

**Eastern Massasauga Rattlesnake (*Sistrurus catenatus catenatus*)  
Candidate Conservation Agreement with Assurances for the  
Lower Chippewa River Bottoms, Buffalo and Pepin Counties, Wisconsin**

This Candidate Conservation Agreement with Assurances (CCAA) for the eastern massasauga rattlesnake (EMR), effective and binding on the date of last signature below, is between the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish and Wildlife Service (Service):

Permittee: Matthew J. Frank, Secretary  
Wisconsin Department of Natural Resources  
101 Webster Street  
P.O. Box 7921  
Madison, Wisconsin 53707-7921

Property Owners: Wisconsin DNR

Cooperator: Mary Stefanski, Refuge Manager  
U.S. Fish and Wildlife Service  
Upper Mississippi River National Wildlife and Fish Refuge -  
Winona District  
51 E. 4<sup>th</sup> Street, Room 203  
Winona, Minnesota 55987  
(507) 454-7351

Service Administrator: Louise Clemency, Field Supervisor  
Ecological Services Field Office  
2661 Scott Tower Road  
New Franken, Wisconsin 54229  
(920) 866-1717

Service Tracking Number: ***FWS – RO assigns.***

This CCAA covers the following properties:

Enrolled State Land:

WDNR property known as the Tiffany Wildlife Area (Tiffany) located just upstream on the Chippewa River from its confluence with the Mississippi River in Buffalo and Pepin counties, Wisconsin. Tiffany is comprised of 13,041 acres, with 10,008 acres in Buffalo County and 3,033 acres in Pepin County. Township, range and segments of sections that are encompassed by the Tiffany WMA are: T24N, R14W, Sections 1, 12, 14, 13, 23, 24, 26, 25, 35, 36 and T23N, R14W, Sections 1, 2, 11, 12, 15, 14, 13, 22, 23, 24, 27, 26, 25, 33, 34, 35, 36 (Kris Johansen, WDNR, pers. comm., 2009).

## Cooperator's Lands

The Service's Nelson-Trevino Research Natural Area (NTRNA) which is part of the Upper Mississippi River National Wildlife and Fish Refuge (Refuge), a 3,740-acre parcel owned and managed by the Service and located immediately south of the Burlington-Northern railroad corridor, directly downstream of, and abutting Tiffany. The NTRNA is a State Natural Area and a National Natural Landmark (designated so by the National Park Service) and is located in Buffalo County, Wisconsin in T22N-R13W, Section 6; T22N-R14W, Sections 1-4 and 10-14; and T23N-R14W, Sections 31-36 (Figure 1). EMRs were found on the tracks and just south of the tracks into the NTRNA in 2001. In 2001 the area experienced unusual prolonged flooding (McCumber and Hay 2002) and after which EMRs were not found in the area (Kris Johansen, pers. comm. 2009).

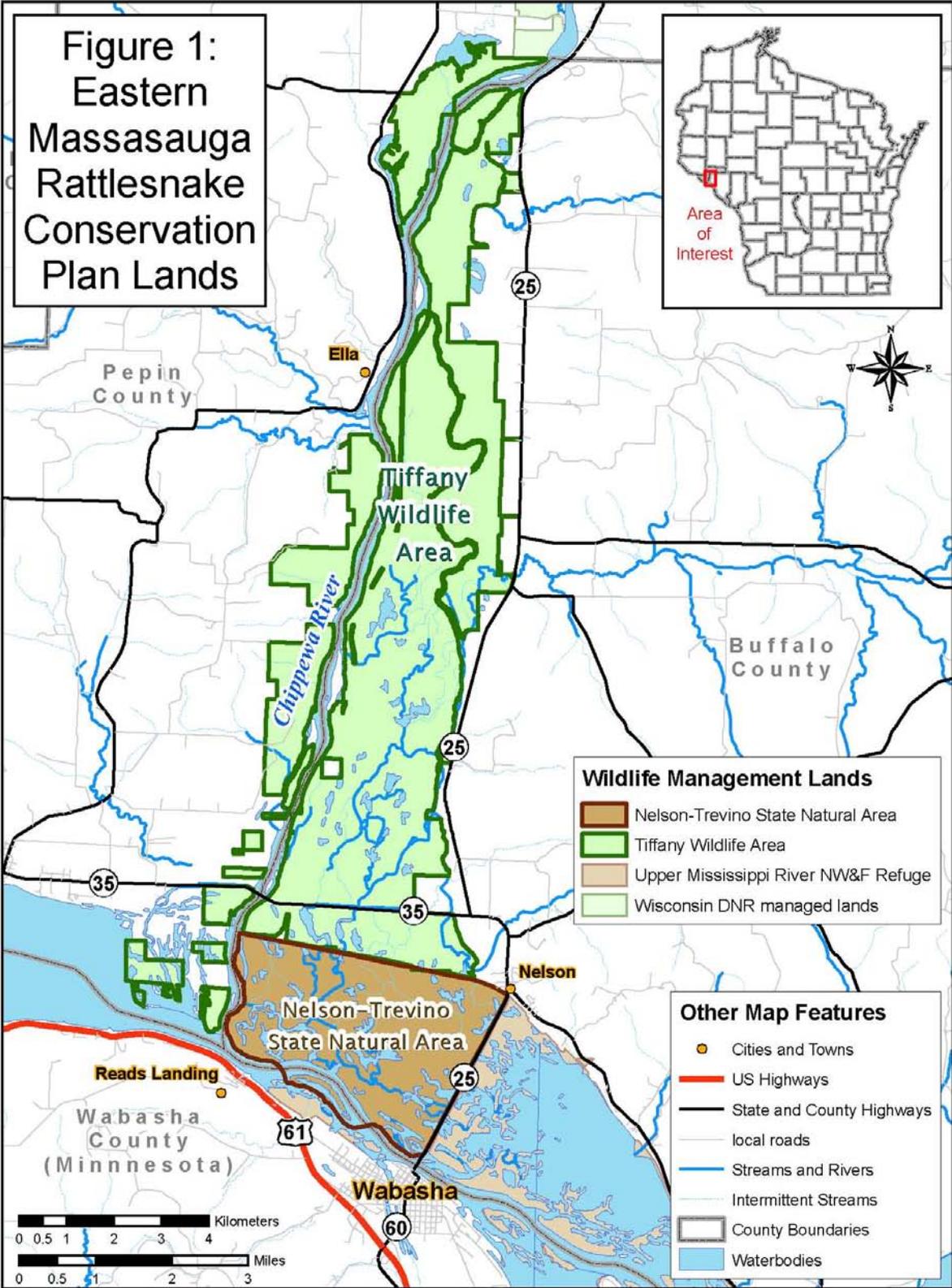
## Authority and Purpose

Sections 2, 7, and 10 of the Endangered Species Act (ESA) of 1973, as amended, allow the Service to enter into this CCAA. Section 2 of the Act states that encouraging interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs, is a key to safeguarding the Nation's heritage in fish, wildlife, and plants.

Section 4 of the ESA outlines guidelines for identifying species that are threatened or endangered under the ESA. Section 4(h)(3) requires that the Service establish a ranking system to assist in identifying species that should receive priority review for listing. To fulfill our responsibilities, the Service developed a program to identify species that warrant protection under the ESA (termed "candidates" or "candidate species") and to monitor and conserve those species for which protection is deemed appropriate until listing can proceed. Section 6 of the ESA provides for cooperation with the States in endangered species conservation, including matching Federal funding and delegation of permitting authority. Collaborative stewardship with State agencies is important in the development of CCAAs, given the statutory role of State agencies and their traditional conservation responsibilities and authorities for resident species.

Section 7 of the ESA requires the Service to review programs that we administer and to utilize such programs in furtherance of the purposes of the ESA. By entering into this CCAA, the Service is utilizing its Candidate Conservation Programs to further the conservation of the Nation's fish and wildlife. Lastly, section 10(a)(1)(A) of the ESA authorizes the issuance of permits to enhance the survival of a listed species.

The purpose of this CCAA is for the Service to join with WDNR to implement conservation measures for the EMR by providing continuing protection of the EMR population at Tiffany in the Lower Chippewa Bottoms in Buffalo and Pepin Counties, Wisconsin. This CCAA details the management strategies to be followed by the land manager. Conservation will be achieved by reducing threats to the population and maintaining and/or improving the available habitat.



## The Service's EMR Conservation Strategy

Most eastern massasauga populations occur on protected lands (i.e., publicly owned land or land purposely set aside by non-governmental entities for long-term preservation). Because of the number and the spatial distribution of these sites, it may be possible to slow, maybe even halt, the decline of the species over time if the threats occurring on these properties are eliminated. Furthermore, if an adequate number of protected properties are sufficiently large and are capable of supporting viable populations, the burden on private lands for protecting/recovering a venomous snake can be minimized.

Thus, to the extent possible, the aim of the Service is to concentrate conservation efforts on these protected properties. The goal is to assure the long-term protection of these populations through CCA(A)s [(Candidate Conservation Agreements (CCA) or Candidate Conservation Agreements with Assurances (CCAA)]. Although the aim is to concentrate efforts on protected properties, the Service does not dismiss the value of private lands in the conservation of EMR. Private lands, particularly those adjacent to protected properties, may be necessary for the long-term stewardship of the EMR. That is, while the protected lands likely support the core of remaining habitat, the non-protected lands may provide critical elements of EMR habitat (e.g., hibernacula, summer foraging areas, etc.). With this conservation strategy in mind, the Service and the States within Region 3 developed a collective ESA section 6 grant proposal to best manage and utilize limited resource funding for EMRs. The primary objective of the proposal was to develop 11 CCA/CCAAs on protected properties across the Midwest. Those funds were used to help obtain baseline EMR monitoring information for the development of this CCAA.

In developing CCAAs, we must ensure they meet the recovery standard. As protected properties harbor the core populations, the recovery standard on these sites is to ensure the long-term protection of the population. The specific conservation measures required at each protected property to achieve this standard will vary. However, in general, the need is to protect critical habitat components (foraging, gestational, and over-wintering habitats) in sufficient quantities and qualities and to implement management practices that promote EMR welfare. Thus, a CCAA will meet the recovery standard if it ensures EMR persistence by committing to: (1) implement management that promotes the well-being of EMRs, (2) restore or enhance habitat to support a viable population, (3) protect such habitat, and (4) reduce threats and minimize take, especially of the adult age classes. On adjacent properties, the recovery standard is to protect or provide the habitat components needed for the population. For example, if a property provides gestational sites for the core population, the recovery standard for this site will be maintaining these areas for future use. Or, if a property once provided foraging habitat for the snake, and such habitat is needed for the core population to maintain or expand, then the recovery standard will be to restore and maintain the foraging capability of the property.

When evaluating a CCAA, the Service must determine that the benefits of conservation measures to be implemented under the CCAA, when combined with benefits achieved if the conservation measures were implemented on other necessary properties, would preclude or remove any need to list the covered species. This is the CCAA standard. The property owner needs to only address those threats, or the proportion of those threats, they can control on the property enrolled in the CCAA.

## Background

### *Federal Status*

The EMR was listed as an endangered species in Wisconsin in 1975. On October 1, 1999, the Service designated it a candidate species for listing under Act. The candidate species elevation prompted the Service and the WDNR to initiate a partnership to develop a CCAA. The purpose of this agreement is to address and implement a strategy that will reduce threats to the species and help to avoid the need for federal listing.

### *Rangewide Status*

The range of the EMR extends from western New York and southern Ontario westward to Iowa and southward to Missouri, including the states of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Pennsylvania, and Wisconsin. Throughout its range, the EMR has declined. The magnitude of decline varies across state/provincial lines, with approximately 33 percent of Michigan's to 100 percent of Minnesota's known historical populations extirpated. Only a few (less than 25 percent) of the remaining populations are considered viable in the long-term. The primary causes of the decline are habitat loss and persecution. Historically, habitat loss and persecution were the most pernicious threats to the EMR. The effects of past anti-rattlesnake campaigns are still apparent, with several populations harvested beyond a recoverable threshold. Intentional killing and illegal collection continues today. The effects of past widespread habitat loss continue to impact EMR populations. Although outright destruction is occurring at a much slower rate than previously, incompatible land use practices continue to perpetuate habitat loss. Beyond outright loss of populations, habitat loss also causes habitat fragmentation. Fragmentation inhibits gene flow and impedes recolonization events. Fragmentation can also isolate seasonally used areas within a population, which increases the snake's vulnerability to road mortality, predation, and persecution (Johnson et al. 1999).

Habitat modification is also occurring in more subtle ways, such as disruption of the natural disturbance processes (e.g., hydrological cycle and fire frequency). Such changes alter the habitat structure and vegetative composition of a site. Given the extent of wetland and adjacent upland habitat conversion to other land uses and the eradication efforts of the past, any additional loss of will have an extraordinary negative impact on the species. More recently, poorly timed land management practices have also been identified as causes of high mortality. While prescribed fire, flooding, and other management practices are necessary to maintain appropriate habitat for EMRs, these practices can also cause mortality (Durbian and Lenhoff, 2004; Durbian, 2006; Seigel et al., 1998) and should be modified to minimize the likelihood that snakes will be killed.

### *Wisconsin State Status*

EMRs were once very abundant throughout much of southern Wisconsin, having historically been found in 27 counties (Schorger 1968). They have declined substantially in numbers and range in Wisconsin due to direct killing and loss of habitat (Knutsen 1954; Vogt 1981; Hay et al. 1993). Currently the snake occurs, or is still likely to occur at five areas in Wisconsin; the

Yellow River area (central WI), the Turtle Creek area (southeast WI), Monroe County (central WI), and the Lower Chippewa and Black River bottoms (western WI). Today, only one viable population is thought to exist in the state, and is located at the confluence of the Lower Chippewa and Mississippi Rivers (Lower Chippewa River Bottoms). The EMR is state listed as endangered.

### Description of Existing Conditions

#### *Habitat*

Tiffany is a diverse floodplain complex consisting of open and closed canopy natural communities, as well as numerous sloughs and lakes which reflects the areas' geomorphic complexity. Subtle differences in elevation are marked by significant differences in vegetation and hydrologic conditions (Faulkner et al., 2005). Vegetative communities range from emergent wetlands (sedge and fresh wet meadows and shallow marshes) to shrub-carr communities dominated by alder or willow to lowland hardwood forest of varying age structures. There are several small dry sand prairies scattered about in Tiffany. The WDNR is actively involved with habitat restoration efforts which focus on removing lowland forest cover to expand existing openings and creating corridors to connect openings. Tiffany provides year-round habitat for the EMR. The openings provide habitat especially important to gravid females, and the wetter areas provide adult habitat including hibernacula sites. Very little occupied EMR habitat is present outside of Tiffany.

#### *EMR Population Level and Telemetry Findings*

A four year survey effort (2000-2003) on the Lower Chippewa River found 163 snakes at 24 sites with annual recruitment good for most years and a broad age class present. Spring floods and high water in the fall adversely affected population numbers in some years. Radio telemetry conducted on the Lower Chippewa River revealed that the habitat most utilized by the snakes was open canopy, sedge and shrub-car habitat, that females made frequent long moves between open canopied habitats, that snakes moved during low temperatures (one found basking at a temperature of 18° F in November), and that debris piles were important habitat for gravid females. The 3-year mortality rate for radioed adults was found to be 26% (McCumber and Hay, 2003).

The first long-term monitoring effort for EMRs was conducted in 2007 in the two primary habitat areas. This was done to establish a baseline capture rate from which to evaluate subsequent monitoring results. Forty-two three-hour surveys (126 total hours) were conducted, yielding 26 EMRs, including 14 adult females, 9 adult males and three juveniles. The survey also involved 18 recaptures and established a capture rate of 0.6 EMRs per three-hour survey (Johansen, Lively and Hay, 2008).

#### *Threats*

The Chippewa Bottoms EMR population has managed to persist despite human persecution and major habitat changes over the past 60+ years. The most significant threat to EMRs

within Tiffany and the NTRNA is the loss of suitable open canopy habitat due primarily to natural succession and altered hydrology. Past management goals for Tiffany have promoted the forestation/reforestation of habitats, contributing to the loss of open canopy habitat (Bob Hay, WDNR, pers. comm., 2003).

Forest and woodland succession has been substantial in the Chippewa River bottoms. A study of the vegetation and hydrologic changes in the Chippewa River bottoms has shown that since 1939, forest and woodland cover has increased significantly in the NTRNA and Tiffany area while savanna, prairie/open, and marsh habitats have declined (Faulkner and Weihler 2005). In 1970, 1800 acres of the 3,740 acres that comprise the NTRNA, were characterized as lowland forest with the balance (1940 acres) being classified as marsh, damp meadow and open water (Tans 1970). By 1994 this acreage had succeeded to 3,322 acres of lowland hardwoods and only 418 acres marsh, emergent wetlands and open water. This represents at least a 76% reduction in the acreage of open canopy habitat (WDNR 1994).

In the 1980's the WDNR starting managing the savannas and prairies with the intent to restore and maintain the prairie fragments and to suppress woody vegetation. This has resulted in some expansion of savanna and prairie/open habitat in the northern portion of Tiffany (Faulkner and Weihler 2005), however natural succession continues as a major threat to the EMR population.

It appears that open water has been increasing in the NTRNA and Tiffany since the 1950's and will likely continue increasing into the future, though possibly at a slower rate. It should be noted that open water habitat makes up a small percent of the total 62 km<sup>2</sup> (15,321 acre) Tiffany Bottoms study area; the greater proportion of the site is made up of vegetational cover types (forest, woodland, savanna, prairie/open, and marsh). In 1965 about 3.6% of Tiffany Bottoms was classified as open water, this increased to 12.7% in 2001. The largest amount of open water occurs in the southern half of Tiffany, especially the portion that is essentially part of the Mississippi River floodplain. Increases in open water are also seen in the northern part of Tiffany however those increases are modest compared to increases in the southern portion of Tiffany. The increasing open water is likely due to many factors including Chippewa River stream flows, and variations in the water level of the Mississippi River. Many of the sloughs and lakes in the southern part of Tiffany are merely extensions of Pool 4 (Mississippi River), and rise and fall with that pool level. In addition, since the mid-20th century, there has been a general rise in the regional water table as a result of changes in land use and land cover. Those changes have increased infiltration capacities of soils and groundwater recharge as well as reduced storm-generated runoff and soil erosion (Faulkner and Weihler 2005).

The prolonged saturation of soils within much of the NTRNA and a downstream portion of Tiffany render much of that area too wet for EMR habitation and appears to have caused direct mortality to individual snakes by prolonging flood events. This was evidenced in the spring and early summer of 2001 when about 7,000 acres remained underwater for 8-10 weeks and caused the apparent loss of the best known sub-population of EMRs in Tiffany (Bob Hay, pers. comm., 2003).

Another potentially significant effect related to changes in hydrology throughout this site, particularly in the southern third of the site, is that channels that ran 10 feet or more deep as recently as 20 years ago continue to fill in with sand and organic matter, slowing the flow of water off the floodplain habitat. This problem was noted in 1993 when the Mississippi River flooded during the summer. Invasive species such as reed canary grass are also taking over many areas (Bob Hay, pers. comm., 2008)

Vegetation changes in the future are predicted to result from succession and management rather than hydrographic conditions. Changes in vegetation cover types in the Chippewa River bottoms are not strongly related to hydrography and there is no evidence that increased water levels are converting forests into marshes. Over the past 70 years, succession has produced a landscape dominated by patches of forest and woodland; this is likely to continue except in areas interrupted by direct management (Faulkner and Weihler 2005).

Direct loss of EMRs through killing and collecting also remains a threat; one that is unquantified. The entire site was once heavily targeted by bounty hunters (Vogt, 1981). In addition, one researcher has admitted to killing or obtaining over 300 EMR carcasses from hunters for a diet study in the mid-late 1960s (Keyleene 1968). Direct killing was documented and suspected poaching was noted in 2001. In a case of known illegal take, state laws would apply and the WDNR may charge individual(s) with illegal harvesting of a state endangered species. The Service may have the ability, depending on the nature of the illegal take, to pursue a violation under the Lacey Act.

#### *Habitat Management Goals of the CCAA*

The management goals of this CCAA are to maintain and expand open canopy habitat for the EMR while balancing the management needs with other species habitat needs (e.g. forest interior migratory birds) (refer to Conservation Measure 3 below). Management will increase the acreage of existing suitable habitats and restore connectivity between these habitats to improve snake dispersal. This goal will help offset habitat loss due to succession, and the predicted continued loss of open canopy habitat over time (Faulkner and Weiher 2005). About 82 acres of habitat restoration has occurred over the last several years at Tiffany resulting in the restoration of open-canopy habitat and the creation of dispersal corridors. Open-canopy habitat is habitat with • 25 percent canopy cover (Kris Johansen, WDNR, pers. comm., 2009). Future work will focus on restoring habitat in the northern part of Tiffany, which provides more suitable habitat for EMRs than the southern portions of the site.

#### Goals of this Agreement

The goals, conservation measures and associated strategies of this CCAA are outlined in detail below and summarized more briefly in Table 1. Table 1 also includes information on funding needs.

The three conservation goals of this CCAA are:

1. To enhance, and manage sufficient habitat at Tiffany to maximize the potential for maintenance and protection of the EMR population.

2. To determine and monitor the population size and occupied range of the EMR in the Chippewa River bottoms at Tiffany and the NTRNA.
3. To create a sense of ownership and support for management, protection and recovery efforts at this location. Local residents and wildlife area users will be the targeted audience.

To achieve these goals, the conservation measures identified below have been or will be implemented by the WDNR and the Service to the extent that funding allows. The WDNR will take steps to ensure the continued persistence of the EMR at Tiffany by adopting an adaptive management approach which will entail using knowledge acquired through habitat management work, EMR monitoring, and research to make adjustments to the conservation program as needed to improve protection of the EMR population.

The conservation measures will drive the management program. Some of the strategies (tasks) associated with the various conservation measures outlined below have been completed; they are included within this document to demonstrate WDNR's long standing program to conserve the EMR at Tiffany. The WDNR commits to conducting the uncompleted strategies (tasks) identified below and in Table 1 if funds are available. The WDNR and the Service agree to pursue funding through its available programs and other applicable funding sources for the conservation measures described below. The WDNR has been successful in the past in securing funds from various sources for habitat restoration and EMR monitoring activities at Tiffany. Funds are already secured for Years 1 and 2 for habitat maintenance and restoration activities and for 2010 for EMR monitoring (refer to Table 1 in Appendix A, "Funding Secured" column). Anticipated future funding sources include WDNR State Wildlife Grants, Service Challenge Grants, Service ESA Section 6 funds, Service discretionary funds, and State Turkey Stamp monies.

#### Conservation Measures and Obligations of the Parties *Wisconsin Department of Natural Resources*

Conservation Measure 1. Quantify habitat changes over time to determine how past changes may have affected EMR populations.

Strategy 1. Conduct a Geographic Information Systems (GIS) analysis of the NTRNA and Tiffany to quantify and qualify changes in vegetation and hydrology from 1939 (earliest available aerial photography for the site) to 1998 (most recent aerial photography for the site). Aerial photography to be analyzed from 1939, 1951, 1958, 1965, 1972, 1981, 1986, 1992 and 1998.

*Strategy 1 has been completed. A GIS analysis of the NTRNA and Tiffany addressing vegetation and hydrologic changes over time was performed by the University of Wisconsin-Eau Claire. The principle investigator for the hydrologic analysis was Douglas Faulkner, a fluvial geomorphologist. The principle investigator for the vegetation analysis was Evan Weiher, associate professor of biology. Funding for this work was provided by the Service to the WDNR, who in turn contracted with UW-Eau*

*Claire for these services. The Final Report, "Hydrographic and Vegetation Change in the Tiffany Bottoms Area of the Lower Chippewa River in Buffalo County" was completed November 3, 2005 (Faulkner and Weiher 2005) and provided to the Service. Information from the study is being used to guide EMR conservation work at Tiffany. The study revealed that habitat restoration work should be focused on the northern portions of Tiffany which provides more suitable habitat for EMRs than the wetter southern portion of the wildlife area.*

Conservation Measure 2 (optional). Forecast future habitat suitability for this EMR population as funding permits.

Strategy 1 (higher priority). Use the GIS analysis to develop a predictive model of anticipated hydrologic conditions for the future (20, 50 and 100 years beyond present).

Strategy 2. Use the GIS analysis to develop a predictive model of anticipated vegetation changes in the future under a no-management scenario (20, 50 and 100 years beyond present).

Conservation Measure 3. Based on the finding from Conservation Measures Nos. 1 and 2 (if available) conduct management at Tiffany in an effort to maintain and enhance habitat suitable for EMRs while balancing management needs with other species habitat needs (e.g. managing for forest interior migratory birds). About 40 acres of the approximately 82 acres of existing open canopy habitat will be maintained per year and 1-3 acres per year of closed canopy habitat will be opened in and around occupied EMR habitat at Tiffany. As a result, suitable habitat will increase by 10-30 acres over the ten year life of this agreement. If more funds are available, additional habitat work will be done in EMR occupied habitat or other areas of Tiffany where restoration and/or management work is anticipated to benefit the EMR over the long term.

Strategy 1. Conduct periodic prescribed burns in EMR occupied or previously occupied habitats to control or reverse the loss of open canopy caused by natural succession and to restore connectivity between occupied habitats. Burning of occupied habitat will be conducted following the latest approved "Protocol for Incidental Take Authorization Eastern Massasauga Rattlesnake (*Sistrurus catenatus catenatus*)" (part of Wisconsin DNR's Grassland and Savanna Protocols) (Appendix B) which allows burning only during the EMR's non-active period (during hibernation). The EMR non-active period generally occurs from October 20 to April 5 based on four years of EMR survey data collected by the WDNR at Tiffany (Bob Hay, WDNR, pers. comm., 2008).

Strategy 2. Conduct other habitat management, where appropriate, (e.g., brush hog cutting or tree removal, herbicide application and mowing) to expand open-canopy areas currently or potentially available to EMRs. These management actions will be conducted following the latest approved "Protocol for Incidental Take Authorization Eastern Massasauga Rattlesnake (*Sistrurus catenatus catenatus*)" (part of Wisconsin DNR's Grassland and Savanna Protocols) (Appendix B).

Conservation Measure 4 Conduct population monitoring using random search methods to evaluate the status of the EMR population in the Chippewa Bottoms.

Strategy 1. Conduct initial population surveys in Tiffany and NTRNA to determine the currently occupied range of EMRs within the Chippewa Bottoms.

*Strategy 1 has been completed. EMR surveys and telemetry work were conducted at Tiffany and NTRNA from 2000-2003 McCumber and Hay 2001, 2002, 2003).*

Strategy 2 Select 3 large sub-populations (sites) in Tiffany to establish a catch per unit effort baseline for use in comparing future monitoring efforts. This should include Sites IR-2-1 and 2-6-1 where heavy mortality occurred in 2001 due to prolonged flooding in order to evaluate EMR recovery potential and Sites 3-15-1 to 5 (now one larger connected site).

*Strategy 2 Completed in 2007. (Lively 2007)*

Strategy 3 Conduct monitoring of EMR populations at the large EMR sites selected for Strategy 2 plus 2-3 additional smaller recently occupied sites in Tiffany per monitoring event. The smaller EMR sites should be sites where no EMR management has been conducted prior to the monitoring event to compare catch per unit effort (CPUE) between larger managed sites and the smaller unmanaged sites. Monitoring should be conducted at 3-5 year intervals for a minimum of 15 years to evaluate changes to EMR populations. These changes should help to evaluate both the persistence of EMR populations plus provide some evidence of the effectiveness of management activities in Tiffany.

Conservation Measure 5 Develop and implement an education program, to reduce the threat of collecting and killing in the Chippewa Bottoms.

Strategy 1 Funds permitting, modify existing EMR educational materials to make it applicable, as necessary, to the Chippewa Bottoms area. Use this information to conduct outreach to landowners who have suitable EMR habitat and/or are located immediately adjacent to Tiffany or the NTRNA to increase citizen awareness about the EMR population and threats (human and natural) to the snake.

Strategy 2 Review Rebecca Christoffel's Ph. D thesis on "The human dimensions of rattlesnake conservation in the upper Midwest" for information applicable for use in Strategy 1.

Optional Strategy 3 If not yet accomplished, develop and circulate a questionnaire to solicit public opinion regarding EMR recovery. Questionnaire will collect information on attitudes and perceptions toward the EMR and current and proposed management that may be limiting or preventing support of conservation efforts for the snake. Information will be used to identify the best communication methods and techniques to use to educate the public with the goal of increasing their support or minimizing their opposition to conservation of the species.

### The U.S. Fish and Wildlife Service (Administrator):

The Service will provide technical assistance with the development of the CCAA and permit application. They will provide support for management and monitoring including information sharing, technical assistance, and funding when the budget allows. The Service will also assist in identifying other potential funding sources to support implementation of conservation measures.

### Refuge (Cooperator):

Where possible, the Refuge will provide funding to support implementation of conservation measures through its various programs and applicable funding sources. The Refuge will also provide staff and equipment when possible to assist with implementation of the EMR conservation measures and provide EMR education and outreach information to the public. In addition, the Refuge will participate in EMR Work Group meetings pending staff availability.

### Expected Benefits

As a dedicated state wildlife area, Tiffany provides a permanent sanctuary for the EMR in all of their life stages. Implementation of the conservation measures will provide higher quality and more diverse habitat for the species. The restoration of more open canopy habitat will provide needed basking sites for EMRs, especially females. EMR population numbers are expected to increase over time in response to the habitat restoration and maintenance work. Education and outreach measures are anticipated to reduce the risk of poaching, and to encourage conservation of the snake. Through adaptive management the likelihood of long-term viability for this population will be better secured.

### Level/Type of Take/Impacts

Upon approval of this CCAA, and satisfaction of all other applicable legal requirements, the Service will issue a permit, in accordance with section 10(a)(1)(A) of the Act to WDNR. This permit will authorize incidental take of EMRs that results from EMR related management at Tiffany. Although management practices will occur during the EMR's inactive season, inadvertent minimal take resulting from approved management may not be avoidable. It is difficult to quantify the level of take that will occur. While the goal will be no take of snakes, the worst case scenario would be that no more than two individuals would be anticipated to be taken annually.

The Service recognizes that the anticipated take associated with the management actions conducted following the conservation measures identified in this CCAA are consistent with the overall goal of precluding the need to list the species, and that if the conservation measures were implemented on other necessary properties, there would be no need to list the species.

## Assurances Provided

Through this CCAA, the Service provides WDNR assurances that no additional conservation measures nor additional land, water, or resource use restrictions, beyond those voluntarily agreed to and described in the “Conservation Measures” section of this CCAA, will be required on the lands enrolled in this CCAA should the EMR become listed as a threatened or endangered species in the future. These assurances are contingent upon implementation of the conservation measures described herein and will cease in the event that the WDNR management strategy at Tiffany Wildlife Area no longer benefits the EMR. Unless otherwise stated, these assurances will be authorized with the issuance of an enhancement of survival permit under section 10(a)(1)(A) of the Act. The application for the enhancement of survival permit is included as Appendix C to this CCAA.

## Assurances Provided to Property Owner in Case of Changed or Unforeseen Circumstances

The assurances listed below apply to the WDNR. The assurances apply only where the enhancement of survival permit associated with this CCAA and the CCAA itself are being properly implemented, only with respect to species adequately covered by this CCAA.

(1) *Changed circumstances provided for in the CCAA.* If additional conservation measures are necessary to respond to changed circumstances and the measures were set forth in the CCAA’s operating program, WDNR will implement the measures specified in the CCAA.

(2) *Changed circumstances not provided for in the Agreement.* If additional conservation not provided for in the CCAA’s operating conservation program are necessary to respond to changed circumstances, the Service will not require any conservation measures in addition to those provided for in the CCAA without the consent of the WDNR.

(3) *Unforeseen circumstances.*

(A) If additional conservation measures are necessary to respond to unforeseen circumstances, the Service may require additional measures of WDNR, but only if such measures are limited to modifications within the CCAAs conservation strategy for the affected species, and only if those measures maintain the original terms of the CCAA to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the CCAA without the consent of WDNR.

(B) The Service will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species. The Service will consider, but not be limited to, the following factors:

- (1) Size of the current range of the affected species;
- (2) Percentage of range adversely affected by the CCAA;

- (3) Percentage of range conserved by the CCAA;
- (4) Ecological significance of that portion of the range affected by the CCAA;
- (5) Level of knowledge about the affected species and the degree of Specificity of the species conservation program under the CCAA; and
- (6) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

### Reporting Requirements (includes Monitoring Provisions)

#### WDNR:

A report will be submitted to the Service by March 31 of each year as described below. The report will cover activities from the previous calendar year. (Note: All activities may or may not be conducted every year).

#### 1. Habitat Management Activities

Summarize and quantify expended effort (man hours) and acreage affected (acres of existing suitable habitat enhanced and acres restored to suitable habitat) for the reporting period. The report will include detailed maps highlighting areas that received active management as well as the cumulative EMR-related management (e.g. captured on an Excel spreadsheet) that has been conducted since 2005 (refer to Conservation Measure 3).

#### 2. Monitoring Activities

Summarize EMR monitoring results for the reporting period and add that survey data to the data collected at all EMR sites at Tiffany since 2000 to create a cumulative survey record (e.g., captured on an Excel spreadsheet) for all the EMR survey sites (refer to Conservation Measure 4).

#### 3. Adaptive Management

Report on changes made to the conservation program based information learned from the habitat management work, EMR population surveys, and any pertinent research. Explain the rationale for the changes and keep a cumulative record of these changes (e.g., on an Excel spreadsheet).

#### 4. Landowner Outreach

Summarize the educational/outreach activities and their outcomes for the reporting year. Each report should be added to the previous outreach report to maintain a cumulative record of all outreach activities (e.g., on an Excel spreadsheet); (refer to Conservation Measure 5).

## 5. Incidental Take (if any)

Identify any inadvertent incidental take of EMRs that resulted from management actions. Record the number of EMRs taken, the date taken, and the cause of the take, and measures that will be implemented to avoid or minimize the take in the future. Each report should be added to the previous report to maintain a cumulative record of all take activities (e.g. on an Excel spreadsheet).

Note: See also “Notification of Take Requirement” below for requirements pertaining to notification of take to WDNR’s Bureau of Endangered Resources.

### *U.S. Fish and Wildlife Service*

Refuge:                      Review of monitoring reports in coordination with GBFO pending staff availability.

Service’s GBFO:        Review of monitoring reports in coordination with the Refuge.

### Notification of Take Requirement

The WDNR’s Protocol for Incidental Take Authorization (Appendix B) identifies management protocols to be followed that are designed to avoid take. Only the unlikely taking that may occur inadvertently despite following all the management prescriptions is authorized. If incidental take of EMRs results from any management activities, WDNR’s Bureau of Endangered Resources will be notified so they can reevaluate management guidance relative to the EMR. In addition, any incidental take will be reported in WDNR’s EMR CCAA annual report to the Service.

### Duration of Agreement

The CCAA, including any commitments related to funding under Service programs, will be in effect for duration of 10 years following its approval and signing by the Parties (WDNR and the Service). The section 10(a)(1)(A) permit authorizing take of the species will become effective on the date of the final rule listing the species and will expire when this CCAA expires or is otherwise suspended or terminated. The permit and CCAA may be extended beyond the specified terms prior to permit expiration through the permit renewal process and with agreement of the Parties.

### Modifications

After approval of the CCAA, the Service may not impose any new requirements or conditions on, or modify any existing requirements or conditions applicable to WDNR to compensate for changes in the conditions or circumstances of any species or ecosystem, natural community, or habitat covered by the CCAA except as stipulated in 50 CFR 17.22(c)(5) and 17.32(c)(5).

### Modification of the CCAA

Any party may propose modifications or amendments to this CCAA by providing written notice to, and obtaining the written concurrence of, the other Parties. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written concurrence.

### Amendment of the Permit

The permit may be amended to accommodate changed circumstances in accordance with all applicable legal requirements, including but not limited to the Endangered Species Act, the National Environmental Policy Act, and the Service's permit regulations at 50 CFR 13 and 50 CFR 17. The party proposing the amendment shall provide a statement describing the proposed amendment and the reasons for it.

### Termination of the CCAA

As provided for in Part 8 of the Service's CCAA Policy (64 FR 32726, June 17, 1999), the WDNR may, for good cause, terminate implementation of the CCAA's voluntary management actions prior to the CCAA's expiration date, even if the expected benefits have not been realized. If the CCAA is terminated without good cause, however, WDNR is required to surrender the enhancement of survival permit at termination, thus relinquishing take authority (if the species has become listed) and the assurances granted by the permit. WDNR is required to give 60 days' written notice to the Service of its intent to terminate the CCAA and must give the Service an opportunity to relocate affected species within 60 days of the notice.

### Permit Suspension or Revocation

The Service may suspend or revoke the permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation [(50 CFR 13.28(a)]. The Service may also, as a last resort, revoke the permit if continuation of permitted activities would likely result in jeopardy to covered species [50 CFR 17.22/32(d)(7)]. The Service will revoke due to jeopardy concerns only after first implementing all practicable measures to remedy the situation.

### Remedies

Each party shall have all remedies otherwise available to enforce the terms of the CCAA and the permit. No party shall be liable in damages for any breach of this CCAA, any performance or failure to perform an obligation under this CCAA or any other cause of action arising from this CCAA.

### Dispute Resolution

The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

### Succession and Transfer

It is not anticipated that the ownership of the Tiffany Wildlife Area will change. However, in the event that ownership change is contemplated, the Wisconsin DNR shall contact the Service to discuss future management of the enrolled property to benefit the EMR. WDNR shall notify the Service in writing of any transfer of ownership, so that the Service may attempt to contact the new owner, explain the responsibilities applicable to the property, and seek to interest the new owner in signing a CCAA to continue to benefit the EMR on the property.

### Availability of Funds

Implementation of this CCAA is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this CCAA will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury or Wisconsin Treasury. The Parties acknowledge that the Service and WDNR will not be required under this CCAA to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing. The WDNR has exhibited a strong commitment to EMR conservation on the property enrolled in this CCAA and fully intends to maintain that commitment to the extent funding allows.

### No Third-Party Beneficiaries

This CCAA does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this CCAA to maintain a suit for personal injuries or damages pursuant to the provisions of this CCAA. The duties, obligations, and responsibilities of the Parties to this CCAA with respect to third parties shall remain as imposed under existing law.

### Notices and Reports

Any notices and reports, including monitoring and annual reports, required by this CCAA shall be delivered to the persons listed below, as appropriate:

#### Permittee

Matthew J. Frank, Secretary  
Wisconsin Department of Natural Resources  
101 S. Webster Street  
Madison, Wisconsin 53703

U.S. Fish and Wildlife Service

Louise Clemency, Field Supervisor  
U.S. Fish and Wildlife Service  
2661 Scott Tower Road  
New Franken, Wisconsin 54229

Mary Stefanski, Refuge Manager  
U.S. Fish and Wildlife Service  
Upper Mississippi River National Wildlife and Fish Refuge - Winona District  
51 E. 4<sup>th</sup> Street, Room 203  
Winona, Minnesota 55987

References Cited

- Durbian, F.E., and L. Lenhoff. 2004. Potential effects of mowing prior to summer burning on the eastern massasauga (*Sistrurus c. catenatus*) at Squaw Creek National Wildlife Refuge, Holt County, Missouri, USA. Durbian, F.E. 2006. Effects of mowing and summer burning on the massasauga (*Sistrurus catenatus*) American Midland Naturalist 155: 329-334.
- Faulkner D., and E. Weiher. 2005. Hydrographic and Vegetation Change in the Tiffany Bottoms Area of the Lower Chippewa River in Buffalo County. Report provided to the Wisconsin Department of Natural Resources, Bureau of Endangered Resources, 101 South Webster Street, P.O. Box 7921, Madison, Wisconsin 53707-7921. 55 pp.
- Hay, R., and D. Kopitzke. 1993. Status survey for the massasauga rattlesnake (*Sistrurus c. catenatus*) in Wisconsin. Unpublished report prepared for the U.S. Fish and Wildlife Service, Twin Cities, Minnesota. 31 pp. + appendix.
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- Johnson, G., B. Kingsbury, R Seigel, R King, C Parent, and J.Szymanski. 1999. The eastern massasauga rattlesnake: A handbook for natural area managers. 23 pp.
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- Telemetry Study Lower Chippewa River Buffalo Co. WI. Interim Report to U.S. Fish and Wildlife Service. 19 pp.
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- Tans, William E. 1970. Wisconsin Scientific Areas Preservation Council Scientific or Natural Area Report. Wisconsin Department of Natural Resources.
- Wisconsin Department of Natural Resources. 1994. Annual Report of Management Activities on State Natural Areas.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Candidate Conservation Agreement with Assurances for the Tiffany Wildlife Area in the Lower Chippewa River Bottoms, Buffalo and Pepin Counties, Wisconsin.

  
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Permitter:

Wisconsin Department of Natural Resources

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August 5, 2010

Date

\_\_\_\_\_  
Field Supervisor  
Ecological Services Field Office  
U.S. Fish and Wildlife Service

\_\_\_\_\_  
Date

\_\_\_\_\_  
Refuge Manager  
U.S. Fish and Wildlife Service  
Upper Mississippi River National Wildlife and Fish Refuge  
Winona District

\_\_\_\_\_  
Date