

**Communication Action Plan  
For the Recovery of Blanding's Turtles (Nova Scotia population)**

*Supplement to the National Recovery Plan for the Blanding's Turtle (Emyodidea blandingii)  
Nova Scotia Population*

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## Acronyms

**ACCDC** – Atlantic Canada Conservation Data Centre

**COSEWIC** – Committee on the Status of Endangered  
Wildlife in Canada

**DFO** – Department of Fisheries and Oceans

**EC** – Environment Canada

**FOKCA** – Friends of Keji Cooperative Association

**IRM** – Integrated Resource Management

**NQRS** – North Queens Regional Schools

**NSDEL** – Nova Scotia Department of Environment  
and Labour

**NSDNR** – Nova Scotia Department of Natural  
Resources

**NSESA** – Nova Scotia Endangered Species Act

**NSDOT** – Nova Scotia Department of  
Transportation

**NSP** – Nova Scotia Power

**ORV** – Off-road vehicles

**SARA** – Species at Risk Act

**SNBRA** – Southwest Nova Biosphere Reserve  
Association

## Introduction

The Blanding's turtle is a species at risk in Nova Scotia whose overall recovery is outlined in the *National Recovery Plan for Blanding's Turtle Nova Scotia Population* (Blanding's Turtle Recovery Team 2003). This Communication Action Plan provides additional detail about recovery actions with communication elements; it should be considered a supplement to the Recovery Plan (available on the internet, see bibliography). The National Recovery Plan for the Blanding's turtle calls for the development and implementation of a communication plan for the recovery and conservation of Blanding's turtles. This plan, which addresses that call, is intended for all parties interested in the recovery of Blanding's turtles (*e.g.* managers, communicators, scientists, educators, conservationists, and funders) to clarify necessary priority messages, audiences, and communication actions.

Strategic approaches to recovery typically include management, information, stewardship, and evaluation (Fig. 3, Blanding's Turtle Recovery Team 2003). Communication is an integral thread that weaves all these recovery elements together. Lack of communication about Blanding's turtles poses indirect threats by perpetuating mortality and disturbance, habitat destruction, and loss of metapopulation structure. Few examples of communication plans for species at risk exist in Canada (Dalman *et al.* 2002) and few national recovery plans explicitly define the role of communication in recovery (Eastern Massasauga Recovery Team 2002). This action plan describes how communication can be strategically used to aid in the recovery of Blanding's turtles in Nova Scotia.

## Background

Blanding's turtles are presently known to occur on two watersheds in southwestern Nova Scotia: the Mersey and Medway Rivers. Populations of Blanding's turtles have been found at the following three locations: Kejimikujik National Park and National Historic Site of Canada (Mersey River), McGowan Lake (Medway River), and Pleasant River (Medway River). All records of the species occur within the Southwest Nova Biosphere Reserve, designated by the United Nations Education and Science Organization. Blanding's turtles spend most of their time in shallow freshwater but they also travel overland, particularly when females nest. In Nova Scotia they share habitat with the Eastern painted turtle and common snapping turtle.

A cooperative approach has been undertaken to aid the recovery of Blanding's turtles in Nova Scotia since the creation of the Blanding's Turtle Recovery Team in 1993. Much research effort has been devoted by Acadia University to better understand why Blanding's turtles are at risk. Efforts in Kejimikujik National Park and National Historic Site (hereafter called Kejimikujik) have focused on science, management, and education. An information campaign started in 1996 with presentations and posters solicited Blanding's turtle reports from residents of southwestern Nova Scotia. This campaign led to discoveries of Blanding's turtles outside Kejimikujik and therefore more research and stewardship work with private, corporate, and provincial crown landowners. While recognizing the financial constraints on recovery, this action plan recommends the value of communication activities and the importance that they continue. Further, this plan maps a strategic path for their implementation and integration with new and necessary actions.

## Overview

This Communication Action Plan has three sections: a message bank, an outline of recovery objectives and priority actions, and a summary table. A message bank is included in this plan for communicators developing programs, media products, and other projects. The bank provides communicators with the key points that must be conveyed to target audiences in order to achieve recovery objectives and ultimately the recovery of Blanding's turtles in Nova Scotia. The message bank makes priority messages clear, concise, and consistent but is flexible for individual communicators. The bank is provided as a step-down outline so that communicators can tailor messages to their specific objectives, audiences, and media by selecting the appropriate level of detail.

The objectives of the Communication Action Plan reflect the strategic objectives of the Recovery Plan:

- I. Maintain and restore population sizes
- II. Maintain and restore habitat
- III. Maintain metapopulation structure

Recovery Plan Objective IV (Remove or reduce threats) is integrated with each of the first three objectives. Communication Actions 4-1 to 4-3 are not threat-based but relate to Recovery Plan Objectives I, II, and III by increasing awareness and knowledge about Blanding's turtles.

Communication Actions in this plan provide detailed information that will help achieve recovery objectives. *Rationale* describes why each action is important for the recovery of Blanding's turtles. *Audience* strategically targets the people who can best achieve each action -- it describes who will receive the message(s) and, where possible, describes their current level of awareness and support. *Progress* indicates successful efforts to date by various partners and documents what has already been done to avoid duplication. *Workplan* proposes a method of achieving each objective-- it provides the basics to guide future detailed project proposals. References to successful communication projects for other species at risk are provided as examples throughout the plan; details about each of these projects can be found at websites provided in the bibliography.

The summary table gives an overview of the actions and provides information for managers and funders such as a list of tasks, performance indicators, proposed partners, and priorities. Links are provided for each communication action to the Recovery Plan and to the message bank in this plan. For communicators, information about relevant turtle populations and audiences as well as recovery approach and engagement level is provided for each action. A legend is provided to explain each column.

## Message bank

### Message 1. Blanding's turtles in Nova Scotia are special.

Message 1-1. They are near the northern limit of their range.

- They survive in a warm pocket of interior southwestern Nova Scotia with other southern species such as the northern ribbon snake, coastal plain flora, and southern flying squirrel.
- They probably became isolated from other populations of Blanding's turtles thousands of years ago when the climate changed.
- They contribute to the genetic diversity of the species because they are different from Blanding's turtles in Ontario and the United States.
- Even within Nova Scotia Blanding's turtles at different sites have different behaviour and genetics.

Message 1-2. They are exceptionally long-lived and late-maturing.

- Since they can live over 80 years, they may have trouble adapting to rapid environmental change.
- They reach sexual maturity later than those in Ontario and the United States (18-24 yrs vs. 14-20 yrs).

Message 1-3. Turtles have long been valued by some First Nations.

- The turtle is a symbol of strength, patience, and stability in many myths and legends.
- The turtle is prominent in aboriginal clan systems and as an animal guide or animal helper.
- Turtles were harvested for food and their shells were used for rattles by healers and in ceremonies.

### Message 2. Blanding's turtles in Nova Scotia are at risk.

Message 2-1. They are rare.

- The Nova Scotia population of Blanding's turtle was declared *Threatened* in 1993 by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and *Endangered* in 2000 by the Government of Nova Scotia.
- Approximately 300 adult Blanding's turtles have been found at a few sites in Queens, Lunenburg, and Annapolis Counties.
- There are limited numbers of new breeders.
- In cool summers, eggs often do not incubate successfully.
- Predators, especially raccoons, eat most young.

Message 2-2. They are vulnerable to change in their habitat.

- They live in peaty, slow flowing streams, generally near lakes.
- Dams, mines, forestry, agriculture, roads, cottage and residential development can destroy turtle habitat.
- They need stable water conditions; natural and artificial dams affect these.
- They return each year to the same nesting and overwintering sites; these may be used by many turtles, may be in short supply, and are small enough to be accidentally destroyed.
- Habitat fragmentation increases the risk of travel and may reduce available habitat.

Message 2-3. For Blanding's turtles, life is a risky business.

- Survivorship of young turtles fluctuates tremendously from place to place and year to year.
- Nests are buried in the ground and can be destroyed by vehicles, excavation, flooding, and predators.
- Climate change has unpredictable effects and could impact Blanding's turtles in surprising ways.
- Collecting or moving even a single turtle could harm the entire population.

Message 2-4. We don't know enough about them.

- To better protect the species, researchers still need to investigate distribution, winter survival, juvenile behaviour, nest site choice, factors determining nest success, how populations within Nova Scotia are different, and what the most important threats are to survival.

### **Message 3. With cooperation we can help Blanding's turtles in Nova Scotia.**

Message 3-1. There has been a lot of progress towards recovery.

- Blanding's turtles, nests, and habitat are legally protected on private and crown land by the Nova Scotia Endangered Species Act and the Species at Risk Act.
- Bowater Mersey Paper Company Limited protected 102 hectares of Blanding's turtle habitat at McGowan Lake as a conservation area.
- Covering nests with wire enclosures and reducing litter that attracts raccoons has curtailed raccoon predation.
- Kejimikujik National Park and National Historic Site is a centre for Blanding's turtle education, research, monitoring and management.

Message 3-2. Volunteers have made a difference.

- Two major concentrations of Blanding's turtles were found along the Medway River because of public reports.
- Many volunteers have helped to cover nests and release hatchlings.
- Volunteers have helped with scientific research such as radio-tracking and live-trapping.

Message 3-3. Protecting turtles means taking care of our environment and ourselves.

- Blanding's turtles are an umbrella species for wetlands – if we conserve them we will help an entire habitat including other rare companion species such as northern ribbon snake and coastal plain flora.
- Blanding's turtles have a special relationship with beavers: flooded stillwaters behind beaver dams are important during dry weather.
- First Nations have long honoured the connections between humans and animals.

Message 3-4. There is still work to do.

- We need to protect their habitat.
- We need reports of Blanding's turtles, and volunteer help with nest protection and research.
- Harvesting, development, and recreational activities need to be carefully planned to conserve wildlife habitat (promote low impact forestry, organic agriculture, and responsible off-road vehicle use).
- If a turtle is crossing the road, move it a short safe distance in the direction it was heading.
- Wild turtles should not be collected for pets.

# Recovery Objective 1. Maintain and restore population sizes

## Action 1-1. Engage volunteers to discover, protect, and monitor nests

### *Rationale*

Blanding's turtles do a remarkable job camouflaging their in-ground nests. By placing enclosures over nests awareness is increased, and inadvertent damage (such as vehicle collisions, and excavation) and raccoon predation are reduced. By covering nests and increasing egg survival population sizes can be maintained and restored. Covering nests is particularly important in populations from which young age classes are missing. Monitoring nests also helps researchers understand threats to Blanding's turtles and evaluate the success of management actions. Volunteering opportunities that provide direct hands-on participation are highly engaging and substantially increase support for the recovery of Blanding's turtles (other examples: Piping Plover Guardian Program; Operation Burrowing Owl).

### *Audience*

- University students
- Local families
- Park visitors
- Naturalist clubs

Volunteers covering nests on private land and in Kejimikujik do essentially the same job but are different audiences. Volunteers working in the park have been solicited from local universities, regular park visitors, and park staff. Volunteers who protect nests at McGowan Lake and Pleasant River are mainly researchers and local residents. All volunteers are conservation-minded and are motivated by the satisfaction they get from helping a species at risk. The volunteer program is well-organized, provides good training, and a positive social environment, which motivates volunteers to come back year after year.



Volunteers helping a researcher measure hatchlings from nest enclosure at Pleasant River

### *Progress*

Since 1988 volunteers and staff have protected hundreds of Blanding's turtle nests. In 2003, a record 46 nests were covered in Nova Scotia by 64 volunteers and 3 paid researchers who contributed a total of 1484 hours (80% of hours were volunteered). Recent improvements to the program include improved training of volunteers, increased fundraising for the program's operational and travel costs, and increased recruitment of local families to protect nests outside the park. The Friends of Keji Cooperating Association (FOKCA) has been a great help soliciting, organizing, and funding in-park volunteers. Three families at Albany New and six families at Pleasant River have helped Acadia University researchers as nest stewards in recent years.

### *Workplan*

- The volunteer network coordinated by Acadia and Kejimikujik is a great success and should be continued.
- More advertising for new volunteers could be done by updating the website, by word-of mouth, and by increasing inclusion of Message 3-4 in all communications. Naturalist clubs, retirees, and unemployed university students are good target audiences for new volunteers in the park. Families with school-aged children and conservation-minded adults and seniors who own private land with



nests or who live close to nests should be targeted for volunteering on private and provincial crown land. New volunteers will be needed on private land as more nests are discovered; residents in nesting areas should be targeted directly using mailouts, community meetings, school programs, media releases, and personal visits.

- Coordinators should be hired at each of the three sites (Kejimikujik, McGowan, Pleasant River) during nesting season to manage volunteers.
- It is important to retain volunteers who can take on additional responsibilities and perform leadership roles in the program. To do this, follow-up letters should be continued for volunteers at all sites and websites should be updated with relevant information.

## **Action 1-2. Reduce disturbance of nests**

### *Rationale*

Blanding's turtles, their nests, and much of their habitat are protected on private, provincial, and federal land by the Nova Scotia Endangered Species Act (NSESA) and the Species at Risk Act (SARA). Many nests, however, have been found on or near gravel roads and pits, railway beds, and road shoulders where eggs could be crushed by highway or off-road vehicles (ORVs). Roadside nests could also be destroyed or contaminated by resurfacing, grading, mowing, or other construction, leading to nest failure or hatchling deformities.

Garbage in nesting areas attracts nest predators and may artificially inflate raccoon populations, which increases Blanding's turtle mortality. Blanding's turtles also lay eggs in gardens and Christmas tree lots where they could be dug up, sprayed with biocides, or run over. The appropriate authorities and landowners need accurate and up-to date information to ensure that Blanding's turtle nests are protected.



A gravel pit used by off-road vehicles and at least four nesting Blanding's turtles near McGowan Lake was blocked with boulders by Bowater staff.

### *Audience*

- Landowners where nesting turtles have been discovered: gardens, Christmas tree lots, old roads
- Nova Scotia Department of Natural Resources (NSDNR) conservation officers
- Nova Scotia Department of Transportation (NSDOT) workers on roads with Blanding's turtle nests such as Mount Merritt Road and Albany New Road
- Kejimikujik resource conservation, general works, interpretation, and visitor services staff
- ORV drivers on railbeds and old roads with Blanding's turtle nests
- Residents and campers who litter

Direct personal contact with landowners, road users, and staff at government agencies should encourage ownership of the problem rather than just providing information. Many staff rotate, so communication with them should be ongoing. Field trips and direct collaboration with these audiences may increase their affinity to Blanding's turtles and personalize their role in the recovery of this species as it pertains to their job or property.

### *Progress*

The timing of road maintenance and mowing was discussed and adjusted by staff at Kejimkujik over the last 10 years to protect roadside Blanding's turtle nests. Bowater Mersey Paper Company Limited (Bowater) used boulders to block ORVs from a portion of gravel road after Acadia University researchers identified it as a nesting site for Blanding's turtles in 2002. NSDNR stopped destruction of a nest along an abandoned railway in New Elm in 2003. Two nests that were covered with enclosures by volunteers and Acadia University researchers at a sandpit in Pleasant River were protected from ORV drivers in 2003, but one uncovered nest was destroyed. Nests in gardens and Christmas tree lots discovered by Acadia University researchers were cared for and protected by landowners. Park staff at Kejimkujik continue to communicate to visitors about proper garbage disposal helping raccoon numbers remain low. Land ownership maps and databases have been produced by the information management specialist at Kejimkujik and are available to the Recovery Team for future landowner contact and stewardship work.

### *Workplan*

- Site-specific research about land ownership should be conducted in tandem with radio-telemetry studies where Blanding's turtles nest on private land.
- Appropriate landowners should be contacted to solicit their help protecting nests.
- Nest location data should be provided to appropriate government authorities (NSDNR conservation officers, NSDOT foremen, Kejimkujik resources conservation staff and general works foremen) so they can consider potential threats in those particular areas.
- Where recreational use of ORVs threatens nests, the community (including ORV drivers) should be involved in planning physical barriers such as Bowater's placement of boulders to protect nests.
- A new sign that provides more information and messages should be developed for nest enclosures (e.g. Message 2-3, 3-1).

## **Action 1-3. Reduce hatchling and adult roadkill**

### *Rationale*

It is illegal to kill, injure, or disturb Blanding's turtles under NSESA and SARA legislation. Blanding's turtles occasionally travel on dry land and may cross roadways, where they are in danger of vehicle collisions and mortality. Reports of Blanding's turtles killed by cars between 1970 and 2003 include: 3 adults, 1 juvenile, and 6 hatchlings in Kejimkujik; 1 adult and 1 juvenile in Caledonia, Queens County (Kejimkujik Blanding's turtle database). In particular, adult female turtles are attracted to gravel road shoulders during nesting season in June and hatchling turtles emerge from roadside nests in September and October. Research on the movement of hatchling turtles suggests that they spend some time on road surfaces (Smith, pers. comm.) but they are difficult to see from inside a vehicle.

### *Audience*

- Car drivers (tourists, residents, truckers)
- Road managers (Kejimkujik, NSDOT)

### *Progress*

Several attempts have been made at Kejimkujik to redirect traffic near roadside nests during hatchling emergence. In some instances, hatchling release has been delayed to avoid weekend traffic. At one nest site in Kejimkujik and one in Pleasant River where hatchlings are at risk of



Example of commercial road sign to raise awareness about turtles on roads.

vehicle collisions, animals have been released a short distance from high traffic areas.

### *Workplan*

- It is difficult to predict where non-nesting adults cross roads, but Action 1-1 will help reduce roadkill of nesting females because volunteers will monitor roadside nests and can ensure the safety of turtles they are observing.
- Media releases and communications timed to coincide with nesting and emergence should include Message 3-4.
- At all sites with roadside nests temporary traffic barricades could be used to limit shoulder traffic, and seasonal road signs could be used to slow traffic and increase awareness about turtles.

## **Recovery Objective 2. Maintain and restore habitat**

### **Action 2-1. Share information with private landowners and residents**

#### *Rationale*

Informing local landowners about the presence of a species at risk will raise the profile of the species and is a necessary first step to help foster awareness and appreciation for its conservation. People must be inspired to care about turtles in a non-confrontational, non-threatening, and empowering environment. Local landowners and residents are the past, present, and future stewards of wildlife in their area and must be engaged for effective recovery of the species.

#### *Audience*

Within the known distribution of Blanding's turtles:

- Residents
- Woodlot owners
- Cottagers
- Farmers
- Developers
- North Queens Regional Schools (NQRS)

The audience for this action includes a mix of owner types that varies from site to site. Progress to date has met with great interest from most audiences. Preliminary Blanding's turtle distribution and land ownership data suggest that most known Blanding's turtle habitat at McGowan Lake is on provincial crown land and land owned by Bowater. There are few records of Blanding's to date from surrounding lakes such as Dean, Harmony, and Tupper – these areas are almost entirely owned by private individuals. Tupper Lake is highly subdivided and owned by both local and European citizens.

Wetlands near McGowan Lake on the Medway River at Albany New are a mix of private, provincial crown, and Bowater lands.

At Pleasant River, most known Blanding's turtle habitat is on provincial crown land near Barren Meadow, Keddy, and Bull Moose Brooks and on private land near Waterman's Lake, Pleasant River, and Bull Moose Brook. Most private land in both the Pleasant River area and Albany New is 15-50 hectare woodlots owned by local citizens. There are few records of Blanding's turtles to date from surrounding lakes such as Shingle, Hog, Molega, and Ponhook Lakes – these areas are



Exhibit at local community event about southwestern Nova Scotia's species at risk.

held almost entirely by private individuals. The Acadia First Nation's Wildcat Reserve is near Molega Lake and there is some provincial crown land on Shingle Lake. Highly subdivided cottage development makes up most of the lakeshore on Molega and Ponhook Lakes.

Almost all known Blanding's turtle habitat falls within the jurisdiction of only two elementary schools and one high school. Social science research could reveal how many residents within Blanding's turtle habitat have school-aged children and could be contacted through school presentations and projects at these schools. There are several community groups and churches in Kempt, Westfield, South Brookfield, North Brookfield, Caledonia, and Pleasant River that could provide a venue for communicating with resident seniors and families without school-aged children.



Community meeting "Meet your neighbour, the Blanding's turtle" at Pleasant River in 2003.

### *Progress*

Interpreters and wardens from Kejimikujik have communicated about Blanding's turtles at North Queens Elementary since the 1970s. In 1995, for example, the grade five class raised hatchling Blanding's turtles. In 2001 and 2003 1 hour programs about species at risk, including Blanding's turtles, were presented to several thousand students in elementary schools in Annapolis, Queens, and Lunenburg counties and a parade float was exhibited in Caledonia. In 2001, the DesBrisay and Macdonald Museums with the Southwest Nova Biosphere Reserve Association (SNBRA) reached 7000 students with permanent and traveling exhibits highlighting rare species found in southwestern Nova Scotia. In 2002, researchers from Acadia University visited five classes at North Queens Elementary and partnered with Kejimikujik to display photos and information for local residents at Bowater open houses. In 2003, researchers from Acadia University made direct contact with 10 families in the Pleasant River area with potential or actual Blanding's turtle nesting sites and habitat. A community event at Pleasant River called "Meet Your Neighbour, the Blanding's turtle" attracted about 30 people and informed them about research and recovery work undertaken in their area. There have been several initiatives undertaken in Queens County between 2000 and 2003, particularly near Pleasant River, to inform residents about other species at risk including coastal plain flora and southern flying squirrels that inhabit their property.

### *Workplan*

University researchers have been the principal communicators to private landowners and residents about Blanding's turtles. Researchers have the best and most current knowledge of Blanding's turtle distribution and natural history, they are likely to be in direct contact with this audience, and they are often extraordinarily enthusiastic about turtles and motivated to help conserve and recover them. Researchers, however, have very busy schedules and many research tasks to complete.

- Hired staff are necessary to effectively complete Action 2-1 and lay the groundwork necessary to complete Action 2-2. These staff should include communicators and researchers who work together to educate landowners and research Blanding's turtle distribution.
- Initial and ongoing contact should be made with landowners using a combination of mail, community meetings, mass media, and direct contacts. Occasional presentations should be made at community venues (e.g. Queens County Fair).

- Media products such as identification factsheets (*e.g.* Newfoundland Marten; Coastal Plain Flora) and business cards advertising contact information and web page addresses should be carefully developed to support contact visits, mailings, and meetings.
- A close partnership with North Queens Regional Schools should be developed and may include programs in the school, guided field trips, head-start hatchling programs, science fair projects, t-shirt fundraisers theme days, and curriculum links.
- Coordination with other species at risk and conservation projects in the same geographic area is essential (*e.g.* Nova Scotia Nature Trust Coastal Plain Stewards).

Supplemental resources available:

*Have you Seen this Turtle* posters, *The Hatchling's Journey* children's book, *The Amphibians and Reptiles of Nova Scotia* book, Land and Sea 25min documentary video, Kejimikujik's portable species at risk display as well as a life-sized model and other props, DesBrisay Museum teacher kits, Parks Canada Special Places Eco-lessons, Environment Canada magnets, Nova Scotia Nature Trust Coastal Plain Stewards program,

Websites: Recovery Team [www.speciesatrisk.ca](http://www.speciesatrisk.ca)  
 Environment Canada [www.speciesatrisk.gc.ca](http://www.speciesatrisk.gc.ca)  
 Friends of Keji Cooperating Association [www.friendsofkeji.ns.ca](http://www.friendsofkeji.ns.ca)  
 Nova Scotia Museum of Natural History [www.museum.gov.ns.ca](http://www.museum.gov.ns.ca)  
 Parks Canada [www.pc.gc.ca](http://www.pc.gc.ca)

## **Action 2-2. Encourage stewardship of habitat by promoting best practices with private landowners**

### *Rationale*

On private land many activities have the potential to impact Blanding's turtles and their habitat. Cottage and residential development are serious threats in Queens County where lakeshore subdivisions are increasing. Developers and residents may alter lakeshores and wetland habitat to increase their human recreational value. Agricultural activities that impact Blanding's turtles include meadow haying, cranberry production, chemical and biological runoff from crop production and livestock, and stream crossings by cattle. Forestry activities have complex effects including both positive and negative impacts on aquatic and terrestrial habitats. Forestry practices fragment habitat, change flooding dynamics, infill seasonal habitats such as small ponds, and create artificial nesting habitat. Mining may alter or destroy habitat, contaminate waterways, and create artificial nesting habitat. Blanding's turtles depend on beaver-modified habitats but these beavers may be trapped out of an area if residents or cottagers consider them a nuisance. In some locations, Blanding's turtles nest in driveways, gardens, Christmas tree lots, abandoned railway lines and other gravel areas used by ORVs. Blanding's turtles may seasonally aggregate in ditches that are occasionally dredged by people building trails and maintaining roads.

### *Audience*

Within the known distribution of Blanding's turtles:

- Residents and cottage owners near lakeshores or wetlands (there are landowner and cottage associations in the area)
- Developers subdividing waterfront property



Local steward gardening around a nest enclosure in Pleasant River.

- Forestry operators including contractors and small woodlot owners
- Farmers including those producing cattle, hay, blueberries, cranberries, and Christmas trees
- Recreational off-road vehicle drivers (there are organized rallies in the area)

Private landowners are sometimes wary or uninterested in conservation efforts on their own land. When awareness is heightened and relationships are established (Action 2-1), a higher level of engagement can be pursued with a select group of interested landowners (*e.g.* MacGregor and Elderkin 2003, Eastern Massasauga Recovery Team 2003, Operation Burrowing Owl). Trusting relationships take a long-term commitment but are important to effective recovery (*e.g.* Nova Scotia Leatherback Turtle Working Group; James 2000).

### *Progress*

Informing people about Blanding's turtles and involving them in conservation efforts (as described in Action 1-1 and 2-1) may lead to spontaneous stewardship. At Pleasant River, for example, a local Christmas tree farmer was contacted by researchers about protecting nests on his tree farm. Since talking to the researcher, this farmer voluntarily limited biocide spraying in areas with nest enclosures (Caverhill pers. comm.).

### *Workplan*

This action item may be difficult to achieve because of the high level of engagement it requires and it may be difficult to measure because of the long-term nature of its benefit. However, this may be one of the most rewarding and important action items to protect Blanding's turtle habitat. This work requires great sensitivity; landowners must be approached about stewardship after some relationship is developed, that is, after they know and appreciate Blanding's turtles.

- Social science research may be necessary to understand the interest, attitude, and motivation of these audiences and to provide baseline data for future evaluation of this and other actions (*e.g.* Point Pelee Landowner Survey; Bath 2003).
- A hired coordinator should systematically contact target audiences. Informal discussions (particularly in summer when people are in their backyards, farms, and woodlots) combined with pre-arranged meetings with a positive focus will best achieve this action. Communication with this audience should solicit their input about potential recovery efforts and help them take ownership of nature conservation; the Nova Scotia Nature Trust's Coastal Plain Stewards program (which also targeted Molega and Shingle Lakes) should be used as a model.
- Media products such as factsheets explaining detailed stewardship actions should be carefully developed to support contact visits (*e.g.* Coastal Plain Flora; Operation Burrowing Owl).
- Developers should be contacted to encourage them to leave green spaces and promote rare species as significant features.
- When progress is made on this action, communication work should highlight success stories and local heroes as examples of good community stewards.

## **Action 2-3. Collaborate with Acadia First Nation at Wildcat Reserve to identify and manage Blanding's habitat**

### *Rationale*

Two First Nation reserves are within the potential range of Blanding's turtles in Nova Scotia. The Wildcat Reserve includes many waterways and wetlands; it is within 4 km of the Pleasant River population of Blanding's turtle and is on the Medway watershed. There is one currently unverified record of a Blanding's turtle at Lac Le Marchant, approximately 5 km from Bear River First Nation Reserve.

### *Audience*

Wildcat Reserve is part of the Acadia First Nation Band with a band office in Yarmouth. There is one band council member residing in Wildcat. The reserve is small with approximately 30 residents. The band office and band council for Bear River First Nation are in Bear River, a larger community with approximately 100 residents. The level of interest of this community in Blanding's turtle conservation is unknown.

The Mi'kmaq Network is an advisory committee for Kejimikujik consisting of Chief-appointed representatives from the four bands closest to the park, a member each from the two umbrella groups in the province (the Confederacy of Mainland Mi'kmaq and Union of Nova Scotia Indians), a member from the Micmac Association for Cultural Studies, and a member from the Mi'kmaq Grand Council.



Turtle featured on hand drum designed by Mi'kmaw artist Todd Labrador from Wildcat Reserve.

### *Progress*

There is a long-term relationship between Kejimikujik National Park and National Historic Site and First Nations, including the Mi'kmaq Network, which should be built upon with respect to species at risk. Preliminary communication work on this action includes articles about Blanding's turtles published in the October 2003 Acadia First Nation newsletter produced at the Milton Band office.

### *Workplan*

- Meetings should be held with the Mi'kmaq Network, interested community members, Council Members, and Band Chiefs to decide future plans.
- If there is sufficient interest, a resident of Wildcat or member of the Acadia First Nation should be hired as a researcher. Surveys for Blanding's turtles should be conducted in and around Wildcat Reserve.
- Media releases for all action items should be copied to media targeting Acadia and Bear River First Nations (*e.g.* Bear River Beat, and Acadia First Nation Milton office monthly newsletters).

## **Action 2-4. Communicate science to government agencies who manage habitat-altering activities**

### *Rationale*

The NSESA and SARA provide for habitat protection of species at risk. This requirement can be approached proactively by keeping relevant government agencies up to date on research (especially regarding distribution and critical habitat) and providing them with information and tools to help protect

Blanding's turtle habitat (*e.g.* Limestone Barrens Habitat Stewardship Program). In many instances the types of activities that threaten habitat are regulated or controlled in some way by permits, licenses, zoning, and planning at all three levels of government. Proactive efforts to protect Blanding's turtle habitat (*e.g.* collaborating with government authorities before large private property blocks are subdivided) are relatively easy and effective.

#### *Audience*

- Municipalities of Queens, Annapolis, and Lunenburg (planners for zoning, councillors for bylaws and land acquisitions, building inspectors for residential and cottage development)
- Nova Scotia Department Environment and Labour (NSDEL) Environmental Monitoring and Compliance Division (inspectors for septic and building permits, permits for flooding, gravel extraction, watercourse alterations, environmental assessments and operational approvals for cranberry production)
- Nova Scotia Department Natural Resources (NSDNR) (conservation officers for forestry regulations and infractions on provincial crown land, regional geologists for mining, wildlife technicians for beaver trapping, regional biologists for wetland directives under the Wildlife Act and input on NSDEL environmental assessments, biodiversity manager for NSESA)
- Acadia First Nation Band Council (there is one Council Member representing Wildcat Reserve)
- Department of Fisheries and Oceans (DFO) and Environment Canada (EC) (clerks for SARA information requests)
- Parks Canada (Kejimikujik resource conservation staff for environmental assessments and enforcement and general works crews for mitigation)

Most agencies outlined above participate in SNBRA; this organization could provide a venue to communicate and plan joint projects with partners about several species at risk. Progress to date suggests that many of these audiences are interested in this action.

#### *Progress*

Researchers contribute data to many databases that decision-makers can use to make decisions about the biodiversity value of given geographies. The Atlantic Canada Conservation Data Centre (ACCDC), NSDNR Significant Species and Habitat database, NSDEL Sites of Ecological Significance, and Kejimikujik Blanding's turtle database are all accessible and useful to government authorities.

Several members of the recovery team representing NSDNR effectively link researchers and government authorities from their own and other departments. For example, NSDEL staff consult with NSDNR regional biologists about the presence of rare species before issuing permits to alter watercourses. In 2003, NSDNR initiated a project to work with municipalities on species at risk conservation and recovery. This project raises awareness of species at risk, helps build stewardship capacity within municipalities and communities, and explores municipal tools that might assist in the conservation and recovery of species at risk.

In 2003, Environment Canada hosted information sessions in Nova Scotia about SARA.

#### *Workplan*

- A multi-species approach to this action item is appropriate and a coordinator should be staffed to ensure that tasks are completed.
- Pertinent databases (*e.g.* ACCDC, NSDNR, NSDEL, Kejimikujik) must be kept up to date.
- Current Blanding's turtle distribution maps, data, and advice about legal responsibilities under NSESA and SARA should be provided to government agencies (including conservation officers,



inspectors, planners, and technicians). Workshops, field trips, and/or small meetings with authorities at the municipal, provincial, and federal levels could help achieve this action (e.g. Dalman 2002). A long-term commitment to this action is necessary as government staff may change or rotate.

- Input should be provided to the Region of Queens Municipality, which began conducting a county-wide planning strategy in 2003. Meetings should be held with the Municipality of the District of Lunenburg (which has a good history of purchasing land with public value) about acquiring land that is critical habitat for Blanding's turtles and/or other species at risk.

## **Action 2-5. Collaborate with companies to identify and manage habitat**

### *Rationale*

Some Blanding's turtle habitat occurs on land and water controlled by large corporations such as forestry and power companies. Large forestry operations employ intensive silviculture techniques that can alter or destroy Blanding's turtle habitat. Power corporations control dams and therefore water flow on both Medway and Mersey watersheds including lakes such as McGowan Lake. Small companies including residential and cottage developers, local lumber mills, and forest contractors also own Blanding's turtle habitat.



Press conference announcing Bowater's McGowan Lake Unique Area.

### *Audience*

Bowater is one of the largest landowners in southwestern Nova Scotia. Bowater has landholdings around McGowan Lake and Albany New where Blanding's turtles have been found, as well as a large 600 square kilometre area northwest of McGowan encompassing many lakes, streams, and wetlands. Nova Scotia Power Corporation (NSP) owns land at McGowan Lake and Harmony Lakes and regulates water levels on areas of the Medway and Mersey Rivers that are known Blanding's turtle habitat. Smaller forestry and real estate development companies also have land holdings in or near Blanding's turtle habitat. Two industry representatives (from Bowater and NSP) participate on the Blanding's Turtle Recovery Team.

### *Progress*

Bowater protected 102 hectares of Blanding's turtle habitat at McGowan Lake in 2003 including an important overwintering site where many turtles aggregate. Nova Scotia Power conducted preliminary turtle surveys in 2003 at Mulgrave Reservoir on the Bear River watershed.

### *Workplan*

- Existing relationships should be maintained and new ones established with companies who have land-holdings (forestry, cottage development, and other) in or near Blanding's turtle habitat.
- Current distribution and habitat data should be provided to appropriate landholding companies; Action 4-2 will keep Bowater and NSP up to date.
- The Recovery Team should communicate and partner with Bowater and NSP to plan and implement research including distribution surveys in new areas.
- The Recovery Team should communicate with NSP to plan water regulation at McGowan Lake to protect nests from flooding.

## **Action 2-6. Continue to protect habitat on provincial crown land**

### *Rationale*

Blanding's turtles live on blocks of provincial crown land approximately 150-250 ha in size at McGowan Lake and Keddy and Barren Meadow Brooks near Pleasant River. Provincial crown lands are administered by NSDNR, and in part, managed under the Integrated Resource Management (IRM) policy. Under IRM, all provincial crown land is zoned as Category 1 (C1), General Resource Use; Category 2 (C2), Multiple and Adaptive Resource Use; or Category 3 (C3) Protected and Limited Use. Habitat for Blanding's turtles is currently protected using this mechanism. IRM protection will need to be revised as new information is obtained.

### *Audience*

Several representatives from NSDNR participate on the Blanding's Turtle Recovery Team.

### *Progress*

NSDNR is considering the designation of 800ha of Blanding's turtle habitat at McGowan Lake under IRM C2 and C3.

### *Workplan*

- There is an established process for reconsideration of IRM zones. Scientists must collect spatial data about Blanding's turtles and present those data to the Recovery Team (as described in Action 4-2). NSDNR Wildlife Division staff in consultation with the regional IRM team present it to the provincial IRM committee for their approval.

## **Action 2-7. Educate park visitors about the role of national parks for conserving Blanding's turtles**

### *Rationale*

National parks are places where people want to learn about nature; visitors have an opportunity to encounter species at risk first hand, and communicators are staffed to deliver biodiversity and ecological integrity messages. Kejimikujik has a long-term commitment to the recovery of Blanding's turtles – it was the first known site of the Nova Scotia population and Parks Canada is the lead federal agency for the species in context with SARA. Although habitat is protected by legislation, national parks are publicly funded and must have long-term public support to fulfill their habitat protection mandate.

One of the best-understood interpretive messages at Kejimikujik is the importance of the park for turtles and frogs (Murphy 2000); Kejimikujik has the highest diversity and abundance of amphibian and reptiles in Atlantic Canada (Bleakney, 1958). In part because of the high repeat visitation, many visitors are aware of the presence of Blanding's turtles in Kejimikujik; as a result the species has become a flagship for species at risk.



Interpretive program at a roadside nest enclosure in Kejimikujik.

### *Audience*

Most visitors at Kejimikujik are families with children from mainland Nova Scotia who stay at the park for at least two days and have been to the park before (Murphy 2000). Approximately 75% of summer visitors read outdoor signs and exhibits, 70% spend time in the Visitor Reception Centre, 60% attend interpretive programs, 50% use interpretive brochures, and 40% use the park website (Murphy 2000). In 2002, for example, visitor attendance for interpretive programs at Kejimikujik totalled 11,900 and visits to the website totalled 26,000.

### *Progress*

Kejimikujik has been designated one of Parks Canada's priority sites for species at risk and the Blanding's turtle has been designated a priority species. Every year, approximately 5-10 interpretive programs deliver some messages about Blanding's turtles. Since the 1980s there have been about a dozen specialized personal programs focusing exclusively on Blanding's turtle messages at evening program slide shows, at on-site demonstrations, on guided canoe paddles, hikes, bikes, and at children's programs. Interpretive programs about Blanding's turtles and species at risk have also been given to school classes as described in Action 2-1. Non-personal media include a brochure focusing on turtles, a large mobile portable species at risk display about Blanding's turtles and other species at risk, an interpretive trail sign about Blanding's turtles at Roger's Brook, Parks Canada and Kejimikujik-specific websites, and an introductory video featuring Blanding's turtles, researchers, and other species at risk. Kejimikujik species at risk programs reached approximately 6000 people with personal media in 2001 and approximately 50,000 people by non-personal media in 2003.



Interpretive sign about Blanding's turtles at Kejimikujik.

### *Workplan*

- Interpretive programs (including in-park and in-school programs) and media products (including pamphlets, signs, and portable displays) about Blanding's turtles that are part of Kejimikujik's core activities should be continued and updated when necessary.
- The messages provided in the Message Bank of this plan should be used in future program and media development; natural and cultural history messages should be integrated.
- A communication specialist should be hired to work on multispecies actions in the park and in the greater ecosystem. Such positions already provide significant support to species at risk communication in the following national parks: Terra Nova, Banff, Point Pelee, Grasslands, and Georgian Bay Islands.

## **Recovery Objective 3. Maintain metapopulation structure**

### **Action 3-1. Continue and expand the public reporting network**

#### *Rationale*

Public reporting can cover a much wider geographic area than researchers and thereby contribute important information to research on Blanding's turtle distribution. Soliciting public help also raises awareness and engages people in a participatory and meaningful way. The basic question of distribution is important to the

recovery of Blanding's turtle and remains unresolved. Knowledge about the distribution of this species will greatly affect our understanding and management of metapopulation structure, population size, and habitat.

### Audience

People who see turtles could be residents, cottagers, or others who are driving on roads near wetlands. Most public reports to date have been from local residents living near waterways. Blanding's turtles have been reported between Bangs Falls, Queens County and Lac Le Merchant, Annapolis County. A wide geographic area including the area between these points should be targeted for this action item.

### Progress

An effective public campaign using posters designed to solicit public reports was launched in 1996 and renewed in 2000 in partnership with SNBRA. Posters include Messages 1-1, 1-2, 2-1, 3-2, and 3-4. Populations of Blanding's turtles at McGowan Lake and Pleasant River were discovered because of public reports verified by researchers from Acadia University (McNeil 2002). The Nova Scotia Herp Atlas Project used volunteers and staff to extensively survey Nova Scotia's amphibians and reptiles from 1999-2003 but did not report any Blanding's turtles. Projects described in Actions 2-1, 2-7, and 4-1 also contribute to the progress of this action.



Poster soliciting public reports of Blanding's turtles

### Workplan

- The public campaign to find new locations of Blanding's turtles should be continued by staffing people to produce media releases, distribute posters, follow-up on public reports, and live-trap turtles to verify species identification. Communications should target areas with historical sightings as well new areas in Annapolis, Lunenburg, and Queens Counties.
- A reliable long-term reporting mechanism (contact phone number or address) must be established to receive public reports of Blanding's turtles and other rare species.
- Media releases to raise awareness about the public campaign should be timed to nesting and hatching seasons when people are most likely to encounter turtles.
- The importance of follow-up to public reports cannot be over-emphasized; staff are needed to communicate with the public and verify reports with visual surveys and live-trapping.
- An updated poster based on new information and messages outlined in the message bank should be developed and distributed in the long-term.

## Action 3-2. Reduce collection and translocation

### Rationale

Turtles are famously slow-moving, and Blanding's turtles are docile and easily handled. These behavioural characteristics make them vulnerable to collection and removal by amateur or professional pet collectors. The pet collector trade does not currently appear to be a significant problem, but pet stores in southwestern Nova Scotia report that they receive calls for advice about raising wild turtles (Morrison pers. comm.). The removal of even a small number of breeding adults could be detrimental to Blanding's turtle populations. Genetic studies confirm that there are differences between Blanding's turtles at Kejimikujik, McGowan Lake, and Pleasant River (Mockford *et al.* 2003). Translocation of animals between these locations could severely disrupt the genetic structure of the Nova Scotia population.

### *Audience*

Anyone travelling or residing in Blanding's turtle habitat (as in Actions 1-3 and 3-1) could be tempted to collect an animal. Amateur collectors are likely to use the internet or call pet stores and wildlife rehabilitators to get information about raising turtles.

### *Progress*

A lakeshore trail in Kejimikujik near a Blanding's turtle nesting beach was closed in the 1980s to reduce the potential for collection and translocation of adults and to reduce nest disturbance.

### *Workplan*

- Media products should be developed and distributed to pet stores and wildlife rehabilitators prior to nesting season.
- Enforcement officers should be informed about any evidence of collection or translocation of Blanding's turtles.
- Message 3-4 should be added to websites, mass media communication, interpretive programs at Kejimikujik, and school programs.



Park warden returning Blanding's turtle to its point of capture.

## **Recovery Objectives 1, 2, 3. Maintain population sizes, habitat, and metapopulation structure: Increase awareness and knowledge**

### **Action 4-1. Raise the profile of Blanding's turtles among Nova Scotians**

#### *Rationale*

To build a constituency for species at risk and garner public support for funding programs, Nova Scotians must be informed about and appreciate Blanding's turtles. This action may occur as a by-product of more targeted actions but it may also be achieved directly. Efforts should be coordinated to avoid duplication and to ensure that media products are available to communicators working on other actions.

#### *Audience*

Nova Scotians

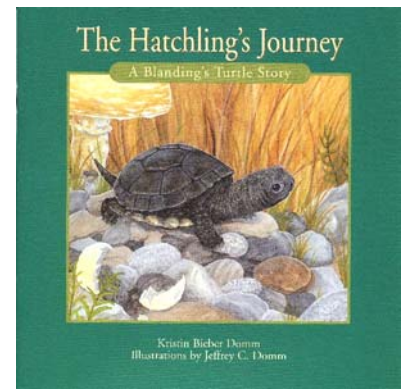
#### *Progress*

There have been many efforts to raise the profile of Blanding's turtles in Nova Scotia. Existing media products are described in Action 2-1. Communication efforts to date for Nova Scotian audiences include: a long-term exhibit of captive-reared hatchlings at the Nova Scotia Museum of Natural History, school presentations by Kejimikujik wardens in Dartmouth, presentations by researchers and wardens at the Nova Scotia Museum of Natural History and at the Nova Scotia Wildlife Festival, radio and television coverage (Live at Five, Radio Noon), newspaper & magazine advertisements (NSDNR), and various newspaper articles.

### *Workplan*

Work towards this action should be part of multi-species initiatives and also contribute to the achievement of other communication actions. A communications specialist, as proposed in Action 2-1 should coordinate the implementation of these tasks.

- Existing media products should be utilized and distributed more widely.
- Media releases about Blanding's turtle news (e.g. research discoveries, number of hatchlings, conservation success stories) should be produced seasonally and over the long-term.
- To increase profile and recognition, media products should have consistent templates and, where appropriate, the existing Blanding's Turtle Conservation Nova Scotia logo.
- Websites should be maintained and updated.



Cover of locally-written and illustrated children's book about Blanding's turtles.

## **Action 4-2. Establish a web-based information clearing house**

### *Rationale*

The Blanding's Turtle Recovery Team is a large group of people representing various governments, universities, and industries. The Team meets in its entirety once or twice per year. Members of the team require access to current spatial data to facilitate management decisions that help recover Blanding's turtles. Communicators and educators could also benefit from a library of images, research information, reports, message banks, etc. The Atlantic Coastal Plain Flora Recovery Team has adopted an innovative approach to sharing such information through a password protected internet site.

### *Audience*

The Blanding's Turtle Recovery Team is described in the Recovery Plan (Blanding's Turtle Recovery Team 2003).

### *Progress*

The recovery team website could host an information clearing house but none yet exists. The Kejimikujik Blanding's turtle database of sightings, nesting records, and images could be linked to the site. Many reports and some maps are available in digital form and could be available for this action item.

### *Workplan*

- Services should be contracted to develop and maintain the recovery team website so that a password-protected site can host current data, maps, an image bank, and other information (including annual nesting and hatchling statistics, volunteer statistics, contact names and addresses, message bank, minutes from meetings, funding proposals and reports, scientific abstracts, etc.).

### **Action 4-3. Promote and communicate results of recovery science**

#### *Rationale*

An essential component of scientific research is the communication of that research to other scientists and to the public. Communication is important in science to avoid duplication of research efforts, to compare results across study sites, to inform management, and to inform research so that it is kept current.

#### *Audience*

Scientists, managers, and interested members of the public.

#### *Progress*

Between 1989 and 2003 there have been 15 refereed publications, 9 BSc Honours theses, and 3 Master's theses published about Blanding's turtles in Nova Scotia. There have been many presentations at science conferences, particularly at annual conferences such as Acadia University's Biofeedback and Kejimikujik's Science Conference. The 1<sup>st</sup> International Blanding's turtle Conference was held in Minnesota in 1998 where 6 papers on Nova Scotia Blanding's turtles were presented and later published.

#### *Workplan*

- Continue to publish scientific theses, papers, and oral presentations.
- Science conferences at Kejimikujik and Acadia University and publication of scientific papers should be continued for the long-term.
- The 2<sup>nd</sup> International Blanding's Turtle Conference will be held in Nova Scotia in the spring of 2005.

## References

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- McNeil, J.A. 2002. Distribution, movements, morphology and reproduction in a population of Blanding's turtle (*Emydoidea blandingii*) in an unprotected landscape in southwestern Nova Scotia. M.Sc. thesis, Biology Department, Acadia University, Wolfville, Nova Scotia. 236pp.
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- Thompson, K. and T. Dobbie. 2003. Conservation Values and Attitudes of Private Landowners to Species at Risk and Their Habitats Within the Point Pelee National Park Greater Park Ecosystem. Unpublished Parks Canada report.
- Tilden, Freeman. 1957. Interpreting our Heritage. University of North Carolina Press. 120pp.



## **Informative websites**

Atlantic Coastal Plain Flora  
[www.speciesatrisk.ca](http://www.speciesatrisk.ca)

Nova Scotia Leatherback Turtle Working Group  
[www.seaturtle.ca](http://www.seaturtle.ca)

Limestone Barrens Habitat Stewardship Program  
[www.speciesatrisk.gc.ca/search/speciesDetails\\_e.cfm?speciesID=6](http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?speciesID=6)

Newfoundland Marten  
[www.newfoundlandmarten.com](http://www.newfoundlandmarten.com)

Operation Burrowing Owl  
[www.naturesask.com/OBO/obo.htm](http://www.naturesask.com/OBO/obo.htm)

Piping Plover Guardians  
[www.speciesatrisk.gc.ca/search/speciesDetails\\_e.cfm?SpeciesID=687](http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=687)

Federal Species at Risk Act  
[www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)

Nova Scotia Endangered Species Act.  
[www.gov.ns.ca/legi/legc/bills/57th\\_1st/3rd\\_read/b065.htm](http://www.gov.ns.ca/legi/legc/bills/57th_1st/3rd_read/b065.htm)

## **Personal Communications**

Caverhill, Brennan. Acadia University, Wolfville, Nova Scotia. 2003. To A. Lavers.

Morrison, Ian. Senior Park Warden, Kejimikujik National Park and National Historic Site of Canada. Maitland Bridge, Nova Scotia. 2003. To A. Lavers.

Smith, Duncan. Acadia University. Acadia University, Wolfville, Nova Scotia. 2003. To A. Lavers.

## Summary table

On the following two pages is a table summarizing the actions recommended in this plan. Below is a legend explaining the column headings for the summary table.

### Legend

*Communication Action*: Reference number and item as stated in this Communication Action Plan.

*Link to Recovery Plan Objective and Actions*: Link to recovery objective and action items stated in the Recovery Plan.

*Turtle Population*: Appropriate sub-population of turtles to which each action applies (Kejimikujik, McGowan Lake, and/or Pleasant River).

*Audience*: List of appropriate audiences to whom the action applies, *i.e.* who will receive messages.

*Link to Message Bank*: Selection of appropriate messages and message levels from message bank.

*Tasks*: List of specific items that should be included in future detailed project proposals according to workplan proposed in the body of the Communication Action Plan. Asteriks indicate tasks that overlap with more than one action item.

*Recovery Approach*: Approach as described in Recovery Plan (management, stewardship, or information - science and traditional knowledge).

*Engagement*: Level to which the audience is engaged by the communication effort as described by Freeman Tilden (1957):

1. highest order engagement = protection of the resource and behavioural change
2. medium-level engagement = appreciation of the resource and influence on thought
3. basic engagement = understanding of the resource and provision of information

*Performance Indicators*: Description of how progress towards objectives can be evaluated and measured.

*Proposed Partners*: Partners who will implement each action.

*Proposed Priority*: Urgency determined by the Recovery Team as high, medium, or low with the following elements:

- A - only achievable by communication
- B - successfully in progress
- C - links to critical habitat plan
- D - logistically feasible, follows current activities

**Summary table (see legend for explanations)**

Communication Action	Link to Recovery Plan Objective and Actions	Turtle Population	Audience	Link to Message Bank	Tasks (* tasks overlap with other actions)	Recovery Approach	Engagement	Performance Indicators	Proposed Partners	Proposed Priority
1-1. Engage volunteers to discover and protect nests	Maintain populations 2.1.1, 2.2, 7.1	All	Current volunteers, local families near nests, Acadia students, park visitors	1, 2, 3, 2-1, 3-2	1. Solicit local volunteers with mailouts*, community meetings*, school programs*, media release*, and direct contacts* 2. Advertise for in-park volunteers with FOKCA, Acadia U., naturalist clubs, media releases* 3. Hire volunteer coordinators at each site 4. Continue follow-up letter to all volunteers	Stewardship	1	Number of nests protected	Acadia University, Kejimkujik, FOKCA, NQRS	High B, C, D
1-2. Reduce disturbance of nests	Maintain populations 2.2, 4.3, 7.1, 7.3.3, 8.2,	All	Landowners, ORV drivers, litterers, staff at Kejimkujik, NSDOT, and NSDNR	1, 2, 3, 2-1, 2-3, 3-1	1. Contact landowners* with nests on their property and solicit help protecting nests 2. Provide nest data to appropriate agencies 3. Meet with community to plan physical barriers 4. Produce new enclosure signs	Stewardship and Management	2	Number of nests protected and hatchlings emerged	Bowater, NSDNR, Kejimkujik, NSDOT, Acadia Univ, ORV groups	High B, C, D
1-3. Reduce hatchling and adult roadkill	Maintain populations 2.2, 7.2.2.1, 7.3.3	All	Drivers, general works staff at Kejimkujik, highway maintenance staff at NSDOT	1, 2, 3, 2-1, 3-4	1. Media release* about roadkill 2. Erect seasonal road signs at roadside nests 3. Meet with Kejimkujik general works to design temporary fencing and barricades	Management	2	Infrastructure developed, number of individuals killed	Kejimkujik, NSDOT, Acadia University	Medium F
2-1. Inform private landowners and residents about the presence of Blanding's turtles	Maintain habitat 4.3, 8.3.1	Pleasant River, McGowan Lake	Private landowners and residents	1, 2, 3, 2-1, 2-2, 3-4	1. Hire communication specialist and project coordinator* 2. Contact landowners with direct meetings, mail, community information meetings*, media releases*, and school presentations* 3. Develop media* (basic factsheets, cards) 4. Partner with North Queens Schools on special projects 5. Coordinate with other species at risk initiatives	Information	2, 3	Proportion of known habitat protected, number of landowners contacted	NQRS, Acadia University, Kejimkujik, SNBRA	High A, B, D
2-2. Promote best practices and stewardship	Maintain habitat 4.3, 7.2.3.1, 7.3.3, 8.1, 8.3.3, 8.3.2	Pleasant River, McGowan Lake	Farmers, foresters, developers, residents	1, 2, 3, 1-2, 2-1, 2-2, 3-1, 3-4	1. Hire communication specialist and project coordinator* 2. Research audience (conduct social science) 3. Contact landowners* and conduct field trips 4. Develop media* (stewardship action factsheets) 5. Media release* highlighting conservation heroes	Stewardship	1	Proportion of known habitat protected, number of landowners practicing best practices	Acadia University, Kejimkujik, SNBRA	High A, C
2-3. Collaborate with Acadia First Nation at Wildcat Reserve	Maintain habitat 4.1, 4.3, 8.3.4	Pleasant River	Residents and Band Council	1, 2, 3, 1-3, 2-1, 2-2, 3-1, 3-4	1. Meet with responsible authorities* 2. If interest exists, hire researcher from Wildcat 3. Survey Wildcat wetlands for Blanding's turtles 4. Media releases* to First Nations media	Management	2	Blanding's turtles discovered and proportion of known habitat protected	Acadia First Nations, Kejimkujik, Acadia University	High B

Communication Action	Link to Recovery Objective and Actions	Turtle Population	Audience	Link to Message Bank	Tasks (* tasks overlap with other actions)	Recovery Approach	Engagement	Performance Indicators	Proposed Partners	Proposed Priority
2-4. Communicate science and legal obligations to governments that manage habitat-altering activities	Maintain habitat 4.1, 4.3, 7.2.2.2, 7.2.2.3, 7.3.3	All	Municipalities and towns, Kejimkujik, NSDNR, NSNSDEL	1, 2, 3, 3-1	1. Hire communication specialist* 2. Provide relevant data* (maps, coordinates) 3. Meet responsible authorities*, conduct field trips 4. Work with municipal planners	Management	2	Amount of land protected with by-laws, zoning, permits, acquisitions, etc.	NSDNR, EC, Kejimkujik, NSDEL, Acadia University	High B, C
2-5. Collaborate with companies	Maintain habitat 4.1, 4.2, 7.2.3.2, 7.2.2.3	Pleasant River, McGowan Lake	Bowater, NSP, development, companies, and other forestry companies	1, 2, 3, 3-1, 3-4	1. Communicate with land holdings corporations in Blanding's turtle habitat 2. Provide relevant data* (maps, coordinates) 3. Conduct surveys with partners in new areas 4. Plan water regulation with NS Power	Management	2	Proportion of known habitat protected	Bowater, NSP, Kejimkujik, Acadia University, NSDNR	Medium B, C, D
2-6. Protect habitat on provincial crown land	Maintain habitat 4.1, 4.3	Pleasant River, McGowan Lake	NSDNR	1, 2, 3, 3-1, 3-4	1. Provide relevant data* (maps, coordinates)	Management	2	Proportion of known habitat protected	NSDNR	Medium B, C, D
2-7. Educate park visitors about the role of national parks for conserving Blanding's turtles	Maintain habitat 4.3	Kejimkujik	Park visitors	1, 2, 3	1. Develop and deliver interpretive programs 2. Develop and deliver school programs* 3. Develop and update interpretive media including website* 4. Hire communication specialist*	Information	2	Number of people contacted	Kejimkujik, Acadia University	Medium B, C, D
3-1. Continue and expand the public reporting network	Maintain meta-population 1.2, 5.1	All	Public in southwestern Nova Scotia living near wetlands	1, 2, 3, 2-1, 3-2, 3-4	1. Hire coordinator 2. Distribute posters 3. Organize/establish reporting mechanism 4. Media release* 5. Follow-up on public reports 6. Update poster	Information	3	Number of new locations of Blanding's, number of public reports	Acadia University, NSDNR, SNBRA	High A, B, D
3-2. Reduce collection and translocation	Maintain meta-population 6.2	All	General, pet trade	1-1, 2-1, 3-4	1. Media release* 2. Develop interpretive programs* 3. Develop and deliver school programs* 4. Develop website* 5. Provide message bank to enforcement officers	Information	2	Number of individuals collected or translocated	Kejimkujik, NSDNR, Acadia University	Low F?
4-1. Raise the profile of Blanding's turtles in Nova Scotia	All 2.1.2, 2.2, 4.3		General public	1,2,3	1. Distribute and make existing media consistent 2. Media release* 3. Update website*	Information	3	Number of people contacted	NSMNH, DesBrisay, EC	Low A, B, D
4-2. Establish a web based information clearing house	All 2.2, 4.3, 7.3.3		Recovery Team	3-1, 3-4	1. Develop website*	Information	3	Establishment of digital clearing-house	NSDNR, Acadia University	High A
4-3. Promote and communicate results of recovery science	All 7		Scientists	1, 2	1. Publish scientific theses and papers 2. Participate in Kedge Science Conference 3. Organize International Blanding's Science Symposium	Information	2	Number of conferences attended, papers published	Acadia University, Kejimkujik	Medium B