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DAYLIGHT COLLECTING OF *CATOCALA* (LEPIDOPTERA: NOCTUIDAE)

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"Sugaring" and attraction to artificial light have long been favorite methods of collecting adults of the genus *Catocala*, and both have been very successful. Each of the many collectors who uses the English method of applying bait to the trunks of trees has his own preferred mixture. Usually molasses is the base, and fragrance is the measure. Feed molasses is widely used in this country, augmented by various combinations of beer, rum, aromatic oils and decaying fruits. Temperature, humidity, wind and amount of moonlight are all well-known factors affecting the success of "bait," whether applied according to the old method or used in the modern variant of bait-traps. The advent of ultra-violet and mercury-vapor light has been a boon to students of this genus. According to the present low level of evidence, certain species would seem to have a preference for either bait or light. Experienced lepidopterists insist that some species are not attracted to one or the other, but the phenomenon has not at all been carefully studied.

A much older method of collecting the genus is unfortunately seldom used except by those specialists who know its efficacy. Collecting nocturnal moths by daylight has always been a favored method in Great Britain, and most British lepidopterists recall that their first record of the rare *Catocala fraxini* (L.) was taken by daytime searching of trees in the mid-eighteenth century. More recent (1968-70) experiences testify to the current productivity of the method in various areas of the United States. A few examples will illustrate the *modus operandi*.

On 16-18 August, 1968, M. C. Nielsen, Bill Taft, Jr. and the author visited an oak-hickory woodlot in St. Joseph County, Michigan, to establish basic county records. Specimens of *Catocala* were taken at bait and UV light, but daylight collecting was more productive than either. Twelve species were taken by rapping tree trunks with wooden clubs or net handles. One collector struck the tree sharply, while the other two stood at a short distance, observing where the moths flew and then capturing them. Specimens were frequent, most of them on shagbark hickory, and a good percentage was taken with net and bottle. A few specimens were captured by close examination of tree bark, but the method of striking trunks was found to be more productive.

The same area was visited on 21-23 August, 1970 by Nielsen, Taft and Glen Belyea. This time, the oak-hickory woodlot yielded 14 species by daytime "tapping" of trees. Nielsen noted (personal communication) that "Shagbark Hickory produced the largest number. . . . It seems that the loose, overlapping bark is ideal for many species in hiding from their predators. Also, those other trees with either poison ivy or Virginia creeper vines climbing their trunks were also fairly productive—again it appears that the vine cover hides the moth from light. Most trees [from which moths were flushed] . . . were at least averaging 12 inches in diameter at breast height; smaller trees were not productive, except that some moths would temporarily land on them when flushed. The height above ground and side of tree, while not too conclusive, did indicate more on south exposures at about 4 to 8 feet high on the trunk."

The method of tapping trees was used again by Nielsen, Taft and Belyea on the afternoon of 30 August, 1970. The locality was the Rose Lake Wildlife Experiment Station, Clinton County, Michigan. In a strong SW wind, a threat of storm, and 90° temperature, approximately 50 specimens representing 12 species were taken, again in an oak-hickory association. Nielsen observed *C. palaeogama* Gn. flying about without being flushed; *cara* Gn. has often been observed in this behavior. It is notable that in all three cases, *C. judith* Stkr. was taken. This species has been considered extremely rare in Michigan, as it does not readily come to light or bait. An unusual recent exception is the case of Nielsen and the author, who took two specimens of *judith* at blacklight within a half-hour of each other, in an oak-hickory association at Burke Lake, Clinton County, Michigan, on 20 August, 1966.

The most remarkable recent account of daytime collecting of *Catocala* to come to my attention is that of the noted Mississippi lepidopterist Bryant Mather. He writes (personal communications) that on 3 and 5 July, 1970, he collected 124 specimens (15 species) of *Catocala* during the day in the center of downtown Jackson, Mississippi.

The locality was around the Governor's Mansion and Smith Park, an area occupying several blocks in the heart of this city of over 150,000 inhabitants. Mather first noted about 20 specimens of *Catocala* in a department store doorway across the street from the Governor's Mansion (9:15 AM, 3 July). He walked along the streets bordering the mansion and park, and took other specimens in store windows. Here and in Smith Park he captured 62 specimens on 3 July.

On the afternoon of 5 July he examined the same area and took over 60 more specimens of *Catocala*. Mather reports that "... generally on tree trunks I'd see one or more, select the one I'd try to catch, clamp the net over it and watch two to ten others fly. Since they seemed to fly in random directions it appeared reasonable to make several circuits. I did, and did find some back on trees previously jarred." Incredibly enough, considering the locality, he took three state records (*angusi* Grote, *obscura* Stkr., and *sappho* Stkr.), plus two species of which only one specimen each had been taken in Mississippi (*ulalume* Stkr. and *dejecta* Stkr.).

These accounts indicate the productivity of daytime collecting of *Catocala* by searching trees and other surfaces, and striking tree trunks. This is hardly news to those investigators who have been using such methods for years, but daytime collecting of the genus needs wider publicity. Undoubtedly the methods of bait, light and daytime collecting should be used together to gain further knowledge of the *Catocala*, but the experiences of daytime collecting indicate that it is one of the most desirable of methods, resulting in the observation of a large number of species, some of which cannot easily be studied in other ways.