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SYNANTHEDON BOLTERI (SESIIDAE) IN MICHIGAN

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The clearwing moth, *Synanthedon bolteri* (Hy, Edwards), has a wide-ranging distribution in mostly sub-arctic to arctic areas of North America. This statement is based on scattered records, "... from southern Quebec and Rhode Island west to Colorado and Washington and north to the Northwest Territories and Alaska (Eichlin and Duckworth 1988, p. 86)"

Large numbers of sesiids have been collected since the advent of synthetic sex pheromone use for monitoring clearwing moths (USDA 1979). However, to date, no collectors have reported capturing this species with the use of synthetic sex pheromones, even though these chemicals are commonly used for monitoring clearwing moths across the United States for integrated pest management purposes.

Historically, *S. bolteri* specimens collected in Michigan were rare. Two specimens of *S. bolteri* collected by R.R. Driesbach in southwestern Michigan (Mecosta Co., 31 July, 1941 and Ottawa Co., 17 Aug., 1945) are located in the Michigan State University A. J. Cook Arthropod Research Collection and University of Michigan Museum of Zoology, respectively. In over 30 years of collecting clearwing moths I have encountered only 1 specimen of *S. bolteri* (Figure 1). The male moth was caught on 23 July 1984 in Dickinson County of Michigan's Upper Peninsula in a malaise trap located within a flowering stand of fireweed (*Epilobium angustifolium*). Another clearwing moth, *Albuna pyramidalis* (Walker), was commonly found sitting on fireweed foliage during this same time period.

This situation changed in August 2004, when 30 specimens of *S. bolteri* were collected at two locations over a 5-day period with the use of a Multipher 1® moth trap baited with a grape root borer pheromone

FIGURE 1. *S. bolteri* collected southeast of Ralph on 23 July 1984, Dickinson County, Michigan. (Photo Credit: P. Carrington)

FIGURE 2. *S. bolteri* collection site. Note the numerous willow shrubs interspersed within the sedge meadow habitat found along the Rock River, Mackinac County, Michigan. (Photo Credit: Wm. Taft)

lure made by Suterra. This lure composition is 99% E,Z 2,13 -ODDA and 1% Z,Z 3,13 -ODDA. This lure was chosen to capture *Synanthedon sigmoidea* (Beut.), which is reportedly attracted to this lure formulation (Taft et al. 1991). The trap location was selected due to the occurrence of large stands of pussy willow (*Salix discolor*) and several other *Salix* species (Figure 2). Engelhardt (1946) reported that both of these moth species were associated with low growing *Salix* species that have been injured by coleopteran larvae.

Fourteen specimens of *S. bolteri* were captured over a 3-day period (1-3 August 2004) in a willow thicket along the Rock River at the US-2 stream crossing (T43N, R11W, Section 24) in Newton Township, Mackinac County. Sixteen additional specimens were collected over a 3-day period (3-5 August 2004) approximately 12 miles southeast of Sault Ste. Marie (T46N, R1E, Section 34) in Bruce Township, Chippewa County. The habitat at both collection sites was similar. The cumulative degree-day value (Base 10ºC) using the Baskerville-Emin method (Baskerville and Emin 1969) was calculated with the assistance of staff from the agricultural weather office at Michigan State University (MSU) for Manistique and Barbeau, Michigan. These were the closest Upper Peninsula weather stations to the capture locations. The cumulative degree-day calculated values for Manistique and Barbeau were 394 and 385, respectively. *S. sigmoidea* was later collected in southern Ingham County starting on 26 August 2004, when the cumulative degree-day calculated value (Base 10º C) for East Lansing was 1061. This important pheromone and degree-day information should help collectors target *S. bolteri* and *S. sigmoidea* in the future.

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