

## INSECT EXPLORERS' SERIES: LIGHT TRAP

Insect's *fatal attraction* to the light source has been a well known fact for centuries and entomologists have been exploiting this possibility to study the night fliers. The light trap method is the most efficient and simple method to study the nocturnal insects such as moths, crickets, beetles and other insects too.

Generally speaking, a little is known about the groups that are attracted by light but some careful collecting at light for a few years would soon furnish the data necessary to list the light-loving species.

Research has shown, different colours and intensities of light attract specific group of insects. The intense white light of tubelights and other big lamps would attract hordes of different kinds of insects, but it will especially attract moths. The yellow light may attract fewer insects because of its less range but this is by no means certain. Ultra-violet light attracts mainly beetles. Whether coloured lights exert the same influence, and which colours are would best, appears to be promising line of research.

It is strongly assumed that insects that are attracted to light are insects that are active after daylight. Only flying insects are known to be attracted, but with few exceptions ground dwelling insects have also visited the light traps. So far light traps have been attracting number of moth species, beetles such as dung rollers, long horn beetles and click beetles, bugs, flies, crickets, grasshoppers, praying mantises, cockroaches, winged termites, though all wasps and ants are day-flying still a number of them are attracted to the light and even butterflies ! From the above one could judge how diverse are the insects that are attracted and what a curious selection of the nocturnal insects it is; whether there is a real physiological explanation or just whether some are just more curious than others. All these facts need further investigation.

As mentioned light trap is a simple method and to study the nocturnal insects we are harnessing on the affinity of light to insects. Monsoon and post monsoon is the best time to put up the light traps as the insect activity drops later on. Put up the light trap on an open area avoid sheltered areas. Ensure that the power supply connection is nearby if it is been set up near your house and in case of a real wild place, you would certainly then need a car battery or power generator. Your trap will start attracting the insects from 7.00 p.m. onwards, initially smaller insects will grace the show and as time passes the big bosses such as big moths, beetles and praying mantises will make their entry. Usually after 10.00 p.m. the number of insects in terms of species and their numbers begin to increase. Ideally they keep on coming to the trap till early mornings i.e. till 2.00 a.m. and then the numbers cease.

The light trap method is also a good way of photographing insects as they sit 'hypnotized' by the light effect, it gives you ample time to photograph the subject. Once insects start coming to the light trap, allow them to settle and then start observing them and taking down relevant notes and collect them if needed. In all possibilities your subjects would not leave the show and go, so you have enough time for studying them. They would leave the screen only when the lights are put off. So they may come with their own will but finally they will go, only when you want them to leave.

**Learning Objectives:** After this activity students will learn

- To identify nocturnal insects specially moths and beetles
- About the challenges of study nocturnal insects
- About the operation of light trap and its impact on insects

**Group size:** Unlimited

**Duration:** Light traps to be set up before sunset on the first day and to be operated throughout the night and should be switched off before sunrise next day. Or put off before the group goes to sleep which should not be earlier than 12.00 a.m.

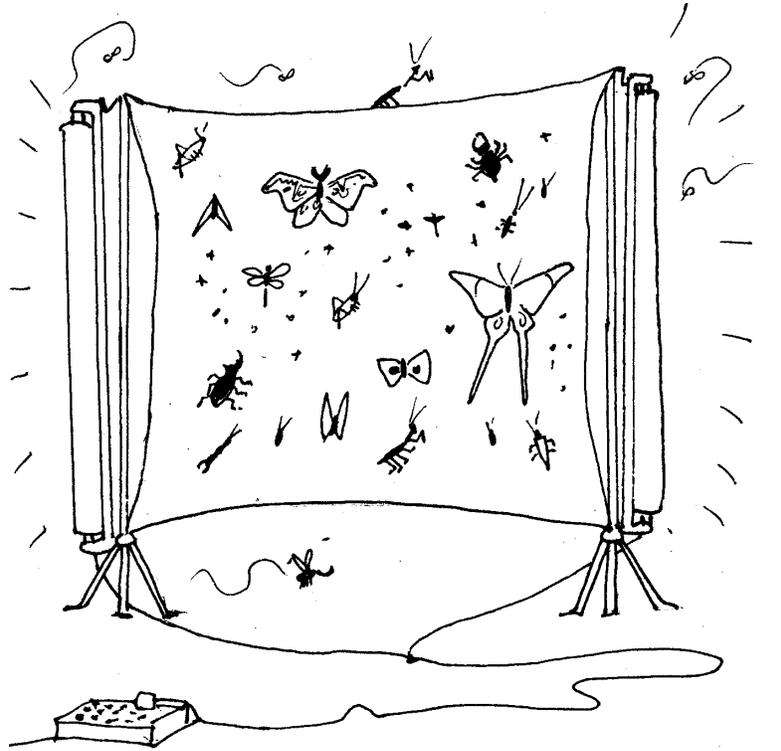
**Requirement:** A white sheet 3 x 4 m, Mercury lamp 225 watts with hood and connected to a electricity supply point, Insect Data Sheet, Insect Field Guide.

**Method:**

1. Identify a forested area which is partly open as well as surrounded by trees and closest to the electricity supply point.
2. Identify two trees that are close enough to stretch the white cloth as a screen. Tie four ends of the cloth to the trees.
3. Hang the mercury lamp with a support over the center of the screen. The light should face the direction which is convenient for observation.
4. The trap should be monitored for every 30 minutes and students should avoid cluttering around the trap as that will disturb the insects and also do not block the screen as approaching insects will not find suitable place to settle.
5. Record the data in the data sheet and use an insect field guide to identify the insects.

**Tip:** On new moon nights large number of insects attract to the light. This activity could be combined with baiting activity

**Precaution:** No insect specimens should be collected until unless is required for an important purpose. Light traps should not remain active till the sun rise. This will disorient the insects on the trap and will be sitting ducks for predators.



# INSECT EXPLORER'S DATA SHEET

Name of Student Group : \_\_\_\_\_ Location : \_\_\_\_\_

Set up time and date: \_\_\_\_\_ Put off time and date: \_\_\_\_\_ Moon Phase: \_\_\_\_\_

Name of Insect Group	Insect Name	Number	Time

**Data Summary:**

Number of Insect Groups at the light trap	
Total Number of individuals	
Which insect group was abundantly represented?	
Which insect group was moderately represented	
Which insect group was least represented?	

**Conclusion:**

1. Why you think a particular insect was abundant, moderate, less? Give your own justification  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Did you notice any peculiar behaviour among the insects?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. What did you learn from this exercise?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

