

**Ontario Species at Risk Evaluation Report for Western
Painted Turtle (*Chrysemys picta bellii*)**

Committee on the Status of Species at Risk in Ontario
(COSSARO)

Assessed by COSSARO as Not at Risk

May 2017

Final

Tortue peinte de l'Ouest (*Chrysemys picta bellii*)

La tortue peinte de l'Ouest est une sous-espèce de tortue peinte qui se distingue par des écailles vertébrales et pleurales alternantes, une rayure mi-dorsale faible ou inexistante et un motif de ramifications larges et foncées sur son plastron. En Ontario, son aire de répartition s'étend de la frontière du Manitoba jusqu'au nord du lac Musclow, dans le parc provincial Woodland Caribou, et le long de la rive nord du lac Supérieur vers l'est jusqu'au secteur de White River. La taille de sa population en Ontario est inconnue, mais sa vaste distribution laisse supposer qu'elle se situe dans les dizaines de milliers dans son aire de répartition, qui va de l'Alberta vers l'est. La plupart des menaces à cette sous-espèce auraient peu d'incidence en Ontario, mais combinées, elles atteignent tout de même un niveau modéré. Il n'y a aucun signe de déclin, et la tendance en matière d'habitat serait stable en Ontario. C'est pourquoi l'espèce n'est pas jugée en péril.

Cette publication hautement spécialisée «COSSARO Candidate Species at Risk Evaluation for Western Painted Turtle» n'est disponible qu'en anglais conformément au Règlement 671/92, selon lequel il n'est pas obligatoire de la traduire en vertu de la Loi sur les services en français. Pour obtenir des renseignements en français, veuillez communiquer avec le CDSEPO au COSSAROSecretariat@ontario.ca.

Executive summary

Western Painted Turtles are a subspecies of Painted Turtle distinguished by their alternating vertebral and pleural seams, poorly developed or absent mid-dorsal stripe, and large, dark, branching markings on the plastron. In Ontario, they range from the Manitoba border as far north as Musclow Lake in Woodland Caribou Provincial Park, eastwards along the north shore of Lake Superior, to the eastern-most record in the White River area. Population size specifically for Ontario is unknown, but widespread distribution suggests it is likely in the tens of thousands range for the portion of the subspecies' range from Alberta eastwards. Most of the threats for the subspecies were assessed to have low impact in Ontario although combined, they amount to an overall medium threat level. There is currently no evidence of decline and the habitat trend is considered to be stable for Ontario. It has been assessed as Not at Risk.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

Western Painted Turtles are morphologically differentiated from other Painted Turtle subspecies by their alternating vertebral and pleural seams (vs. aligned in Eastern Painted Turtle), poorly developed or absent mid-dorsal stripe (vs. conspicuous in Southern Painted Turtle), and large, dark, branching markings that occupy most of the plastron surface (vs. covering less than half the plastron width in Midland Painted Turtles) (Ernst and Lovich, 2009). Jensen *et al.* (2005) found genetic evidence that supports classifying Western Painted Turtles as a distinct subspecies within the *Chrysemys picta* species.

1.1.2. Designatable units

Although COSEWIC identified 3 distinct designatable units for this subspecies within Canada, only one designatable unit – the Prairie/Western Boreal – Canadian Shield Population – occurs in Ontario.

1.1.3. Native status

Western Painted Turtles were uncommon, but regularly documented in early surveys of the Lake Nipigon area. The earliest record for Western Painted Turtle in Ontario in the NHIC database is from a specimen housed at the Carnegie Museum of Natural History. This specimen was collected by O.E. Jennings and G.K. Jennings in 1914 from the Canadian National Railway tracks at Sandpoint on Lake Nipigon. Wilson (1910) wrote that according to the Indigenous peoples of the Lake Nipigon, “a species of tortoise, probably *Chrysemys sp.*, occur on a small lake [possibly Mikinak Lake], the first west of Black Sturgeon Lake on the Circle Lake system” (p. 32). The Royal Ontario Museum has three additional specimens of Western Painted Turtle from the Lake Nipigon area from the early 1920s, which are described in Logier’s (1928) account of the herpetofauna of the Lake Nipigon region. Although some populations in northern Canada appear to have resulted from human introductions, this does not appear to be a factor anywhere in Ontario.

1.1.4. Occurrence

Western Painted Turtle occurs regularly in Ontario, with multiple observations recorded annually for the past several decades in the NHIC database.

1.2. Eligibility results

Western Painted Turtle (*Chrysemys picta bellii*) is eligible for status assessment in Ontario.

2. Background information

2.1. Current designations

- GRANK: G5T5 (NatureServe 2017)
- NRANK Canada: N4N5
- COSEWIC: NAR (November 2016)
- SARA: No Status (No Schedule)
- ESA 2007: No Status
- SRANK: S3? (NatureServe 2017)

2.2. Distribution in Ontario

In Ontario, Western Painted Turtle (*Chrysemys picta bellii*) ranges from the Manitoba border as far north as Musclow Lake in Woodland Caribou Provincial Park, eastwards along the north shore of Lake Superior, to its eastern-most record in the White River area (Figure 1). The eastern edge of its Ontario range overlaps with the range of Midland Painted Turtle (*Chrysemys picta marginata*), and introgression of the two subspecies does occur. There is an apparent gap of 130 km between Western Painted Turtle and Midland Painted Turtle records in the Algoma District, with intergrades documented mostly from Lake Superior Provincial Park (COSEWIC 2016).

On the Canadian Shield, Western Painted Turtles tend to be found in lentic habitats: small lakes, wetlands and beaver ponds, avoiding areas with swift currents (COSEWIC 2016). They are absent from the Hudson Bay watershed.

COSEWIC (2016) suggests that the number of locations would be linked to individual lakes where threats such as chemical spills, infilling, or drought could impact most or all individuals within a short time frame. In Ontario, the number of locations “is well into the hundreds when inhabited lakes and ponds in the Canadian Shield faunal province are taken into account” (COSEWIC 2016).

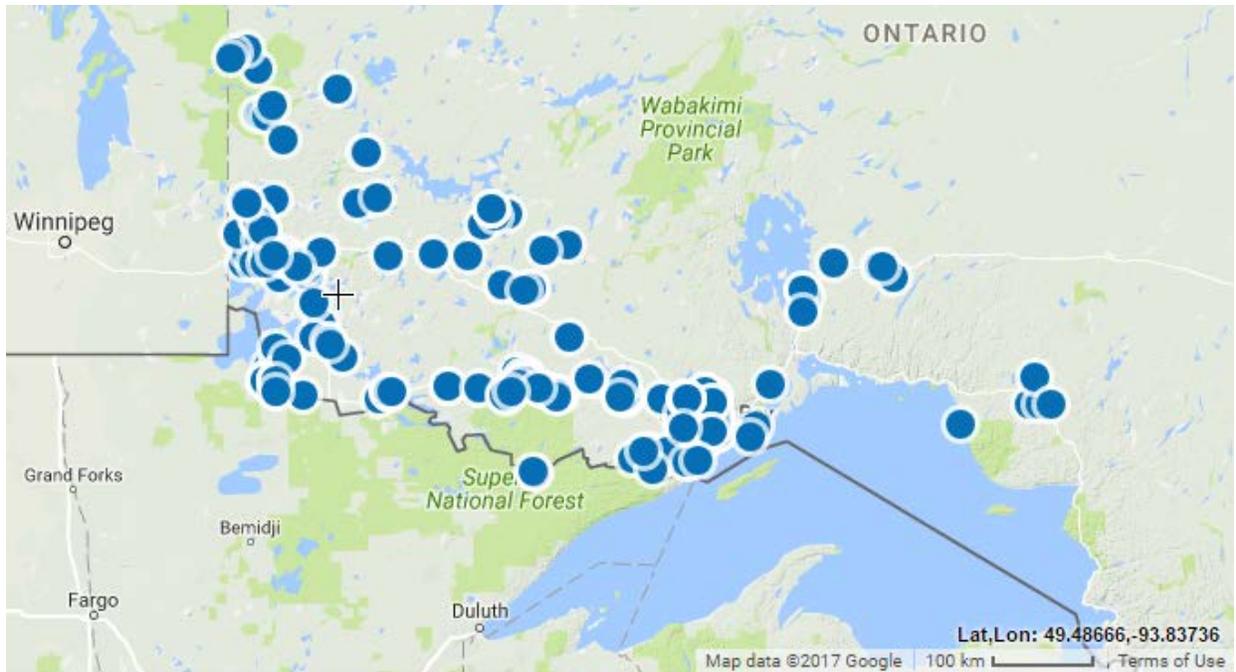


Figure 1. All Ontario Western Painted Turtle records from the NHIC database. Created for this report using [GeoCAT](#) [website accessed April 17, 2017].

2.3. Distribution and status outside Ontario

Ontario comprises the northeastern-most limits of the Western Painted Turtle's range. To the west, it occurs through the prairies, with discontinuous distribution through the Rockies, onwards towards the Pacific Coast as far west as Vancouver Island, Washington, and Oregon (Figure 2). It is found along the Missouri River Watershed and Upper and Middle Mississippi River watersheds, as far south as Kansas and Missouri, with disjunct (possibly introduced) populations in New Mexico, Colorado, Utah, Arizona, and Northern Mexico (NatureServe 2017).



Figure 2. Global range of Painted Turtle, *Chrysemys picta*. Blue indicates Western Painted Turtle (*C. p. bellii*). Orange indicates Midland Painted Turtle (*C. p. marginata*). Green indicates Southern Painted Turtle (*C. p. dorsalis*). Red indicates Eastern Painted Turtle (*C. p. picta*). Blended colours indicate areas of range overlap. Source: COSEWIC (2016), adapted from Wikimedia Commons (2014).

2.4. Ontario conservation responsibility

The percentage of the global range of Western Painted Turtle in Ontario is unknown, but is certainly much less than 25%.

2.5. Direct threats

Habitat trends for Western Painted Turtle in Ontario are considered to be stable overall (COSEWIC 2016). Most of the threats for the subspecies in Ontario were assessed by the team conducting the COSEWIC threats calculator to have low impact on the Prairie/Western Boreal – Canadian Shield Designatable Unit (DU), although combined, they amount to an overall medium threat level. Many of the threats for this DU applied more to the Prairie components of the DU more than the Canadian Shield areas. For example, the threat from housing and urban areas was applicable to more populated centres. Aside from the Thunder Bay area, housing developments are limited mainly to seasonal cottages in much of northwestern Ontario, and are seldom built on land that is suitable as turtle habitat.

Mining & quarrying may impact habitat quality of waterbodies. This threat may increase with new mining developments proposed in northwestern Ontario.

Northwestern Ontario does not have a high density of roads or railroads, although there is a substantial network of forest access and other resource development roads. Road use may cause mortality and impede dispersal and road construction may lead to habitat loss.

The hunting and collecting of turtles on land is more likely a concern in areas closer to larger population centres.

Logging and wood harvesting activities may impact habitat quality and associated road networks can impede dispersal and cause mortality from vehicular traffic.

Recreational activities in waterways can impact turtles through direct disturbance, as well as injury or mortality from accidental capture by anglers and collisions with propellers of boats. Recreational activities that take place on or near nesting sites can reduce reproductive success and increase predation rates (such as off-leash dogs digging up hatchlings or eggs in nests).

Impact of dams and water management activities are more likely a greater impact on Prairie subpopulations than those in northwestern Ontario since Western Painted Turtles favour small lakes and ponds in the Canadian Shield rather than riverine habitats.

One trend that may impact Western Painted Turtles in the Thunder Bay area is the noticeable increase of the raccoon (*Procyon lotor*) population recently. Although numbers are not available for northern Ontario, similar increases in the raccoon population are reported for other areas in the northern periphery of its range (Larivière 2004) with dramatic increases in raccoon fur harvests since the 1970s. In Quebec, raccoons were found to be the most frequent predator of Painted Turtle nests, and accounted for 43.8% of nest failures (Christens and Bider 1987). The threat of predation by raccoons and other native species was assessed as Unknown for the Prairie/Western Boreal – Canadian Shield Designatable Unit in the COSEWIC threats calculator.

2.6. Specialized life history or habitat use characteristics

Although not limited just to the Western Painted Turtle subspecies, Painted Turtle hatchlings are “some of the only reptiles and the highest vertebrates known to tolerate natural freezing of their extra-cellular body fluids during winter hibernation” (Ernst and Lovich 2009, p. 204). With an ability to supercool to body temperatures as low as -8.9°C, hatchlings can survive nest site temperatures down to -11°C.

3. Ontario status assessment

3.1. Application of endangered/threatened status in Ontario

3.1.1. Criterion A – Decline in total number of mature individuals

Does not apply. Although sampling effort is incomplete for this subspecies in Ontario, there is no evidence of decline. Threats were evaluated to have a low impact on the Ontario subpopulation and the habitat trend is evaluated to be relatively stable in the province (COSEWIC 2016).

3.1.2. Criterion B – Small distribution range and decline or fluctuation

Does not apply. The EOO of Western Painted Turtle in Ontario exceeds 20 000 km². The IAO is at least 660 km², which is less than the threshold for Threatened; however, sampling effort in northwestern Ontario has not been comprehensive and many more occurrences are likely. The number of locations is much greater than 5, there is no evidence of decline in any of the subcategories b: i-v, and there are not extreme fluctuations of any of the subcategories c: i-iv.

3.1.3. Criterion C – Small and declining number of mature individuals

Does not apply. Population size is unknown, but does not appear to be small. Estimated to be “tens of thousands” in the Prairie/Western Boreal – Canadian Shield Population (COSEWIC 2016). There is no evidence of decline in number of mature individuals.

3.1.4. Criterion D – Very small or restricted total population

Does not apply. Population size is unknown. Index of Area of Occupancy is much greater than 20 km² and number of locations is much greater than 5.

3.1.5. Criterion E – Quantitative analysis

No quantitative analyses were conducted for this subspecies.

3.2. Application of Special Concern in Ontario

Does not apply. There is no evidence of decline at this time. Factors suspected of negatively influencing the persistence of the species are generally considered to have low impact on the Ontario subpopulation. The subspecies is not near to qualifying as Threatened in any criterion at this time.

3.3. Status category modifiers

3.3.1. Ontario’s conservation responsibility

Does not apply. Western Painted Turtle is not globally at risk and much less than 25% of its global range is found in Ontario.

3.3.2. Rescue effect

Rescue effect is possible from Minnesota and Manitoba. However, Painted Turtles do not typically make long distance movements (Ernst and Lovich 2009) and dispersal would be hampered by the size of Lake Superior and the rugged terrain of the Canadian Shield (COSEWIC 2016).

3.4. Other status categories

3.4.1. Data deficient

Does not apply. Although systematic studies of the Western Painted Turtle's abundance are not available for Ontario, records for the subspecies are recent and widespread, and the panel of experts who conducted COSEWIC's Threats Calculator exercise determined that factors with potential to adversely affect the population have an overall low impact in Ontario.

3.4.2. Extinct or extirpated

Does not apply. This subspecies is still widespread in northwestern Ontario.

3.4.3. Not at risk

Western Painted Turtle does not qualify under any of the above classifications; therefore, it is assessed as Not at Risk in Ontario.

4. Summary of Ontario status

Western Painted Turtle (*Chrysemys picta bellii*) is classified as Not at Risk in Ontario. It does not meet any of the criteria for Endangered or Threatened and does not, at this time, qualify as Special Concern.

5. Information sources

Christens, E. and J.R. Bider. 1987. Nesting activity and hatching success of the Painted Turtle (*Chrysemys picta marginata*) in Southwestern Quebec. *Herpetologica*, 43(1):55-65.

COSEWIC. 2016 . [COSEWIC assessment and status report on the Western Painted Turtle *Chrysemys picta bellii*, Pacific Coast population, Intermountain-Rocky Mountain population and Prairie/Western Boreal - Canadian Shield population, in Canada.](#) Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 95 pp. ([Species at Risk Public Registry](#)).

Ernst, C.H. and J.E. Lovich. 2009. *Turtles of the United States and Canada*. 2nd edition. The Johns Hopkins University Press, Baltimore, MD. xii + 827 pp.

Larivière, S. 2004. Range expansion of raccoons in the Canadian Prairies: Review of hypotheses. *Wildlife Society Bulletin* 32(3): 955-963.

Logier, E.B.S. 1928. The amphibians and reptiles of the Lake Nipigon Region. Pp 279-291 *In* J.R. Dymond, L. L. Snyder and E.B.S. Logier (Editors). No.1: A faunal survey of the Lake Nipigon Region, Ontario. Contributions of the Royal Ontario Museum of Zoology. Reprinted from *Transactions of the Royal Canadian Institute* Vol XVI, part 2, pp 233-291.

NatureServe. 2017. *Chrysemys picta bellii* - (Gray, 1831) Western Painted Turtle. [NatureServe Explorer](#), An online encyclopedia of life. Accessed on May 3 2017.

Wilson, A.W.G. 1910. Geology of the Nipigon Basin, Ontario. Memoir No.1. Department of Mines, Geological Survey Branch. Ottawa, Government Printing Bureau.

Appendix 1: Technical summary for Ontario

Species: Western Painted Turtle (*Chrysemys picta bellii*)

Demographic information

Demographic attribute	Value
Generation time. Based on average age of breeding adult: age at first breeding = X year; average life span = Y years.	30-40 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	No. COSEWIC (2016) inferred a decline for this species, based upon trends in the prairie portion of the DU. No evidence of decline in Ontario.
Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.	Unknown
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.	Unknown
Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.	Unknown, but population not anticipated to change significantly
Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over any 10 years, or 3 generations, over a time period including both the past and the future.	Unknown
Are the causes of the decline (a) clearly reversible, and (b) understood, and (c) ceased?	a. NA – no indication of decline in Ontario b. Yes c. NA – no indication of decline in Ontario
Are there extreme fluctuations in number of mature individuals?	No

Extent and occupancy information in Ontario

Extent and occupancy attributes	Value
Estimated extent of occurrence (EOO).	156 584 km ² (based on NHIC EO data entered into GeoCAT)
Index of area of occupancy (IAO).	At least 660 km ² (based on NHIC EO data entered into GeoCAT). Likely higher due

Extent and occupancy attributes	Value
	to incomplete sampling in Ontario)
Is the total population severely fragmented? i.e., is >50% of its total area of occupancy is in habitat patches that are: (a) smaller than would be required to support a viable population, and (b) separated from other habitat patches by a distance larger than the species can be expected to disperse?	a. No b. No
Number of locations.	Likely in the hundreds
Number of NHIC Element Occurrences	Not applicable.
Is there an observed, inferred, or projected continuing decline in extent of occurrence?	No
Is there an observed, inferred, or projected continuing decline in index of area of occupancy?	No evidence of decline in Ontario
Is there an observed, inferred, or projected continuing decline in number of populations?	Unknown
Is there an observed, inferred, or projected continuing decline in number of locations?	Unknown
Is there an observed, inferred, or projected continuing decline in [area, extent and/or quality] of habitat?	Unknown
Are there extreme fluctuations in number of populations?	No
Are there extreme fluctuations in number of locations?	No
Are there extreme fluctuations in extent of occurrence?	No
Are there extreme fluctuations in index of area of occupancy?	No

Number of mature individuals in each sub-population or total population (if known)

Unknown, but widespread distribution suggests it is likely in the tens of thousands range for the Designatable Unit that spans Northwestern Ontario to Alberta. Numbers for the Ontario portion of this DU are unknown.

Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is unknown.

Threats

A threats calculator was prepared for the Prairie/Western Boreal – Canadian Shield Designatable Unit of this subspecies in Canada by I. Adams, L-A Issac, K. Ovaska, B. McBride, J. Bogart, R. Poulin, C. Paszkowski, J. Keith and P. Moldowan. Some of the direct threats from their assessment apply primarily to areas outside of Ontario and are

annotated with an asterisk in this list. All of the threats listed below were assessed to have a low threat impact.

- Housing & urban areas* (limited mainly to seasonal cottage developments in northwestern Ontario which are seldom built on land that is not suitable as turtle habitat)
- Mining & quarrying
- Roads & railroads
- Hunting & collecting terrestrial animals* (more likely a concern for areas closer to larger population centres)
- Logging & wood harvesting
- Recreational activities
- Dams & water management/use*

Rescue effect

Rescue effect attribute	Value
Status of outside population(s) most likely to provide immigrants to Ontario	Minnesota: S5 Manitoba S4
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Possible but limited
Would immigrants be adapted to survive in Ontario?	Yes
Is there sufficient suitable habitat for immigrants in Ontario?	Yes
Are conditions deteriorating in Ontario?	No indication of decline in northwestern Ontario, although forest access road networks are expanding
Is the species of conservation concern in bordering jurisdictions?	No
Is the Ontario population considered to be a sink?	No
Is rescue from outside populations likely?	Possibly, but dispersal capabilities of this subspecies are limited, and Lake Superior and the rugged Canadian Shield further limit dispersal

Sensitive species

Western Painted Turtle is not a data sensitive subspecies.

Appendix 2: Adjoining jurisdiction status rank and decline

Information regarding rank and decline for Western Painted Turtle (*Chrysemys picta bellii*)

Jurisdiction	Subnational rank	Population trend	Sources
Ontario	S3?	Unknown	NatureServe (2017)
Quebec	Not Present	Not applicable	Not applicable
Manitoba	S4	Unknown	NatureServe (2017)
Michigan	S5*	Unknown	NatureServe (2017)
Minnesota	S5*	Unknown	NatureServe (2017)
Nunavut	Not Present	Not applicable	Not applicable
New York	Not Present	Not applicable	Not applicable
Ohio	Not Present	Not applicable	Not applicable
Pennsylvania	Not Present	Not applicable	Not applicable
Wisconsin	SNR	Unknown	NatureServe (2017)

* SRANK for species level, not subspecies

Acronyms

COSEWIC: Committee on the Status of Endangered Wildlife in Canada

COSSARO: Committee on the Status of Species at Risk in Ontario

EO: Element occurrence (as defined by NHIC)

EOO: extent of occurrence

ESA: Endangered Species Act

GRANK: global conservation status assessments

IAO: index of area of occupancy

MNRF: Ministry of Natural Resources and Forestry

NHIC: Natural Heritage Information Centre

NNR: Unranked

NRANK: National conservation status assessment

SARA: Species at Risk Act

SNR: unranked

SRANK: subnational conservation status assessment

S1: Critically imperiled

S3: Vulnerable

S5: Secure

IUCN: International Union for Conservation of Nature and Natural Resources

CDSEPO: Le Comité de détermination du statut des espèces en péril en Ontario