



# Clearwing Moths

Of the Upper Thames Region

by Sue Taylor April 2021

## Clearwing moths

These are lovely little moths with wings that resemble stained glass.

Unlike many other dayflying moths, they are rarely seen by the casual observer as they seem to hide away and don't spend a lot of time on flowers.

To catch sight of one is always a treat.

They are very under recorded as a group and we need more records to establish both range and population size.



- They are wasp mimics, best shown in the two 'hornet' species.
- Wasp mimicry is probably why they have narrow wings with clear panels resembling those of wasps. (Batesian mimicry)
- Their flight also mimics wasps, flying fast with their wings a blur, maybe another reason people in search of butterflies and moths may miss them.
- With modern pheromone lures we are starting to learn more about these enigmatic insects.
- During the first Covid lockdown people used lures in their gardens\* and in reserves, so 2020 was a good year for sightings.

\*Herts & Middx Butterfly Conservation Newsletter No 81 'Lockdown lures' by Liz Goodyear



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## • Sesiidae: The Clearwing moths

*(Ses -ia-idaea from moth-new-family)*

- Though small they are classed as macro-moths
- Over 1370 species of Sesiidae worldwide. Over 100 in Europe.
- There are known to be 15 species of Sesiidae resident in the UK
- There are 12 species recorded in Bucks/Berks and Oxon
- 11 of the 15 UK species are Nationally Scarce 'B' species\*
- 2 UK species, the Welsh and Fiery Clearwings are Nationally Rare RDB species and protected under law.
- The Dusky Clearwing is now thought to be extinct.
- The Raspberry clearwing is a recent introduction

\*species found in 31-100 hectads of the UK



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- New pheromone lures have greatly improved the knowledge of the distribution of the clearwing moths which may be more common than previously understood
- Before the use of lures the most reliable method was to search out larvae and pupa and try and raise them, though this was tricky and often failed.
- Other records came from sweeping vegetation and casual observations
- All records of clearwing moths are warmly invited!
- Put your sightings on iRecord or send directly to the county moth recorders.



A Thrift Clearwing restricted to the west coast of the UK

## Biology

- Sesiidae are very closely related to the colourful Zygaenidae (Burnet & Forester moths, see right).
- Like the Zygaenidae the Sesiidae are dayflying and are most active in warm sunny weather.
- Many Sesiidae are most/only active in the morning when males search out recently emerged un-mated females.
- Most Sesiidae use trees or shrubs for their larvae. A single egg often being laid on a cut or wounded surface. The larva then burrows into the plant. Some species stay just under the bark others burrowing right into the wood or forming galls on stems.
- The Six belted and Thrift clearwings are the exceptions, they live in the roots of Birds Foot trefoil/Kidney vetch and Thrift respectively.
- Some species have a year long life cycle, but others take two years (or more) which means overwintering twice as larvae before emerging to pupate in spring. All UK species are univoltine.
- The Sallow Clearwing is more often found in even years like 2020.



**Forester**  
(increasingly  
uncommon in our  
region)

**Some Zygaenidae**



©Sue Taylor

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**Chalk Burnet**  
(not a UK species)

## Pheromone Lures

- Until fairly recently sightings of adults have been sparse, restricted to lucky sightings from people being at the right place at the right time or individual moths being swept from vegetation.
- There are now pheromone lures available for each of our species and these are getting more and more reliable as new ones are developed.
- A pheromone lure is basically a rubber bung or plastic vial, that has been impregnated with chemicals that mimic the pheromone scent that the receptive female gives out.
- The males detect the chemicals and fly to the lure expecting to find a receptive female.
- The lure is often put in a trap which allows the moths to fly in and then be released unharmed. Without the trap they soon realise their mistake and leave. Females are not attracted to lures.
- Having the lures available is allowing us to more accurately map the distribution and abundance of these moths.
- Lures and advice on their use is available from Anglian Lepidopterist Supplies. [www.angleps.com](http://www.angleps.com)



Six belted clearwings being attracted to a lure



Lunar Hornet Clearwing in a pheromone trap

## Using Lures 1.

There are no guarantees that you will see clearwings using lures, but with research, preparation and persistence you stand a very good chance.

- Before you trap you need to ensure you have the landowners permission, especially on Nature Reserves.
- Find a location where the foodplant is known to occur, preferably in quantity. Some species will fly a long way to a lure but not all.
- You also need to know when the moths may fly. The flight season for some is short and the hours in the day when they are active is short and determined by species.
- Check the weather before you go. Warm, sunny weather with a light breeze is best. Too hot, cold or windy and they are less active.
- Positioning of the lure is important, for most about head height is fine, the Six-belted lure can be put on the ground.

When you buy lures, helpful advice is given with them and experienced moth recorders may also be able to offer advice.



Lures clearly labelled for storage and use.

The lures as delivered



A commercially available trap

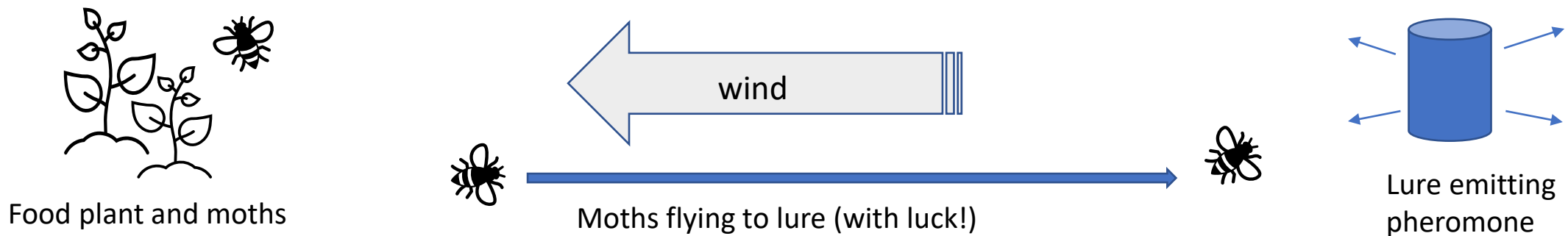




## Using Lures 2.

- The lures should be stored in a freezer (-18C) to prevent the pheromones dispersing. They will keep for 3 years.
- Store each in a separate labelled container, within this I also put the lure in a labelled gauze bag that can be hung directly on a tree or popped into the trap.
- Allow to rise to ambient temperatures before taking out of their container to prevent condensation on the lure.
- Keep lures separate at all times, even traps that have been washed and dried may retain vestiges of previous lures and this can confuse the moths (and the entomologist when the wrong species turns up!).
- Check wind direction and place the trap/lure up-wind of the food plants.
- Hang traps in light shade to prevent overheating and check regularly. In hot dry weather add a small damp sponge to the trap to prevent the moths dying.
- Remember where you put the traps/lures out! Sometimes you need to leave them up for an hour or more.
- If you use several different lures at once make sure they are well away from each other to prevent scent plumes overlapping.

Persistence: If at first you don't succeed then try, try, try again!



# The Upper Thames Species

\* adapted from Anglian Lepidoptera recommendations

Species	Preferred name	Foodplant	Flight season	Flight times*	Status	Lure*	Counties
Six-belted	Bembecia ichneuminiformis	Birds-foot trefoil/ Kidney vetch	Jun-Aug	9am to 4pm	Nationally Notable B	API	Bucks, Berks & Oxon
Hornet moth	Sesia apiformis	Black Poplar	Jun-Jul	9am to 1pm	Nationally Notable B	HOR	Bucks & Berks
Lunar Hornet moth	Sesia bembeciformis	Willows	July -Aug	Morning	Common	LUN	Bucks, Berks & Oxon
White-barred	Synanthedon spheciformis	Birch and Alder	May-July	11am -4pm	Nationally Notable B	TIP	Berks
Large Red-belted	Synanthedon culiciformis	Birch	May-Jun	2-4pm	Nationally Notable B	CUL	Bucks, Berks & Oxon
Red Belted	Synanthedon myopaeformis	Old Fruit trees	Jun-Aug	11am-1pm	Nationally Notable B	MYO/CUL	Bucks, Berks & Oxon
Red Tipped	Synanthedon formicaeformis	Osiers	Jun-Aug	11am-6pm	Nationally Notable B	FOR	Bucks, Berks & Oxon
Orange Tailed	Synanthedon andrenaeformis	Viburnum lantana	May-July	11am-4pm ish	Nationally Notable B	VES/AND	Bucks, Berks & Oxon
Yellow legged	Synanthedon vespiformis	Pedunculate Oak	May- Aug	12-7pm	Nationally Notable B	VES	Bucks & Berks. Oxon?
Currant	Synanthedon tipuliformis	Black and Red currants	Jun-July	2-6pm	Nationally Notable B	TIP	Berks, Bucks & Oxon
Sallow	Synanthedon flaviventris	Sallows	July	1-5pm	Nationally Notable B	SAL	Bucks, Berks & Oxon
Raspberry	Pennisetia hylaeiformis	Raspberry canes	July-Aug	10.30am -3pm	Recent introduction	HYL	Bucks

## Hornet Moth *Sesia apiformis*

### Habitat

Open situations with mature Poplar species including Aspen, Black, White, Grey and hybrids. Urban or rural. Shelterbelts, hedgerows, parks, large gardens. Generally on damper soils.

### Larvae

Feed just under the bark at the base of trees, overwintering for 2 or 3 winters. Characteristic holes are left as adults exit.

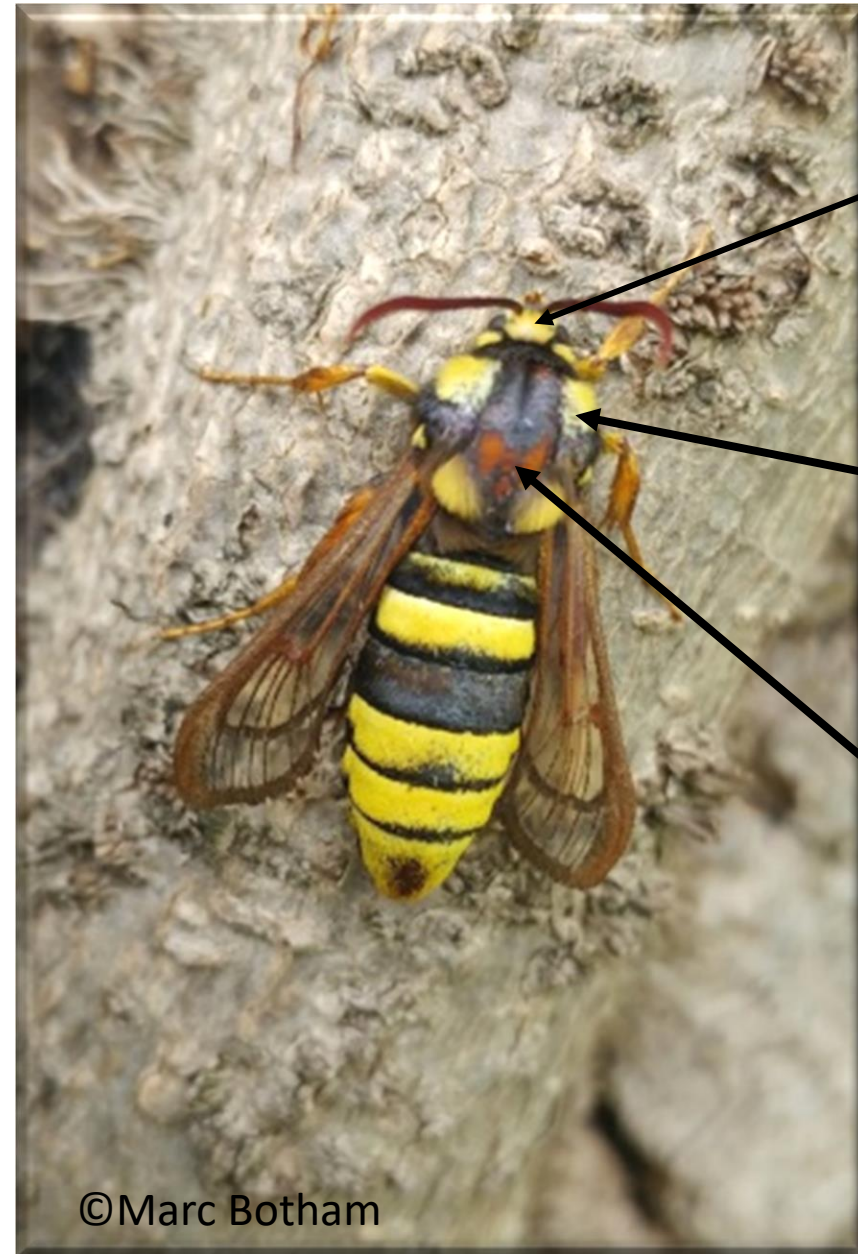
**Adults** (17-21mm) Drawn to the HOR lure, it looks very similar to the more common Lunar Hornet but lacks the yellow collar on the thorax.

### Status

Nationally notable B widespread and possibly locally common, but rarely recorded

### Note

With each generation taking 3-4 years this is our longest living Clearwing moth, also our largest.



Yellow head

Yellow flashes no collar

Reddish flash

©Marc Botham

## Lunar Hornet Moth

### *Sesia bembeciformis*

Thought to be common. It is the UK's most widespread and most recorded species to date.

**Habitat** Found in damp habitats and open woodland.

**Larvae** on Goat and Grey Willow and occasionally Poplar. It has a two year life cycle.

It burrows under the bark initially before moving deeper into the wood.

**Adults** 15-19mm.

May be seen resting after emergence on the tree trunks.

It is drawn to the new LUN lure Separated from the similar Hornet moth (which uses Poplar or Aspen) by the yellow collar on the thorax, this is absent on the Hornet moth.



this one was trapped by Neil Fletcher at College Lake.

## White-barred clearwing

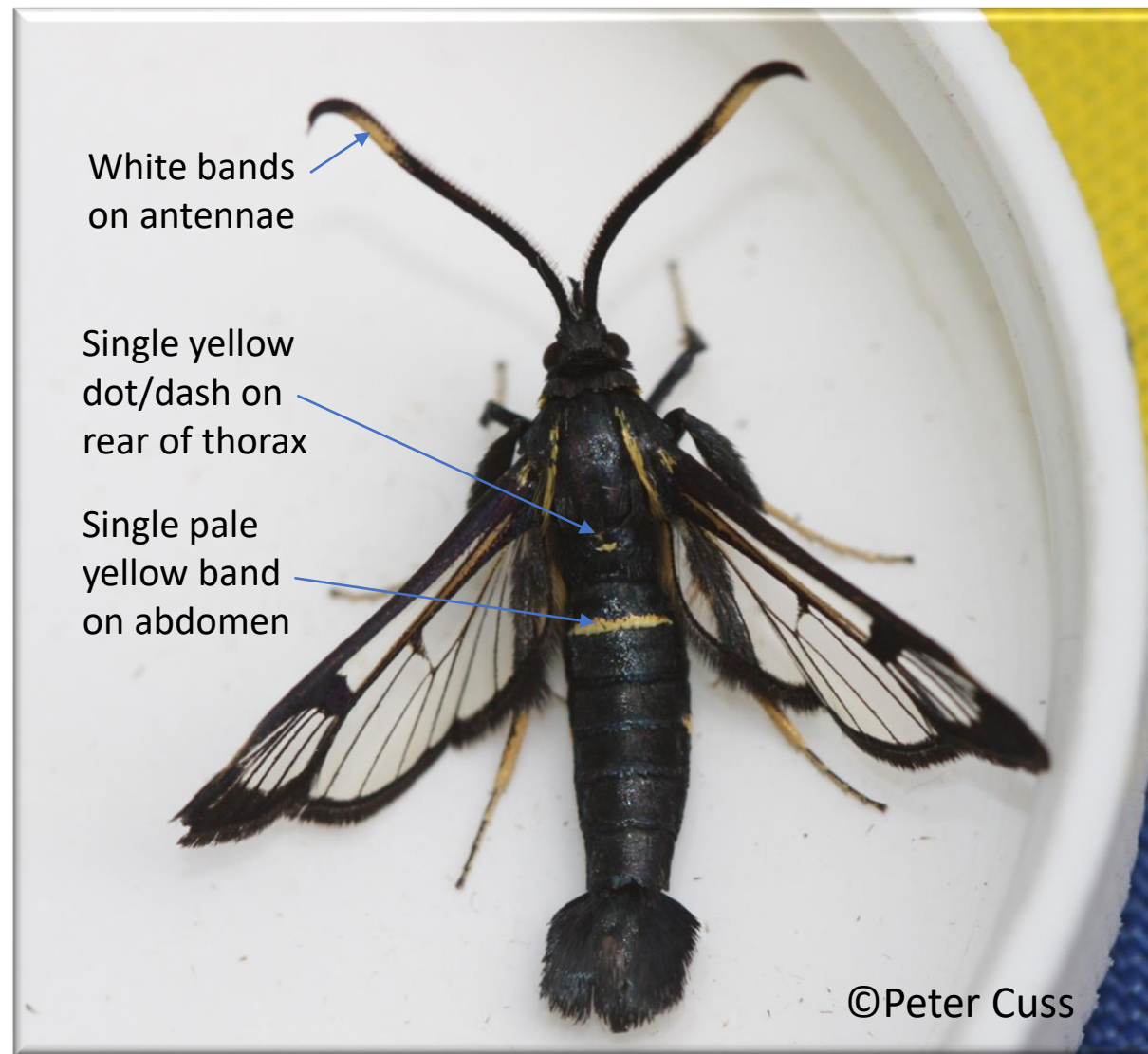
*Synanthedon specifformis*

**Habitat** Damp woodland rich in Birch and Alder and heathland.

**Larvae** feed in the lower part of the trunk and the roots of the trees. They over winter at least once before emerging as adults in May.

**Adult** (12-14mm) Attracted to the TIP lure along with the currant clearwing

**Status** Nationally Notable B, this has a restricted distribution and so far is only found within our region in Berkshire.



## Red belted Clearwing

*Synanthedon myopaeformis*

**Habitat** Old orchards, Allotments and gardens with fruit trees, preference for older trees but may use younger ones too.

**Larvae** Use apple trees, older wounded trees preferred as the larva burrows just beneath the bark emerging after one winter, The same tree may be used for many generations with exit scars visible.

**Adult** 9-11mm

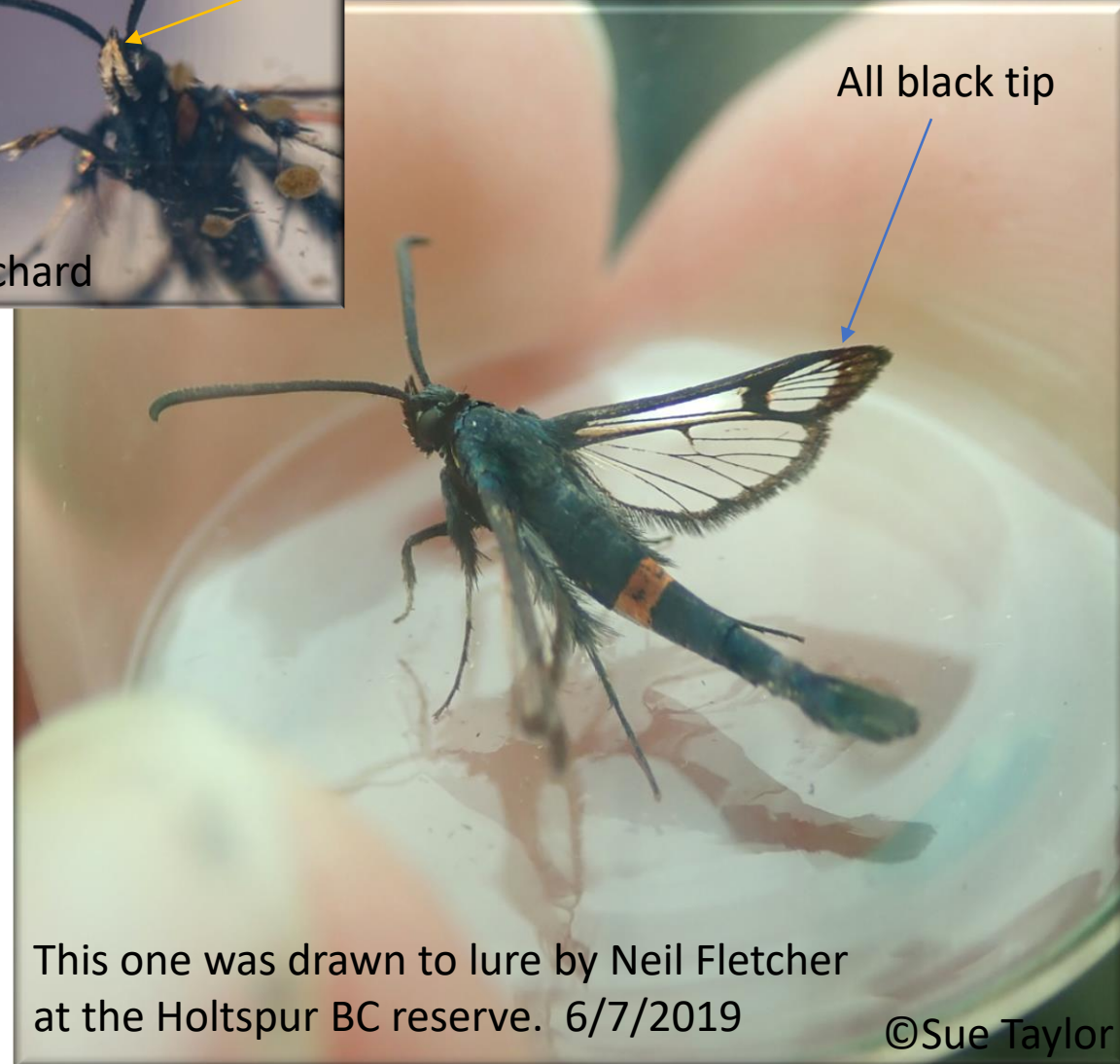
It is drawn to the MYO or MYO + API lures and occasionally the CUL lure. It can easily be confused with Red tipped and Large red-belted clearwings because of the red band on the abdomen. But it has no red tip to the wing. It is smaller than the Large Red-belted and has white labial palps rather than bright orange.

### Status

Nationally notable B but possibly under-recorded.



White labial palps



# Large Red Belted Clearwing

*Synanthedon culiciformis*

## Habitat

Open woodland and heathland where Downy and Silver birch thrive.

## Larvae

They live in branches and cut stumps tunnelling just under the bark and consuming the wood. Usually overwintering for just one year. Occasionally alder is also used.

## Adult 12-14mm

It is attracted to the CUL lure. Very similar in appearance to the Red-belted Clearwing but on the Large Red-belted the labial palps are orange and there are a few orange scales at the base of the forewings.

**Status** Nationally notable B. A widespread but very local species with few records, possibly declining.



Orange labial palps

©Pierre Bornand (from BC Website)



Red base to wings

©Richard Szczygiet (from BC Website)

## Red-tipped Clearwing

*Synathedon formicaeformis*

One of UTB's most common and widespread clearwing species

### Habitat

Generally damp habitats but also heathland wherever willows occur.

**Larvae** This moth uses a variety of willow species especially *Salix caprea*.

Feeding in small branches where it forms a gall, overwintering twice before emerging.

**Adults** 9-11mm

Recognised by the red tip to the wings and red band on the abdomen.

Drawn to the new FOR lure



Red tips on wings and red band on thorax

©Sue Taylor

The gold scales on the abdomen indicate this is a fresh individual (found in a hide! At College Lake)



©Sue Taylor

Grendon/Doddeshall Woods 11/7/20  
found resting on vegetation



## Sallow Clearwing *Synanthedon flaviventris*

### Habitat

Damp often poorly drained habitats rich in willows.

### Larvae

Feed on Goat and Grey willows, they burrow in to long straight stems leaving a distinctive scar/gall.

They overwinter twice.

**Adults** 8-9mm Drawn to the SAL lure, seldom seen otherwise.

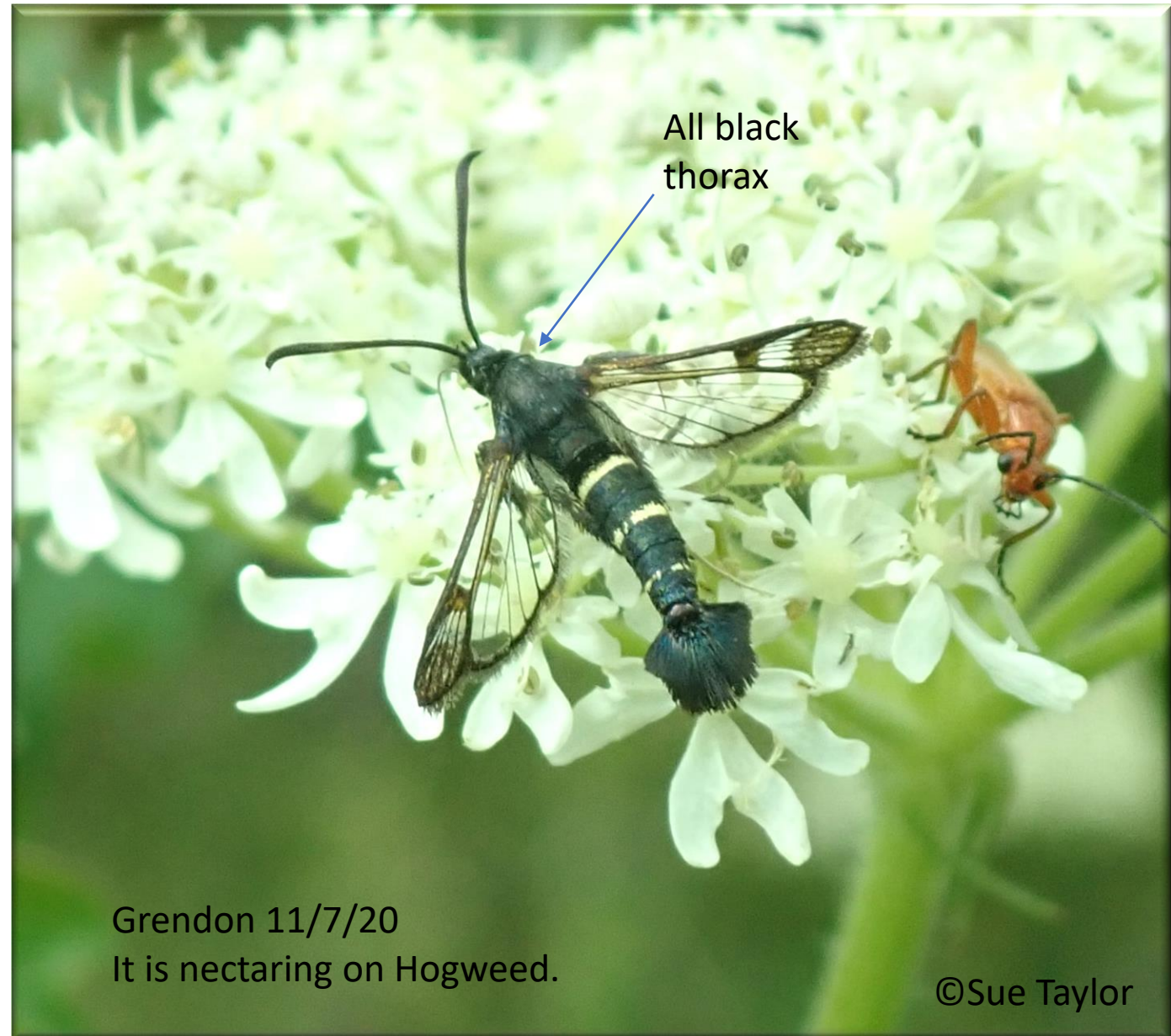
There are many more sightings in even years such as 2020 but there are a few records from odd numbered years. Speculation is that the population is from a single establishment event.

### Status

Nationally notable B but possibly locally common, this was the second ever Bucks sighting. But by the end of the season there were several more records in our area.

**Note** Currant clearwing is very similar and probably more common.

Differentiate from Currant Clearwing by lack of markings on thorax



## **Currant clearwing** *Synanthedon tipuliformis*

### **Habitat**

Gardens, allotments and fruit farms

### **Larvae**

Black-currant is the favoured foodplant but also found on Red-currant and Gooseberry growing in sunshine.

It bores into the larger stems creating a long gallery in its centre. So if you cut a stem and it has a hollow black centre this indicates a clearwing has been feeding.

**Adult** (8-10mm) Males are attracted to the TIP lure often in numbers. Adults may be seen sunning on leaves.

It looks very similar to the rarer Sallow Clearwing but has yellow stripes along the thorax.

Male has 4 abdominal stripes the female only 3.

**Status** Nationally notable B, but almost certainly very under recorded.



# Yellow-legged clearwing

*Synanthedon vespiformis*

## Habitat

Open deciduous woodland, parks and hedgerows.

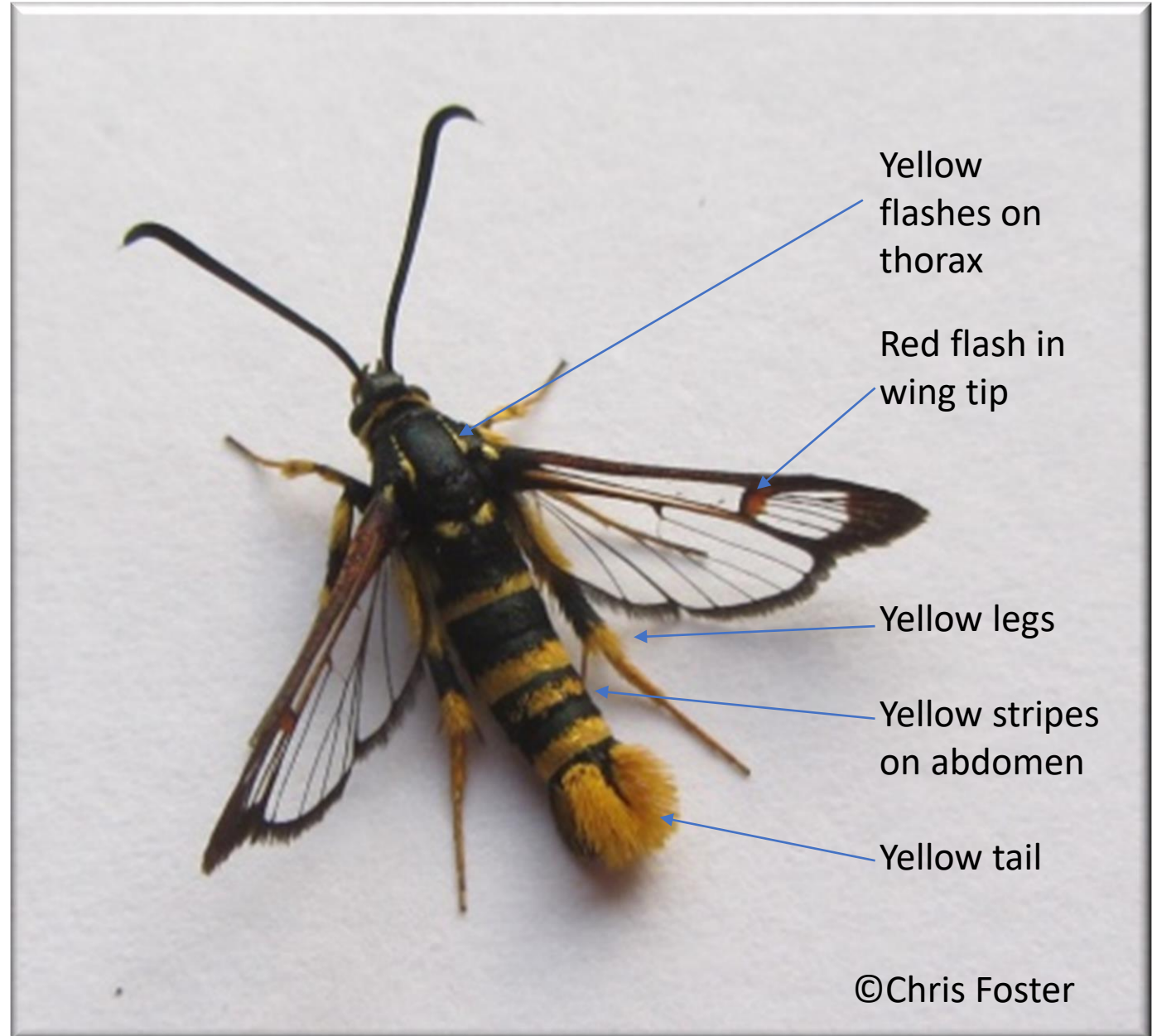
## Larvae

Although mainly feeding on Pedunculate Oak (*Quercus robur*), other oak species, Sweet Chestnut and Wych Elm are also used. They feed in the stumps of trees felled up to 3 years earlier.

## Adult 10-12mm

The adult males are attracted to the VES lure and females are known to nectar on brambles.

**Status** Nationally notable B, very local, and not present in high numbers. It would seem that active woodland management benefits this species.



# Orange-tailed Clearwing

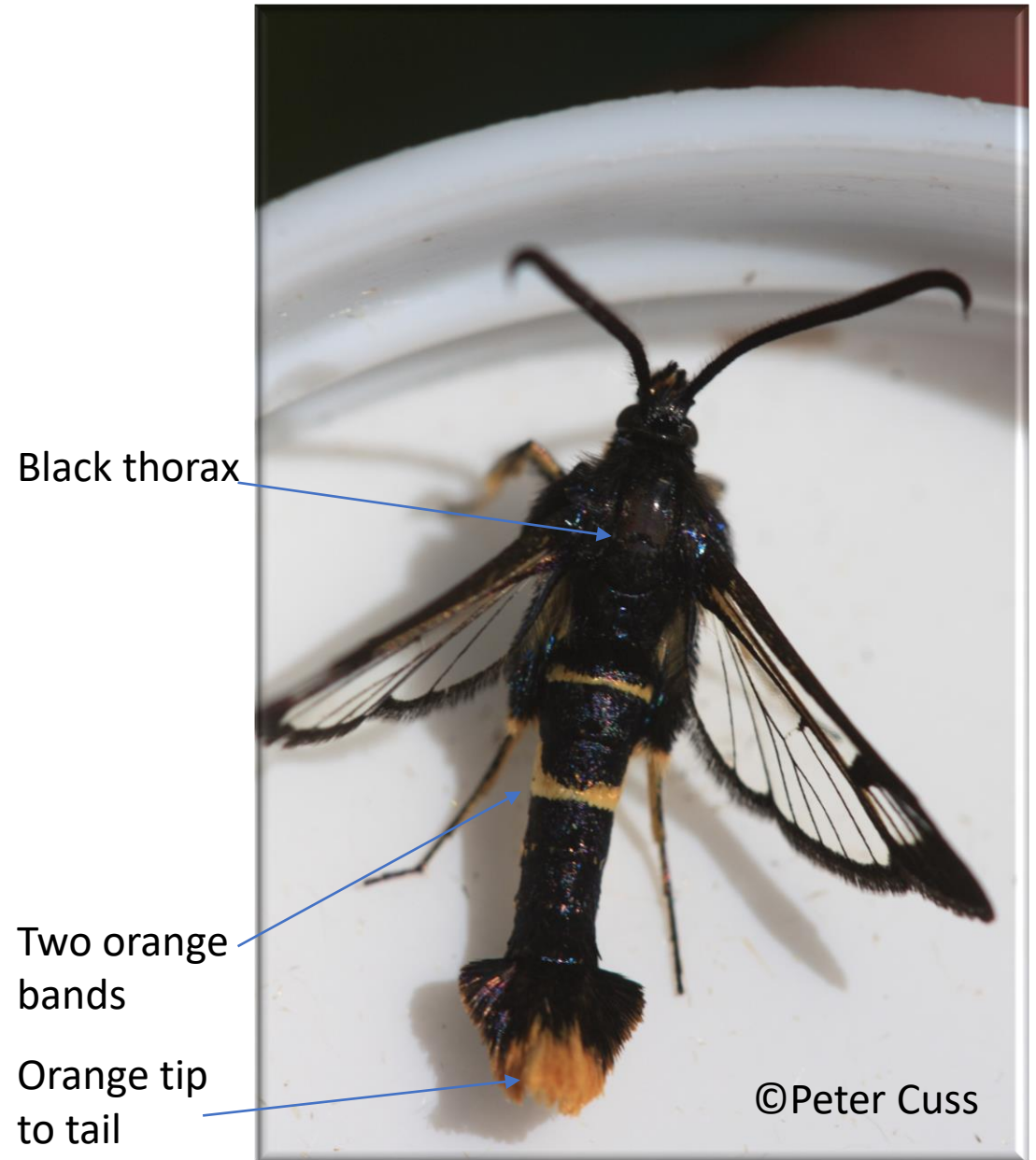
*Synanthedon andrenaeformis*

**Habitat** Chalk scrub and downland where the Wayfaring tree *Viburnum lantana* is found or sometimes the Guelder-rose *Viburnum opulus*.

**Larvae** burrow into branches 8-25mm in diameter where they will overwinter twice before emerging leaving a 3mm hole covered with a disc of bark. When scrub is being removed consideration might be given to retaining some of the *Viburnum lantana*.

**Adult** 9-11mm The only species with a broad orange and black tail and two narrow orange bands on the abdomen

**Status** Nationally notable B one of our less common species.



# Six-belted Clearwing

*Bembecia ichneumoniformis*

Another of UTB's most common and widespread clearwing species

## Habitat

Chalk and base rich grassland habitats where the foodplant thrives.

**Larvae** This species uses Birds-foot trefoil roots and sometimes Kidney vetch, roots and lower stems.

**Adults** (9-12mm) It is quickly and easily drawn to the API lure in the right weather conditions, 10 arriving is not uncommon. Trapping is unnecessary as the response is within 5 minutes.

**Status** Nationally notable B but locally common, seen by me at College Lake, Dancersend, Ivinghoe, Grangelands, Bradenham and Arncott... so far.



Males approaching a lure in a gauze bag



Male College Lake 13/7/20

This is the clearwing you are most likely to see without a lure.  
Watch a dense patch of Birds-foot trefoil keeping an eye out for a small insect that at first glance seems to be a wasp but the way it flies is not quite right, its wings are a blur, (in wasps wings can't be seen in flight) and it seems a little more clumsy. It is also a species easily swept into a net.



Female, College Lake 15/7/15

# Raspberry Clearwing

*Pennisetia hylaeformis*

**Habitat** Gardens, allotments and fruit farms. Not yet reported from wild canes in the UK. In Europe they will use wild bramble and raspberry.

**Larvae** Bore into the base of raspberry canes where they form a gall.

**Adult** (11-13mm) Emerges in July after two winters.

**Status** Recent introduction probably brought in with canes imported from Europe. First seen on the Herts/Cambs border in 2007.

May be confused with six belted and yellow-legged clearwings but habitats very different.



# Some sources of information.

## Books

Field Guide to Moths of Great Britain and Ireland. Waring, Townsend and Lewington. Published by Bloomsbury Wildlife Guides. \* and the sister volume on Caterpillars.

Britain's Day-flying Moths. Newland, Still and Swash. Published by Wild Guides

## Websites

UK moths website [ukmoths.org.uk](http://ukmoths.org.uk)

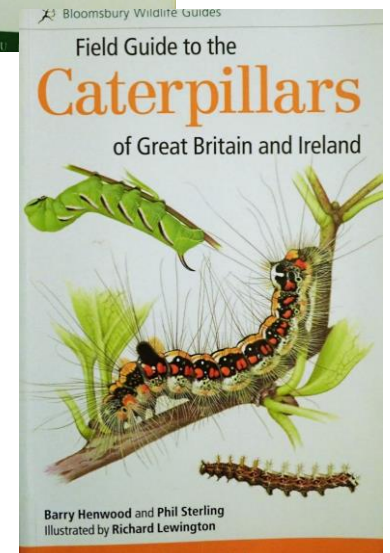
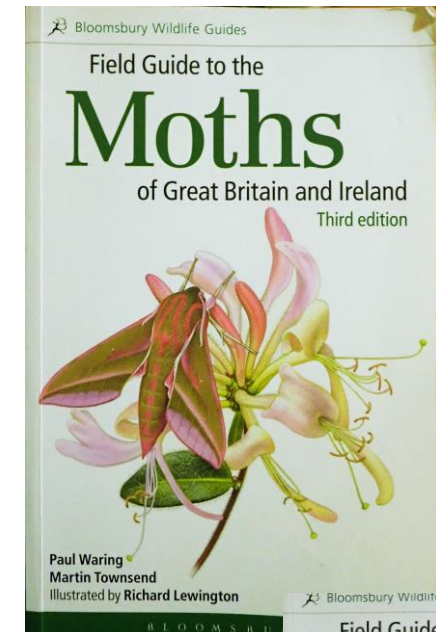
Butterfly Conservation A-Z of moths. <https://butterfly-conservation.org/moths/a-to-z>

Upper Thames Moths. [upperthamesmoths.blogspot.com](http://upperthamesmoths.blogspot.com)

## Supplies

Anglian Lepidoptera supplies [www.angleps.com](http://www.angleps.com)

\*main source of information used in this presentation.



## Getting Involved

- More so than many other moths the Clearwings are under recorded.
- Any records will make a real impact to what is known about their numbers and distribution.
- As some species are urban you can record from the comfort of your garden
- Lures cost about £9 each if bought separately. They can be used over three summers if stored properly. So although there is an initial outlay over time they are not too expensive
- You can buy them singly or as groups, so you can choose which species to trap for based on your local habitats.
- If you record any of the rarer species, please contact the UTB moth blog without delay so that there is an opportunity for others to investigate nearby and help assess the population.
- Other species may be drawn to the lures, some beetles and flies, these can be recorded on iRecord too, all records are valuable.

**I hope you enjoy finding and observing these fascinating moths.**

**Thank you** to those who helped in preparing this presentation especially those who allowed their photos to be used.