Entomology Day 2023
Times of Change – Future Prospects

CHAIR: JOHN COX

REPORT: GRAHAM HILL

Kate Jones from Buglife, based in Shropshire, was due to present her work - **Getting the Marches Buzzing**. Unfortunately, due to ill health, she was not able to join us. We trust that she has made a full recovery, and perhaps will be able to join us another time.

Sam MacVie spoke about **The Purple Emperor in the Heart of England Forest**. Sam is Biodiversity Data and Survey Officer for the Heart of England Forest, a project that aims to create and conserve 30 000ha of woodland – currently at about 7 000ha - on the Worcestershire / Warwickshire border. He told us about sites, in Worcestershire, including Ab Lench, Roundhill Wood, Coughton Park and Gorcott Hill Wood. Sam's Masters Dissertation focused on The Purple Emperor *Apatura iris*, large nymphalid and Britain's only *Apatura* species, which is a central/southern England species which was likely introduced into Warwickshire in 2004. It is now extending its range west into Worcestershire.

Sam explained that the caterpillar's food plant is sallow – *Salix capraea, S. cinerea* and hybrids, although the adult males like to hold territories in Oak woodland, where they sit high in the canopy to chase off any intruders. They are on the wing, generally from late June to late July.

He told us that eggs are laid on sallow, Mid-Green Soft Matt (MGSM) leaves. The early instars create a distinctive feeding pattern on the leaves (Figure 1). In October the caterpillar moves to a leaf junction or bark scar in which to hibernate. They emerge from hibernation around mid-March – April and move to sunnier leaves, pupating between late May and early June – at which point they glow under ultraviolet light.


Distinctive feeding pattern Sam MacVie

Leaves on which larvae were found during surveys were examined by colour, thickness and toughness for clues as to where to look in future surveys, being compared to control samples. In terms of colour, there was no difference between leaves with larvae and control samples; MGSM leaves had greater red, green, blue and lightness, lower light saturation. Females do not always follow the MGSM preference; toughness was shown to be insignificant, although in MGSM leaves thinness and blueness may indicate reduced chemical defences. Therefore, vision may be a particularly important sense.

Using ultraviolet light was shown to be a useful survey technique, although the 'season' is fairly short. The UV surveys located 11 specimens in one day.

Sam explained where he thought that we might see Purple Emperor in Worcestershire in the future. Purple Emperor has already been seen in Tiddesley and Grafton Woods in 2019; in Rubery and Malvern in 2020 and Clent 2022. Wyre seems to be a potential location for the future. There is an abundance of Sallow and Oak must keep our eyes open.


Purple Emperor Sam MacVie

Richard Orton introduced us to the **Aquatic Invertebrates of the Sandwell Valley**, in the heart of the Black Country.

The Sandwell Valley is 20 square kilometres

of green-space lying between West Bromwich and Birmingham. The geology is sedimentary, including coal measures. Historically, the land use has been varied, with a mixture of grazing pasture, a medieval priory and coal mining in the North. Today it is dominated by the M5 Motorway (which runs North – South through the Valley), amenity grassland, four golf courses and urban sprawl. The Royal Society for the Protection of Birds (RSPB) runs a small reserve and visitor centre in the North.

The Valley holds a large variety of still water habitats, ranging from the ancient fish ponds of Sandwell Priory, to the large amenity lakes created when the collieries were re-landscaped in the 1970s. There were also a series of smaller farm and ornamental ponds. However, there did not seem to be huge variation in the aquatic fauna of these habitats, but this might have been an artefact of not being able to identify many animals to species level. In all, we were able to identify 87 different types of taxa, this needs to be improved upon!

One thing became apparent: Many of these still-water habitats were struggling. Several ponds, which were thriving in the 1990s, had either dried up completely or were close to disappearing. Another pond has become ephemeral, drying out completely in recent summers. Other threats include invasion by alien plants, the RSPB reserve is infested with *Crassula helmsii* which has completely taken over some of their shallow wader-pools. It has been removed mechanically with diggers, but has come back even stronger. The water fern Azolla has also episodically infested the canals of the Valley.

Running water habitats are dominated by the River Tame, which meanders south-easterly across the valley. In the 1970s, the Tame had the dubious honour of being the most polluted river in Britain; it is cleaner now and supports good populations of fish, but it is by no means pristine. There are several tributaries flowing into the Tame. One of the most interesting is the Handsworth Stream, which rises close to some allotments and flows for three or four miles through public access grassland and Handsworth Golf Course. As well as the golf course, it also receives urban run-off from the Handsworth area, delivered via a series of culverts along its length. The stream was surveyed extensively, monitoring water chemistry such as nitrate and phosphate levels and also by using the Biological Monitoring Working Party (BMWP) biotic index. The average BMWP score will lie between 0 and 10, the higher the score the cleaner the water. Near the source the BMWP score was about 4, which is comparable with other small unpolluted streams in the Valley, after the first culvert, this crashed to 1.5. This crash coincided with a rise in phosphate, possibly due to detergents being washed off the urban road surfaces. The water looked grey, maybe because of oil in the run-off and the stream bed was very silty. The only animals thriving were chironomids and tubifex worms, both noted for being tolerant of low oxygen levels. Sampling further downstream was actually



Sandwell Valley with RSPB Reserve

Andy Purcell

quite encouraging, as the stream appeared to recover quickly, the clean-water fauna re-established itself and the BMWP score rose above 3. It is probable that similar urban streams will undergo similar fluctuations caused by small, local and unmonitored pollution events.

Gary Farmer, at very short notice, and as an **Afterthought** spoke about his interesting finds in Worcestershire during 2023; some new sightings and some updates on things he has reported in the past.

He started with an update on a small leafhopper found by Nicki in their home on a Jasmine plant. Gary had identified it as a Japanese leafhopper of the genus *Hishimonus*. This has now been confirmed as *H. diffractus*, a first record for the UK.

Next came the Wasp Spider *Argiope bruennichi* – while on holiday in Devon Gary spotted a Wasp Spider in the vegetation behind the chalet that he was staying in. Despite their large size and striking, stripy body, they can be difficult to spot. While entering the record on iRecord he noticed a spot on the map, very close to his home. It turns out that this species has now been recorded east of Stratford-upon-Avon, near Worcestershire's borders so will be one to look for in 2024.


Wasp Spider Gary Farmer

Another spider worth looking for this year is *Nigma puella*. Gary found some in Stocken Orchard in 2023 and Jean Young had recorded this species at Besford. So along with an earlier record of Gary's from Kemerton there is a little cluster of sightings in the south of the county. He found this little spider on Mistletoe while searching (and finding) the mines of the Mistletoe Marble Moth *Celypha woodiana*. Mistletoe is also the host of the rare weevil *Ixapion variegatum* which Gary found at Yew View during a Recorders' field meeting. This is only the second site where he has found this weevil.

During the visit he also found some Isopods of interest; Southern Pill Woodlouse *Armadillidium depressum*, a fairly new addition to the Worcestershire list and *Porcellio spinicornis*, a woodlouse more familiar on drystone walls and calcareous hillsides. The woodlouse *Hyloniscus riparius* which Gary discovered new to the UK in 2022 was found at a new site a couple of miles further along the Avon in 2023. *Trachelipus rathkii* is another woodlouse found along the Avon and this species has spread rapidly since its first Worcestershire sighting, and is now found near the Avon at Stratford.

Gary's 'day job' is manager of Vale Landscape Heritage Trust and, in 2022, a pond was created at one of the Trust's sites near Fladbury. Dragonflies discovered the pond straight away and in May 2023 the first exuviae of Broad-bodied Chasers were found. Many other adult dragonflies were noted in 2023 including Scarce Chaser and Four-spotted Chaser. The pond has already attracted several rare and unusual insects including a fenland cranefly *Nigrotipula nigra*. Two large soldierflies photographed in 2023 turned out to be two species of soldierflies, *Stratiomys singularior* a scarce fly in Worcestershire, and *S. longicornis* a first county record. Plants emerged from the seedbank and soon gave the pond the look of a well-established habitat. Gary finds it amazing how small insects find their host plants and sure enough several weevils have been recorded feeding on the new plants surrounding the pond already. These included two species of *Gymnetron* that feed on speedwell species *Veronica spp.- G. veronicae* and *G. villosulum*. The latter forms galls on Pink Water Speedwell *V. catenate*.

Soldier beetles are a common sight in early summer but can be tricky to identify to

species. This was not helped when the names of two similar species were changed. *Cantharis nigra* became *C. favilabris* and the previously named *C. thoracica* became *C. nigra*! The main identification character in the field is *C. flavilabris* has a black scutellum and *C. nigra* has a red scutellum.

While sorting images for this talk Gary noticed an older photo of a soldier beetle taken next to Tiddesley Wood and labelled as *Cantharis rufa*? After a closer look he realised that it was not a soldier beetle but was a very local and generally rare species of false darkling beetle *Osphya bipunctata*.

He finished his talk with a short series of images starting with moth eggs found near the Avon in May 2022. He collected a few and photographed the caterpillars as they grew, eventually pupating and emerging in the spring of 2023 as Emperor Moths *Saturnia pavonia*. He returned the adult moths to where he found the eggs and later that spring, he found new caterpillars.


Emperor Moth eggs Gary Farmer


Emperor Moth caterpillars Gary Farmer


Emperor Moth caterpillar Gary Farmer


Emperor Moth pupa Gary Farmer


Emperor Moth adult emerging Gary Farmer


Emperor Moth adult Gary Farmer

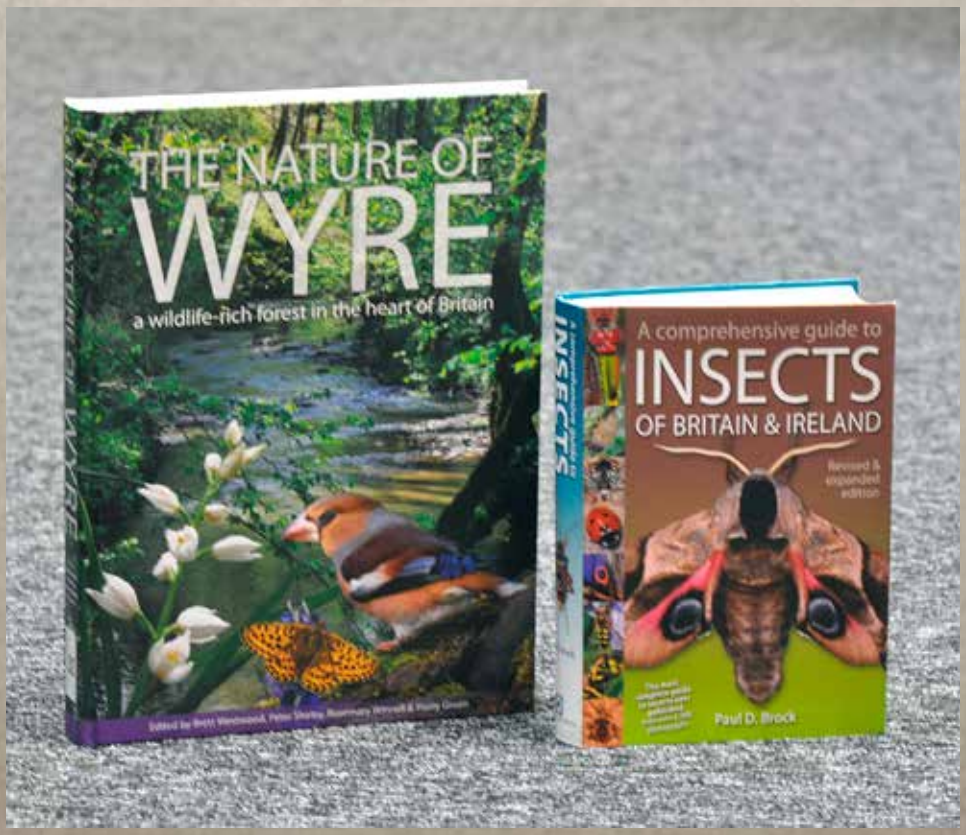
Wyre Forest Study Group

After Gary Farmer, **Peter Creed**, in conversation with **Brett Westwood**, spoke about how he started Pisces Publications and his interest in wildlife.

After finishing his degree in Fine Art at Stourbridge Peter often visited the Wyre Forest and started photographing the wildflowers and insects. He had a small exhibition of his photographs in Stourbridge and sometime later was asked to illustrate the Atlas of Butterflies in Britain and Ireland published in 1984. He moved to Oxford in the early 1980s but still regularly visited Worcestershire, and the Wyre Forest in particular. In Oxfordshire he joined the local wildlife trust and started leading wildflower and fungi walks. It was then that he started Pisces Publication with a friend (both were born in early March hence the name 'Pisces'). They started with a small book on wild orchids and later one on butterflies. They published about four books together but his friend decided that was enough for him. It was later in 1990 that a group got together to form ***NatureBureau*** where Peter wanted to grow the publishing side of the business and used the name Pisces Publications as the publishing arm of the business. They published a number of county floras and butterfly atlases in the early years of the company.

In 2014 Harry Green contacted Peter to see if they might be interested in publishing a book about the Wyre Forest and its wildlife for the Wyre Forest Study Group. They had a meeting in the Wyre Forest where he met Harry, Brett and Rosemary Winnall to discuss the book. Peter outlined his thoughts on how it might develop as a highly illustrated 'coffee-table' style book but with the text having the depth and detail of a 'New Naturalist' book. The result was '***The Nature of Wyre***' published in 2015 and reprinted in 2018. Later they published '***The Nature of the Malverns***' and 'The Nature of ... 'series was born.

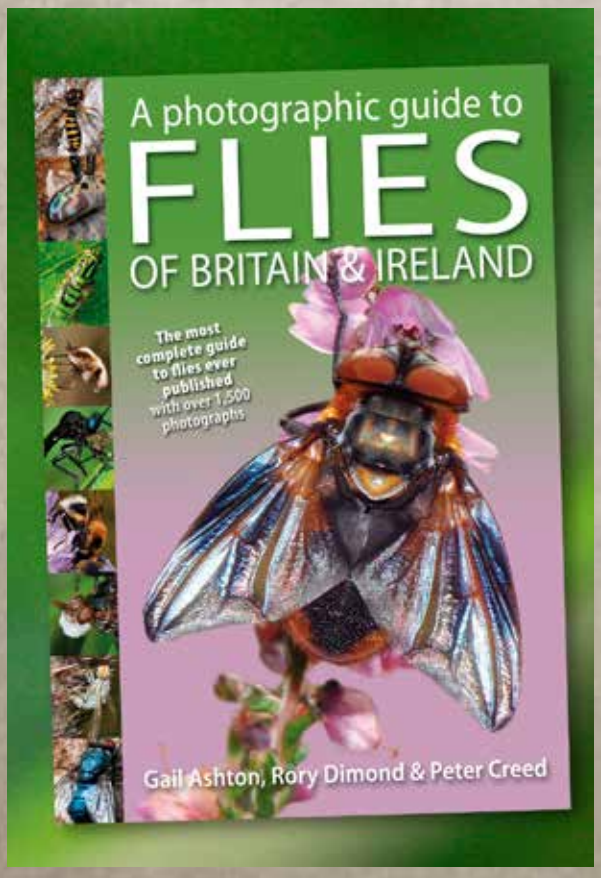
In 2011 Paul Brock contacted Peter to see if he would be interested in a guide about the insects of the New Forest. He had been turned down by a number of publishers but after meeting with him Peter told him Pisces Publications would be interested. The book contained over 1000 photographs and sold well. One particular review said that the book with its range of insect species covered was good enough to use as a field guide to the insects of southern Britain. This comment made Peter think that maybe there was an opportunity to publish a new insect guide where the book gave equal weight to the larger insect orders and not be two-thirds butterflies and moths with the rest



of the insect groups in the other third. Peter contacted Paul to discuss the idea and see if he was interested … and in 2014 the first edition of '***A Comprehensive Guide to Insects of Britain Ireland***' was published. It sold so well that it was reprinted 12 months later, and in 2019 a second edition was printed. Reviews of the book were amazing with Mark Cocker saying "Some field guides have a revolutionary impact on our encounters with life around us … this insect guide feels like a book in that category" and Dr Ross Piper said, "It blows the other field guides out of the water".

This book was a real game-changer for NatureBureau and Pisces Publications – they have now published over 100 books, and there seems to be no let-up in groups and individuals coming to them to publish their books, county floras, butterfly atlases *etc*.

The latest venture was also mentioned - '**A photographic Guide to Flies of Britain & Ireland**' featuring 1200 species will be published 2025. The authors are Gail Ashton and Rory Dimond and it has already generated a lot of interest – I can't wait to get on with it.



Meg Skinner, of the Harvestman Recording Scheme, spoke to us about **The Harvestmen of Worcestershire**.

Harvestmen are a small and under-recorded group of Arachnids, comprising approximately 35 species in the United Kingdom. The list is ever changing, with several new arrivals from the European mainland in the past few years.

Historic and recent records from Worcestershire include a list of 22 species and a relatively good coverage for the county. With increased recording effort, it may be possible to investigate declining populations such as historic records of *Paroligolophus meadii* and to monitor potentially invasive species such as *Opilio canestrinii* and *Leiobunum sp*. The distinctive harvestman *Sabacon viscayanum ramblaianum* has been recorded in the Wyre Forest; otherwise distributed in south Wales, is characterised by its 'fluffy' looking palps, it is likely that this is well established in the county.



The British Arachnological Society is a volunteer-run charity covering spiders, harvestmen and pseudoscorpions. The Harvestman Recording Scheme (HRS) aims to increase awareness of UK harvestmen through education, training and managing records. Future prospects for the HRS include identification courses, field recording days and a new field guide including keys, photographs and distribution maps. A new field guide will provide an update to past literature, encompass existing records and provide valuable information for both new and practiced recorders.

The HRS records database relies almost entirely on records submitted by amateur enthusiasts

and any amount of recording is encouraged, particularly through the preferred website and the iRecord 'app'. The platform encompasses several volunteer verifiers and recorders are advised on identification resources.

Please get in touch with the HRS at ***hrs@britishspiders.org.uk***, follow them on X (previously Twitter) at @Britishspiders or find us on the Facebook page UK Harvestmen (Opiliones).

David Smith firstly intrigued us with the title of his talk - **Down with the Homies: the development of the synanthropic insect fauna from the Neolithic to the end of the Roman period in the UK** -before explaining the surprisingly close links between humans and invertebrates over time.

Synanthropes are a range of species that are associated with human settlement. These can range from mammals such as rats though to insects such as grain beetles, fleas and lice. Many are pests but most are unnoticed or even tolerated by humans. They can also range from 'facultative' species that are weakly associated with settlement, such as the Histeridae 'pill beetles' in your compost bin, through to 'strong' synanthropes that are dependent on settlement such as the granary weevil and the cockroach.

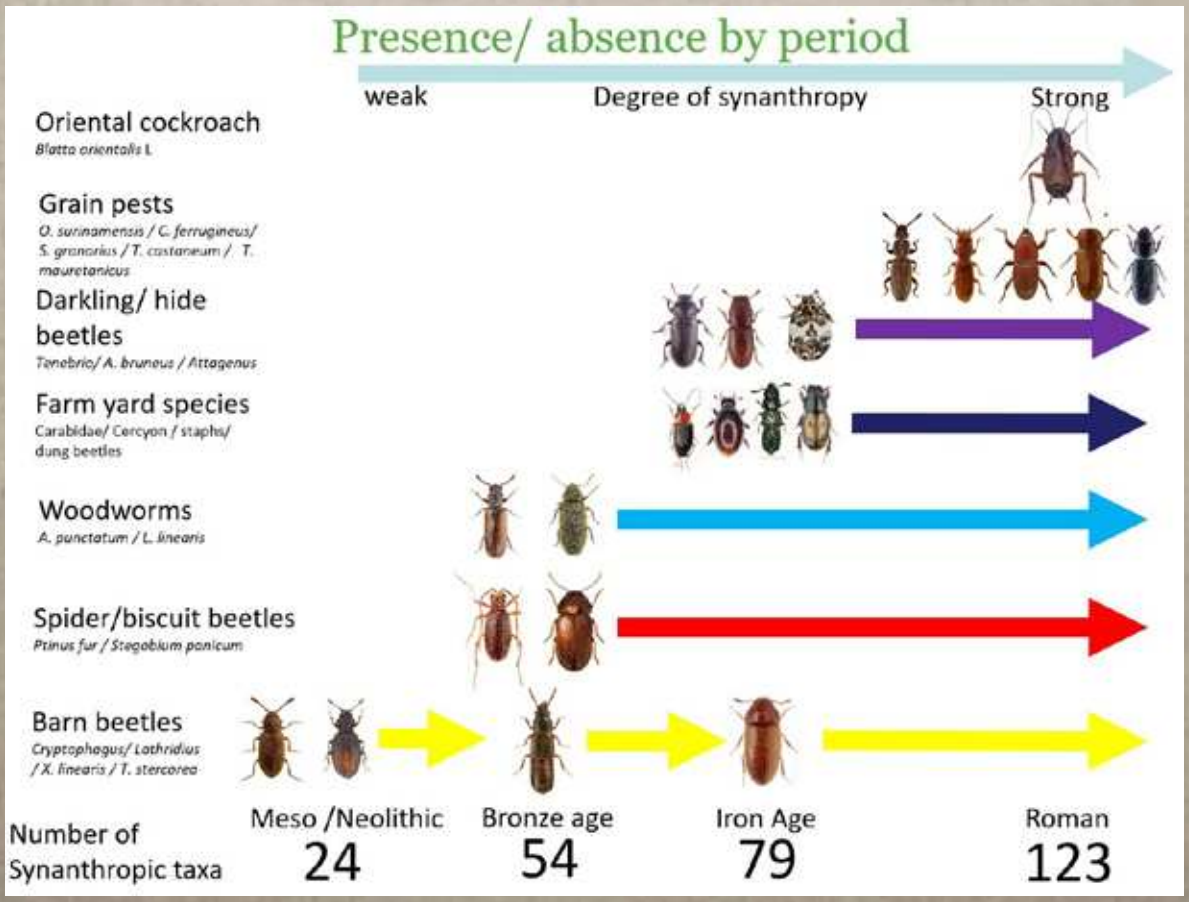
Work at the Universites of Birmingham and York has attempted to use archaeological insect faunas from settlement to see when these species first appear in the UK and how these faunas develop over time. This concentrates on the beetles since this is a group that preserves very well in the archaeological record.

This work has suggested that:

1) The synanthropes have a much longer history in the UK than previously presumed.

2) The range of synanthropes present in housing deposits from the archaeological record is much wider than it is today and often contains species which today can be rare or are not regarded as synanthropes.

3) Many are not 'exotic' imports but originally 'accreted' into settlement from the early Holocene forests. Birds and animal nests and rot holes in trees may play an important role here. Human settlement often presents the species with an abundance of the various



types of ecology they favour.

4) A further range of species, principally associated with grain and other stored products, are actively imported by humans.

5) The timing of the appearance of these species (at least in terms of when they are first associated with archaeological settlement) is as follows:

a) Neolithic to late Bronze age (c. 4000- 1600 BC). Twenty-four species mainly consisting of a range of 'plaster' beetles such as *Lathridius spp*. or *Cryptophagus spp.* Settlement is light or temporary with limited agricultural impact on the landscape.

b) Late Bronze age to Late Iron age (c. 1600 BC – 43 AD). 54-79 species. These consist of a number of strong synanthropic species such as spider beetles, woodworms and hide beetles. Others are associated with farming settlement such as many staphylinid 'rove beetles' and a wide range of dung beetles. This, in the UK, is the period of time in which forest is substantially cleared and replaced by agricultural and grazed landscapes.

c) Roman Britain (53 AD – c. 450 AD). 123 species now present. This period sees the first appearance of grain and storage pests and very strong synanthropes, such as the cockroach, in the UK. It seems that these are brought in with large bulks of grain and other materials by the Roman Army and also as part of the large-scale trade seen in the period.

This work has clearly shown that the history of synanthropic species in the UK is complex and that the population of synanthropes present in housing today is quite restricted compared to the past. This is the result of modern housing materials, the way we dispose of waste, central heating and the vacuum cleaner.

This work is discussed in very boring detail in:

Smith, D.N., Hill, G., Kenward, H.K. and Allison, E. 2020. Development of synathropic beetle faunas over the last 9000 years in the British Isles. *Journal of Archaeological* Science 115.

Smith, D., Hill, G. and Kenward, H.K. 2019. The development of late-Holocene farmed landscapes: Analysis of insect assemblages using a multi-period dataset. *The Holocene*. 29, 45-63.

SMITH, D.N. and Kenward, H.K. 2011. Roman Grain Pests in Britain: Implications for grain supply and agricultural production. *Britannia* 42, 243–62.

To round off, **Neil Harris** took us on a **Photographic safari** around Worcestershire.

He explained that after what feels like a washout of a summer, it might seem that it would be a struggle to find some insect highlights, but May and June were good months on the 'bug bothering' front (that's what Neil's children call it!).

He spoke about four particularly good days that he had with the camera, they could be 'red-letter days', but first he went through some highlights from his garden moth trap which he runs nightly except when the weather turns biblical.

Unusual moths this year were:

Kent Black Arches – Neil had the first for Worcestershire a few years ago and almost annually since indicating a nearby breeding population.

Bird's-wing – a first for the garden.

Beautiful Snout – a first for the garden and one he would expect to turn up in heathy woodland but perhaps not in Welland.

Mallow – rarely seen in his garden but four this year with the first in late July, which is exceptionally early.

L-album Wainscot and **Obscure Wainscot** – both wanderers from their wetland habitat.

The Olive – Neil had one before so a bit of a surprise.

Delicate – one of the few migrants this year, Richard Lewington thought it might be an Eastern Bordered Straw which it is, so a new one for Neil.

Although many moths are declining in number, a few are increasing, like the Least Carpet and Box-tree Moth.

His top days out in Worcestershire included:

Monkwood for Wood White's where he enjoyed a courtship display, before stumbling across a clearwing butterfly (this was actually from a trip to Costa Rica but he was just checking people were awake on the graveyard shift!) They were. He then found and photographed an unusual conopid fly, *Conops versicularis,* the ant beetle *Thanasimus formicarius*, and the leaf beetle *Gonioctena decemnotata* which looks like a ladybird at a glance.

As an aside, he came across the Western Bee-

fly in the Knapp and Papermill as well as in numbers at Moccas Park, Herefordshire, so this may be spreading. He is also still finding the Downland Villa (a bee-fly) at a local nature reserve, St Wulstans Reserve after it turned up there about seven years ago.

In Tiddesley Wood, looking for Noble Chafer, Neil explained that he walked the hogweed laden ride between the newer orchard and the wood where he found nine species of longhorn on a 300-metre-long track but no Noble Chafer. On turning round to go back, he found a Golden-haired Robberfly which he had never previously seen in Worcestershire before a Noble Chafer came barrelling in over his head and landed on a hogweed flower right in front of him. Like buses, another one came along soon after.

In Shrawley Wood, looking for the Six-spotted Pot Beetle. Not much of interest on the main ride apart from the pot beetle *Cryptocephalus moraei*, but that all changed once they got to a coppiced lime plot by the main ride. Lime longhorns were everywhere and he found a tiny jewel beetle called *Trachys minuta* in numbers. His friend Nick Button started yelling for Neil to get over to him so he ran hobble-ran to find him staring at a 6-spotted Pot Beetle, *Cryptocephalus sexpunctatus*. These last two species were at their only known location in Worcestershire.

Finally, the Devil's Spittleful with the Wyre Forest Study Group on a glorious sunny day. This turned out to be a day filled with bees, wasps and death! Firstly, the Bee-wolf with honey bee prey, followed by the Weevil-wolf (*Cerceris arenaria*) with weevil prey. Then Common Spiny Digger Wasp with a fly skewered to its sting before an ornate-tailed digger wasp with *Andrena* bee prey. A beautiful jewel wasp from the *Hedychridium* family made up the special wasps of this fabulous reserve before a few glimpses of the Pantaloon Bee completed a memorable day.



Noble Cuckoo Wasp, *Hedychrum nobile* Neil Harris

That brought the day to a close, another day full of interest and wonderment. Thanks go to the presenters who gave of their time and talents to entertain and enthral us, can't wait until next year!



Entomology Day Presenters
(L-R) Back: Peter Creed, Richard Orton, David Smith, Gary Farmer, Sam MacVie, John Cox (Chair)
(L-R) Front: Meg Skinner, Neil Harris S. Horton