A SIMPLE METHOD OF ELEVATING ARTIFICIAL LIGHT SOURCES TO ATTRACT INSECTS
G.A. Wood¹ and J. Hasenpusch²

Abstract
A method of increasing the yield of insects attracted to artificial light, by increasing the illuminated area, is described. Examples of the failure of artificial light to indicate insect numbers also are given.

Introduction
The authors' interest in insects has prompted efforts to increase the efficiency of collecting methods. Attempts were made to gauge the efficiency of light as an insect attractant. The assumption was made that the yield of insects attracted to artificial light would increase by increasing the area illuminated. This has been achieved by elevating the light source. The method outlined has proven particularly useful in rainforest where the collector is often faced with a wall of forest on either side of a narrow, winding road. Running a light at ground level will illuminate a relatively small area compared to that illuminated at elevation.

Method
The method evolved by the authors is the placing of the light source and sheet as high as possible above the ground. In rainforest this can be achieved by hanging the light and sheet from the branch of an emergent tree. After site selection, a sinker attached to fishing line is fired over the branch with a slingshot. This line is then used to position the anchor line and finally the light and sheet. For stability a triangular sheet of open weave terylene is used. This is suspended from its apex and is held open by a piece of light dowel attached to its base. The light is placed in a sleeve sewn into the centre of the sheet. The light source favoured by the authors is the blacklight tube, which is light-weight, easily sealed against moisture and being a cool tube does not need to be protected from rain. The starter is enclosed at the head of the tube and lightweight cable connects it to the power source.

This canopy light is used in conjunction with lights run at ground level, which attract insects unable to land above. Trials using ground level lights, with and without elevated lights, have indicated the value of elevated lights.

The failure of many common species to come to lights is shown by the following observations.

Lights were set up at the base of Erythrina vesperillio Benth. (Fabaceae) trees infested with large numbers of the beetle Anoplognathus parvulus Waterh. (Scarabaeidae) and attracted 37 specimens within a thirty minute period. Upon shaking the nearest tree, in which large numbers were visible, 4500 ± 50 came to the light immediately.

¹ PO Box 122, Atherton, QN, 4883 ² PO Box 26, Innisfail, QN, 4860
Lights similarly set up in a Carica papaya L. (Caricaceae) orchard, and run for one hour, attracted three fruit-sucking moths (Family Noctuidae) while the visible fruit was covered in five species totalling hundreds of individuals.

The authors’ studies of beetles of the Family Lucanidae have shown them to be very poorly attracted to light. If the abundance of Rhysonotus nebulosus Kirby, Aegus subbasalis Lea and Phalacrognathus muelleri (Macl.) were to be judged on how often they come to light, they would be considered rare species. P. muelleri is variously described as very rare to extremely rare (CSIRO, 1970; Hawkeswood, 1987). Numbers of all three species can be readily located by dissecting rotted logs within virtually any rainforest within their North Queensland distribution. At Mount Lewis where lights were run for over 120 hours during late January 1988, only a single specimen came to light. The dissection of logs within the illuminated area yielded 60 R. nebulosus and 11 P. muelleri, as well as 84 larvae of the latter. P. muelleri often lands some distance from the light source and does not proceed closer. In other instances lucanids have been observed to fly straight past lights without deviating in their flight.

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References