

**Protocol  
For  
Incidental Take Authorization**

**Eastern Massasauga Rattlesnake (*Sistrurus catenatus catenatus*)**

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**Note**

*If carrying out a given protocol is not feasible, or multiple listed species in a given management area pose conflicts, contact the Bureau of Endangered Resources at 608/264-6057. Staff in BER will work with Integrated Science Services (Research) staff, species experts and managers to establish an acceptable protocol for a given site that will allow for incidental take without further legal Consultation or public notice*

**I. Species Background Information**

**A. Status**

**State Status:** Endangered.

**USFWS Region 3 Species of Management Concern:** Yes and a candidate for federal listing.

**Number of known WI sites:** 6 extant sites are known since the mid-1980's although a total of 49 occurrence records exist; several historical locations are currently being surveyed to determine presence/absence.

**Global Range:** Southern Ontario and central New York west to extreme eastern Minnesota and south into northern Missouri and central Illinois. In Wisconsin it is presently known to occur in Buffalo, Juneau, Monroe, Pepin, Trempealeau and Walworth counties.

**B. Habitat**

**General Habitat Description:** The massasauga is not a habitat specialist, but it requires wetland habitat for overwinter survival. This species often occupies sedge meadow complexes associated with medium to large river systems in the state, although they also live in floodplain (lowland hardwood) forests. They are typically found in openings within these forests created by beaver activity, logging, or other natural openings. Gravid

females will often migrate to dry-mesic upland openings to incubate their developing young. These upland sites also include road or railroad dikes and levees built through or adjacent to occupied wetlands.

**Over-wintering Habitat:** Massasaugas almost always hibernate in wetlands, using crayfish burrows, crevices or rotted-out root canals to reach down to and below the water table to avoid freezing in winter. They may hibernate underwater in these settings. These areas typically flood in spring with no apparent impact to individuals.

### C. Life History

**Home Range:** Variable across its range. Average home range for adult WI males is about 400 acres and non-gravid adult WI females about 102 acres. Gravid WI females' home range is about 7 acres.

**Communal Behaviors:** NA

**Site Fidelity:** Some individuals return to the same hibernation location annually.

**Nest Location:** NA

**Breeding:** Mating can occur at any time during the active season but peaks in spring and fall. Females are capable of producing young annually, but likely only a portion breeds annually. Eight to twenty young are live-born, usually in August. Young mature in their third or fourth full year.

**Nesting Period:** NA

**Activity periods:**

Seasonal: Emergence from hibernation occurs from early-late April and is temperature and frost-out dependent. Usually three consecutive days of mid-60° F weather following frost-out will trigger emergence, especially if accompanied by a warm rain.

Daily: Massasaugas are primarily diurnal but will become active at night during especially warm weather in summer. They typically emerge in mid-morning (8:30-10 am) to bask to warm their body temperatures. Once sufficiently warm they often become very difficult to locate as they either begin to forage or continue to bask under filtered cover to avoid overheating. Surveys for massasaugas are typically best during spring before vegetation becomes dense and tall or on cool (mid-upper 60's) overcast days in summer when they tend to be more exposed while seeking radiant heat. Survey periods should include both mornings and evenings and avoid temperatures above 80° F when sunny.

## **II. Management Protocols For Authorizing Incidental Take**

Since there are no apparently stable massasauga populations in Wisconsin and each individual is deemed critically important to species survival, no incidental take is allowed. The following protocols are for avoiding take. Only the unlikely taking that may occur inadvertently despite following all the conditions of this consultation and the following management prescriptions is authorized. If incidental take of eastern massasauga rattlesnakes results from the activity, please notify BER so we can reevaluate this guidance.

If the management activity is for purpose of recovering, maintaining or improving the grassland, prairie or savanna ecosystem that includes habitat for massasauga rattlesnakes, then incidental take is allowed if the protocols below are followed.

### **A. Burning:**

1. Burns of wetlands<sup>1</sup> (i.e. sedge meadows, fresh wet meadows, wet pasture) are allowed only between November 1 and until soils temperatures\* reach 50° F in spring with the following exception:
  - a) After soil temperatures reach 50° F in spring, burning may be conducted on days when the ambient air temperature is not expected to reach 50° F during the hours involving the burn.
2. Burning of upland grassland habitats (i.e. mesic or dry mesic prairies or old fields): Allowed only if conducted between October 1 and May 1.
3. In situations where the upland habitat is contiguous with wetland habitat or where the gradient from wet to dry has a varied or unclear boundary, burning in these areas is either allowed between November 1 and until soil temperatures\* reach 50° F in spring OR after soil temperatures reach 50°F on days when the ambient air temperature is not expected to reach 50° F during the hours involving the burn.

\* Soil temperatures are to be taken using a 15 cm probe soil thermometer. Temperatures are to be taken at 15 cm depth in open canopy wetland habitat away from influence of shading by brush and trees and up gradient of surface water. A minimum of 6 random and spread out readings should be taken within this habitat. Use the highest temperature to make the decision on when to burn or not burn based on the above soil temperature cut-off.

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<sup>1</sup> Note: Since surveying for massasaugas is most productive under post-burn periods (the vegetation and duff is gone), please contact BER whenever you conduct a wetland burn on a known or likely massasauga site, so BER can conduct surveys immediately following the burn and prior to green-up. This is our best opportunity to conduct presence/absence surveys and assess population status.

**B. Mowing/Haying:**

The use of an open platform mower or flail mower are recommended because they create little if any suction that can increase the risk of mower-related snake mortality. Blade height must be set at a minimum of eight inches.

1. If conducted in wetlands between November 1 and until soil temperatures\* reach 50° F in spring, there are no restrictions.
2. If conducted in wetlands between when soil temperatures\* reach 50° F in spring and October 31, mowing should only occur when air temperatures are below 50° F.
3. If conducted in uplands that are isolated from wetlands, mowing can occur between October 1 and May 1 with no restrictions. No mowing is allowed from May 1 through September 30 in isolated uplands
4. If conducted in uplands that are contiguous with wetland habitat or where the gradient from wet to dry has a varied or unclear boundary, mowing in these areas is only allowed between November 1 and until wetland soil temperatures\* reach 50° F in spring.

**C. Selective Brush/Tree-cutting:**

Selective cutting (i.e., using a chain saw) may be done without restriction.

**D. Grazing:**

Light to moderate grazing (0 - <1.0 head per acre) is allowed but should be ceased if more than 50% of the vegetation is cropped below 8 inches in height.

**E. Herbiciding:**

To the maximum extent possible, herbiciding should occur during the snake's dormant period (Nov. 1- until soil temperatures\* reach 50° F in spring).

Where active season herbiciding is necessary to control herbaceous vegetation, spot treat, preferably with a low persistence/short half-life herbicide (i.e. Round-up®), using wick, sponge or hand-held spray applications, not broadcast spraying.

Basal-bark or cut-stump-treatment methods should be used when treating woody vegetation.