

PROMOTING MASSASAUGA CONSERVATION IN PUBLIC WILDLIFE AREAS

Bruce A. Kingsbury¹

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INTRODUCTION

Many of the massasauga populations in northern Indiana and surrounding areas have been associated with meadows, wet prairie, or sedge fen wetlands (Minton 1972, Kingsbury 1996). The fate of the massasauga in the region is thus tied to the health of these systems. Because such wetlands are shallow and ephemeral, they have often been simple to drain and convert for agricultural purposes. As a result, most of them are gone and so are the massasaugas and other wildlife that depended on them.

Migratory waterfowl were one of the other life forms impacted by wetland loss. These birds used the wetlands to rest during migration and to nest. The growing awareness of declines in waterfowl populations was largely what led to the protection of some of the remaining wetlands. Many of the more substantive complexes are now in the public domain as state or federal wildlife areas. This is largely due to two factors. First, the US Fish and Wildlife Service is mandated to protect migratory waterfowl. Second, the agencies administering wildlife properties, whether at the state or federal level, were usually in the best position to arrange for their purchase.

As a result of this fortuitous association, a number of massasauga populations are now in public wildlife areas. While the security of public ownership is desirable, this has also created an unanticipated problem. The overwhelming priority in most wildlife areas is to manage the area for game, typically migratory waterfowl in the areas of concern here. By coincidence then, the future of many populations of massasauga are now in the hands of individuals who are focused on game production. Unfortunately, such a priority does not necessarily suit a species such as the massasauga. This management "conflict" has already impacted the security of some populations, and has been implicated as a primary threat to the species (Szymanski 1999).

My awareness of this dilemma became more focused as I began developing a set of management recommendations to promote endangered herpetofauna in a state wildlife area (Kingsbury 1999). It became clear to me, belatedly perhaps, that there were further, more complicated, issues underlying the management conflicts of game versus nongame. It was these issues that struck me as more crucial to discuss at the massasauga conference than even what specifically might be done for these snakes at any given site. For this reason, I have decided to focus here on aspects of the "human dimensions" (sensu Decker and Enck 1996) of massasauga conservation on wildlife areas, rather than on specific management recommendations. The latter task is currently being addressed by a team of us assisting the U. S. Fish and Wildlife Service, and that report should become available in 2000.

¹Department of Biology, Indiana-Purdue University, Fort Wayne, Indiana, 46805-1499, U.S.A. E-mail: kingsbur@ipfw.edu

In this paper, I have two objectives. First, I would like to address the issue of protecting massasaugas, and by extension, other nongame, on wildlife refuges. I briefly review why current management conflicts have come about that might threaten massasaugas, and then examine what we must do to overcome resultant problems. Second, I challenge academic biologists to examine how they can become more involved in promoting nongame conservation in wildlife areas near them. While we have learned a great deal about massasaugas, our ultimate goal should be to put our knowledge to work protecting them. To do so, we must understand where the challenges lie, in whatever form they take, and endeavor to resolve them.

I am sensitive to the hazards along the path that I pursue here. Foremost on my mind relates to the diversity of viewpoints on the role of wildlife refuges in nongame conservation. This diversity is central to the problem, but diversity will also be our strength as we strive to resolve the issue. Given that we are all interested in the protection of wildlife, we can at least agree that we share the common problem of wildlife conservation. This commonality should show us that the relationships between the various players should not be adversarial, and that we have the most to gain by working together.

Some individuals may take offense that I bring up this topic now, feeling perhaps that I am not aware of their own conservation efforts. This is not the case at all. I applaud all they have done. In fact, this presentation comes from my own exploration of how I might better play the roles of both herpetologist in academia and effective conservationist off campus. On the other hand, managers may feel that I am invading their "turf" and should just leave things as they are. Who am I, a nongame research biologist, to address management policy on public lands, even conceptually? I appreciate this point of view as well. Each of us should realize where our expertise and responsibilities lie. Academic research biologists are not in the business of land management. We have not been trained for the task, and lack the on the ground experience to effectively carry out such responsibilities. We should understand that. We should also assure land managers that we know this to be the case. On the other hand, we may be able to provide insights about massasaugas not apparent to the land manager.

The focus of this conference is on massasaugas, and so I present my arguments with this in mind. However, I hope that the discussion will have broader application and that workers in other areas will find value in it. Situations involving the protection of nongame on properties historically mandated to produce game are common. Furthermore, similar difficulties are cropping up on other types of public properties. We must therefore endeavor to deal with these challenges.

Factors Influencing Management Decisions

The first issue to address is why land managers put such an emphasis on game production. The initial answer to this question is rather straightforward- it's their job. They are mandated by law, trained in school, and encouraged by peers to promote game on the properties they manage. This emphasis only presents a problem because of the narrow focus on just a few species. Game management, like similar professions such as forestry, agriculture, and range management, is geared to maximize productivity of a particular natural resource (Meine 1995).

Another factor driving management choices is the source of available funding to buy land and manage it. For example, major funding comes from an excise tax authorized by the Pittman-Robertson Act of 1937. This funding is specifically earmarked for game production (Giles 1978 and Anderson 1991). It cannot be expended to promote nongame. Because the lands were purchased for game production, and since maintenance funds are similarly intended, managers justifiably feel compelled to develop the land for that purpose. Perhaps if alternate funding became available, as the "Teaming with Wildlife" legislation would provide, managers would feel greater flexibility about how they handle their properties.

Land managers also often lack the information they would need to manage for nongame effectively. There are several reasons for this. The first has to do with their training. Given the emphasis in school on game production, they may not, especially in the past, have been given substantial exposure to the needs of nongame (Anderson 1991). This may be changing as the "other" wildlife get more class time in wildlife management programs. Our knowledge about the specific requirements of particular species such as the massasauga is also relatively new and still being developed. If the specialists in the field are only just starting to understand what the massasauga needs, it should not be surprising that nonspecialists are running a little behind. Finally, and perhaps most importantly, there often is not an effective connection between the individuals that do research on nongame and the persons making the management decisions. The information is not getting to those who can actually implement changes.

Managers are also overwhelmed. They face limited resources just as we all do. A particular problem for them, however, is that management practices that favor one organism may be detrimental to another. With limited resources and many different tasks, they are hard-pressed to try to resolve these conflicts, and it may be tempting to focus on one task and do it well.

Last but not least, these individuals are often ardent

hunters themselves. They may love to hunt, and are part of a culture that has promoted game management to make hunting opportunities better. This observation is important in several ways. Most obviously, they might prefer habitat alterations that promote favored game species. But more subtly, they may also face pressure from peers or their constituents if they adjust their activities towards nongame.

Looking for a Part of the Solution

The limited protection for nongame on wildlife properties, including the massasauga, is certainly a complicated issue, and fully discussing it is beyond the scope of this presentation. I focus here on what an academic research biologist might do to improve the situation for massasaugas and nongame in general. To start, I should acknowledge that I have not fully implemented all of my own suggestions. As mentioned previously, this discussion stems from self-examination of how I might better contribute to the conservation of herpetofauna. Happily, however, I can say I have experienced some success on this front.

Perhaps the most significant thing that we can do is make the local connections required for us to promote massasauga conservation. Establishing functional dialogues with managers and related agency personnel can achieve several goals. Most importantly, these connections will facilitate the transfer of information. We have struggled to understand the biology of massasaugas, and we are beginning to get a grasp of what their needs are. However, we are not always so effective about passing that information on to those that can actually use it in the field.

Functional dialogues with managers may also allow us to constructively influence the goals of management activities. If we work with them to lobby for protection of massasaugas to the full extent possible, managers may be willing to adjust what they are doing to facilitate protection of the snake. Lobbying may include constructively challenging manager's perceptions of what their limits actually are when it comes to management practices. Discussions with various individuals involved with land management decisions leads me to believe that despite the very real limitations placed on land managers, they nevertheless retain a substantial amount of flexibility in what they can do on the ground. They may or may not realize this. Based on interactions with us, they may be willing to use some of this flexibility for massasaugas and other nongame protection.

How wildlife properties should be used is a sticky topic, and land managers may not welcome external input (Magill 1988). However, broadening the focus of management in wildlife areas to include considering spe-

cies such as the massasauga can be defended as more than just the hope of some herpetologists. Although Aldo Leopold, father of wildlife management, focused on game production (Leopold 1933), he promoted a holistic approach to managing for all wildlife, as well as plants, soils and water (Leopold 1939, 1949). Thus the call to protect all wildlife is in the roots of the management profession. Furthermore, the recent growing interest in the protection of natural resources in their natural form (Kellert 1980, Hendee and Pitstick 1994), as well as the heavy use of wildlife areas by nonconsumptive users such as birdwatchers and hikers, also argues for maintaining a diversity of natural areas.

Establishing the types of relationships I am focusing on here is not without costs for the academic. Their development is time consuming. The process may take many years, and years may also go by before tangible results are realized. The cost of investing in such efforts is that traditional academic reward systems in biology often do not recognize that working to apply our findings in the real world is a wise use of limited resources. Perhaps we could have spent that time publishing more papers or discovering more "things." I think this viewpoint is beginning to change, however, but we need to encourage the process by supporting such activities ourselves.

There are also steps that we can take within the academic realm to promote nongame conservation. An acknowledged rift in academia is the separation of the fields of academic ecology and applied wildlife management (Wagner 1989). Students in these two fields are provided distinct curricula, despite the strong overlap between them. This decades old distinction hampers our ability to protect nongame in several ways, and we need to explore how to close the gap between these disciplines. We need to work on the transfer of information about nongame earlier in the training process. Some of us may be in the position to teach wildlife biology courses, or at least enlighten a budding young wildlife manager about the needs of nongame. And this need to learn works the other way as well: traditional ecology students (and their faculty) need more exposure to the problems of game management and the solutions achieved by their experts.

To pursue this line of thinking a bit further, I would argue that traditional biology departments need to better support applied biological studies. The time has come for applied research on nongame to be an acceptable venue for academic ecologists. This, of course, may not be a path we as individuals choose to take, but we should not discourage such efforts by our peers.

Summary and Conclusions

The available habitat for massasaugas is shrinking, and a substantial portion of the remainder exists on public lands, especially state and federal wildlife areas. Protection of massasaugas in these areas is thus a critical element to preventing their extirpation. However, current management practices in these areas focus on the production of game, and management strictly for game may be detrimental to nongame species such as the massasauga. Given that nongame are becoming more dependent on existing protected areas, we can argue that they too should be managed for on wildlife properties.

By establishing functional relationships with agency individuals involved with land management, and providing them with the information they need, academic biologists may be able to improve the condition of species such as the massasauga. This process will occur on a site by site basis, but hopefully such local action will have a more global effect- the preservation of an endangered species. Such efforts will require making the commitment to establishing functional relationships with agency officials involved with making land management decisions, and working with them to enhance suitable habitat. Striving to support activities in applied biology, and even contributing to the coursework of developing land managers, are other efforts that we can make. Each of these activities will take time, and academic reward mechanisms are not currently designed to fully acknowledge their value. Hopefully that constraint will change before too long. In the meantime, I hope we can be sustained just by knowing that we are doing the right thing.

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