

SUMMARY REPORT OF MANAGEMENT CONCERNS AND GUIDELINES FOR THE EASTERN MASSASAUGA RATTLESNAKE (*Sistrurus catenatus catenatus*)

Robert Hay

The following report contains a summary of management and other concerns and guidelines that arose during the May, 1992 Symposium and Workshop on the eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*). Anecdotal observations pertinent to life history are included first for their consideration in approaching management questions and suggestions.

Life History Observations Pertinent to Habitat Management:

- Massasaugas choose to move away from closed canopy during the active season.
- They are generally found in areas with canopies under 10 meters in height.
- They prefer shrubbed rather than forested habitats.
- They are found more abundantly in low vs. high shrubs.
- Wetland habitat use is preferred over upland use.
- Fens and marshes are preferred over swamps.
- Preferred wetland cover types included broad-leafed and sedge vegetation.
- Regardless of habitat type where found, massasaugas are most often found in edge situations where open vs. closed canopy are characteristic.
- Seasonal wetlands appear critical for massasaugas.
- Hibernation site fidelity observed.
- They may travel great distances from hibernacula to summer range areas (in excess of 1.5 miles in some cases).

Management Activities that Adversely Affect Massasaugas:

- Forest succession is responsible for a great deal of habitat loss (i.e. open wetland succeeding to heavy shrub carr and swamp). This results from a host of land use practices varying from grazing to forestry practices to doing nothing with open uplands and wetlands (passive "management").
- Ditching and wetland draining has compromised or destroyed a great deal of habitat. Draining of wetlands may be responsible for eliminating hibernation sites by altering the hydrology of an area.
- Missouri has experienced massasauga mortality from late season burning.
- Illinois has experienced massasauga mortality from summer mowing.
- Water level control structures are responsible for flooding and destroying valuable massasauga habitat. These structures vary from large hydroelectric generating reservoirs to small structures that create additional brood rearing sites for waterfowl production. Note: The latter structures may benefit massasaugas when they are part of mitigation or restoration projects that result in adding to the available habitat.

Other Concerns Adversely Affecting Massasaugas:

- Pressure from collecting has been observed in almost every area within the massasauga's range.
- The intentional killing of massasaugas by landowners and other ill-informed persons occurs across their range.
- The lack of ability to prevent development from taking "critical habitat".
- Our lack of knowledge regarding the life history and critical habitat relationships of the massasauga limit our ability to manage for them effectively. This may severely limit our ability to mitigate for, or work toward recovery/restoration.
- Gene pool "contamination". The introduction of specimens from one population to another (often done by well-meaning amateur herpetologists and other uninformed individuals may have already altered the genetic integrity of some populations.

Management Guidelines - What we think we know to manage for massasaugas:

- Manage vegetation to maintain areas of open canopy (grasses/sedges) through controlled burns, mowing and the selective use of stem applied herbicides (i.e. Rodeo and Round-up).
- Conduct controlled burns before massasaugas emerge from hibernation in spring. Summer and late season burns are likely to cause massasauga mortality.
- Mow to reduce vegetation height and control woody growth when temperatures are cool enough to prevent mortality to active or basking snakes.
- Rotation management where burns and mowings are alternated may increase desired results and could help maintain a higher prey base for snakes.
- Management units should be designed to include a variety of micro-habitats and be small enough so that management activities do not affect all of a given micro-habitat. The idea is to leave enough buffer so that animals are left with adequate habitat to allow for "normal" activity. It should be pointed out that while this methodology as a guideline is generally well accepted, each site requires specific site planning and a holistic management approach should be pursued.

Other items stated that are and can be done to complement massasauga management:

- Education of the public. In Ontario, a great deal of effort has been put into dispelling the senseless fears haunting this species. The Metro Toronto Zoo has a specific program to educate the public about the massasauga and its plight in Ontario. In conjunction with the Ontario Ministry of Natural Resources, they have increased public awareness and involved the general public in an informal status survey. This program has been extremely well-received. Individual landowners can be the massasaugas' best ally. We should follow Ontario's lead.
- Obtaining legal protection for the massasaugas. With the continued pressure on the massasauga from development, legal protection (state or federal listed status) can go a long way to prevent or mitigate (a dirty word, but better than nothing) against the loss of valuable habitat and individual specimens. Of particular value would be the designation of critical habitat for the species. There is an obvious need to qualify and quantify habitat characteristics before this designation can occur. Legal protection may also reduce the pressures from collection for the pet trade, something that still haunts populations where the snake is yet unprotected. Federal listing by the USFWS is likely.