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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Hine's Emerald Dragonfly; Proposed Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018–AU74

Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Hine's Emerald Dragonfly

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to designate critical habitat for the Hine's emerald dragonfly (*Somatochlora hineana*) pursuant to the Endangered Species Act of 1973, as amended (Act). In total, approximately 27,689 acres (ac) (11,205 hectares (ha)) fall within the boundaries of the proposed critical habitat designation in 49 units located in Cook, DuPage, and Will Counties in Illinois; Alpena, Mackinac, and Presque Isle Counties in Michigan; Dent, Iron, Morgan, Phelps, Reynolds, Ripley, Shannon, Washington, and Wayne Counties in Missouri; and Door and Ozaukee Counties in Wisconsin. We are, however, considering excluding all 26 units in Missouri and 2 units in Michigan from the critical habitat designation. If made final, this proposal may result in additional requirements under section 7 of the Act for Federal agencies. No additional requirements are expected for non-Federal actions. The Service seeks comments on all aspects of this proposal from the public.

DATES: *Comments:* We will accept comments from all interested parties until September 25, 2006. *Public Hearing:* We have scheduled one informational meeting followed by a public hearing for August 15, 2006. The informational meeting will be held from 6 to 7 p.m., followed by a public hearing from 7:15 to 9 p.m.

ADDRESSES: *Comments:* If you wish to comment, you may submit your comments and materials concerning this proposal by any one of several methods:

1. You may submit written comments and information to John Rogner, Field Supervisor, U.S. Fish and Wildlife Service, Chicago, Illinois Ecological Services Field Office, 1250 S. Grove, Suite 103, Barrington, Illinois 60010.

2. You may hand-deliver written comments to our office, at the above address.

3. You may send your comments by electronic mail (e-mail) directly to the Service at *hedch@fws.gov* or to the Federal eRulemaking Portal at *http://www.regulations.gov.*

4. You may fax your comments to (847) 381–2285.

Comments and materials received, as well as supporting documentation used in the preparation of this proposed rule will be available for public inspection, by appointment, during normal business hours at the Chicago, Illinois Ecological Services Field Office at the above address (telephone (847) 381–2253 extension 233).

Public Hearing: The August 15, 2006, informational meeting and public hearing will be held in Romeoville, Illinois at the Drdak Senior/Teen Center at the Romeoville Recreation Center at 900 West Romeo Road.

FOR FURTHER INFORMATION CONTACT: John Rogner, Field Supervisor, Chicago Illinois Ecological Services Field Office, 1250 S. Grove, Suite 103, Barrington, Illinois 60010 (telephone (847) 381–2253, extension 233; facsimile (847) 381–2285).

SUPPLEMENTARY INFORMATION:

Public Comments Solicited

We are seeking public comments on all aspects of this proposed rule. We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule are hereby solicited.

Comments particularly are sought concerning:

(1) The reasons any habitat should or should not be determined to be critical habitat as provided by section 4 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), including whether it is prudent to designate critical habitat.

(2) Specific information on the amount and distribution of Hine's emerald dragonfly habitat; what areas should be included in the designations that were occupied at the time of listing and that contain the features essential for the conservation of the species; and what areas that were not occupied at the time of listing are essential to the conservation of the species. Information submitted should include a specific explanation as to why any area is essential to the conservation of the species;

(3) Land use designations and current or planned activities in the subject areas and their possible impacts on proposed critical habitat;

(4) Any foreseeable economic, national security, or other potential impacts resulting from the proposed designation and, in particular, any impacts on small entities;

(5) Whether our approach to designating critical habitat could be improved or modified in any way to provide for greater public participation and understanding, or to assist us in accommodating public concerns and comments;

(6) Comments or information that would add further clarity or specificity to the physical and biological features determined to be essential for the conservation of the Hine's emerald dragonfly (i.e., primary constituent elements);

(7) We are considering excluding areas under the jurisdiction of the Hiawatha National Forest in Michigan, the Mark Twain National Forest in Missouri, and the Missouri Department of Conservation and units under private ownership in Missouri from the final designation of critical habitat under section 4(b)(2) of the Act on the basis of conservation programs and partnerships. We will also review other relevant information for units being proposed in this rule as we receive it to determine whether other units may be appropriate for exclusion from the final designation under section 4(b)(2) of the Act. We specifically solicit comment on the inclusion or exclusion of such areas and:

(a) Whether these areas have features that are essential to the conservation of the species or are otherwise essential to the conservation of the species;

(b) Whether these, or other areas proposed, but not specifically addressed in this proposal, warrant exclusion;

(c) Relevant factors that should be considered by us when evaluating the basis for not designating these areas as critical habitat under section 4(b)(2) of the Act;

(d) Whether management plans in place adequately provide conservation measures and protect the Hine's emerald dragonfly and its habitat;

(e) Whether designation would assist in the regulation of any threats not addressed by existing management plans; and

(f) Whether designating these lands may result in an increased degree of threat to the species on these lands;

(8) Whether lands not currently occupied by the species should be included in the designation, and if so, the basis for such an inclusion (this rule proposes to designate only lands currently occupied by the Hine's emerald dragonfly);

(9) Whether the methodology used to map critical habitat units captures all of the biological and physical features

essential to the conservation of the Hine's emerald dragonfly;

(10) Whether the benefit of exclusion in any particular area outweigh the benefits of inclusion under Section 4(b)(2) of the Act;

(11) Whether the primary constituent elements as described fulfill the needs for the various life stages of the Hine's emerald dragonfly. Specifically, whether old fields adjacent to and in near proximity to larval areas are essential features; and

(12) Whether the small areas of private land within the Hiawatha National Forest, which is proposed for exclusion, are essential for the conservation of the Hine's emerald dragonfly.

When submitting electronic comments, your submission must include ''Attn: Hine's emerald dragonfly'' in the beginning of your message, and you must not 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 your e-mail message. If you do not receive a confirmation from the system that we have received your e-mail message, please submit your comments in writing using one of the alternate methods described in the **ADDRESSES** section. In the event that our internet connection is not functional, please submit your comments by one of the alternate methods mentioned in the **ADDRESSES** section.

Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. We will not consider anonymous comments, and we will make all comments available for public inspection in their entirety. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the address in the **ADDRESSES** section.

Role of Critical Habitat in Actual Practice of Administering and Implementing the Act

Attention to and protection of habitat is paramount to successful conservation actions. The role that designation of critical habitat plays in protecting habitat of listed species, however, is often misunderstood. As discussed in more detail below in the discussion of exclusions under section 4(b)(2) ofthe Act, there are significant limitations on the regulatory effect of designation under the Act, section 7(a)(2). In brief, (1) designation provides additional protection to habitat only where there is a Federal nexus; (2) the protection is relevant only when, in the absence of designation, destruction or adverse modification of the critical habitat would in fact take place (in other words, other statutory or regulatory protections, policies, or other factors relevant to agency decision-making would not prevent the destruction or adverse modification); and (3) designation of critical habitat triggers the prohibition of destruction or adverse modification of that habitat, but it does not require specific actions to restore or improve habitat.

Currently, only 470 species, or 36 percent of the 1,311 listed species in the United States under the jurisdiction of the Service, have designated critical habitat. We address the habitat needs of all 1,311 listed species through conservation mechanisms such as listing; section 7 consultations; the section 4 recovery planning process; the section 9 protective prohibitions of unauthorized take; section 6 funding to the States; the section 10 incidental take permit process; and cooperative, nonregulatory efforts with private landowners. The Service believes that it is these measures that may make the difference between extinction and survival for many species.

In considering exclusions of areas proposed for designation, we evaluated the benefits of designation in light of *Gifford Pinchot.* In that case, the Ninth Circuit invalidated the Service's regulation defining ''destruction or adverse modification of critical habitat.'' In response, on December 9, 2004, the Director issued guidance to be considered in making section 7 adverse modification determinations. This proposed critical habitat designation does not use the invalidated regulation in our consideration of the benefits of including areas in this proposed designation. The Service will carefully manage future consultations that analyze impacts to proposed critical habitat, particularly those that appear to be resulting in an adverse modification determination. Such consultations will be reviewed by the Regional Office prior to finalizing to ensure that an adequate analysis has been conducted that is informed by the Director's guidance.

To the extent that designation of critical habitat provides protection, that protection can come at significant social and economic cost. In addition, the mere administrative process of designation of critical habitat is expensive, time-consuming, and controversial. The current statutory framework of critical habitat, combined with past judicial interpretations of the statute, make critical habitat the subject of excessive litigation. As a result, critical habitat designations are driven by litigation and courts rather than biology, and made at a time and under a time frame that limits our ability to obtain and evaluate the scientific and other information required to make the designation most meaningful.

In light of these circumstances, the Service believes that additional agency discretion would allow our focus to return to those actions that provide the greatest benefit to the species most in need of protection.

Procedural and Resource Difficulties in Designating Critical Habitat

We have been inundated with lawsuits for our failure to designate critical habitat, and we face a growing number of lawsuits challenging critical habitat determinations once they are made. These lawsuits have subjected the Service to an ever-increasing series of court orders and court-approved settlement agreements, compliance with which now consumes nearly the entire listing program budget. This leaves the Service with little ability to prioritize its activities to direct scarce listing resources to the listing program actions with the most biologically urgent species conservation needs.

The consequence of the critical habitat litigation activity is that our already limited listing funds are used to defend active lawsuits, to respond to Notices of Intent (NOIs) to sue relative to critical habitat, and to comply with the growing number of adverse court orders. As a result, listing petition responses, the Service's own proposals to list gravely imperiled species, and final listing determinations on existing proposals are all significantly delayed.

Because of the risks associated with failing to comply with court orders, the accelerated schedules imposed by the courts have left the Service with limited ability to provide for public participation or to ensure a defect-free rulemaking process before making decisions on listing and critical habitat proposals. This in turn fosters a second round of litigation in which those who fear adverse impacts from critical habitat designations challenge those designations. The cycle of litigation appears endless, and is very expensive, thus diverting resources from conservation actions that may provide relatively more benefit to imperiled species.

The costs resulting from the designation include legal costs, the cost of preparation and publication of the

designation, the analysis of the economic effects and the cost of requesting and responding to public comment, and in some cases the costs of compliance with the National Environmental Policy Act (NEPA). These costs, which are not required for many other conservation actions, directly reduce the funds available for direct and tangible conservation actions.

Background

It is our intent to discuss only those topics directly relevant to the designation of critical habitat in this proposed rule. For more information on the Hine's emerald dragonfly, refer to the final listing rule published in the **Federal Register** on January 26, 1995 (60 FR 5267), or the final recovery plan for the species (U.S. Fish and Wildlife Service 2001), which is available on the Internet at *http://www.fws.gov/midwest/Endangered/insects/hed/hed-recplan.html*, or by contacting the person listed in the **FOR FURTHER INFORMATION CONTACT** section.

The Hine's emerald dragonfly is in the family Corduliidae (''emeralds'') and in the genus *Somatochlora*. The adult Hine's emerald dragonfly has brilliant green eyes. It is distinguished from all other species of *Somatochlora* by its dark metallic green thorax with two distinct creamy-yellow lateral lines, and distinctively-shaped male terminal appendages and female ovipositor (Williamson 1931, pp. 1–8). Adults have a body length of 6065 millimeters (mm) (2.3–2.5 inches (in)) and a wingspan of 90–95 mm (3.5–3.7 in).

The current distribution of the Hine's emerald dragonfly includes Illinois, Michigan, Missouri, and Wisconsin. It is believed to be extirpated from Alabama, Indiana, and Ohio. In the current List of Endangered and Threatened Wildlife in § 17.11(h), the historic range for this taxon is listed as Illinois, Indiana, Ohio, and Wisconsin. A more accurate historic range for Hine's emerald dragonfly includes Alabama, Michigan, and Missouri in addition to the aforementioned States. We are proposing to amend the table such that the ''Historic Range'' for Hine's emerald dragonfly reads U.S.A. (AL, IL, IN, MI, MO, OH, and WI).

No one characteristic has been found that easily and reliably differentiates female and early instar Hine's emerald dragonfly larvae from other similar species. Final instar male Hine's emerald dragonfly larvae can be readily identified by the terminal appendage (segment 10). Hine's emerald dragonfly larval specimens can typically be distinguished from most other *Somatochlora* by the presence of a small middorsal hook on segment three. Other characteristics include head width, metatibial length, palpal crenulation setae, and total length. A detailed discussion is presented in Cashatt and Vogt (2001, pp. 94–96). Soluk *et al.* (1998a, p. 8) described the distinguishing features of Hine's emerald dragonfly larvae from other larval dragonfly species in Door County, Wisconsin, as ''the size of the dorsal hooks on the abdomen, general hairiness, shape of head, and lack of stripes on the legs.'' However, these characteristics would not be definitive in Michigan, Missouri, and Wisconsin where there is potential confusion with other species of *Somatochlora* such as ski-tailed emerald (*S. elongata*), ocellated emerald (*S. minor*), and clamp-tipped emerald (*S. tenebrosa*).

Hine's emerald dragonfly habitat consists predominantly of wetland systems used for breeding and foraging. The larval stage is aquatic, occupying rivulets and seepage areas within these wetland systems. The Hine's emerald dragonfly occupies marshes and sedge meadows fed by calcareous groundwater seepage and underlain by dolomite bedrock. In general, these areas are characterized by the presence of slowly flowing water, sedge meadows and prairies, and nearby or adjacent forest edges. The adult habitat includes the wetland systems as well as a mosaic of upland plant communities and corridors that connect them. Areas of open vegetation serve as places to forage. Foraging flights for reproductive adults may be 1–2 km (0.6–1.2 mi) from breeding sites, and may last 15 to 30 minutes. Forest edges, trees, and shrubs provide protected, shaded areas for the dragonflies to perch. Limited information is available on the species' dispersal capabilities. The average distance traveled by dispersing adults was documented to be 2.5 miles (mi) (4.0 kilometers (km)) in a study in Illinois (Mierzwa *et al.* 1995a, pp. 17–19; Cashatt and Vogt 1996, pp. 23–24).

Many of the areas with Hine's emerald dragonflies in Missouri are surrounded by large tracts of contiguous, 100 percent closed canopy forest. The species generally does not travel more than 328 feet (ft) (100 meters (m)) into the interior of the forest. Foraging by adults occurs within the fen proper and in adjacent old fields, pastures, and forest edge (Landwer 2003, p. 10; Walker and Smentowski 2002, pp. 5–8; 2003, pp. 8–10; 2004, pp. 8–10; 2005, pp. 4–5). Although the importance of old fields and pastures in meeting foraging needs in Missouri has not yet been determined, such areas may be a more significant factor than elsewhere within the range of the species because of a relative lack of open areas at many sites.

Hine's adults emerge in late spring, mate, and lay eggs in water. The eggs overwinter. After hatching the larvae prey upon aquatic invertebrates, occupy rivulets and seepage areas, and take refuge in crayfish burrows. The larvae live 3 to 5 years before adult emergence takes place (Soluk 2005; Soluk and Satyshur 2005, p. 4). Adults live for only a few weeks.

Previous Federal Actions

On February 4, 2004, we received a complaint from The Center for Biodiversity *et al.*, for failure to designate critical habitat for the Hine's emerald dragonfly. On September 13, 2004, we reached a settlement agreement with the plaintiff requiring us to submit for publication in the **Federal Register** a proposed rule to designate critical habitat for the Hine's emerald dragonfly by July 7, 2006, and a final rule by May 7, 2007. For more information on previous Federal actions concerning the Hine's emerald dragonfly, refer to the final listing rule published in the **Federal Register** on January 26, 1995 (60 FR 5267), or the final recovery plan for the species (U.S. Fish and Wildlife Service 2001). This proposed designation is being published in compliance with the above settlement agreement.

Critical Habitat

Critical habitat is defined in section 3 of the Act as—(i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population

pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the prohibition against destruction or adverse modification of critical habitat with regard to actions carried out, funded, or authorized by a Federal agency. Section 7 requires consultation on Federal actions that may result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow government or public access to private lands. Section 7 is a purely protective measure and does not require implementation of restoration, recovery, or enhancement measures.

To be included in a critical habitat designation, the habitat within the area occupied by the species must first have features that are essential to the conservation of the species. Critical habitat designations identify, to the extent known using the best scientific data available, habitat areas that provide essential life cycle needs of the species (*i.e.*, areas on which are found the primary constituent elements, as defined at 50 CFR 424.12(b)).

Habitat occupied at the time of listing may be included in critical habitat only if the essential features thereon may require special management or protection. Thus, we do not include areas where existing management is sufficient to conserve the species. (As discussed below, such areas may also be excluded from critical habitat pursuant to section 4(b)(2) of the Act.) Accordingly, when the best available scientific data do not demonstrate that the conservation needs of the species require additional areas, we will not designate critical habitat in areas outside the geographical area occupied by the species at the time of listing. An area currently occupied by the species but which was not known to be occupied at the time of listing will likely, but not always, be essential to the conservation of the species and, therefore, typically included in the critical habitat designation.

The Service's Policy on Information Standards Under the Endangered Species Act, published in the **Federal Register** on July 1, 1994 (59 FR 34271), and Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658) and the associated Information Quality Guidelines issued by the Service, provide criteria, establish procedures, and provide guidance to ensure that decisions made by the Service represent the best scientific data available. They require Service biologists to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat. When determining which areas are critical habitat, a primary source of information is generally the listing package for the species. Additional information sources include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, or other unpublished materials and expert opinion or personal knowledge. All information is used in accordance with the provisions of Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658) and the associated Information Quality Guidelines issued by the Service.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Habitat is often dynamic, and species may move from one area to another over time. Furthermore, we recognize that designation of critical habitat may not include all of the habitat areas that may eventually be determined to be necessary for the recovery of the species. For these reasons, critical habitat designations do not signal that habitat outside the designation is unimportant or may not be required for recovery.

Areas that support populations, but are outside the critical habitat designation, will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act and to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as determined on the basis of the best available information at the time of the action. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available to these planning efforts calls for a different outcome.

Methods

As required by section 4(b)(1)(A) of the Act, we used the best scientific data available in determining areas that contain the features that are essential to the conservation of the Hine's emerald dragonfly with the assistance of the Hine's Emerald Dragonfly Recovery Team and other species experts. We reviewed the approach to conservation of the species undertaken by local, State, and Federal agencies operating within the species' range since its listing, as well as the actions necessary for Hine's emerald dragonfly conservation identified in the final Recovery Plan for the species (U.S. Fish and Wildlife Service 2001).

To identify features that are essential to the conservation of the Hine's emerald dragonfly, we reviewed available information that pertains to the habitat requirements, current and historic distribution, life history, threats, and population biology of the Hine's emerald dragonfly and other dragonfly species. This information includes: data in reports submitted during section 7 consultations and as a requirement from section 10(a)(1)(B) incidental take permits or section 10(a)(1)(A) recovery permits; research published in peer-reviewed articles and presented in academic theses and agency reports; information provided by species experts and the Hine's Emerald Dragonfly Recovery Team; aerial photography; land use maps; National Wetland Inventory maps; and Natural Resource Conservation Service soil survey maps. We also reviewed our own site-specific species and habitat information, recent biological surveys, and reports and communication with other qualified biologists or experts.

Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species, and within areas occupied by the species at the time of listing, that may require special management considerations and protection. These include, but are not limited to: space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and habitats that are protected from disturbance or are representative of

the historic geographical and ecological distributions of a species.

The specific primary constituent elements (PCEs) required for the Hine's emerald dragonfly are derived from the biological needs of the species as described in the Background section of this proposal and the Hine's Emerald Dragonfly Recovery Plan (U.S. Fish and Wildlife Service 2001), and additional detail is provided below.

Space for Individual and Population Growth, and for Normal Behavior

Hine's emerald dragonfly habitat consists predominantly of wetland systems used for breeding and foraging. The larval stage is aquatic, occupying rivulets and seepage areas within these wetland systems. The species' habitat includes a mosaic of upland and wetland plant communities and corridors that connect them. Known Hine's emerald dragonfly larval sites include shallow, organic soils (histosols, or with organic surface horizon) overlying calcareous substrate (predominantly dolomite and limestone bedrock), calcareous water from intermittent seeps and springs, shallow small channels and/or sheetflow (Cashatt and Vogt 2001, pp. 96–98). The wetlands are fed by groundwater discharge and often dry out for a few weeks during the summer months, but otherwise have thermal regimes that are relatively moderate and are comparatively warmer in winter and cooler in summer than nearby sites without groundwater influence (Soluk *et al.* 1998a, pp. 83, 85–86; 2004, pp. 15–16; Cashatt and Vogt 2001, pp. 96–98). Vegetation is predominantly herbaceous; natural communities include marshes, sedge meadows, and fens. Marsh communities usually are dominated by graminoid plants such as cattails and sweetflag, while sedge meadows tend to be dominated by sedges and grasses (Cashatt *et al.* 1992, p. 4; Vogt and Cashatt 1994, p. 600; Soluk *et al.* 1996, pp. 5–8; 1998a, pp. 6–10, 76; Mierzwa *et al.* 1998, pp. 20–34; Cashatt and Vogt 2001, pp. 96–98; Vogt 2001, p. 1). Some sites do include trees and shrubs scattered throughout the habitat. Emergent herbaceous and woody vegetation is essential for emergence of larvae (Soluk *et al.* 2003b, pp. 1–3; Foster and Soluk 2004, p. 16). All known sites have forested areas and/or scattered shrubs within a close proximity (Cashatt and Vogt 2001, p. 97; Vogt 2001, p. 1).

Hine's emerald dragonfly larval habitat typically includes small flowing streamlet channels within cattail marshes and sedge meadows; water that flows between hummocks; and occupied, maintained crayfish burrows (Cashatt *et al.* 1992, p. 4; Vogt and Cashatt 1994, p. 600; Soluk *et al.* 1996, pp. 5–9; 1998a, pp. 6–10; 1999, pp. 5–10, 44–47; 2003a, p. 6, 27; Mierzwa *et al.* 1998, pp. 20–34; Landwer and Vogt 2002, p. 1–2; Vogt 2001, p. 1; 2004, p. 1; 2005, p. 1, 3; Soluk 2004, pp. 1–3). To date, the only crayfish identified in association with burrows used by Hine's emerald dragonfly is the devil crayfish (*Cambarus diogenes*) (Pintor and Soluk 2006, pp. 584–585; Soluk *et al.* 1999, p. 46; Soluk 2004, pp. 1–3); however, other crayfish may also provide the same refuge. These burrows are an integral life requisite for the species because they are essential for overwintering and drought survival (Soluk *et al.* 2004, p. 17; Pintor and Soluk 2006, pp. 584–585).

Components of adult habitat are used for breeding, foraging, roosting, and protective cover. While adult Hine's emerald dragonflies can fly over and among trees, they have been consistently observed to follow open corridors through forested areas rather than fly through forests. Hine's emerald dragonfly corridors include trails, streams, forest edges, roadways, shorelines, and other structural breaks in the forest canopy (Soluk *et al.* 1999, pp. 61–64; Steffens 1997 pp. 5, 7; 1999 p. 6, 9; 2000 pp. 2, 4, 6; Smith 2006; Soluk 2006). Roadways, highways, and railroad tracks are used as corridors but expose adults to vehicle-related mortality (Soluk *et al.* 1998a, pp. 61–62; 1998b, pp. 3–4; Soluk and Moss 2003, pp. 2–4, 6–11). Preferred foraging habitat consists of various plant communities including marsh, sedge meadow, dolomite prairie, shorelines, and the fringe of bordering shrubby areas (Vogt and Cashatt 1994, p. 600; 1999, pp. 6, 23; Nuzo 1995, pp. 50–75; Soluk *et al.* 1996, pp. 8–9; 1998a, p. 76; 2003a; Mierzwa *et al.* 1997, pp. 11, 25; 1998, pp. 20–34; Steffens 1997, pp. 5–6, 8; 1999 pp. 6, 9; 2000 pp. 4, 6, 8–10; Thiele and Mierzwa 1999, pp. 3–4, 9–12; Mierzwa and Copeland 2001, pp. 7–8, appendix 2; Vogt 2001, p. 1; Zuehls 2003, pp. iii-iv, 14–15, 19, 21, 38, 43, 60–65).

Females lay eggs (oviposit) in the rivulets and seepage areas described as larval habitat (Cashatt and Vogt 1992, pp. 4–5; Ross and Mierzwa 1995, pp. 77–78; Soluk *et al.* 1996, pp. 8–9; 1998a, p. 76; Vogt and Cashatt 1997, pp. 3, 14; 1999, pp. 6, 23; Vogt *et al.* 1999, pp. 5, 11).

The ability of adult Hine's emerald dragonflies to travel among breeding sites is considered important for the species to maintain genetic variation and fitness. Based on a mark-resighting study conducted in Illinois, Hine's emerald dragonflies that did disperse moved an average distance of 2.5 mi (4.1 km) (Mierzwa *et al.* 1995a, pp. 17–19; Cashatt and Vogt 1996, pp. 23–24). Land use and habitat conditions between breeding sites likely influence dispersal distances and frequencies. However, most adults do not move far from emergence sites. For example, the mark-resighting study conducted in Illinois, found that 44 of 48 adults were resighted within the same wetland in which they were marked (Mierzwa *et al.* 1995a, pp. 17–19; Cashatt and Vogt 1996, pp. 23–24). A mark-release-recapture study conducted in Wisconsin resulted in the marking of 937 adults at three locations within or near breeding habitat, indicating that many adults are found close to breeding areas (Kirk and Vogt 1995, pp. 13–15). In addition, Hine's emerald dragonfly swarms in Wisconsin are generally found within ½ to 1 mile of larval areas (Zuehls 2003, pp. 21, 43). Daily movements and dispersal distances for Hine's emerald dragonfly in Missouri have not yet been studied, but it is generally believed that they are less than what has been reported elsewhere for the species because the sites are much smaller and more isolated in that State (Vogt 2006).

Although adult Hine's emerald dragonflies have been observed foraging over areas modified by anthropogenic influences (*e.g.*, pastures, hay meadows, fallow crop fields, and manicured lawns) in Missouri (Landwer 2003, pp. 26, 39; Walker and Smentowski 2003, pp. 8–10; 2005, p. 4) and Wisconsin (Vogt and Cashatt 1990, p. 3; Grimm 2001, pp. 7, 13–14; Meyer 2001, p. 1), the importance of such habitats in meeting the daily dietary needs of the Hine's emerald dragonfly is still unknown. Because of this uncertainty, old fields and pastures were not included as part of the primary constituent elements outlined below.

Although most adults do not move far from emergence sites, the ability to move among emergence sites, foraging habitat of sufficient quality and quantity, and breeding habitat is important to the Hine's emerald dragonfly. Furthermore, because the species tends to occur in fragmented, loosely-connected local subpopulations, the limited dispersing that does occur is necessary to maintain robust populations.

Food and Water

Larval Hine's emerald dragonflies are generalist predators that feed on macroinvertebrates found within or near the rivulet or seepage systems. Soluk *et al.* (1998a, p. 10) analyzed larval fecal

pellets, and their results suggest that the Hine's emerald dragonfly is a generalist predator. Larval food was found to include many invertebrate taxa in their habitat including mayflies (Ephemeroptera), aquatic isopods (Arthropoda, order Isopoda), caddisflies (Trichoptera), midge larvae (Diptera), and aquatic worms (Oligochaetes). Amphipods are common in their habitat and are likely diet components (Soluk 2005). In general, dragonfly larvae commonly feed on smaller insect larvae, including mosquito and dragonfly larvae, worms, small fish, and snails (Pritchard 1964, pp. 789–793; Corbet 1999, pp. 105–107). Hine's emerald dragonfly larvae have been documented to be cannibalistic in laboratory situations (Soluk 2005).

Adult Hine's emerald dragonflies require a sufficient prey base of small flying insects (Vogt and Cashatt 1994, p. 600; Zuehls 2003, pp. iii-iv, 60–62, 75–84). Adult Hine's emerald dragonflies feed on the wing, sometimes in swarms, primarily mid-morning to midday and late evening (Zuehls 2003, pp. iii, 58–65). Foraging behavior is the dominant behavior within swarms, with over 99 percent of dragonflies observed within swarms foraging and swarms are generally found within ½ to 1 mile of breeding sites (Zuehls 2003, pp. 21, 43, 60). Adults will use nearly any natural habitat for foraging near the breeding/larval habitat except open water ponds and closed-canopy forested areas. Preferred foraging habitat consists of various plant communities including marsh, sedge meadow, dolomite prairie, and the fringe of bordering shrubby and forested areas (Mierzwa *et al.* 1995a, p. 31; 1995b, pp. 13–14; 1997, pp. 11, 25; 1998, pp. 20–34; Mierzwa and Copeland 2001, pp. 7–8, appendix 2; Soluk *et al.* 1996, pp. 8–9; 1998a, p. 76; Steffens 1997 pp. 5–6, 8; 1999; 2000 p. 4, 6, 8–10; Thiele and Mierzwa 1999, pp. 3–4, 9–12; Vogt and Cashatt 1994, p. 600; 1999, pp. 6, 23; Vogt 2001, p. 1). Dragonflies are believed to get water from their food (whose water content is 60 to 80 percent (Fried and May 1983)), although some dragonflies have been observed drinking surface water found in their habitat (Corbet 1999, pp. 284–291).

Cover or Shelter

Detritus is used by larvae for cover, and it also provides food for larval prey. Crayfish burrows provide Hine's emerald dragonfly larvae refuge from drought conditions in the summer and for overwintering (Cashatt *et al.* 1992, pp. 3–4; Soluk *et al.* 1999, pp. 40 and 46; Soluk 2005; Pintor and Soluk 2006, pp. 584–585).

Predatory dragonflies (such as the dragonhunter (*Hagenius brevistylus*), gray petaltail (*Tachopteryx thoreyi*), and common green darner (*Anax junius*)), and avian predators (such as cedar waxwings (*Bambycilla cedrorum*)), have been documented chasing and attacking Hine's emerald dragonflies and other *Somatochlora* species (Zuehls 2003, p. 63; McKenzie and Vogt 2005, p. 19; Landwer 2003, p. 62). Scattered trees and shrubs or forest edges (up to 328 ft (100 m) into the forest) are needed for escape cover from predators and are also used for roosting, resting, and perching. Typically, trees and shrubs also provide shelter from weather. Dragonflies are known to perch and roost in vegetation that provides shade or basking sites as a means of ectothermic thermoregulation (Corbet 1980, Corbet 1999). This tree and shrub cover is provided in Hine's emerald dragonfly habitat by any woody vegetation that is not closed-canopy forest.

Habitat segregation by sex among Hine's emerald dragonflies and other dragonflies has been documented. Females spend more of their time foraging away from breeding habitat than males (Vogt and Cashatt 1997, pp. 11, 14; 1999, pp. 6, 15, 23; Foster and Soluk 2006, pp. 162–164). It is believed that habitat segregation by sex may be the result of females avoiding males, possibly as a defense mechanism against unsolicited mating attempts (Zuehls 2003, pp. 65–67; Foster and Soluk 2006, pp. 163–164). There is some evidence that females spend time in upland habitat during non-breeding times to avoid interactions with males (Foster and Soluk 2006, pp. 162–164).

Sites for Breeding, Reproduction, and Development of Offspring

Adult females lay eggs or oviposit by repeatedly dipping their abdomens in shallow water or saturated soft soil or substrate. Females have been observed with muck or mud residue on their abdomens, suggesting they had oviposited in soft muck and/or shallow water (Vogt and Cashatt 1990, p. 3; Cashatt and Vogt 1992, pp. 4–5). Female Hine's emerald dragonflies have been observed ovipositing in groundwater that discharges and forms rivulets and seepage areas within cattail marshes, sedge meadows, and fens that typically have crayfish burrows (Cashatt and Vogt 1992, pp. 4–5; Mierzwa *et al.* 1995a, p. 31; 1995b, p. 12; Soluk *et al.* 1996, pp. 8–9; 1998a, p. 76; Vogt 2003, p. 3; 2004, p. 2; 2005, p. 3; Vogt and Cashatt 1994, p. 602; 1997, pp. 3, 14; 1999, pp. 6, 23; Vogt *et al.* 1999, pp. 5, 11; Walker and Smentowski 2002, pp. 17–18; McKenzie and Vogt 2005, p. 18). All observations of oviposition by Soluk *et al.* (1998a, p. 76) occurred in more permanent waters (streamlet and cattail/meadow borders). In addition, male territorial patrols have been observed over the type of habitat where oviposition has been documented (Cashatt and Vogt 1992, p.4; Vogt and Cashatt 1994, pp. 601–602; 1999, pp. 6, 23; Soluk *et al.* 1998a, p. 76). All known larval habitat receives slowly (often barely perceptible) moving groundwater discharge that is typically calcareous (Cashatt *et al.* 1992, pp. 3–4; Vogt and Cashatt 1994, p. 602; Soluk *et al.* 1996, pp. 5–8; Mierzwa *et al.* 1998, pp. 30–34; 2003a; Landwer and Vogt 2002, p. 1; Vogt 2003, p. 1; 2004, p. 1; 2005, p. 1). This groundwater discharge also moderates water temperatures, though water flows and temperatures can be variable over seasons and years. Since groundwater that comes to the surface in Hine's emerald dragonfly habitat is an essential component of larval habitat, regulatory protection of groundwater quantity and quality that contributes to this essential feature is vital.

Hine's emerald dragonfly eggs overwinter and hatch in water or saturated soil during spring (Soluk and Satyshur 2005, p. 4). After an egg has hatched, Hine's emerald dragonfly larvae spend approximately 4 years in cool, shallow, slowly moving water flowing between hummocks, in streamlets, and in nearby crayfish burrows foraging and molting as they grow (Cashatt *et al.* 1992, p. 4; Vogt and Cashatt 1994, p. 602; Soluk *et al.* 1996, pp. 5–8; 1998a, pp. 6–10; 1999, pp. 5–10, 44–47; 2005; Cashatt and Vogt 2001, 96–98; Soluk 2004, pp. 1–3). The microhabitat typically contains decaying vegetation. After completing larval development, the larvae use herbaceous or woody vegetation to crawl out of the aquatic environment and emerge as adults (Vogt and Cashatt 1994, p. 602; Foster and Soluk 2004, p. 16).

Primary Constituent Elements for the Hine's Emerald Dragonfly

Pursuant to our regulations, we are required to identify the known physical and biological features (PCEs) essential to the conservation of the Hine's emerald dragonfly. All areas proposed as critical habitat for Hine's emerald dragonfly are occupied, within the species' historic geographic range, and contain sufficient PCEs to support at least one life history function.

Based on our current knowledge of the life history, biology, and ecology of the species and the requirements of the habitat to sustain the essential life history functions of the species, we have determined that the physical and

biological features essential to the conservation of Hine's emerald dragonfly's are:

(1) For egg deposition and larval growth and development:

(a) Shallow, organic soils (histosols, or with organic surface horizon) overlying calcareous substrate (predominantly dolomite and limestone bedrock);

(b) Calcareous water from intermittent seeps and springs and associated shallow, small, slow flowing streamlet channels, rivulets, and/or sheet flow within fens;

(c) Emergent herbaceous and woody vegetation for emergence facilitation and refugia;

(d) Occupied, maintained crayfish burrows for refugia; and

(e) Prey base of aquatic macroinvertebrates, including mayflies, aquatic isopods, caddisflies, midge larvae, and aquatic worms.

2. For adult foraging; reproduction; dispersal; and refugia necessary for roosting, resting and predator avoidance (especially during the vulnerable teneral stage):

(a) Natural plant communities near the breeding/larval habitat which may include marsh, sedge meadow, dolomite prairie, and the fringe (up to 328 ft (100m)) of bordering shrubby and forested areas with open corridors for movement and dispersal; and

(b) Prey base of small, flying insect species (*e.g.*, dipterans).

Critical habitat does not include human-made structures existing on the effective date of a final rule not containing one or more of the primary constituent elements, such as buildings, lawns, old fields and pastures, piers and docks, aqueducts, airports, and roads, and the land on which such structures are located. In addition, critical habitat does not include open-water areas (i.e., areas beyond the zone of emergent vegetation) of lakes and ponds.

This proposed designation is designed for the conservation of the PCEs necessary to support the life history functions which are the basis for the proposal. Because not all life history functions require all the PCEs, not all proposed critical habitat will contain all the PCEs. Each of the areas proposed in this rule have been determined to contain sufficient PCEs to provide for one or more of the life history functions of the species. In some cases, the PCEs exist as a result of ongoing federal actions. As a result, ongoing federal actions at the time of designation will be included in the baseline in any consultation conducted subsequent to this designation.

Criteria Used To Identify Critical Habitat

We are proposing to designate critical habitat on lands that were occupied at the time of listing and contain sufficient PCEs to support life history functions essential to the conservation of the Hine's emerald dragonfly. We are also proposing to designate areas that were not known to be occupied at the time of listing, but which were subsequently identified as being occupied, and which we have determined to be essential to the conservation of the Hine's emerald dragonfly.

To identify features that are essential to the conservation of Hine's emerald dragonfly and areas essential to the conservation of the species, we considered the natural history of the species and the science behind the conservation of the species as presented in literature summarized in the Recovery Plan (U.S. Fish and Wildlife Service 2001).

We began our analysis of areas with features that are essential to the conservation of the Hine's emerald dragonfly by identifying currently occupied breeding habitat. We developed a list of what constitutes occupied breeding habitat with the following criteria: (a) Adults and larvae documented; (b) Larvae, exuviae (skin that remains after molt), teneral (newly emerged) adults, ovipositing females, and/or patrolling males documented; or (c) multiple adults sighted and breeding conditions present. We determined occupied breeding habitat through a literature review of data in: Reports submitted during section 7 consultations and as a requirement from section 10(a)(1)(B) incidental take permits or section 10(a)(1)(A) recovery permits; published peer-reviewed articles; academic theses; and agency reports. We then determined which areas were known to be occupied at the time of listing.

After identifying the core occupied breeding habitat, our second step was to identify contiguous habitat containing one or more of the PCEs within 2.5 mi (4.1 km) of the outer boundary of the core area (Mierzwa *et al.* 1995a, pp.17–19; Cashatt and Vogt 1996, pp. 23–24). This distance—the average adult dispersal distance measured in one study—was selected as an initial filter for determining the outer limit of unit boundaries in order to ensure that the dragonflies would have adequate foraging and roosting habitat, corridors among patches of habitat, and the ability to disperse among subpopulations. However, based on factors discussed below, unit boundaries were significantly reduced in most cases based on the contiguous extent of PCEs and the presence of natural or manmade barriers. When assessing wetland complexes in Wisconsin and Michigan it was determined that features that fulfill all of the Hine's emerald dragonfly's life history requirements are often within 1 mi (1.6 km) of the core breeding habitat; therefore, the outer boundary of those units is within 1 mi (1.6 km) of the core breeding habitat. In Missouri, essential habitat was identified as being limited around the core breeding habitat as a result of a closed canopy forest around most units, and the outer boundary of those units extends only 328 ft (100 m) into the closed canopy.

Areas not documented to be occupied at the time of listing but that are currently occupied are considered essential to the conservation of the species due to the limited numbers and small sizes of extant Hine's emerald dragonfly populations. Recovery criteria established in the recovery plan for the species (U.S. Fish and Wildlife Service 2001, pp. 31–32) call for a minimum of three populations, each containing at least three subpopulations, in each of two recovery units. Within each subpopulation there should be at least two breeding areas, each fed by separate seeps and springs. Management and protection of all known occupied areas are necessary to meet these goals.

When determining proposed critical habitat boundaries, we made every effort to avoid including within the boundaries of the map contained within this proposed rule developed areas such as buildings, paved areas, and other structures and features that lack the PCEs for the species. The scale of the maps prepared under the parameters for publication within the *Code of Federal Regulations* may not reflect the exclusion of all such developed areas. Any such structures and the land under them inadvertently left inside critical habitat boundaries shown on the maps of this proposed rule are not proposed for designation as critical habitat. Therefore, Federal actions limited to these areas would not trigger section 7 consultation, unless they affect the species and/or primary constituent elements in critical habitat.

We propose to designate critical habitat on lands that we have determined were occupied at the time of listing and contain sufficient primary constituent elements to support life history functions essential for the conservation of the species or are currently occupied and are determined to be essential to the conservation of the species. We do not propose to designate

as critical habitat any areas outside the geographical area presently occupied by the species.

Units were identified based on sufficient PCEs being present to support Hine's emerald dragonfly life processes. Some units contain all PCEs and support multiple life processes. Some units contain only a portion of the PCEs necessary to support the Hine's emerald dragonfly's particular use of that habitat. Where a subset of the PCEs was present it has been noted that only PCEs present at designation will be protected.

Special Management Considerations or Protections

When designating critical habitat, we assess whether the areas determined to be occupied at the time of listing and that contain the primary constituent elements may require special management considerations or protections. At the time of listing, the Hine's emerald dragonfly was known to occur in Illinois and Wisconsin.

Fragmentation and destruction of suitable habitat are believed to be the main reasons for this species' Federal endangered status and continue to be the primary threats to its recovery. Hine's emerald dragonfly habitat is closely associated with surface dolomite deposits, an extractable resource that is often quarried. Developing commercial and residential areas, quarrying, creating landfills, constructing pipelines, and filling of wetlands could decrease the area of suitable habitat available and continue to fragment populations of the Hine's emerald dragonfly. Direct loss of breeding or foraging habitat could potentially reduce both adult and larval population sizes.

Changes in surface and sub-surface hydrology could be detrimental to the Hine's emerald dragonfly. Alteration of water regimes could affect surface water flow patterns, cause loss of seep heads, and reduce larval habitat. Permanent loss of appropriate hydrology would reduce the amount of suitable breeding and larval habitat. Road construction; channelization; and alteration of water impoundments, temperature, discharge quantity, water quality, and lake levels have the potential to affect important hydrologic characteristics of Hine's emerald dragonfly larval habitat that could be necessary for the continued survival of this species. For example, a study to predict hydrologic changes to a spring near Black Partridge Creek in Illinois from a proposed interstate highway suggested that an 8 to 35 percent reduction in spring discharge may occur after the construction of the highway (Hensel *et al.* 1993, p. 290). Hensel *et al.* (1993, pp. 290–292) suggested that the highway could cause a loss of recharge water for the spring and lower the water table, reducing the discharge of the spring. Pumping of groundwater for industrial and agricultural use also has the potential to lower the water table and change the hydrology, which may affect larval habitat. Dye-tracing indicates the fens (a type of wetland characterized by calcareous spring-fed marshes and sedge meadows overlaying dolomite bedrock) at a site in Missouri are fed by springs originating south of the natural area in the Logan Creek valley (Aley and Adel 1991, p. 4).

Loss of important habitat within suitable wetland systems may also threaten this species. Wetland systems with wet prairie, sedge meadow, cattail marsh, and/or hummock habitat, interspersed with native shrubs, appear to be an important part of the overall habitat requirements of the Hine's emerald dragonfly. The combination of these habitat types within the wetland systems may be important to the survival of this species. Destruction and degradation of Hine's emerald dragonfly habitat can result from threats such as succession and encroachment of invasive species, feral pigs, illegal all terrain vehicles and beaver dams (McKenzie and Vogt 2005, pp. 19–20).

Contamination from landfills, transportation, agriculture and other past or present applications of habitat-altering chemicals may be harmful to this species. The species long aquatic larval stage makes it vulnerable to contamination of groundwater and surface water. Because groundwater moves relatively slowly through sediments, contaminated water may remain toxic for long periods of time and may be difficult or impossible to treat. High water quality may be an important component of this species' habitat.

Adult mortality from direct impacts with vehicles or trains may reduce Hine's emerald dragonfly population sizes (Steffens 1997, pp. 1, 4, 5, 6, 7, 8, 9; Soluk *et al.* 1998a, pp. 59, 61–64). Because Hine's emerald dragonflies are known to be killed by vehicles and they have been observed flying over railroad tracks, it is believed that trains may also be a source of mortality for this species (Soluk *et al.* 1998b, pp. 3–4; 2003, pp. 1–3; Soluk and Moss 2003, pp. 2–4, 6–11). A unit-by-unit description of threats can be found in the individual unit descriptions below.

Proposed Critical Habitat Designation

We are proposing to designate 49 units as critical habitat for the Hine's emerald dragonfly. The critical habitat areas described below constitute our best assessment at this time of areas determined to be occupied at the time of listing, that contain the primary constituent elements essential for the conservation of the species, and that may require special management, and those additional areas not occupied at the time of listing but that have been determined to be essential to the conservation of the Hine's emerald dragonfly. Management and protection of all the areas is necessary to achieve the conservation biology principles of representation, resiliency, and redundancy (Shaffer and Stein 2000) as represented in the recovery criteria established in the recovery plan for the species. The areas proposed as critical habitat are identified in Tables 1 and 2 below.

Table 1 below lists the units (with approximate area) determined to meet the definition of critical habitat for the Hine's emerald dragonfly, but which are being considered for exclusion under section 4(b)(2) of the Act from the final critical habitat designation by State (see discussion under the Exclusion Under Section 4(b)(2) of the Act section below). We are considering the exclusion of all 26 units in Missouri and 2 units in Michigan from the critical habitat designation.

TABLE 1.— AREAS DETERMINED TO MEET THE DEFINITION OF CRITICAL HABITAT FOR THE HINE'S EMERALD DRAGONFLY (DEFINITIONAL AREA) AND THE AREAS CONSIDERED FOR EXCLUSION FROM THE FINAL CRITICAL HABITAT DESIGNATION (AREA BEING CONSIDERED FOR EXCLUSION)

State	Definitional area (ac/ha)	Area being considered for exclusion (ac/ha)
Michigan Unit 1	9,452/3,825	All.
Michigan Unit 2	3,511/1,421	All.
Missouri Unit 1	90/36	All.
Missouri Unit 2	34/14	All.
Missouri Unit 3	18/7	All.
Missouri Unit 4	14/6	All.
Missouri Unit 5	50/20	All.
Missouri Unit 6	22/9	All.
Missouri Unit 7	33/13	All.
Missouri Units 8, 9, and 10	333/135	All.
Missouri Unit 11	113/46	All.
Missouri Unit 12	50/20	All.
Missouri Unit 13	30/12	All.
Missouri Unit 14	14/5	All.
Missouri Unit 15	11/4	All.
Missouri Unit 16	4/2	All.
Missouri Units 17 and 18	224/91	All.
Missouri Units 19 and 20	115/47	All.
Missouri Unit 21	6/2	All.
Missouri Unit 22	32/13	All.
Missouri Units 23 and 24	75/31	All.
Missouri Unit 25	33/13	All.
Missouri Unit 26	5/2	All.
Total	14,269/5,774	14,269/5,774

All the units listed in Table 1 were not known to be occupied at the time of listing. Most Missouri units are much smaller in both overall area and estimated population size than those elsewhere within the species' range. Additionally, the overwhelming majority of Missouri units are completely surrounded by contiguous tracts of 100 percent closed canopy forest.

The failure to confirm the presence of adults at some sites that were surveyed during suitable flight conditions (i.e., correct flight season and time of day, and weather conditions optimal for potential observation of the species) and during multiple visits provides strong evidence that population sizes at Missouri sites are much less than those in Illinois, Michigan, and Wisconsin. Nonetheless, all the units are considered occupied because larvae are found at all Missouri sites and all of the units have the primary constituent elements identified for the species.

Table 2 below provides the approximate area encompassed by each of the remaining proposed critical habitat units.

TABLE 2.—CRITICAL HABITAT UNITS PROPOSED FOR THE HINE'S EMERALD DRAGONFLY, AREA ESTIMATES REFLECT ALL LAND WITHIN CRITICAL HABITAT UNIT BOUNDARIES

Critical habitat unit	Land ownership	Area (ac/ha)
Illinois Unit 1	Metropolitan Water Reclamation District of Greater Chicago; Elgin, Joliet, and Eastern Railway Company; Commonwealth Edison Company.	419/170
Illinois Unit 2	Material Service Corporation; Elgin, Joliet, and Eastern Railway Company; Commonwealth Edison Company.	439/178
Illinois Unit 3	Forest Preserve District of Will County, Commonwealth Edison Company, Others.	337/136
Illinois Unit 4	Forest Preserve District of Will County, Forest Preserve District of Cook County, Commonwealth Edison Company, Others.	607/246
Illinois Unit 5	Forest Preserve District of DuPage County, Commonwealth Edison Company, Santa Fe Railroad.	326/132
Illinois Unit 6	Forest Preserve District of Cook County	387/157
Illinois Unit 7	Illinois Department of Natural Resources, Material Service Corporation, Illinois Central Gulf Railroad.	480/194
Michigan Unit 3	Michigan Department of Natural Resources, The Nature Conservancy, other Private Individuals.	50/20

TABLE 2.—CRITICAL HABITAT UNITS PROPOSED FOR THE HINE'S EMERALD DRAGONFLY, AREA ESTIMATES REFLECT ALL LAND WITHIN CRITICAL HABITAT UNIT BOUNDARIES—Continued

Critical habitat unit	Land ownership	Area (ac/ha)
Michigan Unit 4	Michigan Department of Natural Resources, Private Individuals.	959/388
Michigan Unit 5	Michigan Department of Natural Resources	156/63
Michigan Unit 6	Private Individuals	220/89
Wisconsin Unit 1	Wisconsin Department of Natural Resources and Private Individuals.	503/204
Wisconsin Unit 2	The Nature Conservancy and other Private Individuals	814/329
Wisconsin Unit 3	The Nature Conservancy and other Private Individuals	66/27
Wisconsin Unit 4	The Nature Conservancy and other Private Individuals	407/165
Wisconsin Unit 5	Wisconsin Department of Natural Resources; University of Wisconsin; Ridges Sanctuary, Inc.; other Private Individuals.	3,093/1,252
Wisconsin Unit 6	Wisconsin Department of Natural Resources and Private Individuals.	230/93
Wisconsin Unit 7	The Nature Conservancy and other Private Individuals	352/142
Wisconsin Unit 8	The Nature Conservancy and other Private Individuals	70/28
Wisconsin Unit 9	Wisconsin Department of Natural Resources and Private Individuals.	1193/483
Wisconsin Unit 10	Wisconsin Department of Natural Resources, University of Wisconsin, Private Individuals.	2312/936
Total		13,420/5,432

We present brief descriptions of all units listed in Tables 1 and 2, and reasons why they meet the definition of critical habitat for the Hine's emerald dragonfly, below.

Illinois Unit 1—Will County, Illinois

Illinois Unit 1 consists of 419 ac (170 ha) in Will County, Illinois. This unit was known to be occupied at the time of listing and includes the area where the Hine's emerald dragonfly was first collected in Illinois as well as one of the most recently discovered locations in the State. All PCEs for the Hine's emerald dragonfly are present in this unit. Adults and larvae are found within this unit. The unit consists of larval and adult habitat with a mosaic of upland and wetland communities including fen, marsh, sedge meadow, and dolomite prairie. The wetlands are fed by groundwater that discharges into the unit from seeps and upwelling that have formed small, flowing streamlet channels that contain crayfish burrows. Known threats to the primary constituent elements in this unit include ecological succession and encroachment of invasive species; illegal all terrain vehicles; utility and road construction and maintenance; management and land use conflicts; and groundwater depletion, alteration, and contamination. The majority of the unit is a dedicated Illinois Nature Preserve that is managed and leased by the Forest Preserve District of Will County. Although a current management plan is in place, it does not specifically address the Hine's emerald dragonfly. We are evaluating the protective measures in the plan to determine the benefits to the features essential for the conservation of the Hine's emerald dragonfly. We will continue to work with the land managers during the development of the final rule. This unit also consists of a utility easement that contains electrical transmission and distribution lines and a railroad line used to transport coal to a power plant. In addition, a remaining small portion of this unit is located between a sewage treatment facility and the Des Plaines River. This unit is planned to be incorporated in a Habitat Conservation Plan that is being pursued by a large partnership that includes the landowners of this unit.

Illinois Unit 2—Will County, Illinois

Illinois Unit 2 consists of 439 ac (178 ha) in Will County, Illinois. This unit was known to be occupied at the time of listing and has repeated adult and larval observations. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit consists of larval and adult habitat with a mosaic of plant communities including fen, marsh, sedge meadow, and dolomite prairie. The wetlands are fed by groundwater that discharges into the unit from seeps and upwelling that have formed small flowing streamlet channels that contain crayfish burrows. Known threats to the primary constituent elements in this unit include ecological succession and encroachment of invasive species; utility and road construction and maintenance; management and land use conflicts; and groundwater depletion, alteration, and contamination. The unit is privately owned and includes a utility easement that contains electrical transmission and distribution lines and a railroad line used to transport coal to a power plant. This unit is planned to be incorporated in a Habitat Conservation Plan that is being pursued by a large partnership that includes the landowners of this unit.

Illinois Unit 3—Will County, Illinois

Illinois Unit 3 consists of 337 ac (136 ha) in Will County, Illinois. This unit was known to be occupied at the time of listing and includes one of the first occurrences of Hine's emerald dragonfly known after the discovery of the species in Illinois. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit consists of larval and adult habitat with a mosaic of upland and wetland communities including fen, sedge meadow, marsh, and dolomite prairie. The wetlands are fed by groundwater that discharges into the unit from seeps and upwelling that have formed small flowing streamlet channels that contain crayfish burrows. Known threats to the primary constituent elements in this unit include ecological succession and encroachment of invasive species; utility and road construction and maintenance; management and land use conflicts; and groundwater depletion, alteration, and contamination. The majority of the unit is a dedicated Illinois Nature Preserve that is owned and managed by the Forest Preserve District of Will County. Although a

current management plan is in place, it does not specifically address the Hine's emerald dragonfly. We are evaluating the protective measures in the plan to determine the benefits to the features essential for the conservation of the Hine's emerald dragonfly. We will continue to work with the land managers during the development of the final rule. This unit also consists of a utility easement that contains electrical transmission and distribution lines. This unit is planned to be incorporated in a Habitat Conservation Plan that is being pursued by a large partnership that includes the landowners of this unit.

Illinois Unit 4—Will and Cook Counties, Illinois

Illinois Unit 4 consists of 607 ac (246 ha) in Will and Cook Counties in Illinois. This unit was known to be occupied at the time of listing and includes one of the first occurrences of Hine's emerald dragonfly that was verified after the discovery of the species in Illinois. All PCEs for the Hine's emerald dragonfly are present in this unit. Repeated observations of both adult and larval Hine's emerald dragonfly have been made in this unit. The unit consists of larval and adult habitat with a mosaic of upland and wetland communities including fen, sedge meadow, and dolomite prairie. The wetlands are fed by groundwater that discharges into the unit from seeps and upwelling that have formed small flowing streamlet channels that contain crayfish burrows. Known threats to the primary constituent elements in this unit include ecological succession and encroachment of invasive species; utility and road construction and maintenance; management and land use conflicts; and groundwater depletion, alteration, and contamination. The unit is owned and managed by the Forest Preserve District of Will County and the Forest Preserve District of Cook County. Construction of the Interstate 355 extension began in 2005 and the corridor for this project intersects this unit at an elevation up to 67 ft (20 m) above the ground to minimize potential impacts to Hine's emerald dragonflies. This unit also consists of a utility easement that contains electrical transmission lines.

Illinois Unit 5—DuPage County, Illinois

Illinois Unit 5 consists of 326 ac (132 ha) in DuPage County, Illinois. This unit was known to be occupied at the time of listing and has repeated adult observations. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit consists of larval and adult habitat with a mosaic of upland and wetland plant communities including fen, marsh, sedge meadow, and dolomite prairie. The wetlands are fed by groundwater that discharges into the unit from seeps and upwelling that have formed small flowing streamlet channels that contain crayfish burrows. Known threats to the primary constituent elements in this unit include ecological succession and encroachment of invasive species; utility and road construction and maintenance; management and land use conflicts; and groundwater depletion, alteration, and contamination. The majority of the unit is owned and managed by the Forest Preserve District of DuPage County. This unit also consists of a railroad line and a utility easement with electrical transmission lines.

Illinois Unit 6—Cook County, Illinois

Illinois Unit 6 consists of 387 ac (157 ha) in Cook County, Illinois. This unit was known to be occupied at the time Hine's emerald dragonfly was listed. All PCEs for the Hine's emerald dragonfly are present in this unit. There have been repeated adult observations as well as observations of teneral adults and male territorial patrols suggesting that breeding is occurring within a close proximity. The unit consists of larval and adult habitat with a mosaic of upland and wetland plant communities including fen, marsh, and sedge meadow. The wetlands are fed by groundwater that discharges into the unit from seeps that have formed small flowing streamlet channels that contain crayfish burrows. Known threats to the primary constituent elements in this unit include ecological succession and encroachment of invasive species; utility and road construction and maintenance; management and land use conflicts; and groundwater depletion, alteration, and contamination. The area within this unit is owned and managed by the Forest Preserve District of Cook County.

Illinois Unit 7—Will County, Illinois

Illinois Unit 7 consists of 480 ac (194 ha) in Will County, Illinois. This unit was known to be occupied at the time of listing and includes one of the first occurrences of Hine's emerald dragonfly known after the discovery of the species in Illinois. All PCEs for the Hine's emerald dragonfly are present in this unit. Adults and larvae have been found within this unit. The unit consists of larval and adult habitat with a mosaic of upland and wetland communities including fen, marsh, sedge meadow, and dolomite prairie. The wetlands are fed by groundwater that discharges into the unit from seeps and upwelling that have formed small flowing streamlet channels that contain crayfish burrows. Known threats to the primary constituent elements in this unit include ecological succession and encroachment of invasive species; utility and road construction and maintenance; management and land use conflicts; and groundwater depletion, alteration, and contamination. A portion of the unit is a dedicated Illinois Nature Preserve that is managed and owned by the Illinois Department of Natural Resources. This unit also consists of a railroad line and a utility easement that contains electrical distribution lines. This unit is planned to be incorporated in a Habitat Conservation Plan that is being pursued by a large partnership that includes the landowners of this unit.

Michigan Unit 1—Mackinac County, Michigan

Michigan Unit 1 consists of 9,452 ac (3,825 ha) in Mackinac County in the Upper Peninsula of Michigan. This area was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit contains at least four breeding areas for Hine's Emerald dragonfly, with female oviposition or male territorial patrols observed at all breeding sites. Adults have also been observed foraging at multiple locations within this unit. The unit contains a mixture of fen, forested wetland, forested dune and swale, and upland communities that are important for breeding and foraging Hine's emerald dragonfly. The habitat is mainly spring fed rich cedar swamp or northern fen. The breeding areas are open with little woody vegetation or are sparsely vegetated with northern white cedar (*Thuja occidentalis*). Small shallow pools and seeps are common. Crayfish burrows are found in breeding areas. Corridors between the breeding areas make it likely that adult dragonflies could travel or forage between the breeding sites. Although the majority of this unit is owned by the Hiawatha National Forest and faces fewer threats than other units, threats (including non-native species invasion, woody encroachment, off-road vehicle use, logging, and utility and road right-of-way maintenance) have the potential to impact the habitat. Small portions of the unit are owned by the State of Michigan and private individuals. The Hiawatha National Forest, through their Land Use and Management Plan, will protect all known Hine's breeding areas and implement the Hine's Emerald

dragonfly recovery plan. We are considering excluding Michigan Unit 1 from our final designation.

Michigan Unit 2—Mackinac County, Michigan

Michigan Unit 2 consists of 3,511 ac (1,421 ha) in Mackinac County in the Upper Peninsula of Michigan. This area was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit contains at least four breeding areas for Hine's Emerald dragonfly, with female oviposition or male territorial patrols observed at all breeding sites. The unit contains a mixture of fen, forested wetland, forested dune and swale, and upland communities that are important for breeding and foraging Hine's emerald dragonfly. The breeding habitat varies in the unit. Most breeding areas are northern fen communities with sparse woody vegetation (northern white cedar) that are probably spring fed with seeps and marl pools present. One site is a spring-fed marl fen with sedge dominated seeps and marl pools. Crayfish burrows are found in breeding areas. Corridors between the breeding areas, including a large forested dune and swale complex, make it likely that adult dragonflies could travel or forage between the breeding sites. Although the majority of this unit is owned by the Hiawatha National Forest and is designated as a Wilderness Area, threats (including non-native species invasion, woody encroachment, and off-road vehicle use) have the potential to impact the habitat. About one percent of the unit is owned by private individuals. The Hiawatha National Forest, through their Land Use and Management Plan, will protect all known Hine's breeding areas and implement the Hine's Emerald dragonfly recovery plan. We are considering excluding Michigan Unit 2 from our final designation.

Michigan Unit 3—Mackinac County, Michigan

Michigan Unit 3 consists of 50 ac (20 ha) in Mackinac County on Bois Blanc Island in Michigan. This area was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit contains one breeding area for Hine's Emerald dragonfly with male territorial patrols and more than 10 adults observed in 1 year. The unit contains a small fen that is directly adjacent to the Lake Huron shoreline and forested dune and swale habitat that extends inland. The unit contains seeps and small fens, some areas with marl. Threats to the unit include maintenance of utility and road right of way, and development of private lots and septic systems. Road work and culvert maintenance could change the hydrology of the unit. Approximately half of the unit is owned by the State of Michigan, the remaining portion of the area is owned by The Nature Conservancy or is subdivided private land. We are currently obtaining and reviewing any management plans from the Michigan Department of Natural Resources and The Nature Conservancy to determine if adequate protection and management of the unit is provided. If an adequate management plan is in place, the State and/or Nature Conservancy owned portion of this unit may be excluded in the final designation.

Michigan Unit 4—Presque Isle County, Michigan

Michigan Unit 4 consists of 959 ac (388 ha) in Presque Isle County in the northern lower peninsula of Michigan. This area was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit contains one breeding area for Hine's Emerald dragonfly, with female oviposition and adults observed in more than 1 year. The unit contains a fen with seeps and crayfish burrows present. The fen has stunted, sparse white cedar and marl flats dominated by spike rush (*Eleocharis*). The threats to Hine's emerald dragonflies in this unit are unknown. The majority of this unit is a State park owned by the Michigan Department of Natural Resources, the remainder of the unit is privately owned. We are currently obtaining and reviewing any Michigan Department of Natural Resources management plans to determine if adequate protection and management of the unit is provided. If an adequate management plan is in place, the State-owned portion of this unit may be excluded in the final designation.

Michigan Unit 5—Alpena County, Michigan

Michigan Unit 5 consists of 156 ac (63 ha) in Alpena County in the northern lower peninsula of Michigan. This area was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit contains one breeding area for Hine's Emerald dragonfly, with adults observed in more than one year and crayfish burrows present. The unit contains a mixture of northern fen and wet meadow habitat that are used by breeding and foraging Hine's emerald dragonfly. Threats to this unit include possible hydrological modification due to outdoor recreational vehicle use and a nearby roadway. The unit is owned by the State of Michigan. We are currently obtaining and reviewing any Michigan Department of Natural Resources management plans to determine if adequate protection and management of the unit is provided. If an adequate management plan is in place, the State owned portion of this unit may be excluded in the final designation.

Michigan Unit 6—Alpena County, Michigan

Michigan Unit 6 consists of 220 ac (89 ha) in Alpena County in the northern lower peninsula of Michigan. This area was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. The unit contains one breeding area for Hine's Emerald dragonfly, with male territorial patrols and adults observed. The unit contains a marl fen with numerous seeps and rivulets important for breeding and foraging Hine's Emerald dragonfly. In the area of this unit, trash dumping, home development, and outdoor recreational vehicles were observed impacting similar habitat. The unit is owned by a private group.

Missouri Unit 1—Crawford County, Missouri

Missouri Unit 1 consists of 90 ac (36 ha) in Crawford County, Missouri, and is under U.S. Forest Service ownership. This fen is in close proximity to the village of Billard and is associated with James Creek, west of Billard. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are present in this unit. The fen provides surface flow, and includes larval habitat and adjacent cover for resting and predator avoidance. The fen and an adjacent open pasture provide foraging habitat that is surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this locality. Threats identified for this unit include feral hogs and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 2—Dent County, Missouri

Missouri Unit 2 is comprised of 34 ac (14 ha) in Dent County, Missouri, and is under U.S. Forest Service and private ownership. It is located north of the village of Howes Mill and in proximity to County Road (CR) 438. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are present in this unit. The fen provides surface flow, and includes

larval habitat and adjacent cover for resting and predator avoidance. The fen and an adjacent open old field provide foraging habitat and are surrounded by contiguous, closed canopy forest. Both adults and larvae have been documented from this locality. Threats identified for this unit include all terrain vehicles, feral hogs, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 3—Dent County, Missouri

Missouri Unit 3 is under private ownership and consists of 18 ac (7 ha) in Dent County, Missouri. It is located north-northeast of the village of Howes Mill and is associated with a tributary of Huzzah Creek. This area was not known to be occupied at the time of listing. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen and adjacent old fields provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this unit. Threats identified for this unit include all terrain vehicles, feral hogs, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 4—Dent County, Missouri

Missouri Unit 4 is owned and managed by the U.S. Forest Service, and consists of 14 ac (6 ha) in Dent County, Missouri. This fen is associated with a tributary of Watery Fork Creek in Fortune Hollow and is located east of the juncture of Highway 72 and Route MM. This area was not known to be occupied at the time of listing. The fen provides surface flow, and includes larval habitat and adjacent cover for resting and predator avoidance. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen and adjacent old fields provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this locality. Threats identified for this unit include feral hogs and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 5—Iron County, Missouri

Missouri Unit 5 is comprised of 50 ac (20 ha) in Iron County, Missouri, and is under U.S. Forest Service ownership. This fen is adjacent to Neals Creek and Neals Creek Road, southeast of Bixby. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen consists of surface flow and is fed, in part, by a wooded slope north of Neals Creek Road. This small but high quality fen provides larval habitat and adjacent cover for resting and predator avoidance. The fen, adjacent fields, and open road provide habitat for foraging and are surrounded by contiguous, closed canopy forest. Both adults and larvae have been documented from this unit. Threats identified for this unit include all terrain vehicles, feral hogs, road construction and maintenance, beaver dams, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 6—Morgan County, Missouri

Missouri Unit 6 is privately owned, and consists of 22 ac (9 ha) in Morgan County, Missouri. The fen borders Flag Branch Creek and is located near the small town of Barnett south southwest of Route N. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow, and includes larval habitat and adjacent cover for resting and predator avoidance. The fen consists of three, small, fen openings adjacent to one another. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen and adjacent open areas associated with the landowner's residence provide the only habitat for foraging and are surrounded by contiguous, closed canopy forest. Although only larvae have been documented from this locality, an unidentified species of *Somatochlora* was observed during an earlier visit (Vogt 2006). Threats identified for this unit include feral hogs, ecological succession, beaver dams, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 7—Phelps County, Missouri

Missouri Unit 7 consists of 33 ac (13 ha) in Phelps County, Missouri, and is owned and managed by the U.S. Forest Service. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. This fen is associated with Kaintuck Hollow and a tributary of Mill Creek, and is located south-southwest of the town of Newburg. This high quality fen provides larval habitat and adjacent cover for resting and predator avoidance. The fen, adjacent fields, and open road provide habitat for foraging and are surrounded by contiguous, closed canopy forest. Despite repeated sampling for adults and larvae, only one exuviae has been documented from this unit. Threats identified for this unit include all terrain vehicles, feral hogs, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Units 8, 9, and 10—Reynolds County, Missouri

Missouri Units 8, 9, and 10 comprise the Bee Fork complex. The complex consists of 333 ac (135 ha), and includes U.S. Forest Service and private land in Reynolds County, Missouri. This locality is a series of three fens adjacent to Bee Fork Creek, extending from east-southeast of Bunker east to near the bridge on Route TT over Bee Fork Creek. These areas were not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided within this complex. The fen provides surface flow and is fed, in part, by a small spring that originates from a wooded ravine just north of the county road bordering the northern most situated fen. This complex is one of the highest quality representative examples of an Ozark fen in the State. The fen provides larval habitat and adjacent cover for resting and predator avoidance. The fen, adjacent fields, and open road provide habitat for foraging and are surrounded by contiguous, closed canopy forest. Both adults and larvae have been documented from this unit. This complex is an extremely important focal area for conservation actions that benefit Hine's emerald dragonfly. It is likely that the species uses Bee Fork Creek as a connective corridor between adjacent components of the complex. Threats identified for this unit include feral hogs, ecological succession, utility maintenance, application of herbicides, and habitat fragmentation. We are considering excluding these units from our final critical habitat designation.

Missouri Unit 11—Reynolds County, Missouri

Missouri Unit 11 is under private and U.S. Forest Service ownership and consists of 113 ac (46 ha) in Reynolds County, Missouri. The unit is a series of small fen openings adjacent to a tributary of Bee Fork Creek, and is located east of the intersection of Route TT and Highway 72, extending north to the Bee Fork Church on County Road 854. This area was not known to be occupied at the time of listing. This unit is one of the highest quality representative examples of an Ozark fen in the State and incorporates much of

the valley within Grasshopper Hollow. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen, adjacent fields, and open path provide habitat for foraging and are surrounded by contiguous, closed canopy forest. Both adults and larvae have been documented from this unit. The majority of this unit is managed by The Nature Conservancy. Threats identified for this unit include feral hogs, beaver dams, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 12—Reynolds County, Missouri

Missouri Unit 12 is comprised of 50 ac (20 ha) in Reynolds County, Missouri and is under private ownership. This locality is near the town of Ruble and is closely associated with the North Fork of Web Creek. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. This fen is fed by surface flow and a few small springs. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen and an adjacent open pasture provide foraging habitat and are surrounded by contiguous, closed canopy forest. Both adults and larvae have been documented from this locality. Threats identified for this unit include feral hogs, ecological succession, change in ownership, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 13—Reynolds County, Missouri

Missouri Unit 13 consists of 30 ac (12 ha) in Reynolds County, Missouri, and is under private ownership. This unit consists of a spring fed meadow and deep muck fen that is located north of the town of Centerville adjacent to Highway 21. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen is fed by two springs and surface flow that provide larval habitat and adjacent cover for resting and predator avoidance. The fen and adjacent open pasture and fields provide foraging habitat for adults. Unlike most localities in Missouri, this unit is unique in that the surrounding landscape consists of more open fields than closed canopy forest and the microhabitat is more marsh like than the typical surface water fed fens associated with the species. Both adults and larvae have been documented from this unit. Threats identified for this unit include feral hogs, road construction and maintenance, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 14—Reynolds County, Missouri

Missouri Unit 14 is under private ownership and consists of 14 acres (5 hectares) in Reynolds County, Missouri. The site was designated as a State Natural Area in December 1983 and is located north of Centerville, adjacent to Highway 21. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen and adjacent open yards of rural residents provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this location. Threats identified for this unit include feral hogs, road construction and maintenance, utility maintenance, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 15—Reynolds County, Missouri

Missouri Unit 15 is a very small, privately owned fen, and is comprised of 11 acres (4 hectares), adjacent to South Branch fork of Bee Fork Creek, northeast of the intersection of Route B and Highway 72 in Reynolds County, Missouri. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen, adjacent old field, and unmaintained county road provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this locality. Threats identified for this unit include feral hogs, ecological succession, all terrain vehicles, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 16—Reynolds County, Missouri

Missouri Unit 16 is the smallest known site for Hine's emerald dragonfly in Missouri and consists of 4 acres (2 hectares) in Reynolds County. It is owned and managed by the Missouri Department of Conservation (MDC) and is located southeast of the town of Ruble on a tributary to the North Fork of Web Creek. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen and adjacent logging roads provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this unit. Threats identified for this unit include feral hogs, all terrain vehicles, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Units 17 and 18—Ripley County, Missouri

Missouri Units 17 and 18 comprise the Overcup Fen complex. It consists of 224 acres (91 hectares) in Ripley County, Missouri. This complex of fens and springs is located on Little Black Conservation Area and is owned by the MDC and private land owners. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this complex. This complex of fens and springs is associated with the Little Black River and provide larval habitat and adjacent cover for resting and predator avoidance. The fen and adjacent old field provide habitat for foraging and are surrounded by contiguous, closed canopy forest. Both adults and larvae have been documented from this locality. Threats identified for this unit include feral hogs, all terrain vehicles, management conflicts, and habitat fragmentation. We are considering excluding these units from our final critical habitat designation.

Missouri Units 19 and 20—Ripley County, Missouri

Missouri Units 19 and 20 comprise the Mud Branch complex. It consists of 115 acres (47 hectares) in Ripley County, Missouri and is under private ownership. The unit is located east of the village of Shiloh and is associated with Mud Branch, a tributary of the Little Black River. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this complex. This complex of fens provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen, adjacent logging roads and nearby old field provide habitat for foraging and are surrounded

by contiguous, closed canopy forest. To date, only adults have been documented from this complex. Threats identified for this unit include feral hogs, all terrain vehicles, road construction and maintenance, ecological succession, and habitat fragmentation. We are considering excluding these units from our final critical habitat designation.

Missouri Unit 21—Ripley County, Missouri

Missouri Unit 21 is a very small fen and consists of 6 acres (2 hectares) in Ripley County, Missouri. It is under U.S. Forest Service ownership and is located west of Doniphan. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen and adjacent open, maintained county road provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this locality. Threats identified for this unit include feral hogs, all terrain vehicles, equestrian use, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Unit 22—Shannon County, Missouri

Missouri Unit 22 is owned and managed by the MDC and is located south of the village of Delaware, in Shannon County, Missouri. This unit is comprised of 32 acres (13 hectares) and includes one small fen and an adjacent larger fen that was recently restored due to beaver damage along Mahans Creek. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. These adjacent fens provide surface flow and include larval habitat and adjacent cover for resting and predator avoidance. The open areas associated with the fens provide the only habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this locality. Threats identified for this unit include feral hogs, beaver dams, and habitat fragmentation. We are considering excluding this unit from our final critical habitat designation.

Missouri Units 23 and 24—Washington County, Missouri

Missouri Units 23 and 24 comprise the Towns Branch and Welker Fen complex and consist of 75 acres (31 hectares) near the town of Palmer in Washington County, Missouri. The complex consists of two fens that are owned and managed by the U.S. Forest Service. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. These fens provide surface flow and include larval habitat and adjacent cover for resting and predator avoidance. The fens and adjacent open, maintained county roads provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this complex. Threats identified for this unit include feral hogs, all-terrain vehicles, road construction and maintenance, and habitat fragmentation. We are considering excluding these units from our final critical habitat designation.

Missouri Unit 25—Washington County, Missouri

Missouri Unit 25 consists of 33 acres (13 hectares) and is located northwest of the town of Palmer in Washington County, Missouri. The fen is associated with Snapps Branch, a tributary of Hazel Creek, and is owned and managed by the U.S. Forest Service. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow, and includes larval habitat and adjacent cover for resting and predator avoidance. The fen and adjacent old logging road with open canopy provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this locality. Threats identified for this unit include feral hogs, all-terrain vehicles, and habitat fragmentation. We are considering excluding these units from our final critical habitat designation.

Missouri Unit 26—Wayne County, Missouri

Missouri Unit 26 is owned and managed by the U.S. Forest Service and consists of 5 acres (2 hectares). This extremely small fen is located near Williamsville and is associated with Brushy Creek in Wayne County, Missouri. This area was not known to be occupied at the time of listing. All PCEs for Hine's emerald dragonfly are provided in this unit. The fen provides surface flow and includes larval habitat and adjacent cover for resting and predator avoidance. The fen and adjacent logging road with open canopy provide habitat for foraging and are surrounded by contiguous, closed canopy forest. To date, only larvae have been documented from this unit. Threats identified for this unit include feral hogs, all-terrain vehicles, and habitat fragmentation. We are considering excluding these units from our final critical habitat designation.

Wisconsin Unit 1—Door County, Wisconsin

Wisconsin Unit 1 consists of 503 acres (204 hectares) on Washington Island in Door County, Wisconsin. This unit was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. Three adults were observed at this site in July 2000, as well as male territorial patrols and female ovipositioning behavior; crayfish burrows, seeps, and rivulet streams are present. The unit consists of larval and adult habitat including boreal rich fen, northern wet-mesic forest, emergent aquatic marsh on marl substrate, and upland forest. Known threats to the primary constituent elements include loss of habitat due to residential development, invasive plants, alteration of the hydrology of the marsh (low Lake Michigan water levels can result in drying of the marsh), contamination of groundwater, and logging. One State Natural Area owned by the Wisconsin Department of Natural Resources occurs within the unit; the remainder of the unit is privately owned.

Wisconsin Unit 2—Door County, Wisconsin

Wisconsin Unit 2 consists of 814 acres (329 hectares) in Door County, Wisconsin. This unit was known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. The first adult recorded in Wisconsin was from this unit in 1987. Exuviae and numerous male and female adults have been observed in this unit. The unit, which encompasses much of the Mink River Estuary contains larval and adult habitat including wet-mesic and mesic upland forest (including white cedar wetlands), emergent aquatic marsh, and northern sedge meadows. Known threats to the primary constituent elements include loss of habitat due to residential development, invasive plants, alteration of the hydrology of wetlands, contamination of the surface and ground water, and logging. Land in this unit is owned by The Nature Conservancy and other private landowners. Forest areas with 100 percent canopy that occur greater than 328 ft (100 m) from the open forest edge of the unit are not considered critical habitat.

Wisconsin Units 3, 4, 5, 6, and 7—Door County, Wisconsin

Wisconsin Units 3 through 7 are located in Door County, Wisconsin and comprise the following areas: Unit 3 consists of 66 ac (27 ha); Unit 4 consists of 407 ac (165 ha); Unit 5 consists of 3,093 ac (1,252 ha); Unit 6 consists of 230 ac (93 ha); and Unit 7 consists of 352 ac (142 ha). Units 3, 5, 6 and 7 were known to be occupied at the time of listing. Unit 4 was not known to be occupied at the time of listing. All of the units are within 2.5 mi (4 km) of at least one other unit, making exchange of dispersing adults likely between units. All PCEs for the Hine's emerald dragonfly are present in all of the unist. Adult numbers recorded from these units varies. Generally fewer than 8 adults have been observed at Units 4, 6, and 7 during any one season. A study by Kirk and Vogt (1995, pp.13–15) reported a total adult population in the thousands in Units 3 and 5. Male and female adults have been observed in all the units. Adult dragonfly swarms commonly occur in Unit 5. Swarms ranging in size from 16 to 275 dragonflies and composed predominantly of Hine's emerald dragonflies were recorded from a total of 20 sites in and near Units 5 and 6 during 2001 and 2002 (Zuehls 2003, pp. iii, 19, 21, and 43). In addition, the following behaviors and life stages of Hine's emerald dragonflies have been recorded from the various units: Unit 3—mating behavior, male patrolling behavior, crayfish burrows, exuviae, and female ovipositioning (egg-laying); Unit 4—larvae and exuviae; Unit 5—teneral adults, mating behavior, male patrolling, larvae, female ovipositioning (egg-laying), and crayfish burrows; and Unit 6—mating behavior, evidence of ovipositioning, and crayfish burrows.

Unit 5 contains two larval areas, while Units 3, 4, 5, 6, and 7 each contain one larval area. Units 3 through 7 all include adult habitat, which varies from unit to unit but generally includes boreal rich fen, northern wet-mesic forest (including white cedar wetlands), upland forest, shrub-scrub wetlands, emergent aquatic marsh, and northern sedge meadow. Known threats to the primary constituent elements include loss of habitat due to residential and commercial development, ecological succession, invasive plants, utility and road construction and maintenance, alteration of the hydrology of wetlands (e.g., via quarrying or beaver impoundments), contamination of the surface and ground water (e.g., via pesticide use at nearby apple/cherry orchards (Unit 7)), agricultural practices, and logging. The majority of the land in the unit is conservation land in public and private ownership; the remainder of the land is privately owned. Forest areas with 100 percent canopy that occur greater than 328 ft (100 m) from the open forest edge of the unit but that are too small for us to map out are not considered critical habitat.

Wisconsin Unit 8—Door County, Wisconsin

Wisconsin Unit 8 consists of 70 ac (28 ha) in Door County, Wisconsin and includes Arbter Lake. This unit was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. Numerous male and female adults as well as ovipositing has been observed in this unit; crayfish burrows and rivulets are present. The unit consists of larval and adult habitat with a mix of upland and lowland forest, and calcareous bog and fen communities. Known threats to the primary constituent elements include encroachment of larval habitat by invasive plants and alteration of local groundwater hydrology (e.g., via quarrying activities), contamination of surface and groundwater, and logging. Land in this unit is owned by The Nature Conservancy and other private landowners.

Wisconsin Unit 9—Door County, Wisconsin

Wisconsin Unit 9 consists of 1,193 ac (483 ha) in Door County, Wisconsin associated with Keyes Creek. This unit was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. Numerous male and female adults have been seen in this unit; ovipositing females have been observed. Crayfish burrows are present. The unit consists of larval and adult habitat with a mix of upland and lowland forest, scrub-shrub wetlands, and emergent marsh. Known threats to the primary constituent elements are loss and/or degradation of habitat due to development, groundwater depletion or alteration, surface and groundwater contamination, alteration of the hydrology of the wetlands (e.g., via stream impoundment, road construction and maintenance, and logging). The majority of the land in this unit is a State Wildlife Area owned by the Wisconsin Department of Natural Resources with the remainder of the land privately owned. Forest areas with 100 percent canopy that occur greater than 328 ft (100 m) from the open forest edge of the unit are not considered critical habitat.

Wisconsin Unit 10—Ozaukee County, Wisconsin

Wisconsin Unit 10 consists of 2,312 ac (936 ha) in Ozaukee County, Wisconsin and includes much of Cedarburg Bog. This unit was not known to be occupied at the time of listing. All PCEs for the Hine's emerald dragonfly are present in this unit. Numerous male and female adults have been seen in this unit including teneral adults; ovipositing females have been observed. Crayfish burrows are present. The unit consists of larval and adult habitat with a mix of shrub-carr, ''patterned'' bog composed of forested ridges and sedge mats, wet meadow, and lowland forest. Known threats to the primary constituent elements are loss and/or degradation of habitat due to residential development, groundwater depletion or alteration, surface and groundwater contamination, invasive species, road construction and maintenance, and logging. The majority of area in the unit is State land and the remainder of the land is privately owned.

Wisconsin Sites Under Evaluation for Critical Habitat Designation

Three Wisconsin sites are being evaluated to determine if they provide essential habitat for the Hine's emerald dragonfly. Those sites are the Black Ash Swamp in southern Door County and northern Kewaunee County, Kellner's Fen in Door County, and the area in and around Ephraim Swamp in Door County. Currently adult Hine's emerald dragonflies have been observed in these areas, but breeding has not been confirmed. Surveys are planned for summer 2006. Information from those surveys will be used to determine whether any of the sites are appropriate for designation as critical habitat, and therefore may be considered for inclusion in the final designation.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7 of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to destroy or adversely modify critical habitat. In our regulations at 50 CFR 402.02, we define destruction or adverse modification as ''a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.'' However, recent

decisions by the 5th and 9th Circuit Court of Appeals have invalidated this definition (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service,* 378 F. 3d 1059 (9th Cir 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service et al.*, 245 F.3d 434, 442F (5th Cir 2001)). Pursuant to current national policy and the statutory provisions of the Act, destruction or adverse modification is determined on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional (or retain the current ability for the primary constituent elements to be functionally established) to serve the intended conservation role for the species.

Section 7(a) of the Act requires Federal agencies, including the Service, to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is proposed or designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402.

Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. This is a procedural requirement only. However, once proposed species become listed, or proposed critical habitat is designated as final, the full prohibitions of section 7(a)(2) apply to any Federal action. The primary utility of the conference procedures is to maximize the opportunity for a Federal agency to adequately consider proposed species and critical habitat and avoid potential delays in implementing their proposed action as a result of the section 7(a)(2) compliance process, should those species be listed or the critical habitat designated.

Under conference procedures, the Service may provide advisory conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The Service may conduct either informal or formal conferences. Informal conferences are typically used if the proposed action is not likely to have any adverse effects to the proposed species or proposed critical habitat. Formal conferences are typically used when the Federal agency or the Service believes the proposed action is likely to cause adverse effects to proposed species or critical habitat, inclusive of those that may cause jeopardy or adverse modification.

The results of an informal conference are typically transmitted in a conference report; while the results of a formal conference are typically transmitted in a conference opinion. Conference opinions on proposed critical habitat are typically prepared according to 50 CFR 402.14, as if the proposed critical habitat were designated. We may adopt the conference opinion as the biological opinion when the critical habitat is designated, if no substantial new information or changes in the action alter the content of the opinion (see 50 CFR 402.10(d)). As noted above, any conservation recommendations in a conference report or opinion are strictly advisory.

If a species is listed or critical habitat is designated, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. As a result of this consultation, compliance with the requirements of section 7(a)(2) will be documented through the Service's issuance of: (1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or (2) a biological opinion for Federal actions that may affect, but are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to result in jeopardy to a listed species or the destruction or adverse modification of critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. ''Reasonable and prudent alternatives'' are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid jeopardy to the listed species or destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where a new species is listed or critical habitat is subsequently designated that may be affected and the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control is authorized by law. Consequently, some Federal agencies may request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions may affect subsequently listed species or designated critical habitat or adversely modify or destroy proposed critical habitat.

Federal activities that may affect the Hine's emerald dragonfly or its designated critical habitat will require section 7 consultation under the Act. Activities on State, Tribal, local, or private lands requiring a Federal permit (such as a permit from the Corps under section 404 of the Clean Water Act or a permit under section 10(a)(1)(B) of the Act from the Service) or involving some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency) will also be subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local or private lands that are not federally-funded, authorized, or permitted, do not require section 7 consultations.

Application of the Jeopardy and Adverse Modification Standards for Actions Involving Effects to the Hine's Emerald Dragonfly and Its Critical Habitat

Jeopardy Standard

Prior to and following designation of critical habitat, the Service has applied an analytical framework for Hine's emerald dragonfly jeopardy analyses that relies heavily on the importance of core area populations to the survival and recovery of the Hine's emerald dragonfly. The section 7(a)(2) analysis is focused not only on these populations but also on the habitat conditions necessary to support them.

The jeopardy analysis usually expresses the survival and recovery needs of the Hine's emerald dragonfly in a qualitative fashion without making distinctions between what is necessary for survival and what is necessary for recovery. Generally, if a proposed Federal action is incompatible with the viability of the affected core area population(s), inclusive of associated

habitat conditions, a jeopardy finding is considered to be warranted, because of the relationship of each core area population to the survival and recovery of the species as a whole.

Adverse Modification Standard

The analytical framework described in the Director's December 9, 2004, memorandum is used to complete section 7(a)(2) analyses for Federal actions affecting Hine's emerald dragonfly critical habitat. The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional (or retain the current ability for the primary constituent elements to be functionally established) to serve the intended conservation role for the species. Generally, the conservation role of Hine's emerald dragonfly critical habitat units is to support viable core area populations.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe in any proposed or final regulation that designates critical habitat those activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation. Activities that may destroy or adversely modify critical habitat may also jeopardize the continued existence of the species.

Activities that may destroy or adversely modify critical habitat are those that alter the PCEs to an extent that the conservation value of critical habitat for the Hine's emerald dragonfly is appreciably reduced. Activities that, when carried out, funded, or authorized by a Federal agency, may affect critical habitat and therefore result in consultation for the Hine's emerald dragonfly include, but are not limited to:

(1) Actions that would significantly increase succession and encroachment of invasive species. Such activities could include, but are not limited to, release of nutrients and road salt (NaCl, unless it would result in an increased degree of threat to human safety) into the surface water or connected groundwater at a point source or by dispersed release (non-point source), and introduction of invasive species through human activities in the habitat. These activities can result in conditions that are favorable to invasive species and would provide an ecological advantage over native vegetation, fill rivulets and seepage areas occupied by Hine's emerald dragonfly larva, reduce detritus that provides cover for larva, and reduce flora and fauna necessary for the species to complete its lifecycle. Actions that would increase succession and encroachment of invasive species could negatively impact the Hine's emerald dragonfly and the species' habitat.

(2) Actions that would significantly increase sediment deposition within the rivulets and seepage areas occupied by Hine's emerald dragonfly larva. Such activities could include, but are not limited to, excessive sedimentation from livestock grazing, road construction, channel alteration, timber harvest, all terrain vehicle use, equestrian use, feral pig introductions, maintenance of rail lines, and other watershed and floodplain disturbances. These activities could eliminate or reduce the habitat necessary for the growth and reproduction of Hine's emerald dragonflies and their prey base by increasing the sediment deposition to levels that would adversely affect their ability to complete their life cycles. Actions that would significantly increase sediment deposition within rivulets and seepage areas could negatively impact the Hine's emerald dragonfly and the species' habitat.

(3) Actions that would significantly alter water quantity and quality. Such activities could include, but are not limited to, 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 at a point source or by dispersed release (non-point source). These activities could alter water conditions such that they are beyond the tolerances of the Hine's emerald dragonfly and its prey base, and result in direct or cumulative adverse affects to these individuals and their life cycles. Actions that would significantly alter water quantity and quality could negatively impact the Hine's emerald dragonfly and the species' habitat.

(4) Actions that would significantly alter channel morphology or geometry. Such activities could include but are not limited to, all terrain vehicle use, equestrian use, feral pig introductions, 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 that would negatively impact the Hine's emerald dragonfly and their prey base and/or their habitats. Actions that would significantly alter channel morphology or geometry could negatively impact the Hine's emerald dragonfly and the species' habitat.

(5) Actions that would fragment habitat and impact adult foraging or dispersal. Such activities could include, but are not limited to, road construction, destruction or fill of wetlands, and high-speed railroad and vehicular traffic. These activities may adversely affect dispersal resulting in a reduction in fitness and genetic exchange within populations as well as direct mortality of individuals. Actions that would fragment habitat and impact adult foraging or dispersal could negatively impact the Hine's emerald dragonfly and the species' habitat.

All of the units proposed as critical habitat, as well as those that are being considered for exclusion, are determined to contain features essential to the conservation of the Hine's emerald dragonfly or to otherwise be essential to the conservation of the species . All units are within the geographical range of the species, all were occupied by the species at the time of listing (based on observations made within the last 23 years) or are currently occupied and are considered essential to the conservation of the species, and all are likely to be used by the Hine's emerald dragonfly. Federal agencies already consult with us on activities in areas currently occupied by the Hine's emerald dragonfly, or if the species may be affected by the action, to ensure that their actions do not jeopardize the continued existence of the Hine's emerald dragonfly.

Exclusion Under Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that critical habitat shall be designated, and revised, on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the Secretary is afforded broad discretion and the Congressional record is clear that in making a determination under the section the Secretary has discretion as to which factors and how much weight will be given to any factor.

Under section 4(b)(2), in considering whether to exclude a particular area from the designation, we must identify the benefits of including the area in the

designation, identify the benefits of excluding the area from the designation, and determine whether the benefits of exclusion outweigh the benefits of inclusion. If an exclusion is contemplated, then we must determine whether excluding the area would result in the extinction of the species. In the following sections, we address a number of general issues that are relevant to the exclusions we are considering.

Conservation Partnerships on Non-Federal Lands

Most federally listed species in the United States will not recover without the cooperation of non-Federal landowners. More than 60 percent of the United States is privately owned (National Wilderness Institute 1995) and at least 80 percent of endangered or threatened species occur either partially or solely on private lands (Crouse *et al.* 2002). Stein *et al.* (1995) found that only about 12 percent of listed species were found almost exclusively on Federal lands (*i.e.*, 90–100 percent of their known occurrences restricted to Federal lands) and that 50 percent of federally listed species are not known to occur on Federal lands at all.

Given the distribution of listed species with respect to land ownership, conservation of listed species in many parts of the United States is dependent upon working partnerships with a wide variety of entities and the voluntary cooperation of many non-Federal landowners (Wilcove and Chen 1998; Crouse *et al.* 2002; James 2002). Building partnerships and promoting voluntary cooperation of landowners is essential to understanding the status of species on non-Federal lands and is necessary to implement recovery actions such as reintroducing listed species, habitat restoration, and habitat protection.

Many non-Federal landowners derive satisfaction from contributing to endangered species recovery. The Service promotes these private-sector efforts through the Four Cs philosophy—conservation through communication, consultation, and cooperation. This philosophy is evident in Service programs such as Habitat Conservation Plans (HCPs), Safe Harbors, Candidate Conservation Agreements, Candidate Conservation Agreements with Assurances, and conservation challenge cost-share. Many private landowners, however, are wary of the possible consequences of encouraging endangered species to their property, and there is mounting evidence that some regulatory actions by the Federal Government, while well-intentioned and required by law, can under certain circumstances have unintended negative consequences for the conservation of species on private lands (Wilcove *et al.* 1996; Bean 2002; Conner and Mathews 2002; James 2002; Koch 2002; Brook *et al.* 2003). Many landowners fear a decline in their property value due to real or perceived restrictions on land-use options where threatened or endangered species are found. Consequently, harboring endangered species is viewed by many landowners as a liability, resulting in anti-conservation incentives because maintaining habitats that harbor endangered species represents a risk to future economic opportunities (Main *et al.* 1999; Brook *et al.* 2003).

The purpose of designating critical habitat is to contribute to the conservation of threatened and endangered species and the ecosystems upon which they depend. The outcome of the designation, triggering regulatory requirements for actions funded, authorized, or carried out by Federal agencies under section 7 of the Act, can sometimes be counterproductive to its intended purpose. According to some researchers, the designation of critical habitat on private lands significantly reduces the likelihood that landowners will support and carry out conservation actions (Main *et al.* 1999; Bean 2002; Brook *et al.* 2003). The magnitude of this negative outcome is greatly amplified in situations where active management measures (*e.g.*, reintroduction, fire management, control of invasive species) are necessary for species conservation (Bean 2002).

The Service believes that the judicious use of excluding specific areas from critical habitat designations can contribute to species recovery and provide a superior level of conservation than critical habitat alone. For example, less than 17 percent of Hawaii is federally owned, but the state is home to more than 24 percent of all federally listed species, most of which will not recover without State and private landowner cooperation. On the island of Lanai, Castle and Cooke Resorts, LLC, which owns 99 percent of the island, entered into a conservation agreement with the Service. The conservation agreement provides conservation benefits to target species through management actions that remove threats (*e.g.*, axis deer, mouflon sheep, rats, invasive nonnative plants) from the Lanaihale and East Lanai Regions. Specific management actions include fire control measures, nursery propagation of native flora (including the target species) and planting of such flora. These actions will significantly improve the habitat for all currently occurring species. Due to the low likelihood of a Federal nexus on the island we believe that the benefits of excluding the lands covered by the conservation agreement exceeded the benefits of including them. As stated in the final critical habitat rule for endangered plants on the Island of Lanai:

> On Lanai, simply preventing ''harmful activities'' will not slow the extinction of listed plant species. Where consistent with the discretion provided by the Act, the Service believes it is necessary to implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources and that remove or reduce disincentives to conservation. While the impact of providing these incentives may be modest in economic terms, they can be significant in terms of conservation benefits that can stem from the cooperation of the landowner. The continued participation of Castle and Cooke Resorts, LLC, in the existing Lanai Forest and Watershed Partnership and other voluntary conservation agreements will greatly enhance the Service's ability to further the recovery of these endangered plants.

Cooperative conservation is the foundation of the Service's actions to protect species, and the Service has many tools by which it can encourage and implement partnerships for conservation. These tools include conservation grants, funding for Partners for Fish and Wildlife Program, the Coastal Program, and cooperative-conservation challenge cost-share grants. Our Private Stewardship Grant Program and Landowner Incentive Program provide assistance to private landowners in their voluntary efforts to protect threatened, imperiled, and endangered species, including the development and implementation of HCPs.

Conservation agreements with non-Federal landowners (*e.g.*, HCPs, contractual conservation agreements, easements, and stakeholder-negotiated State regulations) enhance species conservation by extending species protections beyond those available through section 7 consultations. In the past decade we have encouraged non-Federal landowners to enter into conservation agreements, based on a view that we can achieve greater species conservation on non-Federal land through such partnerships than we can through other methods (61 FR 63854; December 2, 1996).

General Principles of Section 7 Consultations Used in the Section 4(b)(2) Balancing Process

The most direct, and potentially largest, regulatory benefit of critical

habitat is that federally authorized, funded, or carried out activities require consultation pursuant to section 7 of the Act to ensure that they are not likely to destroy or adversely modify critical habitat. There are two limitations to this regulatory effect. First, it only applies where there is a Federal nexus—if there is no Federal nexus, designation itself does not restrict actions that destroy or adversely modify critical habitat. Second, it only limits destruction or adverse modification. By its nature, the prohibition on adverse modification is designed to ensure maintenance of the value of those areas that contain the physical and biological features essential to the conservation of the species or unoccupied areas that are essential to the conservation of the species. Critical habitat designation alone, however, does not require specific steps toward recovery.

Once consultation under section 7 of the Act is triggered, the process may conclude informally when the Service concurs in writing that the proposed Federal action is not likely to adversely affect the listed species or its critical habitat. However, if the Service determines through informal consultation that adverse impacts are likely to occur, then formal consultation would be initiated. Formal consultation concludes with a biological opinion issued by the Service on whether the proposed Federal action is likely to jeopardize the continued existence of a listed species or result in destruction or adverse modification of critical habitat, with separate analyses being made under both the jeopardy and the adverse modification standards. For critical habitat, a biological opinion that concludes in a determination of no destruction or adverse modification may contain discretionary conservation recommendations to minimize adverse effects to primary constituent elements, but it would not contain any mandatory reasonable and prudent measures or terms and conditions. Mandatory reasonable and prudent alternatives to the proposed Federal action would only be issued when the biological opinion results in a jeopardy or adverse modification conclusion.

We also note that for 30 years prior to the Ninth Circuit Court's decision in *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service,* 378 F.3d 1059 (9th Cir 2004) (hereinafter *Gifford Pinchot*), the Service equated the jeopardy standard with the standard for destruction or adverse modification of critical habitat. The Court ruled that the Service could no longer equate the two standards and that adverse modification evaluations require consideration of impacts on the recovery of species. Thus, under the *Gifford Pinchot* decision, critical habitat designations may provide greater benefits to the recovery of a species. However, we believe the conservation achieved through implementing HCPs or other habitat management plans is typically greater than would be achieved through multiple site-by-site, project-by-project, section 7 consultations involving consideration of critical habitat. Management plans commit resources to implement long-term management and protection to particular habitat for at least one and possibly other listed or sensitive species. Section 7 consultations only commit Federal agencies to prevent adverse modification to critical habitat caused by the particular project, and they are not committed to provide conservation or long-term benefits to areas not affected by the proposed project. Thus, any HCP or management plan which considers enhancement or recovery as the management standard will always provide as much or more benefit than a consultation for critical habitat designation conducted under the standards required by the Ninth Circuit Court in the *Gifford Pinchot* decision.

The information provided in this section applies to all the discussions below that discuss the benefits of inclusion and exclusion of critical habitat in that it provides the framework for the consultation process.

Educational Benefits of Critical Habitat

A benefit of including lands in critical habitat is that the designation of critical habitat serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by clearly delineating areas of high conservation value for the Hine's emerald dragonfly. In general the educational benefit of a critical habitat designation always exists, although in some cases it may be redundant with other educational effects. For example, HCPs have significant public input and may largely duplicate the educational benefit of a critical habitat designation. This benefit is closely related to a second, more indirect benefit: That designation of critical habitat would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances.

The information provided in this section applies to all the discussions below that discuss the benefits of inclusion and exclusion of critical habitat.

We are considering the exclusion of Michigan Units 1 and 2 (Hiawatha National Forest lands), and all Missouri units (1–26) from the final designation of critical habitat for the Hine's emerald dragonfly because we believe that the benefits of excluding these specific areas from the designation outweigh the inclusion of the specific areas. We believe that the exclusion of these areas from the final designation of critical habitat will not result in the extinction of the Hine's emerald dragonfly. We specifically solicit comment, however, on the inclusion or exclusion of such areas in the final designation. We will also review other relevant information concerning units being proposed in this rule as we receive it to determine whether any other units, or portions thereof, should be excluded from the final designation.

Michigan Units

Michigan Unit 1 and Michigan Unit 2 are on Hiawatha National Forest lands. The Hiawatha National Forest (Hiawatha) contains 895,313 ac (362,320 ha) of land in the eastern portion of the Upper Peninsula of Michigan. Hiawatha is broken into an east and west unit and contains a diversity of upland and wetland community types. In 2006, Hiawatha revised its Land and Resource Management Plan (Forest Plan, U.S. Department of Agriculture 2006). We completed a section 7 consultation for the Hiawatha Forest Plan that addresses federally listed resources, including the Hine's emerald dragonfly. The Hiawatha Forest Plan guides Hiawatha's activities over the next 15 years. We determined in our biological opinion resulting from that section 7 consultation that the implementation of the Plan would not jeopardize the continued existence of the Hine's emerald dragonfly.

The Hiawatha Forest Plan contains management direction that would serve to protect and conserve Hine's emerald dragonfly breeding and foraging habitats. Several standards, guidelines, and objectives in the Hiawatha Forest Plan are pertinent to Hine's emerald dragonfly. Two key standards provide strong assurances that Hine's emerald dragonflies will be protected and managed on the Hiawatha National Forest. The standards are (1) all Hine's emerald dragonfly breeding sites will be protected, and (2) signed recovery plans for federally threatened and endangered species will be implemented (United States Department of Agriculture 2006, p. 26). Standards as listed in the Hiawatha Forest Plan are required courses of action. An amendment of the Hiawatha Forest Plan is required to change a standard and would trigger

consultation with us under section 7 of the Act.

In addition to Hiawatha's Forest Plan, several voluntary activities show Hiawatha's commitment to Hine's emerald dragonfly and other listed species conservation. Over the last 5 years the Hiawatha has completed several dragonfly surveys that have led to the identification of at least two new Hine's emerald dragonfly breeding areas. In 2005, the Hiawatha hosted a Hine's emerald dragonfly workshop that provided critical education and outreach to Federal, State, and private field staff. They are also actively managing or protecting lands in an effort to help in the recovery of several other federally listed species including the piping plover and Kirtland's warbler.

We believe that the standards and guidelines outlined in the Hiawatha Forest Plan and the Forest's commitment to protect and recover federally listed species through section 7(a)(1) and 7(a)(2), adequately address identified threats to the Hine's emerald dragonfly and its habitat. Thus the relative benefits of inclusion of these lands within designated critical habitat are diminished.

(1) Benefits of Inclusion

The primary effect of designating any particular area as critical habitat is the requirement for Federal agencies to consult with us pursuant to section 7 of the Act to ensure actions they carry out, authorize, or fund do not destroy or adversely modify designated critical habitat. Absent critical habitat designation, Federal agencies remain obligated under section 7 to consult with us on actions that may affect a federally listed species to ensure such actions do not jeopardize the species' continued existence. The Forest Service routinely consults with us for activities on the Hiawatha National Forest that may affect federally listed species to ensure that the continued existence of such species is not jeopardized.

Designation of critical habitat may also provide educational benefits by informing land managers of areas essential to the conservation of the Hine's emerald dragonfly. In the case of Hiawatha National Forest, there is no appreciable educational benefit because the Forest managers have already demonstrated their knowledge and understanding of essential habitat for the species through their active recovery efforts, consultation, and workshops. Furthermore, the benefits of including the Hiawatha National Forest in designated critical habitat are minimal because the Forest managers are currently implementing conservation actions for the Hine's emerald dragonfly that equal or exceed those that would be realized if critical habitat were designated.

(2) Benefits of Exclusion

Designation of critical habitat on the Hiawatha National Forest would trigger a requirement for the U.S. Forest Service to consult on activities that may affect designated critical habitat. Designation of critical habitat would also require reinitiating consultation on ongoing activities where a consultation may have already been completed that assessed the effects to a federally listed species. The requirement to undertake additional consultations or revisit already completed consultations specifically to address the effects of activities on designated critical habitat could delay or impair the U.S. Forest Service's planned activities. If the area is not excluded, it might adversely impact the agency's willingness to devote limited resources to the voluntary conservation measures noted above, which exceed those that could be required from a critical habitat designation.

(3) Benefits of Proposed Exclusion Outweigh the Benefits of Inclusion

We anticipate that our final decision will make the following determination, unless information submitted in response to the proposal causes us to reach a different conclusion.

We find that the benefits of designating critical habitat for the Hine's emerald dragonfly on Hiawatha National Forest are small in comparison to the benefits of excluding these specific areas from the final designation. Exclusion would enhance the partnership efforts with the Forest Service focused on conservation of the species on the Hiawatha National Forest, and potentially reduce some of the administrative costs during consultation pursuant to section 7 of the Act.

(4) The Proposed Exclusion Will Not Result in Extinction of the Species

We anticipate that our final decision will make the following determination, unless information submitted in response to the proposal causes us to reach a different conclusion.

We believe that the proposed exclusion of Michigan Units 1 and 2 from critical habitat would not result in the extinction of Hine's emerald dragonfly because current conservation efforts under the Land and Resource Management Plan for the Hiawatha National Forest adequately protect essential Hine's emerald dragonfly habitat and go beyond this to provide appropriate management to maintain and enhance the primary constituent elements for the Hine's emerald dragonfly. Designation of critical habitat would not require the benefits of the current conservation efforts, but only that habitat not be destroyed or adversely modified. As such, there is no reason to believe that this proposed exclusion would result in extinction of the species.

Missouri Units

Federal Land

Missouri Units 1, 2, 3, 5, 7, 8 (in part), 11 (in part), 21, 23, 24, 25, and 26 are on U.S. Forest Service lands (Mark Twain National Forest). The Mark Twain National Forest (Mark Twain) contains approximately 1.5 million acres (607,028 hectares) of land in southern and central Missouri. In 2005, Mark Twain revised their Land and Resource Management Plan (Forest Plan; U.S. Department of Agriculture 2005, Chapter 2, pp. 1–14). That Plan, through implementation of the standards and guides established for the Hine's emerald dragonfly on the Mark Twain, addresses threats to the species on U.S. Forest Service lands in Missouri. We completed a section 7 consultation for the Mark Twain Forest Plan that addresses federally listed resources, including the Hine's emerald dragonfly. We determined in our biological opinion resulting from that section 7 consultation that the implementation of the Plan would not jeopardize the continued existence of the Hine's emerald dragonfly.

The 2005 Forest Plan contains specific direction for management of fen habitat and for fens with known or suspected populations of Hine's emerald dragonflies. The Plan also contains standards and guidelines to protect soil productivity and water quality while implementing all management actions. These standards and guidelines are required courses of action; a Forest Plan Amendment is required to change a standard. Standards and Guidelines may be modified only if site-specific conditions warrant the modification, and rationale for the modification is given in a National Environmental Policy Act (NEPA) document.

The fen standards and guidelines prohibit mechanical disturbance, and establish buffer zones around fen edges. Certain management activities are prohibited or modified within the buffer zones. The fen standards and guidelines require new road design to maintain

hydrologic functioning of fens and encourage relocation of roads or restoration of hydrology where existing roads interfere with natural water flow. The fen standards and guidelines encourage management of fire-dependent wetland communities with a fire regime similar to that with which the communities evolved. (U.S. Department of Agriculture 2005, Chapter 2, pp. 13–14).

The specific standards and guidelines (U.S. Department of Agriculture 2005, Chapter 2, p. 8) for the Hine's emerald dragonfly and its habitat include: (1) Control nonnative invasive and/or undesirable plant species in fen habitats through the most effective means possible while protecting water quality (Standard); (2) Restore local hydrology by eliminating old drainage ditches or other water diversionary structures when possible if such activities would not result in a loss of habitat (Guideline); (3) Fens that harbor known populations of Hine's emerald dragonfly should be prescribe burned to control invasion of woody species or as part of larger landscape restoration and enhancement projects (Guideline); (4) Prescribed burns on fens that harbor known or suspected populations of Hine's emerald dragonfly must be scheduled to occur from November through April (Standard); (5) Prohibit vehicle and heavy equipment use in fens, unless needed to improve Hine's emerald dragonfly habitat (Standard); and (6) Control unauthorized vehicle access to fens (Standard).

Implementing the Forest Plan's standards and guidelines will maintain the natural hydrology, restore natural fire regimes, and control undesirable plant species to maintain the PCEs identified for the Hine's emerald dragonfly on the Mark Twain National Forest. Additionally, prohibiting mechanical disturbance in fens will protect the integrity of crayfish burrows and maintain important larval habitat.

In addition to the 2005 Forest Plan, the Mark Twain National Forest completed a ''Threats Assessment of Fens Containing Hines' Emerald Dragonfly'' in September 2005. This assessment describes threats to individual fens and provides recommendations to eliminate or minimize those threats. Primary recommendations are to increase the use of prescribed fire at many of the fens, and construct fences to keep all terrain vehicles and feral hogs out of a few of the locations. Potential disturbance due to equestrian use will be minimized through coordination with the appropriate U.S. Forest Service District Office; signs and fencing will be used, if necessary, to alleviate this threat. Effective control measures will minimize threats from feral hogs and beavers. In 2005, beavers were effectively removed from Missouri Unit 5 where flood water associated with a beaver dam threatened the integrity of the adjacent fen.

We believe that the standards and guidelines outlined in the Mark Twain's National Forest Land Resource Management Plan, guidelines identified in the U.S. Forest Service's 2005 Threats Assessment, and the agency's commitment to manage and maintain important fen habitat through section 7(a)(1) and 7(a)(2) consultation, adequately address identified threats to the Hine's emerald dragonfly and its habitat. Thus the relative benefits of inclusion of these lands within designated critical habitat are diminished and limited.

State Land

We are considering the exclusion of all State-owned land in Missouri under section 4(b)(2) of the Act. We will review State management plans in Illinois, Wisconsin, and Michigan to determine their adequacy in protecting and managing Hine's emerald dragonfly habitat as they are made available.

Missouri Units 14, 16, 17, 18, and 22 are under MDC ownership. Threats identified on land owned and managed by the MDC are feral hogs, habitat fragmentation, road construction and maintenance, all terrain vehicles, beaver dams, and management conflicts. The MDC has developed management plans for the five conservation areas where the Hine's emerald dragonfly has been documented (Missouri Natural Areas Committee 2001, 2006; Missouri Department of Conservation 2006a, 2006b, 2006c). These plans provide for long-term management and maintenance of fen habitat essential for larval development and adjacent habitat that provides for foraging and resting needs for the species. Areas of management concern include the fen proper, adjacent open areas for foraging, adjacent shrubs, and a 328 ft (100 m) forest edge buffer to provide habitat for resting and predator avoidance. Based on initial groundwater recharge delineation studies by Aley and Aley (2004, p. 22), the 328 ft (100 m) buffer will also facilitate the maintenance of the hydrology associated with each unit. Actions outlined in area management plans will address threats to habitat by preventing the encroachment of invasive woody plants (ecological succession), and by maintaining open conditions of the fen and surrounding areas with prescribed fire and stand improvement through various timber management practices.

The potential impact of feral hogs on fens and any possible conflicts in management on MDC-owned lands will be accomplished through various control methods that will be coordinated among area managers, the MDC's Private Land Services (PLS) Division and Natural History biologists, MDC's Recovery Coordinator for the species, the Service, the Missouri Hine's Emerald Dragonfly Workgroup, and the Federal Hine's Emerald Dragonfly Recovery Team (Recovery Team). Effective control measures will minimize threats from feral hogs and beavers. We believe that management guidelines outlined in the conservation area plans and natural area plans and the close coordination among the various agencies mentioned above (plus other identified species experts as needed), will adequately address identified threats to Hine's emerald dragonfly and its habitat on MDC lands. Thus the relative benefits of inclusion of these lands within designated critical habitat are diminished and limited.

Private Land

We are considering the exclsuion of all private land in Missouri under section 4(b)(2) of the Act. We will continue to review management plans, partnerships, and conservation agreements in Illinois, Wisconsin, and Michigan to determine their adequacy in protecting and managing Hine's emerald dragonfly habitat as they are made available.

Missouri Units 2 (in part), 4, 6, 8 (in part), 9, 10, 11 (in part), 12, 13, 15, 19, and 20 are under private ownership. Threats identified on private land are feral hogs, habitat fragmentation, road construction and maintenance, ecological succession, all terrain vehicles, beaver dams, utility maintenance, application of herbicides, and change in ownership. All threats listed above for private property in Missouri will be addressed through close coordination among personnel with the MDC's PLS Division or Regional Natural History biologists and private landowners. Additionally, MDC personnel work closely and proactively with the National Resources Conservation Service (NRCS) and the Service's Partners for Fish and Wildlife Program to initiate management and maintenance actions on fens occupied by Hine's emerald dragonfly that will benefit the species and alleviate potential threats.

Effective control measures will be incorporated to minimize threats from feral hogs and beavers by providing

recommendations to private landowners through coordination with MDC's PLS Division or Regional Natural History biologists, the NRCS, and the Service's Partners for Fish and Wildlife Program. The Nature Conservancy manages Grasshopper Hollow (in Unit 11) in accordance with the Grasshopper Hollow Management Plan (The Nature Conservancy 2006, p. 1–4) to maintain fen habitat. Utility maintenance (Units 8 and 14) and herbicide application to maintain power line rights-of-way (Unit 8) were identified as potential threats at two units. Those potential threats will be minimized through close coordination among the MDC's PLS Division, MDC's Hine's emerald dragonfly recovery coordinator, and the appropriate utility maintenance company and its contractors. The potential change in ownership on private land in Missouri from cooperative landowners to ones who may not want to manage their land to benefit the species is a concern on some private lands. This threat will be addressed by continued close coordination between new landowners and MDC's PLS Division or their Hine's emerald dragonfly recovery coordinator. The landowner's access to multiple landowner incentive programs administered through the MDC, NRCS, and the Service's Partners for Fish and Wildlife Program will continue to be a main focus of outreach to any potential new private property owner. Unit 14 is under private ownership but is a designated State Natural Area (Missouri Natural Areas Committee 2006). A plan developed for the area ensures that the integrity of the fen is maintained (Missouri Natural Areas Committee 2006).

Because of the close coordination and excellent working partnership of all parties listed above, we believe that threats to Hine's emerald dragonfly and its habitat on private property in Missouri will be minimized. Thus, the relative benefits of inclusion of these lands within designated critical habitat are diminished and limited.

(1) Benefits of Inclusion

The primary effect of designating any particular area as critical habitat is the requirement for Federal agencies to consult with us under section 7 of the Act to ensure actions they carry out, authorize, or fund do not destroy or adversely modify designated critical habitat. Absent critical habitat designation, Federal agencies remain obligated under section 7 to consult with us on actions that may affect a federally listed species to ensure such actions do not jeopardize the species' continued existence. The Forest Service routinely consults with us on activities on the Mark Twain National Forest that may affect federally listed species to ensure that the continued existence of such species is not jeopardized.

Designation of critical habitat may also provide educational benefits by informing land managers of areas essential to the conservation of the Hine's emerald dragonfly. In the case of Missouri, there is no appreciable educational benefit because the Mark Twain National Forest, MDC, and private conservation groups have already demonstrated their knowledge and understanding of essential habitat for the species through active recovery efforts and consultation. The Missouri public, particularly landowners with Hine's emerald dragonfly habitat on their lands, is also well informed about the Hine's emerald dragonfly.

Furthermore, the benefits of including the Mark Twain National Forest, State-managed lands, and several of the privately owned areas in Missouri in designated critical habitat are minimal because the land managers/landowners are currently implementing conservation actions for the Hine's emerald dragonfly and its habitat that are beyond those that would be realized if critical habitat were designated.

(2) Benefits of Proposed Exclusion

Designation of critical habitat on the Mark Twain National Forest would trigger a requirement for the U.S. Forest Service to consult on activities that may affect designated critical habitat. Designation of critical habitat would also require reinitiating consultation on ongoing activities where a consultation may have already been completed that assessed the effects to a federally listed species. The requirement to undertake additional consultations or revisit already completed consultations specifically to address the effects of activities on designated critical habitat could delay or impair the U.S. Forest Service's planned activities. If the area is not excluded, it might adversely impact the agency's willingness to devote limited resources to voluntary conservation measures exceeding those that could be required from a critical habitat designation.

Excluding State-owned lands in Missouri from the critical habitat designation will help to strengthen the already robust working relationship between the Service and MDC. The State has a strong history of conserving the Hine's emerald dragonfly and other federally listed species. The Service's willingness to work closely with MDC on innovative ways to manage federally listed species will continue to reinforce those conservation efforts.

The designation of critical habitat on private lands in Missouri would harm ongoing or future partnerships that have been or may be developed on those lands. Many private landowners in Missouri view critical habitat negatively and believe that such designation will impact their ability to manage their land. This is despite many attempts at public outreach and education to the contrary. Based on past experiences in Missouri, it is likely that the designation of critical habitat will hamper conservation actions that have been initiated for Hine's emerald dragonfly on private land through various landowner incentive programs. The MDC has had a longstanding history of working with private landowners in Missouri, especially regarding federally listed species. Of the 26 units being considered for exclusion in the State, 12 (46 percent) are on private land. The MDC has worked closely with the NRCS to implement various landowner incentive programs that are available through the Farm Bill.

To further facilitate the implementation of these and other landowner incentive programs on the ground, the MDC created the PLS Division and established 49 positions throughout the State. The PLS Division works with multiple landowners within the range of the Hine's emerald dragonfly in Missouri to undertake various conservation actions to maintain and/or enhance fen habitat. The MDC has also worked closely with the Service's Partners for Fish and Wildlife Program to implement various management actions on private lands. The designation of critical habitat for the Hine's emerald dragonfly on private land in Missouri would significantly hinder the ability to implement various landowner incentive programs with multiple landowners and would negate conservation benefits already initiated for the species.

The Hine's emerald dragonfly has become such a contentious issue in Missouri that the species is often viewed negatively by private landowners. Multiple private landowners have been contacted by MDC personnel to obtain permission to survey the species on their property. In many cases, access has been denied because of negative perceptions associated with the presence of federally listed species on private land and the perception that all fens currently occupied by the Hine's emerald dragonfly will be designated as critical habitat.

Although access to survey some private land has been denied, several landowners have conducted various management actions to benefit the Hine's emerald dragonfly, especially in Reynolds County where the largest amount of privately owned land with the species occurs. The designation of critical habitat on such sites might be expected to dissolve developing partnerships and prevent the initiation of conservation actions in the future.

Based on potential habitat identified by examining the Service's National Wetland Inventory maps, there are other areas with suitable Hine's emerald dragonfly habitat where the species may be found. Many of these sites occur on private land. Pending further research on currently occupied sites, especially related to population dynamics and the role Missouri populations may play in achieving the recovery objectives outlined in the Service's Recovery Plan (U.S. Fish and Wildlife Service 2001), the likely discovery of additional sites could provide significant contributions towards the range-wide recovery of the species. Thus, continued or additional denial of access to private property could hamper the recovery of the species.

(3) Benefits of Proposed Exclusion Outweigh the Benefits of Inclusion

We anticipate that our final decision will make the following determination, unless information submitted in response to the proposal causes us to reach a different conclusion.

We find that the benefits of designating critical habitat for the Hine's emerald dragonfly in Missouri are small in comparison to the benefits of the exclusions being considered. Exclusion would enhance the partnership efforts with the Forest Service and the MDC focused on conservation of the species in the State, and secure conservation benefits for the species beyond those that could be required under a critical habitat designation. Excluding these areas also would reduce some of the administrative costs during consultation under section 7 of the Act.

The benefits of designating critical habitat on private lands in Missouri are minor compared to the much greater benefits derived from exclusion, including the maintenance of existing, established partnerships and encouragement of additional conservation partnerships in the future. It is our strong belief that benefits gained through outreach efforts associated with critical habitat and additional section 7 requirements (in the limited situations where there is a Federal nexus), would be negated by the loss of current and future conservation partnerships, especially given that access to private property and the possible discovery of additional sites in Missouri could help facilitate recovery of the species.

(4) The Proposed Exclusion Will Not Result in Extinction of the Species

We anticipate that our final decision will make the following determination, unless information submitted in response to the proposal causes us to reach a different conclusion.

We believe that the exclusion from critical habitat under consideration (Missouri Units 1 through 26) would not result in the extinction of Hine's emerald dragonfly because current conservation efforts under the Land and Resource Management Plan for the Mark Twain National Forest, Conservation and Natural Area Plans by the Missouri Department of Conservation, and the TNC's Management Plan for Grasshopper Hollow adequately protect essential Hine's emerald dragonfly habitat and provide appropriate management to maintain and enhance the primary constituent elements for the Hine's emerald dragonfly. In addition, conservation partnerships on non-Federal lands are important conservation tools for this species in Missouri that could be negatively affected by the designation of critical habitat. As such, there is no reason to believe that this proposed exclusion would result in extinction of the species.

The Service is conducting an economic analysis of the impacts of the proposed critical habitat designation and related factors, which will be available for public review and comment. Based on public comment on that document, the proposed designation itself, and the information in the final economic analysis, additional (or fewer) areas beyond those identified in this proposed rule may be excluded from critical habitat by the Secretary under the provisions of section 4(b)(2) of the Act. This is provided for in the Act, and in our implementing regulations at 50 CFR 424.19.

Economic Analysis

An analysis of the potential economic impacts of proposing critical habitat for the Hine's emerald dragonfly is being prepared. We will announce the availability of the draft economic analysis as soon as it is completed, at which time we will seek public review and comment. At that time, copies of the draft economic analysis will be available for downloading from the Internet at *http://www.fws.gov/midwest/endangered,* or by contacting the Chicago, Illinois Ecological Services Field Office directly (see **ADDRESSES** section).

Peer Review

In accordance with the December 16, 2004, Office of Management and Budget's ''Final Information Quality Bulletin for Peer Review,'' we will obtain comments from at least three independent scientific reviewers regarding the scientific data and interpretations contained in this proposed rule. The purpose of such review is to ensure that our critical habitat decision is based on scientifically sound data, assumptions, and analyses. We have posted our proposed peer review plan on our Web site at *http://www.fws.gov/midwest/Science/*. Public comments on our peer review were obtained through May 26, 2006, after which we finalized our peer review plan and selected peer reviewers. We will provide those reviewers with copies of this proposal as well as the data used in the proposal. Peer reviewer comments that are received during the public comment period will be considered as we make our final decision on this proposal, and substantive peer reviewer comments will be specifically discussed in the final rule.

We will consider all comments and information received during the comment period on this proposed rule during preparation of a final rulemaking. Accordingly, the final decision may differ from this proposal.

Public Hearings

The Act provides for public hearings on this proposed rule. We have scheduled a public hearing on this proposed rule on the date and at the address as specified above in the **DATES** and **ADDRESSES** sections. Public hearings are designed to gather relevant information that the public may have that we should consider in our rulemaking. Before the hearing, we will hold an informational meeting to present information about the proposed action. During the hearing, we invite the public to submit information and comments. Interested persons may also submit information and comments in writing during the open public comment period. Anyone wishing to make an oral statement for the record is encouraged to provide a written copy of their statement and present it to us at the hearing. In the event there is a large attendance, the time allotted for oral statements may be limited. Oral and

written statements receive equal consideration. There are no limits on the length of written comments submitted to us. Additional details on the hearing, including a map, will be provided on our Web site at (*http://www.fws.gov/midwest/endangered*) and are available from the person in the **FOR FURTHER INFORMATION CONTACT** section.

Persons needing reasonable accommodations in order to attend and participate in the public hearing should contact the Chicago, Illinois Ecological Services Field Office at 847–381–2253 as soon as possible. In order to allow sufficient time to process requests, please call no later than one week before the hearing date.

Clarity of the Rule

Executive Order 12866 requires each agency to write regulations and notices that are easy to understand. We invite your comments on how to make this proposed rule easier to understand, including answers to questions such as the following: (1) Are the requirements in the proposed rule clearly stated? (2) Does the proposed rule contain technical jargon that interferes with the clarity? (3) Does the format of the proposed rule (grouping and order of the sections, use of headings, paragraphing, and so forth) aid or reduce its clarity? (4) Is the description of the notice in the **SUPPLEMENTARY INFORMATION** section of the preamble helpful in understanding the proposed rule? (5) What else could we do to make this proposed rule easier to understand?

Send a copy of any comments on how we could make this proposed rule easier to understand to: Office of Regulatory Affairs, Department of the Interior, Room 7229, 1849 C Street, NW., Washington, DC 20240. You may e-mail your comments to this address: *Exsec@ios.doi.gov.*

Required Determinations

Regulatory Planning and Review

In accordance with Executive Order 12866, this document is a significant rule in that it may raise novel legal and policy issues, but it is not anticipated to have an annual effect on the economy of $100 million or more or affect the economy in a material way. Due to the tight timeline for publication in the **Federal Register,** the Office of Management and Budget (OMB) has not formally reviewed this rule. We are preparing a draft economic analysis of this proposed action, which will be available for public comment, to determine the economic consequences of designating the specific area as critical habitat. This economic analysis also will be used to determine compliance with Executive Order 12866, Regulatory Flexibility Act, Small Business Regulatory Enforcement Fairness Act, and Executive Order 12630.

Further, Executive Order 12866 directs Federal Agencies promulgating regulations to evaluate regulatory alternatives (Office of Management and Budget, Circular A–4, September 17, 2003). Pursuant to Circular A–4, once it has been determined that the Federal regulatory action is appropriate, the agency will need to consider alternative regulatory approaches. Since the determination of critical habitat is a statutory requirement pursuant to the Act, we must then evaluate alternative regulatory approaches, where feasible, when promulgating a designation of critical habitat.

In developing our designations of critical habitat, we consider economic impacts, impacts to national security, and other relevant impacts pursuant to section 4(b)(2) of the Act. Based on the discretion allowable under this provision, we may exclude any particular area from the designation of critical habitat providing that the benefits of such exclusion outweigh the benefits of specifying the area as critical habitat and that such exclusion would not result in the extinction of the species. As such, we believe that the evaluation of the inclusion or exclusion of particular areas, or combination thereof, in a designation constitutes our regulatory alternative analysis.

Within these areas, the types of Federal actions or authorized activities that we have identified as potential concerns are listed above in the section on Section 7 Consultation. The availability of the draft economic analysis will be announced in the **Federal Register** and in local newspapers so that it is available for public review and comments. Once available, the draft economic analysis can be obtained from our Web site at *http://www.fws.gov/midwest/endangered* or by contacting the Chicago, Illinois Ecological Services Field Office directly (see **FOR FURTHER INFORMATION CONTACT** section).

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.,* as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the Regulatory Flexibility Act (RFA) to require Federal agencies to provide a statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

At this time, the Service lacks the available economic information necessary to provide an adequate factual basis for the required RFA finding. Therefore, the RFA finding is deferred until completion of the draft economic analysis prepared pursuant to section 4(b)(2) of the Act and Executive Order 12866. This draft economic analysis will provide the required factual basis for the RFA finding. Upon completion of the draft economic analysis, the Service will publish a notice of availability of the draft economic analysis of the proposed designation and reopen the public comment period for the proposed designation as well. The Service will include with the notice of availability, as appropriate, an initial regulatory flexibility analysis or a certification that the rule will not have a significant economic impact on a substantial number of small entities accompanied by the factual basis for that determination. The Service has concluded that deferring the RFA finding until completion of the draft economic analysis is necessary to meet the purposes and requirements of the RFA. Deferring the RFA finding in this manner will ensure that the Service makes a sufficiently informed determination based on adequate economic information and provides the necessary opportunity for public comment.

Executive Order 13211

On May 18, 2001, the President issued an Executive Order (E.O. 13211) on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This proposed rule to designate critical habitat for the Hine's emerald dragonfly is a significant regulatory action under Executive Order 12866 in that it may raise novel legal and policy issues.

Utility easements with electrical transmission and distribution lines and a rail line used for transporting coal to a power plant occur in Illinois Units 1

through 5 and 7. The entities who own and maintain the electrical lines and rail lines are working on an agreement to manage and protect the Hine's emerald dragonfly. At this time it is unknown what effect designation of critical habitat in these locations would have on energy supply, distribution, or use. An analysis of the economic impacts of proposing critical habitat for the Hine's emerald dragonfly is being prepared. While we do not expect the designation of critical habitat for the Hine's emerald dragonfly to significantly affect energy supplies, distribution, or use, we will further examine this as we conduct our analysis of potential economic effects. We will announce the availability of the draft economic analysis as soon as it is completed and we will seek public review and comment.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501), the Service makes the following findings:

(a) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute or regulation that would impose an enforceable duty upon State, local, tribal governments, or the private sector and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; AFDC work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply; nor would critical habitat shift the costs of the large entitlement programs listed above on to State governments.

(b) Due to current public knowledge of the species' protection, the prohibition against take of the species both within and outside of the designated areas, and the fact that critical habitat provides no incremental restrictions, we do not anticipate that this rule will significantly or uniquely affect small governments. As such, Small Government Agency Plan is not required. We will, however, further evaluate this issue as we conduct our economic analysis and revise this assessment if appropriate.

Takings

In accordance with Executive Order 12630 (''Government Actions and Interference with Constitutionally Protected Private Property Rights''), we have analyzed the potential takings implications of proposing critical habitat for the Hine's emerald dragonfly. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. In conclusion, the designation of critical habitat for the Hine's emerald dragonfly does not pose significant takings implications.

Federalism

In accordance with Executive Order 13132, the rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with DOI and Department of Commerce policy, we requested information from, and coordinated development of, this proposed critical habitat designation with appropriate State resource agencies in Illinois, Michigan, Missouri and Wisconsin. The designation of critical habitat in areas currently occupied by the Hine's emerald dragonfly imposes no additional restrictions to those currently in place and, therefore, has little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments in that the areas that contain the features essential to the conservation of the species are more clearly defined, and the primary constituent elements of the habitat necessary to the conservation of the species are specifically identified. While making this definition and identification does not alter where and what federally sponsored activities may occur, it may assist these local governments in long-range planning (rather than waiting for case-by-case section 7 consultations to occur).

Civil Justice Reform

In accordance with Executive Order 12988, the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Endangered Species Act. This proposed rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the Hine's emerald dragonfly.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act. This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act

It is our position that, outside the Tenth Circuit, we do not need to

prepare environmental analyses as defined by the NEPA in connection with designating critical habitat under the Endangered Species Act of 1973, as amended. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This assertion was upheld in the courts of the Ninth Circuit (*Douglas County* v. *Babbitt*, 48 F.3d 1495 (9th Cir. Ore. 1995), cert. denied 116 S. Ct. 698 (1996).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, ''Government-to-Government Relations With Native American Tribal Governments'' (59 FR 22951), Executive Order 13175, and the Department of Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. We have determined that there are no tribal lands occupied at the time of listing that contain the features essential for the conservation and no tribal lands that are unoccupied areas that are essential for the conservation of the Hine's emerald dragonfly. Therefore, designation of critical habitat for the Hine's emerald dragonfly has not been proposed on Tribal lands.

Revision of ''Historic Range'' in the Entry for ''Dragonfly, Hine's Emerald'' in § 17.11(h), the List of Endangered and Threatened Wildlife

The proposed regulation includes revision of the ''Historic Range'' of Hine's emerald dragonfly in § 17.11(h), the List of Endangered and Threatened Wildlife. In the current table, the historic range for this taxon is listed as Illinois, Indiana, Ohio, and Wisconsin. A more accurate historic range for Hine's emerald dragonfly includes Alabama, Michigan, and Missouri in addition to the aforementioned States. Thus, the ''Historic Range'' entry in the table is proposed to be revised to read U.S.A. (AL, IL, IN, MI, MO, OH, and WI).

References Cited

A complete list of all references cited in this rulemaking is available upon request from the Field Supervisor, Chicago, Illinois Ecological Services Field Office (see **ADDRESSES** section).

Author(s)

The primary author of this package is the Chicago, Illinois Ecological Services Field Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

2. In § 17.11(h), the List of Endangered and Threatened Wildlife, revise the entry for ''Dragonfly, Hine's emerald'' under ''INSECTS'' to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
*	*	*	*	*	*		*
INSECTS							
*	*	*	*	*	*		*
Dragonfly, Hine's emerald.	*Somatochlora hineana*	U.S.A. (AL, IL, IN, MI, MO, OH, and WI).	NA	E	573	17.95(i)	NA.
*	*	*	*	*	*		*

3. In § 17.95(i), add an entry for ''Hine's emerald dragonfly (*Somatochlora hineana*),'' in the same alphabetical order in which this species appears in the table at 50 CFR 17.11(h), to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(i) Insects.

* * * * *

Hine's emerald dragonfly (*Somatochlora hineana*)

(1) Critical habitat units are depicted for Cook, DuPage and Will Counties, Illinois; Alpena, Mackinac, and Presque Isle Counties, Michigan; Dent, Iron, Morgan, Phelps, Reynolds, Ripley, Shannon, Washington, and Wayne Counties, Missouri; and Door and Ozaukee Counties, Wisconsin, on the maps below.

(2) The primary constituent elements of critical habitat for the Hine's emerald dragonfly are:

(i) For egg deposition and larval growth and development:

(A) Shallow, organic soils (histosols, or with organic surface horizon) overlying calcareous substrate (predominantly dolomite and limestone bedrock);

(B) Calcareous water from intermittent seeps and springs and associated shallow, small, slow flowing streamlet channels, rivulets, and/or sheet flow within fens;

(C) Emergent herbaceous and woody vegetation for emergence facilitation and refugia;

(D) Occupied, maintained crayfish burrows for refugia; and

(E) Prey base of aquatic macroinvertebrates, including mayflies, aquatic isopods, caddisflies, midge larvae, and aquatic worms.

(ii) For adult foraging, reproduction, dispersal, and refugia necessary for roosting, resting and predator avoidance (especially during the vulnerable teneral stage):

(A) Natural plant communities near the breeding/larval habitat which may

include marsh, sedge meadow, dolomite prairie, and the fringe (up to 328 ft (100m)) of bordering shrubby and forested areas with open corridors for movement and dispersal; and

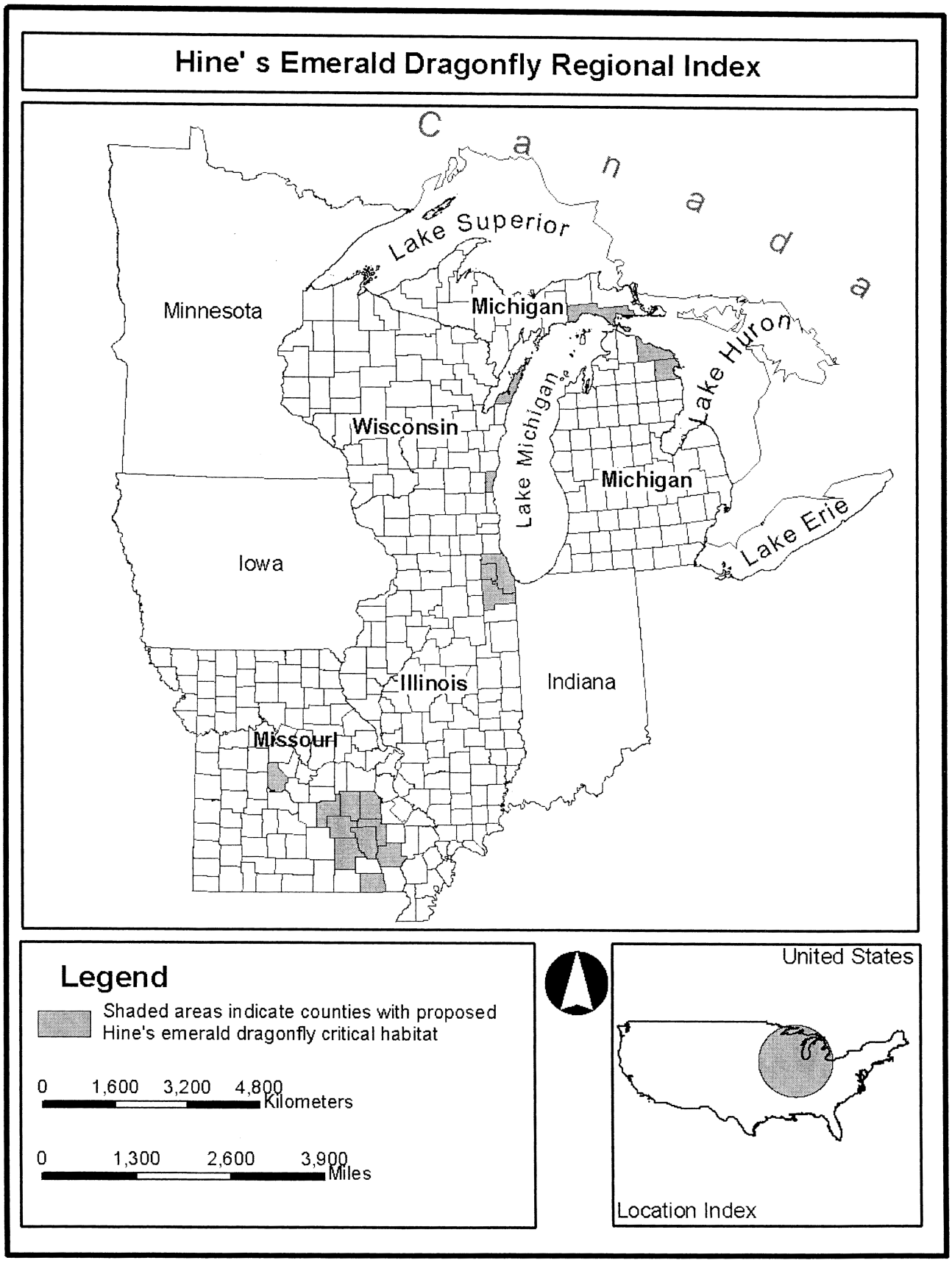
(B) Prey base of small, flying insect species (e.g., dipterans).

(3) Critical habitat does not include human-made structures existing on the effective date of this rule and not containing one or more of the primary constituent elements, such as buildings, lawns, old fields and pastures, piers and docks, aqueducts, airports, and roads, and the land on which such structures are located. In addition, critical habitat does not include open-water areas (i.e., areas beyond the zone of emergent vegetation) of lakes and ponds.

(4) *Critical habitat map units.* Data layers defining map units were created on a base of USGS 7.5′ quadrangles, and critical habitat units were then mapped using Geographical Information Systems, Universal Transverse Mercator (UTM) coordinates. Critical habitat units are described using the public land survey system (township (T), range (R) and section (Sec.)).

(5) Note: Index map of critical habitat units (Index map) follows:

BILLING CODE 4310–55–P


Hine' s Emerald Dragonfly Regional Index
Canada
Lake Superior
Minnesota
Michigan
Lake Huron
Wisconsin
Lake Michigan
Michigan
Lake Erie
Iowa
Illinois
Indiana
Missouri
Legend
Shaded areas indicate counties with proposed Hine's emerald dragonfly critical habitat
0 1,600 3,200 4,800 Kilometers
0 1,300 2,600 3,900 Miles
United States
Location Index

(6) Illinois Units 1 through 7, Cook, DuPage, and Will Counties, Illinois.

(i) Illinois Unit 1: Will County. Located in T36N, R10E, Sec. 22, Sec. 27, SE¼ NE¼ Sec. 28, NE¼ SE¼ Sec. 28, NW¼ NW¼ Sec. 34 of the Joliet 7.5′ USGS topographic quadrangle. Land south of Illinois State Route 7, east of Illinois State Route 53, and west of the Des Plaines River.

(ii) Illinois Unit 2: Will County. Located in T36N, R10E, Sec. 3, NW¼ E½ Sec. 10, E½ Sec. 15 of the Romeoville and Joliet 7.5′ USGS topographic quadrangles. Land east of Illinois State Route 53, and west of the Des Plaines River.

(iii) Illinois Unit 3: Will County. Located in T37N, R10E, SW¼ Sec. 26, NW¼ SE¼ Sec. 26, E½ Sec. 34, W½ NW¼ Sec. 35 of the Romeoville 7.5′ USGS topographic quadrangle. Land west and north of the Des Plaines River and north of East Romeoville Road.

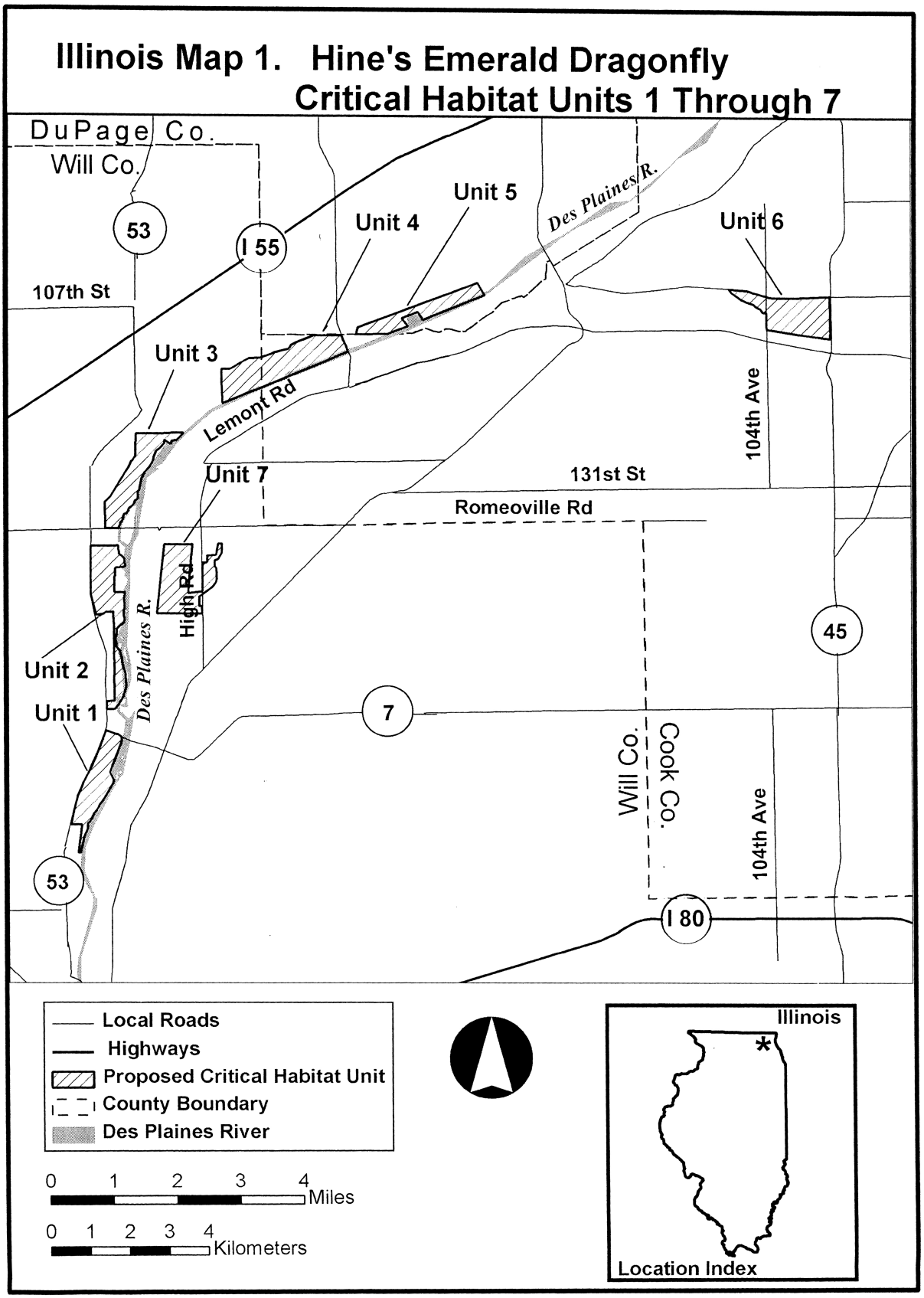
(iv) Illinois Unit 4: Will and Cook Counties. Located in T37N, R10E, S½ NE¼ Sec. 24, W½ SW¼ Sec. 24, SE¼ Sec. 24 and T37N, R11E, SW¼ SW¼ Sec. 17, Sec. 19, NW¼ Sec. 20 of the Romeoville 7.5′ USGS topographic quadrangle. Land to the south of Bluff Road, west of Lemont Road, and north of the Des Plaines River.

(v) Illinois Unit 5: DuPage County. Located in T37N, R11E, NW¼ Sec. 15, NW¼ SW¼ Sec. 15, S½ NE¼ Sec. 16, SW¼ Sec. 16, N½ SE¼ Sec. 16, SE¼ Sec. 17 of the Sag Bridge 7.5′ USGS topographic quadrangle. Land to the north of the Des Plaines River.

(vi) Illinois Unit 6: Cook County. Located in T37N, R12E, S½ Sec. 16, S½ NE¼ Sec. 17, N½ SE¼ Sec. 17, N½ Sec. 21 of the Sag Bridge and Palos Park 7.5′ USGS topographic quadrangles. Land to the north of the Calumet Sag Channel, south of 107th Street, and east of U.S. Route 45.

(vii) Illinois Unit 7: Will County. Located in T36N, R10E, W½ Sec. 1, Sec. 2, N½ Sec. 11 of the Romeoville and Joliet 7.5′ USGS topographic quadrangles. Land east of the Illinois and Michigan Canal.

(viii) Note: Map of Illinois proposed critical habitat Units 1 through 7 (Illinois Map 1) follows:

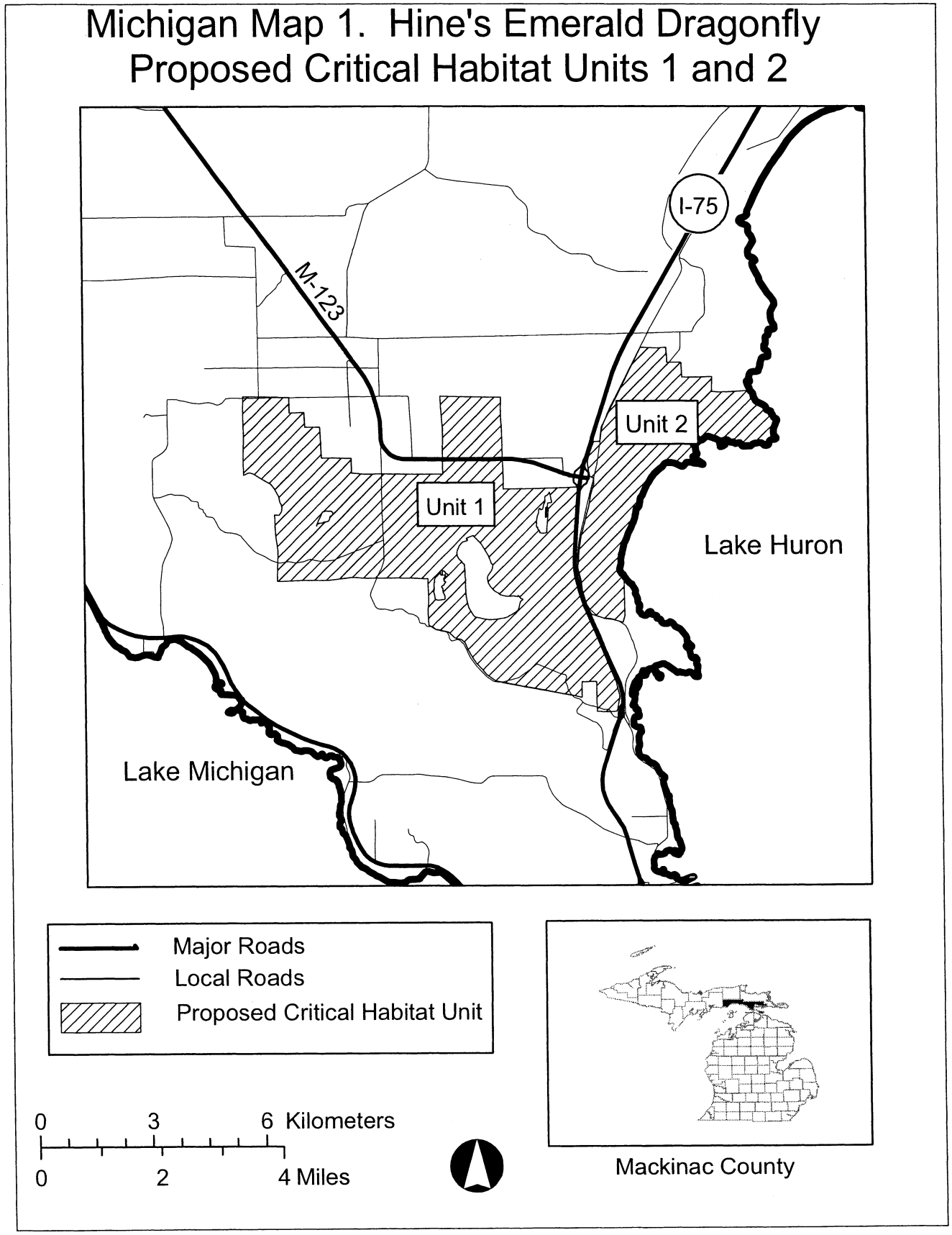

Illinois Map 1. Hine's Emerald Dragonfly
Critical Habitat Units 1 Through 7
DuPage Co.
Will Co.
53
I 55
107th St
Unit 5
Unit 4
Des Plaines R.
Unit 6
Unit 3
Lemont Rd
104th Ave
Unit 7
131st St
Romeoville Rd
High Rd
Des Plaines R.
45
Unit 2
Unit 1
7
Will Co.
Cook Co.
104th Ave
53
I 80
Local Roads
Highways
Proposed Critical Habitat Unit
County Boundary
Des Plaines River
0 1 2 3 4 Miles
0 1 2 3 4 Kilometers
Illinois
Location Index

(7) Michigan Units 1 and 2, Mackinac County, Michigan.

(i) Michigan Unit 1: Mackinac County. The unit is located approximately 2 miles north of the village of St. Ignace. The unit contains all of T41N, R4W, Secs. 3, 6, 8, 9, 10, 11, 14, 15, 16, 23; portions of T41N, R4W, Secs. 4, 7, 17, 18, 22, 24, 25, 26, 27; and T41N, R5W, Secs. 1 and 12 of the Moran and Evergreen Shores 7.5′ USGS topographic quadrangles. The unit is west of I–75, east of Brevort Lake, and north of Castle Rock Road.

(ii) Michigan Unit 2: Mackinac County. The unit is located approximately 2 miles north of the village of St. Ignace. The unit contains all of T41N, R3W, Sec. 6; portions of T41N, R4W, Secs. 1, 12, 13, 24; portions of T41N, R3W, Secs. 4, 5, 7; and portions of T42N, R3W, Sec. 31 of the Evergreen Shores 7.5′ USGS topographic quadrangle. The unit is west of Lake Huron and east of I–75.

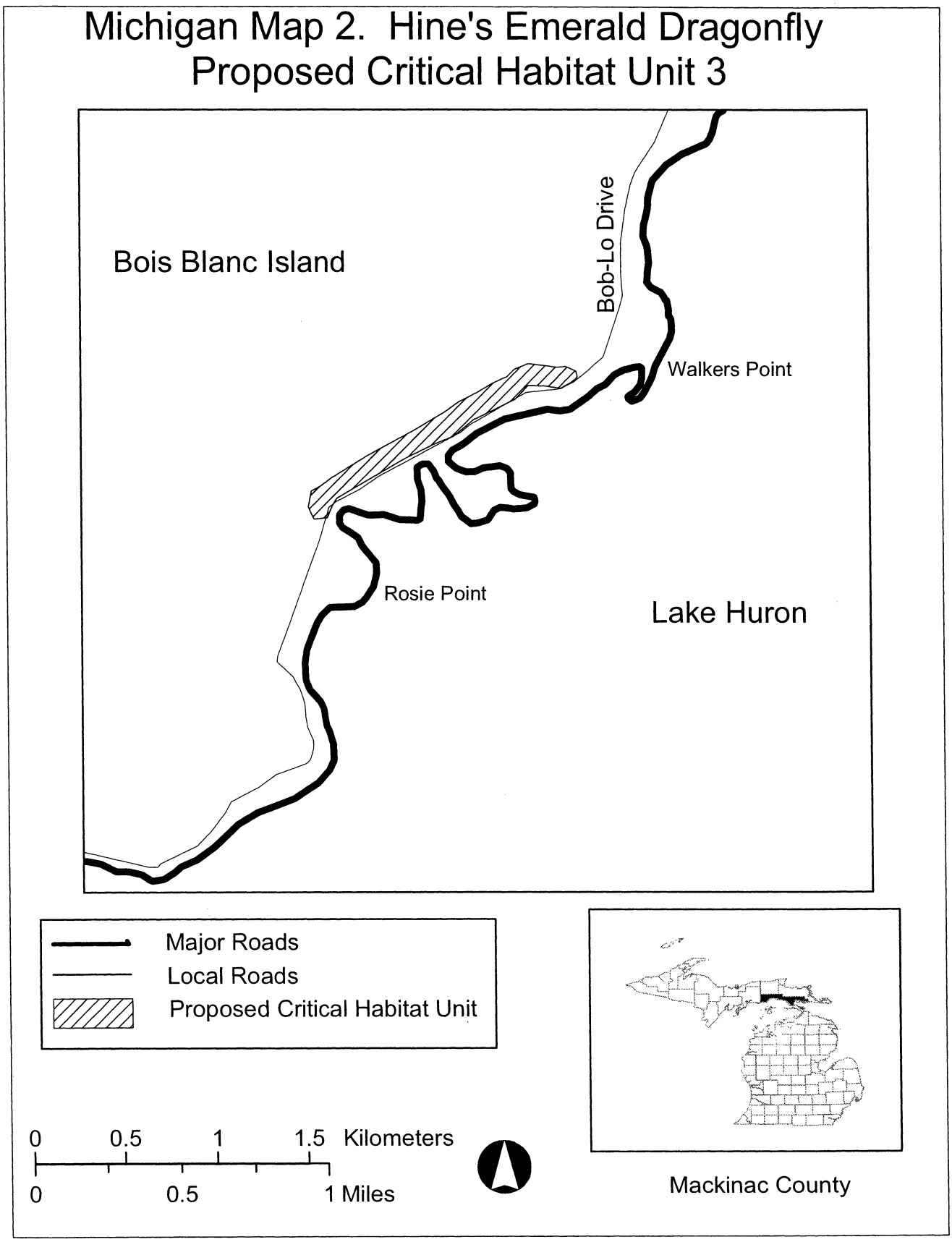
(iii) Note: Map of Michigan proposed critical habitat Units 1 and 2 (Michigan Map 1) follows:


Michigan Map 1. Hine's Emerald Dragonfly
Proposed Critical Habitat Units 1 and 2
I-75
M-123
Unit 2
Unit 1
Lake Huron
Lake Michigan
Major Roads
Local Roads
Proposed Critical Habitat Unit
0 3 6 Kilometers
0 2 4 Miles
Mackinac County

(8) Michigan Unit 3, Mackinac County, Michigan.

(i) Michigan Unit 3: Mackinac County. Located on the east end of Bois Blanc Island. Bois Blanc Island has not adopted an addressing system using the public land survey system. The unit is located in Government Lots 25 and 26 of the Cheboygan and McRae Bay 7.5′ USGS topographic quadrangles. The unit extends from approximately Walker's Point south to Rosie Point on the west side of Bob-Lo Drive. It extends from the road approximately 328 ft (100 m) to the west.

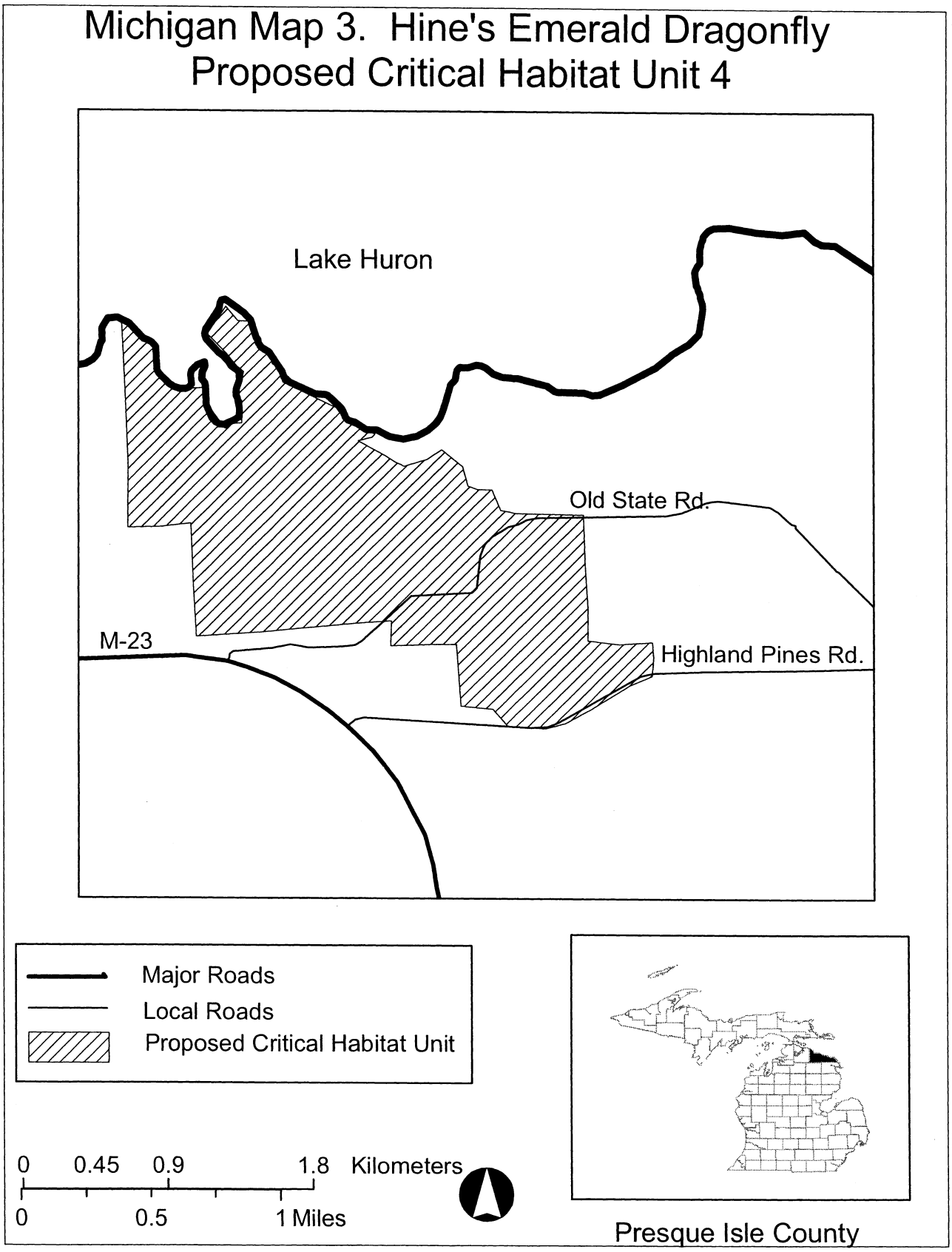
(ii) Note: Map of Michigan proposed critical habitat Unit 3 (Michigan Map 2) follows:


Michigan Map 2. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 3
Bois Blanc Island
Bob-Lo Drive
Walkers Point
Rosie Point
Lake Huron
Major Roads
Local Roads
Proposed Critical Habitat Unit
0 0.5 1 1.5 Kilometers
0 0.5 1 Miles
Mackinac County

(9) Michigan Unit 4, Presque Isle County, Michigan.

(i) Michigan Unit 4: Presque Isle County. Located approximately 12 miles southeast of the village of Rogers City. The unit contains all of T34N, R7E, SW¼ SW¼ Sec. 14, SW¼ NW¼ Sec. 15, NE¼ SW¼ Sec. 15, NW¼ SE¼ Sec. 15, NW¼ SW¼ Sec. 15, SE¼ SE¼ Sec. 15, NW¼ NE¼ Sec. 16, NE¼ NW¼ Sec. 16, SE¼ NE¼ Sec. 16, and NW¼ NW¼ Sec. 23. It also contains portions of T34N, R7E, all ¼ sections in Secs. 15, all ¼ sections in Sec. 16, SE¼ and SW¼ Sec. 9, SW¼ Sec. 10, SW¼ Sec. 14, NE¼ Sec. 22, NW¼ and NE¼ Sec. 23 of the Thompsons Harbor 7.5′ USGS topographic quadrangle. The northern boundary of the unit is Lake Huron and the southern boundary is north of M–23.

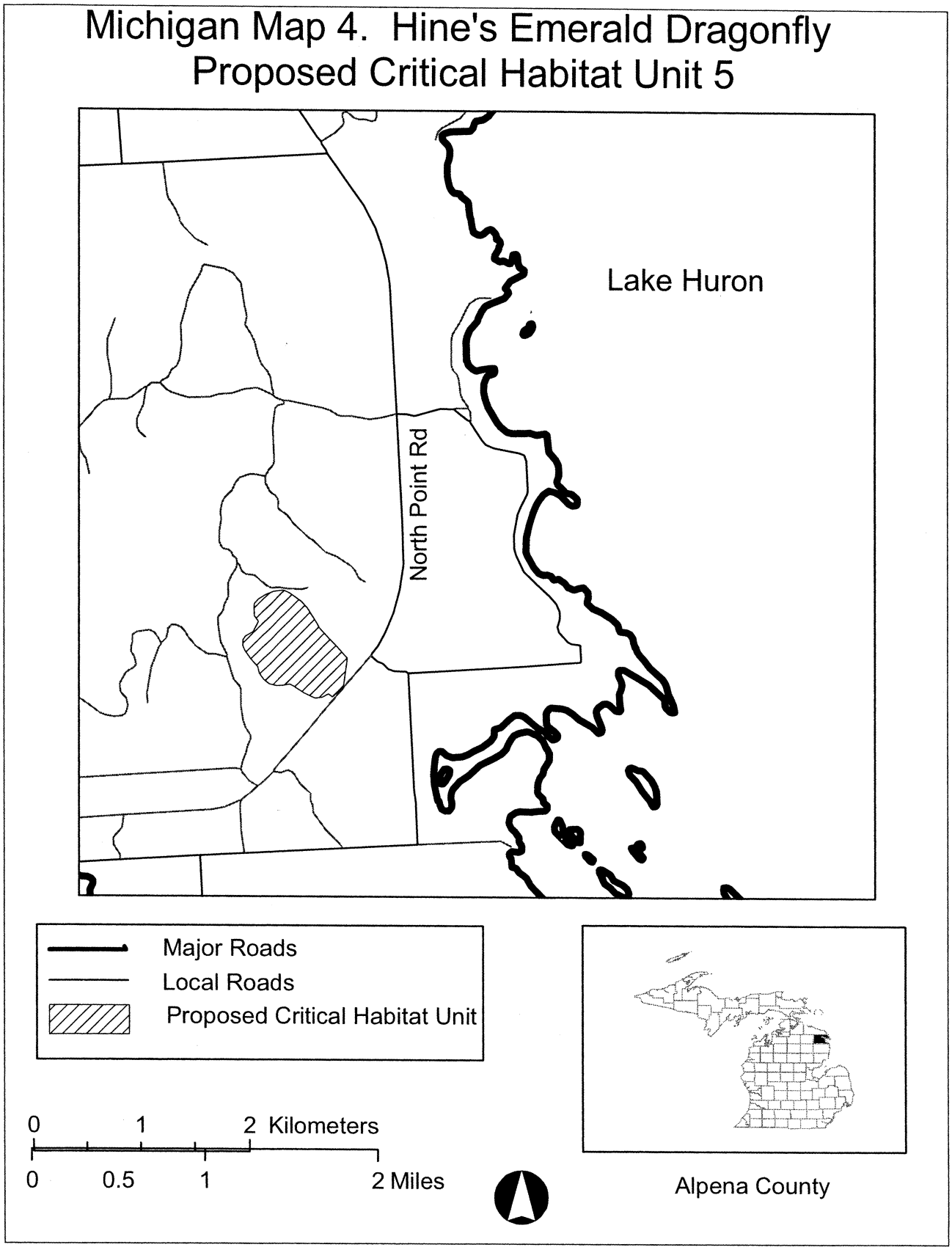
(ii) Note: Map of Michigan proposed critical habitat Unit 4 (Michigan Map 3) follows:


Michigan Map 3. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 4
Lake Huron
Old State Rd.
M-23
Highland Pines Rd.
Major Roads
Local Roads
Proposed Critical Habitat Unit
0 0.45 0.9 1.8 Kilometers
0 0.5 1 Miles
Presque Isle County

(10) Michigan Unit 5, Alpena County, Michigan.

(i) Michigan Unit 5: Alpena County. Located approximately 9 miles northeast of the village of Alpena. The unit contains all of T31N, R9E, SE¼ SW¼ Sec 9. It also contains portions of T31N, R9E, NW¼ SW¼ Sec. 9, NE¼ SW¼ Sec. 9, SW¼ SW¼ Sec. 9, SW¼ SE¼ Sec 9; and portions of T31N, R9E, NE¼ NW¼ Sec. 16, NW¼ NE¼ Sec. 16, NW¼ NW¼ Sec. 16 of the 7.5′ USGS topographic quadrangle North Point 7.5′ USGS topographic quadrangle. North Point Road is east of the area.

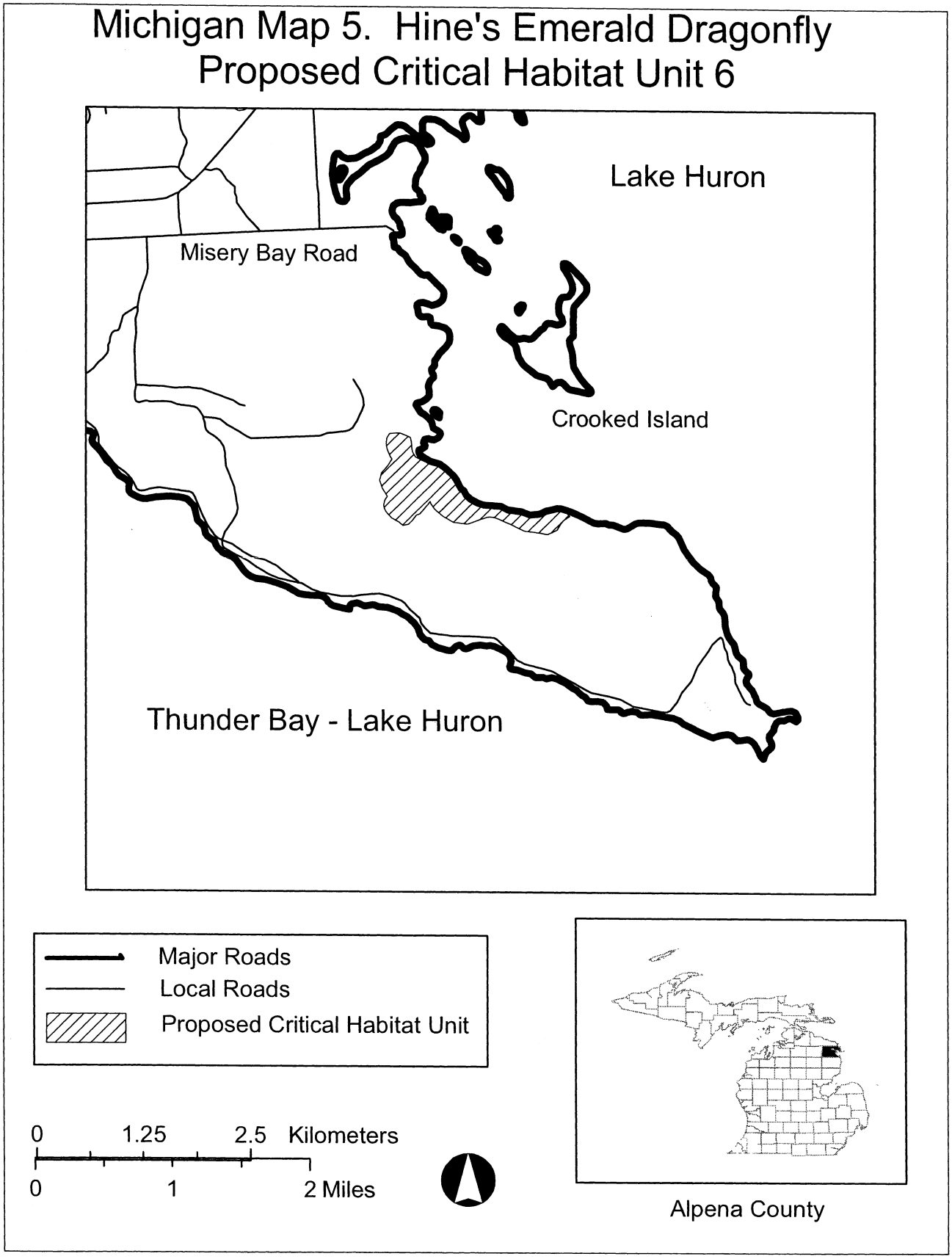
(ii) Note: Map of Michigan proposed critical habitat Unit 5 (Michigan Map 4) follows:


Michigan Map 4. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 5
Lake Huron
North Point Rd
Major Roads
Local Roads
Proposed Critical Habitat Unit
0 1 2 Kilometers
0 0.5 1 2 Miles
Alpena County

(11) Michigan Unit 6, Alpena County, Michigan.

(i) Michigan Unit 6: Alpena County. Located approximately 5 miles east of the village of Alpena. The unit contains all of T31N, R9E, SW¼ SE¼ Sec. 27. It also contains portions of T31N, R9E, NW¼ SE¼ Sec. 27, NE¼ SW¼ Sec. 27, SE¼ SW¼ Sec. 27, SE¼ SE¼ Sec. 27; portions of T31N, R9E, NE¼ NW¼ Sec. 34, NW¼ NE¼ Sec. 34, NE¼ NE¼ Sec. 34; and portions of T31N, R9E, NW¼ NW¼ Sec. 35, NE¼ NW¼, NW¼ NE¼ Sec. 35 of the North Point 7.5′ USGS topographic quadrangle. Lake Huron is the east boundary of the unit.

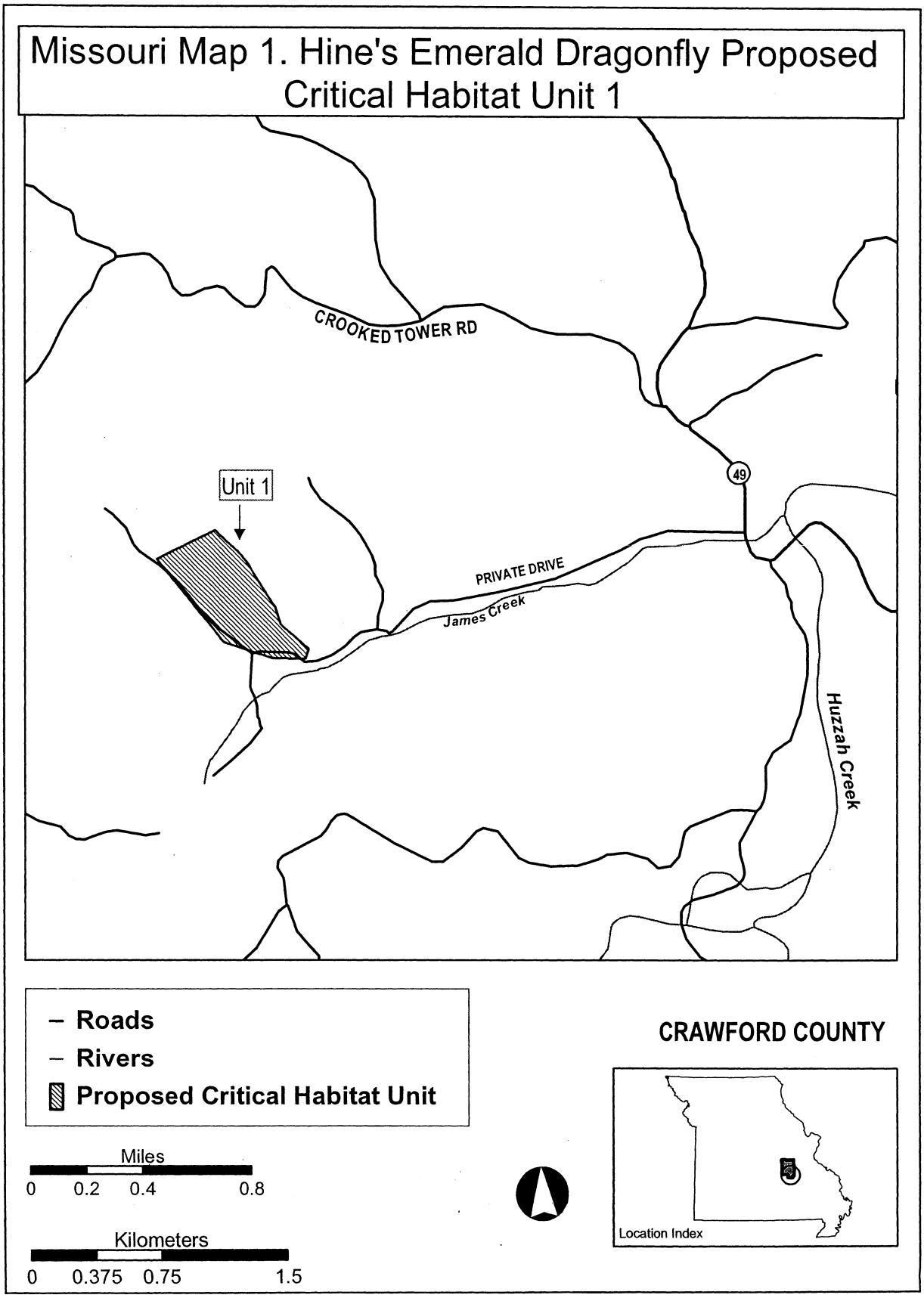
(ii) Note: Map of Michigan proposed critical habitat Unit 6 (Michigan Map 5) follows:


Michigan Map 5. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 6
Lake Huron
Misery Bay Road
Crooked Island
Thunder Bay - Lake Huron
Major Roads
Local Roads
Proposed Critical Habitat Unit
0 1.25 2.5 Kilometers
0 1 2 Miles
Alpena County

(12) Missouri Unit 1, Crawford County, Missouri.

(i) Missouri Unit 1: Crawford County. Located in T35N, R3W, Secs. 22 and 23 of the Viburnum West 7.5′ USGS topographic quadrangle. Missouri Unit 1 is associated with James Creek and is located approximately 1.5 miles west of Billard, Missouri.

(ii) Note: Map of Missouri proposed critical habitat Unit 1 (Missouri Map 1) follows:


Missouri Map 1. Hine's Emerald Dragonfly Proposed Critical Habitat Unit 1
CROOKED TOWER RD
Unit 1
49
PRIVATE DRIVE
James Creek
Huzzah Creek
Roads
Rivers
Proposed Critical Habitat Unit
CRAWFORD COUNTY
Miles
0 0.2 0.4 0.8
Kilometers
0 0.375 0.75 1.5
Location Index

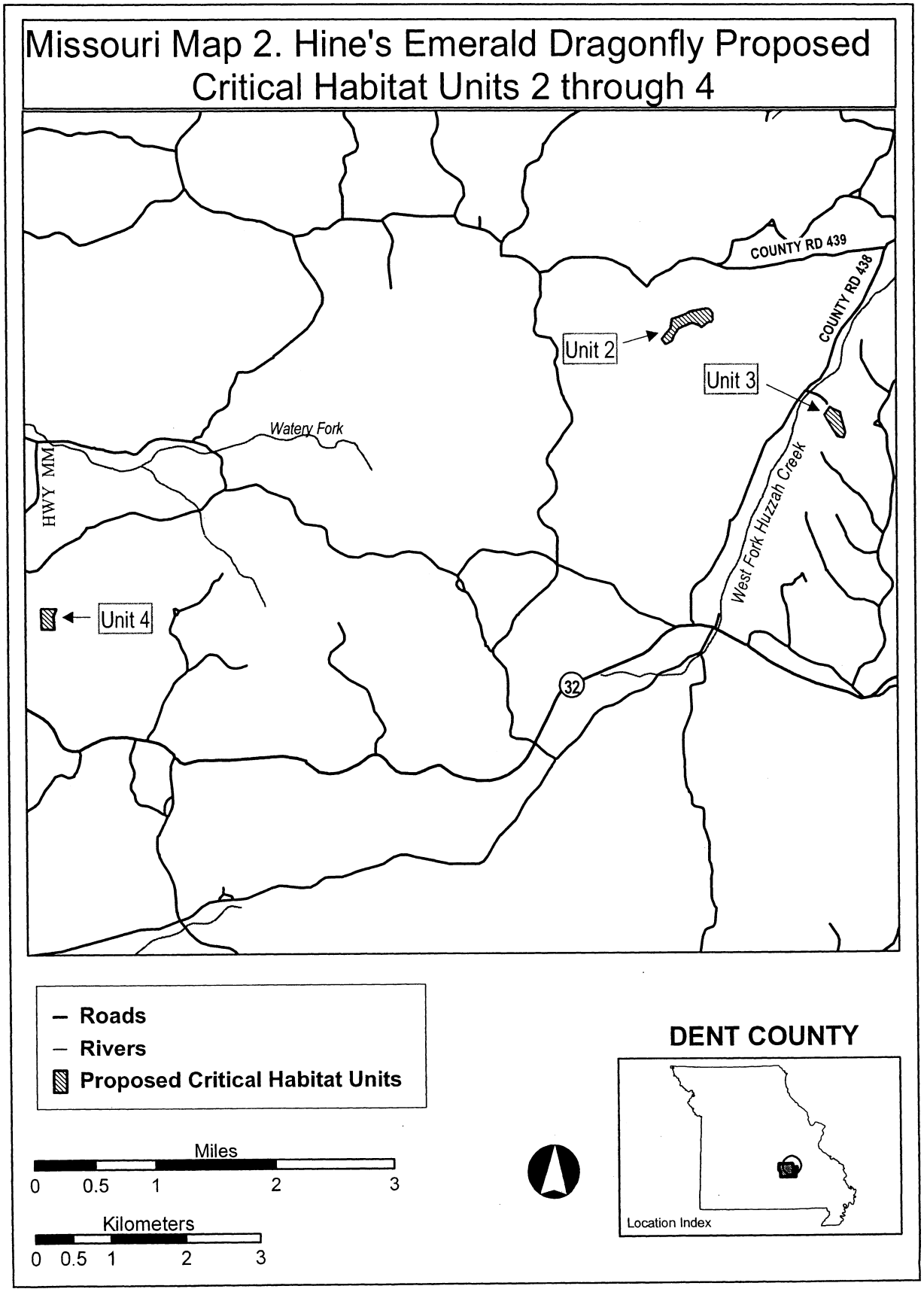
(13) Missouri Units 2 through 4, Dent County, Missouri.

(i) Missouri Unit 2: Dent County. Located in T34N, R3W, Secs. 3 and 4 of the Howes Mill Spring 7.5′ USGS topographic quadrangle. Missouri Unit 2 is associated with an unnamed tributary to West Fork Huzzah Creek and is located approximately 2.5 air miles north of the village of Howes Mill, Missouri adjacent to county road 438.

(ii) Missouri Unit 3: Dent County. Located in T34N, R3W, Sec. 11 of the Viburnum West 7.5′ USGS topographic quadrangle. Missouri Unit 3 is associated with a tributary of Huzzah Creek and is approximately 2 air miles north northeast of the village of Howes Mill.

(iii) Missouri Unit 4: Dent County. Located in T34N, R4W, Secs. 15 and 22 of the Howes Mill Spring 7.5′ USGS topographic quadrangle. Missouri Unit 4 is associated with a tributary of Hutchins Creek in Fortune Hollow and is located approximately 1 mile east of the juncture of Highway 72 and Route MM.

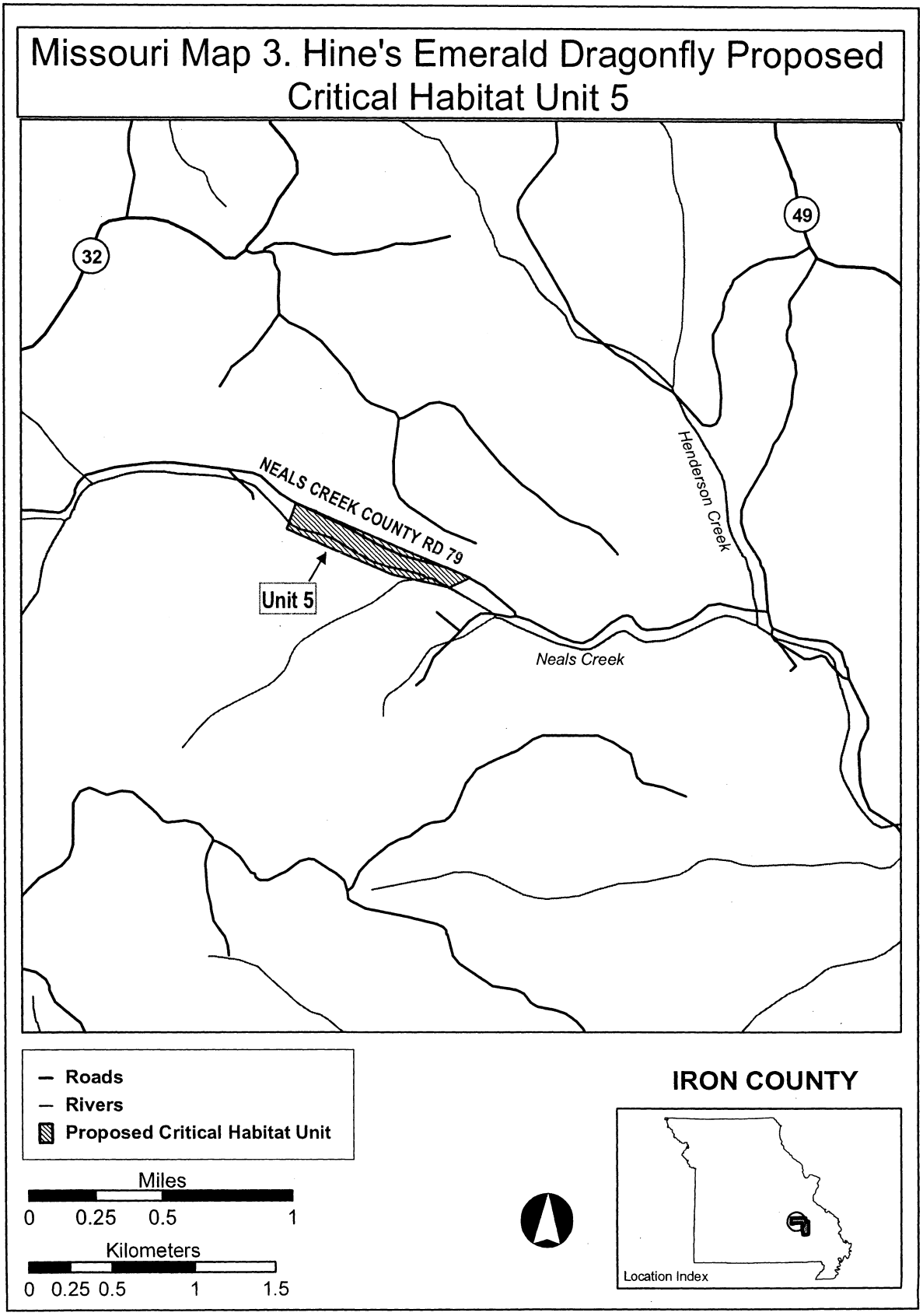
(iv) Note: Map of Missouri proposed critical habitat Units 2 through 4 (Missouri Map 2) follows:


Missouri Map 2. Hine's Emerald Dragonfly Proposed Critical Habitat Units 2 through 4
COUNTY RD 439
COUNTY RD 438
Unit 2
Unit 3
Unit 4
Watery Fork
HWY MM
West Fork Huzzah Creek
32
Roads
Rivers
Proposed Critical Habitat Units
Miles
0 0.5 1 2 3
Kilometers
0 0.5 1 2 3
DENT COUNTY
Location Index

(14) Missouri Unit 5, Iron County, Missouri.

(i) Missouri Unit 5: Iron County. Located in T34N, R1W, Sec. 17of the Viburnum East 7.5′ USGS topographic quadrangle. Missouri Unit 5 is located adjacent to Neals Creek and Neals Creek Road, approximately 2.5 miles southeast of Bixby.

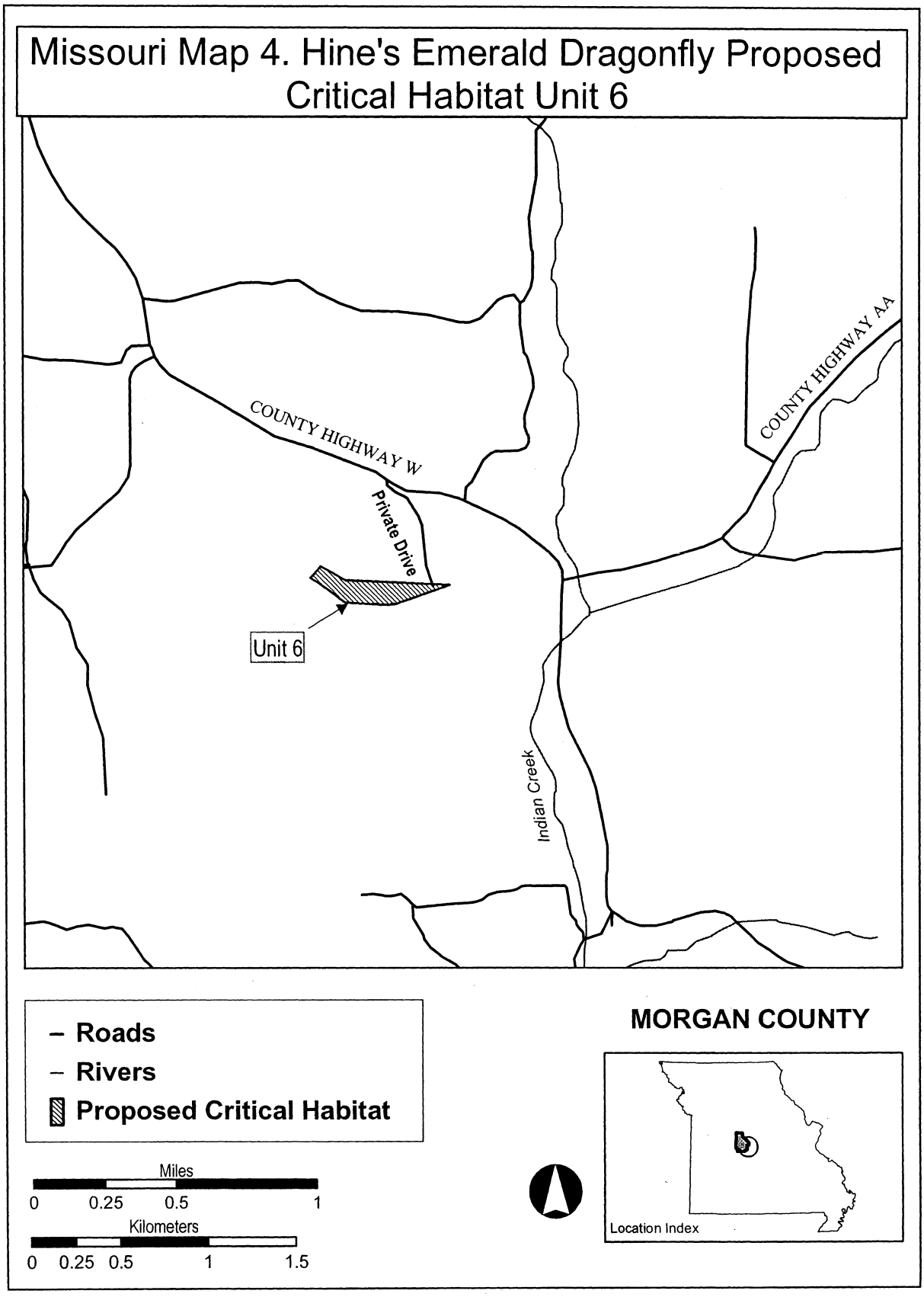
(ii) Note: Map of Missouri proposed critical habitat Unit 5 (Missouri Map 3) follows:


Missouri Map 3. Hine's Emerald Dragonfly Proposed Critical Habitat Unit 5
32
49
NEALS CREEK COUNTY RD 79
Unit 5
Henderson Creek
Neals Creek
Roads
Rivers
Proposed Critical Habitat Unit
Miles
0 0.25 0.5 1
Kilometers
0 0.25 0.5 1 1.5
IRON COUNTY
Location Index

(15) Missouri Unit 6, Morgan County, Missouri.

(i) Missouri Unit 6: Morgan County. Located in T41N, R16W, Sec. 6 of the Rocky Mount 7.5′ USGS topographic quadrangle. Missouri Unit 6 is located near the small town of Barnett south of Route N.

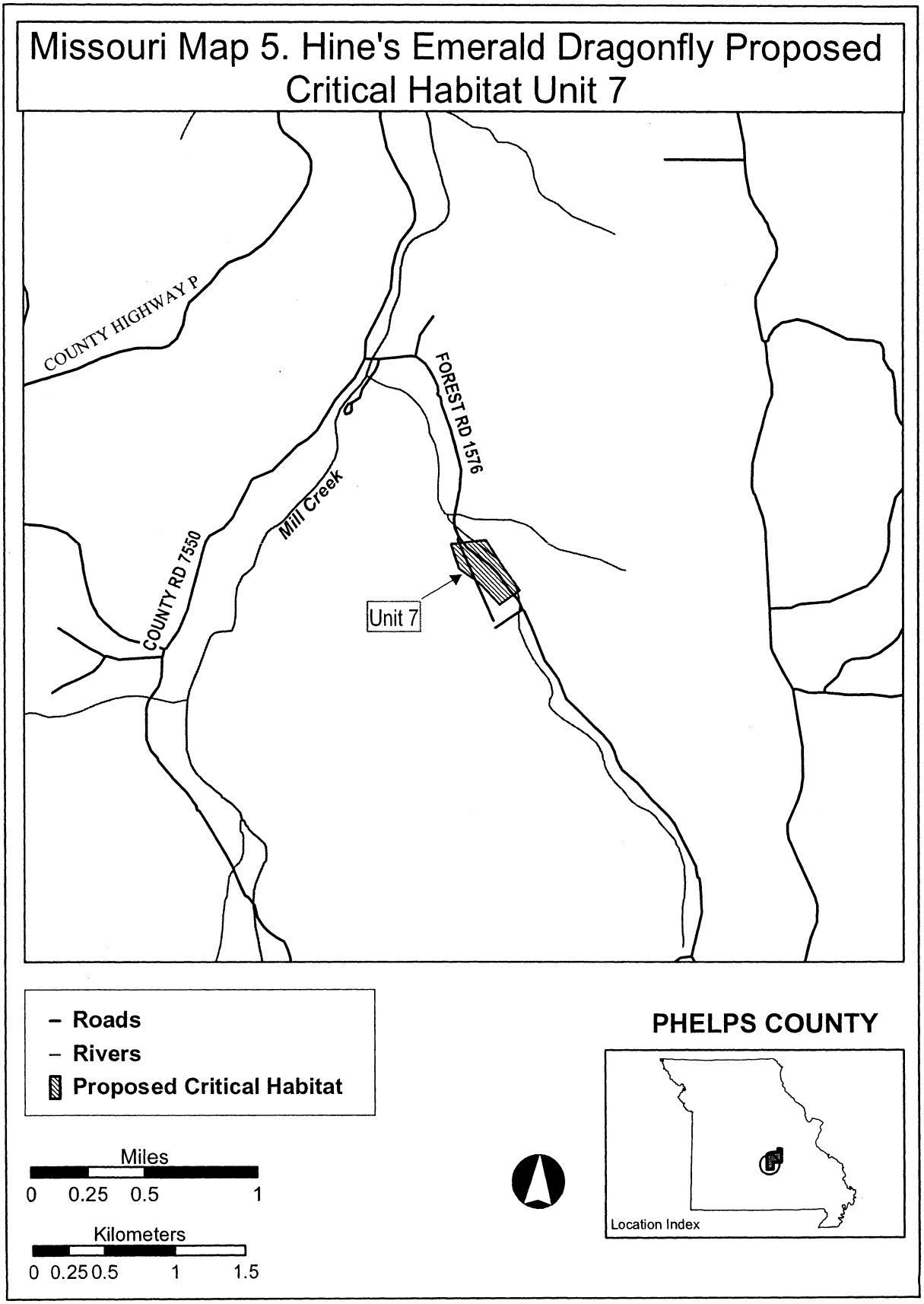
(ii) Note: Map of Missouri proposed critical habitat Unit 6 (Missouri Map 4) follows:


Missouri Map 4. Hine's Emerald Dragonfly Proposed Critical Habitat Unit 6
COUNTY HIGHWAY W
Private Drive
COUNTY HIGHWAY AA
Unit 6
Indian Creek
– Roads
– Rivers
Proposed Critical Habitat
Miles
0 0.25 0.5 1
Kilometers
0 0.25 0.5 1 1.5
MORGAN COUNTY
Location Index

(16) Missouri Unit 7, Phelps County, Missouri.

(i) Missouri Unit 7: Phelps County, Missouri. Located in T36N, R9W, Sec. 9 of the Kaintuck Hollow 7.5′ USGS topographic quadrangle. Missouri Unit 7 is associated with Kaintuck Hollow and a tributary of Mill Creek, and is located approximately 4 miles south southwest of the town of Newburg.

(ii) Note: Map of Missouri proposed critical habitat Unit 7 (Missouri Map 5) follows:


Missouri Map 5. Hine's Emerald Dragonfly Proposed Critical Habitat Unit 7
COUNTY HIGHWAY P
FOREST RD 1576
Mill Creek
COUNTY RD 7550
Unit 7
– Roads
– Rivers
Proposed Critical Habitat
Miles
0 0.25 0.5 1
Kilometers
0 0.25 0.5 1 1.5
PHELPS COUNTY
Location Index

(17) Missouri Units 8 through 11 and 13 through 15, Reynolds County, Missouri.

(i) Missouri Units 8, 9, and 10: Reynolds County. Located in T32N, R2W, Secs. 22 and 23 on the Bunker 7.5′ USGS topographic quadrangle. Missouri Units 8, 9, and 10 are located adjacent to Bee Fork Creek, extending from approximately 3.0 miles east southeast of Bunker and extending east to near the bridge on Route TT over Bee Fork Creek.

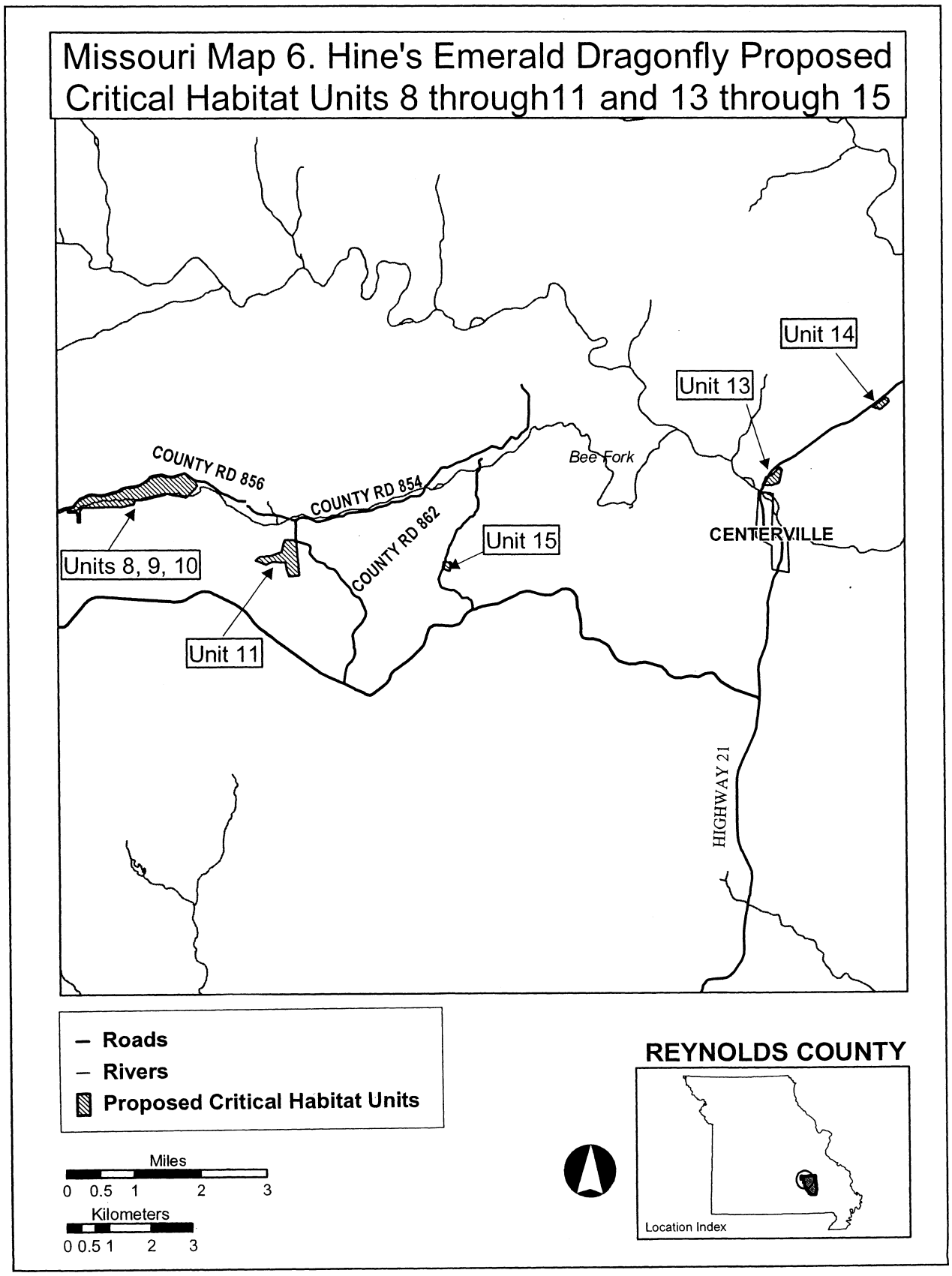
(ii) Missouri Unit 11: Reynolds County. Located in T32N, R1W, Sec. 30 of the Corridon 7.5′ USGS topographic quadrangle. Missouri Unit 11 is located approximately 1 mile east of the intersection of Route TT and Highway 72, extending north to the Bee Fork Church on County Road 854.

(iii) Missouri Unit 13: Reynolds County. Located in T32N, R1E, Sec. 20 of the Centerville 7.5′ USGS topographic quadrangle. Missouri Unit 13 is north of the town of Centerville adjacent to Highway 21.

(iv) Missouri Unit 14: Reynolds County. Located in T32N, R1E, Sec. 15 of the Centerville 7.5′ USGS topographic quadrangle. Missouri Unit 14 is located approximately 2 miles north of Centerville adjacent to Highway 21.

(v) Missouri Unit 15: Reynolds County. Located in T32N, R1W, Secs. 28 and 33 of the Corridon 7.5′ USGS topographic quadrangle. Missouri Unit 15 is adjacent to South Branch fork of Bee Fork Creek, and located approximately 2 miles northeast of the intersection of Route B and Highway 72.

(vi) Note: Map of Missouri proposed critical habitat Units 8 through 11 and 13 through 15 (Missouri Map 6) follows:

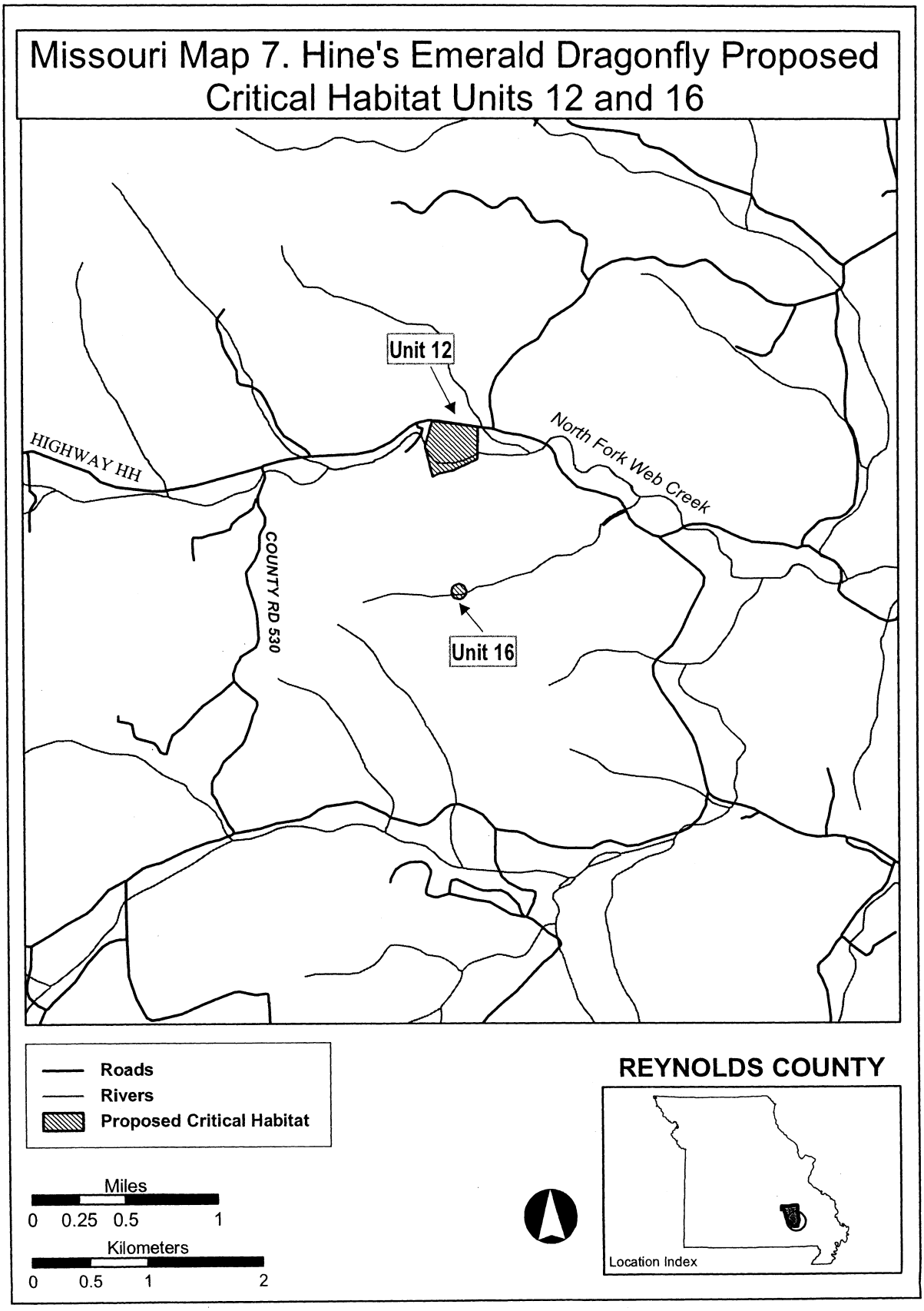

Missouri Map 6. Hine's Emerald Dragonfly Proposed Critical Habitat Units 8 through11 and 13 through 15
Unit 14
Unit 13
Bee Fork
COUNTY RD 856
COUNTY RD 854
COUNTY RD 862
Unit 15
CENTERVILLE
Units 8, 9, 10
Unit 11
HIGHWAY 21
Roads
Rivers
Proposed Critical Habitat Units
Miles
0 0.5 1 2 3
Kilometers
0 0.5 1 2 3
REYNOLDS COUNTY
Location Index

(18) Missouri Units 12 and 16, Reynolds County, Missouri.

(i) Missouri Unit 12: Reynolds County. Located in T29N, R1E, Sec. 36 of the Ellington 7.5′ USGS topographic quadrangle. Missouri Unit 12 is near the town of Ruble and is closely associated with the North Fork of Web Creek.

(ii) Missouri Unit 16: Reynolds County. Located in T29N, R1E, Sec. 1 of the Ellington 7.5′ USGS topographic quadrangle. Missouri Unit 16 is located southeast of the town of Ruble on a tributary to the North Fork of Web Creek.

(iii) Note: Map of Missouri proposed critical habitat Units 12 and 16 (Missouri Map 7) follows:

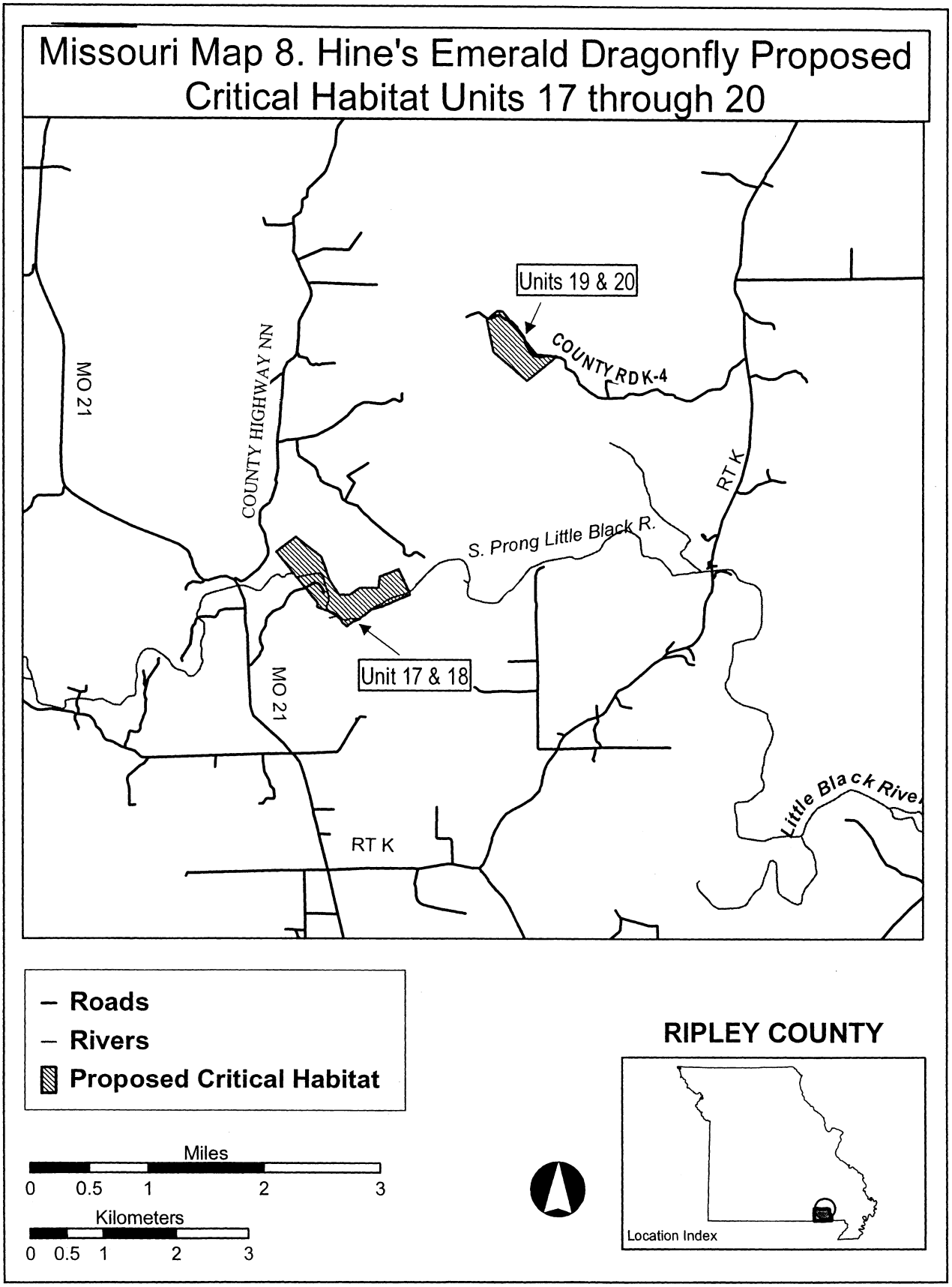

Missouri Map 7. Hine's Emerald Dragonfly Proposed Critical Habitat Units 12 and 16
Unit 12
Unit 16
HIGHWAY HH
COUNTY RD 530
North Fork Web Creek
Roads
Rivers
Proposed Critical Habitat
Miles
0 0.25 0.5 1
Kilometers
0 0.5 1 2
REYNOLDS COUNTY
Location Index

(19) Missouri Units 17 through 20, Ripley County, Missouri.

(i) Missouri Units 17 and 18: Ripley County. Located in T24N, R2E, Sec. 12 and T24N, R3E, Sec. 7 of the Doniphan North and Grandin 7.5′ USGS topographic quadrangles. Missouri Units 17 and 18 comprise the Overcup Fen complex and are associated with the Little Black River.

(ii) Missouri Units 19 and 20: Ripley County. Located in T25N, R3E, Sec. 32 of the Grandin 7.5′ USGS topographic quadrangle. Missouri Units 19 and 20 comprise the Mud Branch complex and are located approximately 1.5 miles east of the village of Shiloh. The complex is associated with Mud Branch, a tributary of the Little Black River.

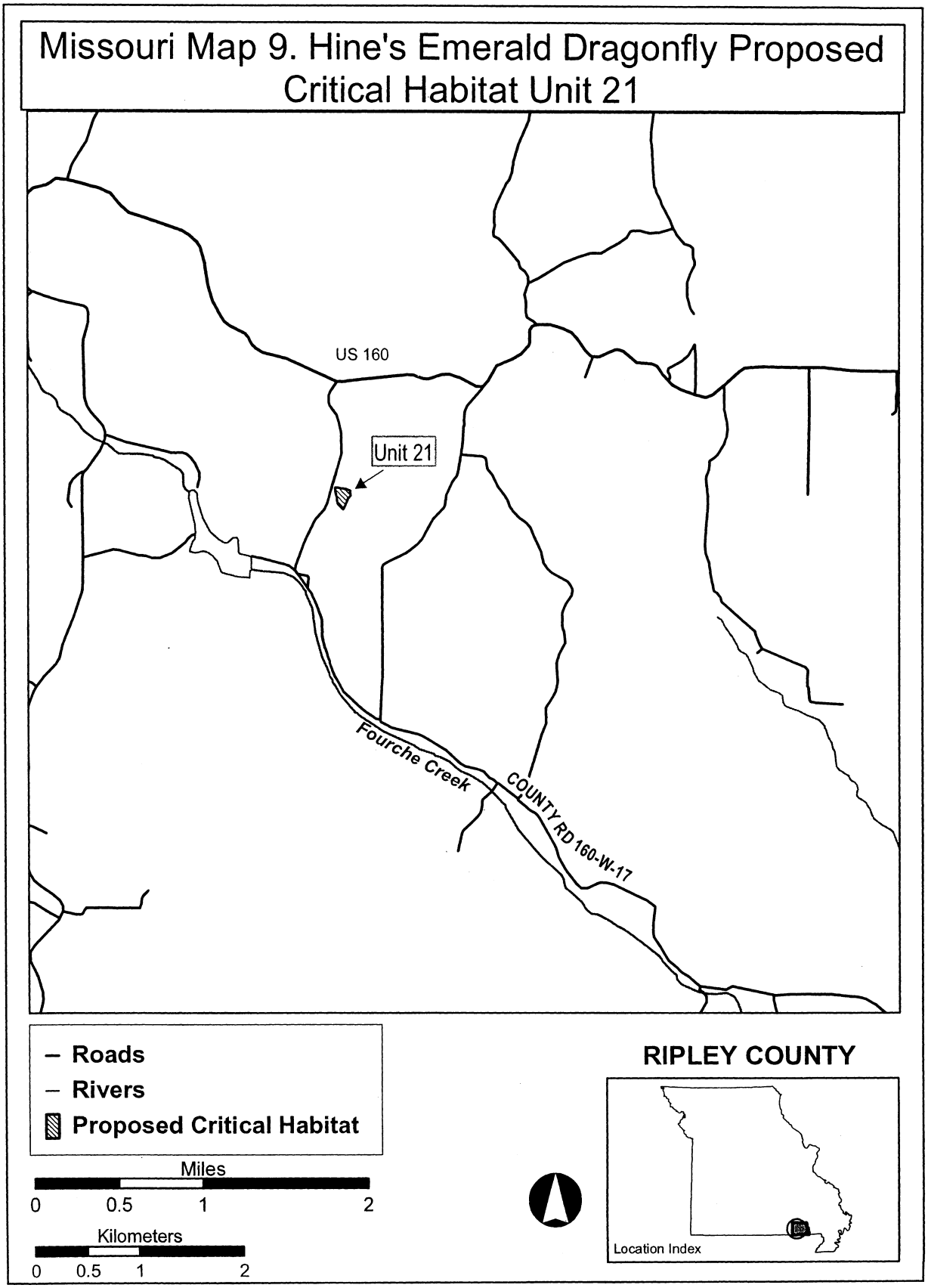
(iii) Note: Map of Missouri proposed critical habitat Units 17 through 20 (Missouri Map 8) follows:


Missouri Map 8. Hine's Emerald Dragonfly Proposed Critical Habitat Units 17 through 20
Units 19 & 20
COUNTY RD K-4
MO 21
COUNTY HIGHWAY NN
RT K
S. Prong Little Black R.
Unit 17 & 18
MO 21
RT K
Little Black River
Roads
Rivers
Proposed Critical Habitat
Miles
0 0.5 1 2 3
Kilometers
0 0.5 1 2 3
RIPLEY COUNTY
Location Index

(20) Missouri Unit 21, Ripley County, Missouri.

(i) Missouri Unit 21: Ripley County. Located in T23N, R1W, Sec. 23 of the Bardley 7.5′ USGS topographic quadrangle. Missouri Unit 21 is associated with an unnamed tributary of Fourche Creek and is located approximately 12 miles west of Doniphan.

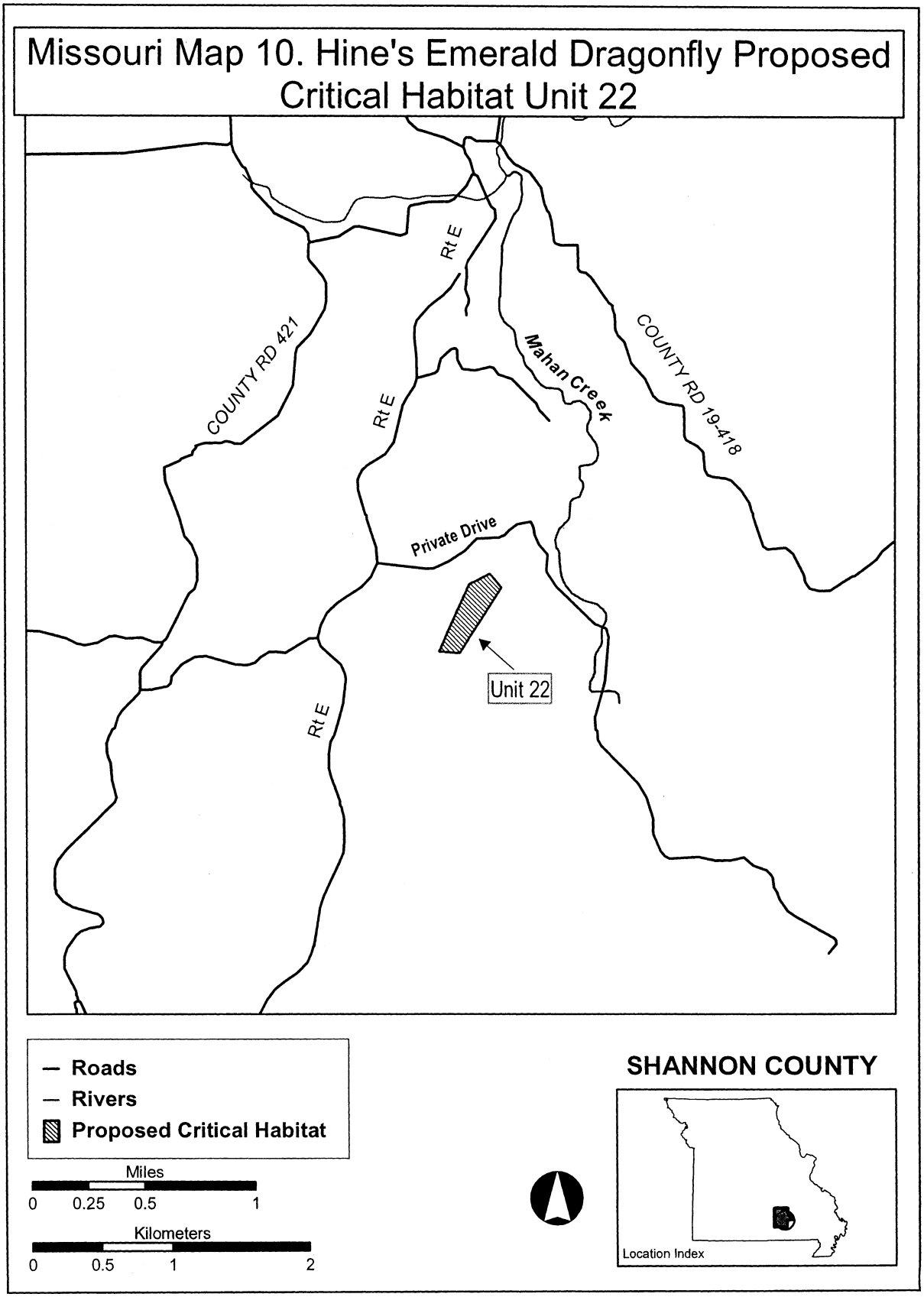
(ii) Note: Map of Missouri proposed critical habitat Unit 21 (Missouri Map 9) follows:


Missouri Map 9. Hine's Emerald Dragonfly Proposed Critical Habitat Unit 21
US 160
Unit 21
Fourche Creek
COUNTY RD 160-W-17
Roads
Rivers
Proposed Critical Habitat
Miles
0 0.5 1 2
Kilometers
0 0.5 1 2
RIPLEY COUNTY
Location Index

(21) Missouri Unit 22, Shannon County, Missouri.

(i) Missouri Unit 22: Shannon County. Located in T28N, R4W, Sec. 20 and 29 of the Bartlett 7.5′ USGS topographic quadrangle. Missouri Unit 22 is associated with Mahans Creek and is located approximately two miles south of Delaware.

(ii) Note: Map of Missouri proposed critical habitat Unit 22 (Missouri Map 10) follows:

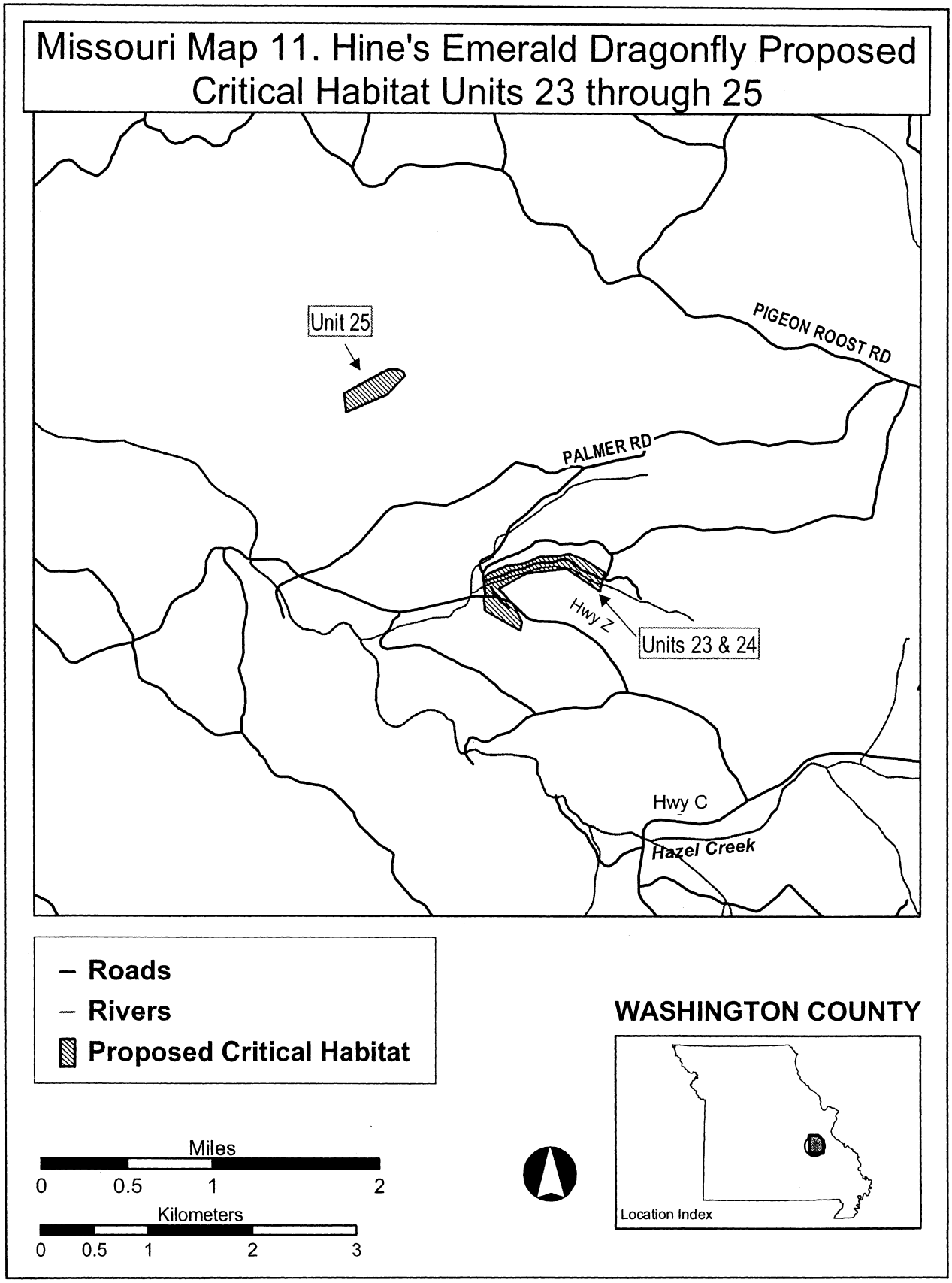

Missouri Map 10. Hine's Emerald Dragonfly Proposed Critical Habitat Unit 22
Rt E
COUNTY RD 421
Mahan Creek
COUNTY RD 19-418
Rt E
Private Drive
Unit 22
Rt E
Roads
Rivers
Proposed Critical Habitat
Miles
0 0.25 0.5 1
Kilometers
0 0.5 1 2
SHANNON COUNTY
Location Index

(22) Missouri Units 23 through 25, Washington County, Missouri.

(i) Missouri Units 23 and 24: Washington County. Located in T36N, R1W, Sec. 13 of the Palmer 7.5′ USGS topographic quadrangle. Missouri Units 23 and 24 comprise the Towns Branch and Welker Fen complex and are located near the town of Palmer.

(ii) Missouri Unit 25: Washington County. Located in T36N, R1W, Secs. 2 and 11 of the Courtois 7.5′ USGS topographic quadrangle. Missouri Unit 25 is associated with a tributary of Hazel Creek and is located approximately 1.5 miles northwest of the town of Palmer.

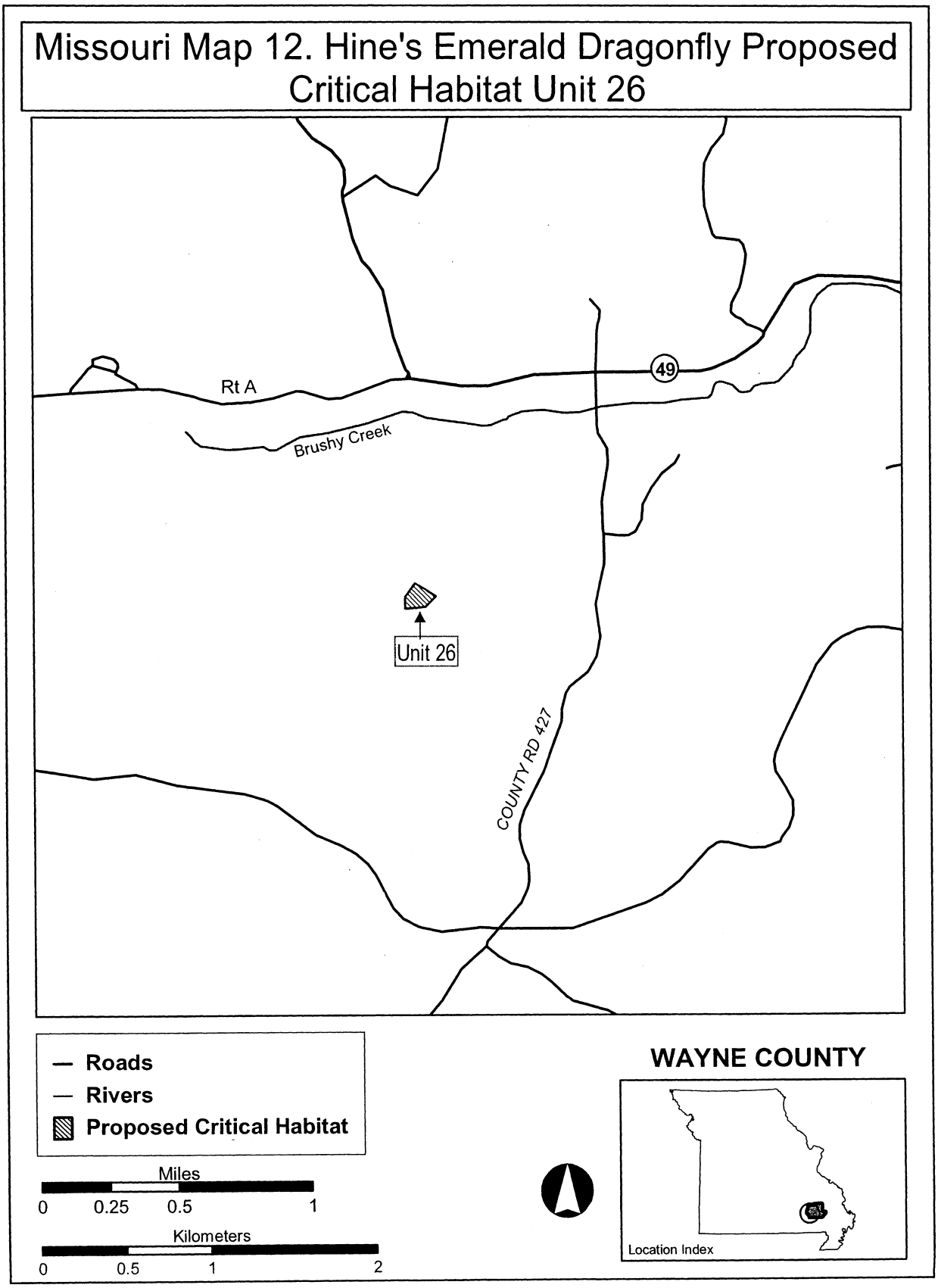
(iii) Note: Map of Missouri proposed critical habitat Units 23 through 25 (Missouri Map 11) follows:


Missouri Map 11. Hine's Emerald Dragonfly Proposed Critical Habitat Units 23 through 25
Unit 25
PIGEON ROOST RD
PALMER RD
Hwy Z
Units 23 & 24
Hwy C
Hazel Creek
Roads
Rivers
Proposed Critical Habitat
WASHINGTON COUNTY
Location Index
Miles
0 0.5 1 2
Kilometers
0 0.5 1 2 3

(23) Missouri Unit 26, Wayne County, Missouri

(i) Missouri Unit 26: Wayne County. Located in T27N, R4E, Sec. 33 of the Ellsinore 7.5′ USGS topographic quadrangle. Missouri Unit 26 is located near Williamsville and is associated with Brushy Creek.

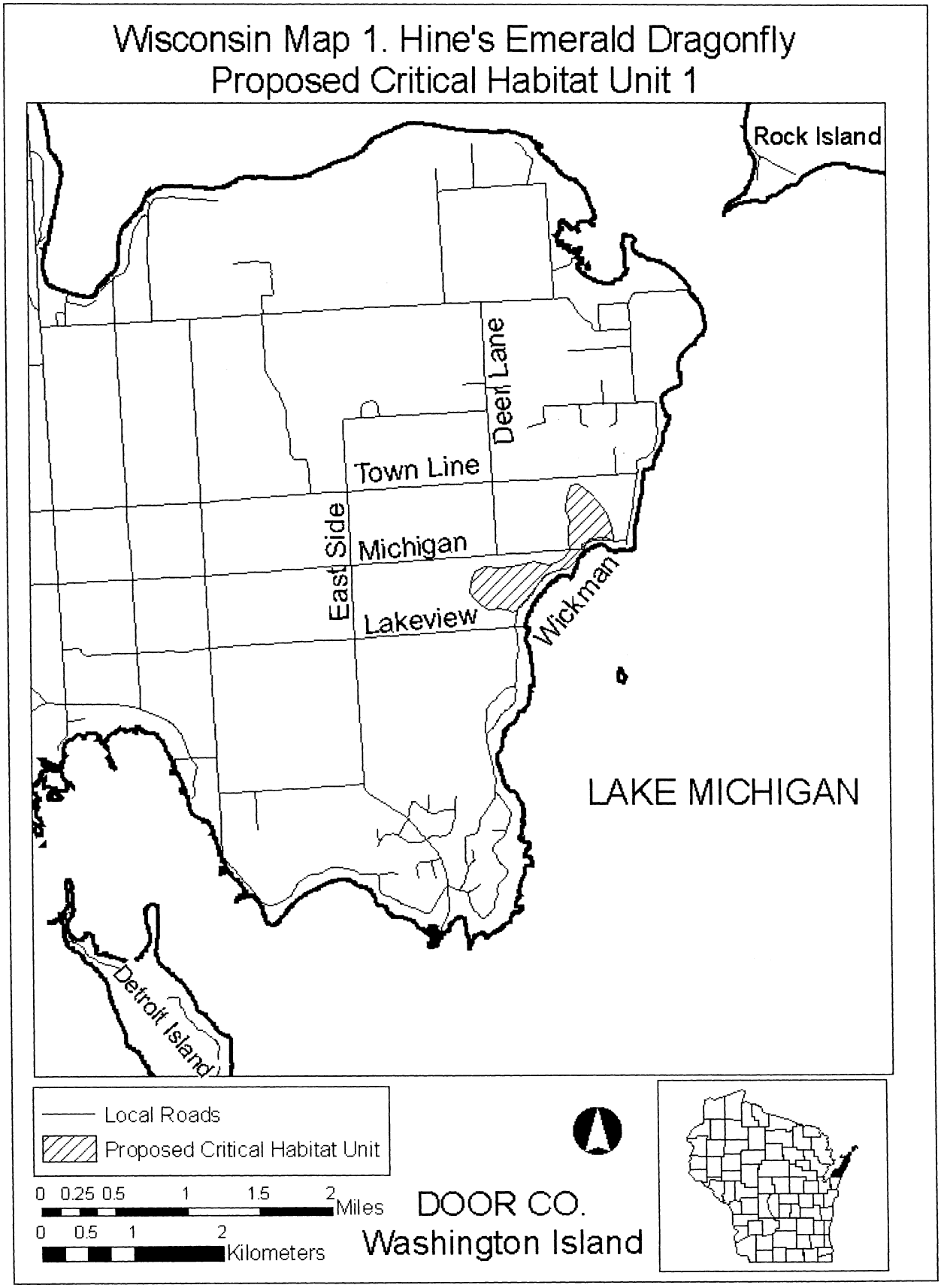
(ii) Note: Map of Missouri proposed critical habitat Unit 26 (Missouri Map 12) follows:


Missouri Map 12. Hine's Emerald Dragonfly Proposed Critical Habitat Unit 26
Rt A
49
Brushy Creek
Unit 26
COUNTY RD 427
Roads
Rivers
Proposed Critical Habitat
Miles
0
0.25
0.5
1
Kilometers
0
0.5
1
2
WAYNE COUNTY
Location Index

(24) Wisconsin Unit 1, Door County, Wisconsin.

(i) Wisconsin Unit 1: Washington Island, Door County. Located in T33N, R30E, W½ and NE¼ Sec. 4, SE¼ Sec. 5 of Washington Island SE and Washington Island NE 7.5′ USGS topographic quadrangles. Lands included are located adjacent to and west of Wickman Road, south of Town Line Road, East of Deer Lane and East Side Roads, north of Lake View Road and include Big Marsh and Little Marsh.

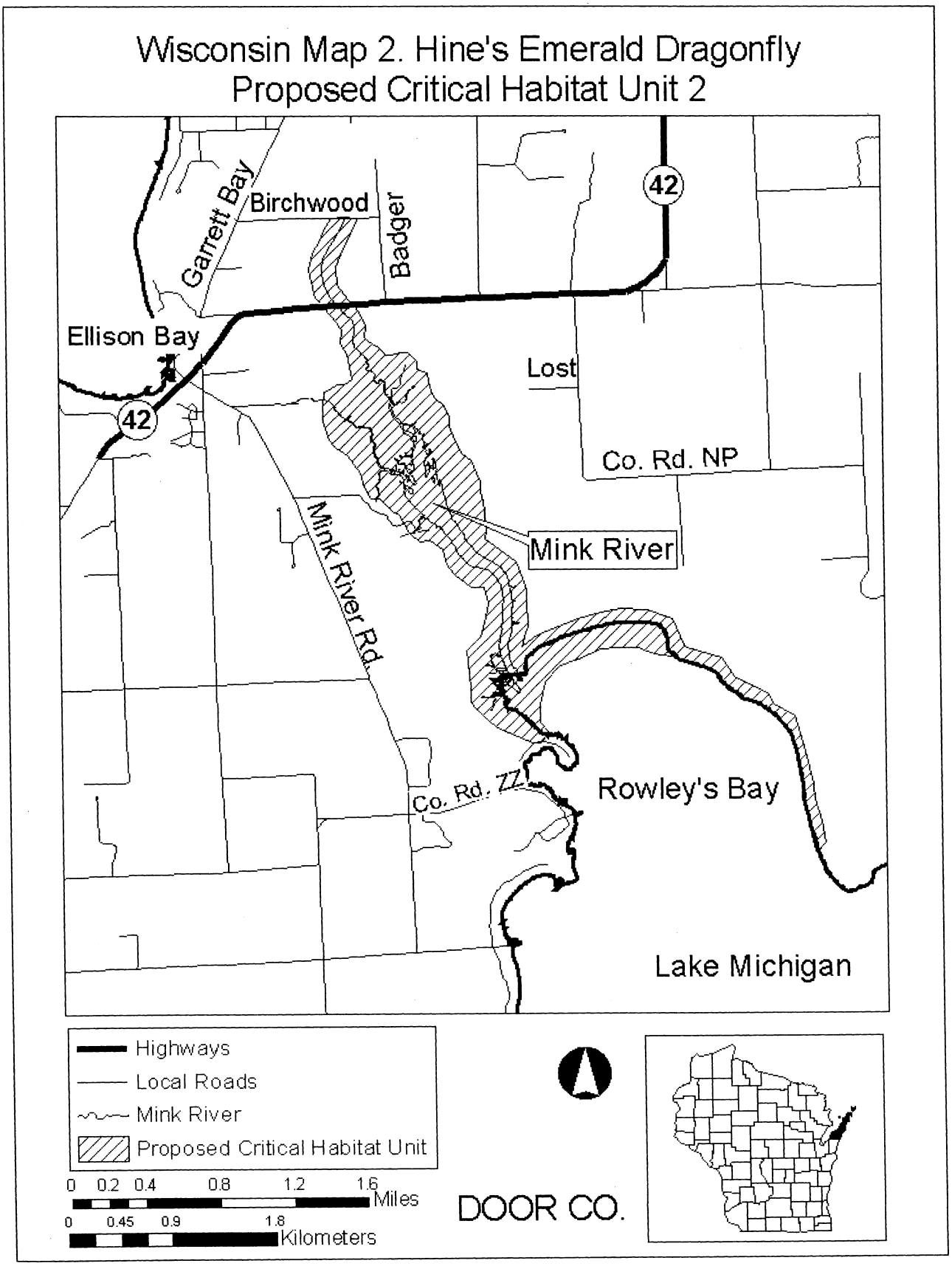
(ii) Note: Map of Wisconsin proposed critical habitat Unit 1 (Wisconsin Map 1) follows:


Wisconsin Map 1. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 1
Rock Island
Deer Lane
Town Line
East Side
Michigan
Lakeview
Wickman
LAKE MICHIGAN
Detroit Island
Local Roads
Proposed Critical Habitat Unit
0 0.25 0.5 1 1.5 2 Miles
0 0.5 1 2 Kilometers
DOOR CO.
Washington Island

(25) Wisconsin Unit 2, Door County, Wisconsin.

(i) Wisconsin Unit 2: Door County. Located in T32N, R28E, SE¼ Sec. 11, NW¼ Sec. 13, NE¼ Sec. 14 of the Ellison Bay 7.5′ USGS topographic quadrangle, and in T32N, R28E, W½ Sec. 13, E½ Sec. 14, NE¼ Sec. 23, portions of each ¼ of Sec. 24, N½ Sec. 25, and T32N, R29E, S½ Sec. 19, W½ Sec. 29, NE¼ Sec. 30 of Sister Bay 7.5′ USGS topographic quadrangle. Lands included are located east of the Village of Ellison Bay, south of Garrett Bay Road and Mink River Roads, North of County Road ZZ, west of Badger Road, County Road NP and Juice Mill Road, and includes the Mink River.

(ii) Note: Map of Wisconsin proposed critical habitat Unit 2 (Wisconsin Map 2) follows:


Wisconsin Map 2. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 2
Garrett Bay
Birchwood
Badger
42
Ellison Bay
Lost
42
Co. Rd. NP
Mink River
Mink River Rd.
Co. Rd. ZZ
Rowley's Bay
Lake Michigan
Highways
Local Roads
Mink River
Proposed Critical Habitat Unit
0 0.2 0.4 0.8 1.2 1.6 Miles
0 0.45 0.9 1.8 Kilometers
DOOR CO.

(26) Wisconsin Units 3 through 7, Door County, Wisconsin.

(i) Wisconsin Unit 3: Door County. Located in T31N R28E, S½ S10, NE¼ S15 of Sister Bay 7.5′ USGS topographic quadrangle. Lands included are located south of County Road ZZ, north of North Bay (Lake Michigan), west of North Bay Road, east of Old Stage Road and about two miles east of the Village of Sister Bay and include a portion of Three-Springs Creek.

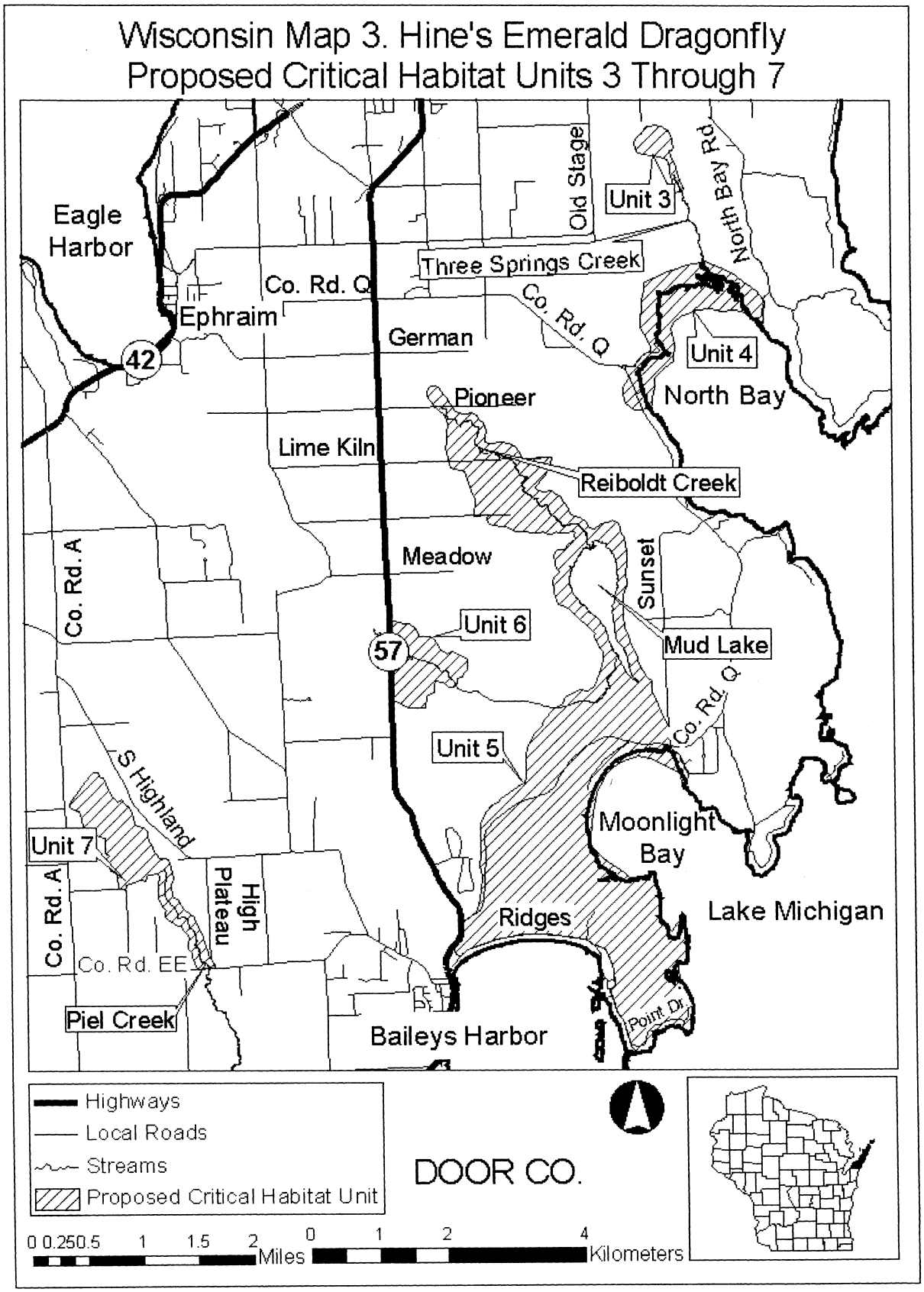
(ii) Wisconsin Unit 4: Door County. Located in T31N, R28E, SW¼ and S½ Sec. 15, portions of each ¼ of Sec. 22, and N½ of Sec. 23 of the Sister Bay 7.5′ USGS topographic quadrangle. Lands are located along the north and northwest sides of North Bay (Lake Michigan).

(iii) Wisconsin Unit 5: Door County. Located in T31N, R28E, S½ Sec. 20, E½ Sec. 29, NW¼ and S½ Sec. 28, N½ and SE¼ Sec. 33, and W½ Sec. 34. It also is located in T30N, R28E, W½ Sec. 3, E½ and SW¼ Sec. 4, SE¼ Sec. 8, Sec. 9, N½ Sec. 10, W½ and SE¼ Sec.15, Sec. 16, and Sec. 17 of the Baileys Harbor East, and Sister Bay 7.5′ USGS topographic quadrangles. Lands located south of German Road, east of State Highway 57, west of North Bay Drive, Sunset Drive and Moonlight Bay (Lake Michigan), north of Ridges Road and Point Drive and include Mud Lake and Reiboldt Creek.

(iv) Wisconsin Unit 6: Door County. Located in T30N, R28E, portions of each ¼ of Sec. 5 of the Baileys Harbor East 7.5′ USGS topographic quadrangle and Baileys Harbor West 7.5′ USGS topographic quadrangle. Lands are located about 2¼ miles north of the Town of Baileys Harbor, east of State Highway 57, south of Meadow Road and are associated with an unnamed stream.

(v) Wisconsin Unit 7: Door County. Located in T30N, R27E, Sec. 11, SW¼ Sec. 13, and N½ and SE¼ Sec. 14 of the Baileys Harbor West 7.5′ USGS topographic quadrangle. Lands are located north of County Road EE, east of County Road A and west of South Highland and High Plateau Roads, about two miles northeast of Town of Baileys Harbor and are associated with the headwaters of Piel Creek.

(vi) Note: Map of Wisconsin proposed critical habitat Units 3 through 7 (Wisconsin Map 3) follows:


Wisconsin Map 3. Hine's Emerald Dragonfly
Proposed Critical Habitat Units 3 Through 7
Eagle Harbor
Ephraim
42
Co. Rd. Q
Three Springs Creek
Old Stage
Unit 3
North Bay Rd.
Co. Rd. Q
German
Unit 4
North Bay
Pioneer
Lime Kiln
Reiboldt Creek
Co. Rd. A
Meadow
Sunset
Unit 6
57
Mud Lake
Co. Rd. Q
Unit 5
S Highland
Moonlight Bay
Unit 7
High Plateau
Co. Rd. A
Ridges
Lake Michigan
Co. Rd. EE
Piel Creek
Baileys Harbor
Point Dr.
Highways
Local Roads
Streams
Proposed Critical Habitat Unit
DOOR CO.
0 0.25 0.5 1 1.5 2 Miles
0 1 2 4 Kilometers

(27) Wisconsin Unit 8, Door County, Wisconsin.

(i) Wisconsin Unit 8: Door County. Located in T28N, R27E, S½ Sec. 16, N½ Sec. 21 of the Jacksonport 7.5′ USGS topographic quadrangle. Lands are located east of Bechtel Road, South of Whitefish Bay Road, west of Glidden Drive and include Arbter Lake.

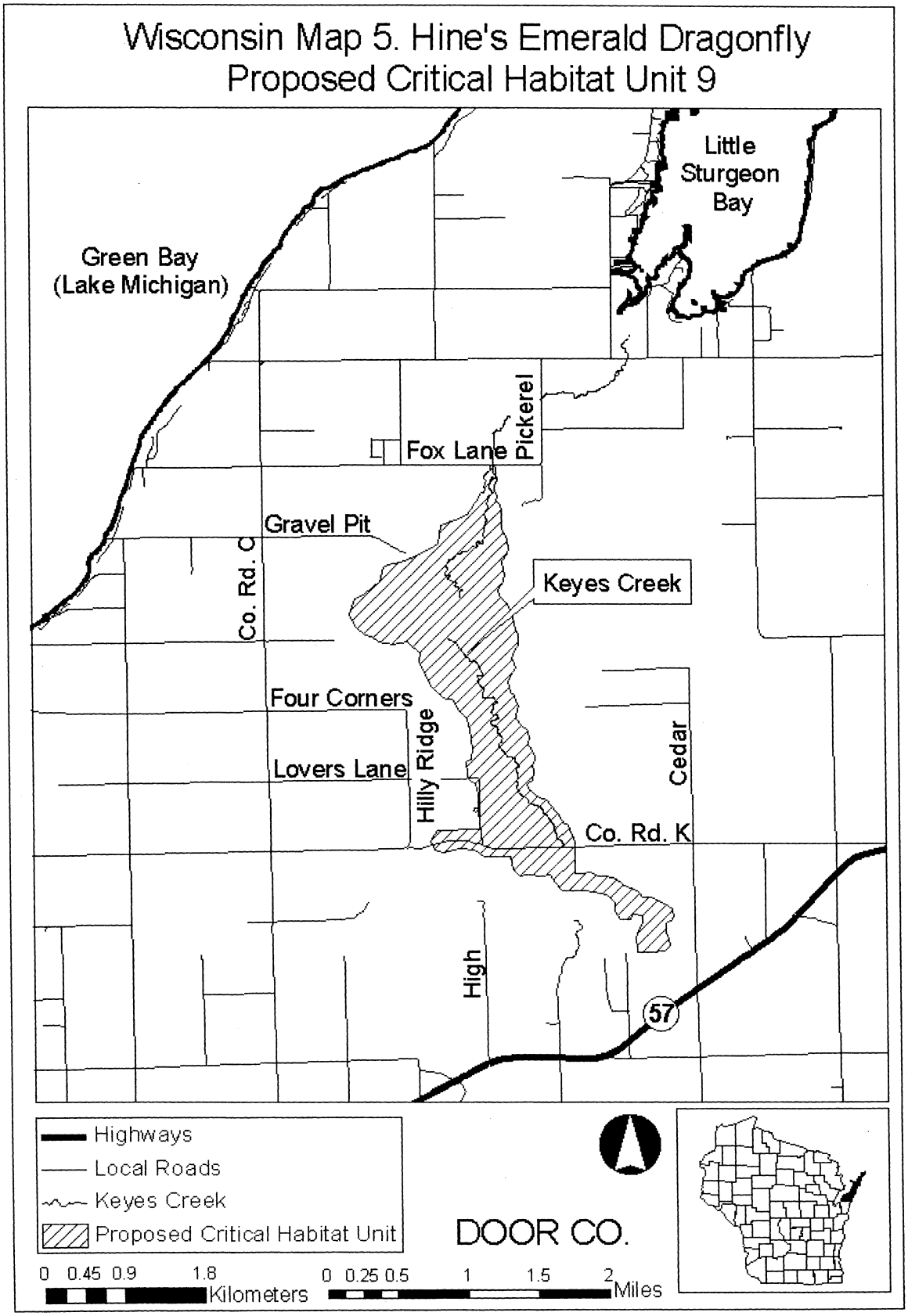
(ii) Note: Map of Wisconsin proposed critical habitat Unit 8 (Wisconsin Map 4) follows:

Wisconsin Map 4. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 8
57
Nelson
Whitefish Bay
Bechtel
Lake Michigan
Arbter Lake
Haberli
Glidden Drive
Highways
Local Roads
Proposed Critical Habitat Unit
0 0.25 0.5 1 1.5 2 Miles
0 0.5 1 2 Kilometers
DOOR CO.

(28) Wisconsin Unit 9, Door County, Wisconsin.

(i) Wisconsin Unit 9: Door County, Wisconsin. Located in T27N, R24E, SE¼ Sec. 16, E½ Sec. 20, portions of each ¼ of Secs. 21, 28 and 33, NW¼ and S½ Sec. 34. Also located in T26N, R24E, NW¼ Sec. 3 of the Little Sturgeon 7.5′ USGS topographic quadrangle. Lands are located west of Pickeral Road and Cedar Lane, north of State Highway 57, east of Hilly Ridge Road and County Road C, south of Fox Lane Road, about 1.5 miles southwest of Little Sturgeon Bay (Lake Michigan) and include portions of Keyes Creek and associated wetlands.

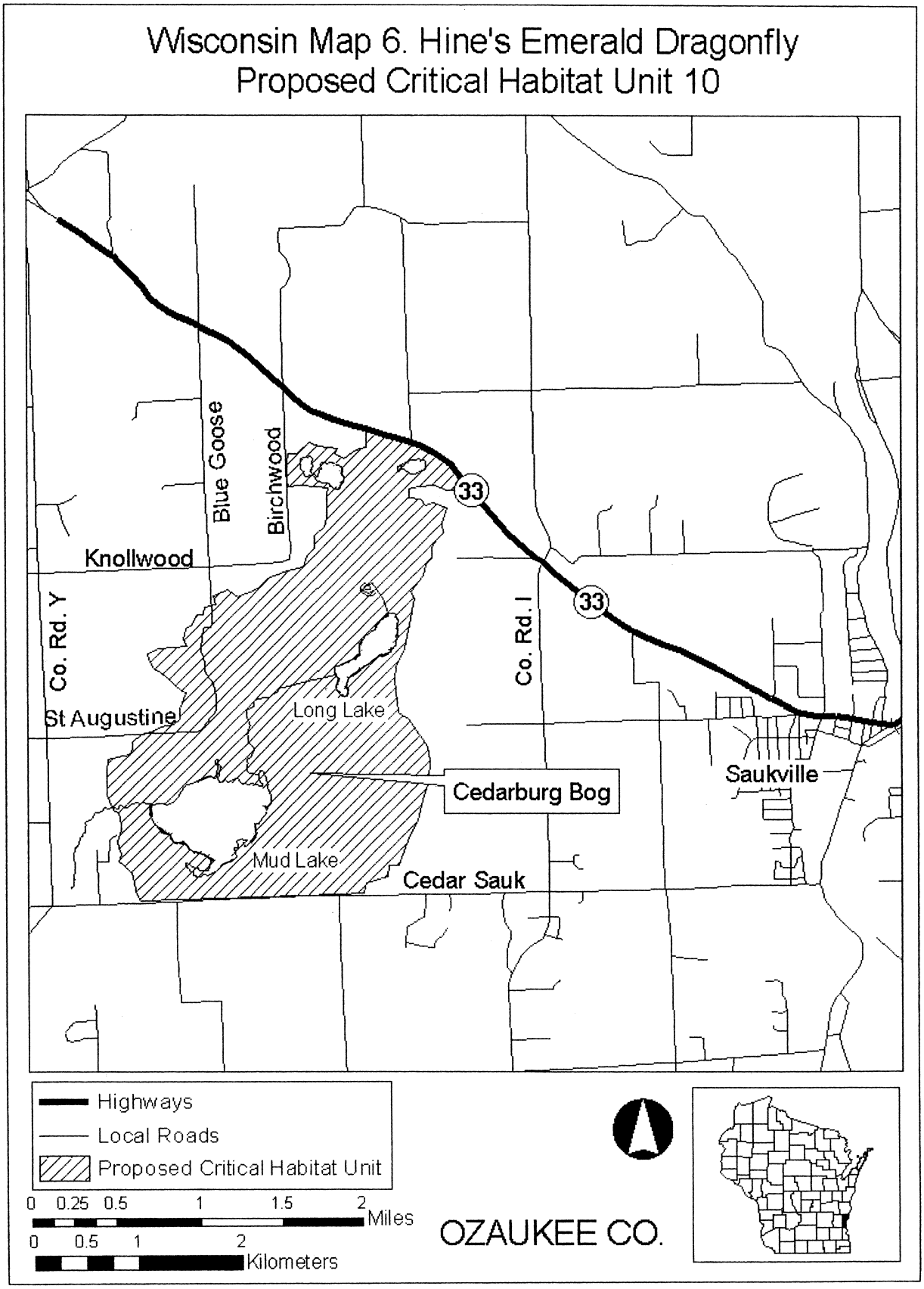
(ii) Note: Map of Wisconsin proposed critical habitat Unit 9 (Wisconsin Map 5) follows:


Wisconsin Map 5. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 9
Little Sturgeon Bay
Green Bay (Lake Michigan)
Pickerel
Fox Lane
Gravel Pit
Co. Rd. C
Keyes Creek
Four Corners
Hilly Ridge
Lovers Lane
Cedar
Co. Rd. K
High
57
Highways
Local Roads
Keyes Creek
Proposed Critical Habitat Unit
DOOR CO.
0 0.45 0.9 1.8 Kilometers
0 0.25 0.5 1 1.5 2 Miles

(29) Wisconsin Unit 10, Ozaukee County, Wisconsin.

(i) Wisconsin Unit 10: Ozaukee County. Located in T11N, R21E, E½ of Sec. 20, portions of each ¼ of Sec. 21, W½ Sec. 28, Sec. 29, E½ Sec. 30, E½ and portions of NW¼ and SW¼ Sec. 31, Sec. 32, and W½ Sec. 33 of the Cedarburg, Five Corners, Newburg, and Port Washington West 7.5′ USGS topographic quadrangles. Lands are located south of State Highway 33, east of County Road Y and Birchwood Road, north of Cedar Sauk Road about 2 miles west of Saukville, and includes the majority of Cedarburg Bog.

(ii) Note: Map of Wisconsin proposed critical habitat Unit 10 (Wisconsin Map 6) follows:


Wisconsin Map 6. Hine's Emerald Dragonfly
Proposed Critical Habitat Unit 10
Blue Goose
Birchwood
Knollwood
Co. Rd. Y
St Augustine
Long Lake
Mud Lake
Cedarburg Bog
Cedar Sauk
Co. Rd. I
33
33
Saukville
Highways
Local Roads
Proposed Critical Habitat Unit
0 0.25 0.5 1 1.5 2 Miles
0 0.5 1 2 Kilometers
OZAUKEE CO.

* * * * *

Dated: July 7, 2006.

Matt Hogan,

Assistant Secretary for Fish and Wildlife and Parks.

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