MOTH TRAPPING AT THE BUNGALOW

1. Introduction

The United Kingdom has, since the 1950's, recorded and maintained a database of lepidoptera populations in each county. This has proved extremely useful in demonstrating the effect of such things as pollution and climate change on insect populations. This data is submitted by thousands of amateur enthusiasts and painstakingly collated by County Moth Recorders (CMRs) and others onto a National Database accessible to all.

2. The Trap

Most moths fly at night and navigate primarily by the moon. If the moon is not visible, they will use secondary sources, but should they chance upon a bright light (bright to moths that is) they are apt to mistake it for the moon and, by the laws of physics, will zero in on it.

Very early on mercury vapour, otherwise known as MBFU, electric lamps were found to attract night flying moths more than any other light and traps were, and still are, manufactured using 50, 80 and 120watt MBFU lamps. These are still the most effective traps available. Manufacture of the lamps themselves however has been discontinued in Western Europe because of the mercury content though an adequate flow of lamps continues from Eastern Europe. In one respect its effectiveness is a disadvantage in that its brightness is not always appreciated by neighbours – especially in suburban areas where the light cannot be masked by tall hedging for example. Fortunately, alternatives have become available.

Fluorescent lamps operating in the 365-400nm ultraviolet range (including the so-called blacklights that mask off the visible light almost completely) as used in insect killer lamps for food stores, aquaria, disco lighting, etc. make effective lamps for garden traps. Recently, LED lamps have also become available purportedly in the same wavelengths though technical data is so far rather vague.

The trap itself comprises a mount for the lamp, a box for the moths and a means of diverting them into the box. Talking fluorescent or LED traps, the moths will usually collide with the lamp and fall so all that is needed is a funnel (Heath type) or a slot with sloping sides (Skinner type).

Egg boxes are placed in the bottom of the trap's box to give the moths somewhere to hide away from the light and settle ready to be picked up and identified in the morning. This is the theory anyway. In practice, up to 85% of moths within range of a trap never reach it. Some are repelled when they get too close and some settle in shaded areas close by. So, it is always necessary to scan the area when approaching the trap.

3. Identifying The Moths

There are roughly 800 species of macromoths resident in the UK, some of which can only be separated to species by dissection. There are many migrants that may or may not become resident as the climate changes. There are also some 1600 resident micromoths plus many more that may decide on a whim to cross the Channel or pick up an easterly from Europe. Many moths have common variants, and it is not unusual to find three variants of say, Lunar Underwing out of a dozen in a single night. When it comes to identification, there are several good guidebooks and some useful 'phone apps. Sites on Facebook etc. are the real go to for expert advice. In the end it is the County Moth Recorder that must accept your record for it to be of any value, so a good photo is invaluable.

When naming moth species, it is generally acceptable, in the UK context, to use common names for most macromoths. Where dissection would be required to separate out an aggregate group in a genus, the generic, i.e. the first of the two binomial names, is required. For all micromoths and others, the binomial name is used. This is the convention used for the photographs in these surveys.

4. Recording

It is of course vital that what is recorded on the National Database accords exactly with what is found in the trap. To formalise the submission, most County Moth Recorders will issue a pro forma spreadsheet or fill-in table for photocopying and request photographs of examples of species for verification. For the first two years the author considered it prudent to submit a minimum of one photograph of each species caught for each trapping session. The number of moths and species for each trapping session would then be entered on the spreadsheet. It was agreed at the beginning of 2024 that photographs of moths would be submitted to the CMR in future if they were of particular interest. Photographs would of course be requested by the CMR if there was any query.

5. Location

As well as being cool for cats, Shamley Green is marvellous for moths. Its main advantage is its lack of streetlights and other high intensity illumination. The surrounding countryside is not intensively farmed and there is plenty of rough grassland and woodland with mature trees. There are still some nice big hedges between village gardens though the ubiquitous 6' wooden fence panel is unfortunately making steady inroads.

Most moths, at least the males, can fly a few kilometres in a night, so trapping in a village garden should provide, over a few years, a representative sample of the moth population in Shamley Green.

6. Trapping Years

Moth trapping was started at The Bungalow in early 2022. Still, high humidity nights with little or no rain and a minimum temperature well above 6°C is ideal. If the moon is much more than a crescent, then cloud cover is preferred. A summary of the sessions is given below:

2022

The moth trap was home built and not completed until the spring, so trapping did not commence until April. It comprises a box with funnel and compact 13W fluorescent lamp emitting UVa light at 368nm.

2023

The same trap was used but with an improved lamp mount and a 20W 'Black Light'. This emits UVa light in the same wavelength as the previous lamp but emits very little visible light.

7. Formatting of Results

Results are presented in two forms:

a) Spreadsheet which lists the species and the dates caught. 2022 the total number of each species is just given as 1, as priority was given to identification of species. For subsequent years the number of each species is listed.

b) Photographs of individuals of each species caught for each night. There may be some omissions where the moth was identified but was unwilling to co-operate in the photography session. Photo quality varies considerably according to conditions.

8. Bycatch

The UV light sources used in moth traps were originally developed for use in pesticide control devices in grain and food store warehouses, supermarkets, butchers' shops etc. it is not surprising therefore that these lamps also attract other flying insects, and for that matter their predators. At certain times the trap will become host to varieties of flies, beetles, lacewings, caddis flies, wasps (both social and parasitic) and bugs (hemiptera and heteroptera). All this activity of course is bound to attract the odd predatory spider and harvestman.

Photographs of some of these intruders have been included in the lists of moth photographs for each year and a separate 'Schedule of Bycatch Species' in date order is attached.

9. Summary of Findings to Date

Representatives of some 160 odd species of moth were identified in 2022. This total was down somewhat in 2023 to 150 species with 70 plus new species caught that year. The total number of individual species identified to date comes to about 235. The numbers in 2023 were down despite the longer trapping season. This was probably due to the abysmal weather in the early part of the summer.

The moths identified are generally inhabitants of meadows, grasslands, hedgerows, gardens and mature broadleaf woodlands. They are a mix of those that colonised after the last ice age and later immigrants right up to recently introduced pests such as the shimmering dark variant of the Box-tree Moth (caught 15/9/23). Form and colour vary widely; see the brightly coloured micros like Cydia amplana (caught 17/8/23), the chunky Lime Hawk Moth (found in the garden 11/4/22) and the diaphanous Swallow-tailed moth that flies on tissue paper wings.

Autumn captures have contained a smattering of vagrants such as the Gypsy Moth (caught 1/9/23) and the Vestal (caught 26/9/23).

Many common species have not appeared in the trap yet so plenty of new ones are expected in the coming years.

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