Fulham Palace and All Saints Church

MOTH SURVEY REPORT

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Spring – summer

2021

Summary

During the course of spring and summer 2021, three light trap surveys for moths were undertaken at Fulham Palace in west London, vice-county 21 (Middlesex). The surveys consisted of three sample overnight light trapping sessions for moths in June, July and August, in the Walled Garden. Four species of Clearwing moth were surveyed for in daylight with pheromone lures, with one species found. Incidental records of day-flying moths and moth larvae were made during butterfly surveys and at other times, including in All Saints Church grounds. A minimum of 100 moth species were recorded during the surveys, with 94 identified to species level. One species is Red Data Book, one species is designated Nationally Scarce A, four moths are designated Nationally Scarce B and two moth species have Local designation.

Joe Beale 15th January 2022

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Contents

Introduction

This survey was requested by Fulham Palace and is one of a series of ecological monitoring surveys arranged for summer 2021 to gain a better understanding of the wildlife of the site and the habitat requirements. These invertebrate summer surveys were designed to sample key faunal groups including important, scarce and indicative species. There is little data available on Lepidoptera for the site and so these surveys will help give a realistic baseline overview of the status of moths at Fulham Palace and help guide practical management. All Saints Church land borders the east of the site and covers a much smaller area. Although not directly surveyed for moths, other than ad hoc daylight observations, it is very close to the Walled Garden, the site of the light traps, and some of the daylight observations were along the border with the churchyard. For this reason, the survey and habitat recommendations are also relevant to the churchyard, with many of the species recorded likely be found there as well.

Fulham Palace gardens, within Watsonian vice-county (VC) 21 (Middlesex), is an area of around 13 acres and contains semi-natural and amenity grassland, mixed scrub and herbaceous plants, broadleaved and coniferous trees and formal gardens. A historic botanic garden, it has been planted with a broad range of plants over the years, including many exotic species. To the south runs the River Thames, to the north are extensive allotments, to the south and north-west is the urban parkland of Bishops Park, while to the north, north-west and east are urban buildings. The wetland and scrub habitats of the London Wetland Centre are less than a kilometre to the north-west. It is located at approximately TQ240761 (grid reference is for the front of the Palace building), with the church at TQ242759 (for the church entrance).

Terms and abbreviations

Nomenclature, numbering and listing in the report and in the spreadsheets in the Appendix mainly follows the Norfolk Moths (2021) website. English (vernacular) names and scientific names are given for macro-moths in the text and spreadsheets, and scientific names for micro-moths, with English names for micro-moths for well-known or notable species. Status of macro-moths largely follows Waring and Townsend (2017). For micro-moths, status follows Norfolk Moths (2021) unless otherwise specified (in such cases, generally Manley 2021 is used). Larval (caterpillar) foodplants listed also follow these sources. Species status is, however, constantly changing, and the recent status of some species is likely to have changed since these designations. It is worth bearing in mind that “distribution and abundance of most micro moths is imperfectly known” (Sterling and Parsons 2012, p.13).

Adventive (A) - Only found in Britain as a result of deliberate or accidental importation by humans

Col - Colonist, including recent adventive and naturalised species

Common (C) - Occurring in more than 300 10km squares in Britain since 1 January 1980
Immigrant (I) - Arrives in varying numbers annually. May supplement resident populations
Larva(e) - caterpillar(s) of moths
Leaf-mine - evidence of micro-moth larva living within a leaf
Lepidoptera - butterflies and moths
Local (L) - recorded from in 101 – 300 10km squares in Britain since 1 January 1980
Macro-moth – generally, larger moths from Drepanidae onwards, but also usually taken to include Hepialidae and Sesiidae for the purposes of reporting and analysis
Mv - mercury vapour light trap
Micro-moth – 'smaller' moths. See also note for macro-moths
Nationally Scarce A (Na) - recorded from 16 to 30 10km squares in Britain since 1 January 1980
Nationally Scarce B (Nb) - recorded from 31 to 100 10km squares in Britain since 1 January 1980
Ovipositing - The act of (a butterfly or moth) laying eggs on a foodplant
Red Data Book species (RDB) – resident species found in 15 or fewer 10km squares in Britain and included in *British Red Data Books 2* or meeting those criteria subsequently
UK BAP - UK Biodiversity Action Plan Priority species
VC 21 – Watsonian vice-county Middlesex (biodiversity recording area)

Past Records

Few past records appear to have been made on site. Comparisons are made here with the paper by Plant et. al. (2019) which indicates the status of moths in the vice-county of Middlesex. County moth recorder Colin W. Plant* (pers. comm.) kindly supplied a list of previous records for the Fulham Palace area. The 39 species previously recorded on site includes 17 species also recorded in the current survey. 34 of these species previously recorded on site were from a moth trapping session by David Howdon in the Walled Garden on 02/07/2014. The list of moths previously recorded is provided in **Appendix 3.**

*The Herts & Middlesex database maintained by Colin W. Plant (colinwplant@gmail.com)

Weather note

The following weather summary for the light trap survey period is taken from the Met Office (2021) overview**:**

May was unsettled, unseasonably cold and windy at times. Summer (June to August) 2021 mean temperatures were barely above average in south-eastern England where it was particularly cool and wet, with almost double the average rainfall in some places. The first half of June was generally settled and warm, and there was a very warm spell during July, but other periods were unsettled, often with thunderstorms and localised downpours. The second half of August was mostly dry. Early July was rather cool over England, but all regions had a very warm spell from around 15th to 24th, before temperatures dropped again.

August temperatures were unexceptional. June rainfall totals were, in south-east England, around double the average in places. Many areas were wet in July, again with twice the average for some, with localised heavy thundery rain events occurring regularly. Early August continued the unsettled theme, but it then became much drier. In terms of sunshine, England saw one of the ten dullest Augusts historically.

Methodology

The surveys consisted mainly of three overnight light trapping sessions for moths in June, July and August as well as some daytime observations during survey visits, and the use of species-specific artificial pheromone lures designed to attract male Clearwing moths. One light trap was used per overnight session – a twin actinic 25W Robinson (50W combined) for the 7th June session and a large Robinson 125W mercury vapour (mv) trap for the 22nd July and 27th August sessions. Although the Mercury Vapour trap attracts larger numbers and variety of moths on average, the actinic was used for one session as it can attract species that do not come so readily to the mv trap. A white sheet was placed under each trap to enhance the lure of the lights to moths and aid collection at dawn. For safety, the extension cables used had automatic electricity cut-offs should there be an electrical fault. Pyrex bowls were used to protect the bulbs if rain was forecast or appeared likely. These were placed in the Walled Garden, as shown in **Figs. 1-3**. These were switched on just before sunset, then off around dawn and blocked to prevent moths escaping. All moths inside the traps, as well as those outside the trap that had been lured by the light, were counted in these surveys. Identification resources consisted of Manley (2021), Waring and Townsend (2017), Clancy (2012), Sterling and Parsons (2012) and various online resources.

Overnight moth trapping was undertaken when weather conditions were judged to be suitable for moth activity. They were set up in the Walled Garden as a location secure from interference by passers-by, and the surveyor stayed overnight to sort through the traps and any moths found just outside them at dawn. Moths were released unharmed in the same location as they were trapped, after identification and photographs, although three micro-moth specimens were taken for identification purposes.

The three pheromone lures were set up as indicated in **Fig. 1** and **Table 1**. These consisted of the species-specific* **pheromone lure** (in capitals below, obtained from Anglian Lepidopterist Supplies) in a container and trap, which was hung from a low branch or fence on a warm, calm day during the flight period of each target species, with the breeze carrying the scent towards the area under investigation. As the guidelines suggest, these were left up for up to 30-40 minutes on average. Any moths caught were released unharmed. For Red-belted Clearwing *Synanthedon myopaeformis*, a MYO lure was hung from a low Apple Tree branch in the Walled Garden. For Six-belted Clearwing, the lure was hung low down from the fence bordering Bishops Park, with the airflow carrying the scent into the Moat. For Six-belted Clearwing *Bembecia ichneumoniformis,* an API lure was hung low down from the fence by the Moat on 16/07/2021, with the airflow carrying the scent towards the grassland and herbaceous plants. A VES lure was hung in a low branch around oaks and other deciduous trees along the southern border on 08/07/2021 for Yellow-legged Clearwing *Synanthedon vespiformis*. *although primarily attracting the target species, these lures can attract related species and occasionally unrelated insects.

Figure 2 – the actinic trap in the Walled Garden (location A)

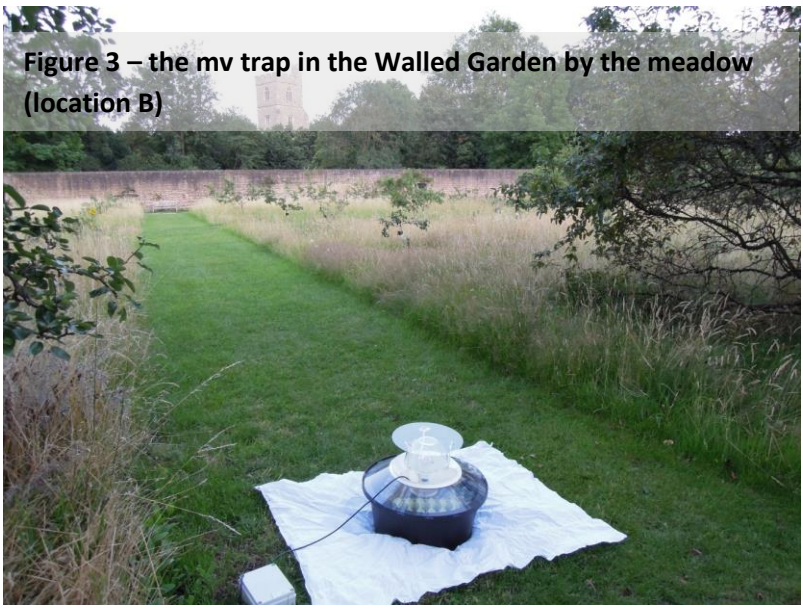


Figure 3 – the mv trap in the Walled Garden by the meadow (location B)

Table 1 details moth trap/lure locations A and B, types and trapping times as well as weather conditions for each trapping session. The dates given are for the evening the traps were turned on. The light trap was close to mature fruit trees, outbuildings, formal gardens, vegetable beds and flower borders, long grass areas and within sight of a range of mature broadleaved and coniferous trees, including Pedunculate Oak. Extensive allotments are located nearby.

Table 1 showing overnight moth survey dates and daytime pheromone lure observation dates, locations, traps, operating/observation times and weather conditions.

Date	Location	Traps	Time	Conditions
07/06/2021	A: Walled Garden TQ 24177 76030	Actinic Robinson 25W x2	Trap on by 21:10, off by 04:28	Warm with a light breeze; clear, some hazy cloud. Temperature of 19C at dusk. Temperature 13C by dawn with a light breeze.
22/07/2021	B: Walled Garden TQ 24196 76027	Mercury Vapour Robinson 125W	Trap on by 21:00, off by 05:05	Temperature of 22C at the start of the night, warm with a moderate breeze, mainly clear with nearly a full Moon. 16C by dawn.
27/08/2021	B: Walled Garden TQ 24196 76027	Mercury Vapour Robinson 125W	Trap on by 20:12, off around 06:00	Overnight temperature of 15C at dusk, first part of night clear, mild; waning gibbous Moon. After 23.00 breeze more northerly, slightly cooler temperature. Temperature falling to 13C by 06.00. and cloudy by dawn.
08/06/2021	C: Walled Garden TQ 24173 76012	Pheromone lure MYO for Red-belted Clearwing	Trap in low Apple Tree branches 12:01-12:31	Warm. Sunny, 19C, light SW breeze 4mph.
08/06/2021	D: South border, opposite Walled Garden TQ 24142 75971	Pheromone lure VES for Yellow-legged Clearwing	Trap low near Oak 12:42-13:11	Warm. Sunny, 19C, light SW breeze 4mph.
16/07/2021	E: South section of the Moat TQ 23927 76214	Pheromone lure API for Six-belted Clearwing	Trap low on fence by long grass/Bird's-foot Trefoil. 09:17-09:33	Warm. Sunny, 19C, light N breeze 7mph.

Results

A minimum of 100 species of moth of 24 families were recorded, mainly across the three moth trap evenings but including a small number recorded during daylight hours (recorded during daylight visits, including diurnal species, leaf mines, nocturnal species found resting, larvae, or moths recorded via pheromone lures). 57 species were micro-moths and 43 species were 'larger' or macro-moths (including Red-belted Clearwing *Synanthedon myopaeformis* as a 'macro'). Efforts were made to identify all moths found and where necessary specimens were taken for confirmation from experts. The species total includes six aggregated species where the moths in question were an addition to the species count but belonged to one or both of two or three very similar species that are difficult or impossible to reliably separate as adults or in the field. These are: *Stigmella* sp., *Bryotropha basaltinella/dryadella*, *Cnephasia* agg., *Endothenia* sp., Common Rustic agg. and Marbled Minor agg. Removing these aggregate species leaves 94 moth taxa identified to species level. Although a small number of leaf mines were recorded as ad hoc sightings, a thorough leaf mine survey was not undertaken as the focus of the survey was on the light traps. Details of which species were attracted to which trap type are listed in the spreadsheet in **Appendix 1**.

The 24 families of moths recorded are as follows, with numbers of species of each family in parentheses. As 100 species were recorded, the figures can be easily seen as percentages:

Hepialidae (1), Nepticulidae (3), Adelidae (1), Psychidae (1), Gracillariidae (4), Yponomeutidae (3), Plutellidae (1), Argyresthiidae (1), Lyonetiidae (1), Praydidae (1), Oecophoridae (3), Peleopodidae (1), Gelechiidae (2), Elachistidae (1), Blastobasidae (1), Pterophoridae (1), Choreutidae (2), Tortricidae (11), Sesiidae (1), Pyralidae (5), Crambidae (14), Geometridae (9), Erebidae (5), Noctuidae (28).

In order from largest number of species represented to smallest, the Noctuidae, Crambidae, Tortricidae, Geometridae, Pyralidae and Erebidae accounted for the majority (72%) of the moth species recorded, with each of the other families listed represented by fewer than five species.

Table 2: species of conservation significance (scarce or localised), new colonists and other species of interest recorded during the 2021 survey

All the following species designated as scarce or localised were recorded solely at the light traps, unless otherwise noted. Larval foodplants are briefly summarised.

Status in Britain	Number of species recorded in this survey
Red Data Book (RDB)	one
Nationally Scarce A (Na)	one
Nationally Scarce B (Nb)	four
Local (L)	two

Horehound Long-horn *Nemophora fasciella* - **Na** (Davis 2012). A beautiful little moth which requires Black Horehound *Ballota nigra* as its larval foodplant. A female was observed on 24/06/2021 during a daylight search in an area of extensive Black Horehound, at the border between Fulham Palace and All Saints Church, east of the Walled Garden.

Brindled Groundling *Recurvaria nanella* - **Nb**. Requires fruit trees such as *Malus*, *Pyrus*, *Prunus* spp. One recorded at mv light on 22/07/2021 in the Walled Garden.

Fig Tree Skeletoniser *Choreutis nemorana* - Adventive, temporary resident (Manley 2021). Requires Common Fig *Ficus carica*. 20+ larvae found on Fig leaves by the author on 28/08/2021 just outside the Walled Garden. This moth was first recorded in Britain in 2014, in Hyde Park (Manley 2021) and has rapidly spread.

Red-belted Clearwing *Synanthedon myopaeformis* - **Nb**; requires mature *Malus*, sometimes *Pyrus* and Hawthorn *Crataegus monogyna*. A male recorded to pheromone lure in the Walled Garden on 08/06/2021.

Waste Grass-veneer *Pediasia contaminella* - **Nb**. Requires grasses. Four were recorded on 22/07/2021, to mv light in the Walled Garden.

Least Carpet *Idaea rusticata* - **Local.** 11 were recorded on 22/07/2021, to mv light in the Walled Garden. This species is now common in much of London and considered ubiquitous and usually abundant in VC 21 in Plant et al. (2019). This species was previously recorded on site in 2014 (Colin W. Plant, pers. comm.).

Jersey Tiger *Euplagia quadripunctaria* - **Nb**. This species is now common in much of London but is listed as Nationally Scarce B in Waring and Townsend (2017). Numerous Stinging Nettles *Urtica dioica*, one key foodplant, are in the area. One in daylight on 04/08/2021, outside the north wall of the Walled Garden. One on 22/07/2021 and three on 27/08/2021 - on both dates recorded at mv light in the Walled Garden. This species has been recorded on site before (Colin W. Plant, pers. comm.).


Toadflax Brocade

Toadflax Brocade *Calophasia lunula* - **RDB**. Ragwort. One on 07/06/2021 to the actinic trap in the Walled Garden.

Old Lady *Mormo maura* - **Local.** One on 27/08/2021 at mv light in the Walled Garden.

Dark Sword-grass *Agrotis ipsiolon* - **Immigrant**. One adult was attracted to the mv moth trap in the Walled Garden on 22/07/2021.

Other species recorded

Some insects other than moths were attracted to the light traps. These included three beetle species as follows: a Violet Ground Beetle *Carabus violaceus* on 27/08/2021, several Cockchafers *Melolontha melolontha* on 07/06/2021 and a *Curculio venosus* (weevil) on 22/07/2021. For convenience, the data for these records have been added to the other sightings list in the butterfly report spreadsheet.

Survey limitations

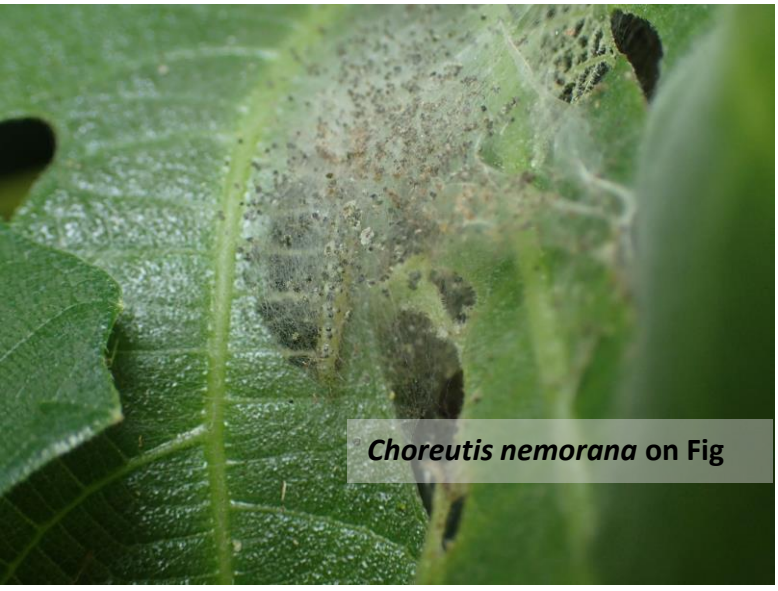
Surveys can only ever record a selection of the moth fauna of the site and this survey is intended as a baseline indication of the moths of the site. Limitations for the current surveys included the changeable weather, including the cold and unsettled spring which would likely have impacted moth numbers later in the year. Many moth recorders reported 2021 was a poor year (Tim Freed, pers. comm. for example). Species numbers would have been higher with a leaf mine survey, but many leaf mines are better searched for in the autumn, rather than the summer months. There were only three light trapping sessions, and these only covered mid to late summer, meaning many species, including many spring and autumn species, were not recorded. Light pollution from floodlit buildings of Fulham Palace and All Saints Church may have reduced the impact of the light traps, as could the nearly full Moon during the July survey. The location of the light traps - necessarily in the Walled Garden for security reasons - inevitably missed many moths that would occur in the borders, the Moat and elsewhere.

Discussion and recommendations

Despite some limitations noted above, a wide range of moth species were recorded in the Fulham Palace grounds. The list includes moths from a broad range of habitats, a Red Data Book species, one Nationally Scarce A, four Nationally Scarce B and two Local species. Immigrant and recent colonist species were also recorded. The findings reflect the wide range of habitats at the site, including areas that have survived the many changes the local area has undergone over the last few centuries. In the discussion below, scientific names for moths are given for micro-moths and for species not recorded during the survey.

Nationally, the overall picture is that larger moths have decreased in abundance in Britain, with declines both in the total abundance of all moths caught in the Rothamsted Insect Survey network and in many individual species (Fox et al. 2021). However, the National Moth Recording Scheme (NMRS) data show that many species are increasing in *distribution*, mainly in response to climate change, while others colonise from overseas (Fox et al. 2021). Population trends can be hard to judge when comparing sporadic survey results, as moth populations fluctuate annually, and long-term studies are very important to help offset such normal fluctuations (Fox et al. 2021).

Choreutis nemorana was recorded as breeding on the Fig Tree just outside the Walled Garden. This is an interesting record because only one record, the first British record at Hyde Park in 2014, is listed in the checklist of Middlesex moths by Plant et al. (2019). The species has been spreading rapidly in recent years, however, and is likely to have been recorded in VC 21 since then, as observers have become aware of it and started to look for it.



***Choreutis nemorana* on Fig**

White Ermine

Great Britain regional Red List conservation status and figures for the national declines or increases mentioned below are taken from Randle et al. 2019 and refer to the period 1970-2016 unless otherwise specified. Larger moths recorded at Fulham Palace during the current survey which are declining nationally

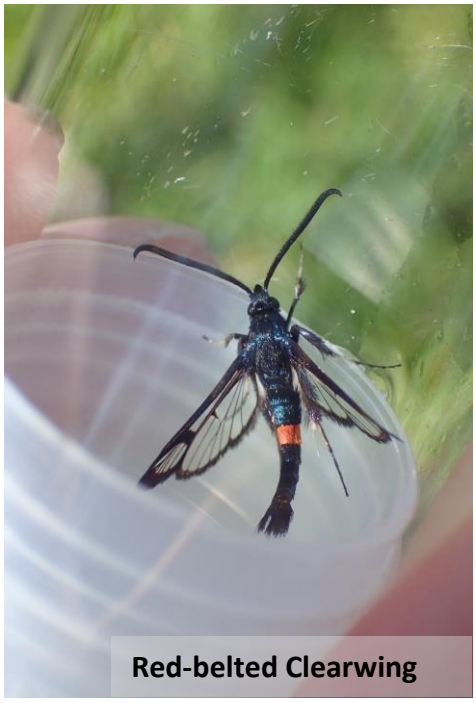

Heart & Dart

(Fox et al. 2021) include White Ermine, Cinnabar, Knot Grass, Small Square-spot and Rustic. Given these apparent declines, it was encouraging to see these moths on site including breeding evidence (larvae) of Cinnabar. Only a modest number of Heart & Dart (declined in abundance by 86% nationally) were recorded in the current survey. On the other hand, several moths recorded in the current survey are increasing nationally, with for example Least Carpet having increased in abundance nationally by 11,560%, while grassland moth Straw Dot has increased by 1,845% in abundance. The national picture is therefore mixed. Some of these changes may be climate-related rather than habitat-related (Randle et al. 2019, Fox et al. 2021), but action at the local habitat management level is nevertheless important to help the wide range of moths shown to occur at this site.

It is difficult to draw conclusions from the absence of certain species during the current survey, but there were some surprising absentees from the current survey list, such as the common and widespread Small Dusty Wave *Idaea seriata,* the Footman moths (a group requiring lichens that is increasing nationally - Fox et al. 2021), Turnip Moth *Agrotis segetum,* Large Yellow Underwing *Noctua pronuba* and Broad-bordered Yellow Underwing *Noctua fimbriata* for example. Continuing with regular moth surveys in future would help gain a fuller understanding of the true status of some of these species inside the Palace boundary, accounting for routine population fluctuations and the vagaries of the weather, especially as some moths are only represented in trap surveys by single individuals. It would also be useful to monitor moths across all seasons to ensure that the picture we have of the site's moth fauna is as accurate as possible. Of the 39 moth species recorded on, or very close, to Fulham Palace grounds previously (Colin W. Plant, pers. comm - see **Appendix 3**), 17 were recorded again during the current survey. These 17 species recorded again were: Horse Chestnut Leaf-miner *Cameraria ohridella*, *Crassa unitella*, Bud Moth *Spinilota ocellana*, Codling Moth *Cydia pomonella*, *Phycita roborella*, Box-tree Moth *Cydalima perspectalis*, *Chrysoteuchia culmella*, *Agriphila geniculea*, Water Veneer *Acentria ephemerella*, Riband Wave, Least Carpet, White Ermine, Jersey Tiger, Uncertain, Dark Arches, Cloaked Minor and Heart & Dart. That leaves 83 species recorded during the current survey (77 identified to species level) that are not listed for the site on The Herts & Middlesex database maintained by the county moth recorder, Colin W. Plant. The current survey has, therefore, added greatly to the data available on the moth fauna of Fulham Palace grounds. This extra information will be of use to the county recorder and will help guide the Fulham Palace team in their management of habitats on site.

Pediasia contaminella

The VC 21 (Middlesex) status of most of the moths recorded at Fulham is widespread and common (Plant et al. 2019). The Middlesex status of the following eight moth species found at Fulham Palace during the current survey is taken from Plant et al. (2019). Several species that are considered nationally scarce are common in VC Middlesex: for example, Jersey Tiger is considered ubiquitous and common, while Toadflax Brocade is now widespread and very common in VC 21. The Gelechiid *Recurvaria nanella* is apparently widespread and common in Middlesex, with 165 records listed for VC 21 between 1959 and 2018. The grassland moth *Pediasia contaminella* is considered local, but not uncommon and probably under-recorded in VC Middlesex, although only 28 records are listed for the vice-county between 1957 and 2018. Red-belted Clearwing was a welcome find in Fulham Palace's orchard, via the pheromone lure. This attractive but often overlooked day-flying species usually favours older fruit trees. It is described as moderately widespread in VC Middlesex, though there are not many records (36 records from 1940 to 2018 - Plant et al. 2019). There are only 24 vice-county records of the vivid yellow micro-moth *Agapeta zoegana* between 1957 and 2018 and it is considered widespread but local - and much less common than its close relative *A. hamana*. Treble Lines is considered common nationally, and widespread but decidedly local in distribution in Middlesex. Horehound Long-horn *Nemophora fasciella* was a welcome find at the border with All Saints churchyard. Plant et al. (2019) list only 11 records of this moth between 1996 and 2018 and describe how habitat has been lost to development in VC Middlesex. Bearing in mind the status comments from Plant et al. (2019) mentioned above, the Fulham Palace records of Horehound Long-horn, *Agapeta zoegana*, *Pediasia contaminella*, Red-belted Clearwing and Treble Lines are perhaps particularly useful for the vice-county database.



Red-belted Clearwing

Key habitats on site include scrub, herbaceous plants, broadleaved trees and grassland. Given the rich history of Fulham Palace, there is a wide range of broadleaved and evergreen trees and shrubs, including exotic specimens. Species in the area include Spindle *Euonymus europaeus*, Sycamore *Acer pseudoplatanus*, Common Fig *Ficus carica*, Hazel *Corylus avellana*, Hawthorn *Crataegus monogyna*, Beech *Fagus sylvatica*, Privet *Ligustrum sp.*,

deciduous oaks *Quercus* sp., Horse Chestnut *Aesculus hippocastanum*, Sweet Chestnut *Castanea sativa*, Lime *Tilia x vulgaris*, Elder *Sambucus nigra,* cherries *Prunus* sp., Holly *Ilex aquifolium* and Elm *Ulmus sp.* amongst others. Maintaining a range of species at different ages benefits a wide range of species. Veteran Pedunculate Oaks *Quercus robur* provide an important habitat and the garden borders include woodland and shrub cover that has apparently had ecological continuity for a long time.

Ash Bud Moth *Prays fraxinella*

Of the 100 moth species recorded overall, around one third require herbaceous plants, while just under one fifth require grasses and a similar proportion require broadleaved trees, with around 6% requiring fruit or thorn trees. A number of species have fruit trees specifically listed as key foodplants, not least Nationally Scarce moths *Recurvaria nanella* and Red-belted Clearwing as well as commoner species such as *Swammerdamia pyrella* and Green Pug. Around 15% of the moths recorded have broadleaved trees such as deciduous oaks listed as a foodplant. Moths such as *Pammene fasciana* and *Acrobasis repandana* may well rely heavily on deciduous oaks in the Palace grounds. To these totals could be added a number of species whose larval foodplants are described as "polyphagous" or using many plant species. Hawthorn is a key species for moths, for example for the Brimstone Moth, and Ash Trees support Ash Bud Moth *Prays fraxinella* which are breeding on site.

Although conifers are not a source of many moths on the list, they can nonetheless bring some interesting species in, such as Tawny-barred Angle, and can be considered as part of the wider mix.

A wide range of moths of grassland and grassy habitats were recorded, and this is a key habitat at Fulham Palace and the churchyard. For example, around 15% of the species recorded have grasses of various kinds listed as larval foodplants, not including those species that are polyphagous or those which live in grasslands but use non-grasses as foodplants. These moths require a range of grass species, but Sheep's Fescue *Festuca ovina* is an important grass for several of them. It was encouraging to record several Waste-grass Veneer *Pediasia contaminella,* a Nationally Notable B species of dry grassy habitats, as well as *Crambus perlella*, and the most numerous moth in the light traps was Garden-grass Veneer *Chrysoteuchia culmella* with 41 found on three occasions, mainly to the light

Agapeta zoegana

Straw Underwing

traps. Grassland species Shoulder-striped Wainscot *Leucania comma* and Smoky Wainscot *Mythimna impura* were not recorded in the current survey, but representatives of other expected grassland macro-moths, such as Straw Dot, Straw Underwing, Cloaked Minor, Common Wainscot, White-point and Square-spot Rustic were all observed. Within the grasslands, *Hoemosoma sinuella* (foodplant Ribwort Plantain *Plantago lanceolata*), the strikingly bright yellow *Agapeta zoegana* (requiring Common Knapweed *Centaurea nigra*) as well as *Aethes smeathmanniana* (requiring Yarrow *Achillea millefolium* and Knapweeds) occur.

Species whose larvae use lichens include micro-moths *Luffia ferchaultella,* which was found on a gravestone in All Saints churchyard and a bench on Fulham Palace grounds, while several individuals of Tree-lichen Beauty were recorded, reflecting the continued success in London of this relatively recent colonist. This latter species increased nationally by 283% between 2000 and 2016 (Randle et al. 2019). While climate factors are likely involved, this trend points to a wider availability of the lichens required by their larvae, and indeed there are now many more lichen species in the London area than in the past (for example, Laundon 2013) partly because sulphur pollution is largely a problem of the past, although nitrogen pollution still has a negative impact on many species. The author observed an interesting range of mainly crustose and foliose lichens on the fruit trees in the Walled Garden.

Mosses on walls, tree trunks and outbuildings are required by some interesting species, such as the two *Eudonia* species recorded in the current survey. Other important moth habitats on site include dead and decaying wood, for moths such as *Esperia sulphurella* - found near the natural play area - as well as decaying leaves and fungi.

Many herbaceous plants are found on site and the widest proportion of moths on the list - around one third - use or may use various herbaceous plants. Some species that use

herbaceous plants, such as Riband Wave and Heart & Dart, seemed to have been recorded in particularly low numbers in the current survey, and the absence of Large Yellow Underwing *Noctua pronuba* is surprising – this could be related to the poor weather earlier in the year.


Spectacle

Moths found during the current survey that require Common Nettle include Nettle-tap *Anthophila fabriciana*, Small Magpie *Anania hortulata*, Mother of Pearl *Patania ruralis*, and impressive-looking species such as White Ermine, Jersey Tiger, Spectacle and Burnished Brass. Black Horehound supports the Nationally Scarce A and Biodiversity Action Plan moth Horehound Long-horn along the border between the Palace and the churchyard - the adults will nectar at umbellifer-type flowers, such as Hemlock *Conium maculatum*. Garden Carpet, Knot Grass, Flame Shoulder, Heart & Dart and Small Square-spot are other widespread moths recorded that use various herbaceous plants. Cinnabar larvae were using the Ragwort in the Moat area. Also found was the Red Data Book species Toadflax Brocade (although this species is locally common in London now). This moth is straightforward to cater for as its conspicuous and beautiful larvae use Common Toadflax *Linaria vulgaris* or Purple Toadflax *Linaria purpurea*. Efforts to maintain or further increase the variety or quality of herbaceous plants on site would be beneficial for this and other species.

A small number of Water Veneer *Acentria ephemerella*, associated with wetland habitats, were found. Wetland species often wander, and therefore establishing small ponds such as barrel ponds may attract other wetland species such as Small China-mark *Cataclysta lemnata*, with its aquatic larvae that use duckweed.

Habitat management suggestions

Trees, shrubs and associated herbaceous plants: the gardens have a broad range of trees and shrubs that are useful to wildlife. Often their value is enhanced by these being part of a gradated border, transitioning from open ground to herbaceous plants, scrub and then taller trees, with some small clearings. This is the case along much of the southern border of the site and some of the north-eastern areas. One of the more interesting areas for invertebrates is near the natural play area and the surrounding herbaceous vegetation, clearings and scrub - this area (see **fig. 4**) is very good for insects, having for example, a sunny, sheltered spot with varying heights of plants and Stinging Nettles, Hedge Woundwort *Stachys sylvatica*, Garlic Mustard *Alliaria petiolata* and other species. Generally, selective

Figure 4 - herbaceous plants and shrubs, along southern border near the natural play area

clearing of some areas, or selective pruning or coppicing of some trees, can help maintain diversity and dynamism and stop one or two species dominating - while also, importantly, leaving other areas undisturbed. Sunny, sheltered spots help woodland flora and understorey to thrive, benefitting moths requiring herbaceous plants and those of woodland fringes.

Fruit and thorn trees/scrub are important for a significant proportion of the moths recorded. Key species such as Red-belted Clearwing thrive amongst older specimens of these trees, and the sunny, sheltered Walled Garden with old fruit trees is ideal for this moth. It is recommended that these trees be preserved where possible even when they approach the ends of their lives. Avoiding chemical treatments and sprays or indiscriminate insect traps is also another good management practice that will benefit moth diversity in the Walled Garden and beyond.

Any new tree planting should be adjusted through allowing sufficient space, choosing varied tree species and habit, ages or height variation to allow in adequate sunlight for lichens to thrive. Maintaining a wide range of broadleaved trees and some scrub patches, including allowing dead branches, stumps and standing deadwood to remain - where safe and practical to do so - would help lichens, fungi and the moths and other invertebrates that

require them, and it was good to hear this may be what happens with dead Elm and Ash (Fulham Palace Garden team, pers. comm.).

Horehound Long-horn

The border with the churchyard: the recommendation for management here is to retain some areas of Black Horehound all year, along with trimming some of the rank vegetation in early autumn. This will allow grasses and lower-growing flowers to thrive - while, importantly, keeping a balance by retaining some valuable dense thickets there for invertebrates and nesting birds. The key species to consider here is the Biodiversity Action Plan species Horehound Long-horn *Nemophora fasciella.* By cutting only some sections of the Black Horehound growing here, and ensuring the cutting blade is set high where this is done, this scarce and beautiful moth can compete its life cycle and will be encouraged both in Palace grounds and the adjacent All Saints churchyard, which also has the foodplant.

Grassland: grassland is a key habitat at Fulham Palace. The moth traps recorded many grassland species when placed beside the long grass meadow in the Walled Garden orchard (see **fig. 3**). Generally, maintaining a mix of grassland - including some fine and some coarse grass areas, some cut and others left uncut each time - would benefit many moth species and other invertebrates. Minimising nutrient enrichment is important for the fine grassland areas, where possible. Although richer areas of soil are useful for Stinging Nettles and their attendant Lepidoptera, there should be a balance between the fast-growing generalist species such as this and fine or coarse grassland, and in the wider open areas the fine grassland should be prioritised. Limiting shading in such places and therefore maintaining warmth at ground level is also helpful to Lepidoptera. Across the site, the practice of allowing grass to grow, then cutting (using a high blade setting) and removing the arisings in the autumn, leaving around a third to a half uncut each time, should help a range of species by reducing nutrient levels, holding back tree succession and keeping the sward warm and open, and will provide corridors for moths to move between fragments of habitat. Cutting certain smaller sections and removing the arisings occasionally through the growing season will also enhance variety by mimicking light grazing to some extent. The Moat (**fig. 5**) is likely to be a rich habitat for moths and indeed several day-flying species were noted there. The current management of cutting at the end of summer and removing the arisings (Fulham Palace Garden team, pers. comm.) appears to be working well overall, although leaving some small sections fallow each year would likely enhance its value to moths still further.

Figure 5 – grasses and herbaceous vegetation in the Moat

Moss on walls, benches, gravestones and outbuildings: these are required by a range of interesting species, a good reason not to be overly tidy with roofs, stonework or brickwork and to allow some outbuildings to become a little rustic in appearance. To help moths of lichens and mosses, stonework and wooden benches should not be cleaned beyond what is necessary.

Leaf litter, dead vegetation and bracket fungi on dead or damaged wood are also important micro-moth habitats that are often overlooked, and another reason to have some areas across the site left alone or with minimal management or human disturbance. Keeping some dead wood, and leaf litter accumulations beneath bushes is helpful. It is encouraging to see stumps and deadwood left following tree removal or arboriculture work. Leaf-blowers should not encroach onto the edges of shrubs, in order to maintain leaf-piles and other vegetation around and underneath them. These leaf piles offer useful food and hibernation sites for various moth species and habitat for fungi.

Ponds: new ponds, even small barrel ponds that are being introduced, would encourage wandering moths of wetlands, for example from the London Wetland Centre or from nearby ponds, to stay and breed and may attract several new species.

Lighting: The Palace building and the Church building are both brightly illuminated at night. The Palace building in particular currently produces significant light overspill into the surrounding habitats (see **fig. 6**). Boyes at al (2021) showed the serious negative impact LED

and other lighting at night can have on Lepidoptera. For this reason, lighting in and around the gardens should be reduced to a minimum and switched off when not in use. Any lighting used should have a warmer colour temperature (less 'blue'), which is likely to be better for insects (Boyes et al. 2021). The impact of necessary lighting, such as security lighting, can be mitigated somewhat by motion-sensors, shields directing the light to where it is needed, timed switch-off, reduced brightness, reduced number of lamps and warmer light spectrum. Although the grounds are shut to the public overnight, during one of the overnight surveys the author was aware of a group of people using the tables and chairs by the Palace building for a gathering. Although the gathering may have been harmless on this occasion, it appears the bright lighting could actually attract people at night or at least not deter them! Motion-sensor lighting may be the way forward in this case, and this would greatly reduce light pollution. Boyes et al. (2021) conclude that the best option for wildlife is to reduce both the extent and intensity of lighting as much as possible.

Figure 6: light pollution around the Palace building spilling onto wildlife habitats

Generally: the many polyphagous species and moths that feed on herbaceous plants would benefit from 'untidy' corners here and there that allow a range of low-growing plants to grow. This might also take the shape of tolerating more 'weedy' species to grow in some areas, or one or two more fallow grassy sections, for example. Many of the habitats mentioned (the southern border, scrubby areas, mature trees, long grass areas for example), already appear good for moths. The organic techniques that are practised on site, such as companion planting and avoiding pesticides in the Walled Garden, are very welcome

and will benefit moths and other wildlife. The Garden Team (pers. comm.) are aware of the need for nectar sources throughout the year and this will help moths and other pollinators.

Fulham Palace has a site management team that is working hard to maintain and improve habitats for biodiversity and these efforts are to be welcomed. The mix of habitats host an interesting and diverse range of moths, including locally and nationally scarce species. A few adjustments would further benefit moths and other insects.

Tree-lichen Beauty

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Appendix I - Records Spreadsheet

ABH Log Number	Family	Species Name	Common Name	Observer's Name	Date	Grid Reference	Location Name	Location In Park	Abundance	Sex/Stage	UK Status	Determiner's Name	iRecord	Comment	Typical Foodplant
3.002	Hepialidae	*Korscheltellus lupulina*	Common Swift	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	Grasses, herbaceous plants
	Nepticulidae	*Stigmella sp.*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	30	adult				Leaf-miners - adults difficult to identify.	
4.010	Nepticulidae	*Stigmella microthiella*		Joe Beale	08/10/2021	TQ 23966 76234	fulham Palace grounds	Tenant's garden/moat	3	Leaf mines	Common			Leaf mines on Hornbeam hedge	Hornbeam, Hazel
4.045	Nepticulidae	*Stigmella aurella*		Joe Beale	08/10/2021	TQ242760	Fulham Palace grounds	Outside north edge of Walled Garden	2	Leaf mines	Common			Leaf mines on Bramble	Bramble
7.004	Adelidae	***Nemophora fasciella***	**Horehound Long-horn**	Joe Beale	24/06/2021	TQ24227594	Fulham Palace grounds	Opposite east wall of Walled Garden.	1	female	**Nationally Scarce A. Biodiversity Action Plan species.**		yes	Daylight search. Female on Black Horehound Ballota nigra.	Black Horehound seeds/leaves
11.009	Psychidae	*Luffia ferchaultella*		Joe Beale	30/05/2021	TQ242759	All Saints Churchyard		1		Common			On gravestone	Lichens and algae
11.009	Psychidae	*Luffia ferchaultella*		Joe Beale	30/05/2021	TQ 24157 76107	Fulham Palace grounds	Outside Walled Garden to the NW	6		Common			Five on bench, one on tree trunk	Lichens and algae
15.041	Gracillariidae	*Phyllonorycter platani*		Joe Beale	08/10/2021	TQ242759	All Saints Churchyard		10	Leaf mines	Common			Several leaf mines found in Plane leaves	London Plane
15.040	Gracillariidae	*Phyllonorycter messaniella*		Joe Beale	08/10/2021	TQ242759	All Saints Churchyard		2	Leaf mines	Common			Leaf mines on Sweet Chestnut	Broadleaved trees such as oaks, Sweet Chestnut, Hornbeam

15.040	Gracillariidae	*Phyllonorycter messaniella*		Joe Beale	08/10/2021	TQ 23966 76234	Fulham Palace grounds	Tenant's garden/moat	2	Leaf mines	Common			Leaf mines on Hornbeam hedge	Broadleaved trees such as oaks, Sweet Chestnut, Hornbeam
15.078	Gracillariidae	*Phyllonorycter tristigella*		Joe Beale	08/10/2021	TQ242759	Fulham Palace grounds	Opposite east wall of Walled Garden.	1	Leaf mines	Common			Mine on Ulmus, parallel to vein.	Elm
15.089	Gracillariidae	*Cameraria ohridella*	Horse Chestnut leaf-miner	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	7		Common			MV trap 21.00 - 05.05	Horse Chestnut
15.089	Gracillariidae	*Cameraria ohridella*	Horse Chestnut leaf-miner	Joe Beale	28/08/2021	TQ239760	Fulham Palace grounds	southern edge of site	12		Common			Daylight search. Larval mines in Horse Chestnut leaves along southern edge of site.	Horse Chestnut
16.001	Yponomeutidae	*Yponomeuta evonymella*	Bird-cherry Ermine	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Cherry
16.004	Yponomeutidae	*Yponomeuta cagnagella*	Spindle Ermine	Joe Beale	08/06/2021	TQ 24146 76092	Fulham Palace grounds	Outside NW corner of Walled Garden	30+	Larvae	Common			Daylight search. On Spindle branches.	Spindle
16.017	Yponomeutidae	*Swammerdamia pyrella*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Hawthorn, Apple, Pear, Bird Cherry
18.001	Plutellidae	*Plutella xylostella*	Diamond-back Moth	Joe Beale	07/06/2021	TQ242760	Fulham Palace grounds	Walled Garden	3		Common			Evening search	Brassicaceae
18.001	Plutellidae	*Plutella xylostella*	Diamond-back Moth	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	8		Common			MV trap 21.00 - 05.05	Brassicaceae
20.012	Argyresthiidae	*Argyresthia pruniella*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Cherry shoots
21.001	Lyonetiidae	*Lyonetia clerkella*	Apple Leaf-miner	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Apple, Cherry,

															Hawthorn and others
22.002	Praydidae	*Prays fraxniella*	Ash Bud Moth	Joe Beale	24/06/2021	TQ 24246 75967	Fulham Palace grounds	Opposite east wall of Walled Garden	2		Common			Daylight search. Mating pair.	Ash trees
28.019	Oecophoridae	*Esperia sulphurella*	Sulphur Tubic	Joe Beale	30/05/2021	TQ 24017 76050	Fulham Palace grounds	west of Natural play area	1		Common			daylight search	Dead wood
28.01	Oecophoridae	*Hofmannophila pseudospretella*	Brown House-moth	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Dead plant and animal matter
28.014	Oecophoridae	*Crassa unitella*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV trap 21.00 - 05.05	Fungi on dead wood
31.001	Peleopodidae	*Carcina quercana*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Oaks, Beech etc
31.001	Peleopodidae	*Carcina quercana*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV trap 20.12-06.00	Oaks, Beech etc
	Gelechiidae	*Bryotropha basaltinella/dryadella*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common	Dr Tim Freed		MV trap 20.12-06.00	Mosses etc
35.156	Gelechiidae	***Recurvaria nanella***	**Brindled Groundling**	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		**Nationally Scarce B**			MV trap 21.00 - 05.05	Apple, Pear, Prunus sp
38.037	Elachistidae	*Elachista canapennella*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Grasses
41.002	Blastobasidae	*Blastobasis adustella*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	2		Common			MV trap 21.00 - 05.05	Vegetable matter
41.002	Blastobasidae	*Blastobasis adustella*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Vegetable matter
45.044	Pterophoridae	*Emmelina monodactyla*	Common Plume	Joe Beale	27/08/2021	TQ242760	Fulham Palace grounds	Walled Garden	2		Common			One in Walled Garden and one to MV trap 20.12-06.00	Convulvulous

48.001	Choreutidae	*Anthophila fabriciana*	Common Nettle-tap	Joe Beale	28/08/2021	TQ 24217 76079	Fulham Palace grounds	opposite north wall of Walled Garden	1		Common			Daylight search. In flight opposite north wall of Walled Garden.	nettles
48.001	Choreutidae	*Anthophila fabriciana*	Common Nettle-tap	Joe Beale	24/06/2021	TQ241759	Fulham Palace grounds	Opposite south wall of Walled Garden	1		Common			Daylight search. On nettles.	nettles
48.008	Choreutidae	***Choreutis nemorana***	**Fig-leaf Skeletoniser**	Joe Beale	28/08/2021	TQ24247602	Fulham Palace grounds	On Fig tree outside north edge of Walled Garden	20	larva	**Recent colonist**		yes	Daylight search. Larvae in tents on Fig tree outside north edge of Walled Garden.	Common Fig
49.004	Tortricidae	*Ditula angustiorana*	Red-barred Tortix	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Many trees and shrubs
	Tortricidae	*Cnephasia agg.*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	
49.039	Tortricidae	*Epiphyas postvittana*	Light Brown Apple Moth	Joe Beale	07/06/2021	TQ 24017 76050	Fulham Palace grounds	West of Natural Play area	1		Common			daylight search	Polyphagous
49.110	Tortricidae	*Agapeta zoegana*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Common Knapweed
49.120	Tortricidae	*Aethes smeathmanniana*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common	Dr Tim Freed		MV trap 20.12-06.00	Yarrow and Knapweeds
	Tortricidae	*Endothenia sp.*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	
49.224	Tortricidae	*Spilonota ocellana*	Bud Moth	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV trap 21.00 - 05.05	Wide range of trees, shrubs etc
49.307	Tortricidae	*Rhyacionia pinivorana*	Spotted Shoot Moth	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	Scots Pine

49.338	Tortricidae	*Cydia pomonella*	Codling Moth	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	2		Common			Actinic trap 21.10-04.28	Apple, Quince, Pear and other fruit trees
49.341	Tortricidae	*Cydia splendana*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Fruits of Sweet Chestnut, oaks, Walnut
49.367	Tortricidae	*Pammene fasciana*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Fruits of oaks or Sweet Chestnut
52.011	Sesiidae	***Synanthedon myopaeformis***	**Red-belted Clearwing**	Joe Beale	08/06/2021	TQ 24173 76012	Fulham Palace grounds	Walled Garden apple trees	1		**Nationally Scarce B**		yes	To pheremone lure 12.01-12.31	Old Apple, Crab Apple, Pear trees
62.029	Pyralidae	*Phycita roborella*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	4		Common			MV trap 20.12-06.00	oaks, Crab Apple, Pear
62.034	Pyralidae	*Acrobasis repandana*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Oaks
62.054	Pyralidae	*Homoeosoma sinuella*		Joe Beale	16/07/2021	TQ 23951 76227	Fulham Palace grounds	Moat northern section.	1		Common			Daylight search.	Roots of Ribwort Plantain
62.076	Pyralidae	*Hypsopygia glaucinalis*		Joe Beale	23/07/2021	TQ 24202 76046	Fulham Palace grounds	Walled Garden.	1		Common			Daylight search.	Hay, thatch, dead leaves
62.076	Pyralidae	*Hypsopygia glaucinalis*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	1		Common			MV trap 20.12-06.00	Hay, thatch, dead leaves
62.077	Pyralidae	*Endotricha flammealis*		Joe Beale	22/07/2021	TQ242760	Fulham Palace grounds	Walled Garden.	1		Common			Evening search. On Yarrow flower.	Decaying leaves
62.077	Pyralidae	*Endotricha flammealis*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	1		Common			MV trap 21.00 - 05.05	Decaying leaves
63.006	Crambidae	*Pyrausta aurata*	Mint Moth	Joe Beale	28/08/2021	TQ 24220 76040	Fulham Palace grounds	Walled Garden.	1		Common			One on Fleabane flowers in Walled Garden during butterfly transect	Mints, Marjoram

														11.10-12.17	
63.018	Crambidae	*Anania coronata*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	1		Common			MV trap 20.12-06.00	Elder, Viburnum, Lilac, privets
63.025	Crambidae	*Anania hortulata*	Small Magpie	Joe Beale	16/07/2021	TQ 24016 76053	Fulham Palace grounds	west of Natural play area	1		Common			Daylight search.	Nettles, woundworts, bindweeds, horehounds
63.038	Crambidae	*Pleuroptya ruralis*	Mother of Pearl	Joe Beale	27/08/2021	TQ241760	Fulham Palace grounds	Walled Garden.	1		Common			Walled Garden at Verbena	Nettles.
63.038	Crambidae	*Pleuroptya ruralis*	Mother of Pearl	Joe Beale	08/09/2021	TQ 23907 76184	Fulham Palace grounds	South section of moat, seen during butterfly survey	1		Common			South section of Moat, seen during butterfly survey	Nettles.
63.054	Crambidae	*Cydalima perspectalis*	Box-tree Moth	Joe Beale	24/06/2021	TQ 24175 76061	Fulham Palace grounds	Walled Garden.	1		Common			Daylight search.	Box tree
63.054	Crambidae	*Cydalima perspectalis*	Box-tree Moth	Joe Beale	22/07/2021	TQ 24203 76045	Fulham Palace grounds	Walled Garden.	1		Common			Evening search. On Verbena bonariensis flowers.	Box tree
63.054	Crambidae	*Cydalima perspectalis*	Box-tree Moth	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	11		Common			including four dark form. MV trap 21.00 - 05.05.	Box tree
63.066	Crambidae	*Scoparia pyralella*		Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden.	1		Common			Actinic trap 21.10-04.28	Various decaying plant matter
63.069	Crambidae	*Eudonia lacustrata*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	1		Common			MV trap 21.00 - 05.05	Mosses
63.074	Crambidae	*Eudonia mercurella*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	3		Common			MV trap 21.00 - 05.05	Mosses
63.08	Crambidae	*Chrysoteuchia culmella*	Garden Grass-veneer	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden.	2		Common			Actinic trap 21.10-04.28	Grasses

63.08	Crambidae	*Chrysoteuchia culmella*	Garden Grass-veneer	Joe Beale	16/07/2021	TQ241760	Fulham Palace grounds	Walled Garden.	1		Common			Daylight search. Long grass.	Grasses
63.08	Crambidae	*Chrysoteuchia culmella*	Garden Grass-veneer	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	38		Common			MV trap 21.00 - 05.05	Grasses
63.088	Crambidae	*Crambus perlella*		Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	17		Common			MV trap 21.00 - 05.05	Sheep's fescue and hair-grasses
63.093	Crambidae	*Agriphila straminella*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	grasses including Sheep's Fescue
63.095	Crambidae	*Agriphila geniculea*		Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	2		Common			MV trap 20.12-06.00	Grasses
63.095	Crambidae	*Agriphila geniculea*		Joe Beale	27/08/2021	TQ241760	Fulham Palace grounds	Walled Garden	1		Common			Walled Garden at night	Grasses
63.109	Crambidae	***Pediasia contaminella***	**Waste Grass-veneer**	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	4		**Nationally Scarce B**			MV trap 21.00 - 05.05	grasses including Sheep's Fescue
63.115	Crambidae	*Acentria ephemerella*	Water Veneer	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	Pondweeds, Canadian Waterweed. Below water's surface
63.115	Crambidae	*Acentria ephemerella*	Water Veneer	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	1		Common			MV trap 21.00 - 05.05	Pondweeds, Canadian Waterweed. Below water's surface
70.004	Geometridae	***Idaea rusticata***	**Least Carpet**	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	11		**Local**			MV trap 21.00 - 05.05	Withered leaves such as Ivy, Traveller's-joy
70.016	Geometridae	*Idaea aversata*	Riband Wave	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	8		Common			MV trap 21.00 - 05.05	Various herbaceous plants

70.049	Geometridae	*Xanthorhoe fluctuata*	Garden Carpet	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden.	1		Common			MV trap 20.12-06.00	Herbaceous plants
70.059	Geometridae	*Camptogramma bilineata*	Yellow Shell	Joe Beale	08/06/2021	TQ241760	Fulham Palace grounds	Walled Garden near long grass	1		Common			daylight observation	Cleavers and bedstraws
70.141	Geometridae	*Gymnoscelis rufifasciata*	Double-striped Pug	Joe Beale	27/08/2021	TQ241760	Fulham Palace grounds	Walled Garden	1		Common			Walled Garden at night	many plants
70.144	Geometridae	*Pasiphila rectangulata*	Green Pug	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	Crab Apple, Apple, Hawthorn, Pear, Cherry, Balckthorn
70.226	Geometridae	*Opisthograptis luteolata*	Brimstone Moth	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV trap 20.12-06.00	Blackthorn, Hawthorn, Plum, Rowan
70.252	Geometridae	*Biston betularia*	Peppered Moth	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	A range of trees, shrubs and plants
70.258	Geometridae	*Peribatodes rhomboidaria*	Willow Beauty	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	A range of trees, shrubs and plants
70.258	Geometridae	*Peribatodes rhomboidaria*	Willow Beauty	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	A range of trees, shrubs and plants
72.002	Erebidae	*Rivula sericealis*	Straw Dot	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	6		Common			MV trap 20.12-06.00	Grasses
72.020	Erebidae	*Spilosoma lubricipeda*	White Ermine	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Common Nettle, herbaceous plants
72.024	Erebidae	*Phragmatobia fuliginosa*	Ruby Tiger	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	2		Common			MV trap 21.00 - 05.05	Many plants
72.030	Erebidae	***Euplagia quadripunctaria***	**Jersey Tiger**	Joe Beale	04/08/2021	TQ242760	Fulham Palace grounds	Opposite north wall of Walled Garden	1		**Nationally Scarce B**			Daylight search.	Herbaceous plants including Common Nettle, Bramble

72.030	Erebidae	***Euplagia quadripunctaria***	**Jersey Tiger**	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		**Nationally Scarce B**			MV trap 21.00 - 05.05	Herbaceous plants including Common Nettle, Bramble
72.030	Erebidae	***Euplagia quadripunctaria***	**Jersey Tiger**	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		**Nationally Scarce B**			MV trap 20.12-06.00	Herbaceous plants including Common Nettle, Bramble
72.031	Erebidae	*Tyria jacobaeae*	Cinnabar	Joe Beale	30/05/2021	TQ 23951 76227	Fulham Palace grounds	north half of moat	1		Common			Daylight search	Ragwort
72.031	Erebidae	*Tyria jacobaeae*	Cinnabar	Joe Beale	24/06/2021	TQ 23951 76227	Fulham Palace grounds	north half of moat	1		Common			Daylight search	Ragwort
72.031	Erebidae	*Tyria jacobaeae*	Cinnabar	Joe Beale	04/08/2021	TQ 23951 76227	Fulham Palace grounds	north half of moat	1	larva	Common			Daylight search	Ragwort
73.001	Noctuidae	*Abrostola tripartita*	Spectacle	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Common Nettle.
73.012	Noctuidae	*Diachrysia chrysitis*	Burnished Brass	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Common Nettle and other plants
73.015	Noctuidae	*Autographa gamma*	Silver Y	Joe Beale	30/05/2021	TQ 23951 76227	Fulham Palace grounds	North half of moat.	1		Common			Daylight search.	Many herbaceous plants
73.015	Noctuidae	*Autographa gamma*	Silver Y	Joe Beale	24/06/2021	TQ241760	Fulham Palace grounds	Walled garden long grass	1		Common			Daylight search.	Many herbaceous plants
73.015	Noctuidae	*Autographa gamma*	Silver Y	Joe Beale	16/07/2021	TQ241760	Fulham Palace grounds	Walled Garden.	1		Common			Daylight search.	Many herbaceous plants
73.015	Noctuidae	*Autographa gamma*	Silver Y	Joe Beale	22/07/2021	TQ 24203 76045	Fulham Palace grounds	Walled Garden	3		Common			Three or more around Lavender in evening, one to light trap. MV trap 21.00 - 05.05	Many herbaceous plants

73.015	Noctuidae	*Autographa gamma*	Silver Y	Joe Beale	27/08/2021	TQ241760	Fulham Palace grounds	Walled Garden	2		Common			In Walled garden - one at Verbena, one removed from fruit nets	Many herbaceous plants
73.015	Noctuidae	*Autographa gamma*	Silver Y	Joe Beale	08/09/2021	TQ 24226 76024	Fulham Palace grounds	Walled Garden	1		Common			In Walled Garden grassland by beehive, seen during butterfly survey.	Many herbaceous plants
73.045	Noctuidae	*Acronicta rumicis*	Knot Grass	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	Herbacous and woody plants
73.045	Noctuidae	*Acronicta rumicis*	Knot Grass	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Herbacous and woody plants
73.059	Noctuidae	***Calophasia lunula***	**Toadflax Brocade**	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		**RDB**			Actinic trap 21.10-04.28	Common and Purple Toadflax
73.082	Noctuidae	*Cryphia algae*	Tree-lichen Beauty	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV trap 21.00 - 05.05	Lichens, especially on trees
73.082	Noctuidae	*Cryphia algae*	Tree-lichen Beauty	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Lichens, especially on trees
73.095	Noctuidae	*Caradrina clavipalpis*	Pale Mottled Willow	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	Grass seeds, grains, plantains, peas
73.095	Noctuidae	*Caradrina clavipalpis*	Pale Mottled Willow	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV on 21.00 off 05.05	Grass seeds, grains, plantains, peas
73.096	Noctuidae	*Hoplodrina octogenaria*	Uncertain	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV on 21.00 off 05.05	Various herbaceous plants
73.097	Noctuidae	*Hoplodrina blanda*	Rustic	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV trap 20.12-06.00	Various herbaceous plants

73.099	Noctuidae	*Hoplodrina ambigua*	Vine's Rustic	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	4		Common			MV trap 20.12-06.00	Various herbaceous plants
73.101	Noctuidae	*Charanyca trigrammica*	Treble Lines	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	8		Common			Actinic trap 21.10-04.28	Various herbaceous plants
73.109	Noctuidae	***Mormo maura***	**Old Lady**	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		**Local**			MV trap 20.12-06.00	Herbacous and woody plants
73.113	Noctuidae	*Thalpophila matura*	Straw Underwing	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	6		Common			MV trap 20.12-06.00	Grasses
73.162	Noctuidae	*Apamea monoglypha*	Dark Arches	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Grasses
	Noctuidae	*Mesapamea secalis agg.*	Common Rustic agg.	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	
73.172	Noctuidae	*Mesoligia furuncula*	Cloaked Minor	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	15		Common			MV 21.00-05.05	Grasses
73.172	Noctuidae	*Mesoligia furuncula*	Cloaked Minor	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV 20.12-06.00	Grasses
	Noctuidae	*Oligia strigilis agg.*	Marbled Minor agg.	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	1		Common			Actinic trap 21.10-04.28	
73.291	Noctuidae	*Mythimna pallens*	Common Wainscot	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 21.00 - 05.05	Grasses
73.291	Noctuidae	*Mythimna pallens*	Common Wainscot	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	6		Common			MV trap 20.12-06.00	Grasses
73.297	Noctuidae	*Mythimna albipuncta*	White-point	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Grasses
73.317	Noctuidae	*Agrotis exclamationis*	Heart & Dart	Joe Beale	07/06/2021	TQ 24177 76030	Fulham Palace grounds	Walled Garden	11		Common			Actinic trap 21.10-04.28	Many herbaceous plants
73.325	Noctuidae	*Agrotis puta*	Shuttle-shaped Dart	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Herbaceous plants

73.327	Noctuidae	***Agrotis ipsilon***	**Dark Sword-grass**	Joe Beale	22/07/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		**Immigrant**			MV trap 21.00 - 05.05	Herbaceous plants, but not known to breed successfully in Britain
73.329	Noctuidae	*Ochropleura plecta*	Flame Shoulder	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	2		Common			MV trap 20.12-06.00	Herbaceous plants
73.334	Noctuidae	*Diarsia rubi*	Small Square-spot	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	1		Common			MV trap 20.12-06.00	Herbaceous plants
73.348	Noctuidae	*Noctua janthe*	Lesser Broad-bordered Yellow Underwing	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	16		Common			MV trap 20.12-06.00	Many herbaceous plants and shrubs
73.357	Noctuidae	*Xestia xanthographa*	Square-spot Rustic	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	6		Common			MV trap 20.12-06.00	Grasses and some herbaceous plants
73.359	Noctuidae	*Xestia c-nigrum*	Setaceous Hebrew Character	Joe Beale	27/08/2021	TQ 24196 76027	Fulham Palace grounds	Walled Garden	3		Common			MV trap 20.12-06.00	Herbaceous plants such as nettles and burdocks

Appendix II - Species List

1. Abrostola tripartita	26. Charanyca trigrammica	51. Hoplodrina ambigua	76. Phyllonorycter messaniella
2. Acentria ephemerella	27. Choreutis nemorana	52. Hoplodrina blanda	77. Phyllonorycter platani
3. Acrobasis repandana	28. Chrysoteuchia culmella	53. Hoplodrina octogenaria	78. Phyllonorycter tristigella
4. Acronicta rumicis	29. Cnephasia agg.	54. Hypsopygia glaucinalis	79. Pleuroptya ruralis
5. Aethes smeathmanniana	30. Crambus perlella	55. Idaea aversata	80. Plutella xylostella
6. Agapeta zoegana	31. Crassa unitella	56. Idaea rusticate	81. Prays fraxniella
7. Agriphila geniculea	32. Cryphia algae	57. Korscheltellus lupulina	82. Pyrausta aurata
8. Agriphila straminella	33. Cydalima perspectalis	58. Luffia ferchaultella	83. Recurvaria nanella
9. Agrotis exclamationis	34. Cydia pomonella	59. Lyonetia clerkella	84. Rhyacionia pinivorana
10. Agrotis ipsilon	35. Cydia splendana	60. Mesapamea secalis agg.	85. Rivula sericealis
11. Agrotis puta	36. Diachrysia chrysitis	61. Mesoligia furuncula	86. Scoparia pyralella
12. Anania coronata	37. Diarsia rubi	62. Mormo maura	87. Spilonota ocellana
13. Anania hortulata	38. Ditula angustiorana	63. Mythimna albipuncta	88. Spilosoma lubricipeda
14. Anthophila fabriciana	39. Elachista canapennella	64. Mythimna pallens	89. Stigmella sp.
15. Apamea monoglypha	40. Emmelina monodactyla	65. Nemophora fasciella	90. Stigmella aurella
16. Argyresthia pruniella	41. Endothenia sp.	66. Noctua janthe	91. Stigmella microthiella
17. Autographa gamma	42. Endotricha flammealis	67. Ochropleura plecta	92. Swammerdamia pyrella
18. Biston betularia	43. Epiphyas postvittana	68. Oligia strigilis agg.	93. Synanthedon myopaeformis
19. Blastobasis adustella	44. Esperia sulphurella	69. Opisthograptis luteolata	94. Thalpophila matura
20. Bryotropha basaltinella/dryadella	45. Eudonia lacustrata	70. Pammene fasciana	95. Tyria jacobaeae
21. Calophasia lunula	46. Eudonia mercurella	71. Pasiphila rectangulata	96. Xanthorhoe fluctuata
22. Cameraria ohridella	47. Euplagia quadripunctaria	72. Pediasia contaminella	97. Xestia c-nigrum
23. Camptogramma bilineata	48. Gymnoscelis rufifasciata	73. Peribatodes rhomboidaria	98. Xestia xanthographa
24. Caradrina clavipalpis	49. Hofmannophila pseudospretella	74. Phragmatobia fuliginosa	99. Yponomeuta cagnagella
25. Carcina quercana	50. Homoeosoma sinuella	75. Phycita roborella	100. Yponomeuta evonymella

Appendix III - Previous Records

Previous records from Fulham Palace grounds and the adjacent area

These data have been kindly shared from the Herts & Middlesex database maintained by Colin W. Plant (colinwplant@gmail.com), Herts & Middlesex Counties Moth Recorder

Custom Records for 1 Valid Field [Site]... Fulham Palace Gardens TQ24217594

Code	Taxon and Authority	Date	Quantity	Recorder
72.03	Euplagia quadripunctaria (Poda, 1761)	08 Aug 2017	1	Jo Gilks

Custom Records for 1 Valid Field [Site]... Fulham Palace Allotments, SW6 TQ240761

Code	Taxon and Authority	Date	Quantity	Stage	Recorder
63.054	Cydalima perspectalis (Walker, 1859)	23 Apr 2017	1	Larval	RHS database
63.054	Cydalima perspectalis (Walker, 1859)	23 Apr 2017	1	Adult	RHS database

Custom Records for 1 Valid Field [Site]... Fulham Palace gardens TQ2475

Code	Taxon and Authority	Date	Quantity	Stage	Recorder	Comment
39.004	Dystebenna stephensi (Stainton, 1849)	12 Jul 1998	1	Adult	Martin Honey	by day on Holm Oak trunk

Custom Records for 1 Valid Field [Site]... Fulham Palace Road TQ2476

Code	Taxon and Authority	Date	Quantity	Stage	Recorder
69.004	Agrius convolvuli (Linnaeus, 1758)	31 Dec 1958	1	Adult	F. D. Burk

Custom Records for 1 Valid Field [Site]... Fulham Palace Walled Garden TQ241760

Code	Taxon and Authority	Date	Quantity	Stage	Recorder	Comment
62.061	Vitula biviella (Zeller, 1848)	02 Jul 2014	1	Adult	David Howdon	
35.143	Teleiodes luculella (Hübner, [1813])	02 Jul 2014	1	Adult	David Howdon	
70.016	Idaea aversata (Linnaeus, 1758)	02 Jul 2014	1	Adult	David Howdon	
70.016	Idaea aversata (Linnaeus, 1758)	02 Jul 2014	2	Adult	David Howdon	
70.013	Idaea biselata (Hufnagel, 1767)	02 Jul 2014	1	Adult	David Howdon	
70.012	Idaea trigeminata (Haworth, 1809)	02 Jul 2014	1	Adult	David Howdon	
70.173	Eupithecia centaureata ([Denis & Schiffermüller], 1775)	02 Jul 2014	1	Adult	David Howdon	
73.096	Hoplodrina octogenaria (Goeze, 1781)	02 Jul 2014	1	Adult	David Howdon	
73.32	Agrotis clavis (Hufnagel, 1766)	02 Jul 2014	2	Adult	David Howdon	
73.298	Mythimna ferrago (Fabricius, 1787)	02 Jul 2014	1	Adult	David Howdon	
73.162	Apamea monoglypha (Hufnagel, 1766)	02 Jul 2014	2	Adult	David Howdon	

73.342	Noctua pronuba (Linnaeus, 1758)	02 Jul 2014	1	Adult	David Howdon	
73.172	Mesoligia furuncula ([Denis & Schiffermüller], 1775)	02 Jul 2014	2	Adult	David Howdon	
74.007	Bena bicolorana (Fuessly, 1775)	02 Jul 2014	1	Adult	David Howdon	
73.293	Mythimna impura (Hübner, [1808])	02 Jul 2014	1	Adult	David Howdon	
73.084	Bryophila domestica (Hufnagel, 1766)	02 Jul 2014	1	Adult	David Howdon	
73.216	Cosmia trapezina (Linnaeus, 1758)	02 Jul 2014	2	Adult	David Howdon	
73.317	Agrotis exclamationis (Linnaeus, 1758)	02 Jul 2014	5	Adult	David Howdon	
28.014	Crassa unitella (Hübner, 1796)	02 Jul 2014	1	Adult	David Howdon	
62.075	Hypsopygia costalis (Fabricius, 1775)	02 Jul 2014	1	Adult	David Howdon	
63.064	Scoparia ambigualis (Treitschke, 1829)	02 Jul 2014	1	Adult	David Howdon	
62.029	Phycita roborella ([Denis & Schiffermüller], 1775)	02 Jul 2014	1	Adult	David Howdon	
63.115	Acentria ephemerella ([Denis & Schiffermüller], 1775)	02 Jul 2014	1	Adult	David Howdon	
63.095	Agriphila geniculea (Haworth, 1811)	02 Jul 2014	1	Adult	David Howdon	
63.028	Ostrinia nubilalis (Hübner, 1796)	02 Jul 2014	1	Adult	David Howdon	
63.037	Udea olivalis ([Denis & Schiffermüller], 1775)	02 Jul 2014	1	Adult	David Howdon	
63.08	Chrysoteuchia culmella (Linnaeus, 1758)	02 Jul 2014	3	Adult	David Howdon	
65.009	Habrosyne pyritoides (Hufnagel, 1766)	02 Jul 2014	1	Adult	David Howdon	
49.224	Spilonota ocellana ([Denis & Schiffermüller], 1775)	02 Jul 2014	2	Adult	David Howdon	
49.338	Cydia pomonella (Linnaeus, 1758)	02 Jul 2014	1	Adult	David Howdon	
49.306	Rhyacionia pinicolana (Doubleday, 1850)	02 Jul 2014	1	Adult	David Howdon	Genitalia checked
49.051	Cnephasia asseclana ([Denis & Schiffermüller], 1775)	02 Jul 2014	1	Adult	David Howdon	Genitalia checked
49.091	Pseudargyrotoza conwagana (Fabricius, 1775)	02 Jul 2014	1	Adult	David Howdon	
72.02	Spilosoma lubricipeda (Linnaeus, 1758)	02 Jul 2014	1	Adult	David Howdon	
70.004	Idaea rusticata ([Denis & Schiffermüller], 1775)	02 Jul 2014	1	Adult	David Howdon	

Custom Records for 1 Valid Field [Site]... Fulham Palace West TQ2376

Code	Taxon and Authority	Date	Quantity	Stage	Recorder
15.089	Cameraria ohridella Deschka & Dimic, 1986	02 Jul 2014	1	Mine	David Howdon

Species listed above that were also recorded during the 2021 survey at Fulham Palace: Horse Chestnut Leaf-miner *Cameraria ohridella*, *Crassa unitella*, Bud Moth *Spinilota ocellana*, Codling Moth *Cydia pomonella*, *Phycita roborella*, Box-tree Moth *Cydalima perspectalis*, *Chrysoteuchia culmella*, *Agriphila geniculea*, Water Veneer *Acentria ephemerella*, Riband Wave, Least Carpet, White Ermine, Jersey Tiger, Uncertain, Dark Arches, Cloaked Minor, Heart & Dart (17 species).