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Foster Forbes Purrington
Ohio State University

David J. Horn
Ohio State University

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CLEARWING MOTHS CAPTURED BY ULTRAVIOLET LIGHT TRAPS IN
SOUTHERN OHIO (LEPIDOPTERA: SESIIDAE)Foster Forbes Purrington and David J. Horn¹

ABSTRACT

Trapping with ultraviolet light in mixed-oak forests of Lawrence and Vinton Counties, Ohio in 1995 and 1996 yielded 46 *Synanthedon acerni* and four *Synanthedon arkansasensis*, a clearwing moth record new for the state.

Clearwing moths (Sesiidae) are a well-defined family of ditrysian Microlepidoptera. Adults are diurnally active and typically marked with boldly contrasting white, yellow, orange and/or red maculations on a glossy jet black or dark brown ground color. Larger endemic species in eastern North America, for example those in *Podosesia* and *Vitacea*, are structural mimics of *Polistes* wasps (Hymenoptera); others, like *Paranthrene simulans* (Grote), closely mimic the yellow-black *Vespula* wasp queens morphologically and behaviorally. Smaller clearwing species are more-or-less mimetic of smaller solitary wasps. Larvae bore in living crowns and roots of many herbaceous plants and in various parts of living woody plants.

The nearly uniform diurnal activity patterns of sesiid adults evidently largely preclude nighttime responses to ultraviolet light. Here we report blacklight trap captures of two clearwing moth species in southern Ohio, one of them a new state record, during ongoing research on fire impacts in an oak forest ecosystem.

MATERIALS AND METHODS

In 1995 we established six automatic blacklight trap stations in Vinton Co., Ohio in two sites within the Vinton Furnace Experimental Forest near Dundas. The forest is upland mixed-oak about 60 years old, managed jointly by Mead Paper Co. and the U.S. Forest Service. Concurrently, on two Wayne National Forest mixed-oak sites in Lawrence Co. near Blackfork and Kitts Hill, respectively, we established three automatic blacklight trap stations each. At all 12 stations in both counties the traps were operated automatically by preset timers from dusk to dawn one night weekly during the field season, from May to September in Vinton Co. and to July in Lawrence Co.

In April 1996 an experimental prescribed burning protocol was carried out on two of three test plots at all four sites; blacklight trapping resumed shortly after the fires and ended in October.

Our blacklight traps used 20-liter (5-gallon) plastic pails beneath 30 cm.

¹Department of Entomology, The Ohio State University, 1735 Neil Avenue, Columbus, OH 43210-1220.

long ultraviolet fluorescent lamps powered by 12-volt rechargeable sealed batteries. Insects entering the trap via a funnel were killed by ethyl acetate fumes. Traps were hung with their lamps positioned about 1.5 m above ground, from tree limbs near the crests of ridges.

RESULTS AND DISCUSSION

Since the characterization and synthesis of potent sex attractants for Sesiidae in the 1970s (Tumlinson et al. 1974) the collection rate of distributional data has increased, known geographical range for many species has been expanded and several new species have been discovered with synthetic sex attractants (Nielsen et al. 1975, Duckworth and Eichlin 1977, Eichlin and Taft 1988). A decade ago the reported clearwing moth fauna of Ohio (Purrlington and Metzler 1987) contained about 30 species.

While most clearwings are never responsive to ultraviolet light, the Maple Callus Borer, *Synanthedon acerni* (Clemens), is occasionally taken during dark hours by this method (Engelhardt 1946). We captured 46 adults of both sexes of this species at all sites in both counties in 1995 and 1996 (data analysis for 1996 is 80% complete).

On 3 July 1996 we captured a single female *Synanthedon arkansasensis* Duckworth and Eichlin at Blackfork, Lawrence Co., the first record of this species from Ohio. Subsequently we obtained another female and male at this site in July, and in August a female at the Kitts Hill site in Lawrence Co. Eichlin and Duckworth (1988) reported its range from Kansas, Oklahoma, Missouri, Arkansas, Kentucky and Mississippi, eastward along the Gulf coast to northern Florida and Georgia, and north along the Atlantic coast to New Jersey. They reported many adults were taken at blacklights. The host plant of *S. arkansasensis* and other biological details remain unknown (Eichlin and Duckworth 1988).

[Note added in proof: one adult *s. arkansasensis* was taken 28-vii-95 by Rawlins, Davidson and Young (Carnegie Museum) in West Virginia, Monroe County: Sweet Springs. This is a new record for West Virginia].

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