Wildlife Recording Kit: Moth Trap

- Please ensure that all equipment borrowed is replaced; consider the people who are using the box after you.
- The borrower of the loan box is liable for the cost of any equipment lost or damaged.
- If anything is broken/lost, we would be grateful if you could let Surrey Wildlife Trust know as soon as possible so that we can replace this in time for the next people borrowing the box. You will be charged for any missing or broken equipment.
- Ensure that before surveying, you have the permission of the landowner to undertake these surveys.

Why survey?

During the 20th Century, 62 species of moth became extinct in Britain and many others are considered to be nationally threatened (Butterfly Conservation).

Moths play an important role in ecosystems as herbivores, pollinators and as prey for other animals. Monitoring moths can help us to determine how biodiverse our sites are and can support decision making in regard to future actions.

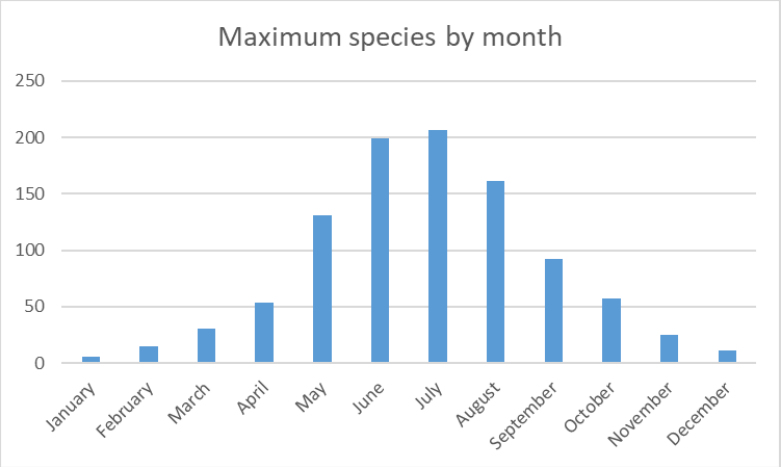
Read more about why moths matter here: https://butterfly-conservation.org/moths/why-moths-matter

About the kit

Moth trapping involves the use of an artificial light source to attract moths during the night. In a moth trap the bulb is suspended over a box into which the moths fly, and from where they can be examined and identified before being safely released.

When to survey

Moths are around all year round – on warmer nights only in winter - though there are more in the summer months. The chart gives an indication of how many moths might be expected each month based on Surrey trapping records.



The ideal night for trapping moths is a still and dark one – they don't like strong winds and while they can be trapped when the moon is full you will get better results if you avoid this time.

Traps should be set up during the final hour or so of daylight and left to run overnight or for several hours if you wish to stay and monitor the catch. Otherwise, you can simply return at first light to see what your trap has caught.

Equipment included:

What's included in the kit	What you need to provide
Moth trap	Cardboard (ideally egg boxes)
Battery	
Torch x 2	
High-viz jacket x 5	
ID guides - Hawkmoths - Day-flying moths	
Magnifying tubs x 5	
UV goggles x 10	

Instructions on use:

Erecting the trap:

1. First position three sides together, then slot in the base. Fit the fourth side, and finally the light board. The large pieces of Perspex can be slid into the trap sloping inwards from the top to the bottom. For further instructions please see the Moth Trap user manual found within the kit.
2. The thin strips of Perspex slide vertically into the grooves on the block at the bottom of the sloping pieces of Perspex.

Setting your trap:

1. Carefully removing the two Perspex panes in the trap add some empty egg boxes – any rough cardboard can be used but egg boxes are best as they provide nooks and crannies for the moths to hide in. You should add enough to loosely fill the space but with enough room for the moths to move around. About six egg boxes on each side should suffice.
2. Position your trap where the light will be visible – not hidden amongst trees for example – though a completely open space is best avoided. The light will attract moths and the moths will attract predators such as bats, so you want your moths to have some protection. Remember also that the light will be visible by people so select a location that will not cause a nuisance and is also secure (moth traps are valuable!).
3. Switch it on shortly before dusk – moths will appear all through the night though most will be in the earlier part of the evening and some before it gets dark. It doesn't harm to switch it on earlier though bear in mind the battery life is a maximum of 8-10 hours. To switch it on, connect the red lead and clip to the terminal on the battery marked with a + or positive or marked with a red marker. Then connect the black lead and clip to the terminal on the battery marked with a – or negative or black marker. **It is essential you**

connect the leads as above as failure to do so can cause serious damage to the controller.

4. To test the bulb, place your finger over the photocell that is situated on the bottom of the white control box (a small black eye). The bulb will not light in daylight unless this eye is covered and can take up to 8 seconds depending on the ambient temperature.

In the morning:

5. The earlier you can get to your trap the better – once the light is out most of the moths will stay where they are, but some will start to find a way out. Birds and other predators will also be attracted to the moths around the trap so an inspection time not later than 08.00 in the summer months is recommended.
6. As you approach the trap be careful where you tread – a lot of moths will have been attracted to the light but will have settled on the ground and in foliage and on structures close to the trap. If you look closely, you will almost certainly find moths in the surrounding area – many of them well camouflaged.

Checking the trap:

7. You may see moths clinging to the exterior of the trap or under the perspex panes. Some moth species – the Hawk moths for example – can appear quite tame and will remain where they are and even allow themselves to be handled while other moths will fly away. Use a variety of different sized plastic tubes to catch the moths – just slide the tube over the moth and then gently feed the lid in beneath it – to give you time to identify them. It's best to try to identify as many as you can by the trap so as to avoid keeping them in containers for too long so be sure to take your identification books with you.
8. Once you've checked the moths on the outside of the trap gently remove (sudden jolts will cause the moths to become startled and fly out from their hiding places) one of the perspex panes and position it over the top of the gap so as to catch any moths that then fly out. Turn each egg box over carefully and examine closely – many moths are masters of disguise, and some might even appear as a bird dropping.
9. If you've been lucky to catch one or more of the larger species or Hawk moths, then they can be encouraged to settle on your hand by gently holding your hand in front of their forefeet and slowly touching them – they will walk forwards onto your hand.

Using the equipment safely

Before you use this equipment think about your risk assessment for the location and for the activities. Please wear PPE provided, particularly the UV goggles which will protect your eyes from the UV bulb.

The following are some suggestions of hazards you might need to consider:

- Ground Surface – are there roots, holes, or kerbs to trip over?
- Weather – are participants appropriately dressed and have suitable protection from wet or hot weather?
- Plants and animals – brambles and stinging nettles can cause discomfort and participants should watch out for low branches.
- Germs – have participants got open cuts which might get muddy, and do they have an opportunity to wash their hands before eating?

- Using equipment – do you and other participants know how to use the equipment safely, is there a chance someone could hurt themselves?
- Appropriate supervision – are all children accompanied by a parent or guardian, and are they being appropriately supervised?
- Lone working – ensure you tell someone when undertaking surveys and they are aware of where you are and when you should return. Make sure you have a fully charged mobile phone and know where you can get signal.
- Group management – how will you ensure that participants don't get lost and are where you want them to be?

- Plan B – do you have an alternative activity or location if there is a problem with your planned activity?

Top tips

- Moths will not come out in heavy rain though they don't mind light, misty rain. The bulbs on the trap are 'actinoid' – they don't produce any heat so as well as not damaging the moths they aren't damaged by water falling on them. The battery, however, should be protected by placing it in the waterproof container provided, if rain is expected.
- Try to avoid using the trap on consecutive nights – if you are trapping the same individuals, it means they are not getting the chance to forage and to meet potential mates.
- Never touch the wings of a moth – they are very delicate and can easily be damaged. Also never try to pick a moth up – use a plastic tube.
- Release your moths in foliage where they can be protected from birds. If you are using the trap over a longer period, it's a good idea to pick different release points as birds soon learn that traps can be a good food source.
- You should also check the trap for spiders as they can quickly become established inside the trap – seeing scattered wings on the floor is a sure sign that there's a spider in residence. If you see one just scoop it out in your hand or in a plastic container and release it in some foliage.
- The battery will switch off once it has used 90% of the charge, this is to prevent damage to the battery and bulb.

Protected species

Only a few moth species have specific legal protection in the UK under the Wildlife and Countryside Act 1981. It is an offence to intentionally kill, injure or take, possess, or trade in the following moth species:

- Barberry Carpet *Pareulype berberata (pictured left)*
- Black-veined Moth *Siona lineata (pictured top of page)*
- Essex Emerald *Thetidia smaragdaria*
- Fiery Clearwing *Pyropteron chrysidiformis*
- Fisher's Estuarine Moth *Gortyna borelii lunata*
- New Forest Burnet *Zygaena viciae argyllensis*

- Reddish Buff *Acosmetia caliginosa*
- Sussex Emerald *Thalera fimbrialis*