Malaise trap

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A **Malaise trap** is a large, tent-like structure used for trapping flying insects, particularly Hymenoptera and Diptera. The trap is made of a material such as terylene netting and can be various colours. Insects fly into the tent wall and are funnelled into a collecting vessel attached to highest point. It was invented by René Malaise in 1934.[1]

A malaise trap

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Structure

There are many versions of the Malaise trap, but the basic structure consists of a tent with a large opening at the bottom for insects to fly into and a tall central wall that directs the flying insects upwards to a cylinder containing a killing agent.[2] The chemicals vary according to purpose and access. Conventionally, cyanide was used inside the jar with an absorbent material.[3] However, due to restrictions, many people use ethanol. Ethanol will damage some flying insects like Lepidopterans, but most people use the malaise trap primarily for Hymenopterans and Dipterans. In addition, the ethanol will keep the specimens preserved for a longer period of time. Other dry killing agents include no-pest strips (vapona) and ethyl acetate and need to be checked more regularly.[2]

Design details

Cylinder

When choosing a Malaise trap design, it is important to consider the types of insects you want to catch. The opening to the cylinder is of key importance. Typically, the opening is around 12–15 mm (0.47–0.59 in), and can vary according to the size of insect you are trying to catch. If using a dry agent, a smaller hole will result in a faster death, limiting the amount of damage a newly caught insect will inflict on older, fragile specimens. In ethanol, this is less of a concern. Larger holes also allow in more butterflies, moths, and dragonflies potentially.[3]

Setting up a malaise trap in Udzungwa Mountains National Park.

Location

Placement of the trap is very important. The trap should be positioned to maximize the number of flying insects that pass through the opening. This is determined by the natural features of the site. One should evaluate topography, vegetation, wind, and water. For example, if there is a wide corridor in a forest such as a trail, the trap should be oriented with its opening to the corridor. Also, places where vegetation is growing high around the opening will limit the number of flying insects that enter the trap. Other ideal places may be above small streams or on edges of forests.[3]

A well placed trap in ideal seasonal conditions can catch over 1,000 insects a day. Even in less ideal conditions, like rain, the trap is still effective.[3]

Other uses

The Malaise trap can also function as a light trap. If a lamp is placed at the end opposite of the opening, the light will attract insects into the trap. For those who want to know what insects they are catching in the day versus the night, the specimens should be collected and removed at dawn and dusk. For others, specimens should be removed from the trap at least once a week if using ethanol, or more often if using a dry killing agent.[3]

The design of the trap catches insects that naturally fly upwards when they hit a barrier. However, some insects drop when met with a barrier. An addition of a pan with ethanol at the bottom of the main wall will catch specimens like beetles that fall before reaching the top.[2] A trap without the netting on top but with just a preservative-filled basin under the barrier is commonly named a Flight Interception Trap or FIT.

Notes

1. Malaise, Rene. 1937. "A new insect-trap." *Entomologisk Tidskrift.* Stockholm. **58**: 148—160, figs.
2. Mississippi Entomological Museum. 2006. Malaise Traps (http://mississippientomologicalmuseum.org.msstate.edu/collecting.preparation.methods/Malaise.traps.htm). Mississippi State University.
3. Gressitt *et al.* (1962)

References

- Gressitt, J. L. (1962). "An Improved Malaise Trap". *Pacific Insects*. **4** (1): 87–90.