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NEW DISTRIBUTION RECORDS OF *SOMATOCHLORA HINEANA*  
(ODONATA: CORDULIIDAE)Wayne P. Steffens<sup>1</sup>

## ABSTRACT

New records for *Somatochlora hineana* in Michigan are reported, extending the known distribution of the species by nearly 200 km to the northeast. Habitats are rich fens with shallow creeks, springs, small pools, and marl deposits.

Prior to 1987, breeding populations of *Somatochlora hineana* Williamson were known only from Ohio, and the species has possibly been extirpated there (Vogt and Cashatt 1994). In 1987, Tim Vogt identified a specimen collected in 1983 at Lockport Prairie Nature Preserve in Cook County Illinois. Also in 1987, William Smith collected a specimen in Door County, Wisconsin that was later identified by Tim Vogt. Subsequent surveys found several localized breeding locations in northeast Illinois and Door County, Wisconsin (Vogt and Cashatt 1994). Single specimens have been collected in Alabama and Indiana (Bick 1983, Montgomery 1953, Vogt and Cashatt 1994), but these have not been associated with breeding populations. In 1995 *S. hineana* was added to the federal endangered species list (Shumate 1995).

The Upper Peninsula of Michigan was surveyed for the species in 1997, and seven new sites were found within 12 kilometers of Horseshoe Bay in eastern Mackinac County. This is a range extension of nearly 200 km from the nearest sites in Door County, Wisconsin, and these are the most northerly sites to date. All individuals were observed between 22 July and 14 August, in or near minerotrophic fens interspersed with conifer swamp. Like most of the other sites, these new sites lie on shallow carbonate bedrock, with small creeks, seeps and springs. Marl deposits are extensive at several sites. Unlike other sites, several of the Michigan sites have high microsite diversity, with acidic hummocks scattered throughout the alkaline fens, and all but one are in the Lake Huron watershed. Six other species of *Somatochlora* were present at some sites, including *S. forcipata* (Scudder), *S. incurvata* Walker, *S. kennedyi* Walker, *S. minor* Calvert, *S. walshii* (Scudder), and *S. williamsoni* Walker. This is in contrast to Wisconsin sites, where *S. minor*, *S. walshii* and *S. williamsoni* are the only congeners associated with *S. hineana*, and only the latter with any frequency (William Smith pers. comm.).

Only 14 verified adults and several probable *S. hineana* adults were collected or observed. Most individuals were observed on clear or partly cloudy days with temperatures of at least 18° C, although one male was observed patrolling on a warm afternoon in intermittent fog. Males were observed on

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afternoon feeding flights along logging roads near potential breeding sites on two occasions, a behavior reported by Vogt and Cashatt (1994) at some Illinois and Wisconsin sites.

Breeding status at these new sites has not been confirmed, as larval surveys were not conducted and no exuviae were found. One adult female was netted as it descended vertically to the water among a clump of sedges in an apparent oviposition attempt, and one probable *S. hineana* female with apparent mud on the terminal abdominal segments was observed by Tim Vogt. Males were observed patrolling and defending territories over shallow (< 2.5 cm.) trickles at 2 sites.

Much of the potential habitat in the Upper Peninsula was extremely dry in 1997, making survey conditions less than optimal. Surveys will continue in both upper and Lower Michigan in 1998, and a more detailed report will be published later.

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