



THE SIX-METER MALAISE TRAP OF GRESSITT & GRESSITT

Models 3012 with dry collection heads and Model 3112 with alcohol heads

Instructions

Operational Details

The following comments are offered to help you make efficient use of your trap. A list of references from the literature is provided for this particular type of Malaise trap and others as well.

Set Up. Usually, these traps are suspended between trees with the roof held open by ropes tied to the vegetation and the bottom secured with stakes. The ends of the ridge rope should be tied high enough so that the collecting chambers are about 10 feet above the ground. The collecting chambers can be moved along the ridge rope when the rope is not supporting the weight of the trap. Proper positioning of the heads insures an unobstructed pathway to the entrance of the collecting chambers. They should not be so far apart that when the ridge rope is supporting the trap, undue tension is placed on the mosquito-net material. The roof can be spread at each end using lengths (approximately 80 inches in length) of small-diameter PVC tubing that have small holes drilled at each end.

An A-frame support system was devised by Professor T. J. Walker at the University of Florida. At each end of the trap, two 10-foot long pieces of 3/4 inch lightweight "electrical metallic tubing" (EMT) are joined together with an eye-bolt which holds the ridge rope. The legs of this A-frame are then pinned with nails into 1-inch holes drilled into the ends of a 4-foot-long piece of 2 x 4" lumber. This wood base is secured with a pipe driven into the ground at each end of the trap. Set up in this manner, the trap will maintain a functional shape in winds up to 25 mph.

Dry Collecting Chambers. The catch will eventually die within the dry heads from exhaustion or heat as the bottle acts as a greenhouse. However, when allowing the catch to die slowly, delicate specimens tend to be dismembered by the death throws of larger insects and everything is covered with Lepidoptera scales. For these reasons, some kind of killing agent secured within the bottle is recommended. Perhaps the 4 most common are:

1. A plastic strip or tape containing DDVP, e.g., Hercon VaporTape, available from Great Lakes IPM (517) 268-5693. Paper strips in the container are useful to keep things dry.
2. 10-15 g KNC encapsulated within plaster of Paris. (NaCN is better in humid areas). ***Please remember, cyanide is very dangerous and more than one entomologist has been killed in accidents while using it.*** Paper strips in the container are useful to keep things dry.
3. Either 95% ethyl or isopropyl alcohol.
4. Fill the jar with paper strips and add a small vial of a fumigating insecticide such as ethyl acetate dispensed with a wick inserted through a hole in the vial lid.

Each has advantages and disadvantages and there are other agents. If you are not sure what to use, try a DDVP product. See also Southwood's discussion (1966, *see references below*). Removing the catch is done by lowering the trap and removing the rear cap of each collection head.

Alcohol Collecting Chambers. Most people use isopropyl alcohol. The catch is removed by unscrewing the bottles hanging under the angled collection heads.

Trapping Locations. Where the trap is placed is not determined solely by what you intend to catch. Give consideration to natural flyways, e.g. along the edges of fields and roads within woods. If applicable, place the trap perpendicular to the direction of flight, e.g. butterfly migration or the diurnal movement of mosquitoes to and from a wooded area (particularly see Gressitt & Gressitt 1962). Remember, the trap will catch good numbers anywhere but moving it every few days will reveal better places than others for a particular genus or species. Malaise (1937) gives some pertinent pointers on trap placement. One additional point may be useful- a trap set up in a shaded area will collect more if one or both collecting chambers are placed in the sunlight or toward the light portion of the skyline. For considerations concerning baiting the trap, e.g. CO₂ for biting flies, see the references.

Useful References

- Breeland, S.G. and E. Pickard. 1965. The malaise trap-- An efficient and unbiased mosquito collecting device. *Mosquito News* 25(1): 19-21.
- Butler, G.D., Jr. 1965. A modified malaise trap. *Pan-Pacific Entomologist* 41(1): 51-53.
- Chanter, D.O. 1965. The malaise trap. *Entomological Research* 77: 224-226.
- Evans, F.C. and D.F. Owen. 1965. Measuring insect flight activity with a malaise trap. *Proceeding of the Michigan Academy of Science* 50: 89-94.
- Geijskes, D.C. 1968. Insect collecting in Suriname with the help of malaise traps: Studies on the fauna of Suriname and other Guyanos, No. 39. *Natuurwetensch. Studierkring Suriname Ned Antillen* 48: 101-109.
- Gressitt, J.L. and M.K. Gressitt. 1962. An improved malaise trap. *Pacific Insects* 4(1): 87-90.
- Gunstream, S.E. and R.M. Chew. 1967. A comparison of mosquito collection by malaise and miniature light traps. *Journal of Medical Entomology* 4(4): 495-496.
- Malaise, R. 1937. A new insect trap. *Entomologisk Tidskrift* 58: 148-160.
- Marston, N. 1965. Recent modifications in the design of malaise traps with a summary of the insects represented in the collections. *Journal of Kansas Entomological Society* 38(2): 154-162.
- Mathews, R.W. and J.R. Mathews. 1970. Malaise trap studies of flying insects in a New York mesic forest. I. Ordinal composition and seasonal abundance. *Journal of New York Entomological Society* 78(1): 52-59.
- Mathews, R.W. and J.R. Mathews. 1971. The malaise trap: Its utility and potential for sampling insect populations. *Michigan Entomologist* 4(4): 117-122.
- Smith, G.E., S.G. Breeland, and E. Packard. 1965. The malaise trap- a survey tool in medical entomology. *Mosquito News* 25: 393-400.
- Southwood, T.R.E. 1966. **Ecological Methods- With Particular Reference to Insect Populations.** Methuen and Co., Ltd. pp. 202-203.
- Townes, H. 1962. Design for a malaise trap. *Proceeding of the Entomological Society Washington* 64(4): 253-262.
- Townes, H. 1972. A light-weight malaise trap. *Entomological News* 83: 239-247.
- Walker, T.J. 1978. Migration and re-migration of butterflies through north peninsular Florida: Quantification with malaise traps. *Lepidop. Soc.* 32: 178-190.
- Yano, K., T. Miura, K. Nohara, T. Wongsiri, P.W. Resma, and L.H.Y. Lee. 1975. Preliminary evaluation on the use of a modified malaise trap in paddy fields. *Mushi* 48(11): 125-144.