
Public Education and Involvement in Species Recovery

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In a landscape which includes places like Ontario's 'Cottage Country' and the 'Golden Horseshoe', threatened reptile species are in close contact with both permanent and seasonal landowners. Protected areas such as Georgian Bay Islands National Park (12.5 km²) are small, therefore, the majority of species' habitat occurs on private land. At one time, the negative attitudes about the eastern massasauga (*Sistrurus catenatus catenatus*) were pervasive, and the human persecution it suffered was transferred to four other similar looking species. Efforts at species recovery have involved targeting public education to landowners, coordinating education messages on all reptiles at risk through the Georgian Bay Reptile Awareness Programme, and encouraging active participation of landowners in research efforts. Seven years of effort have not resolved all issues regarding species recovery, but there have been some results. In this paper, we discuss the education products, methods, and results of the eastern massasauga recovery program and the Georgian Bay Reptile Awareness Programme, and share a reflection on further program requirements.

Introduction

The eastern massasauga is found in four populations in Ontario; the two largest are located in the eastern Georgian Bay and Bruce Peninsula areas. The majority of the species' range is on private land, but in areas such as Parry Sound, close to 50% of the land is provincial crown land. In these areas, multiple uses such as boating, camping, and commercial forestry occur. The eastern massasauga's decline is largely the result of human activities, and is due to either direct persecution or the indirect effects of habitat loss and habitat fragmentation. As a venomous species, the eastern massasauga presents a unique challenge to conservation because it is perceived by many to present a public safety risk. As a result, Parks Canada, the Georgian Bay Reptile Awareness Programme, and the Eastern Massasauga Recovery Team have long considered public education an essential component of the recovery strategy for this species.

The Eastern Massasauga Recovery Team

The Eastern Massasauga Recovery Team was established in the early 1990s. Key to the team's success has been strong representation and interest from members of the Ontario Ministry of Natural Resources, Parks Canada, the Canadian Wildlife Service, the Niagara Peninsula Conservation Area, the Toronto Zoo, the City of Windsor, and Brock University. The team developed the first recovery strategy for the eastern massasauga in 1995, and made education one of the primary goals of the strategy. The Toronto Zoo initially led many communication efforts; many other initiatives were led by individual organizations. Over time, the benefit of a coordinated communication effort for the eastern Georgian Bay and Bruce Peninsula populations of the eastern massasauga was recognized, and team members were successful at acquiring funding to establish the Georgian Bay Reptile Awareness Programme.

Georgian Bay Reptile Awareness Programme

The Georgian Bay Reptile Awareness Programme, which has been working successfully for three years, was formed to help provide sustained, consistent messages on 11 reptile species at risk in the Georgian Bay area, and to convey the work of researchers to the public. Recognizing that the eastern massasauga is only one of eleven reptile species at risk in the area, the Programme focuses on all other reptiles at risk to deliver a comprehensive species at risk conservation program. The Programme's goal is to increase awareness and to encourage people and organizations to become involved in monitoring and conserving these species.

Methods for Engaging the Public in Species at Risk

Form Partnerships to Strengthen Lobby

Organizations with a land management and/or public education mandate have joined together to develop and deliver communication messages such as how to coexist with the eastern massasauga. A steering committee with members from a variety of organizations has provided input into communications planning. This committee has played a major role in providing direction to the Georgian Bay Reptile Awareness Programme, and continues to provide direction to the Eastern Massasauga Recovery Team on communication initiatives. The importance of having one coordinated voice on reptiles at risk issues in the Georgian Bay area was a prime goal as there was a fear of confusing target audiences and duplicating efforts if each organization continued with its individual efforts. Partnerships have also extended to the medical community where the recovery team has been involved in the delivery of a medical symposium that dealt with the latest anti-venom therapy, and reasons why the eastern massasauga is protected. This increased communication with medical experts has facilitated their understanding of snake

ecology, conservation issues, and methods for identifying snake species. As well, recovery team members have had access to snakebite victims, and so, have increased their understanding of where, when, and how snakebites occur, and ensured that victims understand the impacts of any statements they may make to the media and their neighbors.

Facilitate Workshops to Raise Awareness and Teach Skills

Although they have not yet been evaluated, workshops and personal presentations appear to be the most effective communication tools in promoting the conservation of reptiles at risk. The main communication goal is to educate people about the natural history, distribution, and status of the eastern massasauga so they will view the species as a positive sign of ecological health in our area. Broad-based public participation in a monitoring program has resulted in 280 species observations being submitted. These observations have helped researchers define the species' range, and develop research questions. These observations have also played a strong role in the application of the Provincial Policy Statement to development proposals. As most provincial land is under private ownership, landowners are encouraged to implement conservation measures on their own land. To facilitate this, information packages have been delivered to 300+ landowners on the Bruce Peninsula. On the eastern shores of Georgian Bay, training community members how to safely relocate a rattlesnake, and act as a resource person for their cottage association has been very successful. Training has also been done with road construction workers, hydro employees, and others working on the land. Participation in these programs and positive feedback from participants has encouraged others to get involved. Aside from educating those who live on the land, the Eastern Massasauga Recovery Team has hosted major conferences and will be hosting the Third International Eastern Massasauga Recovery Symposium in 2005. These communication efforts broaden our knowledge of conservation issues and potential solutions to them.

Promote Positive Media Coverage

The eastern massasauga is a high profile species that attracts media attention, which can work either in favour of conservation or against it. The media are interested in this species, however, publicity about it is often the result of snakebites, and is sensationalized. It is a goal to ensure that the media has positive, consistent messages about the species, and provides recognition of its success stories. To reach this goal, prepared media packages (fact sheets, photos, and maps) have been distributed. These packages identify local spokespeople who can address the media and help avert negative publicity concerning snakebite incidents.

Address Public Safety Concerns

Public safety concerns are real and have been recognized by all, especially those who manage land in, and invite visitors to, places like provincial and national parks. Fact sheets on the prevention and treatment of snakebites for humans and pets have been produced in French and English, and have been widely distributed. A partnership with the medical community will ensure that consistent and up-to-date safety and treatment messages are available to all. Through the use of brochures, web sites, and conferences a strong communications network on public safety concerns has been formed.

Develop and Deliver Resource Materials

Partners have focused on producing common recovery-based resource materials that are applicable throughout the range of the eastern massasauga. The key message is how to live with rattlesnakes. These materials use the best data available from current research programs. This is important not only for the protection of the species but to gain public support. Information is distributed through parks, direct mail-outs, information centers, libraries, marinas, and other organization networks. Over 60 cottage associations exist on the eastern shores of Georgian Bay, and each has its own communication network (e.g., websites, annual meetings, newsletters). These groups have welcomed education materials on all species at risk. The Georgian Bay Reptile Awareness Programme and Toronto Zoo have produced newsletters that provide current information and positive stories, and promote actions that can be undertaken by individuals. The development of these messages in a variety of formats has been key to reaching a large and diverse audience. Examples of communication materials that have been produced include:

- posters and fact sheets/brochures which focus on species identification, safety concerns, and conservation needs/stewardship actions
- a stewardship guide—*A Resource and Field Guide for Living with Rattlesnakes*
- a video—*Living with Rattlesnakes*
- websites— www.massasauga.ca www.gbayreptiles.com
- guidelines for applying the Provincial Policy Statement
- interpretative signage—Parks Canada, Killbear Provincial Park, tourist information offices, various roadways
- curriculum-based school materials produced by both the Toronto Zoo and Georgian Bay Reptile Awareness Association which target grades 4 and 10

Participation in Research

Opportunities for individuals or groups to take part in research projects on the eastern massasagua have helped engage many residents. This can be as simple as involving people in

systematic searches such as those done by Killbear Provincial Park, Wainfleet Bog, and Georgian Bay Islands National Park. An ecosystem approach to research has required many landowners to actively participate. Landowners have allowed researchers on their land and, in many cases, have participated in studies such as groundtruthing the habitat suitability model for the eastern massasauga, and more recently, an eastern fox snake (*Elaphe gloydi*) ecology project. Over 200 landowners have been instrumental in the success of these research projects. These opportunities have lead to a better understanding of these species, and may have increased the participants' commitment to conservation actions. The landowner who participates in a research project can act as a knowledgeable local resource person.

Results

Thus far, the success of the outreach program has been measured by product development and delivery. The number of contacts made, and the verbal and written feedback received have been recorded. In three years, the Georgian Bay Reptile Awareness Programme has made 15,000 contacts at workshops and at hosted displays. There is a strong sense among team members that the level of awareness and involvement in stewardship activities has increased, however, this has not been quantified.

Further Requirements

After almost a decade of communication product development and delivery it is difficult to know what else to do. In order to update and refine our communication goals, the need to truly evaluate our success to date has become paramount. This year we will conduct a thorough evaluation of the outreach program. The goals are to (1) quantify public attitudes towards the eastern massasauga, (2) assess the effectiveness of the outreach program in changing attitudes over time, (3) measure the level of involvement by the public in conservation, and (4) determine which outreach tools have been the most successful. This evaluation will guide a review of the communication strategy the recovery team plans to conduct this year. Despite our efforts, habitat loss remains a constant threat and is difficult and time consuming for recovery team members to become involved in. If landowners are more aware and interested in conservation, what tools can we develop that will help them be better advocates for species at risk? Knowledge gained through this evaluation will help address this question and others. The evaluation will also have a direct benefit to other teams who are developing their strategies for affecting change through education.

Conclusions

Public involvement is an important aspect of achieving long-term support for the conservation of the eastern massasauga and other species at risk. We have encouraged

involvement by providing quality resource materials and opportunities to participate in workshops and research projects. Evaluation of the outreach program and update of the communication strategy will help us refine our program. We encourage other recovery teams to develop a communication strategy for their outreach programs early in the recovery process, and to include methods to evaluate its effectiveness. A carefully planned, adaptive outreach program will benefit the recovery of many species at risk.