Ministry of the Environment, Conservation and Parks
2020

Blanding's Turtle

Ontario Government Response Statement

Protecting and Recovering Species at Risk in Ontario

Species at risk recovery is a key part of protecting Ontario's biodiversity. The *Endangered Species Act, 2007* (ESA) is the Government of Ontario's legislative commitment to protecting and recovering species at risk and their habitats.

Under the ESA, the Government of Ontario must ensure that a recovery strategy is prepared for each species that is listed as endangered or threatened. A recovery strategy provides science-based advice to government on what is required to achieve recovery of a species.

Generally, within nine months after a recovery strategy is prepared, the ESA requires the government to publish a statement summarizing the government's intended actions and priorities in response to the recovery strategy. The response statement is the government's policy response to the scientific advice provided in the recovery strategy. In addition to the strategy, the government response statement considers (where available) input from Indigenous communities and organizations, stakeholders, other jurisdictions, and members of the public. It reflects the best available local and scientific knowledge, including Traditional Ecological Knowledge where it has been shared by communities and Knowledge Holders, as appropriate, and may be adapted if new information becomes available. In implementing the actions in the response statement, the ESA allows the government to determine what is feasible, taking into account social, cultural and economic factors.

The Recovery Strategy for the Blanding's Turtle (*Emydoidea blandingii*) in Ontario was completed on December 5, 2019.

Blanding's Turtle is a medium-sized turtle with a smooth, high-domed shell which is black to dark brown and may have yellow streaks or flecks. The most distinguishing feature of this species is its bright yellow chin and neck. Blanding's Turtles are semi-aquatic and use both aquatic and terrestrial habitats. Turtles play an important role in Indigenous spiritual beliefs and ceremonies.

Ontario

Protecting and Recovering Blanding's Turtle

Blanding's Turtle is listed as a threatened species under the ESA, which protects both the animal and its habitat. The ESA prohibits harm or harassment of the species and damage or destruction of its habitat without authorization. Such authorization would require that conditions established by the Ontario government be met. In addition to protection under the ESA, Blanding's Turtle is prescribed as a Specially Protected Reptile under the *Fish and Wildlife Conservation Act, 1997* (FWCA).

Globally, Blanding's Turtle is found in Canada and the United States, mainly concentrated around the Great Lakes. In the United States, Blanding's Turtle occurs in the northeastern states with a range extending from Nebraska and South Dakota, eastward through Iowa, Minnesota, Missouri, Wisconsin, Illinois, Indiana, Michigan, Ohio, and Pennsylvania. There are also small isolated populations in New York, Massachusetts, New Hampshire and Maine. In Canada, the species occurs as two separate populations: one in Ontario and southwestern Quebec and another isolated population in Nova Scotia. Blanding's Turtle is relatively widespread in southern Ontario, but it appears to be absent or largely absent from Bruce, Dufferin, Grey, Huron and Perth counties in southwestern Ontario. Until recently, its northern range was thought to extend north only to North Bay and Sudbury and northwest along the north shore of Lake Huron to Sault Ste. Marie. However, recent occurrence data across central and northern Ontario suggest that the species' range extends much farther north than previously documented. In recent years, Blanding's Turtles have been reported in several locations across northern Ontario, including near Timiskaming Shores, Matheson, Timmins, Cochrane, Manitouwadge, north of Jellicoe and along the Sultan Industrial Road (between highway 144 and Sultan, Ontario).

Blanding's Turtle is a long-lived species with a late age of maturity compared to other turtles. Sexual maturity is reached at between 14 to 25 years of age, and this species can continue to reproduce successfully until at least 75 years old. In Ontario, nesting activity has been observed from the last week of May to the second week of July, with peak activity occurring in June. Mature females produce one clutch of 3 to 19 eggs every one to three years, and hatchlings generally emerge throughout September and October. To avoid freezing, adult and juvenile Blanding's Turtles hibernate in underwater sites from approximately October to April. Adults typically move to hibernation sites between late August to early November and may hibernate in groups (sometimes with other species) or alone. Blanding's Turtles demonstrate fidelity (loyalty to a specific area, where individuals will return year after year) to hibernation areas, suggesting that hibernation sites may be a significant limiting factor. Hatchlings may hibernate in both aquatic and terrestrial sites. Blanding's Turtles generally mate prior to and

right after hibernation as mating activity generally occurs when turtles are gathered in the vicinity of their hibernation site. Blanding's Turtles emerge from hibernation sites in the early spring shortly after ice melt begins.

Blanding's Turtle's are semi-aquatic and use both aquatic and terrestrial habitats with regular movements between different habitat types. Aquatic habitats are used for hibernating, mating, foraging, thermoregulation (i.e., regulating body temperature) and movement. In Ontario, Blanding's Turtle often favour eutrophic environments (rich in mineral and organic nutrients that support dense growth of algae and other organisms and low dissolved oxygen) with relatively clear, shallow water, slow to no flow, and abundant submergent, floating and emergent vegetation. Blanding's Turtles can occur in a variety of wetland habitats (e.g., marshes, ponds, swamps, bogs, fens, coastal wetlands), slow flowing rivers and creeks, pools, lakes, bays, sloughs, marshy meadows and artificial channels. Blanding's Turtle have been shown to prefer ponds and marshes when available and often move between several water bodies throughout the active season. Blanding's Turtles are primarily carnivorous and will consume crayfish, worms, leeches, snails, slugs, frogs, fish and insects. Feeding typically takes place under water. Hibernation sites are generally located within shallow, permanent wetlands (e.g., bogs, fens, marshes) and other habitats with unfrozen shallow water, including small ponds, canals and even roadside ditches.

Terrestrial habitats are used for activities such as nesting, thermoregulation and movement. Blanding's Turtles use a variety of terrestrial habitats for thermoregulation (e.g., basking), typically within close proximity to their aquatic habitat, including shoreline areas, sand bars, beaches, rocky outcrops, forest clearings, and meadows. Blanding's Turtles often travel through wetlands, swamps or upland forest but can also move through human-altered habitats, generally open areas, such as agricultural fields, roads, and quarries. Females generally nest in relatively open areas in a variety of substrates including beaches, shorelines, meadows, rocky outcrops, and forest clearings. Blanding's Turtles may also nest in human-altered sites such as gardens, yards, agricultural fields, gravel pits, road shoulders and trails. Females show high fidelity to the same general nesting areas and often travel long distances transitioning between hibernation and nesting sites.

One of the main limiting factors for Blanding's Turtle is its slow life-history (late age of maturity, low reproductive output and a dependency on high annual adult survival). This life history strategy makes Blanding's Turtle populations highly vulnerable to extinction if they experience even small increases in annual mortality of adults.

Blanding's Turtles face numerous threats, the most significant of which include road and rail mortality, habitat loss and fragmentation, degradation

of habitat by invasive plant species (e.g., European Reed, also known as Phragmites (*Phragmites australis ssp. australis*), dog-strangling vine (*Vincetoxicum spp.*)), nest predation by human-subsidized predators (those that occur in higher abundances resulting from increased food resources from human sources e.g., raccoons (*Procyon lotor*)) and illegal collection. Though potentially more limited in their scope or severity, additional threats include mortality from aggregate, forestry and energy production, wetland pollution, climate change and the introduction and spread of turtle-specific diseases.

Blanding's Turtles travel farther overland than any other species of Ontario turtles to nest and disperse, making them particularly susceptible to being killed or injured when crossing roads and railways. For example, female Blanding's turtles often travel over a kilometre to reach their nesting sites, with nesting migrations of over 6 km being documented in rare cases. In southern Ontario, the number of major roads has greatly increased over the past 40 years and is continuing to increase. The volume and speed of traffic on roads is also increasing in southern Ontario; with secondary gravel roads being upgraded to paved roadways, this increases the likelihood of turtle-vehicle interactions. Mortality from vehicle collisions is particularly high in areas where heavily travelled roads run through or near wetlands. Blanding's Turtles are also at risk of being crushed by all-terrain vehicles on trails. Furthermore, roads and trails can attract female Blanding's Turtles in search of suitable nesting habitat which increases the risk of mortality of nesting females and emerging hatchlings. Roads also provide linear corridors for predators which increases the likelihood of nest predation. In addition to causing direct mortality, new roads and railways may also remove suitable habitat, alter hydrological patterns and/or create barriers to movement, fragmenting habitat and subdividing local populations.

Habitat loss and wetland conversion has been substantial in the southern half of the Blanding's Turtle's range in Ontario and continues to be a significant threat. Besides removal of wetland habitat, development can also lead to habitat fragmentation and degradation of remaining habitat, forcing individuals to search for new suitable habitat. Changes in water levels can also result in the temporary or permanent loss or degradation of aquatic habitat which could lead to direct mortalities if occurring during the overwintering period or may affect individuals by reducing the area available for Blanding's Turtles forcing them to use less suitable overwintering habitat.

The highly invasive European Reed is altering the function and structure of many wetlands inhabited by Blanding's Turtle in Ontario. Since the 1990's European Reed has become extremely abundant at many sites where Blanding's Turtles occur. European Reed is becoming so abundant and dense in some wetlands that it is restricting basking opportunities and the

ability of the species to move through the habitat in some cases. European Reed control methods that are implemented in a way that minimizes potential harm to turtles may be important for the long-term persistence of this species. Dog-strangling vine may pose a similar threat in terrestrial habitat, as these aggressive vines can form dense tangle mats that likely present a barrier or impediment to overland movement. The release of non-native pet turtles, such as the Red-eared Slider (*Trachemys scripta*) can also impact Blanding's Turtles via interspecific competition for resources and transmission of disease.

Human-subsidized predators have been increasing in abundance and are resulting in unsustainably high nest predation and juvenile mortality with rates in some areas becoming so intense that it limits recruitment. Main predators of Blanding's Turtles include raccoon, striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginianus*), red fox (*Vulpes vulpes*), Coyote (*Canis latrans*), free-ranging or feral domestic dog (*Canis familiaris*) and domestic cat (*Felis catus*).

Illegal collection of Blanding's Turtles for pet, food or traditional medicines trades has been documented on several occasions in Ontario. The extent of this threat is unknown, but the impact could be significant at some locations, given that even removal of a small number of adults could increase the vulnerability to extinction.

The naturally low survival of Blanding's Turtles eggs and juveniles dictate that high survival rates of adults (particularly adult females) are critical for maintaining viable populations. At the same time, Blanding's Turtles are highly mobile, which puts them at increased risk of exposure to anthropogenic threats. As such, reducing primary threats that result in the loss of adults (e.g., road mortality), as well as reducing further loss or degradation of known habitat will be key to ensuring viable, self-sustaining local populations in Ontario. Given uncertainties in the distribution and abundance of this species in Ontario, especially at the northern extent of its range, it is difficult to determine the current population size. Focusing survey efforts on under-sampled areas with suitable habitat and implementing an ongoing monitoring program at confirmed sites will help determine whether progress is being made towards recovery. Implementing beneficial actions to improve habitat connectivity will help enable the species to maintain gene flow and naturally colonize areas where they formerly occurred or where there is suitable habitat adjacent to occupied sites. In some instances, management approaches that reduce nest predation and improve recruitment, including head-starting (a conservation technique in which young turtles or eggs are reared in captivity until they attain a larger size prior to appropriate release into the wild) which have been proven to boost recruitment to Blanding's Turtle populations, may be warranted to support the long-term viability of the species. Further research

is needed to determine when and where these techniques may be necessary and feasible to support the recovery of the species. Finally, raising awareness of how to reduce threats to the species and promoting local stewardship will help promote and encourage protection of the species and its habitat. Given the threat of illegal collection, caution should be exercised when sharing information to support recovery actions to ensure risk to the species is not increased.

Government's Recovery Goal

The government's goal for the recovery of Blanding's Turtle is to support the long-term viability of existing local populations in Ontario and, where biologically and technically feasible, support increases in their distribution and abundance, by reducing threats, managing and restoring suitable habitat, improving habitat connectivity between populations, and improving recruitment.

Actions

Protecting and recovering species at risk is a shared responsibility. No single agency or organization has the knowledge, authority or financial resources to protect and recover all of Ontario's species at risk. Successful recovery requires inter-governmental co-operation and the involvement of many individuals, organizations and communities. In developing the government response statement, the government considered what actions are feasible for the government to lead directly and what actions are feasible for the government to support its conservation partners to undertake.

Government-led Actions

To help protect and recover Blanding's Turtle, the government will directly undertake the following actions:

- Continue to protect Blanding's Turtle and its habitat through the ESA. Continue to implement the species-specific habitat description for Blanding's Turtle.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario (e.g., through the Ontario Parks Discovery Program, where appropriate).
- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA, including appropriate survey techniques.
- Encourage the submission of Blanding's Turtle data to Ontario's central repository (Natural Heritage Information Centre, NHIC) through the NHIC (Rare species of Ontario project) in iNaturalist or directly through the NHIC.

- Continue to support conservation, agency, municipal and industry partners, and Indigenous communities and organizations to undertake activities to protect and recover Blanding's Turtle. Support will be provided where appropriate through funding, agreements, permits (including conditions) and/or advisory services.
- Continue to monitor populations and mitigate threats to Blanding's Turtle and its habitat in provincially protected areas, where feasible and appropriate.
- Continue to apply provincial direction for Crown forestry practices in areas occupied by Blanding's Turtle.
- Promote, adapt and incorporate guidance on mitigation techniques (e.g., exclusion measures and safe passage) for species at risk turtles in the planning and construction of new provincial roads and provincial road improvement projects.
- Continue to implement Ontario's *Invasive Species Act* to control the spread of invasive species (e.g., European Reed, also known as Phragmites) that threaten Blanding's Turtle by restricting the importation, deposition, release, breeding/growing, buying, selling, leasing or trading of invasive species.
- Continue to implement the *Ontario Invasive Species Strategic Plan* (2012) to address the invasive species (e.g., European Reed) that threaten Blanding's Turtle.
- Conduct a review of progress toward the protection and recovery of Blanding's Turtle within ten years of the publication of this document. Additional time is necessary to complete the review of progress for this species given its slow rate of reproduction and the length of time expected to complete and measure progress towards implementing recovery actions.

Government-supported Actions

The government endorses the following actions as being necessary for the protection and recovery of Blanding's Turtle. Actions identified as "high" may be given priority consideration for funding under the Species at Risk Stewardship Program. Where reasonable, the government will also consider the priority assigned to these actions when reviewing and issuing authorizations under the ESA. Other organizations are encouraged to consider these priorities when developing projects or mitigation plans related to species at risk.

Focus Area: **Research and Monitoring**
Objective: Increase knowledge of Blanding's Turtle distribution, biology, habitat requirements and threats.

In recent years, new observations of Blanding's Turtle in northern Ontario have suggested that the species' northern range limit extends much farther than previously documented. Targeted surveys are important for refining our

knowledge on the species' distribution, especially in areas that are under-surveyed. Where possible, surveys to determine whether Blanding's Turtle are present should be implemented according to the Survey Protocol for Blanding's Turtle in Ontario. In addition to increasing knowledge of species' distribution through presence/absence surveys, establishment of long-term monitoring at representative sites is also crucial to assess habitat and population-level trends over time. Conducting research to determine the effectiveness of threat mitigation and best management practices will aid in understanding population trends, habitat conditions and site-specific threats, the effectiveness of recovery efforts, and whether additional management actions may be required. Collaborative efforts that address both research and monitoring priorities are encouraged where possible. Evaluating techniques to reduce nest predation and improve recruitment will assist in determining under what circumstances these recovery efforts may have the most benefit. Finally, filling knowledge gaps around the species' biology, ecology and genetics including population viability, habitat needs and tolerance to various stressors will help determine where recovery efforts are best focused. Recovery efforts for Blanding's Turtle may be further improved by working with interested Indigenous communities and Knowledge Holders to understand Traditional Ecological Knowledge of the species and encourage its integration into collaborative management actions.

Actions:

1. **(High)** Conduct systematic surveys for Blanding's Turtle to improve knowledge of the species' distribution (at both provincial and local scales) in Ontario. Survey effort should be prioritized in under-sampled areas and areas near the species' northern range limit to determine the full extent of the species' distribution in Ontario. Participation in citizen science data collection programs (e.g., iNaturalist) should be encouraged to help fill this information need.
2. **(High)** Conduct research to determine the effectiveness of threat mitigation techniques, recovery approaches and best management practices, including:
   - techniques to mitigate road mortality;
   - approaches for habitat creation, restoration and improvement;
   - strategies to address illegal collection;
   - techniques for salvage and translocation; and
   - techniques for improving recruitment (e.g. nest protection and incubation, head-starting, predator exclusion).
3. **(High)** Investigate the effect of different types/sizes/classes of roads, including consideration of variables such as traffic volume, speed and time of year, on local population viability to inform appropriate protection and recovery actions.

4. Develop and implement a standardized monitoring program at representative sites across Ontario including the development and implementation of standardized methodologies (e.g., data collection, handling, marking) to assess population and habitat trends across the species' range.
5. Conduct research on species' biology, ecology, habitat use and genetics where knowledge gaps persist, such as:
   - spatial ecology of the species (e.g., differences in movement patterns or home range size in different regions of the province);
   - habitat requirements for various life stages (e.g., nesting and associated staging habitat, overwintering) in different areas of the province, including the development of predictive models to assist in the identification and mapping of key habitat features, such as overwintering sites; and,
   - minimum habitat and population requirements to ensure local population viability (e.g., suitable habitat size, number of mature individuals).
6. Investigate the severity and potential impacts of threats such as invasive species, human-subsidized predators, drainage works, pollution and climate change on both local population viability and province-wide trends.
7. As appropriate, encourage the recording, sharing and transfer of Traditional Ecological Knowledge on Blanding's Turtle, where it has been shared by communities, to increase knowledge of the species and support future recovery efforts.

Focus Area: **Management**
Objective: Maintain or improve the quality of habitat, increase connectivity, reduce threats and improve recruitment.

Habitat loss, fragmentation and degradation and the mortality of turtles on roads are considered the greatest threats to Blanding's Turtle in Ontario. Developing and implementing practical actions that landowners, land managers, Indigenous communities and organizations, industry, conservation partners and the public can undertake to address these high priority threats is crucial to effectively protect and recover this species. Promoting beneficial actions that can be taken to enhance and restore habitat and improve connectivity is important for fostering a proactive and collaborative approach to species recovery. In areas where recruitment is believed to be insufficient to maintain viable populations, recovery techniques to minimize nest predation and improve recruitment may be necessary. Where actions to improve recruitment (e.g., nest caging

and head-starting) are deemed necessary, implementation should occur concurrently with the mitigation of existing threats and the protection, management and/or restoration of required habitat for the long-term survival of the local population. Threat mitigation and habitat management techniques should be conducted in a manner that does not increase risk to the species. Whenever possible, mitigation and recovery techniques, including road mitigation, should adhere to the best science advice including government guidance.

Actions:

8. **(High)** In collaboration with landowners, land managers, municipal governments, Indigenous communities and organizations, develop and implement best management practices (BMP) to minimize threats to the species. Actions should be adapted based on feasibility and effectiveness and may include implementing and evaluating:
   - mitigation techniques to address turtle road mortality on new and existing roads, including constructing turtle eco-passages (e.g., fencing and tunnels), identifying and addressing existing road mortality hotspots, and using alternatives to traditional roadway construction techniques in sensitive habitats where possible (e.g., bridges over wetlands);
   - approaches to mitigate the effects that forest management, aggregate extraction and energy production activities may have on Blanding's Turtle and its habitat;
   - techniques to control invasive species in areas where they currently pose a direct threat or are likely to become a direct threat to Blanding's Turtle; and,
   - working with local municipalities, conservation authorities and other relevant agencies to implement water management plans that minimize impacts to the species and its habitat, particularly with respect to flooding of nesting habitat during the nesting and incubation period and water drawdowns during the hibernation period.
9. In collaboration with landowners, land managers, Indigenous communities and organizations, develop and implement coordinated habitat management plans to increase habitat suitability and connectivity and identify and implement actions to create, enhance and restore habitat, as appropriate.

10. Implement, adapt and improve techniques to reduce nest predation and improve recruitment, including methods such as caging and head-starting, in areas where these activities are deemed necessary and appropriate (i.e., recruitment is believed to be insufficient to maintain viable populations).
11. Work with local landowners, municipalities and community partners to strategically secure Blanding's Turtle habitat and encourage long-term protection through existing land securement and stewardship programs and/or land securement agencies, including land that would support improved habitat connectivity.

Focus Area: **Stewardship and Awareness**
Objective: Increase awareness and promote the protection and stewardship of Blanding's Turtle and its habitat in Ontario.

Blanding's Turtle is found on both public and private lands, in areas which continue to experience a variety of development pressures. As a result, several groups and organizations including landowners, land managers, conservation organizations and partners all have a role to play in the protection and recovery of the species. Raising awareness amongst the public, local landowners and Indigenous communities and organizations of the Blanding's Turtle, as well as how to reduce threats to the species and how to enhance its habitat is essential to achieving effective protection of the species and its habitat in Ontario. Due to the risk of illegal collection of Blanding's Turtle, caution should be taken to ensure information sharing to increase awareness is done in a manner that does not increase risk to the species. In addition, road sign placement should follow all necessary protocols (e.g., Ministry of Transportation protocols for wildlife mortality awareness signs on provincial highways).

Actions:

12. Promote awareness of Blanding's Turtle, including its status and protection under the ESA, and engage the public and stakeholders in Blanding's Turtle stewardship. This may include:
    - developing and evaluating effectiveness of interactive social media and social marketing campaigns to promote Blanding's Turtle stewardship and reduce threats such as road mortality, illegal collection and subsidized predation. Coordinate with other species at risk turtle initiatives where appropriate;
    - providing information on the impacts of releasing captive (e.g., pet) turtles into the wild and ways to properly surrender unwanted pets; and,
    - educating the public on what to do if they encounter an injured turtle or nest in a high-risk area.

Implementing Actions

Financial support for the implementation of actions may be available through the Species at Risk Stewardship Program. Conservation partners are encouraged to discuss project proposals related to the actions in this response statement with Ministry of the Environment, Conservation and Parks staff. The Ontario government can also advise if any authorizations under the ESA or other legislation may be required to undertake the project.

Implementation of the actions may be subject to changing priorities across the multitude of species at risk, available resources and the capacity of partners to undertake recovery activities. Where appropriate, the implementation of actions for multiple species will be co-ordinated across government response statements.

Reviewing Progress

The ESA requires the Ontario government to conduct a review of progress towards protecting and recovering a species no later than the time specified in the species' government response statement, which has been identified as 10 years in this government response statement. The review will help identify if adjustments are needed to achieve the protection and recovery of Blanding's Turtle.

Acknowledgement

We would like to thank all those who participated in the development of Ontario's Recovery Strategy and Government Response Statement for the Blanding's Turtle (*Emydoidea blandingii*) for their dedication to protecting and recovering species at risk.

For additional information:
Visit the species at risk website at ontario.ca/speciesatrisk
Contact the Ministry of the Environment, Conservation and Parks
1-800-565-4923
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www.ontario.ca/environment