – COMMUNITY ENGAGEMENT

### [A] – CONSERVATION VOLUNTEERING AND HABITAT MANAGEMENT

*Authored by Tom Simpson, Gatwick Greenspace Partnership (GGP) Project Officer:*

**Wildlife Rangers at Rolls Farm pond** © Tom Simpson

From January to October 2020 we had **158 conservation volunteers** working at Gatwick completing **682.5 hours** work. Following the demolition of an old building at Rolls Farm, we worked with volunteers to develop the site as an outdoor education area to be used by local schools. **GGP Volunteer Reserve Managers (VRMs)** and the **Wildlife Rangers** all contributed to developing this site, along with Gatwick Airport Ltd (GAL)'s staff (with a particularly big input from the **I.T. Department**). Work included reinstating a neglected farm pond, installing log piles for bug hunting and sowing a min-meadow for next spring. This has improved the area for wildlife and in the future will enable us to run pond-dipping and sweep-netting activities for schools. This is an ideal site for hosting 'Bike-It Wild' activities and we have begun talks with partners at **SusTrans** and **Forge Wood School**.

A special 'thank you' goes to **Gatwick Construction Ltd**; their skilled staff contributed a week of their time to replace an unsafe boardwalk in the Gatwick Woodlands. All of the materials for this project were supplied at the expense of GC Ltd, and we are especially grateful to the Managing Director Tim Toon.

## COVID-19

Due to the COVID-19 pandemic putting a stop to group activities in April, we hosted only 3 corporate groups, all from GAL (I.T. and Security). However, thanks to the very timely introduction of the GGP VRMs at Gatwick at the end of 2019, we were able to make very efficient use of all the volunteers available. The independence, flexibility, small group size and additional training of the VRMs allowed us to resume work as soon as possible after the early-2020 lockdown restrictions eased. We trialled risk assessments and procedures on behalf of the Sussex Wildlife Trust, running volunteering activities in a Covid-secure way and paving the way for other volunteer groups to return across the county.

Prior to small volunteer groups recommencing later in the year, the GGP Project Officer for Gatwick Airport was able to complete essential and time-critical work within biodiversity areas, including tree and site safety inspections, control of Bracken, footpath maintenance, litter picking in response to the increased visitor numbers throughout early-2020 lockdown, tree guard removal and sowing of wildflower seed.

**Gatwick's Volunteer Reserve Managers** © Tom Simpson

In 2020, the Volunteer Reserve Managers contributed 39 days of their time to habitat management at Gatwick Airport and completed various tasks including:

- Himalayan Balsam and Bracken control
- Maintaining habitat features for reptiles, including hibernaculum and egg-laying heaps
- Conserving and expanding available habitat for Long-horned Bees at two sites along the River Mole
- Scything grassland at Goat Meadow and creating habitat piles
- Scythe training for the Sussex Wildlife Trusts Leyderman Trainees
- Managing scrub regrowth on Goat Meadow to increase the overall area of grassland
- Managing sycamore and dominant vegetation regrowth in woodland glades and maintaining permanent open spaces
- Selective coppicing, glade creation and and harvesting materials for courses and events

- Putting up deer fence to help protect regrowth of coppice stools
- Helping to prepare forest school sites and materials for Digital Detox Days and Wildlife Ranger tasks
- Pond and ditch management, including the creation of leaky dams and removal of dominating Reed Sweetgrass *Glyceria maxima*
- Long-horned Bee habitat maintenance
- Litter and tree guard collection.

**VRMs and Leyderman Trainees learn scything** © Miles Davies

**VRMs bush-scything at Long-horned Bee nest site** © Rachel Bicker

## Contractor habitat management

Not all habitat works can be carried out by volunteers, and a selection of the tasks require the use of heavy-duty machinery and equipment by contractors. These works tend to be more intensive and higher impacting than that of volunteers; to counter this a Wildlife Impact Assessment is completed before commencing each task, ensuring that sensitivity to the sites and their wildlife is taken into consideration. Examples of these tasks include the pollarding of large willow trees along the River Mole, a hay cut-and-collect of meadow grasslands, the chemical control of Himalayan Balsam and Goat's Rue where most prevalent and the rotational management of thorn scrub in the North West Zone grasslands.

**Fenceline and pond edge scalloping, Land East of the Railway Line**
© Rachel Bicker

**Rotational scrub management West of Brockley Wood with Roots Upwards Ltd** © Rachel Bicker

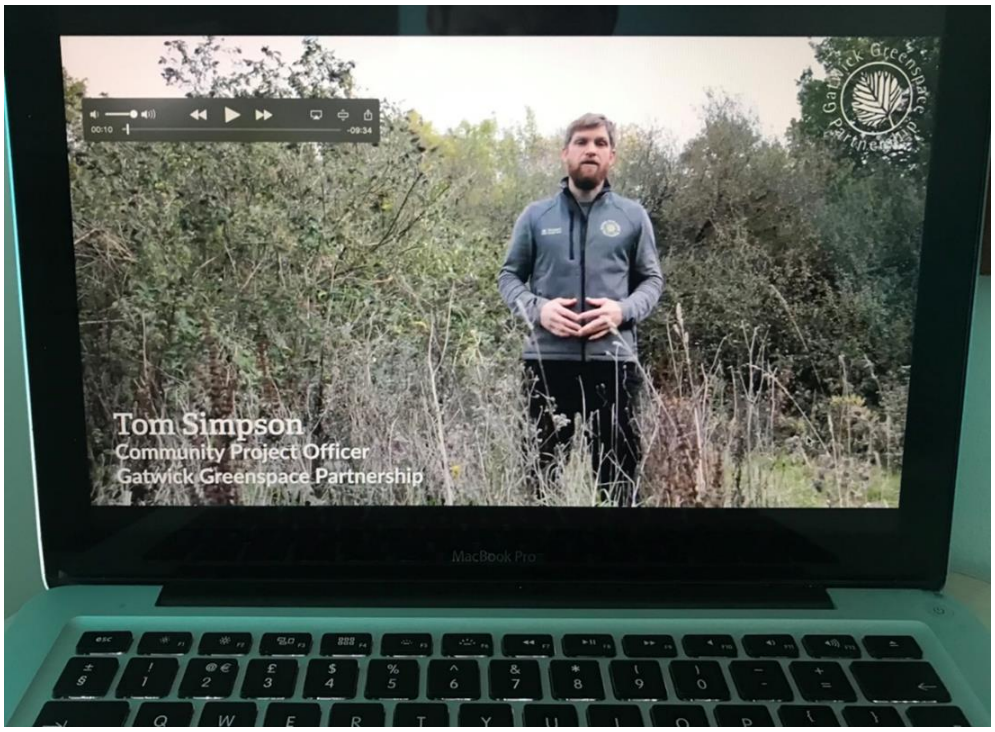
## [B] – EDUCATION AND ACCESS

From January to October 2020, we engaged **278 children**, **33 university students**, **24 teachers** and **23 adult learners**.

The COVID-19 pandemic has led to these numbers being much lower than in previous years, impacting on the number of sessions we were able to run along with group sizes. However, we returned to work as quickly as possible after the easing of lockdown restrictions, while finding new ways of working and completing interesting projects including the following:

- In January the GGP Project Officer transported willow, harvested from conservation works along the River Mole, to **Sompting Abbotts Preparatory School** and worked with 40 pupils to build a living willow dome on site.
- A new partnership with **SusTrans** (the sustainable transport charity) helped schools to access their local green spaces without the usual additional costs, such as hiring a coach. Our first project in February involved a SusTrans Officer leading pupils from the **Gatwick School**, which sits within the Manor Royal Business Improvement District, on a walk to Crawter's Brook People's Park. GGP officers helped with wildlife identification along the way and on arrival, led a session in harvesting materials and building a bug hotel. Follow up sessions are planned with the Gatwick School's Eco Club. Through ongoing partnership with SusTrans, GGP is planning multiple **'Bike-it-Wild'** sessions for schools in our project area throughout 2020-21. Several of these were cancelled due to COVID-19, but we plan to pick up again as soon as possible.
- **Ifield Community College** (Crawley) and **Oakwood School** (Horley) regularly visited Gatwick Woodlands to deliver forest school sessions for their students in the early part of 2020. Thanks to the sponsorship from Gatwick Airport Ltd and the resulting onsite storage, the GGP Project Officer facilitated visits to the biodiversity areas, providing tools and equipment, local knowledge and risk assessments to enable teachers from the school to make use of the woods and increase capacity for onsite education. We aim to resume visits from both schools when safe to do so again.
- Two **Wildlife Rangers** sessions took place in the Gatwick Woodlands in 2020, one just prior to early-lockdown and one after. The group translocated wetland vegetation from the Gatwick Stream Flood Attenuation site, to plant in the newly restored Rolls Farm Pond. After early-lockdown we ran a wellbeing session with this group, in order to help them reconnect with nature.
- Two **Digital Detox** (Wellbeing in the Wild) sessions were hosted in the Gatwick Woodlands after early-lockdown to help improve GAL Staff wellbeing. We completed simple tasks such as fire-lighting and charcoal making, practicing mindfulness exercises and succeeded in creating a relaxing environment for people to switch off from the daily grind and reconnect with nature.
- Two online sessions were delivered on Wildlife Gardening and Wellbeing for GAL staff
- The Gatwick **EYE Eco-summit** was delivered online through a video workshop on mini-meadow creation. This allowed us to engage various local schools even during lockdown restrictions. When the situation allows, GGP staff will follow up with habitat creation on school grounds. The meadow creation video can be viewed via this link: https://youtu.be/m3k24kUbdp4

**Gatwick Airport Ltd staff on the first Wellbeing in the Wild session, Gatwick Woodlands** © Rachel Bicker




**Wildlife Gardening for Wellbeing - Digital session**

In late 2020, GGP Project Officer Tom Simpson won a Crawley Community Award for contributions to the environment and communities in the Crawley area.

## [C] – WALKS, TALKS, HIGHER EDUCATION AND RESEARCH

Due to the COVID-19 lockdowns and restriction, the majority of engagement with groups of walkers, wildlife recorders and students unfortunately had to be cancelled. The usual Royal Holloway University undergraduate student placements also could not take place this year due to COVID-19 restrictions and safety limitations.

- The regular visit with University of Sussex Ecology and Conservation undergraduate students took place in February, prior to the 2020 lockdown. 33 students took a tour of the Gatwick Woodlands as part of their 'Conservation in action' course unit
- The University of Sussex PhD project in solitary bee ecology was successfully completed, with reports and publications made available in August 2020. Further details of this project can be found on page 38, under Long-horned Bees
- Biodiversity Advisor gave a talk to 10 people at the Oxford Nature Conservation Society at Queens College, Oxford University
- Biodiversity video for Surrey County Council: EU Interreg connecting communities with nature
- Vinci Environment Awards entries: Wildflower Road Verges and Biodiversity Action Plan at Gatwick Airport.

### Off-site meetings

A visit to the Knepp Rewilding Project with Birdstrike Management Ltd consultant to meet the White Stork Project Officer. This meeting was for a general update on the reintroduction of the White Storks to the UK, a discussion of the potential implications around aerodrome safeguarding and further data-sharing.

**White Storks** (*Ciconia ciconia*) at the Knepp Wildlands Project
© Rachel Bicker

**Knepp Estate site visit for White Stork Project** © Rachel Bicker

## [4] – LOOKING AHEAD TO 2021

- Resuming our habitat management plan and monitoring regime, adhering to any COVID-19 restrictions, and adapting the programme as needed
- An online virtual tour of Biodiversity at Gatwick for University of Sussex Conservation in Practice module in March
- Continuation of Gatwick's wildflower road verges enhancement project – working with the grounds maintenance team on a verge-specific management plant, connecting up wildflower habitats around the airport
- Implementing new methodology for breeding bird surveys, switching to territory-mapping and increasing the number of visits and monitoring effort
- Volunteer Reserve Managers (VRMs) to continue carrying out regular habitat management tasks when restrictions allow
- Continuing a partnership with Sustrans – walking routes from Forge Wood local to Gatwick and Bike to Nature.

## [5] – ACKNOWLEDGEMENTS

We would like to thank everyone who has contributed their time and effort to Gatwick's Biodiversity Action Plan in 2020, in particular:

- Regular biological recorders Vince Massimo, David Plummer, Tom Forward, Jeremy Cheesman, Nick Aplin, Laurie Jackson, Martyn Cooke, Lucy Groves, Sam Buckland and Jon Middleton for donating their valuable time to recording wildlife at Gatwick
- The Sussex Biodiversity Record Centre, in particular to Lois Mayhew for providing the latest species breakdown for Gatwick
- The local community for their continued enthusiasm and dedication in sharing their observations, as well as helping to safeguard wildlife within our biodiversity sites.
- The Gatwick Greenspace Volunteer Reserve Managers (VRMs) for their habitat management efforts and continuing to support the Biodiversity Action Plan throughout the pandemic (where possible)
- Gatwick Construction Ltd, Birdstrike Management Ltd, Glendale Landscape Services, Roots Upwards Ltd and Synergy TJ Ltd for their supportive efforts within the sensitive biodiversity areas.