Wolverine status, threats, and research in Ontario

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Thunder Bay, ON

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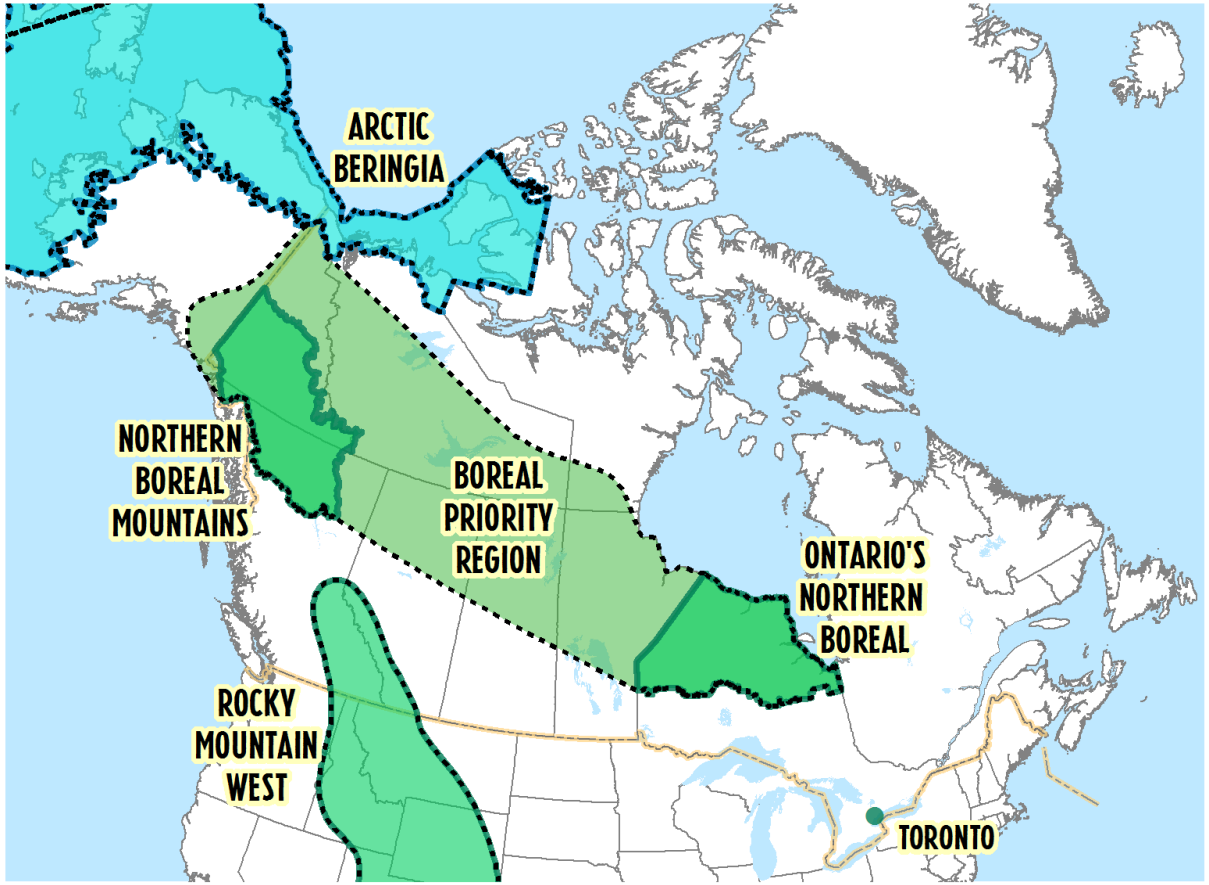
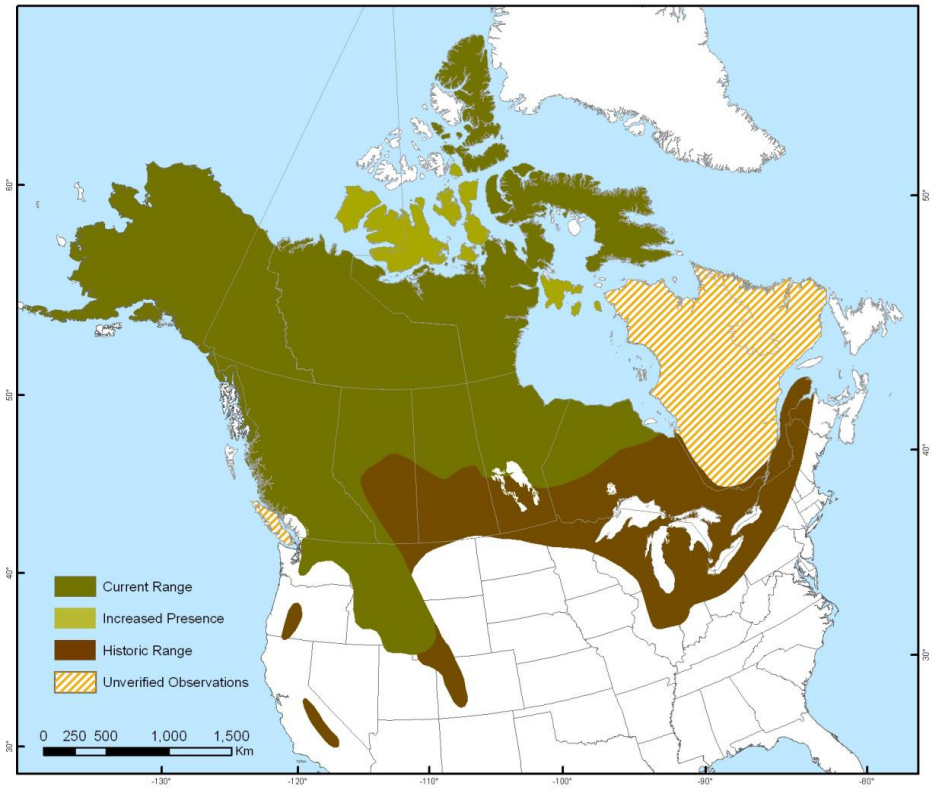
Credit: Liam Cowan

WCS Canada



- Generate, share and apply science and expert opinion to achieve conservation results
- In Ontario, we have focused on three wildlife species: caribou, wolverine, and lake sturgeon, and Far North-related policies (species at risk, impact assessment, land use planning)

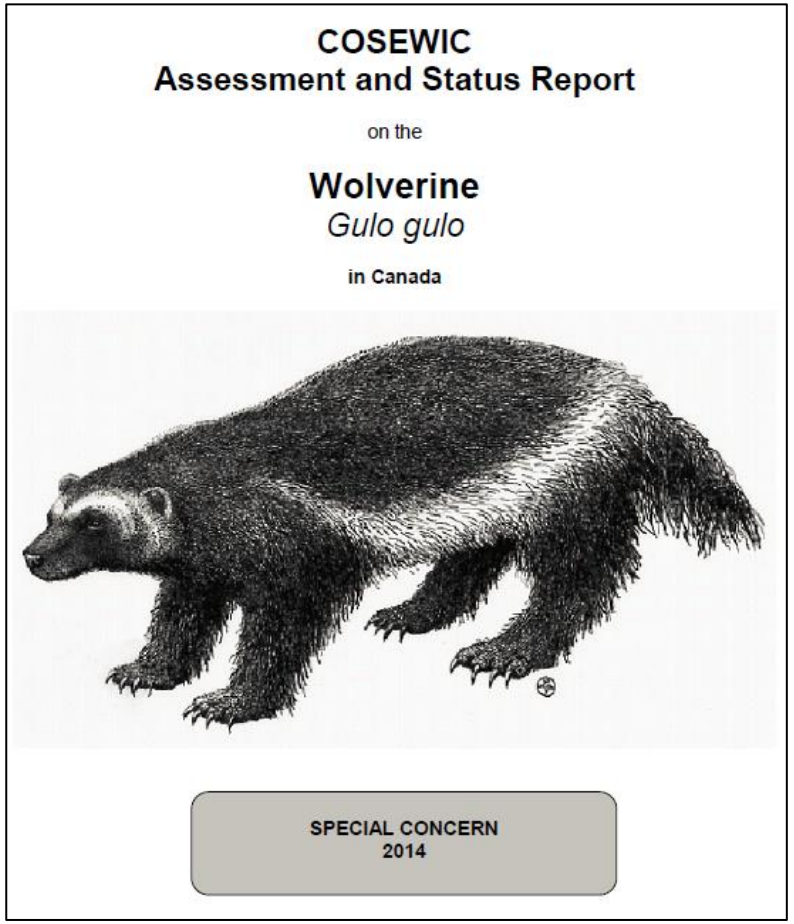
Wolverine distribution in North America (COSEWIC 2014)



- Found in mountain, boreal, and arctic tundra environments
- Resides in remote habitats where it is difficult to monitor or conduct research

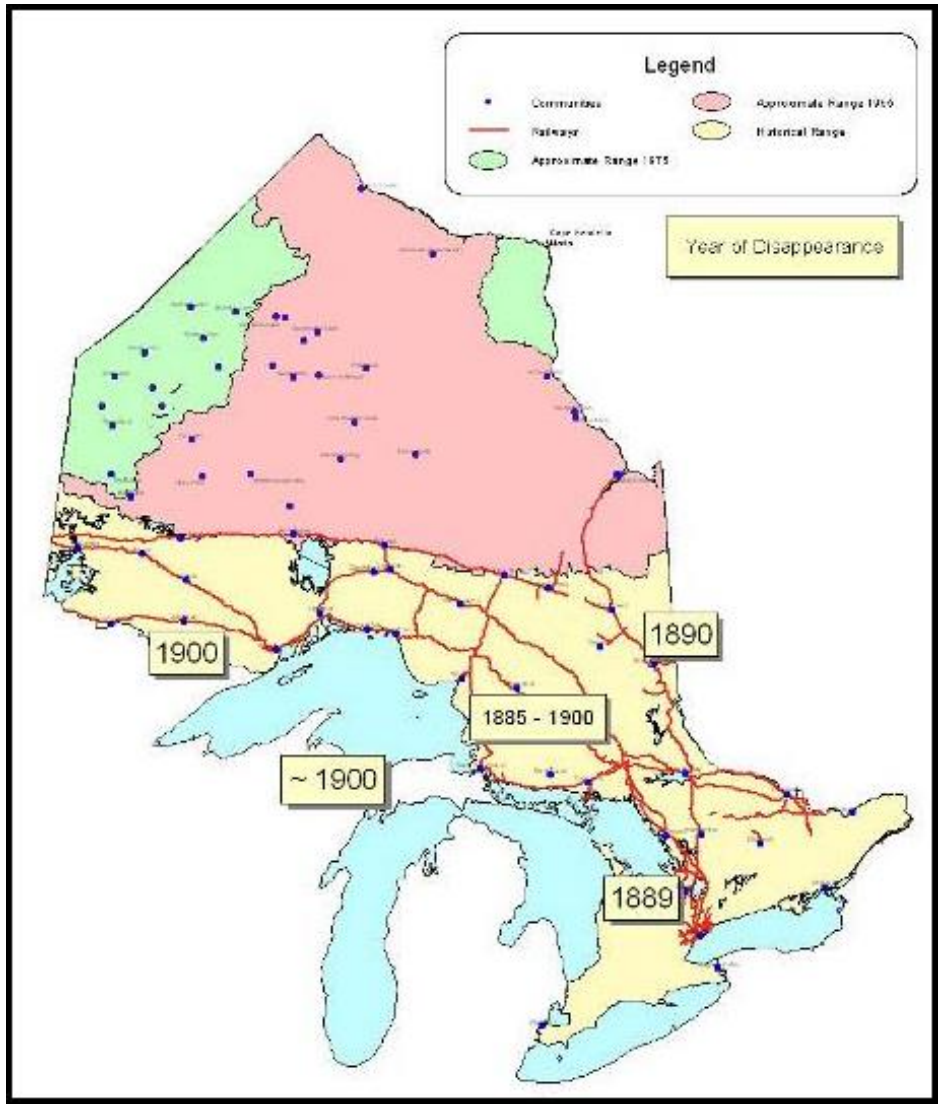
Wolverine population status in Canada

- Species at Risk Act
  - *Special Concern*
    - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
- Provincial or territorial status
  - Vulnerable (AB, BC, MB, NWT, SK, YT) -> Threatened (ON, QC) -> Endangered (NL)

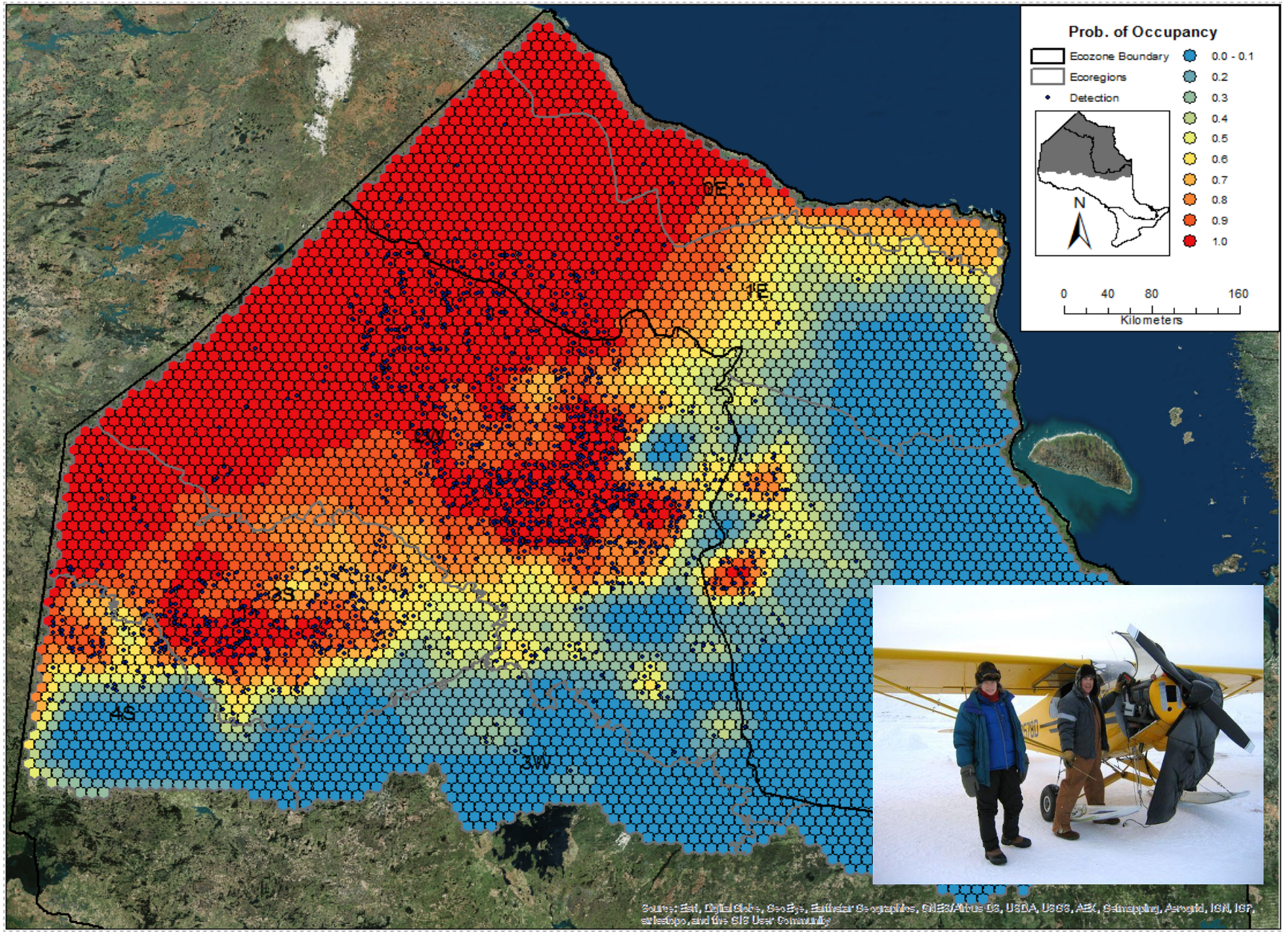


Wolverine population status in Ontario

- Province wide before European settlement
- ~1900 wolverines found north of Far North line
- ~1970s found in isolated regions of northern Ontario

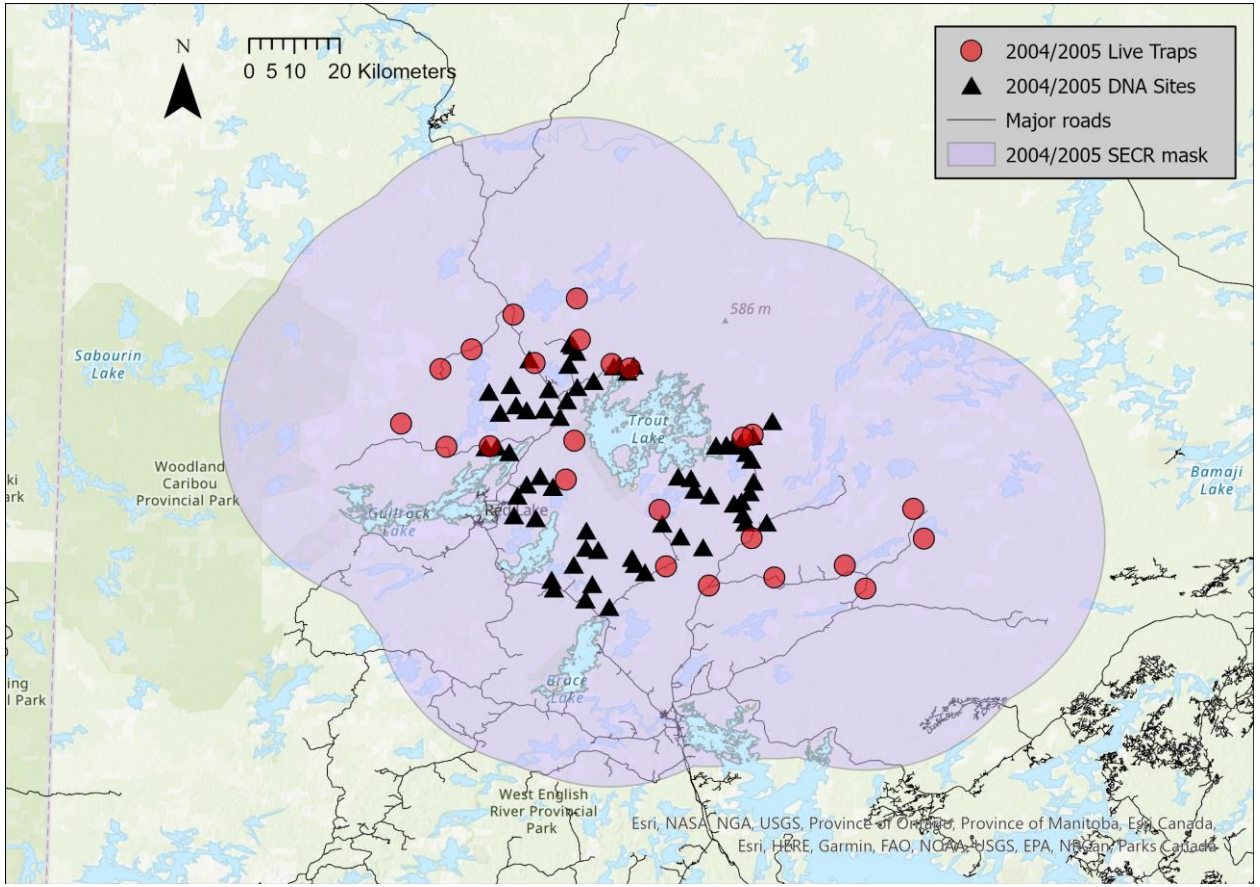


Current wolverine distribution in Ontario (Ray et al. 2018; *Journal of Biogeography*)



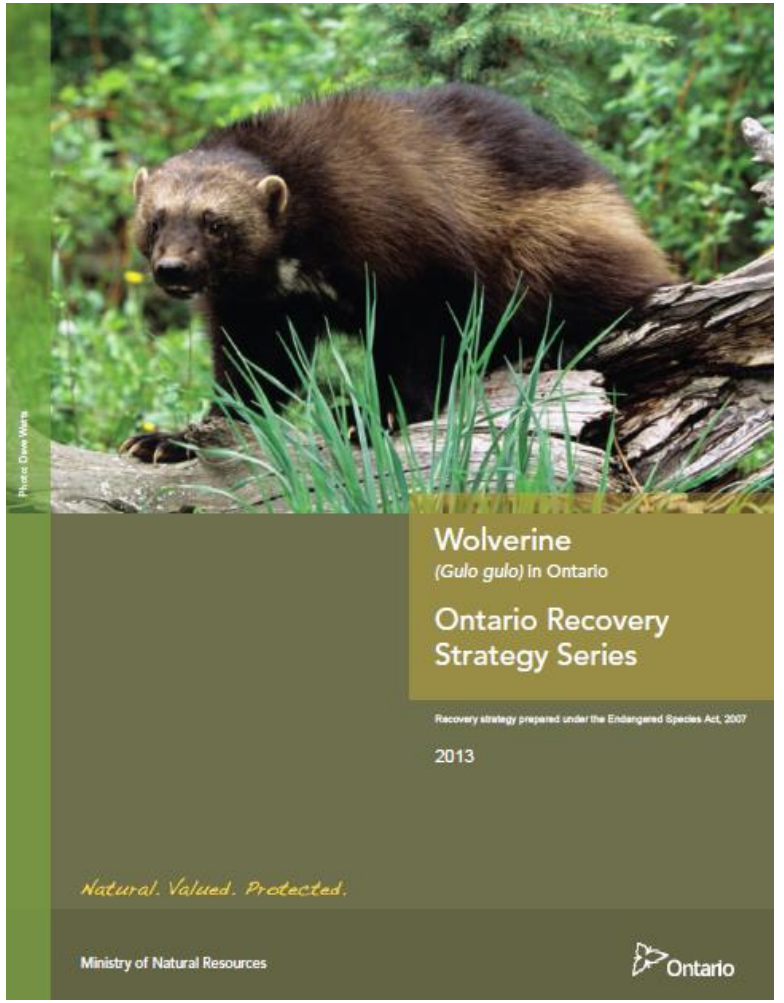
Prior estimates of wolverine abundance in Red Lake and all of Ontario

- 2004/2005 DNA and live trapping data in Red Lake = 1.4 wolverines/1000 km^2 over a 7,626 km^2 study area (Dawson et al. unpublished data)
- 458 to 645 wolverines in Ontario based on suspected areas of high and low wolverine density (COSSARO 2014)
- “A rough population estimate using expert opinion and comparisons with neighboring jurisdictions is ~ 300 wolverines” (Slough 2007)
- Qualifies for Threatened status based on small population size (<1000 mature individuals) (COSSARO 2014)



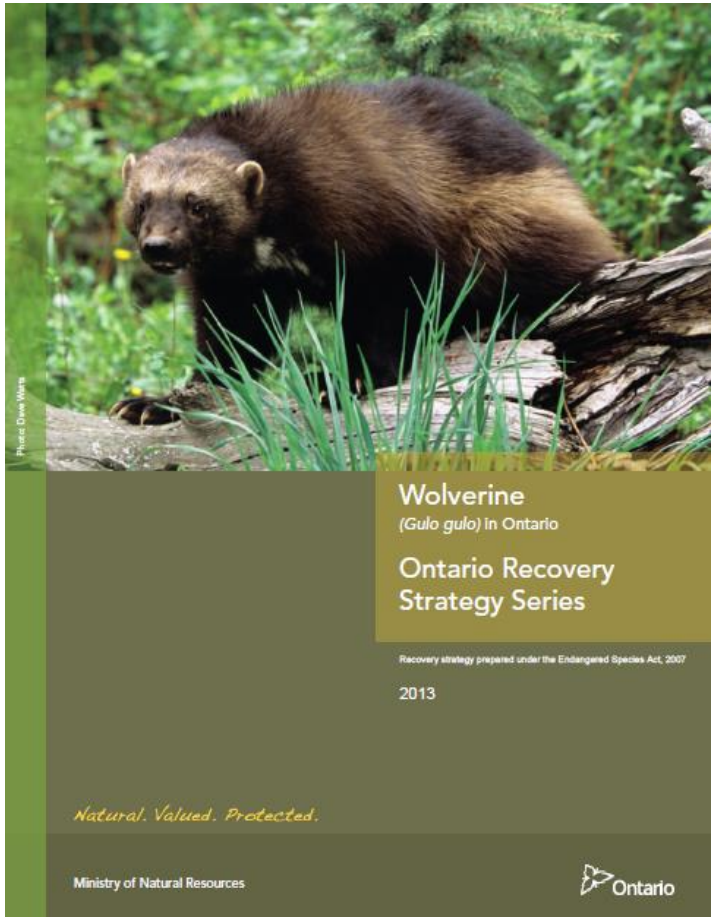
Wolverine recovery in Ontario

- Wolverine Recovery Strategy drafted in 2013
  - “The government's goal for the recovery of the Wolverine is to maintain the current distribution of Wolverine in Ontario and support natural increases in the population abundance and distribution.”



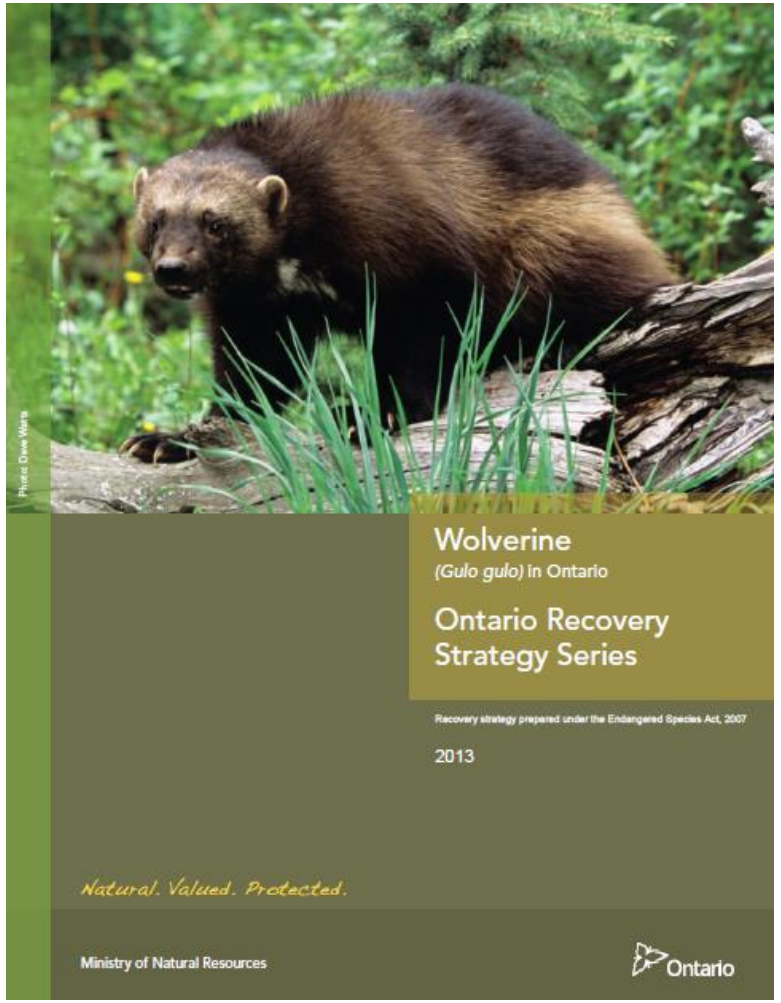
Threats to wolverines (from Recovery Strategy)

- Wolverines have low reproductive potential with heightens risk
- Climate change
    - Denning habitat
    - Physiological stress
    - Habitat change (e.g., forest fire)
- Habitat loss
    - Roads
    - Forestry
    - Mining
    - Loss of prey
- Fur harvest
- Recreation



Wolverine recovery in Ontario

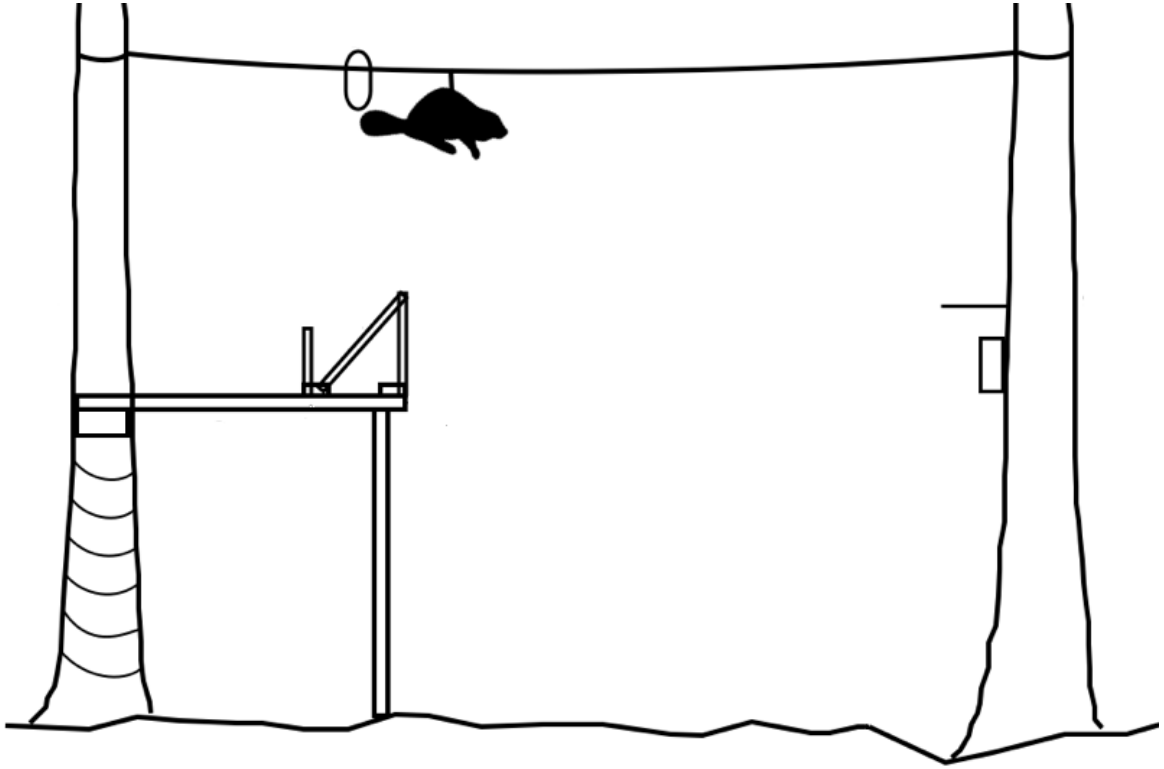
- Government Response Statement to the Recovery Strategy was drafted in 2016
  - 14 actions identified
  - High priority actions
    - Conduct inventory
    - Research the species habitats needs
    - Develop best-management practices
    - Reduce incidental harvest



Wolverine recovery in Ontario

- We developed a study to address high-priority action items in the GRS
- Fine-scaled understanding of wolverine ecology was needed – particularly in areas with forestry
- Objectives:
  - Producing data that quantifies wolverine abundance in Red Lake and across the Ontario shield (Action #1).
  - Determining wolverine habitat use and den-site selection in response to industrial disturbance; produce information on mortality and movement (Actions #2 and #4).
  - Developing best-management practices for human activities in wolverine habitats (Actions #7 and #13).

How do we detect wolverines?



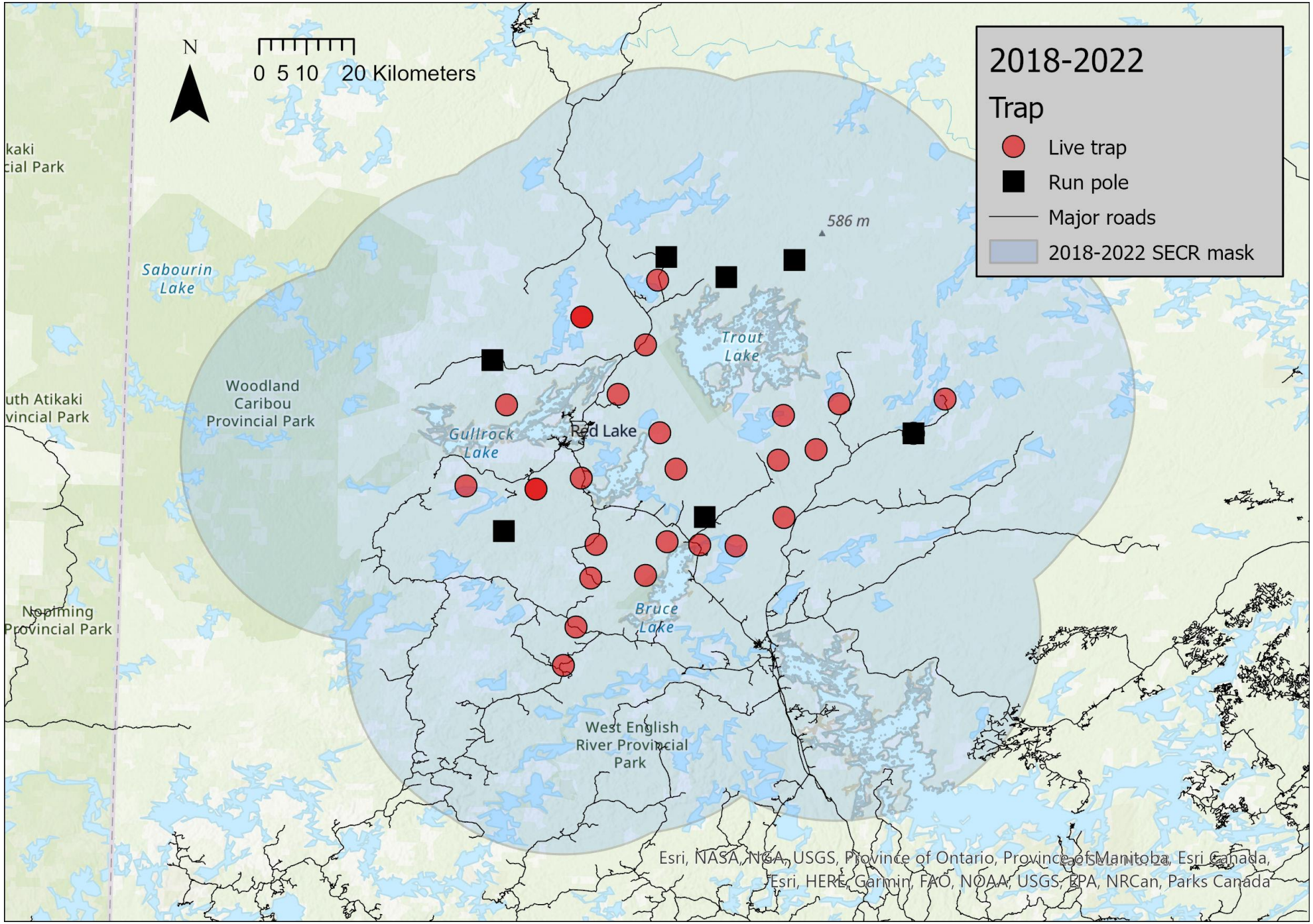

2019-12-24 12:54:04 PM M 3/3
-6°C
PC800 PROFESSIONAL
RECONYX


2019-03-31 14:49:58 M 3/3 5°C
HF2 PRO COVERT
RECONYX

How do we detect wolverines?


2015-03-23 4:37:24 PM M 3/3 0°C
HC600 HYPERFIRE
RECONYX

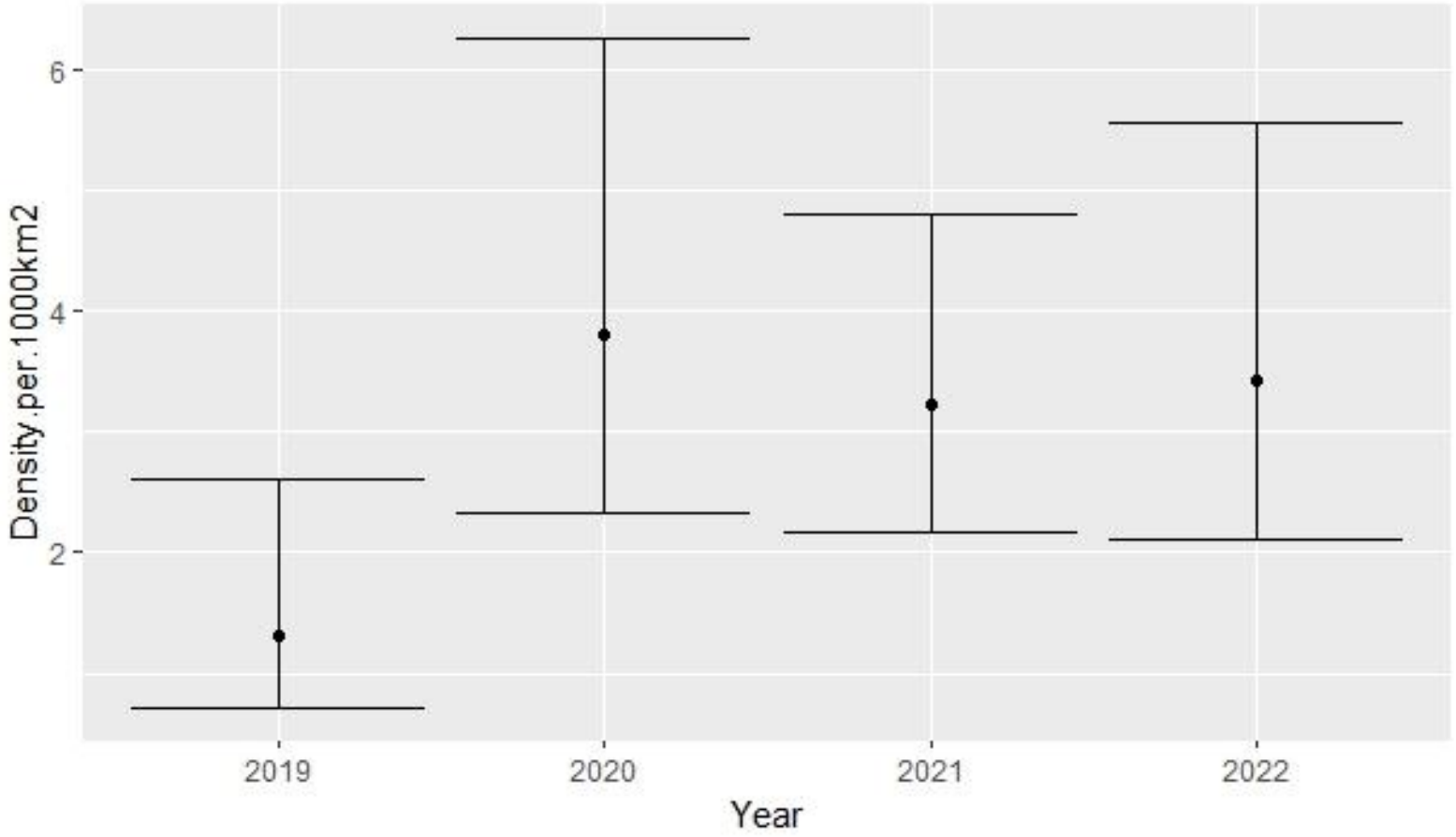
~ 6,000 km^2 grid of live traps and run poles



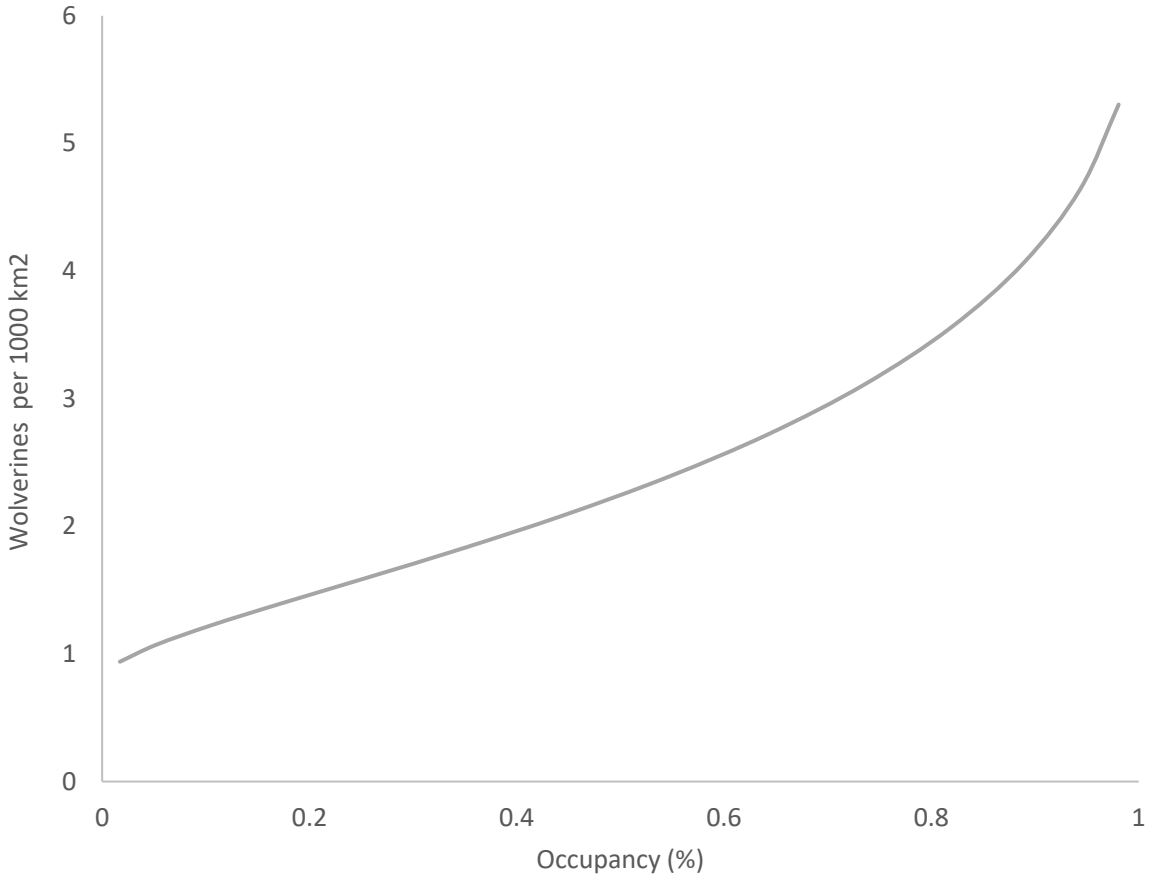
Summary stats from capture history

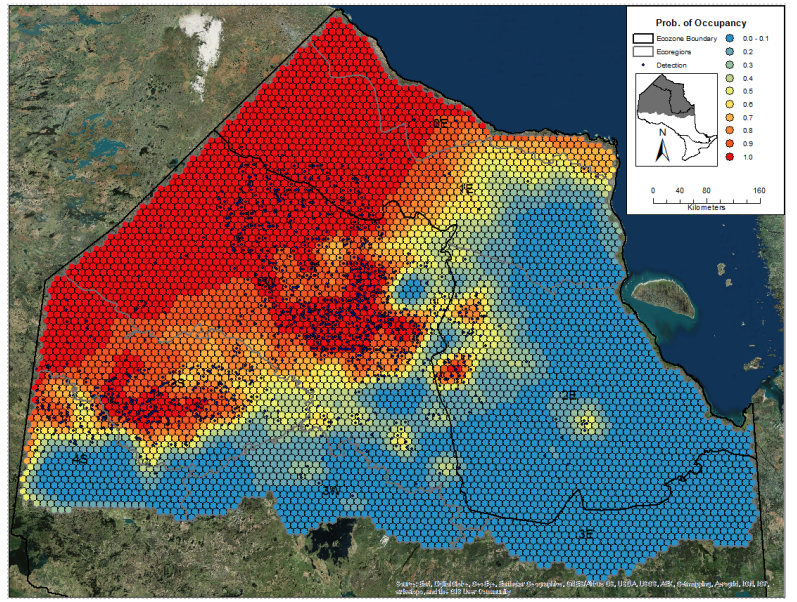
Year	Run poles	Live traps	Male	Female	Unknown sex	Detections	Occasions	Animals visiting ≥ 2 traps
2019	7	19	6	2	3	93	153	7
2020	7	27	17	10	0	167	148	10
2021	2	29	11	16	6	246	161	13
2022	0	21	10	11	1	168	84	11

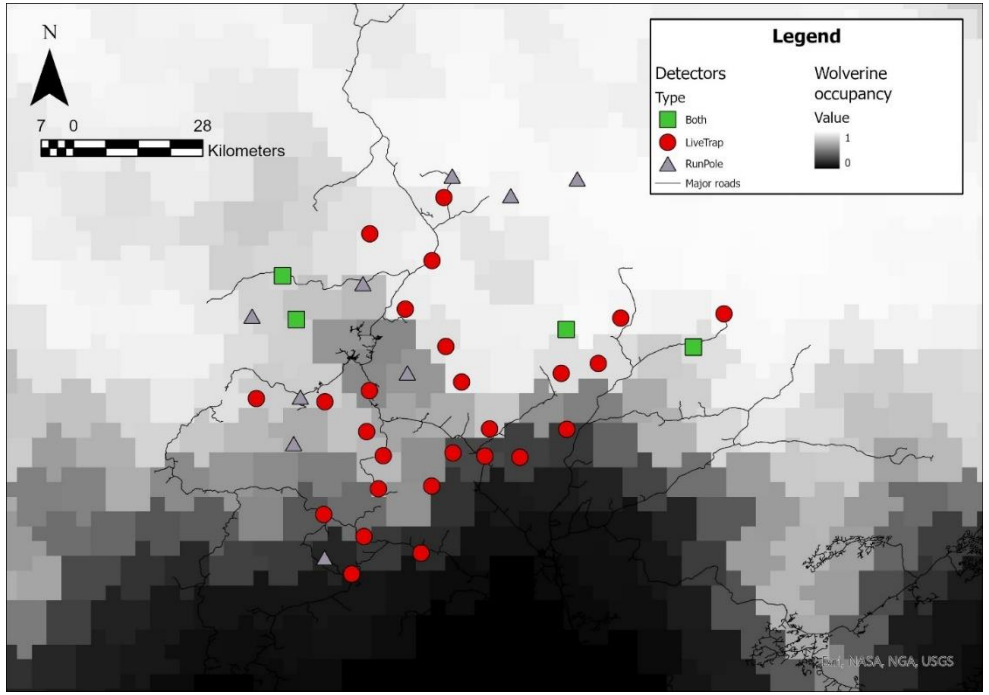
Overall density = 3.29 wolverines/1,000 km^2 (LCI = 2.54, UCL = 4.24



Predicting wolverine density with wolverine occupancy estimates

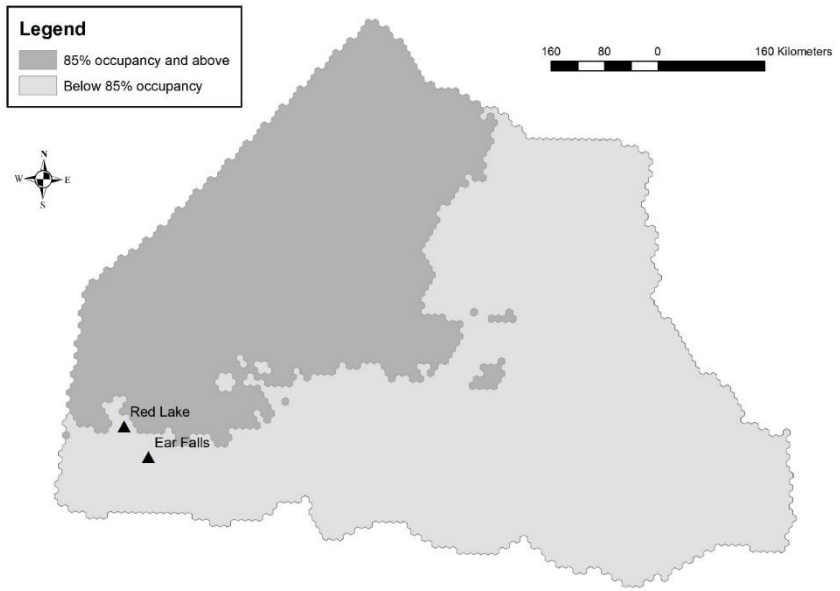






Predicting wolverine density with wolverine occupancy estimates

- Different adult: sub-adult ratios in high and low occupancy areas
- We estimated 878 mature individuals (LCL = 542, UCL = 1,439) in Ontario



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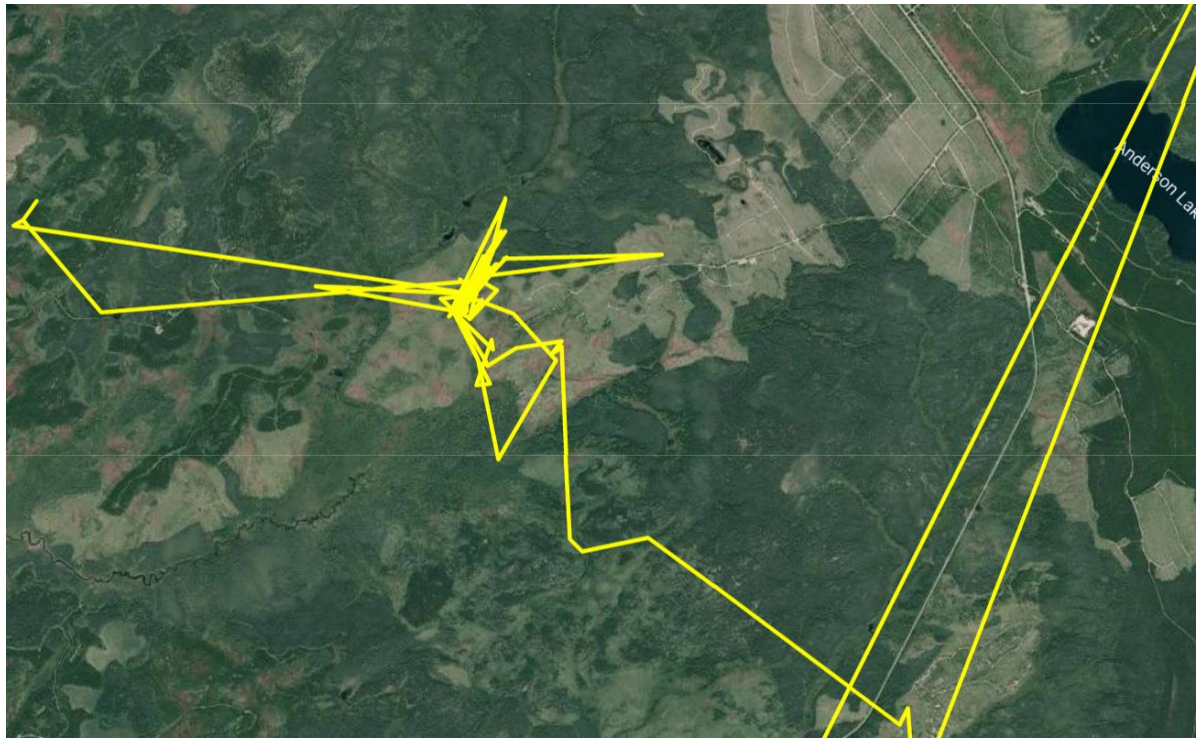
patagonia


Anderson Lak

Food habits data Red Lake, Ontario

	Combined	
	Sum occurrence	% occurrence
Moose	21	15.67
Deer	5	3.73
Snowshoe hare	45	33.58
Beaver	44	32.84
Caribou	3	2.24
Marten	3	2.24
Small rodent	10	7.46
Wolverine	2	1.49
Black bear	1	0.75

Red Lake

n = 102 clusters

n = 71 with evidence of prey

Mortality data

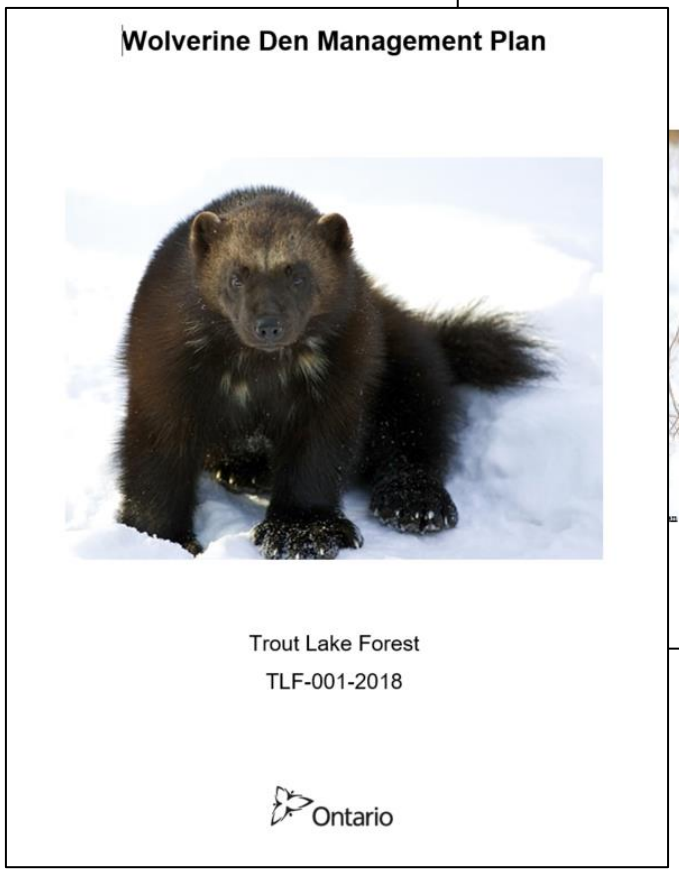
Red Lake: 11 known mortalities (7 from fur harvest, 2 from predators, and 2 from vehicles)

Red Lake

- *n* = 13 den sites
  - 4 slash piles
  - 7 fallen trees/root balls
  - 2 boulders
- *n* = 7 denning areas

Denning area conservation

- The MNRF Stand and Site Guide (SSG) protects values such as wolverine den sites and surrounding habitat
- Our FAQ is a commentary on the SSG and Boreal Landscape Guide



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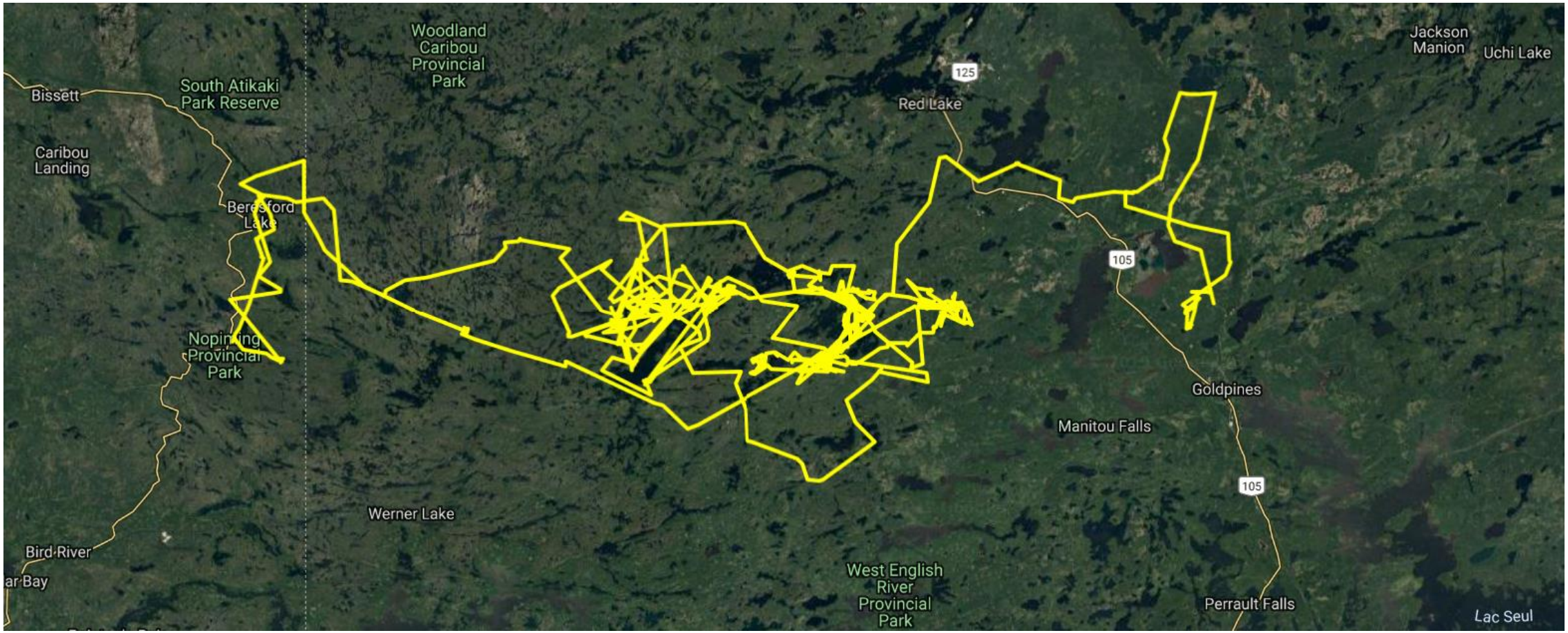
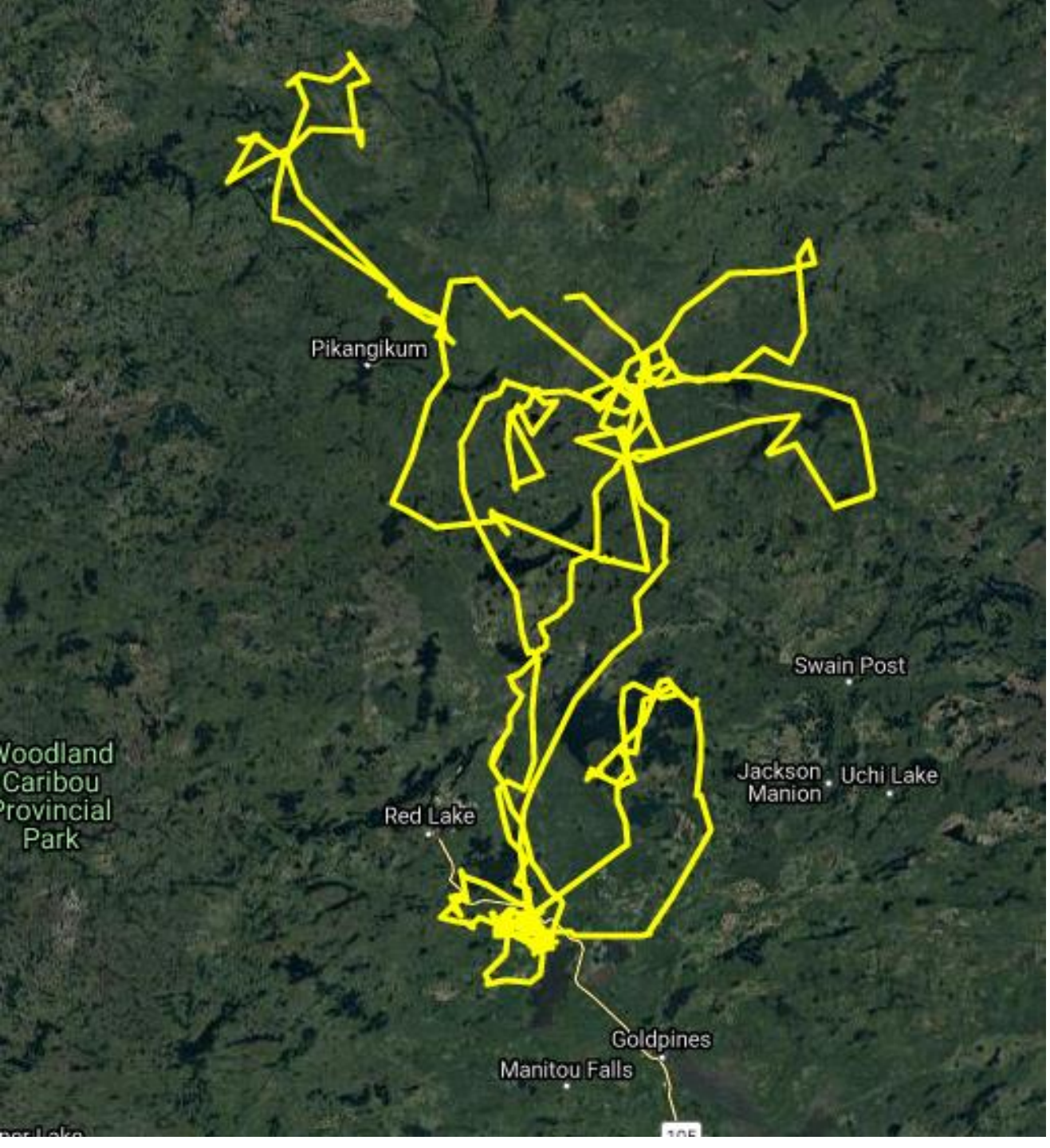
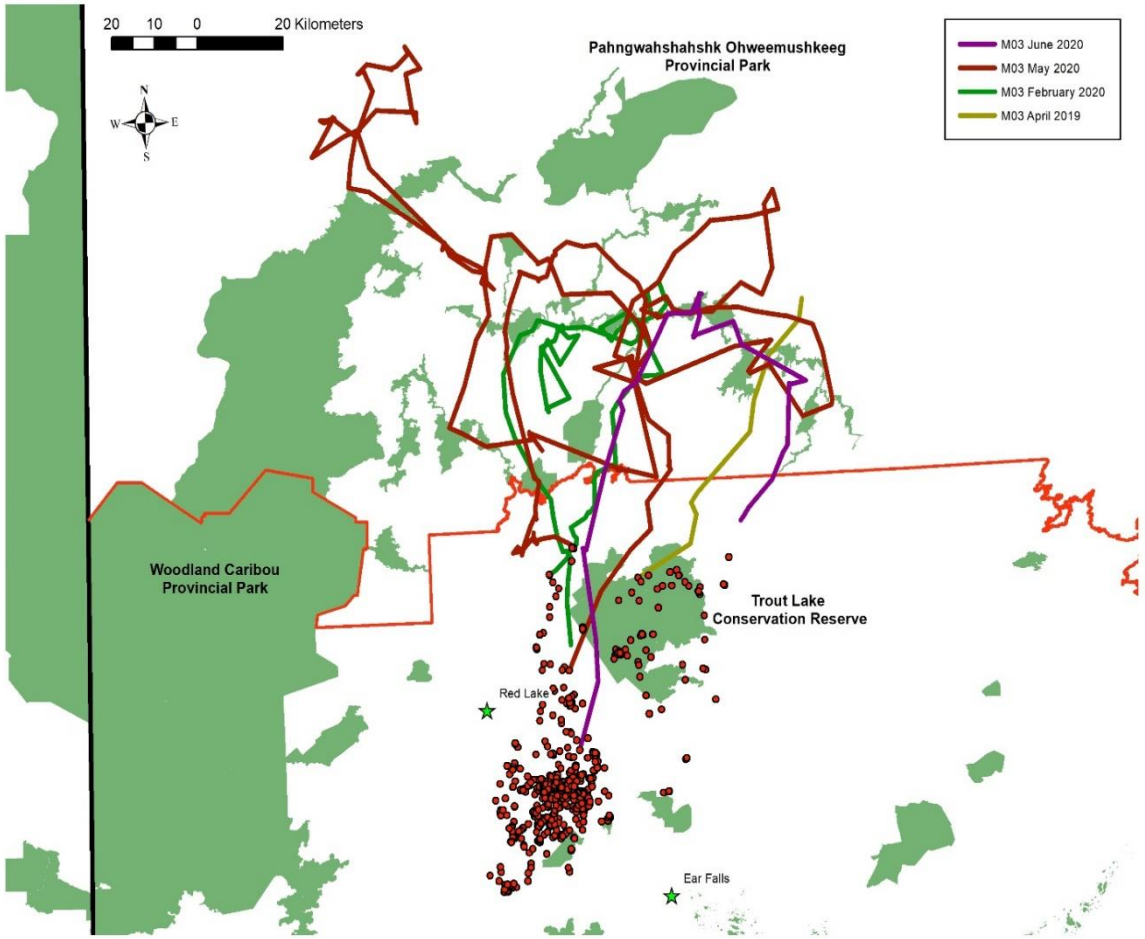

Woodland Caribou Provincial Park
Jackson Manion
Uchi Lake
South Atikaki Park Reserve
Bissett
125
Red Lake
Caribou Landing
Beresford Lake
105
Nopiming Provincial Park
Goldpines
Manitou Falls
105
Werner Lake
Bird River
West English River Provincial Park
Perrault Falls
Lac Seul


Pikangikum
Swain Post
Woodland
Caribou
Provincial
Park
Jackson
Manion
Uchi Lake
Red Lake
Goldpines
Manitou Falls

M03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Provincial Park
M03 June 2020
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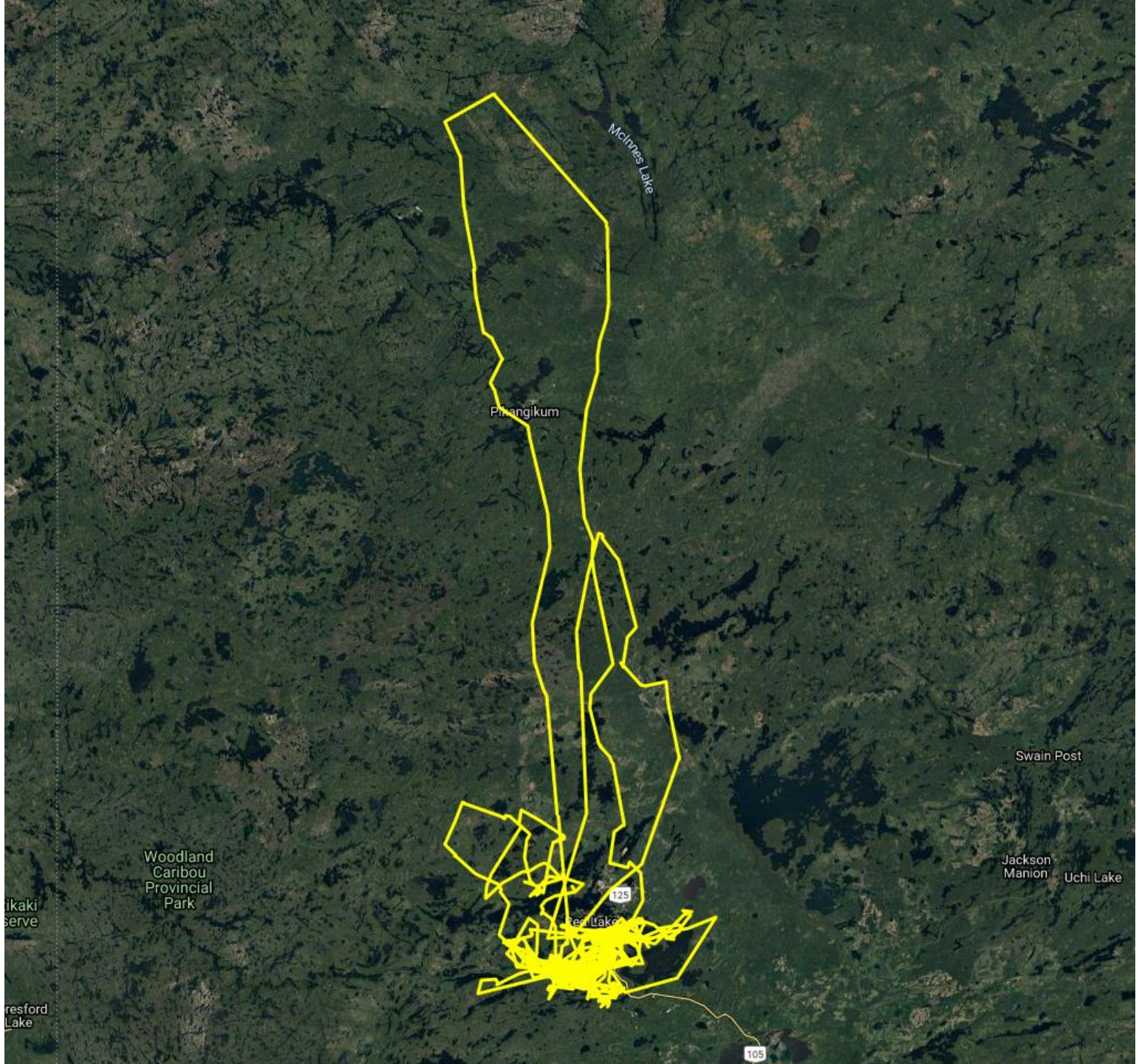
M03 February 2020
M03 April 2019
Woodland Caribou
Provincial Park
Trout Lake
Conservation Reserve
Red Lake
Ear Falls

M05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Pikangikum
Swain Post
Woodland
Caribou
Provincial
Park
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Manion
Uchi Lake
125
105

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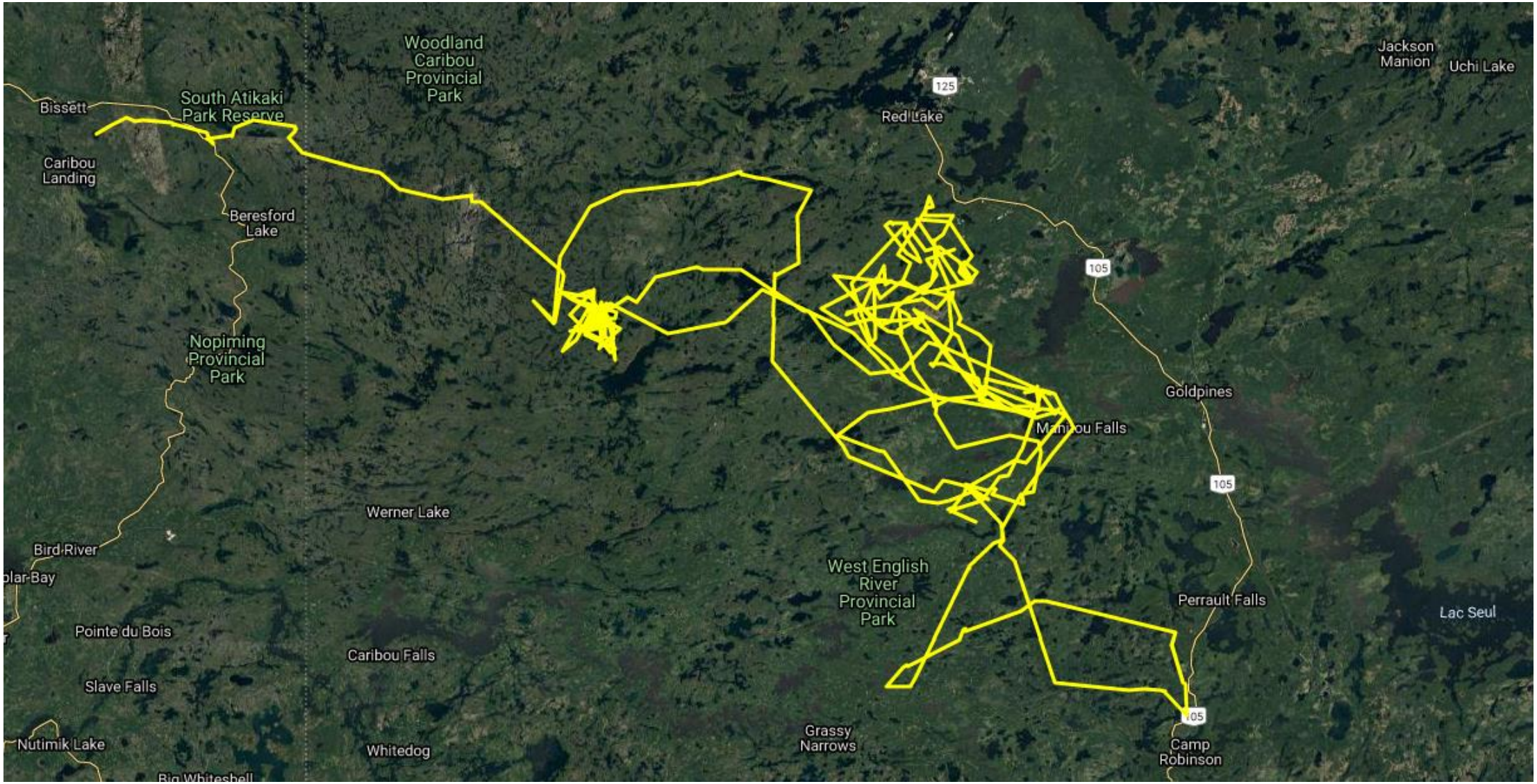
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Manitou Falls
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Werner Lake
Bird River
West English River Provincial Park
Perrault Falls
Lac Seul
Pointe du Bois
Caribou Falls
Slave Falls
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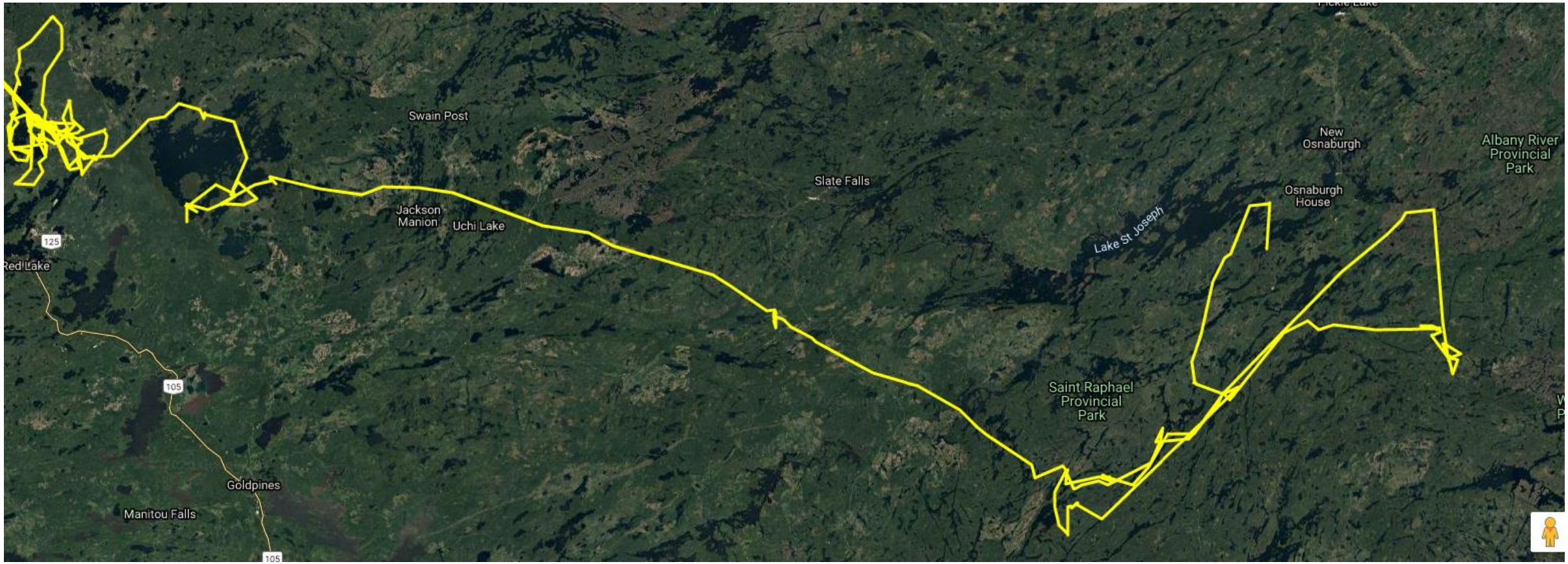
Grassy Narrows
Nutimik Lake
Whitedog
Camp Robinson

M15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Jackson Manion
Uchi Lake
Slate Falls
New Osnaburgh
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Red Lake
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Goldpines
Manitou Falls
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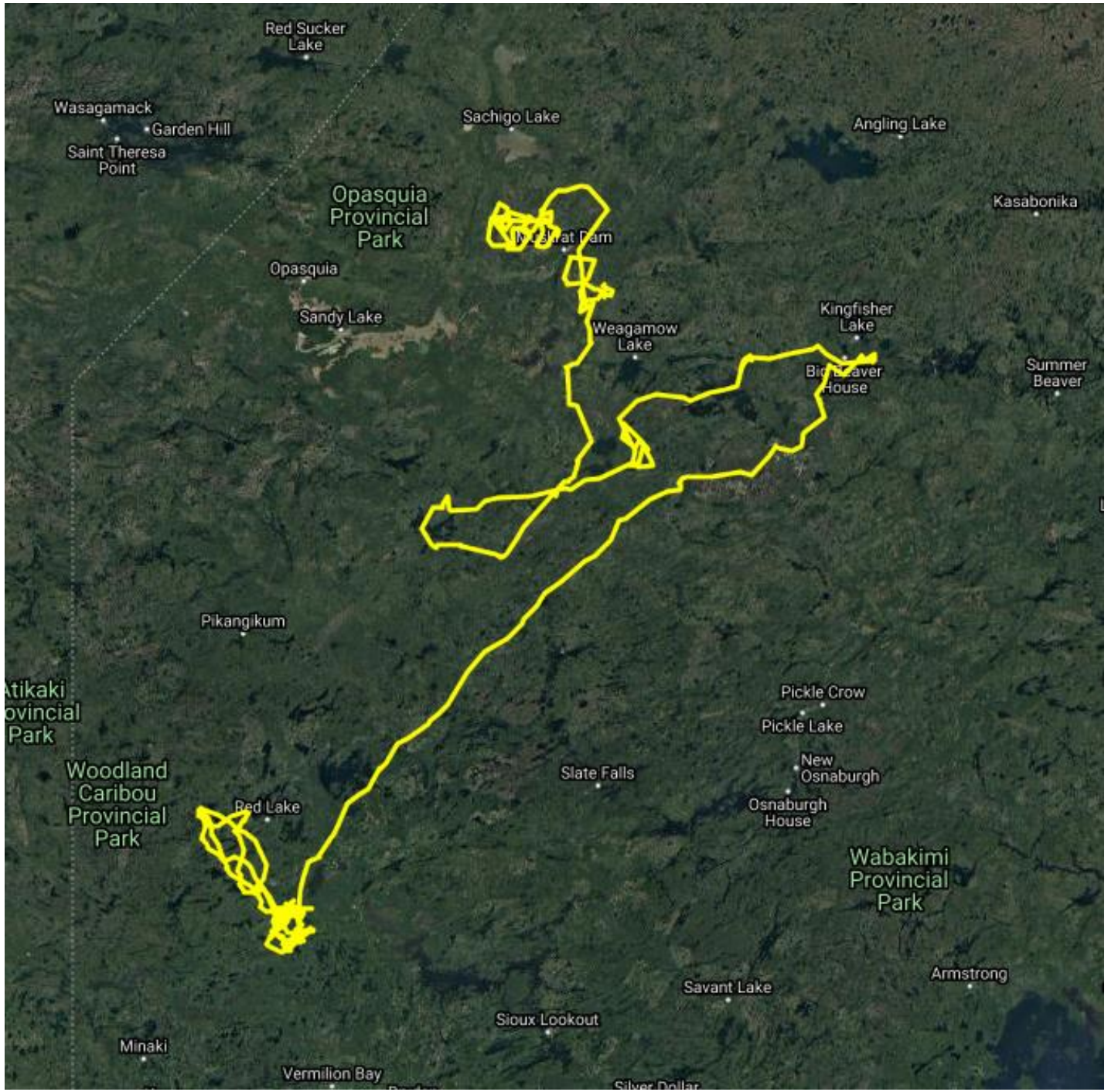
Red Sucker Lake
Wasagamack
Garden Hill
Saint Theresa Point
Sachigo Lake
Angling Lake
Opasquia Provincial Park
Kasabonika
Opasquia
Sandy Lake
Kingfisher Lake
Weagamow Lake
Summer Beaver
Pikangikum
Pickle Crow
Pickle Lake
Woodland Caribou Provincial Park
Slate Falls
New Osnaburgh
Red Lake
Osnaburgh House
Wabakimi Provincial Park
Armstrong
Savant Lake
Sioux Lookout
Minaki
Vermilion Bay

Summary

- Population is likely still small in Ontario but we need better data to be sure.
- Important to manage threats, particularly road development and access into wolverine habitats
- Monitoring is important moving forward

Thanks!

- Matthew Scrafford
- mscrafford@wcs.org
- Funders:
  - Bernard & Norton Wolf Family Foundation
  - Domtar Inc.
  - Donner Canadian Foundation
  - ECHO Foundation
  - ECO Canada
  - Evolution Mining
  - Fitzhenry Family Foundation
  - GL Films Ontario Inc.
  - Government of Ontario, Ministry of Environment, Conservation and Parks (SARSF)
  - R. Howard Webster Foundation
  - Schad Foundation
  - Weston Family Foundation