



## Blanding's Turtle (Great Lakes / St. Lawrence population)



Photo: © Ryan M. Bolton

### Scientific name

*Emydoidea blandingii*

### Taxon

Reptiles

### COSEWIC Status

Endangered

### Canadian range

Ontario, Quebec

### Reason for Designation

This population, although widespread, is declining because of several observed, inferred, and projected threats. The most serious threats include: road and rail mortality; illegal collection for the pet, food and traditional medicine trades; habitat loss due to invasive European Common Reed; development and wetland alterations; and, increasing numbers of predators. Quantitative analyses estimate that the total number of mature individuals in this population has declined > 60% over the last three generations (due to large-scale wetland drainage after European arrival) and will decline 50% over the next three generations because of road mortality alone.

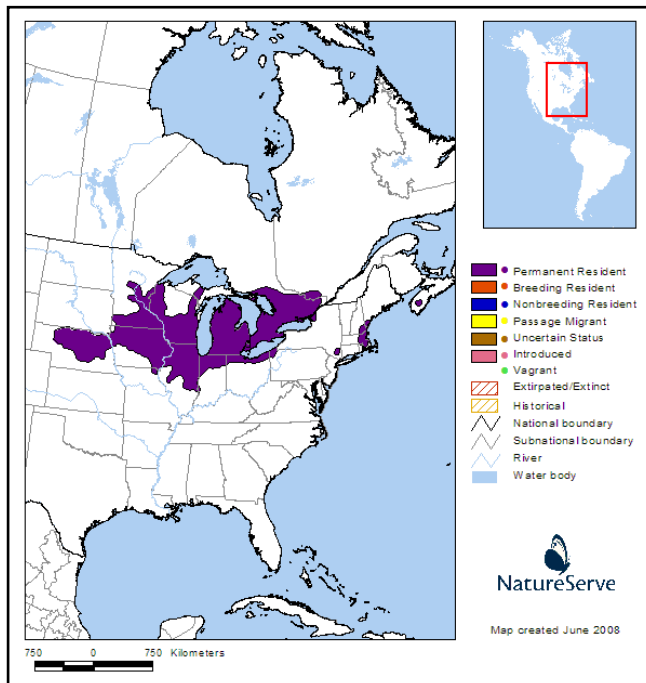
### Wildlife species description and significance

The Blanding's Turtle, *Emydoidea blandingii*, is the only representative of the genus *Emydoidea*. It is a medium-sized freshwater turtle with a characteristic bright yellow throat and a highly domed black shell with yellowish spots and flecks. It has one of the smallest global ranges compared to most other North American turtles and only ~20% of its global range occurs in Canada.

### Distribution

In its Canadian range, the Great Lakes/St. Lawrence population of the Blanding's Turtle occurs primarily in southern Ontario (with isolated reports as far north as Timmins) and southern Québec (with isolated reports occurring as far north as the Abitibi-Témiscamingue region and as far east as the Capitale-Nationale region in Québec). The much smaller Nova Scotia population occurs in the southern portion of the province and represents the most isolated population within the species' range.

In the United States, the Blanding's Turtle occurs in the northeastern states, and is mainly concentrated around the Great Lakes; however, it occurs as far west as Nebraska and South Dakota and there are small isolated populations along the Atlantic seaboard in New York, Massachusetts, New Hampshire and Maine.



North American distribution of Blanding's Turtle.

Source: Map provided by NatureServe, 2008 (<http://explorer.natureserve.org/servlet/NatureServe?searchName=Emys+blandingii>).

## Habitat

In Nova Scotia, Blanding's Turtles tend to prefer darkly-coloured water, indicative of relatively higher secondary productivity. In the Great Lakes/St. Lawrence population, however, Blanding's Turtles are often observed using clear water eutrophic wetlands. Blanding's Turtles have strong site fidelity but may use several connected water bodies throughout the active season. Turtles of all ages occur primarily in shallow water habitats. Females nest in a variety of substrates including sand, organic soil, gravel, cobblestone, and soil-filled crevices of rock outcrops. Adults and juveniles overwinter in a variety of water bodies that maintain pools averaging about 1 m in depth; however, hatchling turtles have been observed hibernating terrestrially during their first winter. Reported mean home ranges generally fall between 10-60 ha (maximum 382 ha) or 1000-2500 m (maximum 7000 m); however, most studies likely underestimate Blanding's Turtle home range size because few have utilized GPS loggers to track daily movements throughout one or more entire active seasons.

## Biology

The Blanding's Turtle is an exceptionally long-lived and late-maturing species, even for a turtle. Blanding's Turtles mature between 14-25 years of age and can continue to reproduce successfully until at least 75 years old. Mature females produce one clutch of eggs every 1-3 years and female fecundity and reproductive frequency are positively correlated with age. Females carry out long-distance nesting migrations and can make overland movements of >10 km. The Blanding's Turtle's ability to make long-distance movements facilitates gene flow among wetlands and may substantially increase reproductive success. The mean generation time for Canadian Blanding's Turtles is ~40 years.

## Population Sizes and Trends

Across the North American range, Blanding's Turtles mainly occur in small, isolated subpopulations that maintain a few dozen to approximately 100 turtles. In Canada, most monitored subpopulations appear to maintain fewer than 150 adults, with none exceeding 1000.

The size of the Blanding's Turtle Great Lakes/St. Lawrence population is impossible to estimate accurately, given that very few mark-recapture studies have been conducted throughout the region, but is believed to harbour < 50,000 adults. It is estimated that over the last three generations > 60% of the population was lost due to large-scale wetland drainage after European arrival, and a further decline of > 50% is projected over the next three generations based on observed trends for monitored subpopulations and road mortality models. The long-term mark-recapture program in Québec has found fewer than 200 adults to date; although no trends have been confirmed for this subpopulation, it has likely also declined due to historical wetland loss and ongoing anthropogenic threats.

The total number of mature individuals in the Blanding's Turtle, Nova Scotia population is believed to be < 500. The longest studied subpopulations show very late maturity (20-25 years) and great longevity (> 70 years). Without management intervention, models predict that the Nova Scotia population faces a high extinction risk despite occurring in a protected area.

### Threats and Limiting Factors

This species faces numerous threats, the most serious of which include:

- i. road/rail mortality and associated road effects;
- ii. habitat loss due to the invasive European Reed, various types of development and wetland modifications;
- iii. illegal collection for the pet, food and traditional medicine trades; and
- iv. increased mortality of individuals and nests from subsidized predators.

Additional potential threats include: mortality from aggregate, forestry, energy production and recreational activities; wetland pollution; climate change and the introduction of other invasive species. The most serious threats to Blanding's Turtle subpopulations are those that result in the mortality or loss of adults.

The main limiting factors for this species are its slow life-history (extreme longevity, very late age of maturity, low annual reproductive output, low juvenile recruitment, and a dependency on high annual adult survival) and short, cool summers at the northern periphery of the range, which reduce turtle reproductive frequency and nest success. These limiting factors make the Blanding's Turtle highly vulnerable to even small increases (< 5%) in annual adult mortality. Because the Blanding's Turtle matures much later than other Canadian turtles, its vulnerability to decline is exacerbated compared to other turtle species. Therefore, population stability and persistence are critically dependent on high adult survivorship.

### Protection, Status, and Ranks

In 2016, COSEWIC designated the Nova Scotia population and the Great Lakes/St. Lawrence population as Endangered. The Blanding's Turtle is legally protected under the federal *Species at Risk Act*, 2002 (S.C. 2002, c. 29), the Ontario *Endangered Species Act*, 2007 (S.O. 2007, c. 6), the Ontario *Fish and Wildlife Conservation Act*, 1997 (S.O. 1997, c. 41), the Québec *Loi sur la conservation et la mise en valeur de la faune*, 2002 (RLRQ, c. C-61.1), and the Nova Scotia *Endangered Species Act, 2000* (1998, c. 11, s. 1). In 2013, it was listed as a 'CITES Appendix II' species and its international trade is now regulated.

Its General Status Rank in Canada, Ontario, Québec and Nova Scotia is 'At Risk'. Across all 18 jurisdictions within the North American range, the Blanding's Turtle is only considered apparently secure (S4) in one state, Nebraska, where the species has benefited from nearly a century of large-scale habitat protection. It is officially designated as Endangered or Threatened in 13 of the 18 provinces and states in which it occurs and in 2010, the IUCN up-listed the Blanding's Turtle to Endangered based on global population size reductions of  $\geq 80\%$  over the last three generations.

Source: COSEWIC. 2016. COSEWIC assessment and status report on the Blanding's Turtle *Emydoidea blandingii*, Nova Scotia population and Great Lakes/St. Lawrence population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xix + 110 pp.

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