

Spiny Softshell

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 Spiny Softshell (*Apalone spinifera*) in Ontario was completed on December 5, 2019.

The Spiny Softshell is a medium to large-sized aquatic turtle with a flat, leathery shell. The species has deeply webbed feet that are well adapted for swimming, a long neck, and an elongated snout. It relies primarily on aquatic habitat and uses terrestrial habitat only for nesting and rare overland movements between bodies of water (e.g., rivers and lakes). Turtles play an important role in Indigenous beliefs and ceremonies.

Protecting and Recovering Spiny Softshell

The Spiny Softshell is listed as an endangered 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, Spiny Softshell is also listed under Schedule 9 of the *Fish and Wildlife Conservation Act, 1997 (FWCA)* as a Specially Protected Reptile.

The Spiny Softshell can be found throughout the eastern half of North America from the Great Lakes south to the Gulf of Mexico and extending into the central and western parts of the United States. In Canada, the species historically occurred throughout the lower Great Lakes/St. Lawrence River basin, from the upper St. Lawrence to lower Lake Huron; including three major rivers and one lake in Quebec. Today, the Canadian distribution of the Spiny Softshell in Canada is limited to a small number of isolated local populations (i.e., sub-populations) scattered throughout the species' historical range.

In Ontario, Spiny Softshells occur in southwestern Ontario within coastal areas and in major rivers/tributaries of Lake Erie, Lake St. Clair and Lake Huron. Twelve local populations are considered extant, and 7 local populations (i.e., sub-populations) are considered historical as they have not been recently surveyed. The species is considered extirpated from Lake Ontario and the Ottawa River. However, abundant suitable habitat for the species remains on the Ottawa River near Westmeath. A large number of individuals are found in four main geographic areas: two areas on Lake Erie and two major southwestern Ontario river systems.

While the total Ontario population abundance is not fully understood, it is estimated to be at least 900 mature individuals. The 2016 Committee on the Status of Endangered Wildlife in Canada (COSEWIC) report indicates that over the last two decades the number of mature adults in some local populations may have declined as much as 45 percent. Many local populations contain small numbers of individuals and ongoing declines are predicted based on current threats.

Spiny Softshells depend primarily on aquatic habitat, and terrestrial habitat use is limited to nesting, basking along shorelines and rare movements between adjacent water-bodies. The species is typically associated with larger waterbodies such as rivers or lakes but may also occur in streams, marshes, ponds and wetlands in close proximity to large bodies of water. As the species uses a variety of aquatic habitats to carry out its life processes, it is therefore important that these habitats are linked. Spiny Softshells use vegetated, shallow, muddy areas in rivers and lakes to regulate body temperature, hibernate in deep pools within the stream, river, or lake where

they spend the majority of the time during the active season, and nest on sand beaches, sand/gravel bars. Spiny Softshells are primarily carnivorous, feeding mainly on live or dead crayfish, insects, and fish. Important foraging areas are riffles, creeks, inlets, muddy/sandy areas and vegetated bays.

Spiny Softshells are long-lived, with some individuals living for more than 50 years. However, individuals do not reach sexual maturity until they are at least 12 to 15 years of age, and nest and hatchling survival rates are extremely low. These life history characteristics make the species highly sensitive to losses from additive adult mortality, and even slight increases in annual adult mortality can result in long-term population declines. The life cycle includes a long hibernation period and a short active growing season. Females typically deposit a single clutch of 12 to 18 eggs annually in June or July, but some females lay two clutches in one year. One study in a protected area in Ontario suggests the clutch size can be as high as 43 eggs.

As a highly aquatic species, the loss or alteration of shoreline and aquatic habitats from rural and urban development or the construction and maintenance of roads, bridges and dams are significant threats to Spiny Softshell. In many areas, shorelines are reinforced to prevent erosion using metal, concrete walls, or rip-rap (i.e., stone walls). This hardening of the shoreline reduces the access and availability of nesting, foraging, and basking habitat. Dredging poses a direct threat of injury or mortality to turtles and can also impact the species habitat, including important hibernation sites.

Water control structures such as dams and locks can restrict the movement of turtles in aquatic environments by creating barriers. Water control operations also affect Spiny Softshell habitat by altering upstream and downstream water levels, sediment transport, the temperature regime, and oxygen levels which may all affect the habitat suitability of hibernating, nesting, basking and foraging habitat. Fluctuating water levels due to water control structures can also directly impact Spiny Softshell as increased water levels during spring and summer can flood nests and decreased water levels during the winter may lead to the freezing and mortality of hibernating turtles.

Other significant threats include accidental injury and mortality from boat collisions, commercial and recreational fishing by-catch, the illegal collection of Spiny Softshell for pet, food or traditional medicines trades, and the invasion of non-native and invasive species (e.g., European Reed, also known as Phragmites (*Phragmites australis ssp. australis*)) that reduces the availability of open areas for nesting and alters the temperature regimes at the nesting site. Unsustainably high levels of nest predation from raccoons (*Procyon lotor*), striped skunk (*Mephitis mephitis*), Virginia opossum

(*Didelphis virginiana*), red fox (*Vulpes vulpes*), American Mink (*Neovison vison*) and coyotes (*Canis latrans*) also pose a serious threat to some local populations, effectively eliminating recruitment. Trampling by livestock can have significant localized impacts, including damage to nests, as well as injury or mortality of nesting females. Road injury and mortality in the proximity of dam structures has also been identified as a threat. The release of non-native pet turtles, such as the Red-eared Slider (*Trachemys scripta*) can also impact Spiny Softshell via transmission of disease.

Disturbance from human activities (e.g., disturbance on sandy beaches), pollution and climate change also impact the species, although these impacts are poorly understood. Changes in patterns of precipitation, water levels, and extreme weather caused by climate change may also be limiting Spiny Softshell by changing habitat availability (e.g., flooding of nests along shorelines), although the extent of the impact is unclear.

Although large amounts of previously suitable habitat have now been altered, suitable habitat remains available within the species' range and more could be made available through mitigating threats and maintaining and restoring habitat (e.g., shorelines and nesting habitat) to better increase the viability of local populations and improve connectivity. Maintaining 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. 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 release into the wild) may be warranted to support the long-term viability of some local populations. Further research is needed to determine when and where these techniques may be necessary and feasible to support the recovery of the species. Improving knowledge of species distribution, population viability and trends, biology, habitat use, and threats will help determine where recovery efforts are best focused. Raising awareness of how to reduce threats to the species and promoting local stewardship will help engage the public in protection and recovery efforts for 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 Spiny Softshell is to support the long-term viability of existing local populations and, where biologically and technically feasible, support increases in the distribution and abundance of the species by managing and restoring the species' habitat, improving habitat connectivity between local populations, reducing threats, 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 Spiny Softshell, the government will directly undertake the following actions:

- Continue to protect Spiny Softshell and its habitat through the ESA.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario (e.g., through 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.
- Encourage the submission of Spiny Softshell 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 Spiny Softshell. Support will be provided where appropriate through funding, agreements, permits (including conditions) and/or advisory services
- Continue to monitor populations and mitigate threats to Spiny Softshell and its habitat in provincially protected areas, where feasible and appropriate.
- 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 Spiny Softshell 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 Spiny Softshell.

- Conduct a review of progress toward the protection and recovery of Spiny Softshell 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 Spiny Softshell. 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: Management

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

The majority of Spiny Softshell populations are found in an urbanized landscape where development pressure continues to increase. As such, improving habitat suitability and connectivity is a key component of landscape-level, habitat-focussed recovery actions for this species. As land ownership varies across the species’ distribution, and it is largely found in urban areas and along shorelines on private land, a collaborative approach to habitat management is critical to the protection and recovery of this species. Coordinated threat mitigation approaches, particularly site-specific mitigation plans, are critical to compliment habitat management activities and ensure that local populations remain viable over the long-term. 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 and adheres to best science advice and stewardship and or/recovery approaches developed by qualified professionals and/or organizations.

Actions:

1. **(High)** Work collaboratively with land owners, land managers, stakeholders, partners, and Indigenous communities and organizations, to develop and implement techniques and best management practices (BMP) to reduce threats to the species and their habitat. Actions should be evaluated and adapted based on best available information and may include:

- alternatives to traditional development, such as using natural forms of shoreline stabilization rather than hardening shorelines with “rip-rap” or stone walls, where appropriate and feasible;
 - 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);
 - efforts to reduce injury and mortality of Spiny Softshell resulting from boat collisions;
 - stewardship activities to reduce disturbance to the species and their habitat (e.g., targeted signage to address local threats);
 - encouraging and implementing techniques to reduce fishing by-catch;
 - controlling invasive species where they currently pose a direct threat or are likely to become a direct threat to Spiny Softshell; 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.
2. **(High)** Work with local landowners, land managers, stakeholders, organizations, government agencies, and Indigenous communities and organizations to develop and implement coordinated habitat management plans to increase habitat suitability and connectivity, and create, enhance and restore habitat at priority sites.
 3. Implement, evaluate, adapt and improve techniques to reduce nest predation and improve recruitment, including methods such as nest 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).
 4. Work with local land owners, municipalities and community partners to strategically secure Spiny Softshell 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.

5. Work collaboratively with relevant government, law enforcement agencies and other partners to develop and implement coordinated strategies to address the threat of illegal collection.

Focus Area: Research and Monitoring

Objective: Increase knowledge of population abundance, distribution and trends as well as the species' habitat use and threats.

As the species occurs in small, isolated local populations, the systematic monitoring of population abundance is important to understand the status of Spiny Softshell in Ontario, track population trends, and determine local viability. Filling knowledge gaps related to species' biology, population demographics, habitat use, and threats will provide information that is necessary to inform the design and implementation of effective recovery actions. Techniques to improve recruitment (e.g., head-starting) may be required to ensure the long-term viability of some local populations, and the ongoing evaluation of these techniques will allow for a better understanding of how and when to implement them. Spiny Softshell recovery efforts 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:

6. **(High)** Work collaboratively with local landowners, land managers, industry stakeholders, organizations, government agencies, partners and Indigenous communities and organizations to develop and implement standardized survey and monitoring programs that include:
 - assessing species' presence at sites lacking recent observations (including historical sites and extirpated sites where suitable habitat remains) and refining knowledge of the local and regional distribution of Spiny Softshell in Ontario;
 - monitoring distribution and abundance of the species at representative sites across its range in Ontario to identify and track changes in population abundance over time;
 - monitoring emerging and existing threats to the species; and,
 - encouraging participation in citizen science data collection programs (e.g., iNaturalist).
7. **(High)** Conduct research to evaluate the effectiveness of threat mitigation techniques, recovery approaches and best management practices, including:
 - techniques to mitigate impacts of activities, such as shoreline development and dam construction and operation, on nesting sites;

- approaches for habitat creation, restoration and improvement;
 - techniques for salvage and translocation; and,
 - techniques for improving recruitment (e.g., nest protection and incubation, head-starting, predator exclusion).
8. Investigate and monitor the severity and potential impacts of threats to local populations such as invasive species, human-subsidized predators, fishing by-catch, illegal collection, pollution and climate change.
 9. Conduct research on species' biology, ecology, habitat use and genetics where knowledge gaps persist, such as:
 - minimum habitat and population requirements to ensure local population viability (e.g., suitable habitat size, number of mature individuals);
 - habitat needs and use for various life stages (e.g., nesting, feeding, hibernating);
 - population genetics and demographics across the species' range; and,
 - effects of changes in precipitation, water levels, and extreme weather on local habitat availability and individual survival (e.g., flooding of nests along shorelines).
 10. As appropriate, encourage the recording, sharing and transfer of Traditional Ecological Knowledge on Spiny Softshell, where it has been shared by communities, to increase knowledge of the species and support future recovery efforts.

Focus Area: Awareness and Stewardship

Objective: Increase awareness and promote the protection and stewardship of Spiny Softshell and its habitat in Ontario.

Spiny Softshell is found in a highly modified landscape and continues to experience a variety of threats associated with intensive human use. As a result, several groups and organizations including land owners, land managers, conservation organizations, partners, and Indigenous communities and organizations all have a role to play in the protection and recovery of the species. Engaging the public on Spiny Softshell recovery and promoting local stewardship through tools such as educational campaigns and targeted social media campaigns also plays an important role in species recovery. Due to the risk of illegal collection of Spiny Softshell, caution to be taken to ensure information sharing to increase awareness is done in a manner that does not increase risk to the species.

Actions:

11. Promote public awareness of Spiny Softshell, including its status and protection under the ESA, and engage the public in Spiny Softshell stewardship. This may include:
 - developing interactive social media and social marketing campaigns to promote Spiny Softshell stewardship and reduce threats such as accidental mortality, illegal collection and subsidized predation. Coordinate with other species at risk turtle initiatives where appropriate;
 - working collaboratively with land owners, land managers, municipalities, the public, and other stakeholders to increase their awareness of Spiny Softshell and how to reduce impacts to the species;
 - providing information on the risks 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 a 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 Spiny Softshell.

Acknowledgement

We would like to thank all those who participated in the development of Ontario's Recovery Strategy and Government Response Statement for the Spiny Softshell (*Apalone spinifera*) 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
TTY 1-855-515-2759
www.ontario.ca/environment