NOTE

Ovipositional Habits of *Odontopus calceatus* (Coleoptera: Curculionidae) on Yellow-Poplar[1, 2]

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Odontopus calceatus (Say) occurs throughout most of the eastern United States. It attacks yellow-poplar (*Liriodendron tulipifera* L.), sassafras (*Sassafras albidum* (Nutt)), and magnolias (*Magnolia grandiflora* L. and *M. virginiana* L.). Adults feed mainly on the undersurface of leaves and larvae mine between leaf surfaces. During the 1960's, several outbreaks occurred on yellow-poplar in the Appalachian Mountains and Ohio River Valley (Burns, D. P. and L. P. Gibson. 1968. Can. Entomol. 100: 421-429; Burns, D. P. 1970. U. S. Dept. Agric. For. Serv. Pap. NE-159; Burns, D. P. 1971. U. S. Dept. Agric. For. Serv. Pest Leafl. 125). Since about 1985, localized infestations of *O. calceatus* have been observed on yellow-poplar in Lee and Macon counties in eastern Alabama. The most notable infestations have been associated with shade trees and young yellow-poplars transplanted along parkways, drives, and streets. In some cases, damage to foliage has been severe and the aesthetic contribution of these ornamental trees has been greatly reduced.

Odontopus calceatus is univoltive and overwinters in the adult stage (Burns and Gibson 1968). In spring, adults become active, feed, mate and oviposit, thus beginning the new generation. The following is a report of observations made in 1989 on the ovipositional habits of *O. calceatus* on yellow-poplar shade and landscape trees at Auburn, Lee County, Alabama.

Observations involved 32 trees and began in spring at start of leaf development. Host trees and foliage were inspected daily or every other day for adult emergence, mating, and oviposition. When oviposition was observed, site of oviposition and behavior of ovipositing females were noted. Leaves showing evidence of oviposition were collected at random and the location and number of eggs per leaf were determined. Ovipositional sites were examined further for clues and symptoms characteristic of oviposition of *O. calceatus*.

In 1989, new foliage of yellow-poplar shade and ornamental trees at Auburn, Lee County, AL began to appear about 1 March; activity of overwintering adults was first detected 14 March; signs of adult feeding first appeared on stipules and developing leaves 17 March; mating was first observed 24 March; and first eggs of the season were found 26 March, at which time the oldest leaves were about one-half full size.

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Females oviposited in a section of the midrib on the undersurface as reported by Burns and Gibson (1968). Location of these ovipositional sections or sites was in the basal three-fourths of the midrib, and the number of ovipositional sites per midrib was usually one. Of 100 infested leaves examined in this study, the midrib of only one contained two separate groups of eggs. At the start of oviposition, the female positioned herself on the crown of the midrib on the underneath surface with her head toward the base of the leaf. She punctured the midrib with the snout, withdrew the snout, reversed her position to face the leaf apex, and deposited eggs into the puncture. The process was then repeated, with progression toward the leaf apex. This behavior did not vary among the different ovipositing females observed (n = 10).

Oviposition killed midrib tissue. Chlorosis was often visible around egg punctures in 2-3 hours. By the day following, the damaged section of midrib had turned brown and the oviposition site was easy to detect. Length of the midrib section destroyed varied, but was usually about 6 or 7 mm; Burns and Gibson (1968) reported ¼ inch. Close examination of ovipositional sites revealed egg punctures spaced evenly and contiguously along the midrib (Fig. 1A); in some instances, the midrib had been partially severed before oviposition began. The number of egg punctures per ovipositional site ranged from one to ten, with four punctures being the most common (Fig. 2A). The number of eggs per puncture ranged from zero to three, but most punctures (66%) contained two eggs (Fig. 2B). When two or three eggs were present in a puncture, the eggs were stacked one atop the other (Fig. 1B). Eggs were oblong-oval, 0.6 - 0.7 mm long, and yellowish to cream colored. They were deposited end-to-end in a row with the long axis of the eggs parallel to the long axis of the midrib (Fig. 1B). Most ovipositional sites (66%) contained five to nine eggs (Fig. 2C). The maximum number of eggs found in any leaf was 19.

The principal period of oviposition was late March through April. Thereafter, oviposition diminished noticeably, but some egg laying continued into early June; the last record of oviposition for 1989 was 9 June.

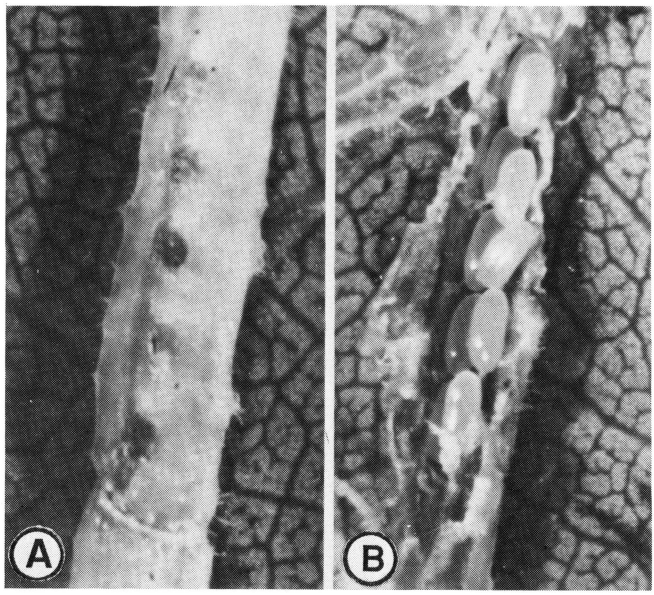

Fig. 1. (A) Ovipositional site showing egg punctures and partially severed midrib. (B) *O. calceatus* eggs.

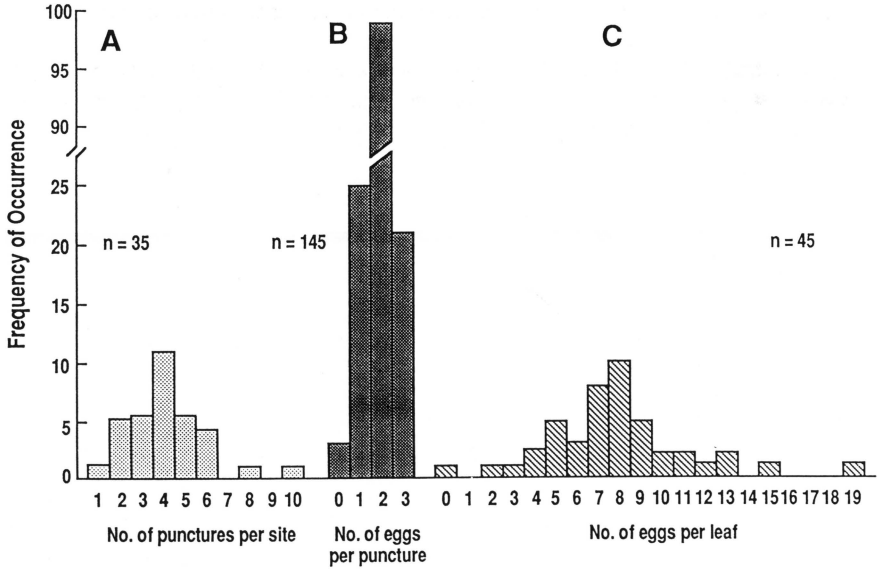

Fig. 2. Ovipositional data for *O. calceatus* on yellow-poplar. Number of: (A) oviposition punctures per egg-laying site; (B) eggs deposited per puncture; (C) eggs per leaf.