

# Summary of the Proposal to Designate Critical Habitat for the Hine's Emerald Dragonfly

The U.S. Fish and Wildlife Service is proposing to designate critical habitat for the Hine's emerald dragonfly (*Somatochlora hineana*) in Illinois, Michigan, Missouri, and Wisconsin. Concurrently, the Service is considering excluding areas in Missouri and portions of Michigan from the designation. The Hine's emerald dragonfly is listed as endangered under the Endangered Species Act of 1973, as amended.

## Background

### Natural History

Adult Hine's emerald dragonflies have bright emerald-green eyes and metallic green bodies with yellow stripes on the sides. The body is about 2½ inches long with a wingspan of 3½ inches. Hine's emerald dragonflies use a variety of habitats - most are wetland systems. The dragonfly breeds in marshes and sedge meadows that are underlain by dolomite bedrock (magnesia-rich sedimentary rock resembling limestone) and fed by calcareous (calcium carbonate, calcium or limestone) groundwater seeps. Eggs are laid in shallow water and immature dragonflies, called larvae, hatch the following spring. Larvae are aquatic, living in rivulets and seepage areas within wetland systems for 3 to 5 years, eating smaller insects and shedding their skin many times. Larvae then crawl out of the water and shed their skin a final time, emerging as flying adults. Adults may live only 4 to 5 weeks. During that time they use wetlands as well as a mixture of adjacent uplands and upland corridors that connect to other wetlands.

### Threats

Actions that threaten the continued existence of the Hine's emerald dragonfly are those that destroy, degrade, alter, and fragment habitat.

Direct loss of habitat from urban development, new landfills, and new pipelines decreases the area of suitable habitat and can fragment existing dragonfly populations. Quarrying can also destroy Hine's habitat because this species is closely associated with surface dolomite deposits which have commercial value.

Contamination from landfills, transportation, agriculture, and habitat-altering chemical applications may degrade habitat. The species' long aquatic larval stage (3 to 5 years) makes it vulnerable to ground and surface water contamination.

Natural succession and encroachment of invasive species negatively impacts the species habitat. Natural succession may result from releases of nutrients and road salt into surface waters or connected groundwater and invasive species may be introduced through human activities in the habitat.

Increased deposition of sediment harms areas within wetlands where Hine's emerald dragonflies breed. Activities that cause excessive sedimentation include livestock grazing, road construction, stream channel alteration, timber harvest, all terrain vehicle

use, horseback riding, feral pig grazing, rail lines and other disturbances to the watershed and floodplain.

Alteration of water quantity and quality in wetland systems can impact Hine's breeding habitat. Activities that change water quality and quantity include groundwater extraction; alteration of surface and subsurface areas within groundwater recharge areas; and release of chemicals, biological pollutants, or heated effluents into the surface water or groundwater recharge area.

Hine's emerald dragonfly breeding habitat can also be harmed by alteration of channels in wetland systems. Channels within wetlands could be harmed or altered by all terrain vehicle use, horseback riding, feral pigs, channelization, impoundment, road and bridge construction, mining, and loss of emergent vegetation. These activities may lead to changes in water flow velocity, temperature, and quantity.

Activities that fragment habitat are harmful because they affect the ability of adults to forage or disperse to new areas. This, in turn, may result in reduced fitness and genetic exchange within populations as well as direct mortality of individuals. Activities that fragment habitat include road construction, destruction or fill of wetlands, and high-speed railroad and vehicular traffic.

### **Critical Habitat**

Critical habitat is a tool within the Act that identifies areas that are important to the conservation and recovery of a listed species. Within areas that are designated as critical habitat, federal agencies are required to do a special review of activities that they intend to carry out, fund, or permit. Their activities cannot destroy or adversely modify the important components of critical habitat. However, a critical habitat designation does not affect actions that do not involve a federal agency. For example, the designation of critical habitat does not affect a landowner undertaking a project on private land that does not involve federal funding or require a federal permit or authorization.

Designation of critical habitat can help focus conservation activities for a listed species by identifying areas that contain the physical and biological features that are essential for the conservation of that species. Also, designation of critical habitat alerts the public as well as land-managing agencies to the importance of these areas, but the Endangered Species Act only imposes additional restrictions on the actions of federal agencies.

When deciding what areas to designate as critical habitat, the Service looks at the physical and biological features that are necessary for the species to survive. These required features are called "primary constituent elements." Primary constituent elements include:

- 1) space for individual and population growth, and for normal behavior;
- 2) space for food, water, air, light, minerals, or other nutritional or physiological requirements;
- 3) cover or shelter;

- 4) sites for breeding, reproduction, or rearing of offspring; and;
- 5) habitat that is protected from disturbance or is representative of the historic geographical and ecological distributions of a species.

### **The Critical Habitat Designation for Hine's Emerald Dragonfly**

The essential primary constituent elements for Hine's emerald dragonfly egg laying and larval development are found in wetlands with shallow, organic soils overlying dolomite and limestone bedrock. Those wetlands have shallow calcareous water from intermittent seeps and springs, emergent herbaceous and woody vegetation, crayfish burrows (that provide refuges for larva), and a sufficient prey base of aquatic insects and other invertebrates.

The essential primary constituent elements for Hine's emerald dragonfly adults are found in natural areas in or near the breeding/larval wetlands that have a sufficient prey base of small insect species. Those natural areas include marsh, sedge meadow, dolomite prairie, the fringe (up to 328 feet) of shrubby and forested areas bordering those wetlands and open corridors (non-forested) that adults use for movement and dispersal.

The Service is proposing to designate critical habitat within 49 units encompassing 27,689 acres in 17 counties in Illinois, Michigan, Missouri, and Wisconsin. The Service is, however, considering the exclusion of all 26 units in Missouri and 2 units in Michigan from the final critical habitat designation. Within the critical habitat units, only the areas that contain the primary constituent elements of Hine's emerald dragonfly habitat are designated as critical habitat. These units occur in the following states and counties:

Illinois: Seven units encompassing 2,995 acres in Cook, DuPage, and Will counties.

Michigan: Six units encompassing 14,348 acres in Alpena, Mackinac, and Presque Isle counties. Two of the units are being considered for exclusion. Please see below for more information.

Missouri: Twenty-six units encompassing 1,306 acres in Dent, Iron, Morgan, Phelps, Reynolds, Ripley, Shannon, Washington, and Wayne counties. All 26 of these units are being considered for exclusion. Please see below for more information.

Wisconsin: Ten units consisting of 9,040 acres in Door and Ozaukee counties.

Improved mapping technology enabled the Service to eliminate homes, roads, airport runways, and other human-made structures as well as lawns, agricultural fields, and closed-canopy forests from the proposed critical habitat. Mapping is still not precise enough to exclude all such areas so some of these features may remain within the final designation. However, even if such areas fall within the boundaries of designated critical habitat, they are still not considered actual critical habitat under the provisions of the Act.

## **Potential Exclusions**

The Service is considering excluding 28 of the 49 units from the final critical habitat designation, including all the units within Missouri and two units in Michigan.

The Service is considering excluding all 26 sites in Missouri from the final designation. Fourteen of those units are on public land. The Service is considering excluding those areas because land managers are currently implementing conservation actions for the Hine's emerald dragonfly under existing land management plans. Therefore, the benefits of including those areas in designated critical habitat are minimal when weighed with the benefits of excluding the areas from critical habitat. The 12 remaining units in Missouri are on private lands; the Service is considering excluding private lands because the Missouri Department of Conservation has implemented successful conservation efforts on some of those lands. The existing partnerships among state agencies and property owners could dissolve and future conservation efforts may be negatively impacted if critical habitat is designated. Ongoing and future management for the species on private property in Missouri will occur through coordination among the private landowners, Missouri Department of Conservation, the National Resources Conservation Service, and the Service's Partners for Fish and Wildlife Program.

In Michigan, the Service is considering excluding two of the six units (12,963 acres) from the final designation because land managers are currently implementing conservation actions for the Hine's emerald dragonfly under existing land management plans. Therefore, the benefits of including those areas in designated critical habitat are minimal when weighed with the benefits of excluding the areas from critical habitat.

## **Public Comments**

The public is invited to comment on the proposal to designate critical habitat for the Hine's emerald dragonfly. The Service's proposal to designate critical habitat for the Hine's emerald dragonfly is found in the Federal Register. The Service will consider all comments received within 60 days of the date of publication in the Federal Register. Comments may be submitted by e-mail to [hedch@fws.gov](mailto:hedch@fws.gov), or by sending a letter to John Rogner, Field Supervisor, U.S. Fish and Wildlife Service, Chicago Illinois Ecological Services Fish and Wildlife Office, 1250 S. Grove, Suite 103, Barrington, Illinois 60010, or through the Federal eRulemaking Portal: <http://www.regulations.gov> or by fax (847-381-2285).

Comments sent by e-mail must include "Attn: Hine's emerald dragonfly" in the beginning of the message, without use special characters or any form of encryption. Electronic attachments in standard formats (such as .pdf or .doc) are acceptable, but please name the software necessary to open any attachments in formats other than those given above. Also, please include your name and return address in e-mail messages. If you do not receive a confirmation from the system that the Service has received your e-mail message, please submit comments in writing using one of the alternate methods described. In the event that the Service's internet connection is not functional, please submit comments by mail or fax.

The Service will also hold a combined public meeting/hearing in Romeoville, Illinois on August 15, 2006 to gather public input. More information on the proposal and the public hearing can be found on the Service's Midwest website at <http://www.fws.gov/midwest/endangered>.

Once the comment period closes, the Service will review all comments and new information and make a decision on whether to finalize the proposal to designate critical habitat for the Hine's emerald dragonfly.

The Service is preparing a draft economic analysis of the proposed critical habitat that will be released for public review and comment at a later date.

**Additional Information**

The U.S. Fish and Wildlife Service posts information about the Hine's emerald dragonfly at <http://www.fws.gov/midwest/endangered>. You may also contact the Chicago, Illinois Ecological Services Field Office at 1250 S. Grove, Suite 103, Barrington, Illinois 60010, (telephone (847) 381-2253; facsimile (847) 381-2285).