Journal of the Lepidopterists' Society
39(1), 1985, 53

AMPHION NESSUS (SPHINGIDAE) ATTRACTED TO PHEROMONES OF *ANISOTA VIRGINIENSIS* (SATURNIIDAE)

On the afternoon of 9 June 1983 in Groton, Middlesex County, Massachusetts, at approximately 1500 h, I noticed a male *Amphion nessus* (Cramer) hovering about an emergence cage containing pupae of several species of moths. It was a bright early summer day with temperature, humidity and wind conditions within normal ranges. Shortly, there were as many as four *A. nessus* males in the vicinity of the cage. The moths were searching the cage and adjacent shrubbery as though they were attempting to locate a "calling" female.

The only moth in the cage was a female *Anisota virginiensis virginiensis* (Drury), whose scent organ was extended. Vegetation in the vicinity of the cage consisted of two evergreen shrubs and lawn. There was little possibility of a wild *A. nessus* female being in the area. Furthermore, it was obvious from the attention the cage was getting from the males that the *A. nessus* were attracted by pheromones coming from the cage itself.

Three *A. nessus* males were captured easily at the cage. The *anisota* female was left in the cage for a second day and again *A. nessus* came to investigate. On the basis of visual observation, these moths were also males.

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Journal of the Lepidopterists' Society
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A SIMPLE METHOD FOR MEASURING NECTAR EXTRACTION RATES IN BUTTERFLIES

The rate at which nectarivorous animals extract nectar from flowers is one of the major parameters determining the instantaneous rate of energy intake, a quantity which is presumed to be maximized by natural selection (Pyke, Pulliam & Charnov, 1977, Quart. Rev. Biol. 52:137–154). The rate of energy intake equals the rate of nectar extraction (μl/second) multiplied by the energy content of the nectar (Joules/μl). The rate of nectar extraction has been included in theoretical models of feeding energetics in butterflies (Kingsolver & Daniel, 1979, J. Theor. Biol. 76:167–179) and nectarivorous animals in general (Heyneman, Oecologia, 60:198–213). Although this rate has been measured in hummingbirds and incorporated into models of feeding energetics (Hainsworth, 1973, Comp. Biochem. Physiol. 46:65–78), it has apparently never been measured in butterflies (Kingsolver & Daniel, 1979). Here I present a simple technique for measuring extraction rate in butterflies which may be applicable to other nectar feeders as well.

Nectar of a known concentration is loaded into a calibrated microcapillary tube (Drummond Microcaps) which is mounted on a small balsa platform with a millimeter scale alongside the capillary tube. The platform also includes a perch for the feeding butterfly to grasp (Fig. 1). The platform is displaced at a slight angle from horizontal to cause the nectar column to move downward as it is removed. As many butterflies maintain a body temperature somewhat above ambient (Rawlins, 1980, Ecology 61:345–357), and since extraction rate in poikilotherms is most likely temperature dependent, I placed both the butterflies and the apparatus within a styrofoam chamber maintained at about 28°C with a heat lamp.