

Appendix G - Bats in Aldingbourne - (document is still being added to)

Species recording within Aldingbourne including Biodiversity Corridors and Green Space

Background

The Parish Council recognises the significant threats to biodiversity and specifically to bat and moth populations within the parish posed by development and, given the considerable losses that have already occurred due to house building and urbanisation within the area and set against national trends for these group, it is determined to protect the countryside to the west of Westergate.

Despite words of comfort within the NPPF the Planning system as a whole does not seem equipped to address important biodiversity and conservation issues: The local planning system does not have adequate resources to address the detail, it lacks staff with ecology, landscape or Countryside Management knowledge (it relies on consultants' studies, which are only as good as the brief they are given) along with a pro-active hands on approach to conservation. There is also a general absence of understanding of Ecology and Biodiversity issues within the national Planning Inspectorate. The approval of the Local Plan was made by the inspector without any technical support covering landscape and biodiversity issues.

The current biodiversity Corridor to the East of Westergate is under threat of being lost through development proposals. The number and range of Bat species within that corridor appear to have already been affected by the construction of the Nyton Nurseries site to the north.

The Sussex Biodiversity Records Centre Report for Aldingbourne provides an overview of the current records for the Parish (see Evidence Base).

Within the National Planning Policy framework (NPPF) the following paragraphs are relevant. 170, 174, 175, h 177

Within the Arun Local Plan.

Arun's Biodiversity Objectives are:

Arun District Council supports biodiversity and the protection of life within its open spaces. In line with the [UK Biodiversity Action Plan](#), the council published its own plan in 2000. Through this plan, Arun District Council undertakes:

- neither to cause nor to contribute to, through action or inaction, the extinction of any native living species in our district
- nor to make the populations of common species decline so that they become rare
- nor to unduly restrict variation within species
- nor to destroy nor cause a net loss of area of any irreplaceable natural habitat.

Arun District Council will also enhance wherever possible:

- the populations of native species in the district
- the variation within species

- the area and quality of natural habitats in the district, particularly those which are internationally important or threatened, characteristic of the local area, have high value to local people, or have diminished over recent decades.

On a wider scale, Arun District Council will contribute to the conservation of biodiversity on the planet by:

- conserving and enhancing biodiversity in Arun District
- making sure that our actions have no negative effect, and preferably a positive effect on biodiversity outside the district
- contributing to sustainable development
- contributing to the targets of the Biodiversity Action Plan for Sussex
- contributing to the targets of the UK Biodiversity Action Plan.

Bat species within Aldingbourne Biodiversity Corridors

Introduction

Aldingbourne Parish Council is seeking to defend the land west of Westergate in order, amongst other things, to protect its biodiversity and particularly its importance for roosting, foraging and commuting bats.

Much of the land to the East of the Parish has been subject to a series of approved planning applications for housing development (ref Fig A) which will have seriously damaged foraging and commuting routes immediately to the South of Slindon Woods, which contains numerous bats species including important populations of the rare Bechstein's and Barbastelle Bats. In addition Binsted Woods, to the east of the parish, contain an equally impressive number of bat species, including a breeding colony of the rare Alcatheo bat.

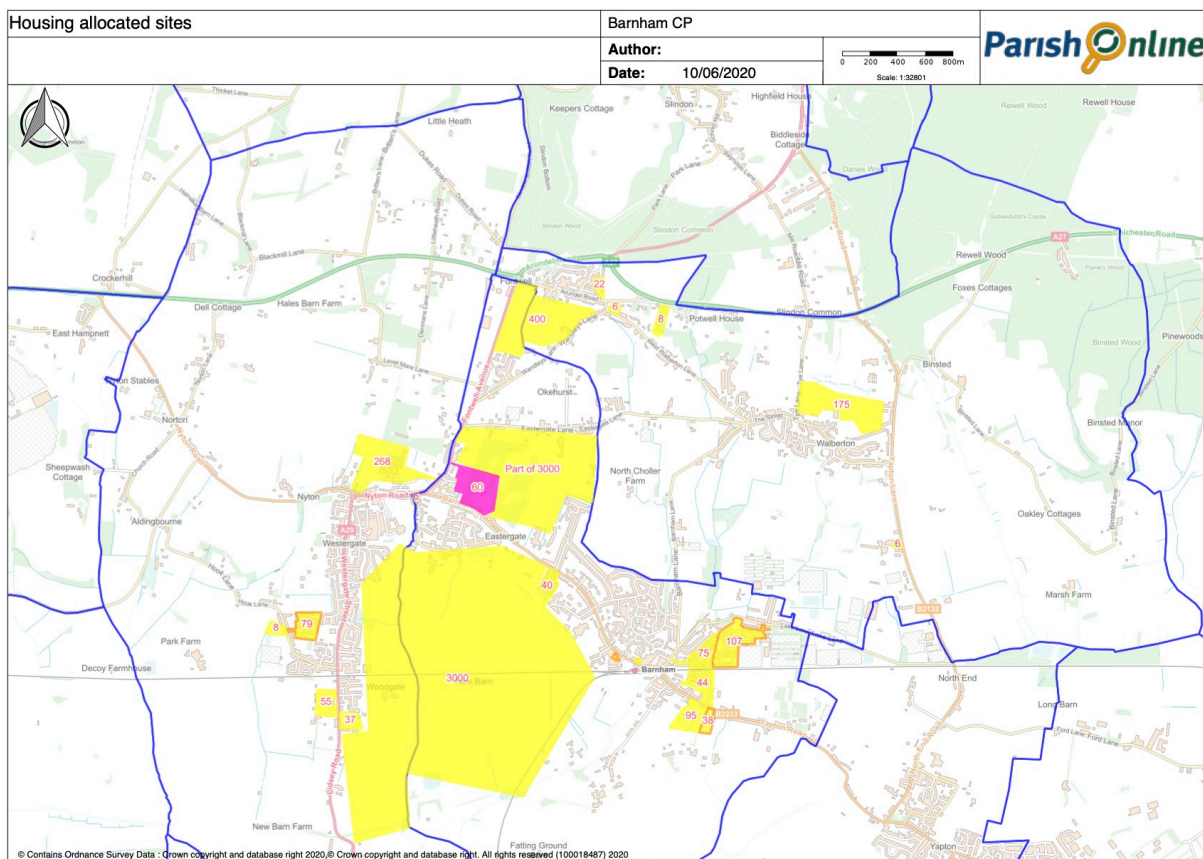


Figure A - allocate housing sites

These developments will seriously damage the biodiversity corridor east of Westergate for foraging and commuting bats. Indeed the housing development at Nyton Nurseries development appears to have already destroyed the connection between Northfields Land and the land East of Westergate. Consequently, the landscape to the west of Westergate will become significantly more important as a roosting, foraging and commuting corridor for a range of bats.

This preliminary note covers research on the distribution of Bat species in the parish in May - July 2020. It is based on a series of transects through sections of the Parish, recording species via eco location on a Echo Meter Touch 2, followed by a review of the sonar recordings against known frequency modulation

records. This initial study has been supplemented by additional research carried out on behalf of the Council by independent ecologists B Middleton and Nigel tba

All Bat species are legally protected. They make up a quarter of Britain's mammal species. However, it is known that most bat species have suffered a catastrophic decline in numbers over the past century. Britain's most abundant bat species, the common and soprano pipistrelles, are estimated to have declined by 70% since the 1970s and probably up to 90% since the 1950's, principally due to agricultural intensification. Overall, the population increases observed since the National Bat Monitoring Programme began in 1999 are tiny compared to the numbers we have lost.

Legislation dictates that any structures or place which a bats use for shelter or protection are protected from damage or destruction whether occupied or not. This legislation has been incorporated into planning policies. This means that planning authorities have a legal obligation to consider whether bats are likely to be affected by a proposed development.

There are 18 species of Bat recorded as known breeding species in the UK, all of which have been recorded in Sussex. The majority are residents, but some are occasional visitors. However, in addition a number of species currently regarded as migrant may already be breeding in the South but on which there is currently a lack of data. So there may be up to 21 breeding bat species.

The landscape west of Westergate consists of areas of open arable fields of grade 1 and 2 agricultural land which are separated in places by old lanes and hedgerows containing mature trees, particularly adjacent to the Built Up Area boundary and to the North West. In addition, a number of chalk streams dissect the area and a number of small grassy fields remain, often associated with horse grazing, which contribute to this overall mosaic. (Ref Biodiversity Phase 1 study)

Bat Species

Within the west of Westergate area the following Bat species (NB this is a preliminary list) were recorded in 2020:

Common Pipistrelle. The species is recorded regularly throughout the area, feeding usually close to roosting sites on average no more than 1.5 Km away. Individual bats will patrol and feed along linear features on fixed flight paths. It is found within the Parish in woodland, farmland, hedgerows, scrub and over water and extends its movements into the suburban areas of Westergate. Whilst it is regarded as the most numerous and widespread bat in Britain (British Population Estimated at 2.4 Million) this must be set against the catastrophic decline in bats species within the UK.

Soprano Pipistrelle. This species is also regularly recorded throughout the west of Westergate area though is less frequent than the Common Pipistrelle, occurring in all the same habitats. Whilst often associated with wetland habitats, in the parish of Aldingbourne numerous streams and ditches run through the Parish forming part of the overall habitat mosaic. The Pipistrelle is regarded as a reasonably common species within Britain. (British Population estimated at 1.3 Million). Sussex - Abundant, widespread

Nathusius Pipistrelle. This is a rare bat species but one that has been recorded in the Parish west of Westergate. It is associated with woodland, hedgerows and farmland with wetland areas. (British Population estimated at 16,000). Sussex - Scarce, widespread.

Kuhl's Pipistrelle. A possible recording of this species has been made and is subject to further study.

Brown Long - Eared Bat. Regularly recorded within the Parish occurring along mature hedgerows and wooded lanes. (British Population estimated at 254,000). Sussex - Relatively abundant, widespread

Daubenton's Bat. Regularly recorded to the west of Westergate along mature hedgerows, woodland edges, and meadows and particularly those associated with water. Regularly recorded moving occurring along hedge lines and feeding at the Mill pond. Status in Sussex - Fairly abundant, widespread.

Noctule Bat. Frequently recorded in the Parish occurring along woodland, mature hedges, lanes with mature trees and waterbodies. Regularly recorded at the Mill Pond. (British Population estimated at 50,000). Status in Sussex – Uncommon, widespread

Leisler's Bat. A rare British Bat feeding mainly over pasture, parkland and woodland edges. Recorded infrequently along biodiversity corridors in the parish its population in Britain is about 9,000.

Serotine. Recorded from the Biodiversity corridor in Hook lane and the corridor East of Westergate. A species with a broad habitat range including pasture, parkland, woodland edges. British Population is about 15,000.

Whiskered / Brandts / Alcaho. (The Myotis group) These species cannot be separated by echo location alone but require identification by contact calls. One or all of these species have been recorded in the Biodiversity Corridors.

Bechsteins Bat. This species is recorded from the northern section of the biodiversity corridor along Level Mare Lane. This is a rare woodland species foraging under a dark closed canopy. Its occurrence here is undoubtedly linked to the Slindon Woods population. There are historic records of this species in other parts of the parish and biodiversity corridor, but it is unclear, at present how it is utilizing other parts of the corridor. The British Population is estimated to be just 1,500 animals.

Barbastelle Bat: tbc

Habitat notes

Where the hedges, trees and streams form linear features, this mosaic provides the bats with an area for roosting foraging and commuting. Maintaining the integrity of this network is therefore critical to maintaining viable population of bats within the west of Westergate area. The integrity of this network is particularly important to support the populations of bats within adjacent key sites such as Slindon Woods and Cocking Tunnel (Ref Appendix 1) and in order to provide network links to the proposed Chichester Wildlife Corridor and the Landscape to the South. It is increasingly recognised that protection of roosting sites alone is of limited benefit if adjacent foraging areas are destroyed or diminished, if commuting between key sites is disrupted and artificial lighting introduced.

Note that on this basis current Habitat Regulations and planning policy require any Planning Application lying within 12km of the Cocking Tunnel Special Area of Conservation (SAC) to undertake an environmental appraisal. That includes the whole of the west of Westergate area.

The UK Government responded to the publication of the 'Convention on Biological Diversity's Strategic Plan for Biodiversity 2011-2020' by publishing the 'UK Post-2010 Biodiversity Framework', which focuses on a more holistic, landscape-scale approach and replaces the UK BAP.

Despite this, the UK priority habitats and species are still relevant and still officially the point of reference for targeted conservation efforts. However the list is in urgent need of updating.

UK Bat Priority Species are:

- soprano pipistrelle
- lesser horseshoe bat
- greater horseshoe bat
- barbastelle
- Bechstein's bat
- noctule
- brown long-eared bat

Achieving a mitigation-compensation-and-enhancement net gain for biodiversity is also a key component of the Government's 25 Year Environment Plan. This paragraph also calls for the establishment of coherent ecological networks that are more resilient to current and future pressures.

Threats

Sadly, many bat species around the world are vulnerable or endangered due to factors ranging from loss and fragmentation of habitat, diminished food supply, destruction of roosts. In the UK, bat populations have declined considerably over the last century and Bats are still under threat from;

- Significant house building and development work,
- Artificial lighting,
- The loss of linear features and severing of commuting routes
- The loss of habitat,
- Threats in the home including cat attacks, flypaper and some chemical treatments of building materials.

Housing Development

Housing is expected to increase throughout the country over the next 10 years or so, resulting in a wave of Government planned housing developments. These developments will potentially have an impact of local wildlife due to loss of habitat as new roads and houses are constructed, so it is vital to examine their effects on local wildlife whilst there are at the local plan stage and also to examine the impact of development of individual housing developments. Planned housing is expected to reduce the activity and distribution of all bat species.

In recent research the area of green space almost the size of Cornwall has been lost to development over 25 years. (Ref Times July 9th 2020 Ben Webster)

Lighting

Bats are nocturnal animals that have adapted to a life in darkness, partly to avoid predation during daylight hours from bird of prey species. Therefore, artificial lighting near bat roosts, access points and foraging pathways can be extremely disturbing to bats and should be avoided. Artificial light falling on or close to a bat roost can cause many problems for bats. Lighting has the greatest effect on slower flying species. However, even our faster flying species recorded more widely (Noctule, Serotine and Pipistrelle species) can be impacted by artificial lighting. The impacts include:

- delaying or preventing emergence from roosts,
- bats abandoning or becoming entombed in the roost
- affecting the feeding behavior of bats away from the roost.
- affecting commuting and foraging routes

Loss of linear features

Linear landscape features, such as hedgerows and tree lines, are important habitats for bats, providing flight paths between roosts and foraging sites and as foraging habitats (e.g. Verboom & Huitema 1997, Oakeley & Jones 1998, Russ & Montgomery 2002).

Common and Soprano Pipistrelle, Daubenton's bat, Natterer's Bat, Greater Horseshoe bat, Lesser Horseshoe Bat, Brown Long-eared Bat and Serotine Bat all forage or commute along linear features (e.g. Limpens & Kapteyn 1991, Downs & Racey 2006). However, the dependency on linear features in the landscape varies between species: while smaller species such as Daubenton's Bat and Common Pipistrelle most commonly choose to avoid open areas by following linear features quite closely, larger species such as Noctule will cross open areas more often and intermediate species such as Serotine do both (Limpens & Kapteyn 1991, Verboom & Huitema 1997).

Loss of hedgerows - Widespread hedgerow removal occurred between the 1960s and early 1990s to allow improvements to farming efficiency, stock-proofing and weed control (Macdonald & Johnson 2000). Although hedgerow loss slowed in the 1990s and agri-environment schemes encourage their reinstatement and better management, there is continued severance of these important commuting and foraging habitats due to increasing urbanisation and new infrastructure development, of for

example roads. Loss of hedgerows is likely to affect bats by reducing access to suitable foraging habitats or isolating populations (e.g. Russ & Montgomery 2002).

Climate change

In the UK, our climate has already shown signs of change over the last 100 years, with an increase of 1 degree C in central England during that period, for example (Hulme *et al.* 2002). The trends of overall increasing temperature, increasing winter precipitation and decreasing summer precipitation are expected to continue. Average annual UK temperatures are predicted to increase until the 2080s with an earlier onset of spring and a later onset of winter. Average annual precipitation is likely to decrease overall but with wetter winters, drier summers and more frequent periods of extreme weather (Hulme *et al.* 2002). Climate change has an impact on our biodiversity.

Bats may be affected at all stages of their annual cycle by climate change: Temperature changes may affect hibernation of bats, both in terms of the availability of suitable sites and behaviour, length and timing of hibernation. Changes in temperature and precipitation may affect breeding success of female bats through changes in prey availability, including the time of year when insects are abundant. Climate change may also affect the habitat types and insect prey types available for bats for foraging, which could have indirect effects on bat populations. The distribution of UK bat species may also change in response to climate change.

Conclusion

It is clear that significant threats to bat populations remain and urgent steps are required to avoid further habitat loss. All UK bat species are protected.

Key Bat Sites adjacent to Aldingbourne Parish

Cocking Tunnel - Site of Special Scientific Interest (SSSI) was notified under Section 28 of the Wildlife and Countryside Act 1981 in 1989.

The reasons for notification were that the Singleton and Cocking Tunnels constitute the most important sites for hibernating bats in south-east England and are the fifth most important in Britain.

The Natural England citation explains that: "these two disused brick railway tunnels, located in rural Sussex, once formed part of the Chichester to Midhurst railway line. They now support, during the winter months, large numbers of hibernating bats, and are the only known location in Britain for the Mouse-eared bat *Myotis myotis*."

Eight species have been found in all; those best represented include Natterer's (*Myotis nattereri*) Daubenton's (*Myotis daubentoni*), Brown Long-eared (*Plecotus auratus*) and Brandt's (*Myotis brandti*) Whiskered (*Myotis mystacinus*). (NB these latter two cannot normally be distinguished in the field, but are both known to occur here). Other species regularly occur in small numbers."

The site was further designated a Special Area of Conservation (SAC) under the Habitats Regulations because of the presence of Barbastella bat (*Barbastella barbastellus*) and Bechstein's bat (*Myotis bechsteini*)

Based upon published data, Natural England recommends that the following impact zones (detailed in Map 2) around the SACs are included: • 6.5km Key conservation area – all impacts assessed (see Table 1) • 12km Wider conservation area – significant impacts or severance to flightlines to be considered (see Table 1). The 6.5 km includes the Key conservation area in which all impacts must be considered as habitats within this zone are considered critical for sustaining the populations of bats within the SACs. The 12km encompasses the wider conservation area which is the full extent of the range of foraging areas required by the bats.

Special Areas of Conservation are classified under The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations). The Habitats Regulations require additional consideration during the planning stage to ensure that the proposed development does not affect the reasons for designation.

Slindon Woods

A 2016 bat survey carried out by Animal Ecology and Wildlife Consultants at Binsted Woods records that Barbastelle and Bechstein's bats are a rare Annex II species, that both are also recorded in Slindon Woods and a maternity colony of Barbastelle bats is known to be present in Slindon National Trust estate: "this species is known to forage over a wide area utilising both woodlands and farmland/floodplains for foraging. Barbastelle bats are tree roosting specialists and more commonly found in old woodland roosting in damaged trees".

Binsted Woods

Binsted Woods, to the east of the parish, have been the subject of two bat surveys in relation to the proposed A27 Arundel By Pass, see: Highways England Bat Radiotracking Baseline Survey, August 2019. These have confirmed the presence of Barbastelle, Bechstein's and the extremely rare Alcahoie bat. A breeding colony of Serotine bat is confirmed in Barnham, also to the east of Aldingbourne.

Moths species recorded with Aldingbourne Biodiversity Corridors

A survey of Moths in the parish of Aldingbourne was undertaken in the Spring and Summer of 2020 with the aim of establishing a species list and a baseline of data to which further records could be added in from additional sites.

All records are from within or immediately adjacent to the 'Biodiversity Corridors' shown in the Aldingbourne Neighbourhood Plan, which provide the optimum areas within the Parish at the time of the survey, though clearly additional areas might be added as further survey information becomes available.

'The state of Britain's Larger Moths' (2013) report paints a bleak picture and shows clearly that moths are in decline particularly with the South of Britain. Forty-year national population trends were generated for 337 species of widespread and common moths. Two thirds (227 species) showed decreasing population trends over the forty-year study and over one third (37%) of the species decreased by more than 50%.

They indicate that the widespread decline of Britain's moths is a clear signal of potentially catastrophic biodiversity loss caused by human impacts on the environment. Moths comprise a substantial part of Britain's Biodiversity, with around 900 macro moth species and 1,600 micro moth species recorded from Britain, playing an important role in food chains and as pollinators. Their decline will have knock on effects on birds, bats and mammals which depend on them for food and on food production. Their decline is a reflection of the widespread degradation of our environment.

It was against this background that the Parish Council decided to incorporate green space and biodiversity corridors into its Neighbourhood Plan

90 species of moth have been identified to date, table 1, including

1 Very Local Species: 'A Mocha'.

9 Local species: Festoon, Least Carpet, Small Elephant Hawkmoth, Scorched Wing, Small Emerald, Brown Tail, Beautiful Hook Tip, Triple-spotted Clay and the Micro moth Endotricha flammealism

Frequency

Rare = occurring in 15 or less of the Km sqs

Scarce = occurring in 16 - 50 of the Km sqs
Very local = occurring in 51 - 100 of the Km sqs
Local occurring = in - 101 - 300 of the 10 Km sqs
Common = Over 300 of the Km sqs

Moth Species recorded in Aldingbourne Parish

* List No	Common Name	Latin Name	*UK Status
3.002	Common Swift	Korscheltellus lupulina	Common
3.005	Ghost Moth	Hepialus humuli	Common
49.061	White Triangle button	Acleris holmiana	Common
49.109		Agapeta hamana	Common
53.001	Festoon	Apoda limacodes	Local
60.018		Ananina coronata	Common
62.001	Bee Moth	Aphomia sociella	Common
62.042	Thistle Ermine	Myelois circumvolata	Common
63.018		Anania coronata	Common
63.038	Mother of Perl	Pleuroptya ruralis	Common
63.057	Garden Pebble	Evergestis forficalis	Common
63.064		Scoparia ambigualis	Common
62.077		Endotricha flammealis	Local
63.025	Small Magpie	Anania hortulata	Common
63.037		Udea olivalis	Common
63.08	Garden Grass Verneer	Chrysoteuchia culmella	Common
65.008	Peach Blossom	Thyatira batis	Common
65.010	Figure of Eight	Tethea ocularis	Common
69.003	Poplar Hawk-moth	Laothoe populi	Common
69.016	Elephant Hawkmoth	Deilephila elpenor	Common
69.017	Small Elephan Hawkmoth	Deilephila porcellus	Local
70.004	Least Carpet	Idaea rusticata	Local
70.011	Single-dotted Wave	Idaea sylvestraria	Common
70.013	Small Fan-footed Wave	Idaea biselata	Common
70.016	Riband Wave	Idaea aversata	Common
70.208	Scorched Carpet	Ligdia adustata	Local
70.031	Mocha	Cyclophora annularia	V Local
70.036	Maiden's Blush	Cyclophora punctaria	Local
70.059	Yellow Shell	Camptogramma bilineata	Common
70.061	Common Carpet	Epirrhoe alternata	Common

70.086	Broken-barred Carpet	<i>Electrophaes corylata</i>	Common
70.093	Barred Straw	<i>Gandaritis pyraliata</i>	Common
70.095	Red-green Carpet	<i>Chloroclysta siterata</i>	Common
70.100	Green Carpet	<i>Colostygia pectinataria</i>	Common
70.127	Fern	<i>Horisme tersata</i>	Common
70.142	V Pug	<i>Chloroclystis v-ata</i>	Common
70.156	Brindled Pug	<i>Eupithecia abbreviata</i>	Common
70.061	Common Carpet	<i>Epirrhoe alternata</i>	Common
70.184	Mottled Pug	<i>Eupithecia exiguata</i>	Common
70.207	Clouded Border	<i>Lomaspilis marginata</i>	Common
70.224	Scorched Wing	<i>Plagodis dolabraria</i>	Local
70.226	Brimstone	<i>Opisthograptis luteolata</i>	Common
70.241	Scalloped Oak	<i>Crocallis elinguaris</i>	Common
70.245	March Moth	<i>Alsophila aescularia</i>	Common
70.258	Willow Beauty	<i>Peribatodes rhomboidaria</i>	Common
70.265	Mottled Beauty	<i>Alcisc repandata</i>	Common
70.277	Common White Wave	<i>Cabera pusaria</i>	Common
70.283	Light Emerald	<i>Campaea margaritata</i>	Common
70.302	Small Emerald	<i>Hemistola chrysoprasaria</i>	Local
71.005	Sallow Kitten	<i>Furcula furcula</i>	Common
71.017	Swallow Prominent	<i>Pheosia tremula</i>	Common
71.025	Buff Tip	<i>Phalera bucephala</i>	Common
72.002	Straw Dot	<i>Rivula sericealis</i>	Common
72.003	Snout	<i>Hypena proboscidalis</i>	Common
72.012	Brown Tail	<i>Euproctis chrysorrhoea</i>	Local
72.015	Pale Tussock	<i>Calliteara pudibunda</i>	Common
72.019	Buff Ermine	<i>Spilosoma lutea</i>	Common
72.020	White Ermine	<i>Spilosoma lubricipeda</i>	Common
72.022	Muslin Moth	<i>Diaphora mendica</i>	Common
72.031	Cinnabar	<i>Tyria jacobaeae</i>	Common
72.045	Common Footman	<i>Eilema lurideola</i>	Common
72.069	Beautiful Hook Tip	<i>Laspeyria flexula</i>	Local
73.015	Silver Y	<i>Autographa gamma</i>	Common

73.022	Gold Spot	<i>Plusia festucae</i>	Common
73.032	Nut-tree Tussock	<i>Colocasia coryli</i>	Common
73.069	Early Grey	<i>Xylocampa areola</i>	Common
73.096	Uncertain	<i>Hoplodrina octogenaria</i>	Common
73.197	Rustic	<i>Hoplodrina blanda</i>	Common
73.101	Treble Lines	<i>Charanyca trigrammica</i>	Common
73.120	Dusky Sallow	<i>Eremobia ochroleuca</i>	Common
73.162	Dark Arches	<i>Apamea monoglypha</i>	Common
73.169	Common Rustic	<i>Mesapamea secalis</i>	Common
73.175	Rufous Minor	<i>Olidia versicolour</i>	Common
73.176	Middle-barred Minor	<i>Oligia fasciuncula</i>	Common
73.242	Clouded Drab	<i>Orthosia incerta</i>	Common
73.244	Common Quaker	<i>Orthosia cerasi</i>	Common
73.245	Small Quaker	<i>Orthosia cruda</i>	Common
73.249	Hebrew Character	<i>Orthosia gothica</i>	Common
73.267	Bright-line Brown-eye	<i>Lacanobia oleracea</i>	Common
73.291	Common Wainscote	<i>Mythimna pallens</i>	Common
73.317	Heart and Dart	<i>Agrotis exclamationis</i>	Common
73.319	Turnip Moth	<i>Agrotis segetum</i>	Common
73.325	Shuttle-shaped Dart	<i>Agrotis puta</i>	Common
73.329	Flame Shoulder	<i>Ochropleura plecta</i>	Common
73.334	Small Square-spot	<i>Diarsia rubi</i>	Common
73.342	Large Yellow Underwing	<i>Noctua pronuba</i>	Common
73.359	Setaceous Hebrew Character	<i>Xestia c-nigrum</i>	Common
73.360	Triple-spotted Clay	<i>Xestia ditrapezium</i>	Local
74.008	Green Silver-lines	<i>Pseudoips prasinana</i>	Common