



Spiny Softshell

Photo: © Ryan M. Bolton



Scientific name
Apalone spinifera

Taxon
Reptiles

COSEWIC Status
Endangered

Canadian range
Ontario, Quebec

Reason for Designation

The continuing decline of this species in Ontario and Québec is attributed to very low recruitment that has resulted from loss of nesting habitat. Suitable nesting and basking sites have been lost and/or degraded by development, altered water regimes (e.g., dams, floods, erosion of river banks), invasive plants, recreational use, and illegal harvest of individuals. Without nest protection, few eggs survive predation by an increased abundance of mammals.

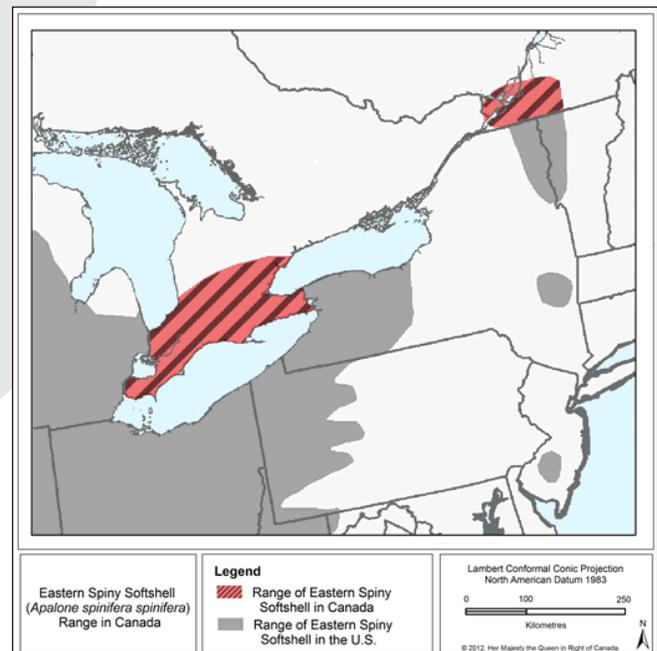
Wildlife Species Description and Significance

Spiny Softshell turtles (*Apalone spinifera*) are conspicuously sexually size-dimorphic, with males reaching a carapace length of 22 cm, and females 54 cm. The carapace is olive to tan, relatively flat, round to oval and covered in leathery skin, with spiny projections along the anterior edge that are most conspicuous in adult females. Spiny Softshells are well adapted for swimming, with a reduced lower shell, hydrodynamic shape and strongly webbed front and hind feet. The

neck is long, and can extend to approximately 3/4 the length of the carapace. The head is relatively narrow and elongate with a long, snorkel-like snout. Members of the family Trionychidae have a global distribution and diverged from other turtles in the Cretaceous. The species is significant because it is the only native representative of the family Trionychidae in Canada. Canadian populations are at the northern limit of the species' range, and are adapted to a northern climate (e.g., extended hibernation). Unlike other Canadian turtles, where the sex of an individual is determined by the temperature of egg incubation, sex of Softshell turtles is genetically determined.

Distribution

Globally, the Spiny Softshell occurs in eastern North America from the New England states through extreme southern Quebec and Ontario, west to Nebraska, south to Texas and across the Gulf states to the Atlantic. The Canadian population is divided into two geographically distinct subpopulations: a Great Lakes/St. Lawrence subpopulation in southern Quebec and a Carolinian subpopulation in southern Ontario.



Spiny Softshell (*Apalone spinifera*) distribution in Canada (Eastern Spiny Softshell subspecies range from Conant and Collins (1998)). This map represents the general range of the species, and does not depict detailed information on the presence and absence of observations within the range.

Map Source: Environment and Climate Change Canada, 2016. Recovery Strategy for the Spiny Softshell (*Apalone spinifera*) in Canada [Proposed] Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. viii + 57 pp.

Habitat

Spiny Softshell inhabits a wide variety of aquatic habitats, including rivers, marshy creeks, oxbows, lakes and impoundments. Common habitat features include a soft bottom with sparse aquatic vegetation, as well as sandbars or mudflats. Overwintering sites are generally in well oxygenated lakes and rivers.

Biology

Spiny Softshell can live for several decades. Sexual maturity occurs late, and likely not before 12 - 15 years for females at the northern limit of the range in Canada. Influenced by climate, the life cycle of the species is characterized by a long hibernation and a short, active growing season. Cumulative heat units during the active season determine the time necessary to complete incubation. Eggs are typically laid in June or July, with an average clutch size of approximately 20. It is thought that most females deposit a single clutch annually, but some females lay two clutches in a single year. The incubation period generally varies from 60 to 75 days, and ambient nest temperatures can delay or accelerate incubation. Natural recruitment is low because of high egg predation.

Population Sizes and Trends

Population sizes are small and declining. In Ontario, the total number of mature individuals is estimated to be fewer than 1000 and continues to decline. Nest survey data from the three largest locations in Canada all suggest declines in the total number of mature individuals of approximately 45% in the past two decades. Future significant declines are predicted based on current threats. In Quebec, historic populations in three drainage basins have been lost or have become unviable. The last remaining population is estimated to have fewer than 50 adult females.

Threats and Limiting Factors

The primary threats are habitat and population fragmentation by infrastructure, alteration of the water regime (flooding of nests) by dams and changing weather patterns, increased recreational and

agricultural use of nesting areas and adjacent aquatic habitats by humans (disturbance during nesting, ATV use, horseback riding, watercraft use), invasion of nesting areas by non-native plants (e.g., European Common Reed (*Phragmites a. australis*)), high populations of mammalian egg predators and egg poachers, injury and mortality from fishing and motor boating (collisions, propellers), and illegal capture of juveniles and adults. Cyanobacterial blooms (e.g., toxin bioaccumulation, impact on prey) may also impact the species. Limiting factors include the time taken to reach maturity, a low rate of recruitment, and the constraint of limited summer heat for completion of incubation and hatchling emergence.

Protection, Status and Ranks

Globally, Spiny Softshell is classified as Least Concern (G5) by IUCN because it has a wide distribution, is abundant, and the global population is considered stable. It has a national rank of N3 (Vulnerable) in Canada, a rank of S3 (Vulnerable) in Ontario and a rank of S1 (Threatened) in Quebec. Spiny Softshell also has a rank of S1 in Vermont. In Canada, COSEWIC first assessed Spiny Softshell as Threatened in 1991 and again in 2002. It has been listed on Schedule 1 of the *Species at Risk Act* since 2005. In Ontario, it was assessed as Threatened by the Committee on the Status of Species at Risk in Ontario (COSSARO) in 1996. It is protected under the 2007 *Endangered Species Act* and is also a specially protected species under the *Fish and Wildlife Conservation Act*. In Quebec, Spiny Softshell was designated as Threatened in 1999 under the *Loi sur les espèces menacées ou vulnérables* and is afforded protection under the *Loi sur la conservation et la mise en valeur de la faune*.

Source: COSEWIC. 2016. COSEWIC assessment and status report on the Spiny Softshell *Apalone spinifera* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 38 pp.

For more information, please visit www.sararegistry.gc.ca.

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