

Hine's Emerald Dragonfly

Somatochlora hineana

Best Management Practices

Missouri Department of Conservation

Common name ▪ Hine's emerald dragonfly

Scientific name ▪ *Somatochlora hineana*

State status ▪ Endangered

Federal status ▪ Endangered

Ecology

The Hine's emerald dragonfly is an extremely rare dragonfly and the only one on the Federal List of Endangered Species. The largest known breeding population occurs in Door County, Wisconsin. The only other known populations occur at small sites in northern Michigan, northeastern Illinois, and a recently discovered site in Missouri. The dragonfly has bright emerald-green eyes and a metallic green body, with yellow stripes on its sides. Its body is about 2.5 inches long; its wingspan reaches about 3.3 inches. The Hine's emerald dragonfly lives in calcareous (high in calcium carbonate) spring-fed marshes and sedge meadows overlaying dolomite bedrock. Adult males defend small breeding territories, pursuing and mating with females who enter. The female lays eggs by repeatedly plunging the tip of her body into shallow water. Later in the season or the following spring, immature dragonflies, called nymphs, hatch from the eggs. The nymph lives in the water for 2 to 4 years, eating smaller aquatic insects and shedding its skin many times. The nymph then crawls out of the water and sheds its skin a final time, emerging as a flying adult. The adults may live only 4 to 5 weeks.

Dragonflies play an important role in nature. They catch and eat smaller flying insects, including mosquitoes, biting flies, and gnats. In its immature stage (nymph), a dragonfly is an important food source for larger aquatic animals such as fish.

Reasons for Decline

The greatest threat to the Hine's emerald dragonfly is habitat destruction. Most of the wetland habitat that this dragonfly depends on for survival has been drained and filled to make way for various developments.

Contamination of wetlands by pesticides or other pollutants also poses a threat. Development that decreases the amount or quality of ground water flowing to the dragonfly's habitat threatens its survival because it depends on spring-fed shallow water to breed.



Recommendations

Control nonpoint pollution from urban developments and roadways. Protect water quality by minimizing the use of lawn chemicals (i.e., fertilizers, herbicides, and insecticides), recycling used motor oil, and properly disposing of paint and other toxic household products. Protect springs and the native wetland plants that occur around them. Exclude livestock and vehicular traffic from streams, springs, seeps, or mucky wetland areas.

Learn more about the Hine's emerald dragonfly. Understand how the destruction of habitat leads to loss of endangered and threatened species and our nation's plant and animal diversity.

Beneficial Practices

- Livestock exclusion from fens, seeps, wetlands, sedge meadows, and slow moving streams or intermittent stream pools.
- Restoration of above habitats with techniques such as restoring hydrology or by controlling invasive species and woody brush invasion.
- Nutrient and pest management on adjacent agricultural fields that results in reduced opportunities for runoff.

- Practices that control erosion and prevent the delivery of sediment to the aquatic system will prove beneficial to this species.
- Consider the balance between adverse and beneficial practices when determining the overall effect of a conservation practice.

U.S. Army Corps of Engineers
 Regulatory Branch
 700 Federal Building
 Kansas City, MO 64106-2896
 Telephone: 816/983-3990

U.S. Environmental Protection Agency
 Water, Wetlands, and Pesticides Division
 901 North 5th Street
 Kansas City, KS 66101
 Telephone: 973/551-7307

U.S. Fish and Wildlife Service
 Ecological Services Field Office
 101 Park DeVille, Dr., Suite A
 Columbia, MO 65203
 Telephone: 573/876-1911

Adverse Practices

- Introducing nonnative plant species in or near dragonfly habitats, which are often surrounded by pasture.
- Changing the hydrology of the fen, sedge meadow, slow moving stream, or intermittent stream pools by:
 - Diverting, altering, or collecting the flow through ditching, underground tile or “spring developments.”
 - Impounding the habitat or inundating it with a dam or other structure.
 - Dredging or deepening of the habitat to create a pool or pond.
- Altering the landscape surrounding a spring and fen system, which could result in a change in the hydrology or increased sediment delivery.
- Overlooking erosion and ignoring sediment control.
- Removing or degrading the riparian corridor near springs and along streams.
- Application of pesticides, herbicides, insecticides, and inorganic fertilizers that alter aquatic vegetation and/or micro- or macroinvertebrates.

Legal Issues

These Best Management Practices were prepared by the Missouri Department of Conservation with assistance from other state agencies, contractors, and others to provide guidance to those people who wish to voluntarily act to protect wildlife and habitat.

Compliance with Best Management Practices is not required by the Missouri wildlife and forestry law nor by any regulation of the Missouri Conservation Commission. Other federal, state or local laws may affect construction practices.

Species listed under the Federal Endangered Species Act must be considered in projects receiving federal funds or requiring permits under the Clean Water Act, with compliance issues resolved in consultation with the U.S. Fish and Wildlife Service.

Information Contacts

For further information regarding regulations for development in rivers, streams, and wetlands, contact:

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 Policy Coordination Section
 P.O. Box 180
 2901 W. Truman Blvd
 Jefferson City, MO 65102-0180
 Telephone: 573/751-4115

Missouri Department of Natural Resources
 Division of Environmental Quality
 P.O. Box 176
 Jefferson City, MO 65102-0176
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