

**Ontario Species at Risk Evaluation Report for
Midland Painted Turtle
Tortue peinte du Centre
(*Chrysemys picta marginata*)**

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

Assessed by COSSARO as Not at Risk

September 2020

Tortue peinte du Centre (*Chrysemys picta marginata*)

La tortue peinte est une espèce de tortue d'eau douce, de petite à moyenne taille, qui est répandue en Amérique du Nord. Dans la partie orientale de son aire de répartition nord-américaine vivent trois sous-espèces reconnues de la tortue peinte : la tortue peinte de l'Ouest (*Chrysemys picta bellii*), la tortue peinte du Centre (*Chrysemys picta marginata*) et la tortue peinte de l'Est (*Chrysemys picta picta*). En règle générale, les tortues peintes jouent un rôle écologique de premier plan dans les écosystèmes aquatiques, ce qui comprend entre autres le cycle nutritif et la dissémination de graines. Les tortues peintes occupent également une place importante chez certains peuples autochtones de l'Ontario. Leur aire de répartition géographique très étendue, la façon grégaire dont elles se prélassent et leurs motifs facilement reconnaissables font en sorte que les naturalistes, les biologistes et le public en général connaissent bien cette espèce.

Les tortues peintes du Centre sont réparties dans tout le centre et le sud-ouest de l'Ontario. Cette espèce est souvent observée dans des terres humides aux eaux relativement peu profondes, de faible débit, pourvues d'une généreuse végétation. Sa présence est aussi enregistrée dans des lacs, des rivières, des ruisseaux et des cours d'eau où abondent les lieux de prélassement. L'habitat de la tortue peinte du Centre regorge habituellement de plantes aquatiques presque submergées qui servent d'abri et de nourriture. Le COSEPAC a évalué qu'il s'agit d'une espèce préoccupante. Après son évaluation, le CDSEPO a conclu que la tortue peinte du Centre n'est pas une espèce en péril en Ontario, puisqu'elle ne répond pas aux critères d'admissibilité dans cette catégorie.

Cette publication hautement spécialisée «COSSARO Candidate Species at Risk Evaluation for Midland 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 ministère l'Environnement, de la Protection de la nature et des Parcs au cossarosecretariat@ontario.ca

Executive summary

Painted Turtles (*Chrysemys picta*) are a small to medium-sized freshwater species of turtle that is widespread across North America. In the eastern portion of its North American range, Painted Turtles three subspecies are recognized: Western Painted Turtle (*Chrysemys picta bellii*), Midland Painted Turtle (*Chrysemys picta marginata*) and Eastern Painted Turtle (*Chrysemys picta picta*). In general, Painted Turtles play important ecological roles in aquatic ecosystems, that include but are not limited to nutrient cycling and seed dispersal. Painted Turtles are also of cultural importance for Aboriginal peoples in Ontario. Painted Turtles expansive geographic range, gregarious basking behaviour, and easily recognizable patterns have resulted in this species becoming well known to naturalists, biologists, and the public.

Midland Painted Turtles are distributed throughout central and southwestern Ontario. This species is typically found in slow moving, relatively shallow and well-vegetated wetlands. This species has also been documented in lakes, rivers, creeks, and streams where abundant basking sites are present. Submergent aquatic plants, which are used for cover and feeding are typical of Midland Painted Turtle habitat.

Road mortality, habitat loss, subsidized predators, introduced plant and animal species, climate change, fisheries by-catch, pollution, disease, and collection are considered threats to Midland Painted Turtles. Given the long generation times and low annual recruitment exhibited by this species, rapid environmental changes brought on by anthropogenic activities result in negative impacts to this species population persistence. Limiting factors for population persistence in Ontario include slow reproductive rate and low temperatures that limit reproductive success.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

Midland Painted Turtle (*Chrysemys picta marginata*) are recognized as one of three 3 subspecies of Painted Turtles (Western Painted Turtle [*Chrysemys picta bellii*], Midland Painted Turtle [*Chrysemys picta marginate*] and Eastern Painted Turtle [*Chrysemys picta picta*]).

1.1.2. Designatable units

The Ontario range of Midland Painted Turtle is considered a single population. Western Painted Turtle is present in the western portion of Ontario however the ranges of these two sub-species do not overlap. The Eastern Painted Turtle does not occur in Ontario.

1.1.3. Native status

This species is considered native to North America (NatureServe 2020).

1.1.4. Occurrence

Midland Painted Turtle is known to occur in Ontario (COSEWIC 2018).

1.2. Eligibility results

Midland Painted Turtle (*Chrysemys picta marginata*) is eligible for status assessment in Ontario.

2. Background information

2.1. Current designations

- GRANK: G5 (NatureServe 2020)
- IUCN: LC (2011)
- NRANK Canada: N5
- COSEWIC: Status Special Concern (April 2018)
- SARA: Special Concern (Under consideration for addition)
- ESA 2007: not previously assessed
- SRANK: S5 (ranked in 2016)

2.2. Distribution in Ontario

Midland Painted Turtles have been documented from at least 1400 10 Km² atlas squares in Ontario with species observations concentrated throughout central and southwestern Ontario. This subspecies has previously been reported as common in Prince Edward County (Christie 1997), eastern Ontario, and St. Lawrence Lowlands (Bleakney 1958). Historic documentation indicated that Midland Painted Turtles are “very common in every permanent body of water in [Leeds and Frontenac counties, Ontario]” (Toner 1936). Data available from the Ontario Reptile and Amphibian Atlas indicate that Midland Painted Turtle is present on Manitoulin Island. In northwestern Ontario, Midland Painted Turtle appear to reach the distributional limit in southern Algoma district (Mills 1948; Logier and Toner 1955). In northeastern Ontario, Midland Painted Turtles have been documented in Lake Temagami in north Nipissing district (Logier and Toner 1955), and in southern Timiskaming district as far north Cobalt (Weller 2009). Data available from the Ontario Reptile and Amphibian Atlas indicate this species has been documented as far north as Timmins.

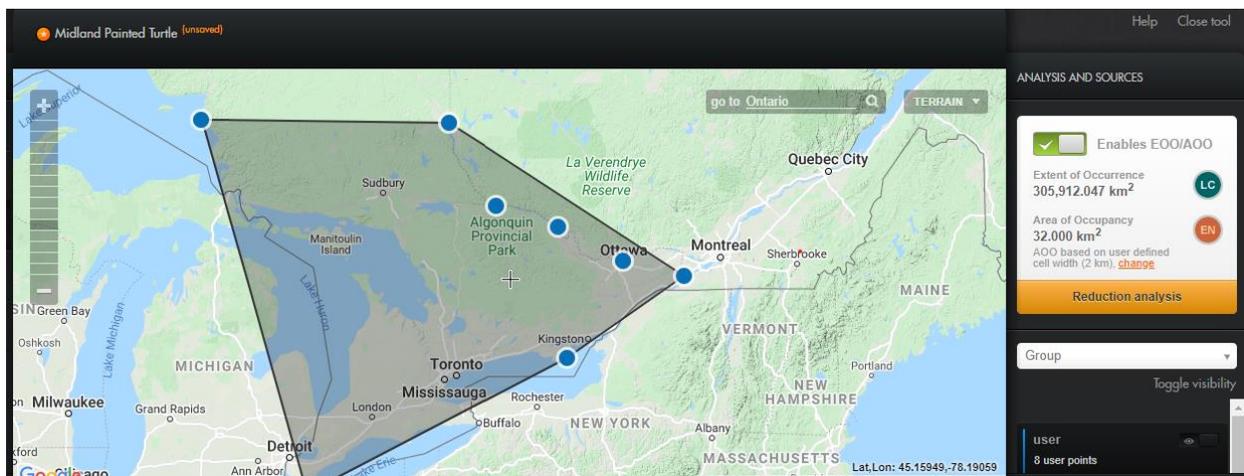


Figure 1. Records from Ontario perimeter of the range of Midland Painted Turtle using records from 2018 COSEWIC report. Created for this report using GeoCAT [website accessed September 20, 2020].

2.3. Distribution, broader biologically relevant geographic range and status outside Ontario

Midland Painted Turtles are found in shallow aquatic habitats with slow-moving water, soft bottoms, aquatic vegetation, and abundant basking sites in western Quebec, New York State, Pennsylvania, Ohio, Michigan, and Eastern Wisconsin.

2.4. Ontario conservation responsibility

Ontario represents approximately 15% of the total range.

2.5. Direct threats

The primary threats to Midland Painted Turtle include habitat degradation and loss, road mortality, invasive species, and subsidized predators. These threats are most prevalent in the southern portion of the province where human populations are at their highest densities. Sources of direct and indirect mortality are further outlined in the COSWEIC threats calculator provided in Appendix 1.

2.6. Specialized life history or habitat use characteristics

Midland Painted Turtles of at least 50 years of age have been documented in a long-term mark-recapture study conducted in Algonquin Provincial Park (Keevil and Riley 2012). Based on data collected in Ontario, age at maturity for Midland Painted Turtles can be at least 50% higher in northern subpopulations compared to southern conspecifics (e.g., southern Michigan; Samson 2003). As this species typically does not reach sexual maturity until the age 7 (males) and 16 (females), generation times are between 30 years in southern Ontario and 45 years of age in central and northern Ontario. Any increase in the age at maturity may have considerable implications for population persistence, especially where additive adult mortality and/or chronic nest/recruitment failure occur.

Midland Painted Turtles experience high and stochastic mortality rates at the egg and juvenile stages but very high adult survival, consistent with a bet-hedging life history strategy (Congdon and Tinkle 1982; Midwood et al. 2015). This species has slow recruitment as a result of low, but highly variable, reproductive investment, nest survival, and juvenile survival (Wilbur 1975b; Zweifel 1989). As a result of slow recruitment, imbalances in age and sex structure of a population can persist for extended periods of time.

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

Insufficient information.

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

Not applicable. This species has a relatively broad distribution across Ontario. The EOO exceeds 300,000 Km². The IAO And number of locations where this species is known to occur in Ontario also greatly exceeds thresholds.

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

Not applicable. The exact population size is unknown but is likely to exceed 10,000 adults distributed across numerous subpopulations, the sizes of which are unknown.

3.1.4. Criterion D – Very small or restricted total population

Not applicable. The number of mature individuals is greater than 1,000 and the IAO is greater than 20 km² an includes more than 5 locations.

3.1.5. Criterion E – Quantitative analysis

Insufficient information. Quantative analysis not completed.

3.2. Application of Special Concern in Ontario

Not applicable. Available data does not include information related to abundance within the province that is sufficient to determine if persistence of this species is increasingly threatened. While wetland loss has been proposed as a threat to this species (COSWEIC 2018) there is insufficient data to demonstrate declines in this species in the last three generations. While the threats are significant in portions of its range and local extirpation is possible, this species is not approaching any of the thresholds for consideration as *Threatened* in Ontario. The population is not vulnerable to any catastrophic events and it occurs in a wide variety of aquatic habitats.

3.3. Status category modifiers

3.3.1. Ontario's conservation responsibility

Estimated to be ~15% given the species range throughout the northern United States.

3.3.2. Status modification based on rescue effect

Immigration from Quebec and adjacent American states is possible; however, this would only apply to locations along the Great Lakes (e.g. Detroit River) and Ontario/Quebec boarder. The likelihood of this occurring is low as this species demonstrates low migration and movement distances. Immigrants would likely be adapted to survive in Ontario. Potential for rescue is considered to be limited.

3.4. Other status categories

3.4.1. Data deficient

While available datasets for this species include observational data from across the province, declines are generally inferred from wetland loss and projected decline resulting from ongoing threats. Current data provides limited evidence of population-level declines in southern Ontario; however, absence of baseline data limits knowledge of population declines over the past 3 generations.

3.4.2. Extinct or extirpated

Not applicable.

3.4.3. Not at risk

This species does not qualify under any of the above classifications and as such is recommended to be listed as Not at Risk.

4. Summary of Ontario status

Midland Painted Turtle (*Chrysemys picta marginata*) is classified as Not at Risk in Ontario based on not meeting any of the criterion for being at risk.

This status of this species is consistent with the definition of Not at Risk under the Endangered Species Act, 2007.

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Appendix 1: Technical summary for Ontario

Species: Midland Painted Turtle (*Chrysemys picta marginata*)

Demographic information

Demographic attribute	Value
<p>Generation time. Based on average age of breeding adult: age at first breeding = X year; average life span = Y years.</p>	<p>~30 years (southern subpopulations) ~45 years (central-northern subpopulations)</p>
<p>Is there an observed, inferred, or projected continuing decline in number of mature individuals?</p>	<p>No. Declines are inferred from wetland loss and projected decline from ongoing threats. Current data provides limited evidence of population-level declines in southern Ontario; however, absence of baseline data limits knowledge of population declines over the past 3 generations.</p>
<p>Estimated percent of continuing decline in total number of mature individuals within 5 years or 2 generations.</p>	<p>Unknown. Quantitative analyses are not available.</p>
<p>Observed, estimated, inferred, or suspected percent reduction or increase in total number of mature individuals over the last 10 years or 3 generations.</p>	<p>Unknown. Insufficient baseline data over past 3 generations (90-135 years). Quantitative analyses of regional or range-wide abundance and population status are not currently available.</p>
<p>Projected or suspected percent reduction or increase in total number of mature individuals over the next 10 years or 3 generations.</p>	<p>Unknown. No quantitative analyses of regional or range-wide abundance and population status are available; however, declines are assumed based on habitat loss/reduction.</p>
<p>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.</p>	<p>Unknown. Quantitative analyses of range-wide abundance and population status are not available. There is some evidence of</p>

Demographic attribute	Value
	population declines, including decline in number of mature individuals, in the southern portions of the province.
Are the causes of the decline (a) clearly reversible, and (b) understood, and (c) ceased?	<p>a. No, threats are not reversible.</p> <p>b. Yes, threats largely thought to be understood.</p> <p>c. No, threats ongoing.</p>
Are there extreme fluctuations in number of mature individuals?	No. Population growth or declines are likely to occur over an extended period of time making them difficult to detect.

Extent and occupancy information in Ontario

Extent and occupancy attributes	Value
Estimated extent of occurrence (EOO). <i>If value in COSEWIC status report is not applicable, then use geocat.kew.org. State source of estimate.</i>	140,010 Km ²
Index of area of occupancy (IAO). <i>If value in COSEWIC status report is not applicable, then use geocat.kew.org. State source of estimate.</i>	At least 5,600 Km ² in southern ON based on area of wetlands
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?	<p>a. No</p> <p>b. No</p>
Number of locations. <i>See Definitions and Abbreviations on COSEWIC and IUCN websites for more information on the term "location". Use plausible range to reflect uncertainty if appropriate.</i>	Unknown. Road mortality is considered one of the greatest threats throughout the species' range; however, this varies across the landscapes that encompass individual subpopulations. The number of locations is conservatively estimated to be large (i.e., >>10).
Number of NHIC Element Occurrences	Insert if available

Extent and occupancy attributes	Value
<i>Request data from MNRF.</i>	
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.
Is there an observed, inferred, or projected continuing decline in number of sub-populations or EOs?	No.
Is there an observed, inferred, or projected continuing decline in number of locations?	No.
Is there an observed, inferred, or projected continuing decline in [area, extent and/or quality] of habitat?	Yes. Observed, inferred, and projected decline in area, extent, and quality of habitat.
Are there extreme fluctuations in number of populations?	No. Life history constrains population growth rates. Declines, if any, are likely to occur steadily over an extended period of time.
Are there extreme fluctuations in number of locations?	No. Relatively short dispersal distance and small range size limit fluctuation in number of locations.
Are there extreme fluctuations in extent of occurrence?	No. Relatively short dispersal distance and small range size limit fluctuation in extent of occurrence.
Are there extreme fluctuations in index of area of occupancy?	No. Relatively short dispersal distance and small range size limit fluctuation in extent of occurrence.

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

The total number of adults is not known but is estimated to be in excess of 10,000.

Quantitative analysis (population viability analysis conducted)

Probability of extinction in the wild is unknown. No quantitative analyses of regional or range-wide abundance, population status, or projections available.

Threats

Yes; completed by COSEWIC as part of the April 2018 assessment.

Overall Threat Impact High (high range) and Medium (low range).

- i. Roads (4.1) – major source of mortality during dispersal and seasonal movements, nesting on roads/shoulders, and nest compaction on roadside nests; increased traffic volume, and to lesser extent road expansion will exacerbate problem. Predicted impact: Medium-Low (Scope Large Restricted, Severity Moderate)
- ii. Invasive Non-Native/Alien Species (8.1) - Common Reed and Canary Reed Grass displacing turtles from wetland habitat and encroaching on nesting habitat. Red-eared Sliders (*Trachemys scripta*) and other non-native turtles as competitors and disease/parasite vectors. Asian carp and sport fish introductions (bass, muskellunge, pike, etc.) as source of mortality for young turtles. Predicted impact: Low (Scope Restricted, Severity Slight)
- iii. Residential and commercial development (1.1,1.2) - eliminating habitat. Predicted impact: Low (Scope Small, Severity Serious)
- iv. Fishing and Harvesting Aquatic Resources (5.4) – by-catch of turtles likely grossly under-reported. Predicted impact: Low (Scope Small, Severity Moderate-Slight)
- v. Recreational Activities (6.1) – boating and fishing source of mortality, injury (hook ingestion), and frequent disturbance of basking; beach recreation disturbs nesting and contributes to nest failure from erosion/soil compaction; off-road vehicle use source of mortality and nest destruction. Predicted impact: Low (Scope Small, Severity Slight)
- vi. Problematic Native Species (8.2) - Subsidized (nest) predators in urban and semi-urban areas a major threat. Recent isolated cases of Common Raven depredation of nesting female Painted Turtles. Predicted impact: Low (Scope Small, Severity Slight)
- vii. Logging and Wood Harvesting (5.3) – degradation of aquatic habitat due to adjacent terrestrial harvesting activity. Predicted impact: Low (Scope Small, Severity Slight).

Rescue effect and broader biologically relevant geographic range

Rescue effect attribute	Value
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	Yes.
Status of outside population(s) most likely to provide immigrants to Ontario	T5 (Quebec)
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Yes.

Rescue effect attribute	Value
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	Yes.
Would immigrants be adapted to survive in Ontario?	Probably.
Is there sufficient suitable habitat for immigrants in Ontario?	Yes.
Are conditions deteriorating in Ontario?	Yes. The loss of > 70% of wetlands in southern Ontario over the past 200 years has likely resulted in loss of habitat for this species.
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?	Unknown.

Sensitive species

Not applicable.

Appendix 2: Broader biologically relevant geographic range

Information regarding rank and decline for Midland Painted Turtle (*Chrysemys picta marginata*)

Adjacent Jurisdictions	Biologically Relevant to Ontario (n/a, yes, no)	Status & Trends	Condition	Notes & Sources
Quebec	Yes	S4		NatureServe (2020)
Michigan	Yes	S5		NatureServe (2020)
New York	Yes	S5		NatureServe (2020)
Ohio	No			Population separated by Great Lakes
Pennsylvania	No			Population separated by Great Lakes
Wisconsin	No			Population separated by Great Lakes

Broader Biologically Relevant Geographic Range in Other Jurisdictions

In Canada, the Broader Biologically Relevant Range includes Quebec. Movements of individuals between Quebec and Ontario are likely to be limited to areas proximate to the provincial borders. This species is present in several States; however, as Midland Painted Turtles avoid large bodies of water, these additional states are not biologically relevant as they are located across the Great Lakes from Ontario.

Global Status and Trends

Midland Painted Turtle as a subspecies of Painted Turtle (*Chrysemys pica*) is ranked as G5. General trends are unknown.

Acronyms

COSEWIC: Committee on the Status of Endangered Wildlife in Canada
COSSARO: Committee on the Status of Species at Risk in Ontario
ESA: Endangered Species Act
EO: Element occurrence (as defined by NHIC)
EOO: extent of occurrence
GRANK: global conservation status assessments
IAO: index of area of occupancy
IUCN: International Union for Conservation of Nature and Natural Resources
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
S2: Imperiled
S3: Vulnerable
S4: Apparently Secure
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