

Spotted 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 Spotted Turtle (*Clemmys guttata*) in Ontario was completed on December 5, 2019.

Spotted Turtle is a small freshwater turtle that has a smooth, black shell with scattered yellow-orange spots. It has a distinctive orange spot behind each eye, and its head and limbs are typically black with orange or yellow spots. Turtles play an important role in Indigenous spiritual beliefs and ceremonies.

Protecting and Recovering Spotted Turtle

Spotted Turtle 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, Spotted Turtle is also listed under Schedule 9 of the *Fish and Wildlife Conservation Act, 1997* (FWCA) as a Specially Protected Reptile.

The Spotted Turtle is found in eastern North America and occurs in isolated populations from Michigan, Ontario and Maine in the north to central Florida in the south. In Canada, the species is currently thought to be restricted to Ontario, where it occurs in small, isolated populations throughout southern and central Ontario. A few historic records exist for the province of Quebec; however, as there are no recent records of the species, the presence of Spotted Turtle cannot be confirmed.

The total Canadian population of Spotted Turtle was recently estimated at 2,000 to 3,000 individuals; however, based on current mortality rates, a projected population decline of 40 percent or more is expected over the next 3 generations (approximately 120 years). Of 109 known occurrences of the species in Ontario, the majority are considered historical (no observations within the last 20 years). The species has been documented as recently extant at only 25 sites in the province. It is challenging to determine whether the species is still present at locations with historical occurrences, as Spotted Turtle can be difficult to survey at low densities. Most of the species' local populations (i.e., subpopulations) are believed to contain small numbers of individuals and may be vulnerable to local extirpation.

Spotted Turtles require access to a diversity of both aquatic and terrestrial habitat types throughout the year to meet their biological needs. Due to their varied habitat needs, it is important that Spotted Turtles are able to move freely throughout their habitat. Spotted Turtles often use the same path to move between habitats from year to year.

Spotted Turtles rely on aquatic habitats for many of their life processes, including hibernation, breeding, foraging, and seasonal movements. Aquatic habitats typically used by the species include shallow wetlands that are rich in organic matter (e.g., swamps, bogs, fens and marshes), and have also been observed using ponds, creeks, drainage ditches and other aquatic environments. Spotted Turtles hibernate during the winter in shallow, underwater hibernacula, either individually or in groups and emerge from hibernation in the early spring and aggregate in aquatic habitats to breed. They have been known to return to the same hibernation and breeding areas year after year. Spotted Turtles feed on a variety of items including aquatic insects, fish, tadpoles and salamanders and vegetation.

Terrestrial habitats used by Spotted Turtle include shoreline areas, beaches, rock outcrops, upland forests, open fields and meadows. The species uses terrestrial habitats for nesting, regulating body temperature, seasonal movement and in periods of summer inactivity. Spotted Turtles lay their eggs in the spring. Three to seven eggs are typically laid in nests excavated in well-drained soils exposed to full sunlight. During the active season, Spotted Turtles often bask along the water's edge, on vegetation clumps, or under dense vegetation near aquatic habitats in order to take advantage of warm air temperatures. They also use shallow aquatic sites with floating or emergent vegetation to regulate their body temperature. In the summer months, it is common for Spotted Turtles to move into terrestrial environments and become inactive for days to weeks to thermoregulate or because of changes in water depth or food abundance.

Spotted Turtles are long-lived, with some individuals potentially living for more than 100 years. However, they do not reach sexual maturity until 11 to 15 years of age, produce relatively few eggs, and have very low nest and hatchling survival. 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.

According to the recovery strategy, the most significant threats to Spotted Turtle are mortality on roads and from off-road vehicles, illegal collection, and the introduction and spread of invasive species. Other threats include habitat loss, degradation and fragmentation, human subsidized predators (those that occur in higher abundances resulting from increased food resources from human sources e.g., raccoons (*Procyon lotor*)), pollution, disturbance from human activities, forest alteration, climate change and natural systems modifications, such as water-level management.

Since even slight increases in annual adult mortality can result in chronic declines in turtle populations, road mortality is a serious threat to all turtle species, particularly those that travel overland frequently, like the Spotted Turtle. The use of off-road vehicles can also result in harm due to collisions, as well as damage and destruction of wetland habitats. Roads may also present barriers to movement, and maintenance activities associated with road networks (such as grading or vegetation clearing) may result in negative impacts on Spotted Turtles and their habitat. In some cases, agricultural activities, such as the use of heavy machinery and trampling by livestock may harm or kill turtles.

Many turtle species, including Spotted Turtle, are impacted by illegal collection for use as pets and food. Their use of communal hibernation areas, mating aggregation sites, and mass emergence from hibernation makes Spotted Turtles particularly susceptible to illegal collection.

Since European settlement, land conversion for agriculture and development has been a significant threat to Spotted Turtle in Ontario, eliminating the majority of the species' habitat in the southern part of the province (south of the Precambrian Shield) and restricting remaining populations to small, isolated habitat patches. Land conversion continues to pose a threat to the species, but to a lesser degree than in the past. The infilling or draining of wetlands eliminates turtle habitat, and activities that alter water regimes in wetlands can also result in loss or degradation of aquatic habitat for the species, as well as nesting and basking sites. Furthermore, changes to the water table that occur during hibernation, such as those caused by ditching or drainage activities, can result in mass-mortality of hibernating Spotted Turtles. Changes in the Great Lakes water levels may also result in significant loss of coastal wetland habitats used by Spotted Turtle.

It is thought that, in some cases, suppression of the natural fire regime can impact the species due to the encroachment of vegetation such as trees and shrubs into wetlands, which causes the habitat to become less suitable for Spotted Turtle. The introduction of exotic plant species can alter the quality or availability of turtle habitat. The European Reed (also known as Phragmites) (*Phragmites australis ssp. australis*) has invaded many wetlands and coastal areas and may have resulted in altered habitat conditions. The release of non-native pet turtles, such as the Red-eared Slider (*Trachemys scripta*) can also impact turtles via transmission of disease.

The Spotted Turtle is a long-lived species with life-history characteristics that significantly limit its ability to recover from declines. The small and highly fragmented nature of Spotted Turtle populations, particularly in southern Ontario, makes the species particularly vulnerable to local extirpations. As a result of these limitations, actions must occur over a long timeframe in order to successfully recover the species and support the viability of local populations. 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 release into the wild), may be warranted to support the long-term viability of some local populations. Mitigating threats and improving habitat availability and connectivity will be key to ensuring the long-term persistence of the species in Ontario. 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 Spotted Turtle is to support the long-term viability of existing local populations and, where biologically and technically feasible, support increases in their distribution and abundance, by mitigating threats, maintaining or increasing suitable habitat, improving habitat connectivity between local 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 Spotted Turtle, the government will directly undertake the following actions:

- Continue to protect Spotted Turtle and its habitat through the ESA.
- 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 Spotted 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. Information will be stored and used in a way that does not place the species at risk of illegal collection.
- Continue to support conservation, agency, municipal and industry partners, and Indigenous communities and organizations to undertake activities to protect and recover Spotted 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 Spotted 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 Spotted 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 Spotted 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 Spotted Turtle.
- Conduct a review of progress toward the protection and recovery of Spotted 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 Spotted 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 Spotted Turtle distribution, population levels and status as well as biology, habitat use, threats, and recovery techniques.

Efforts to track abundance and evaluate local population viability are important to understanding the status of Spotted Turtle in the province and to identify local populations that may not be viable without further management efforts. As many local populations are thought to be small and may not be viable, recovery techniques to improve recruitment (e.g., 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 required to ensure their long-term viability. It is important to evaluate and adapt these techniques in order to improve their success. There are still several knowledge gaps related to the threats impacting Spotted Turtle, as well as the species' biology and ecology. Filling these knowledge gaps will help to direct effective protection

and recovery efforts for the species. Recovery efforts for Spotted 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. Targeted surveys are also important for refining our knowledge on the species' distribution, especially in areas that are under-surveyed (e.g., historical locations, suitable habitat on the Precambrian Shield). Wherever possible, surveys to determine whether Spotted Turtle are present should be implemented according to the [Survey Protocol for Spotted 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.

Actions:

1. **(High)** Evaluate local population viability to determine which populations of Spotted Turtle are declining or may not be viable without management action. This may include addressing related knowledge gaps and determining minimum habitat and population requirements to ensure the viability of local populations (e.g., suitable habitat size, number of mature individuals).
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)** Conduct targeted surveys for Spotted Turtle at sites with suitable habitat and/or historical populations to improve knowledge of current distribution and population size of the species.
4. Investigate the severity of threats to local populations and document the frequency, extent, and causal certainty of threats.
5. Conduct research on species' biology, ecology, and habitat use where knowledge gaps persist, such as:
 - habitat needs and uses for various life stages (e.g., adults, hatchlings and juveniles) and biological processes (e.g., nesting, feeding, and hibernation sites);
 - spatial ecology and temporal use of habitat; and
 - knowledge of species' demography across the species' range, including population size, age composition, sex ratios and minimum viable population size.

6. 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.
7. As appropriate, encourage the recording, sharing and transfer of Traditional Ecological Knowledge on Spotted 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 and reduce threats, and improve recruitment.

The most serious threats to Spotted Turtle are those that involve the removal of adult turtles from the population (either through collection or mortality), making the mitigation of these threats to Spotted Turtle critical to the long-term persistence of the species in Ontario. 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. Actions that improve habitat connectivity between local populations and protect, maintain or improve suitable habitat are also important for Spotted Turtle recovery as they contribute to improved adult survival and population viability. A collaborative approach to implementing these actions will help to share responsibilities and lessons learned. Threat mitigation and habitat management techniques should be conducted in a manner that does not increase risk to the species. Wherever 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, Indigenous communities and organizations, stakeholders and partners, develop, implement and monitor the effectiveness of mitigation techniques to address threats to Spotted Turtles and their habitat. 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 reduce disturbance to the species and its habitat (e.g., erecting barriers to prevent unauthorized ATV use in sensitive habitats, redirecting trails to reduce access to known sites, targeted signage to address local threats);
 - controlling invasive species where they currently pose a direct threat or are likely to become a direct threat to Spotted Turtle; and,
9. **(High)** Assess the quantity and quality of suitable habitat available to local populations and identify areas where the amount of suitable habitat may not be sufficient for Spotted Turtle population viability. In collaboration with landowners, land managers, Indigenous communities and organizations, stakeholders and partners, identify and implement actions to increase the quality and quantity of habitat, as appropriate.
 10. 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).
 11. Work with local land owners, municipalities and community partners to strategically secure Spotted 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.
 12. Work collaboratively with relevant government and law enforcement agencies and other partners to develop and implement coordinated strategies to address the threat of illegal collection.

Focus Area: Stewardship and Awareness

Objective: Increase awareness and promote the protection and stewardship of Spotted Turtle and its habitat in Ontario.

Spotted Turtle is found on both public and private lands in Ontario. As a result, several groups and organizations including land owners, land managers, Indigenous communities and organizations, conservation organizations and partners, have a role to play in the protection and recovery of the species. Raising awareness amongst the public, local landowners and organizations of the Spotted Turtle, as well as how to reduce threats to the species, fill knowledge gaps, and maintain or improve habitat will help promote and encourage actions to protect and recover Spotted Turtle in Ontario. Due to the risk of illegal collection of Spotted

Turtles, 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:

13. Promote awareness of Spotted Turtle, including its status and protection under the ESA, and engage the public and stakeholders in Spotted Turtle protection and recovery activities. Actions should be coordinated with other species at risk turtle initiatives where appropriate. This may include:
 - developing and evaluating effectiveness of interactive social media and social marketing campaigns to promote Spotted Turtle stewardship and reduce threats such as road mortality, illegal collection and subsidized predation;
 - 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 Spotted 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 Spotted Turtle (*Clemmys guttata*) 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

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