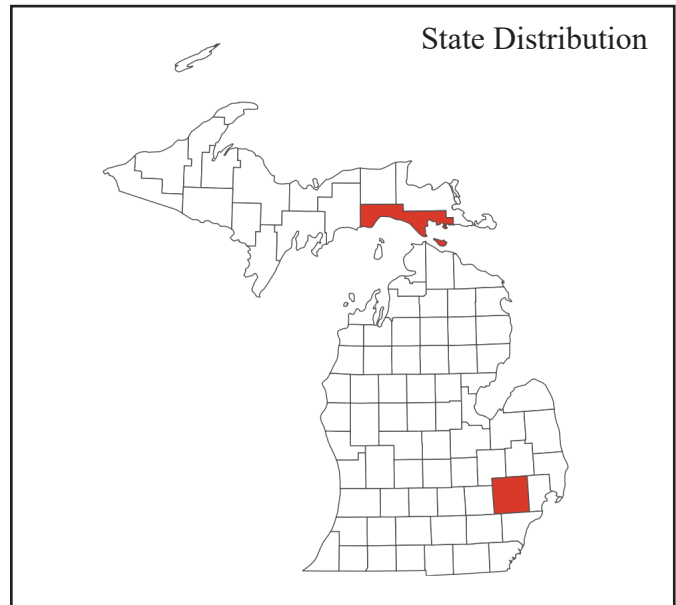
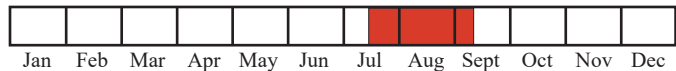




Photo by David Cuthrell



Best Survey Period



**Status:** State Endangered

**Global and State Rank:** GNR (Globally Unranked) / S1 (State Critically Imperiled)

**Synonyms:** None

**Family:** Cicadellidae (typical leafhoppers)

**Range:** This species is known only from Michigan.

**State Distribution:** In Michigan, this leafhopper is currently known from 5 sites in Oakland County and one site in Mackinac County in the Upper Peninsula, associated with the state threatened grass, mat-muhly (*Muhlenbergia richardsonis*).

**Recognition:** The Huron River leafhopper measures 3.7 - 4.5 mm (0.14 - 0.18 inches) in length. The body is ivory white and has a vertex that is strongly produced (Bess and Hamilton 1999). The wings, which have rounded tips and cover at least half of the abdomen, have 2 or 3 black reflexed veins on the outer margin and the thorax is without transverse bands. The body is not pitted, and the eyes are separated more than the width of one eye. The crown is flattened and is not wider than 2 times its length (Bess and Hamilton 1999). The Huron River leafhopper is superficially identical to a few other *Flexamia* species. The adults of these different species can only

be reliably distinguished by their male genitalia. Therefore, the only way to positively identify the Huron River leafhopper is to collect specimens (preferably males as females are impossible to identify) and have them verified by an expert.

**Best Survey Time:** The best time of year to survey adults in Michigan is from mid-July through early September (MNFI 2026). Adults are best sampled with the use of a sweep net. Several sweep samples may be needed to detect adults of this species in an area. Dew should be off the grass and the wind light or calm when surveys are conducted.

**Habitat:** This species is typically associated with high-quality prairie fen remnants where mat-muhly is a dominant species (Bess and Hamilton 1999). Mat-muhly is the reported nymphal food plant for the Huron River leafhopper and it occurs in both prairie fen and northern fen natural communities as well as calcareous shores, and openings in cedar swamps. These additional natural communities and habitat types should be searched for the leafhopper.

Some of these prairie habitats can be quite marly and trend towards prairie fen. Characteristic plants of these calcium and magnesium rich habitats include many of those found in tallgrass prairie, but with a greater representation by calciphilic sedges (e.g. *Carex sterilis*,



*C. buxbaumii*, *C. lasiocarpa*), other genera of the sedge family (*Eleocharis*, *Rhynchospora*, *Scleria*, and *Scirpus* (*sensu lato*), rushes (*Juncus*) and wetland grasses like marsh timothy (*Muhlenbergia glomerata*). In sites containing Huron River leafhopper, characteristic forbs include tuberous Indian plantain (*Arnoglossum plantagineum*), swamp thistle (*Cirsium muticum*), fringed gentians (*Gentianopsis crinita* and *G. virgata*), Kalm's lobelia (*Lobelia kalmii*), shrubby cinquefoil (*Dasiphora fruticosa*), Riddell's goldenrod (*Solidago riddellii*) and edible valerian (*Valeriana edulis*).

**Biology:** Based on studies of other *Flexamia* leafhoppers, Huron River leafhopper adults can live up to three months, during which they mate, and females lay eggs in tissues of the larval food plant (Bess 2005). The adults feed by sucking fluids from the xylem tubes in leaf veins of their food plants. The eggs hatch in the spring following first green up of mat-muhly. It is presumed that the newly emerged nymphs actively seek out fresh sprouts, where they immediately begin to feed.

Huron River leafhopper is regarded as rare and highly local in occurrence. Given its specific food plant requirements, this leafhopper never leaves the prairie fen or northern fen habitats where mat-muhly occurs. The adults are rather sedentary, typically moving carefully among plants. The females lay numerous small eggs (200+ reported in the literature for related taxa, Beanland et al. 2005) and probably disperse over a small area during their lifetime (Bess and Hamilton 1999). This leafhopper is not known to migrate, and females are functionally flightless because of their extended, egg-filled abdomens. However, several leafhoppers are known to become active at and just before dusk, often rising into the upper herbaceous layer and undergoing mass flights above the vegetation (Lessio and Alberto 2004; Larsen and Whalon 1987). This is thought to either aid dispersal to new habitats or increase mating success.

**Conservation/Management:** The most likely threat to this species is habitat loss and alteration. For example, agricultural, commercial and residential developments have resulted in the destruction or alteration of numerous prairie fens in the state. Given that this species has been recorded from so few sites in Michigan, all known populations should be protected at this time. Maintaining the ecological integrity of the habitat is important for the continued survival of this species. Non-native

invasive species (i.e., narrow leaved cattail [*Typha angustifolia*], and common reed [*Phragmites australis* subsp. *australis*] or glossy buckthorn [*Frangula alnus*]) are problematic at all known Huron River leafhopper sites in Michigan.

**Research Needs:** A systematic survey is needed to identify additional occupied sites and to determine this species' true conservation status and distribution in the state. Known sites should be periodically (every 2-3 years) revisited and monitored. Information on the life history and ecology of the Huron River leafhopper is crucial to better understand its ecological requirements and to assess the potential for impacts on this species from various land use and management activities. Research should particularly focus on the identification, biology and habitat requirements of the immature stages (nymphs).

Determining the maximum distance that individuals will move between remnants and the proper size, composition and location of dispersal corridors necessary for continued survival are key areas of future research on this and other rare insect species (Bess 2005).

**Related Abstracts:** prairie fen, northern fen, mat-muhly

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