

Ontario Species at Risk Evaluation Report for
Cougar (*Puma concolor*)

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

Assessed by COSSARO as Special Concern

November 2022

Executive summary

The cougar is a long-lived felid species with a moderate reproduction rate. Kitten survival from birth to twelve months is between 74 and 80% and the life expectancy of an adult cougar is 8 to 13 years. All parenting is done by the female, who may mature reproductively as early as 20 months of age with age of breeding being determined by social status. Gestation is approximately 91 days, litter frequency is 18-24 months, and the average litter is 2-3 kittens (range 1 to 6). Cougars may mate in any season and females tend to breed again when they have lost a litter. Cougars are solitary and rarely found together except when mating or when the female is raising young. As males tend to disperse more frequently and over greater distances, they are usually the first cougar to be identified in new jurisdictions. Cougars tend to avoid areas of human settlement, making encounters between cougars and humans rare. Although periodic sightings of eastern cougars do occur in Ontario, they are rare, and as yet there is limited evidence of a breeding population.

1. Eligibility for Ontario status assessment

1.1. Eligibility conditions

1.1.1. Taxonomic distinctness

There continues to be considerable dispute with respect to the taxonomic validity of *F. c. 'cougar'*, it is a generally accepted subspecific designation (Wilson and Reeder 2005). Element occurrences in northwestern Ontario are likely to be from western range expansion.

1.1.2. Designatable Units

Taxonomic and nomenclatural improprieties aside, however, irrespective of name, a native population of the species would fall under one distinct designatable unit in Ontario.

1.1.3 Native status

Historically, cougar (*Puma concolor cougar*) were thought to be native throughout Ontario. However, no specimen of cougar has been taken in the province, no Ontario specimen is found in any institutional collection, and consequently there is actually no means of proving or disproving the purported occurrence of '*F. c. cougar*' in Ontario.

At present, 'modern' reports of cougar in northwestern Ontario (particularly north and west of Lake Superior [i.e., Thunder Bay and Kenora districts, and possibly Rainy River Dist.] are thought to be 'wild', native animals of undetermined subspecific status, but likely present due to western range expansion. It is plausible that a significant number of these animals originate from captive stock. It is also generally accepted that reports of

cougar in extreme southern Ontario involve escaped or released captives. However, there is currently no evidence to base these claims.

1.1.4 Occurrence

There are currently 15 possible occurrences of eastern cougar in northwestern Ontario (NHIC data 2020), six of which are pending genetic testing for confirmation.

1.2. Eligibility results

The eastern cougar is eligible for assessment in Ontario

2. Background information

2.1. Current designations

- GRANK: G5TXQ – presumed extirpated
- IUCN: Not assessed
- NRANK Canada: N4N5
- COSEWIC: Data Deficient (1998)
- SARA: None
- ESA 2007: Extinct
- SRANK: NA

2.2. Distribution in Ontario

The historic (c1600) range of this species in Canada and the United States was estimated to be 8,900,000 km². By 1983, the range was estimated to be 3,983,000 km², a decrease of over 50% with most loss of historical range occurring before 1900 in eastern North America. (NHIC 1997).

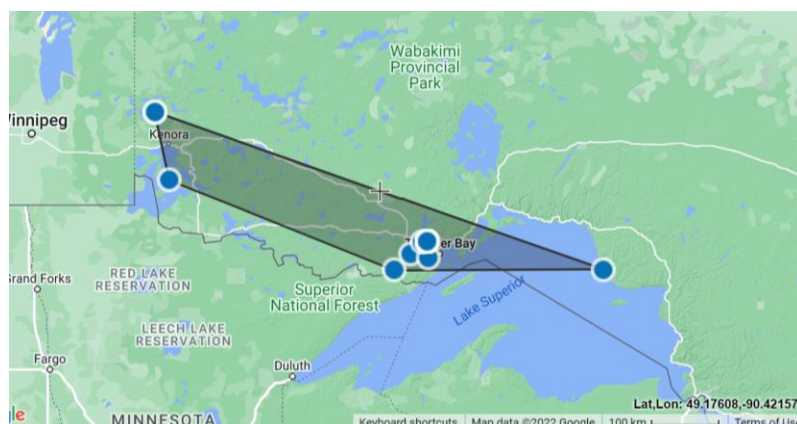
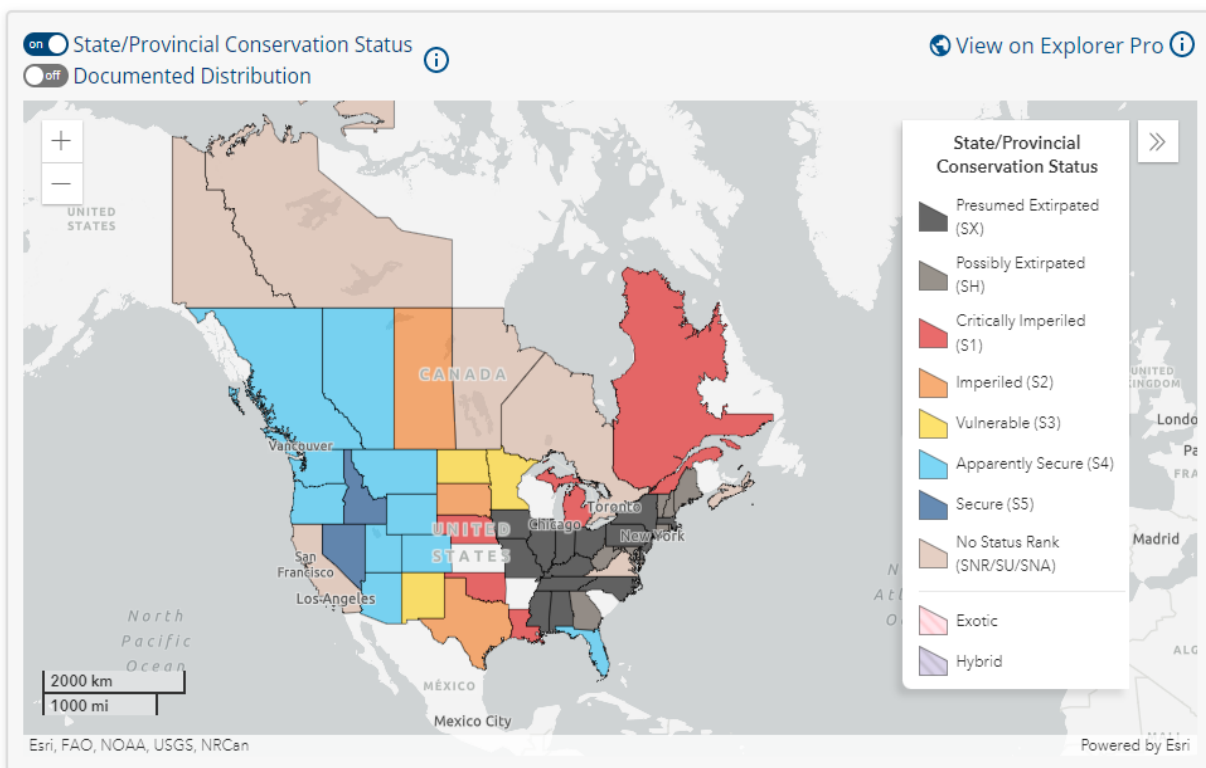


Figure 1: Distribution map of Eastern Cougar occurrences in Ontario. EOO (50,243 km²) and IAO (32 km²) estimated from GeoCat from 2017 to 2021.

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

Western cougars are abundant in western Canada, with established breeding populations confirmed in British Columbia, Alberta and Saskatchewan. The presence of cougar has been confirmed in the Yukon Territory, Northwest Territories and Manitoba, which are not considered to be within the historical range of cougar. This suggests that populations of the cougar in the west are expanding eastward and northward, possibly following the expansion of the deer population.

Possible occurrences and population sizes and trends have not been assessed in any jurisdictions bordering Ontario, and all are presumed extirpated.



Adjacent Jurisdictions	Biologically Relevant to Ontario (n/a, yes, no)	Condition	Notes & Sources
Quebec	Yes	S1 Critically Imperiled	NatureServe
Manitoba	Yes	NSR	NatureServe
Michigan	Yes	S1 Critically Imperiled	NatureServe

Adjacent Jurisdictions	Biologically Relevant to Ontario (n/a, yes, no)	Condition	Notes & Sources
Minnesota	Yes	S3 Vulnerable	NatureServe
New York	Yes	SX Presumed Extinct	NatureServe
Ohio	Yes	SX Presumed Extinct	NatureServe
Pennsylvania	Yes	SX Presumed Extinct	NatureServe
Wisconsin	Yes	SX Presumed Extinct	NatureServe
<i>Other Relevant Jurisdiction</i>			

2.4. Ontario conservation responsibility

Low – if there are cougars in Ontario breeding in the wild, they are unlikely to contribute to the overall conservation of eastern cougars.

2.5. Direct threats

There is currently no widespread acute threat to cougar populations anywhere in Canada. Human related deaths include regulated sport hunting and control due to livestock predation or human-cougar conflicts. Other threats include habitat loss, degradation or fragmentation and prey depletion. Cougars in eastern Canada remain unknown as to their breeding status.

2.6. Specialized life history or habitat use characteristics

None.

Ontario status assessment

2.7. Application of endangered/threatened status in Ontario

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

Unknown

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

Unknown

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

Unknown

2.7.4. Criterion D – Very small or restricted total population

Unknown

2.7.5. Criterion E – Quantitative analysis

Does not apply/inconclusive.

2.8. Application of Special Concern in Ontario

Applies. While the presence of cougar in Ontario is either of unknown or unconfirmed origin, it's presence does suggest a re-establishing population that may be of concern. Should the population establish breeding pairs and expand their range over time, the species would be eligible for de-listing.

2.9. Status Category Modifiers

2.9.1. Ontario's conservation responsibility

Ontario's conservation responsibility for eastern cougar is low.

2.9.2. Status modification based on rescue effect or level of risk in broader

biologically relevant range

Not applicable.

2.10. Other status categories

2.10.1. Data deficient

Applies - despite purported sightings in the past two decades from southeastern Ontario, and relatively few sightings in northwestern Ontario, there has been no evidence collected yet of a breeding population. Thus, there are insufficient data to evaluate the taxonomy or assign a status to this species. It is still unknown the origin of occurrences, and some sightings may be of escaped pets.

2.10.2. Extinct or extirpated

Not applicable.

2.10.3. Not at risk

Not applicable.

3. Summary of Ontario status

The eastern cougar, *Puma concolor*, is classified as Special Concern in Ontario.

This status of this species is consistent with the definition of Special Concern under the Endangered Species Act, 2007.

4. Information sources

Bertrand, A.-S., S. Kenn, D. Gallant, E. Tremblay, L. Vasseur, and R. Wissink. 2006. MtDNA analyses on hair samples confirm cougar, *Puma concolor*, presence in southern New Brunswick, Eastern Canada. *Can. Field-Nat.*, 120: 438-442.

Gerson, H.B. 1988. Cougar, *Felis concolor*, sightings in Ontario. *Can. Field-Nat.*, 102:419-424.

Lang, L.D., N. Tessier, M. Gauthier, R. Wissink, H. Jolicoeur, F.-J. Lapointe. 2013. Genetic confirmation of cougars (*Puma concolor*) in Eastern Canada.

Scott, F. W. 1997. Update of the Status Report on Eastern Populations of the Cougar or Puma (*Puma concolor* cougar) in Canada. Report to the Committee On The Status

Of Endangered Wildlife In Canada (COSEWIC), Ottawa. 26 pp.

Van Zyll de Jong, C.G. and E. van Ingen. 1978. Status Report on the Cougar (eastern population), *Felis concolor couguar*, in Canada. Committee On The Status Of Endangered Wildlife In Canada (COSEWIC), Ottawa. 25 pp.

Appendix 1: Technical summary for Ontario

Species: Cougar, eastern population

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.	Unknown, but likely ~5 years
Is there an observed, inferred, or projected continuing decline in number of mature individuals?	Unknown
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
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.
Are there extreme fluctuations in number of mature individuals?	Unknown, but not likely

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>	50,243 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>	32 km ²

Extent and occupancy attributes	Value
Is the total population severely fragmented? i.e., is >50% of its total area of occupancy 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. Unknown b. No
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
Number of NHIC Element Occurrences <i>Request data from MNRF.</i>	15
Is there an observed, inferred, or projected continuing decline in extent of occurrence?	Unknown
Is there an observed, inferred, or projected continuing decline in index of area of occupancy?	Unknown
Is there an observed, inferred, or projected continuing decline in number of sub-populations or EOs?	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?	Unknown
Are there extreme fluctuations in number of locations?	Unknown
Are there extreme fluctuations in extent of occurrence?	Unknown
Are there extreme fluctuations in index of area of occupancy?	Unknown

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

Sub-population (or total population)	Number of mature individuals
Ontario	<i>Unknown</i>

Quantitative analysis (population viability analysis conducted)

The most recent PVA suggests that the population will be stable in the near-future (Patterson and Murray, 2008).

Threats

Key threats (based on COSEWIC 2020) were identified as:

- I. Livestock farming and ranching (IUCN 2.3), primarily on the wintering grounds – medium threat impact
- II. Logging and wood harvesting (IUCN 5.3), primarily on the wintering grounds, but also to a lesser extent on the breeding grounds – medium threat impact
- III. Climate change and severe weather (IUCN 11), especially drought on the wintering grounds – low to medium threat impact
- IV. Residential and commercial development (IUCN 1), notably collisions with tall – low threat impact
- V. Annual and perennial non-timber products (IUCN 2.1), primarily on the wintering grounds – low threat impact
- VI. Energy production and mining (IUCN 3) – low threat impact
- VII. Utility and service lines (IUCN 4.2), especially collisions with communication towers – low threat impact
- VIII. Other ecosystem modifications (IUCN 7.3) – low threat impact.

Rescue effect

Rescue effect attribute	Value
Does the broader biologically relevant geographic range for this species extend beyond Ontario?	No
Status of outside population(s) most likely to provide immigrants to Ontario	No
Is immigration of individuals and/or propagules between Ontario and outside populations known or possible?	Unknown
Would immigrants be adapted to survive in Ontario?	Yes
Is there sufficient suitable habitat for immigrants in Ontario?	Yes
Are conditions deteriorating in Ontario?	Unknown
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

Acronyms

APP: Algonquin Provincial Park

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