

PENNSYLVANIA FISH & BOAT COMMISSION
Division of Environmental Services
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Natural Diversity Section

GUIDELINES FOR EASTERN MASSASAUGA RATTLESNAKE SURVEYS

(Revised June 10, 2005)

Introduction

The eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*) is listed as endangered in Pennsylvania by the Pennsylvania Fish and Boat Commission. This species is found in appropriate habitat in portions of Butler, Crawford, Mercer, and Venango Counties. Their natural coloring is a mottled combination of browns, grays and blacks. The species name “catenatus” means “chain-like” and refers to the series of dark blotches, which extend along the dorsal surface in a chain-like pattern. Massasaugas feed on small mammals, amphibians and other reptiles. They may reach an adult length of approximately 26-30 inches; however, a typical specimen will be around 22 inches long. Massasaugas are ovoviviparous, meaning that they give birth to fully developed young rather than lay eggs.

Massasaugas utilize both wetland and upland habitats. The wetlands are required for use as overwintering habitat. Suitable uplands are typically old field or remnant prairie habitats and occupied during the active season for basking and foraging. Loss of either the wetland used for overwintering or the upland summer range has led to the elimination of this species at many sites. Populations of massasaugas have declined considerably in the last few decades, not only in Pennsylvania, but also in every state where they occur. The eastern massasauga is listed as “endangered”, “threatened” or “special concern” in all of the eleven states where it still occurs. In fact, the US Fish and Wildlife Service is presently reviewing the status of this species as a candidate for listing under the Federal Endangered Species Act.

This species is cryptically colored and very secretive in nature. Often they can reside unseen near people’s homes for years without being discovered by the casual observer. As a result, local or anecdotal information is not often a reliable indicator as to the presence of massasaugas in an area. Therefore, intensive site surveys must be conducted to determine the presence or absence of eastern massasaugas. As an endangered species it is illegal to catch, kill, possess, import, export, etc. a massasauga in Pennsylvania. Persons who propose research or sampling of this species must first obtain a Scientific Collector’s Permit from the Pennsylvania Fish and Boat Commission.

When are Surveys Required?

The Pennsylvania Fish and Boat Commission (PFBC) may recommend a biological survey to determine species presence when a project is proposed in a watershed or the vicinity of an extant or historic site and appropriate habitat exists on-site. Project activities, which will affect wetland habitats or nearby upland habitats, either directly or indirectly, may necessitate a survey. Staff of the Natural Diversity Section will determine from all available information whether the proposed project represents potentially adverse impact and if a survey is warranted. The PFBC may recommend increased survey effort in the case of historically documented sites.

Survey Conditions

The following survey conditions will be followed for a PFBC-approved survey:

1. A Scientific Collector's Permit valid for the species, location and survey period must be obtained from the PFBC by at least one of the on-site surveyors prior to conducting the survey. This permit must be in the surveyor's possession and available for PFBC inspection during the survey.
2. Surveys should be a combination of visual encounter surveys (random opportunistic searching) and cover board sampling. Visual encounter surveys must be performed during the period from April 15- June 15. This coincides with the spring basking period, which greatly increases the amount of times this species is above ground and visible. It is also when vegetation levels are low enough to permit efficient inspection and observation. While snakes may be found outside of these dates, a result of no snakes would be considered inconclusive.
3. Air temperatures should be at or above 60° F, or the wet soil temperature should be at or above 60° F.
4. A minimum of two and preferably three persons should survey each area together. At least one of these persons must be a PFBC-recognized surveyor. The same survey team should be used for all surveys of a given project area.
5. A minimum of four visual encounter surveys per site is needed to accurately assess the area for massasaugas.
6. Visual encounter surveys should be conducted for a minimum of 3 to 6 person hours per acre of suitable habitat searched per site visit, unless a massasauga is found before this time has elapsed.
7. Cover boards (a.k.a. shelter boards) placed at least one month in advance of the survey can serve as attraction devices under which the snakes may hide. These are only effective if they are placed into the environment and allowed to "season". That is, once small mammals and other organisms begin to inhabit these shelters their attraction to snakes greatly increases. Cover boards may consist of squares or rectangles of plywood between 2 to 3 feet long on a side. Cover boards should be placed at densities between 5 to 10 cover boards per acre of suitable habitat. Cover boards should be checked a minimum of 6 times between June 1 and October 10, with no more than 2 checks in a given month if the minimum search effort is used.

Reporting

The PFBC, Natural Diversity Section should be sent a copy of the survey results which includes the following:

1. dates and times of site visits, along with weather conditions,
2. search time spent per acre per visit,
3. names of surveyors,
4. presence or absence of massasaugas,
5. length, sex, and shedding condition (pre-molt or post-molt) of massasaugas seen,
6. a list of other reptiles and amphibians observed on-site,
7. a site map with reptile or amphibian species sightings annotated,
8. a description of the habitat within the project area (i.e. acreage, vegetation type, percent canopy cover),
9. an explanation of which wetland/uplands or portions of wetlands/uplands were or were not surveyed, and why,
10. and a description of the survey methodology.