

REGION 3 FEDERAL ASSISTANCE SECTION 7 EVALUATION FORM

PHASE 3 Part A: Completed by Ecological Services Field Office

Grant Proposal/Agreement/Amendment Title and Number:

Michigan Comprehensive SWG (T-9-T-6),
Mod 1- F14AF01280

Listed Species: **Karner blue butterfly** (*Lycaeides melissa samuelis*) – endangered, **Northern long-eared bat** (*Myotis septentrionalis*) – threatened, **Kirtland’s warbler** (*Setophaga kirtlandii*) - endangered

I. Programmatic Recovery Biological Opinion:

- **Karner blue butterfly (KBB):** Biological Opinion for Issuance of Section 10(a)(1)(B) Incidental Take Permit to the Michigan Department of Natural Resources for the take of Karner Blue Butterfly (*Lycaeides melissa samuelis*) in Michigan. Log number 07-R3-ELFO-03. Issued 3/2/2009. This BO also addresses eastern massasauga rattlesnake.
- **Northern long-eared bat (NLEB):** Biological Opinion for Wildlife and Sport Fish Restoration Program for funding to the Michigan Department of Natural Resources. Log No. 15-R3-ELFO-10. Issued 10/15/2015.
- **Kirtland’s warbler (KW):** Programmatic Biological Opinion for Issuance of Section 10(a)(1)(A) Scientific Take Permits and Providing Funding Pursuant to Endangered Species Grants for Kirtland's Warbler. Log No. 12-R3-ELFO-03. Issued 4/24/2012.

II. Actions identified on the attached Phase 1 Form were contemplated in the referenced above Biological Opinion.

Yes X No

III. The appropriate conservation measures identified in the referenced above Biological Opinion have been explicitly incorporated into the project design and are described in the attached Phase 1 Form.

Yes X No

IV. The anticipated effects of the proposed action as described on Phase 1 Form are commensurate with the effects anticipated in the referenced above Biological Opinion

Yes X No

V. Anticipated Take. There is sufficient information available about the proposed action to determine the amount and extent of incidental take.

Yes X No

If Yes, complete sections 1 and 2 below:

1. Describe the type & extent of take anticipated to occur as a result of the proposed action.

KBB: Take is expected to result from activities related to habitat and population monitoring. During the course of walking through occupied sites to sample the population or quantify lupine density, individuals, including pupae and larvae, could be disturbed, injured, harassed, or accidentally trampled upon. Take is also expected as a result of invasive species control and grassland restoration and management. Disturbance, injury, harassment, and death to adults, pupae and larvae could occur from trampling, fire, mowing, brushing, watering, manual removal or vegetation with hand tools or mechanical equipment and herbicide application through occupied habitat. These activities may also disrupt resting, feeding, and reproductive behaviors. However, these activities are supported in Michigan's Karner blue butterfly HCP and are expected to provide overall benefits to the species and its habitat.

NLEB: Take of NLEB may result from activities related to grassland restoration and management and jack pine management. Individual bats are expected to be disturbed, injured, harassed, and/or possibly killed due to prescribed fire and tree removal activities.

KW: Take of KW could occur from activities related to the annual census. Kirtland's warblers are ground nesters and their nests may be difficult to detect, as such injury or mortality through the accidental trampling of a nest is possible. Incidental take in the form of harassment and harm is anticipated for the warblers in the action area during the census. Census activities may also result in harassment to individuals, by temporarily disrupting resting, feeding, or mating activities.

2. Reconcile take anticipated with proposed action with the type & extent of take authorized via the referenced above Biological Opinion (describe take authorization provided in the programmatic and confirm that the level anticipated with the proposed action is within those specified limits).

KBB: The type of incidental take anticipated from the proposed actions, namely, harm and death of individual butterflies, is consistent with actions considered in the BO and the conservation measures outlined in the BO. Incidental take will be monitored to ensure that no more than 1/3 of an occupied site is affected during implementation to assure consistency with the BO, and will annually tabulate and report in detail the acreage of take as required.

NLEB: The type of incidental take anticipated from the proposed actions, namely harm and death of individual bats, is consistent with actions considered in the BO and conservation measures outlined in the BO. The Michigan Department of Natural Resources (MDNR) will also adhere to the conservation measures provided in the interim 4(d) rule to minimize take of NLEB. Incidental take will be monitored to ensure that no more than 40,000 acres of NLEB roosting, swarming, staging, and migratory habitat are affected during implementation to assure consistency with the BO, and will annually tabulate and report in detail the acreage of take as required.

KW: The type of incidental take anticipated from the proposed actions, namely harm and death of individual birds, is consistent with actions considered in the BO and

**REGION 3 WSFR SECTION 7 EVALUATION DOCUMENTATION
PHASE II: COMPLETED BY U.S. FISH AND WILDLIFE SERVICE**

State:	Michigan	Grantee:	Michigan Department of Natural Resources
Grant Title and Number	Michigan's Comprehensive State Wildlife Grant T-9-T-6 Admin Amend: 0001 (F14AF01280)		

Check the box, if the information on the Phase I documentation is adequate:

- List of Species Description of Proposed Action Description of Effects

I. WSFR Determination Determination of the effects of the proposed action on endangered, threatened, proposed, and candidate species and their proposed or designated critical habitat. When the determination(s) below is/are different than the State recommended determination(s) on the Phase I documentation, an explanation for the difference must be provided in Section II below.

A. Listed Species/ Critical Habitat (for each category, list species, attach list or reference Phase I documentation)

- a) "No Effect" (see attached Phase I)

- b) "May Affect, but is Not Likely to Adversely Affect" (see attached Phase I)

Canada lynx, Gray wolf, Indiana Bat, Kirtland's warbler, Piping plover, Rufa Red knot, Copperbelly water snake, Hine's emerald dragonfly, Hungerford's crawling water beetle, Mitchell's satyr, Poweshiek skipperling, Clubshell, Northern riffleshell, Rayed bean, Snuffbox, American hart's tongue fern, Dwarf lake iris, Eastern prairie fringed orchid, Houghton's goldenrod, Lakeside daisy, Michigan monkey-flower, Pitcher's

- c) "May Affect, and is Likely to Adversely Affect" (see attached Phase I)

Karner blue butterfly, Northern long-eared bat

B. Proposed Species/ Proposed Critical Habitat (for each category, list species, attach list or reference Phase I documentation)

- a) "No Effect" (see attached Phase I)

- b) "May Affect, but is Not Likely to Adversely Affect" (see attached Phase I)

Poweshiek skipperling (critical habitat)

- c) "May Affect, and is Likely to Adversely Affect" (Formal consultation/conference with ES FO is required)

d) "May Adversely Affect/Modify, but is not likely to Jeopardize" (Please see attached rationale in Phase I, also MOU in the permanent files - P:\Central subject matter\Endangered Species Act Compliance)

- NOTE: This determination is a conference, not a consultation, in regards to species proposed for listing that only considers whether these activities jeopardize the species proposed. The conference determination was made with guidance from Ecological Services as documented in the centralized subject-matter file. This determination for any proposed species applies only during the period when it is proposed for listing and consultation will be required for any activities that may affect the species or its suitable habitat that are still in progress after the species is listed.

d) Continued

[Empty box]

C. Candidate Species (for each category, list species, attach list or reference Phase I documentation)

- a) "No Effect" (see attached Phase I)

[Empty box]

- b) "May Affect, but is Not Likely to Adversely Affect" (see attached Phase I)

[Empty box]

- c) "May Affect, and is Likely to Adversely Affect" (Formal consultation/conference with ES FO is required)

Eastern massasauga

d) "May Adversely Affect/Modify, but is not likely to Jeopardize" (Please see attached rationale in Phase I, also MOU in the permanent files - P:\Central subject matter\Endangered Species Act Compliance)

- NOTE: This determination is a conference, not a consultation, in regards to species proposed for listing that only considers whether these activities jeopardize the species proposed. The conference determination was made with guidance from Ecological Services as documented in the centralized subject-matter file. This determination for any proposed species applies only during the period when it is proposed for listing and consultation will be required for any activities that may affect the species or its suitable habitat that are still in progress after the species is listed.

[Empty box]

WSFR Specialist

CRAIG KELLING

Digitally signed by CRAIG KELLING
DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and Wildlife Service, cn=CRAIG KELLING
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Date: 2015.09.10 14:41:43 -05'00'

WSFR Chief

Ken Kuznia

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Date: 2015.09.10 14:56:17 -05'00'

II. Explanation of non-concurrence: For each determination that differs from the Phase I documentation, provide rationale for the non-concurrence.

All species and critical habitat with the determination of "No Effect" in the Phase 1 Form have been given the determination of "MANLAA" in the Phase 2 Form. Given the scope and nature of the work being conducted, particularly pertaining to habitat management activities, it appears that this project could potentially effect most listed species in Michigan. Because project personnel will be conducting grant-funded activities in areas that may result in chance encounters with the designated species and their habitat, some form of take is possible. However, take is unlikely and, in most cases, effects would be minimal.

Critical habitat for the Hine's emerald dragonfly was listed on the Phase 1 Form and has been removed on the Phase 2 Form as no critical habitat has been designated for the species in the State of Michigan.

III. Notes:

[Empty box]

REGION 3 WSFR SECTION 7 EVALUATION DOCUMENTATION

PHASE I: COMPLETED BY GRANTEE (See Phase I Instructions for completing this form)

Department of
State: Michigan Grantee: Natural Resources Grant Program: State Wildlife Grant (SWG)

Grant Title and Number (add amendment no.): F14AF01280 - Michigan's Comprehensive SWG (T-9-T-6), Modification 1

I Location:

A. List counties where grant activities will occur.

At least some of the activities supported in this grant may occur in all Michigan counties. This grant supports a number of project statements that are programmatic as well as some that are project based.

B. Describe the action area (see instructions).

This grant contains five chapters to support the following programmatic areas for managing species of greatest conservation need (SGCN):

1. Planning and Technical Guidance for Species of Greatest Conservation Need

These activities include developing plans and conservation measures for federally listed SGCN, reviewing and revising the state threatened and endangered species list, developing an eastern massasauga conservation plan, and database maintenance and support. The action area includes offices in Lansing, Michigan.

2. Surveys, Monitoring, and Research for Species of Greatest Conservation Need

Activities in this chapter include the statewide frog and toad survey, monitoring of peregrine falcon breeding activity, Karner blue butterfly surveys, and the Kirtland's warbler census. Data analysis occurs in offices and labs in Lansing and East Lansing. Field observation of peregrine nesting activity can occur statewide, and Karner blue butterfly surveys take place in Allegan, Ionia, Kent, Lake, Mason, Mecosta, Montcalm, Muskegon, Newaygo, and Oceana counties. Frog and toad surveys may occur in areas adjacent to wetlands throughout the state. Kirtland's warbler surveys will take place in the northern Lower Peninsula and in the Upper Peninsula.

3. Habitat Management for Species of Greatest Conservation Need

This chapter includes habitat management activities on Department owned lands statewide. Lands where activities may occur include State Game Areas (SGAs), State Recreation Areas (SRAs), State Parks (SPs) and State Forests (SFs) as well as some private lands and federal lands including national forests and military installations (see Map 1).

4. Population Management for Species of Greatest Conservation Need

Piping plover nest protection may occur in occupied coastal areas primarily in the northern Lower Peninsula and the eastern Upper Peninsula of Michigan. Coordination activities will occur statewide.

5. Wildlife Action Plan Revisions and Development of Implementation Plans

These administrative and planning activities can occur at field offices and indoor meeting

locations statewide as well as the main Wildlife Division office in Lansing.

II. Species/Critical Habitat:

A. Species information

1. Using the FWS web site (<http://www.fws.gov/midwest/Endangered/>), list species that are/or may be present in the county(ies):

There are 25 species in Michigan on the Federal List of Threatened and Endangered Species (see attached table). These include 17 animal species and 8 plant species. In addition, the eastern massasauga rattlesnake is a candidate for listing and will be taken into consideration during the proposed maintenance and operations activities.

2. List species, from "1." above, that are not in the action area, and explain why:

The four listed mussel species (clubshell, northern riffleshell, rayed bean, and snuffbox) are not in the action area because the action area does not include rivers or streams where mussels reside exclusively.

- ### B. Using the FWS web site, identify whether federally designated or proposed critical habitat is present within the action area:

The only designated critical habitat in Michigan is for piping plover (see Map 3) and Hine's emerald dragonfly. Proposed Poweshiek skipperling critical habitat is also in Michigan.

Because of the programmatic nature of this grant and the extent of activities proposed statewide, all designated and proposed critical habitats are in the action area.

*Note: If II.A and II.B above have no species or critical habitat, skip sections III and IV and go to V.

III. Description of Proposed Action: In the space provided or on an attached sheet, describe the action(s) in sufficient detail so that the potential effects of the action can be identified and fully evaluated.

For each of the five chapters in this grant, the project statements are given along with a description of the proposed actions for each:

1. Planning and Technical Guidance for Species of Greatest Conservation Need

1.1 Planning and consultation for federally listed SGCN

Wildlife Division will develop plans and conservation measures to protect federally listed species, and also consults with FWS to provide input into proposed species listings. For State listed species, Wildlife Division completes a biannual review of the state T/E list by consulting with taxonomic experts and providing recommendations regarding additions and deletions to the state list.

1.2 Maintenance of biodiversity databases

MDNR will continue to utilize the Michigan Natural Features Inventory (MNFI) to enter new natural heritage wildlife data, update existing data, provide quality control of data in the Biotics database, and facilitate accessibility for database users.

1.3 Developing an eastern massasauga conservation plan in Michigan

This project consists of data analysis and modeling activities to develop a collection of site

management plans to prioritize efforts to conserve massasaugas in Michigan.

2. Surveys, Monitoring, and Research for Species of Greatest Conservation Need

2.1 Survey and monitoring of Michigan's frogs and toads

The statewide frog and toad survey is conducted by volunteers who cover established survey routes consisting of ten wetland survey points. At each survey point, the surveyor stops and records all frog and toad calls heard. New routes are occasionally established to increase statewide coverage and replace routes that have become unsuitable. All routes will be surveyed annually by trained staff and volunteers following standardized protocols. Information is compiled by Wildlife Division staff who also prepare reports including management recommendations.

2.2 Monitoring of peregrine falcon breeding activity

Wildlife Division staff will conduct and coordinate statewide monitoring of peregrine falcon breeding activity, conduct banding of peregrine falcon chicks as landowner permission and nest accessibility allow, and maintain a data set and provide recommendations for geographic zones where pesticide use is restricted to protect peregrine reproduction.

2.3 Karner blue butterfly population and habitat monitoring

Karner blue butterfly surveys will include distance sampling at larger occupied sites and presence/absence surveys at known occupied sites and at sites where Karner blue butterflies have not been recently documented but where suitable habitat conditions are believed to exist.

Surveys for KBB may be conducted during both the first or second flight periods. Distance sampling is conducted by an observer, followed by a recorder, walking slowly along a previously established transect line. The observer will determine and the recorder will note all KBB detected and the perpendicular distance from the transect line to the place where each butterfly was first observed. A range pole will be used to place each observation into the correct distance interval. A presence/absence survey involves searching for KBB usually for a minimum of 20 minutes per patch for patches 5 acres and smaller. The surveyor will walk the entire habitat area, being careful not to step on lupine plants, at a leisurely pace until all likely locations of KBB concentration areas are surveyed.

Habitat monitoring to quantify lupine density and other relevant site characteristics will also take place either during population surveys or as a separate activity.

2.4 Kirtland's warbler census

The census consists of observers traversing occupiable habitat early in the morning and mapping the location of singing male Kirtland's warblers. Observers walk along established transects in parallel, approximately ¼ mile apart, stopping and listening for singing males every 1/8 mile (200 meters). The census is conducted during the fifteen-day period beginning June 6 and ending June 20. In areas of potential habitat where occupancy is unknown, observers may conduct roadside surveys and may also use recorded songs to elicit a response from a male Kirtland's warbler for the purpose of confirming occupancy.

3. Habitat Management for Species of Greatest Conservation Need

3.1 Control of invasive species that threaten the integrity and sustainability of habitat required by species of greatest conservation need

The administration of the invasive species program will be conducted by the Planning and Adaptation Section of the Wildlife Division. This unit will be responsible for compiling information on invasive species of concern and disseminating this information to the Department, other

agencies, and the public.

Invasive plant control activities may include one or more techniques from the following four categories, biological, chemical, physical, and prescribed fire. Adaptive management will be used to monitor efficacy of control methods and to adjust as necessary or as new information becomes available. Chemical Controls: These activities include the use of various organic and inorganic pesticides. Physical Controls: These activities include direct control methods by hand or mechanical device. This may involve hand pulling, mowing, disking, plowing, chopping, or other methods. Prescribed Fire: These activities include the use of fire to control invasive species.

3.2 Grassland restoration and management

Restoration will include the use of prescribed fire, herbicides, mowing and other mechanical techniques, hand clearing of undesirable or exotic vegetation, and seed augmentation as individual site needs dictate. Seed will be collected from remnant grasslands to be used as foundation stock for the propagation of local genotype sources. Original seed source collections will be completed by hand through volunteer projects from propagation sites established on public lands.

3.3 Jack pine forest regeneration, maintenance, and management

Jack pine regeneration efforts include site preparation that can involve roller chopping or prescribed fires to prepare the seedbed. Soil disking and trenching may also be required. If an adequate seed source does not exist then the site will be planted with 2-3 year old jack pine seedlings. Growth and stem density factors will be used determine the need for additional plantings to meet optimum stem densities (minimum 1,200 stems/acre) identified for Kirtland's warbler nesting habitat. Management activities will be coordinated with other state and federal agencies through the federal Kirtland's warbler recovery team. It is estimated that 1,500 acres will be affected each year. All of these habitat activities are either conducted before the birds return from wintering grounds or in areas that are unoccupied because of the degraded habitat conditions.

4. Population Management for Species of Greatest Conservation Need

4.1 Conservation of individuals and/or populations to ensure perseverance of populations of SGCN need identified in the Wildlife Action Plan.

Piping plover protection involves fencing off nesting beaches with psychological string barriers and signs. Individual nests will have USFWS approved predator exclosures erected around them. All areas will be periodically surveyed and monitored for plover activity and fledging success. A significant portion of this objective includes coordination of population data and recovery data among the agencies and volunteers involved in piping plover management, recovery, and research.

5. Wildlife Action Plan Revisions and Development of Implementation Plans

5.1 Coordinating revision and implementing Michigan's Wildlife Action Plan

This project statement supports the planning activities for revising the Wildlife Action Plan (WAP) while developing and revising implementation plans from the WAP. Activities include revising and developing implementation plans for Michigan's WAP, identifying conservation opportunity areas, prioritizing management activities for SGCN, and gathering stakeholder input for WAP revision.

IV. Description of Effects: In the space provided or on an attached sheet, describe the effects, including beneficial, of the project actions on the identified species, species habitats, and federal critical habitat (see II above).

1. Planning and Technical Guidance for Species of Greatest Conservation Need

1.1 Federal and State listed species planning and consultation for SGCN

The activities supported under this project statement include development of conservation plans; consultation with state agencies, USFWS, and other partners; and input into proposed federal listing activities, all occurring in an office environment. Therefore, there will be no affect on any listed, proposed, or candidate species.

1.2 Maintenance of biodiversity databases

The activities supported under this project statement are data management and administrative only, occurring only in an office environment. Therefore, there will be no affect on any listed, proposed, or candidate species.

1.3 Developing an eastern massasauga conservation plan in Michigan

The data analysis and management planning activities that comprise this project will have no direct impacts on any federally listed or candidate species or associated habitat.

2. Surveys, Monitoring, and Research for Species of Greatest Conservation Need

2.1 Survey and monitoring of Michigan's frogs and toads

Copperbelly water snakes may be present in the wetlands that are surveyed. However, surveys will take place from the wetland perimeter rather than within the wetland, so there are expected to be no effects on copperbelly water snake. Survey sites in Michigan's Upper Peninsula could potentially fall within the home range of Canada lynx. Given the large home range sizes of these species in relation to the scope of surveys planned under this grant, the effects of grant activities on Canada lynx and their habitat are expected to be insignificant.

2.2 Monitoring of peregrine falcon breeding activity

Nest monitoring and bird banding activities are restricted to the specific structures (man made structures, cliffs, etc.) where peregrine nests are located, and the likelihood of encountering or impacting a federally listed species is extremely minimal. All other activities within this project statement are administrative in nature and will not impact any listed species or their environment.

2.3 Karner blue butterfly population and habitat monitoring

Karner blue butterfly surveys are likely to affect, and potentially adversely affect, Karner blue butterflies. By implementing our HCP guidelines and survey protocols (http://www.fws.gov/midwest/Endangered/permits/hcp/kbb_mi/pdf/MichiganKBBHCPFinal.pdf), we believe that adverse effects will be minimized and that the long term benefit of improving Karner blue butterfly habitat will contribute to the recovery of this species.

2.4 Kirtland's warbler census

The Kirtland's warbler census is conducted in known occupied habitat and in potential habitat where occupancy has not been confirmed. Because observers are moving through occupied habitat, there is the potential for an individual Kirtland's warbler to move in response to the observer's movements. The written protocol for the Kirtland's warbler census instructs observers to complete the census with as little disturbance as possible and to be especially cautious to avoid stepping on nests; therefore, no adverse effects are anticipated. Despite the potential of this survey to affect individual birds, it is an essential component of the full Kirtland's warbler management program, and the results of the survey directly inform future management activities to contribute recovery of the population.

3. Habitat Management for Species of Greatest Conservation Need

3.1 Control of invasive species that threaten the integrity and sustainability of habitat required by species of greatest conservation need

The species that will potentially be affected by invasive vegetation control work are Karner blue butterfly, massasauga rattlesnake, and eastern prairie fringed orchid. Invasive species control work is not planned for habitats that would be occupied by other listed species. Management of the Karner blue butterfly will be done in accordance with Michigan's Habitat Conservation Plan (http://www.fws.gov/midwest/Endangered/permits/hcp/kbb_mi/pdf/MichiganKBBHCPFinal.pdf).

Mowing and burning may result in harm or mortality to eastern massasauga rattlesnakes, although this management is necessary to ensure the continued existence of suitable habitat for this species. It is anticipated that by following the conservation strategies identified in Michigan's eastern massasauga rattlesnake draft CCAA (Appendix A), direct impacts to individual rattlesnakes will be minimized and that the effects of take will not rise to the level of jeopardizing the species.

Extensive inventories were conducted for eastern prairie fringed orchid in Michigan in 1990, and an excellent data set has been developed on known populations and their status. The species is most strongly associated with lakeplain prairies, and field staff are knowledgeable about identifying eastern prairie fringed orchid and its associated habitat. In the event that eastern prairie fringed orchid, or any other federally listed plant species, is identified on a site, no management activities will occur until we complete a site specific consultation with USFWS Ecological Services.

3.2 Grassland restoration and management

Listed species that may be encountered during grassland restoration and management are the eastern massasauga rattlesnake, Karner blue butterfly, and Indiana bat, and northern long-eared bat.

The eastern massasauga rattlesnake is known to occur on game areas on which grant activities may occur. Although grassland management techniques and prescribed burning may affect eastern massasauga rattlesnakes when applied in occupied habitat, it is anticipated that by following the draft conservation strategies identified in Michigan's eastern massasauga rattlesnake CCAA (Appendix A), direct impacts to individual rattlesnakes will be minimized and that the effects of take will not rise to the level of jeopardizing the species.

Several State Game Areas are known to be occupied by Karner blue butterflies, and certain management activities have the potential to result in incidental take of some individuals. For example, Karner blue larvae may be present on lupine during prescribed burns. However, these activities would only be carried out with the specific intent of improving or maintaining Karner blue butterfly habitat that would degrade if left unmanaged. By implementing our HCP guidelines (http://www.fws.gov/midwest/Endangered/permits/hcp/kbb_mi/pdf/MichiganKBBHCPFinal.pdf) in managing for Karner blue butterflies, we believe that take will be minimized and that the long term benefit of improving Karner blue butterfly habitat will contribute to the recovery of this species.

Forest management is only proposed in this grant as a means of creating corridors between patches of Karner blue butterfly potential habitat. Karner blue butterfly habitat is generally dry and unconnected to the floodplain forests that Indiana bats roost in, so it is not expected that roost trees will be affected by management. Indiana bats may use project sites for foraging, and since most management activities will reduce shrubby vegetation in savanna understories, this could potentially improve foraging habitat for Indiana bats.

Northern long-eared bats may use project sites for foraging, and it is feasible that a northern long-

eared bat roost tree could occur in savannas where management is proposed. Prescribed burns that occur in savannas/openings that contain scattered trees may affect northern long-eared bats. Generally, flame consumption of mature trees is rare during a prescribed burn in savannas or grasslands. Additionally, removal of mature trees may occur when creating habitat corridors for Karner blue butterflies, and there is a possibility that suitable roost trees will be impacted during grassland and savanna management; however, it is anticipated that even if individual bats are affected by these activities, the effects on individuals will not result in jeopardy to the population. Most management activities will reduce shrubby vegetation in savanna understories, and this could potentially improve foraging habitat for bats.

The following conservation measures will be implemented in all habitat management activities:

- i. Tree removal and prescribed burns will not occur within 0.25 mile from a known, occupied hibernacula;
- ii. Cutting or destroying known roost trees will not occur during the pup season (June 1 – July 31);
- iii. Clearcuts will not occur within 0.25 (0.4 km) mile of known, occupied roost trees during the pup season (June 1 – July 31).

Known NLEB hibernacula and roost trees have been identified in Michigan and we will consult the most up to date map, which is located online at:

<http://www.fws.gov/midwest/EastLansing/te/nleb/pdf/MichiganNLEBRoostTreeHibernaculaFactSheetUpdated15May2015.pdf>.

3.3 Jack pine forest regeneration, maintenance, and management

Kirtland's warblers require a very specific forest age structure and growth pattern in the jack pine forests that they use in their breeding range. Work in jack pine barrens and jack pine forests will be targeted at sites that have good potential to become suitable for Kirtland's warblers through management, but that are currently in a forest successional stage that is not suitable for Kirtland's warblers. Therefore, no management activities will take place on sites where Kirtland's warblers are present at any time of year and no effects on individual warblers are anticipated.

4. Population Management for Species of Greatest Conservation Need

4.1 Piping plover recovery management

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Protection of piping plover nesting sites may affect, but is not likely to adversely affect, piping plovers. The psychological fencing is erected to help exclude people before plovers begin incubating eggs and has been conducted successfully for years in Michigan and other states without affecting the use of the beaches by nesting pairs. Constructing nest enclosures does keep incubating adults off the eggs for a brief period. These enclosures, however, are constructed by trained and experienced crews, and adults are off the nests for less than 15 minutes. All nests are monitored after enclosures are constructed to ensure the adults can and do return to the nest and continue incubating. These enclosures are beneficial and data have shown a dramatic increase in hatching success of enclosed versus unprotected nests.

The monitoring and fencing activities within designated critical habitat of piping plovers have no potential to alter the habitat or have any affect, positive or negative, on the suitability of the habitat for plovers.

5. Wildlife Action Plan Revisions and Development of Implementation Plans

All implementation and planning activities are administrative in nature and will occur within existing buildings and consequently have no effect on any listed species.

V. Recommended Determination(s) of Effect(s): For all species and critical habitat

identified in Section I, mark (X) the appropriate determinations.

A. Listed, Proposed and Candidate Species

X a) "No Effect"

List species for which this recommendation is applicable (or attach list): Canada lynx, gray wolf, piping plover, rufa red knot, copperbelly water snake, Mitchell's satyr butterfly, Poweshiek skipperling, clubshell, northern riffleshell, raved bean, snuffbox, Hine's emerald dragonfly, Hungerford's crawling water beetle, American Hart's tongue fern, dwarf lake iris, Houghton's goldenrod, lakeside daisy, Michigan monkey-flower, Pilcher's thistle, and small whorled pogonia.

X b) "May Affect, but is Not Likely to Adversely Affect"

List species for which this recommendation is applicable (or attach list): Indiana bat, Kirtland's warbler, and eastern prairie fringed orchid, pip.

X c) "May Affect, and is Likely to Adversely Affect"

List species for which this recommendation is applicable (or attach list): Eastern massasauga rattlesnake, Karner blue butterfly, northern long-eared bat.

B. Federally Designated and Proposed Critical Habitat

X a) "No Effect" to Critical Habitat

List critical habitat(s) for which the recommendation is applied. Piping plover critical habitat, Hine's emerald dragonfly critical habitat, and proposed Poweshiek skipperling critical habitat.

 b) "May Affect, but is Not Likely to Adversely Affect" Critical Habitat

List critical habitat(s) for which the recommendation is applied. _____

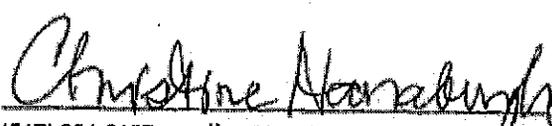
 c) "May Affect, and is Likely to Adversely Affect" Critical Habitat

List critical habitat(s) for which the recommendation is applied. _____

Signatures:

Prepared by:

Name/Title: Christine Hanaburgh/Wildlife Division Federal Aid Coordinator

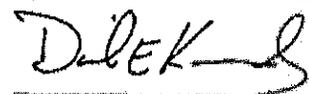
Signature: 

Date: August 15, 2015

Telephone No. (517) 284-6187 email: HanaburghC@michigan.gov

Reviewed by:

Name/Title: Dan Kennedy/Endangered Species Program Coordinator

Signature: 

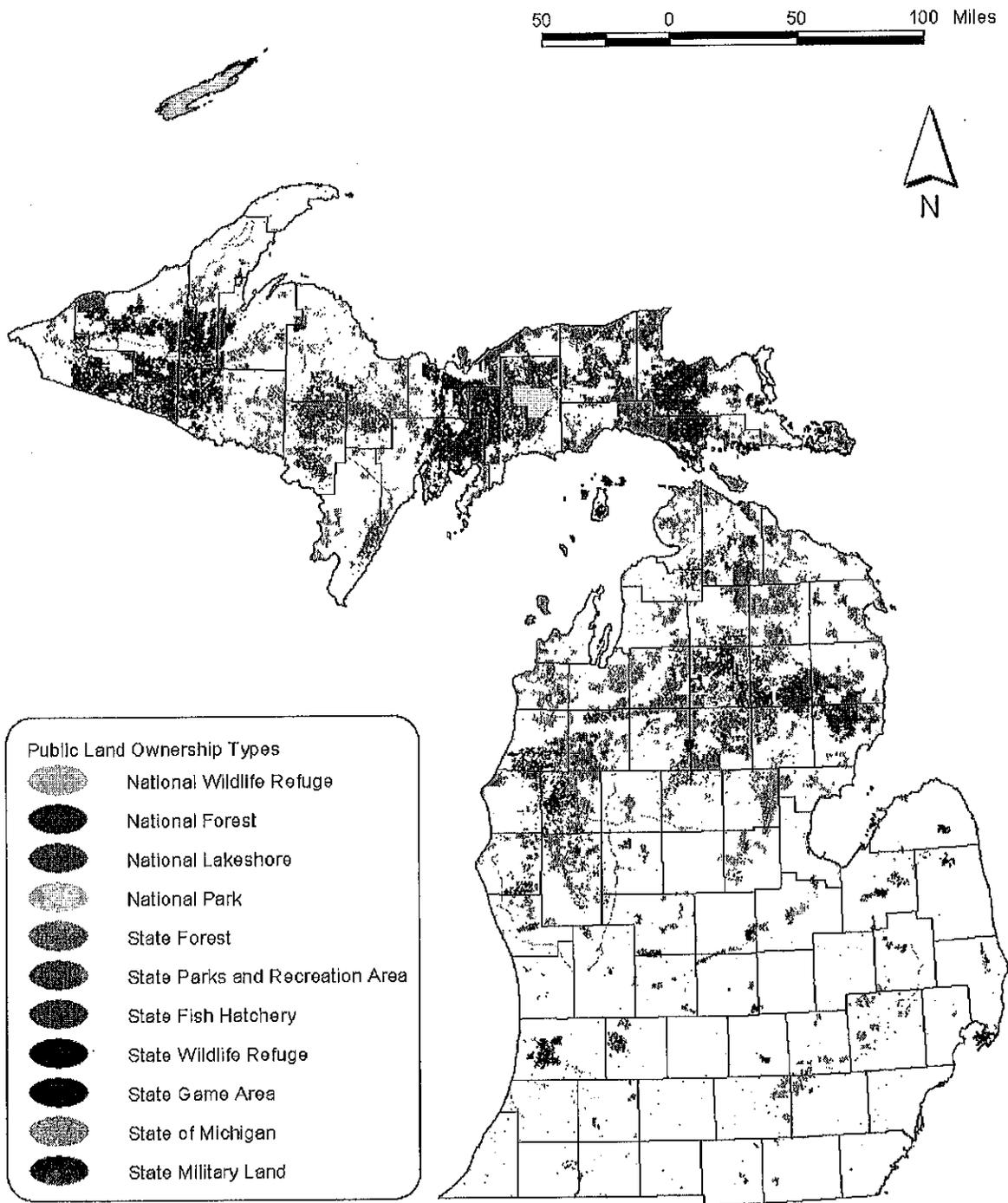
Date: August 15, 2015

Telephone No. (517) 284-6194 email: KennedyD@michigan.gov

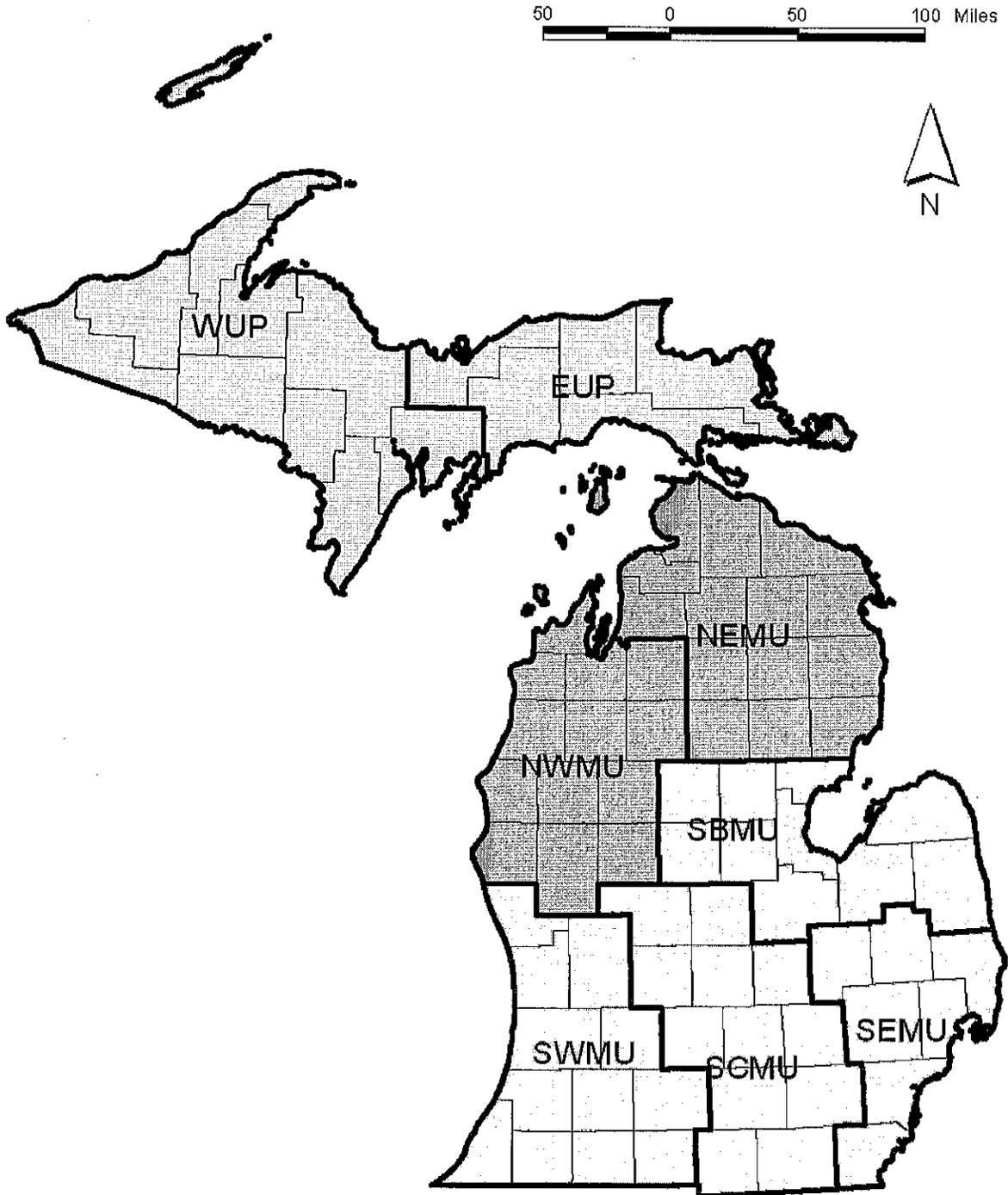
**FEDERALLY LISTED THREATENED, ENDANGERED AND CANDIDATE SPECIES
IN MICHIGAN**

Scientific Name	Common Name	Federal Status
Animals – Mammals		
<i>Lynx canadensis</i>	Canada lynx	Threatened
<i>Canis lupus</i>	Gray wolf	Endangered
<i>Myotis sodalis</i>	Indiana bat	Endangered
<i>Myotis septentrionalis</i>	Northern long-eared bat	Threatened
Animals – Birds		
<i>Dendroica kirtlandii</i>	Kirtland's warbler	Endangered
<i>Charadrius melodus</i>	Piping plover	Endangered
<i>Calidris canutus rufa</i>	Rufa red knot	Threatened
Animals – Reptiles		
<i>Nerodia erythrogaster neglecta</i>	Copperbelly water snake	Threatened
<i>Sistrurus catenatus catenatus</i>	Eastern massasauga rattlesnake	Candidate
Animals – Insects		
<i>Somatochlora hineana</i>	Hine's emerald dragonfly	Endangered
<i>Brychius hungerfordi</i>	Hungerford's crawling water beetle	Endangered
<i>Lycaeides melissa samuelis</i>	Karner blue butterfly	Endangered
<i>Neonympha mitchellii mitchellii</i>	Mitchell's satyr	Endangered
<i>Oarisma poweshiek</i>	Poweshiek skipperling	Endangered
Animals – Mussels		
<i>Pleurobema clava</i>	Clubshell	Endangered
<i>Epioblasma torulosa rangiana</i>	Northern riffleshell	Endangered
<i>Villosa fabalis</i>	Rayed bean	Endangered
<i>Epioblasma triquetra</i>	Snuffbox	Endangered
Plants		
<i>Asplenium scolopendrium americanum</i>	American hart's tongue fern	Threatened
<i>Iris lacustris</i>	Dwarf lake iris	Threatened
<i>Platanthera leucophaea</i>	Eastern prairie fringed orchid	Threatened
<i>Solidago houghtonii</i>	Houghton's goldenrod	Threatened
<i>Hymenoxys herbacea</i>	Lakeside daisy	Threatened
<i>Mimulus glabratus michiganensis</i>	Michigan monkey-flower	Endangered
<i>Cirsium pitcheri</i>	Pitcher's thistle	Threatened
<i>Isotria medeoloides</i>	Small whorled pogonia	Threatened

Map 1: Distribution of public lands by land ownership type in Michigan.



Map 2: Wildlife Division Management Units in Michigan by geographic region (southern Lower Peninsula in yellow, northern lower peninsula in gray, and upper peninsula in blue). Although these eight Wildlife Management Units were dissolved into four Regions in 2011, the geographic extent referenced in this figure is still accurate.



APPENDIX A

Eastern Massasauga Rattlesnake Candidate Conservation Agreement with Assurances Draft Conservation Measures

Conservation Measures

Management Strategies for Managed Lands

These habitat management guidelines were developed to provide land managers with a framework to protect EMR populations while creating and/or restoring suitable habitat needed to sustain EMR populations on enrolled lands. These guidelines reflect current knowledge of researchers and resource managers in Michigan. However, we also recognize that our understanding of the factors, including management actions, influencing EMR population dynamics are limited. There is varying degrees of support for the efficacy for the conservation measures currently available for EMR (e.g., informed judgment of experienced land managers, well-documented research across multiple types of sites, etc.). Therefore, as resources allow, an adaptive management approach that targets key assumptions and uncertainties related to management actions is critical to meeting the CCAA standard over the life of this agreement (Section 10). These guidelines will be followed on enrolled lands identified as 'Managed Land'.

When deviations from these guidelines are necessary, a written request to the Service must be submitted as described in "Modifications of the CCAA" on page 25 of the CCAA. If a Participating Landowner is requesting the modification, the DNR must be notified as well. In cases where a quick review is necessary (i.e., short burn windows in the spring, urgent situations), approval must be obtained from the Service. In emergency human health and safety situations (to be decided by the land manager) when pre-approval to deviate from these guidelines is impractical, descriptions of the actions taken will be carefully documented and provided to the DNR and the Service after the fact. Development activities, such as new buildings, parking lots or transportation infrastructure, in enrolled lands designated as managed habitat will require modifications to the CCAA. Development activities in Unmanaged Land will not require modifications; however, they will be subject to Section 7 reviews if a federal nexus exists.

Wetland Protection

The primary threat to the EMR is habitat loss, in particular the effects of past, widespread wetland loss. While the DNR lands may have been intended for recreation, forestry, game species, or other purposes they have nonetheless played an important role in conserving EMR by providing places where wetlands have been conserved. The effectiveness of DNR lands as part of conservation landscape for the EMR is demonstrated by the number of remaining EMR populations they support. Conserving wetlands is one of the most significant EMR conservation measures provided by the DNR lands.

Prescribed Fire

Fire is a natural process that occurs in many natural communities, including fens and

other vegetation types occupied by EMR (Spieles et al. 1999). Fire in fens serves to keep the vegetation open, reduce shrub and tree cover, reduce surface cover and encourage germination and reproduction of many plant species.

Prescribed fire will be allowed in managed habitat even though it has the potential to kill individual snakes. At some managed sites, prescribed fire may be the preferred or only effective management treatment for invasive species or discouraging woody growth for the purpose of maintaining important habitat. The following guidelines will allow managers to enhance or increase suitability of EMR habitat while minimizing the potential loss of individual snakes. Heat from prescribed fire does not reach far into the soil. Therefore, burning during the inactive season is not expected to harm hibernating EMR. Smith et al. (2001) observed that snakes exposed to low intensity fire were more likely to survive than those exposed to high intensity fires. Mortality from prescribed fire is possible, even when steps are taken to reduce that mortality (Durbian 2006, Cross 2009), but the impacts of fires likely vary with other threats, snake population size, fire intensity, and fire frequency. Snakes and other reptiles may move from the burn unit, but in order to provide them more time and potential refuges these guidelines include recommendations to decrease rate of spread and intensity. Rattlesnakes have been known to seek subterranean refuges and may survive less intense fires (Smith et al. 2001).

Prescribed fire promotes dynamic changes in the landscape that set back succession, improve EMR habitat, and may be beneficial to EMR populations in the long run. The impacts from prescribed fire on EMR populations are uncertain and, therefore, will be evaluated for its positive and negative effects to EMR populations and habitat (See Section 10). The following precautions will be observed when using prescribed fire to increase habitat suitability for rattlesnakes.

1. Burning in managed EMR habitat when snakes are inactive or not emergent is unrestricted except when current conditions could possibly result in snake emergence. If available, use a Snake Emergence Prediction Model (SEPM). If the model predicts that snakes may be emergent, burning will be conducted according to the protocols described below. If the model predicts snakes are not active, then burning is unrestricted.
2. Land managers will leave unburned areas adjacent to prescribed burns to serve as snake refugia whenever possible.
3. Prescribed burn plans will use 'back burning' as the primary ignition strategy. This approach will minimize entrapping snakes between flame fronts. However, the burn manager may make the judgment, during a burn treatment, that encirclement ignition or strip firing is necessary to protect human safety or property.
4. A scientific fire behavior model, such as the United States burn model, the Canadian burn model or equivalent will be used to formulate a burn prescription for a maximum rate of spread no faster than 16 chains per hour (17.6 feet per minute) with an average targeted rate of 10 chains per hour or less (11 feet per minute), except in known hibernacula areas. A slower rate of spread may allow snakes within the burn unit adequate time to find refugia.

5. Where hibernacula are known to be dense (greater than 5 hibernacula per acre), no burning is allowed from March 15 to May 15, unless the Snake Emergence Prediction model predict snakes to be inactive and not yet emerged. Where hibernacula are known to be diffuse (less than 5 hibernacula per acre) across the landscape, burns between March 15 and May 15 can move at no faster than 8 chains per hour (8.8 feet per minute).
6. Fire breaks will be established following existing fuel breaks (roads, rivers, trails...) to the greatest extent possible. Cultivation (disking or roto-tilling) of burn breaks will be minimized to the extent that human health and safety are not jeopardized. Cultivation and mowing fire breaks will be established during the inactive season to the extent possible (See 7.1.2 & 7.1.3).

Mowing and Hydro-axing

In Michigan, mowing has been used to set back succession, control invasive species or establish fire breaks. Mowing is also used to maintain dikes, trails, and other areas designated for human use. While mechanical treatments are an important wildlife management tool, they have been identified to cause direct snake mortality. Mechanical treatments are intensive management techniques that may threaten the long-term survival of localized EMR populations.

The following precautions will be observed when mechanical treatments are used in managed habitat to increase habitat suitability for rattlesnakes and minimize mortalities:

1. Set mower deck heights to maintain turf grass at <15 cm (6 inches) at all times.
2. In areas with known hibernacula, mowing and hydro-axing are not allowed at any time of year.
3. Management will follow the most recent rutting guidelines for the DNR.
4. Mowing or hydro-axing of grasses over 6 inches will occur only during the inactive season, except to control non-native vegetation in degraded habitats.

After snakes have emerged, mowing and hydro-axing will only be allowed when land managers are trying to improve EMR habitat in highly degraded sites (>90% canopy closure or >75% nonnative invasive species). For example, a land manager may want to control invasive species or convert agricultural fields to native grasslands.

Cultivation

In Michigan, cultivation has been used to establish new habitat plantings, set back succession, and establish fire breaks. Cultivation is strongly discouraged in managed habitat regardless of snake activity.

However, the following cultivation practices will be considered acceptable in managed habitat:

1. Areas that are to be treated with mechanical soil disturbance will be mowed during the inactive season to less than 15 cm (6 in) in height so that they are unattractive to snakes the following spring.
2. Areas may be continuously maintained as row-cropped agriculture.
3. Narrow strips of land may be cultivated for the establishment of fire breaks, as outlined in the prescribed fire guidelines.

4. Cultivation may be used when necessary to protect human or natural resource health and safety (e.g., wildfire suppression).

Water Level Manipulation

Maintaining the natural hydrology is critical for maintaining viable populations of amphibians and reptiles. In some wetland complexes, the natural fluctuations in water levels help maintain open landscapes. The groundwater or saturated soils protect hibernating snakes from freezing during winter. Draining removes the heat sink capabilities of the water and weakens the thermal link to warmer areas farther underground. Therefore, alterations to wetland hydrology may have negative impacts on amphibian and reptile populations. EMR, like other wetland snakes, have been shown to tolerate submersion for short periods (about 2 weeks) of time when water temperatures are near freezing. They then rely on cutaneous gas exchange. Individuals will be able to respond to flooding during the active season by moving. Flooding will not kill the snakes during the active season, but may force them out of suitable habitat. Extended flooding may destroy elements of the habitat. Beavers promote dynamic changes in the landscape, and may be beneficial to the snake population in the long run. Beaver activity should be evaluated for its positive and negative effects on EMR habitat and also on human interests.

The following precautions will be observed when manipulating water levels in managed habitat:

1. Water levels in managed habitat will not be drawn down during the inactive season, except for human health and safety reasons.
2. Water levels may not be raised for more than two continuous weeks during a single inactive season, except for health and safety concerns.
3. Permanent flooding or drainage that results in loss of EMR habitat is prohibited.
4. Water levels may be raised during the active season.
5. This agreement does not obligate the DNR to manage beaver to maintain water levels.
6. Temporary flooding to mimic the restorative effects of beaver activity for one to five years will need written pre-approval from the Service.

Forest Management

Most forestry activities that are conducted in accordance with sustainable forest management principles are not expected to negatively impact EMR populations. In most cases forest management practices will benefit EMR, especially when the following guidelines are observed on Managed Lands.

1. Conduct timber harvesting operations when substrate is firm and dry in mid to late summer or when the ground is adequately frozen so that rutting and compaction is minimized.
2. Reforest stands through natural regeneration or tree planting (including appropriate site preparation, such as trenching and scarification). Planting densities should be at levels that assure a similar cover type pattern, or retain or mimic more open forest communities (e.g., pine barren or savanna). Savanna and pine barren restorations are encouraged.
3. Consider increasing fine and coarse woody debris retention, creating brush piles and favoring other habitat elements. Slash burning will occur only during the inactive

season.

Chemical Control

Chemicals have been used by many natural resource professionals to achieve specific habitat management goals and objectives. Currently, many land managers use herbicides because of their effectiveness, ease of use and because herbicides can be relatively inexpensive. Although herbicide use may be an effective habitat management tool, a paucity of research exists on the effects of chemicals on reptiles and, specifically, to EMR. Therefore, it is strongly recommended that land managers consider specific biological factors and utilize a cautious approach when choosing an herbicide, application method, application rate, time of application, and time between applications.

Due to the unknown impacts of herbicides to EMR, broadcast applications in Managed Land is prohibited except when land managers are re-establishing suitable habitat at highly degraded sites (e.g. converting row crops to native grasslands or to control monocultures of invasive species). Land managers may use other herbicide treatments such as spot spraying or wicking to control invasive plant species in Managed Land.

Collection, Release, Relocation and Persecution

Collection of EMR for personal pets and commercial trade is an ongoing problem. Poachers have posed as researchers or collaborators of researchers to obtain information on where to find EMR. Pet EMR held in captivity will not be released into the wild because the potential for introducing diseases into an area is significant. Mixing stocks could also have undesirable genetic effects.

The following guidelines will be observed to minimize the potential negative impacts from the collection, release, relocation and persecution of rattlesnakes:

1. Details on specific locations of snakes or hibernacula will be treated with the same sensitivity as location of state or federally listed species. Collection or killing at hibernacula could devastate a population.
2. EMR legally maintained in captivity will not be released back into the wild. Those snakes that have been held temporarily for research purposes may be released where they were captured if they are in good health and have been held in isolation from other reptiles.
3. EMR will only be moved to protect the snake or people. EMR that must be moved should be moved less than 500 m and into the same wetland system but not across barriers (e.g., roads). If a snake is moved across property lines, permission will be obtained from the landowner. EMR lacking knowledge of their surroundings have elevated levels of mortality.
4. Staff will be routinely educated about EMR because they are in an excellent position to provide public education.
5. Priority will be given to placing snakes that cannot be released or are confiscated into the EMR Species Survival Plan population maintained by the Association of Zoos and Aquariums where they may have both an education benefit and contribute to the captive population and possible future assurance breeding.

Trails and Pathways

DNR owned and managed trails and pathways currently exist within Managed Land and Unmanaged Land. Trails and pathways are an important component of managing DNR owned land. For human safety, use and enjoyment of trails and pathways, it is necessary to perform maintenance on the trails, including grading, tree-trimming and other activities.

The following precautions will be observed when performing trail and pathway maintenance:

1. Set mower deck heights to maintain turf grass at <15 cm (6 inches) at all times.
2. In areas with known hibernacula, mowing and hydro-axing are not allowed at any time of year.
3. Management will follow the most recent rutting guidelines for the DNR.
4. Mowing or hydro-axing of grasses over 6 inches will occur only during the inactive season, except to control non-native vegetation in degraded habitats.
5. Development of new trails/pathways or substantive changes to existing trails/pathways within Managed Land must include consultation with the DNR Endangered Species Coordinator prior to initiation of construction and construction will be complete during the inactive season.

Management Strategies for Unmanaged Lands

On Unmanaged Lands other goals and mandates require that the management strategies outlined in Section 7.1 will not apply. The DNR will use the following guidelines on Unmanaged Land:

1. Possession of EMR will continue to be prohibited. This will be accomplished by maintaining the Director's Order (No. DFI-166.98, Regulations on the Take of Reptiles and Amphibians; Act 165 of the Public Acts of 1929, as amended, Sec. 302.1c(1) and 302.1c(2) of the Michigan Compiled Laws) which prohibits take of "special concern" reptiles and amphibians without a permit from the DNR.
2. Upon documentation of more than one individual, evidence of reproduction, and availability of suitable habitat on enrolled lands previously designated as Unmanaged Land, signatories may re-classify enrolled areas as Managed Land, but are not required to do so. Consideration will be given to whether the EMRs found are associated with a known and viable population nearby.
3. Management of Unmanaged Land where EMR are unwelcome will focus on management techniques that discourage EMR use. For example, grassy areas around buildings or campsites will be frequently mowed because tall vegetation could attract EMR.
4. To the extent possible do not restrict dispersal on between Managed Lands that are separated by less than 1 km on the Unmanaged Land. Activities that may limit dispersal may include paved roads or motorized vehicle trails. These activities will be reviewed by the MDNR Wildlife Division and USFWS prior to implementation to ensure they are consistent with the CCAA standard.

Management Strategies for Oil, Gas and Mineral Development

Should the EMR be listed as threatened or endangered under the ESA, authorization for

incidental take under the Section 10(a)(1)(A) Enhancement of Survival Permit will be applicable when it is determined that the measures proposed for the lease collectively meet the CCAA standards. Oil, gas and mineral development activities within EMR managed areas may be authorized as a form of incidental take if the DNR determines that the activities proposed for that lease will result in a clear conservation benefit for the EMR.

The goal for an oil, gas, or mineral Certificate of Inclusion is for leaseholders to avoid and minimize negative impacts to EMR and to voluntarily contribute funding or in-kind actions to benefit the EMR. The intent is to provide options that would insure measurable benefits to EMR conservation consistent with the purposes of the CCAA standard (i.e., preclusion or removal of the need to list). This will include compensating for any of the potential biological impacts associated with habitat loss or fragmentation for EMR as well as costs for EMR management in a more complex landscape (e.g., reduced ability to use prescribed fire or increased law enforcement costs).

Conservation measures will be site specific, but fall into general categories of habitat enhancement or avoidance of negative habitat impacts, implementing conservation measures, and addressing critical research needs. These activities will be assessed through leasing or the land use permitting processes and will consider well density, well location, access road surface, length and width, voluntary contributions to EMR conservation, and ongoing and future reclamation activities. It is the responsibility of the oil, gas, and mineral developer to contact the DNR and develop a plan for DNR review, and to sign a Certificate of Inclusion for incidental take coverage authorized under the CCAA when the proposed plan is determined to meet the CCAA standard. Without a signed Certificate of Inclusion the CCAA does not cover oil, gas, and mineral development activities on 'managed' lands.

Education and Outreach

Education and outreach efforts are needed to raise awareness and understanding about the species for all stakeholders, reduce persecution or indiscriminate killing and promote conservation of species. A general approach is to conduct research to identify appropriate content and delivery of education and outreach efforts, learn from other efforts, model after successful efforts such as the Ontario program, identify and recruit partners and target audiences, develop and distribute materials/provide resources, evaluate effectiveness of efforts, develop a volunteer network and ultimately, develop and maintain local, long-term presence/outreach effort in communities around the state within the species' range.