

Canada lynx in Minnesota

A photograph of a Canada lynx sitting on a snow-covered hill. The lynx is facing right, looking towards the camera. It has a thick, brown and white fur coat with prominent tufted ears. The background shows a dense forest of evergreen trees under a bright sky.

Exploitation

Pre-1965	Bounty
1965	Unprotected

Management

1976 Furbearer

Protection

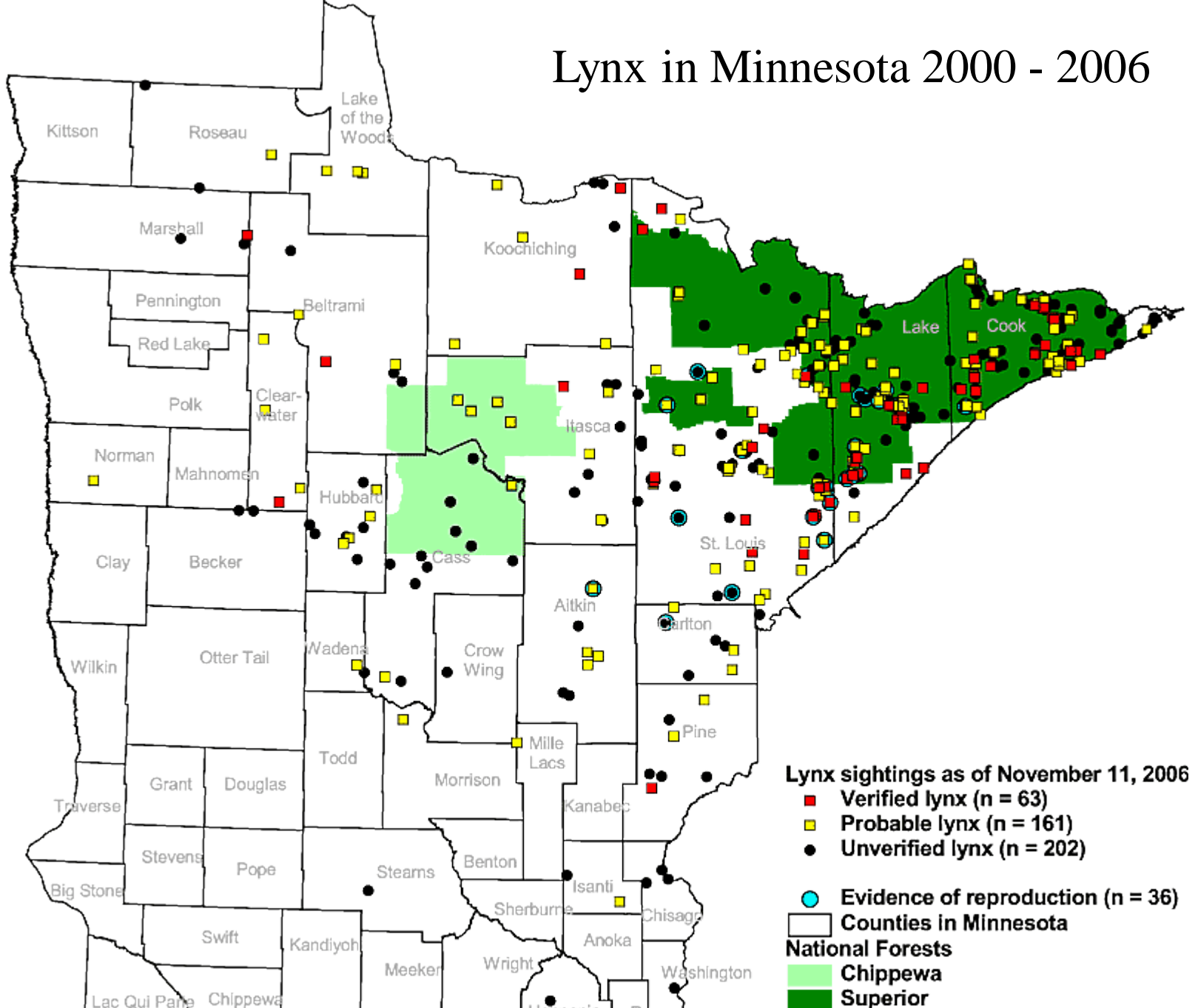
1984 Season closure
2000 ESA Threatened status

Current

~2000 Hair snare, Snow-tracking and DNA analysis
2003 Telemetry project

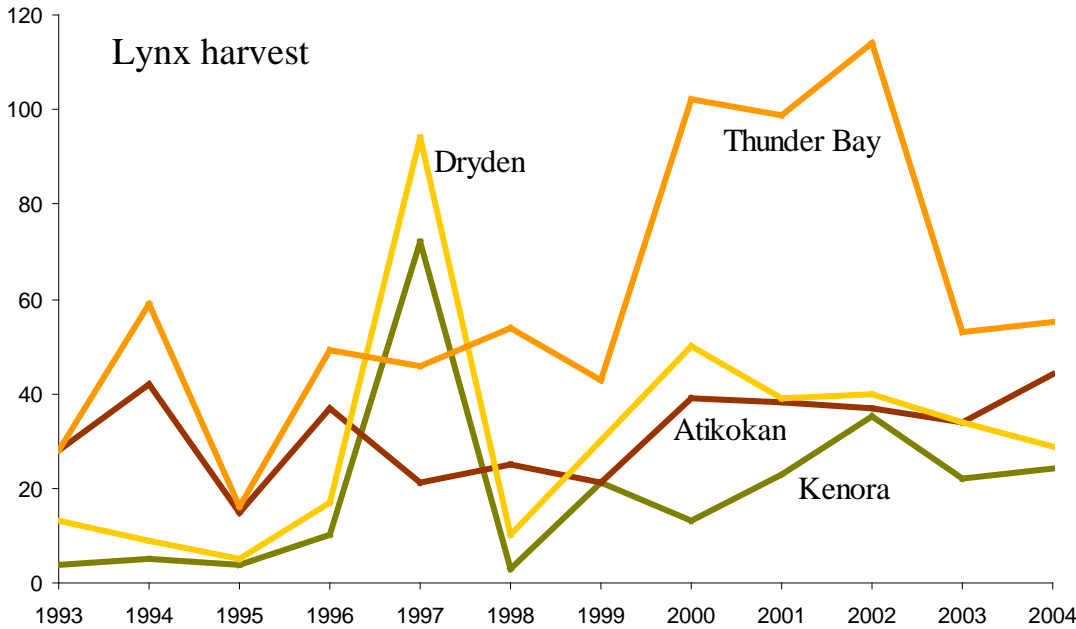
2015 “There are ~4,000 moose, 2,200 wolves, and 50 to 300 Canada lynx in Minnesota.”

Lynx in Minnesota 2000 - 2006



Historical harvest in ON Districts

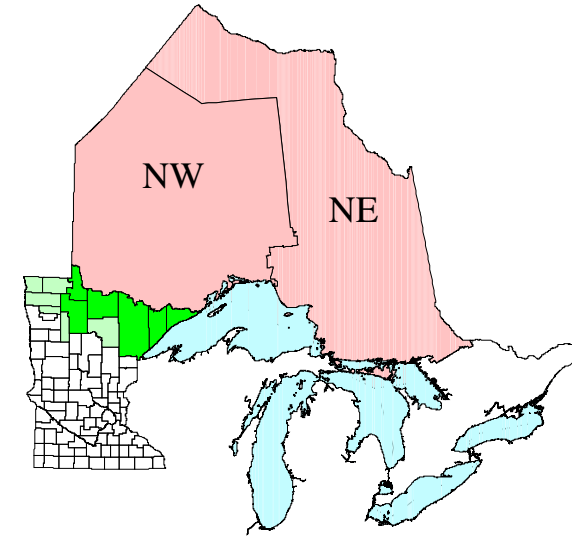
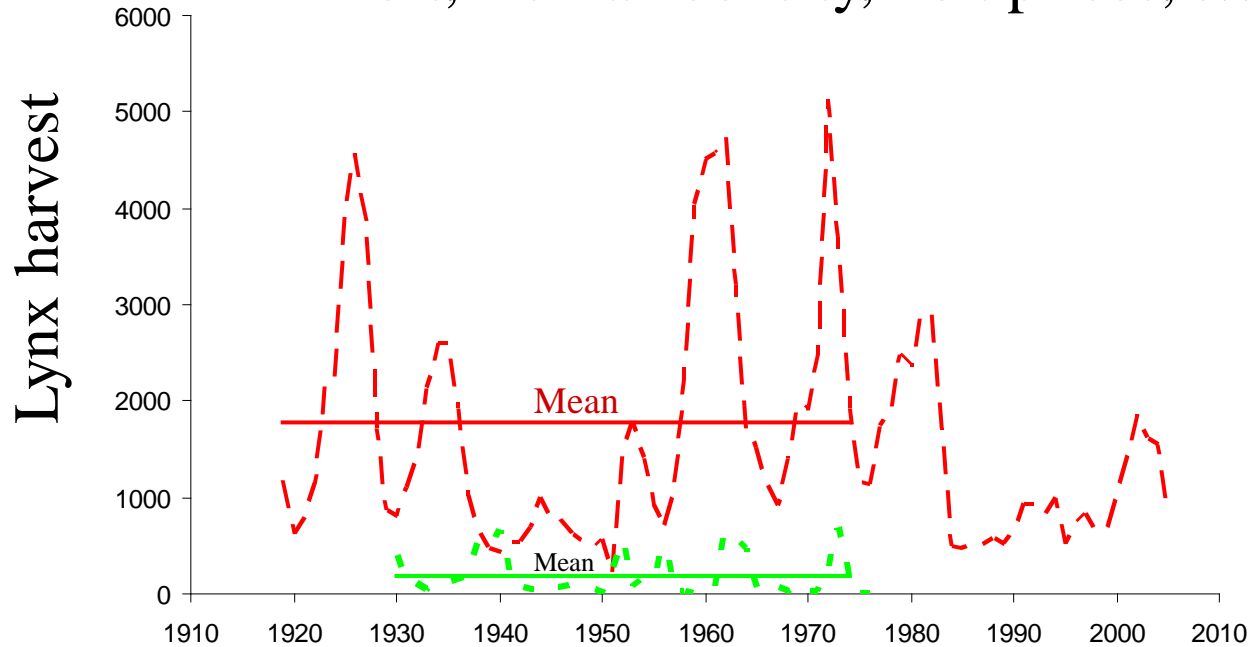
NE MN as an ON "district"
 ~ 30 lynx / year



Ends 2004, need to update

Historical harvest comparison – with caveats

Effort, Human density, Pelt prices, ...



MN harvest 1930 to 1977 (McKelvey et al.)
 Twice harvest in Montana
 40x harvest in other states

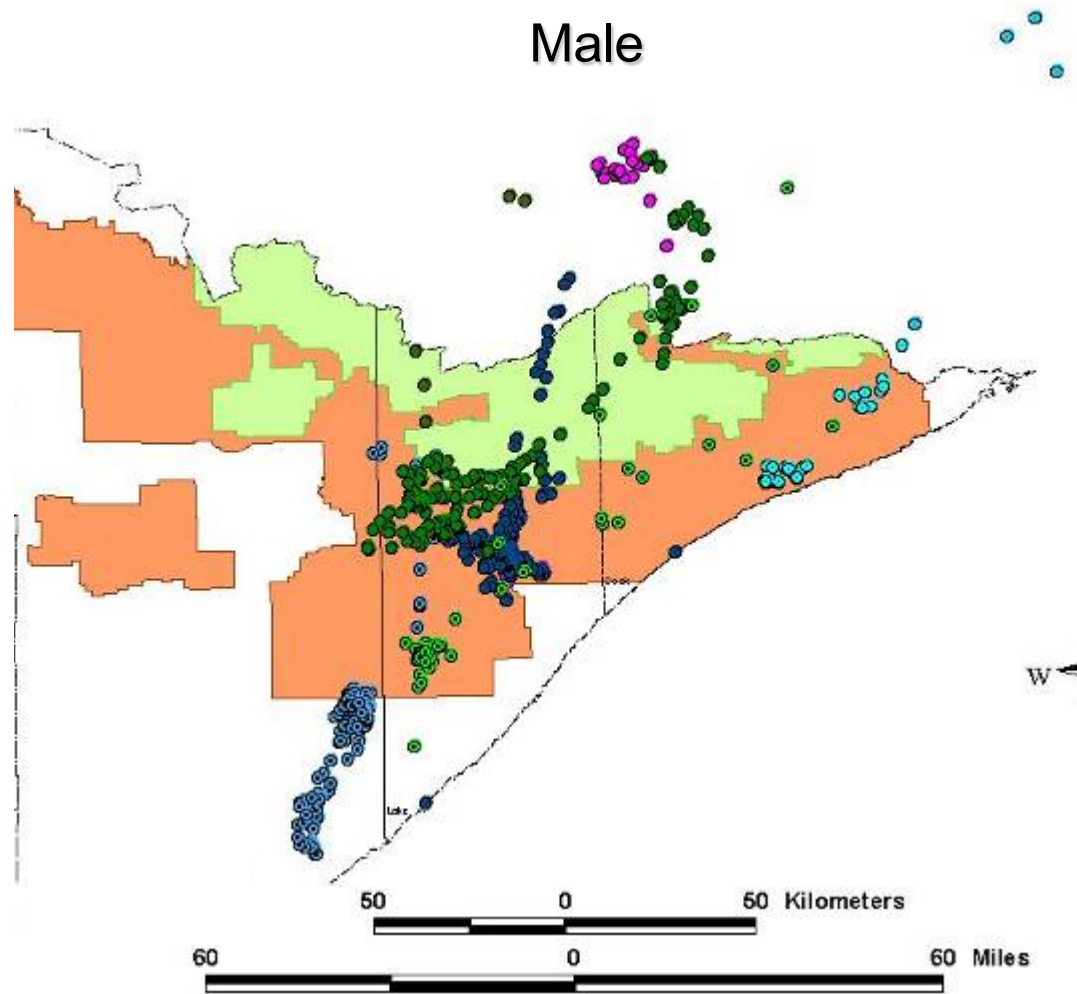
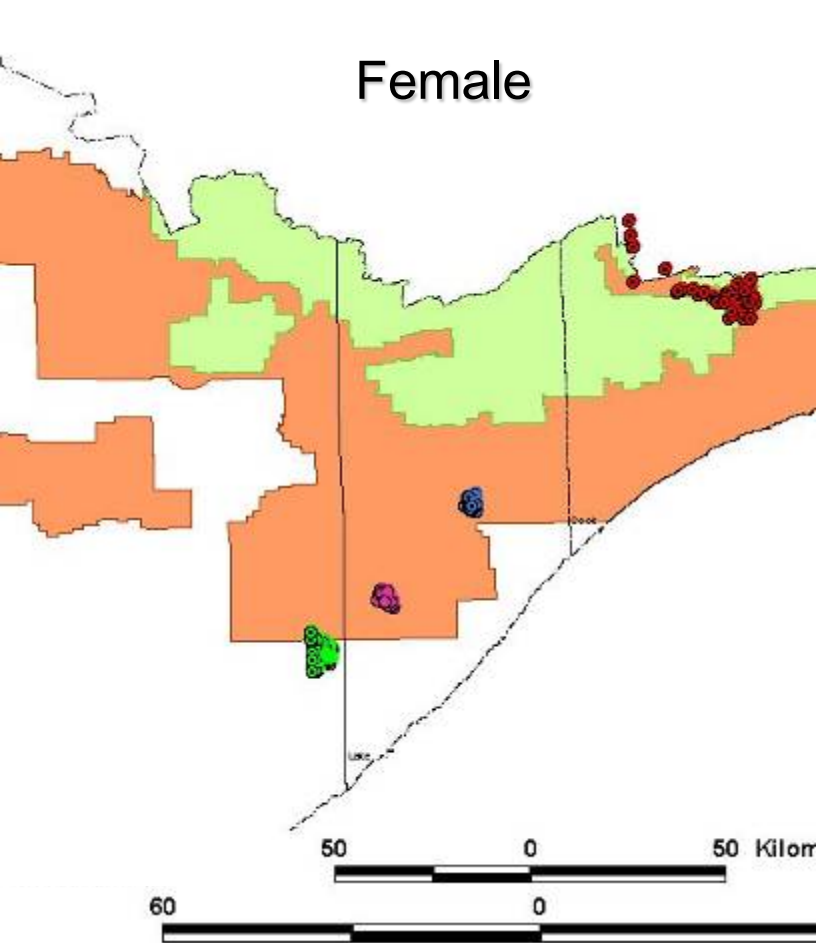
Harvest data from MN DNR and ON MNR

Harvest / 1000 km² 1929 – 1983

Region	Harvest %	km ²	Mean	Maximum
Ontario - NE and NW regions	---	909,192	1.88	5.72
All northern MN Counties	67%	71,977	1.65	3.73
Counties 1977 range includes	50%	48,224	1.84	4.15



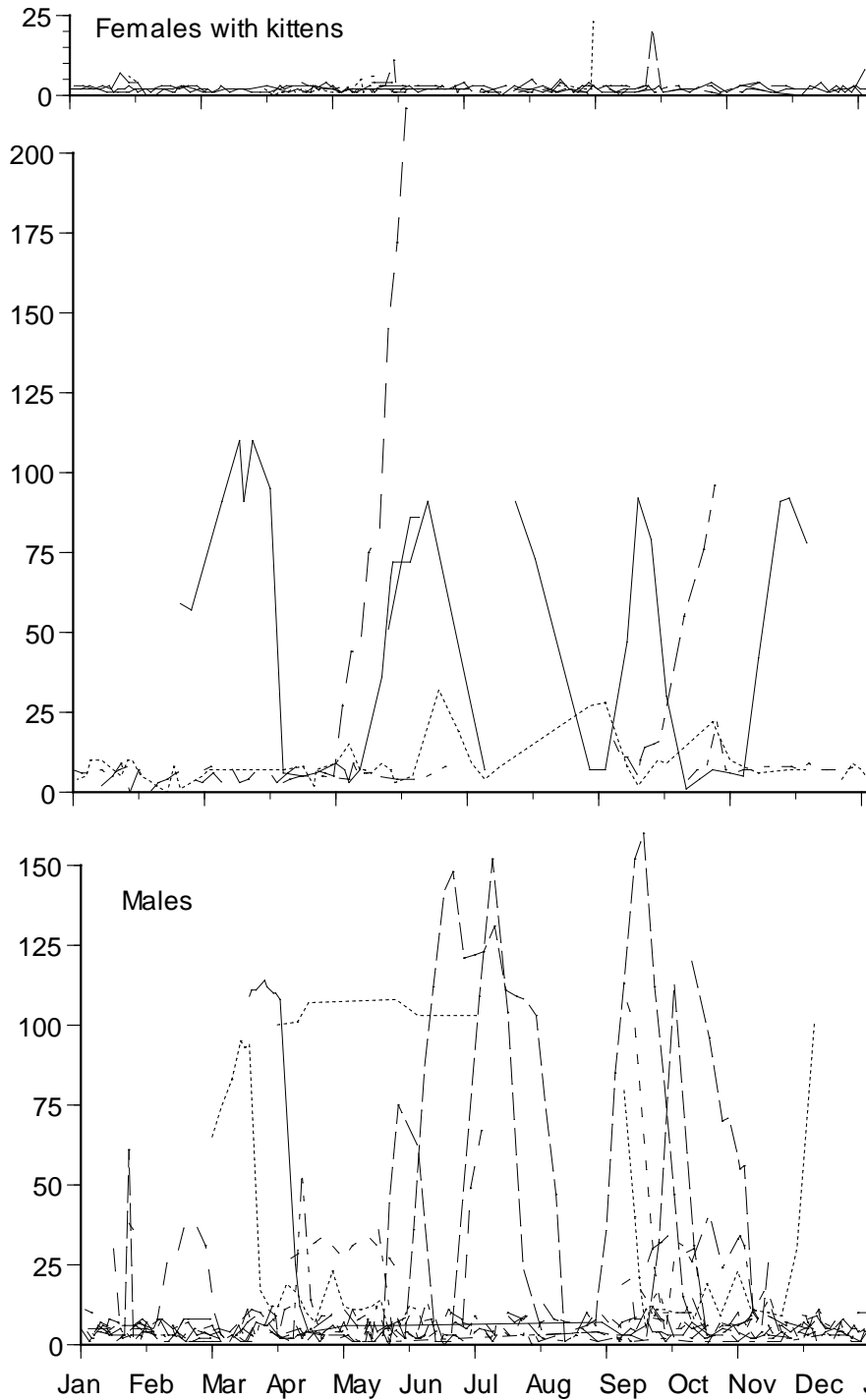
**1990's: Residents or Refugees?
Now: Residents and "Refugees"**



MCP home range (km²)

Location	Female	Male
North of 50°	67	74
South of 50°	71	175
Minnesota	21	267

Distance from home range centroid



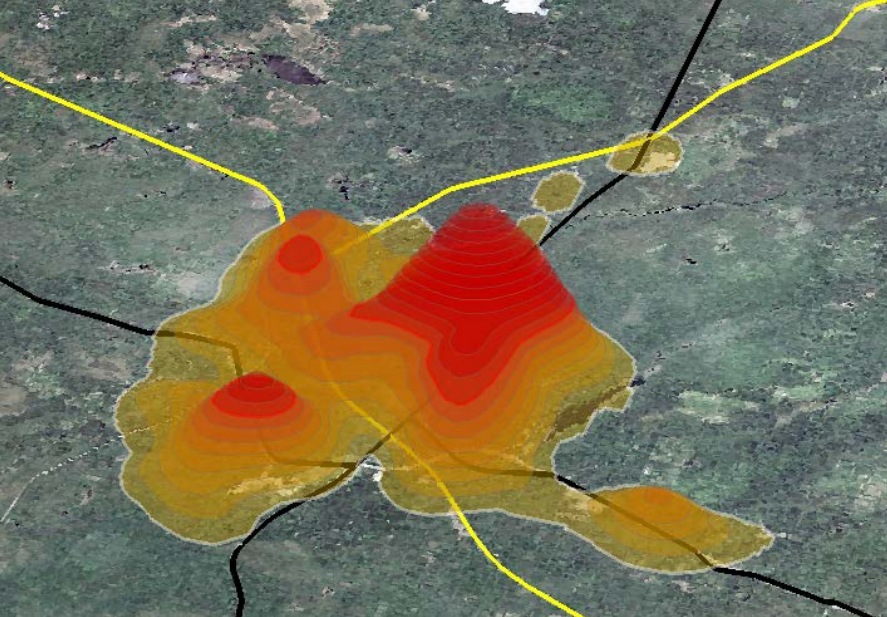
Females w/ Kittens

Females w/o Kittens

Males

Males

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan



Home Range

Core Area

LULC Cover Type	Mean	SEM	n		Mean	SEM	n
Mixed-wood forest	40	3	6		39	5	6
Wetland bog	10	2	6		8	2	6
Conifer	21	2	6		19	2	6
Non-Forested	7	2	6		4	1	6
Regeneration (conifer)	21	4	6		30	6	6

Reproduction

Moen et al. 2008



10 dens & 33 kittens

14 studies:

82% in Blowdown

3% in logging debris

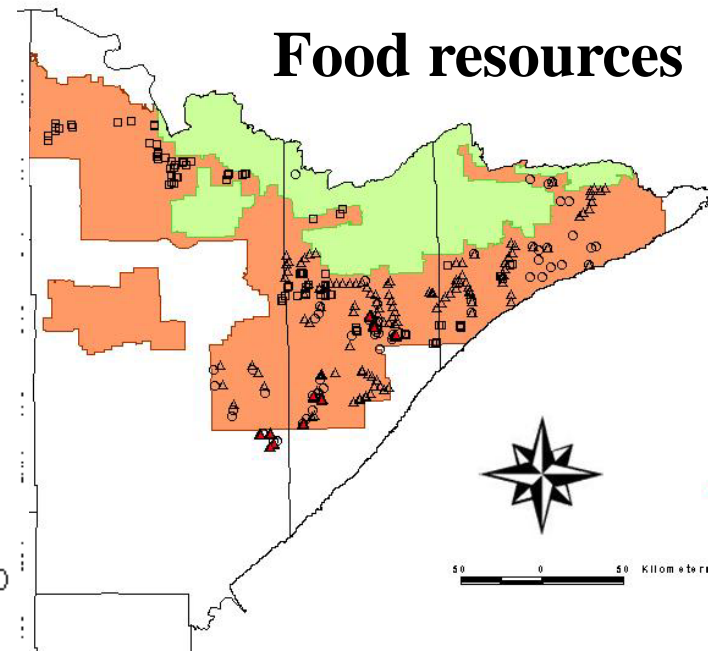
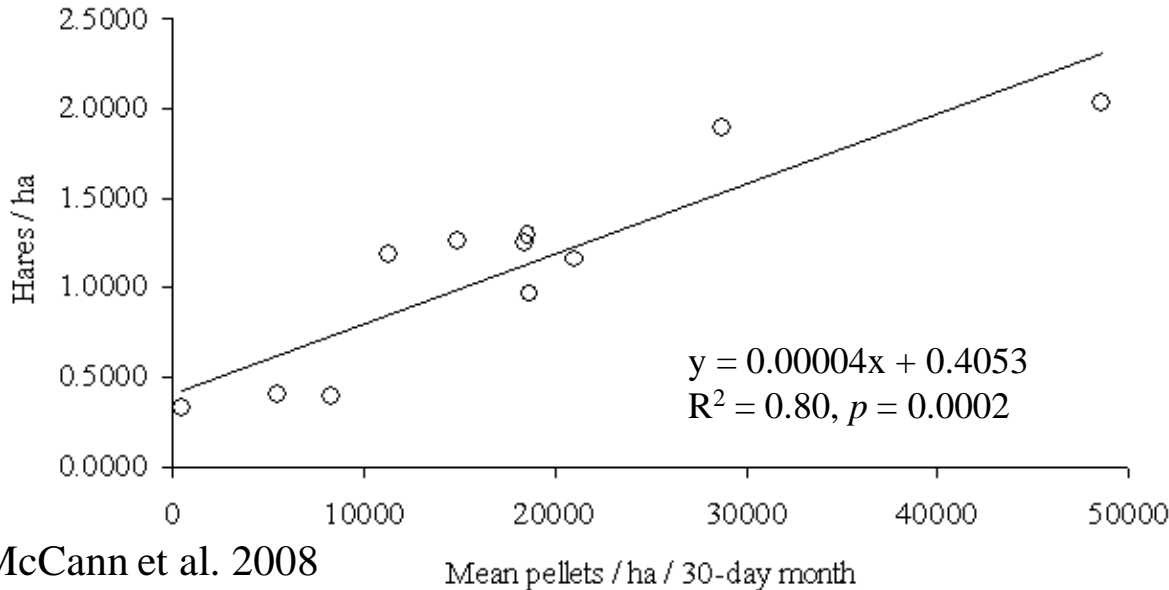
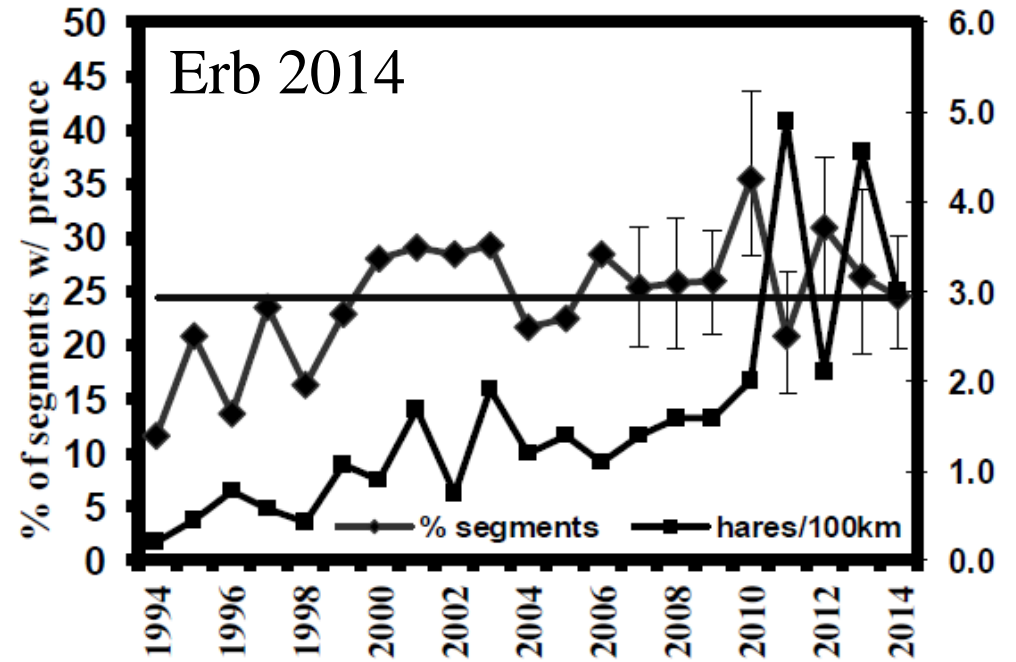
5% in dense shrubs

5% in rocks

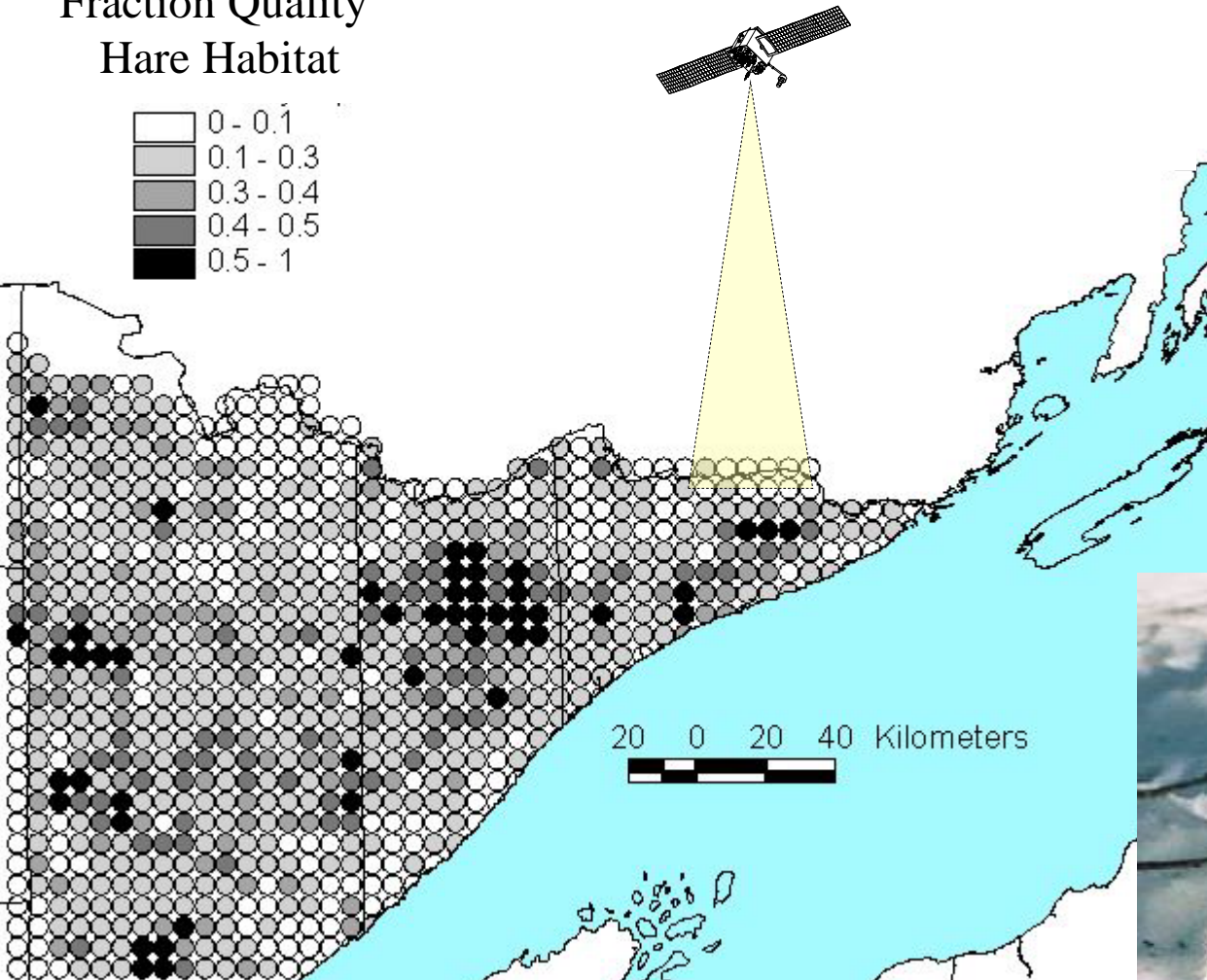
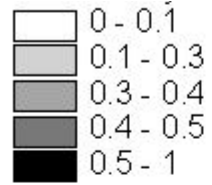
4% in open



Snowshoe Hare Track Indices, 1994-2014



Fraction Quality Hare Habitat

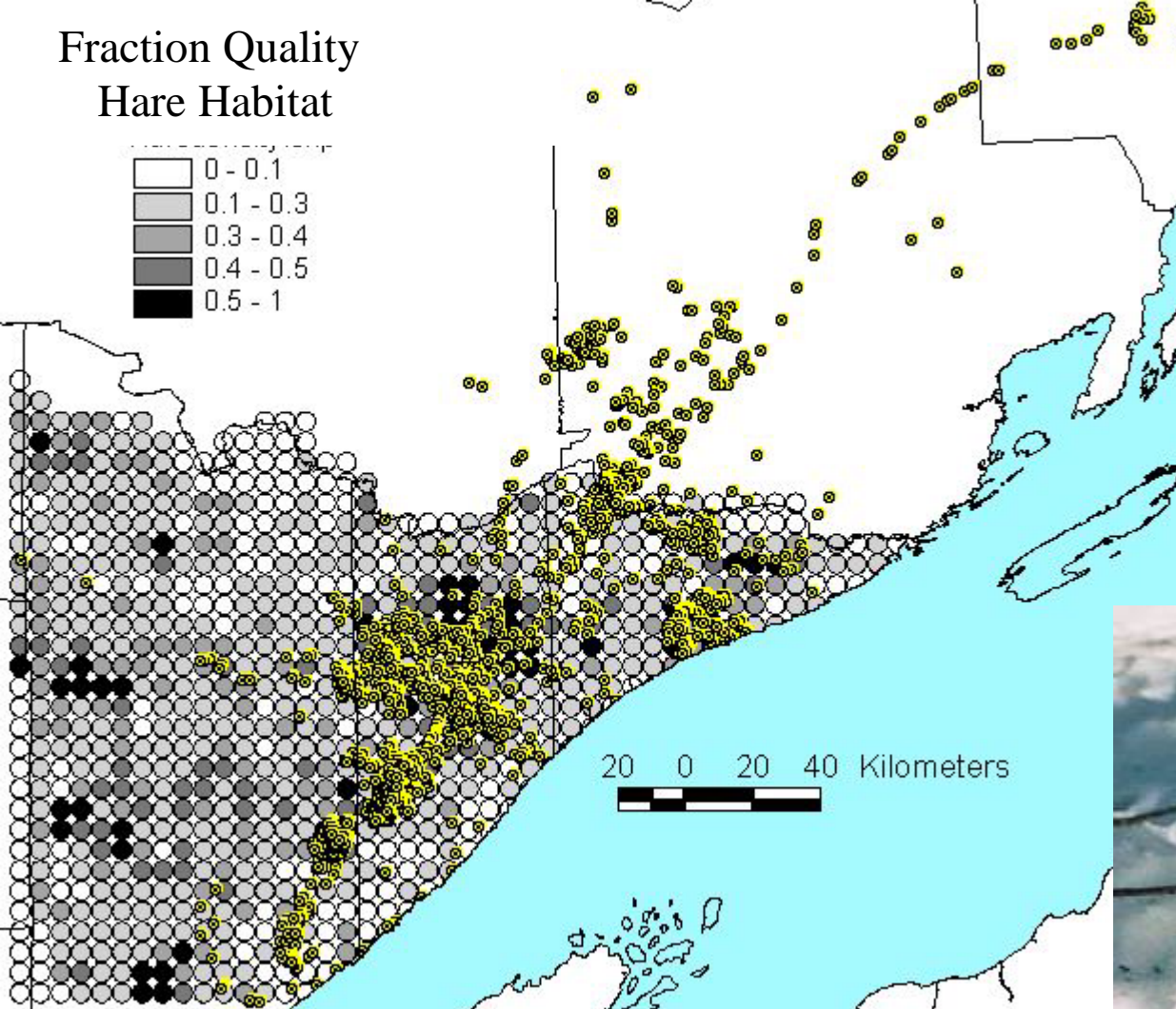
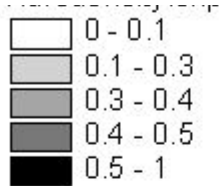


Food resources



McCann 2006
McCann et al. 2008

Fraction Quality Hare Habitat



Food resources

Predicted hare use

vs.

Lynx locations



McCann 2006
McCann et al. 2008
McCann and Moen 2011



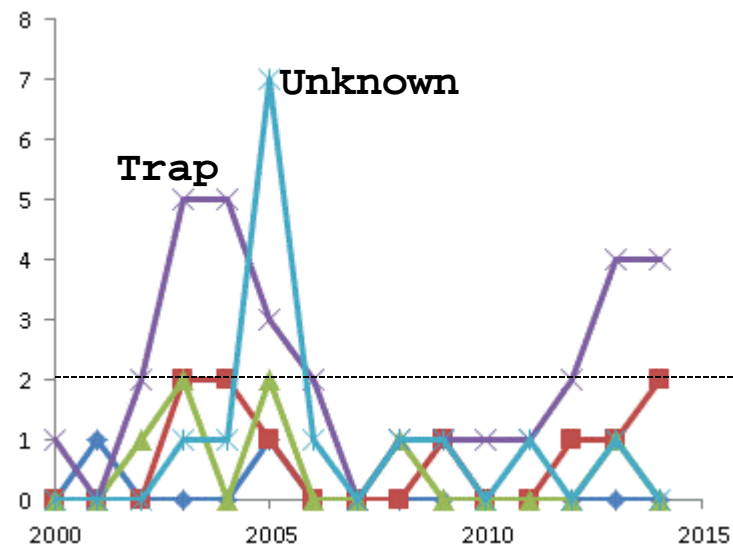
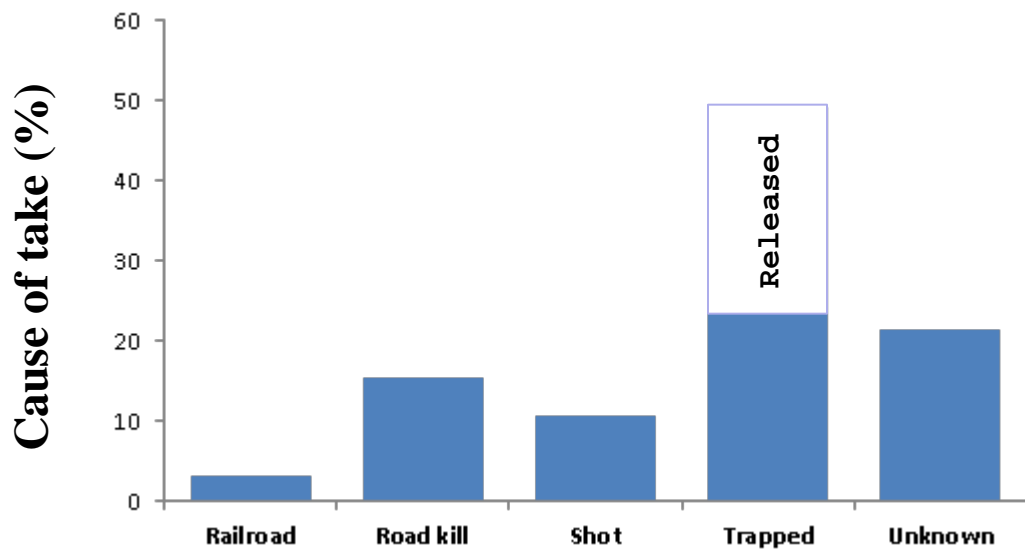
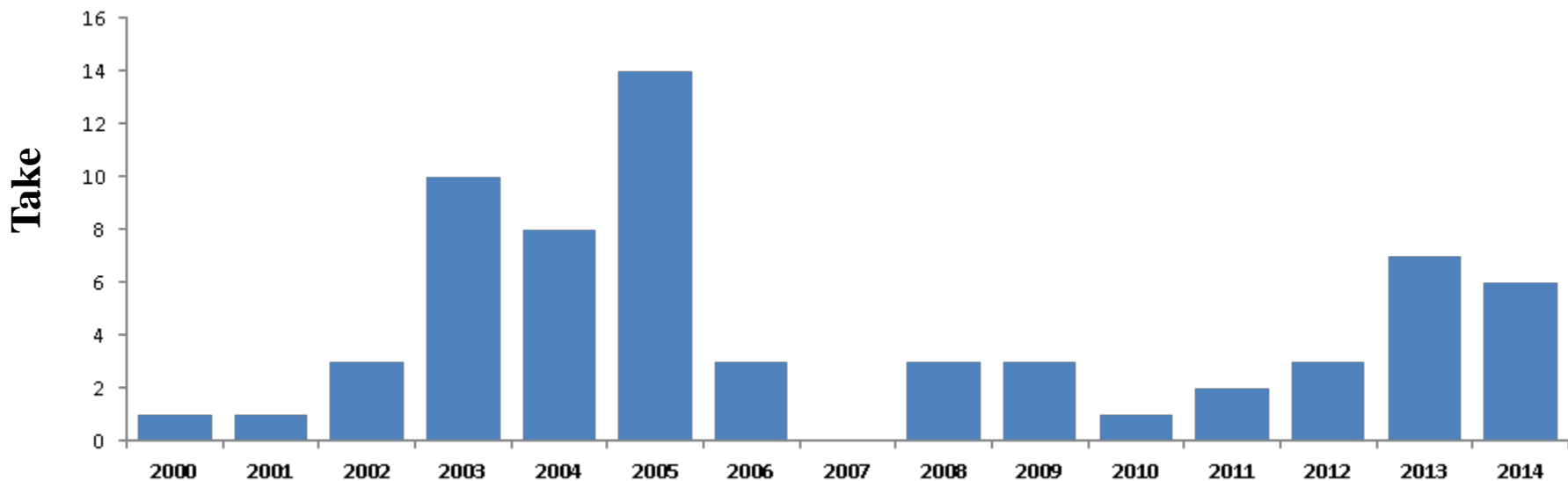
Cumulative Mortality

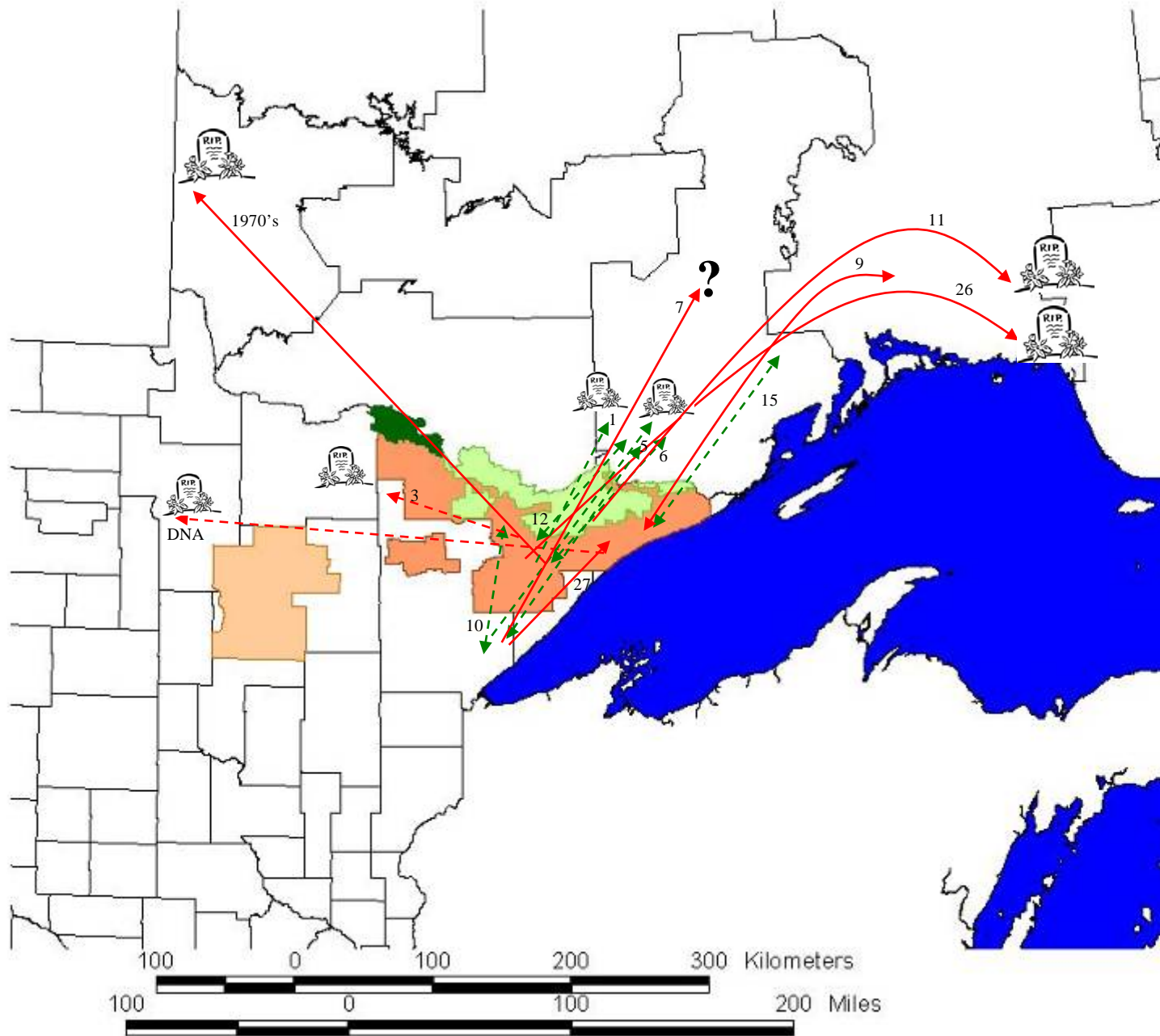
	2003	2004	2005	2006	2007	2008
Collared	5	17	32	33	33	33
Dead	2	3	14	17	17	17
Mortality						
(%)	40	14	34	52	52	52

Cause of death:	Telemetry		Report
Vehicle	2	1*	7
Incidental catch	2	2	6
Illegal kill	1	1	3
Legal harvest (ON)	5		
Suspicious	4	1	
Nonhuman mortality	4		
Unknown	1		3
Total	19		19

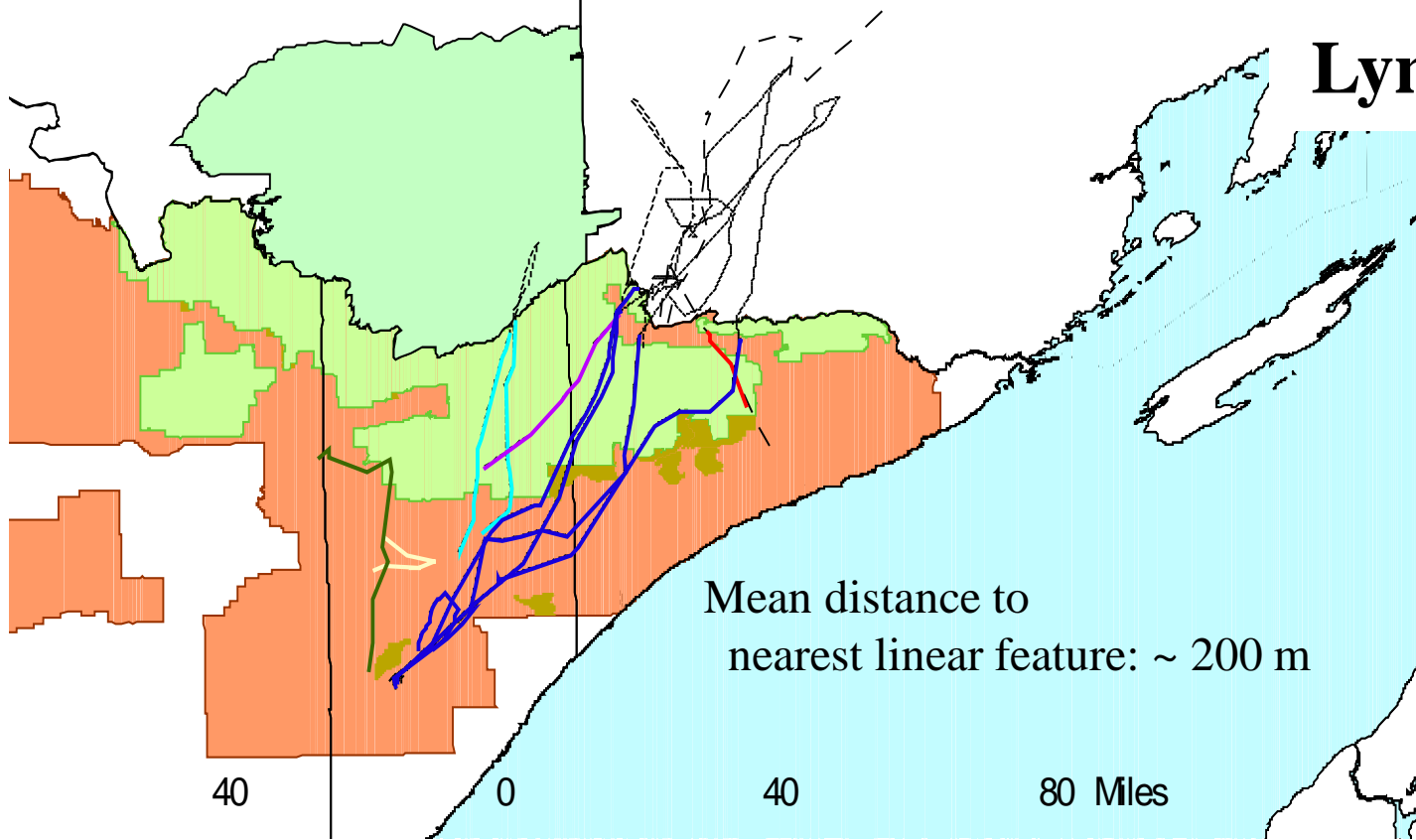
* Born in MN (1 alive)

Take database for adult lynx as of 2014-2015



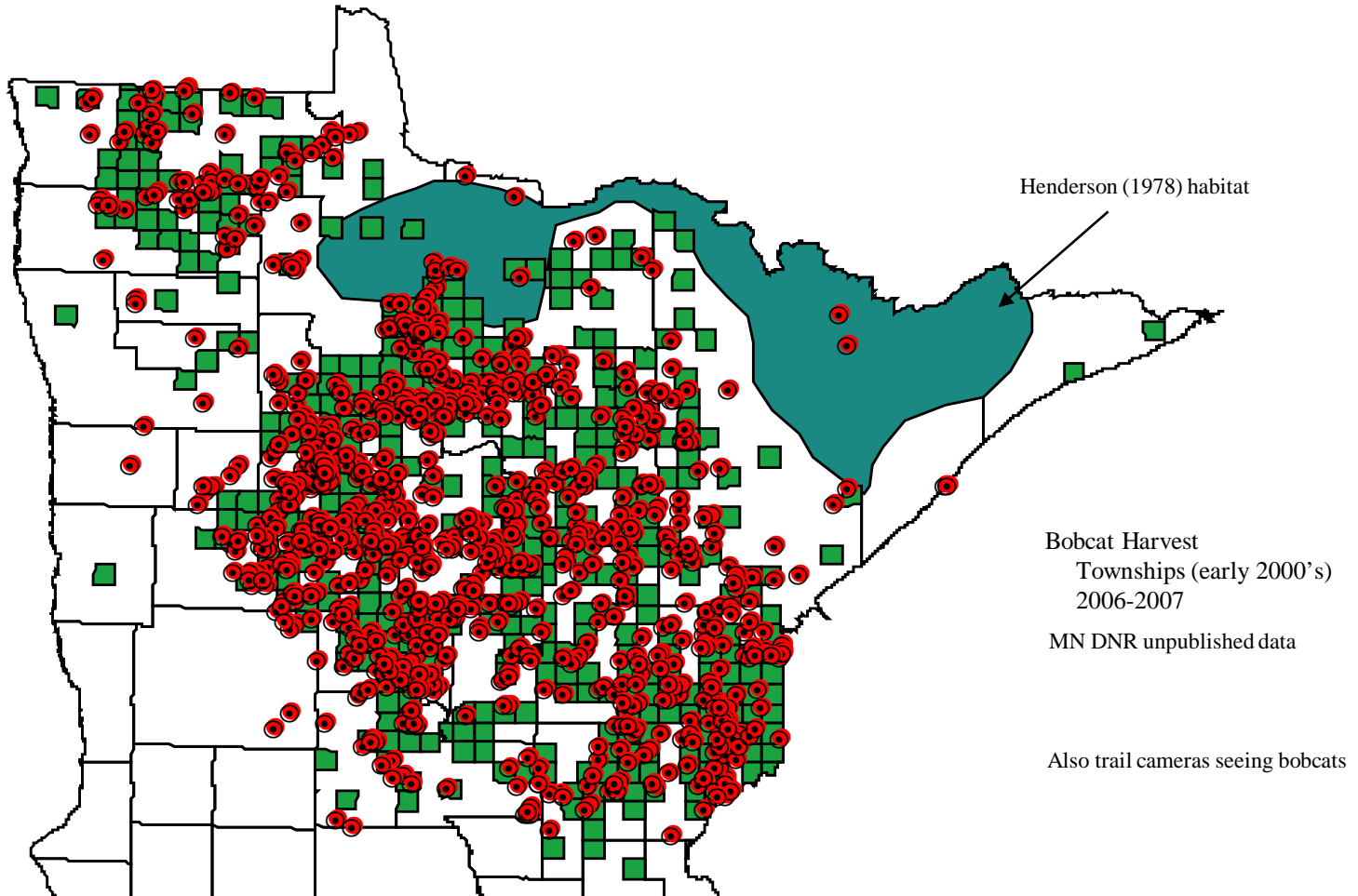


Lynx and Roads

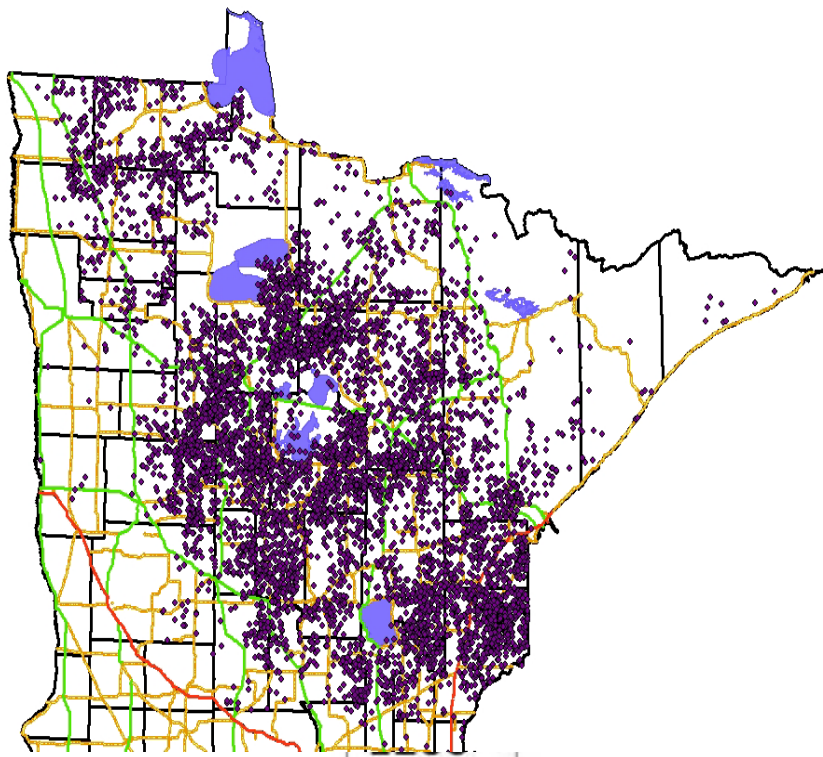


Category	Road and trail density
All LAU's	1.19 ± 0.10
Trip LAU's	1.23 ± 0.07
Trip points buffered to 500 m	1.25 ± 0.23
Home Range 50% Kernel	1.47 ± 0.26
Home Range 95% Kernel	1.12 ± 0.14

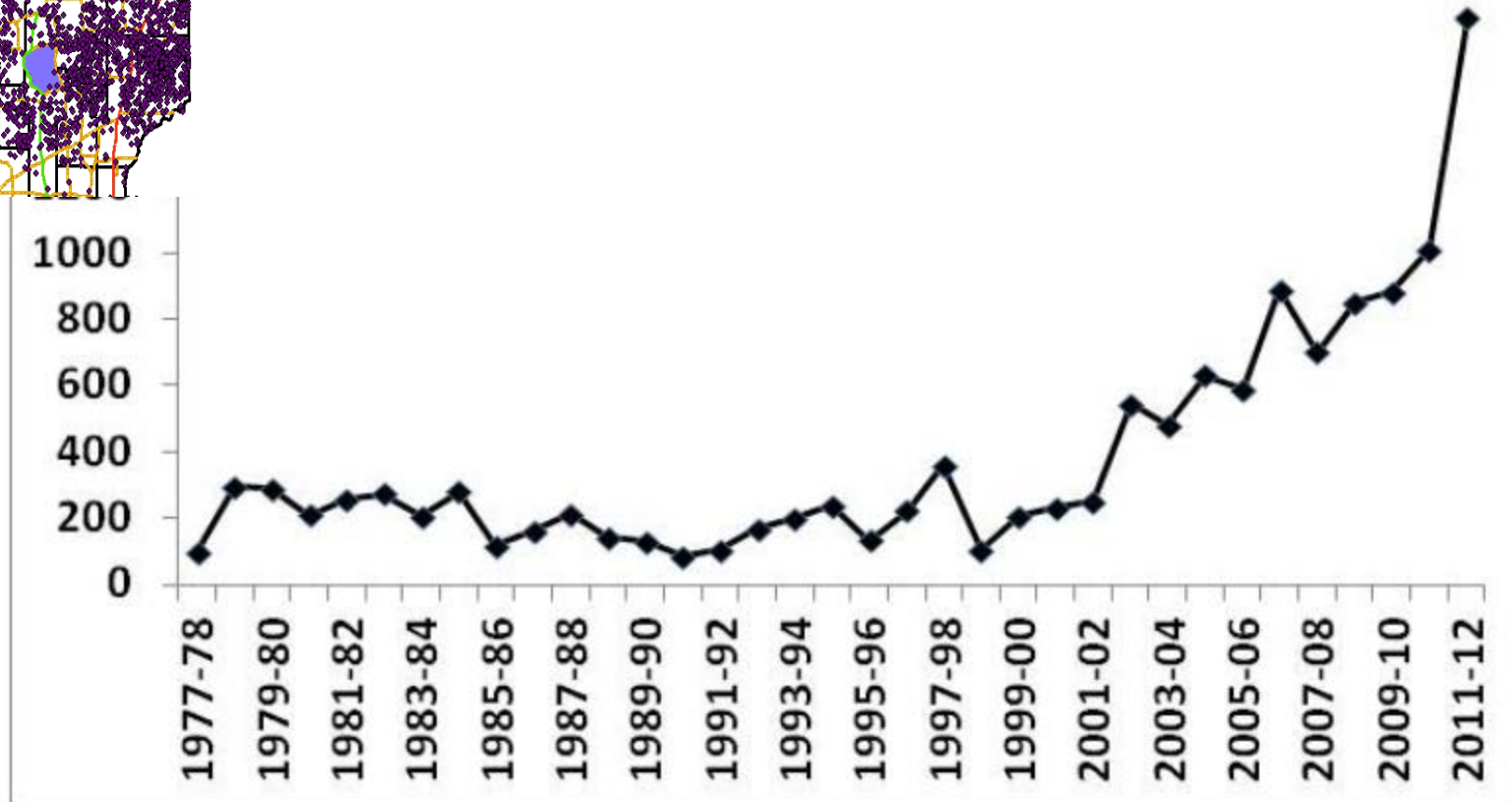
Long-term (decades): Bobcat and Lynx

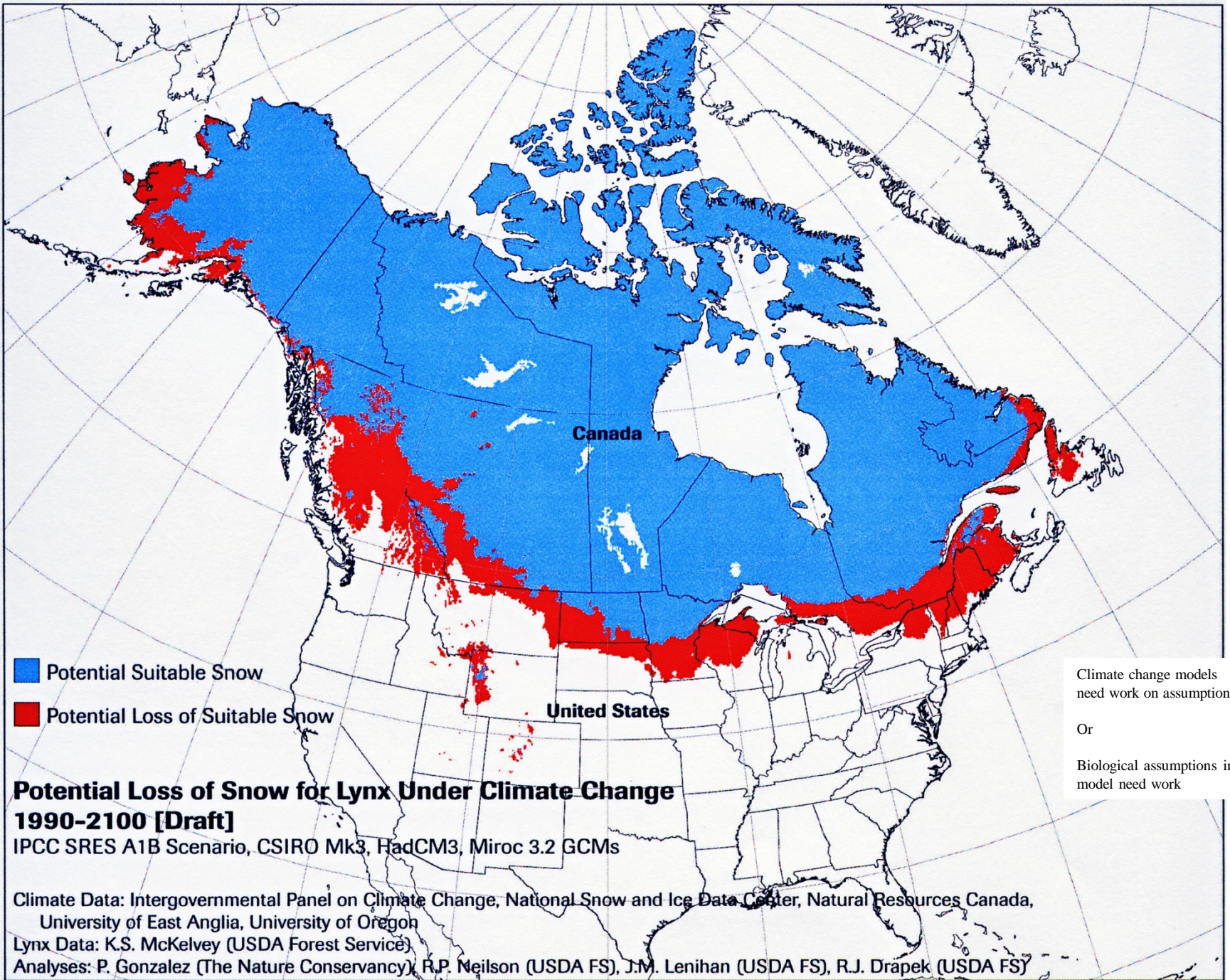


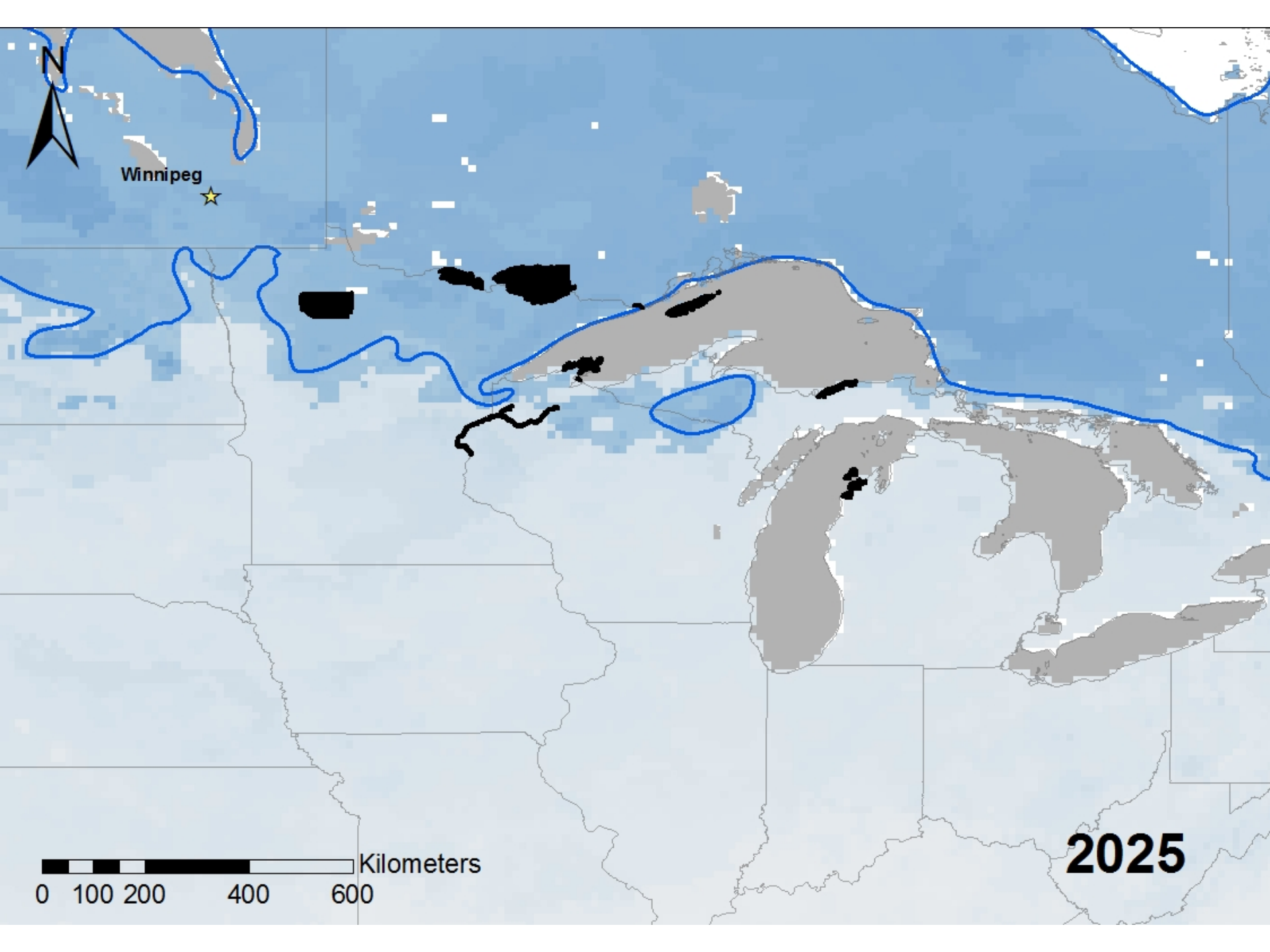
Bobcat harvest (Erb 2012)



MN Bobcat Harvest





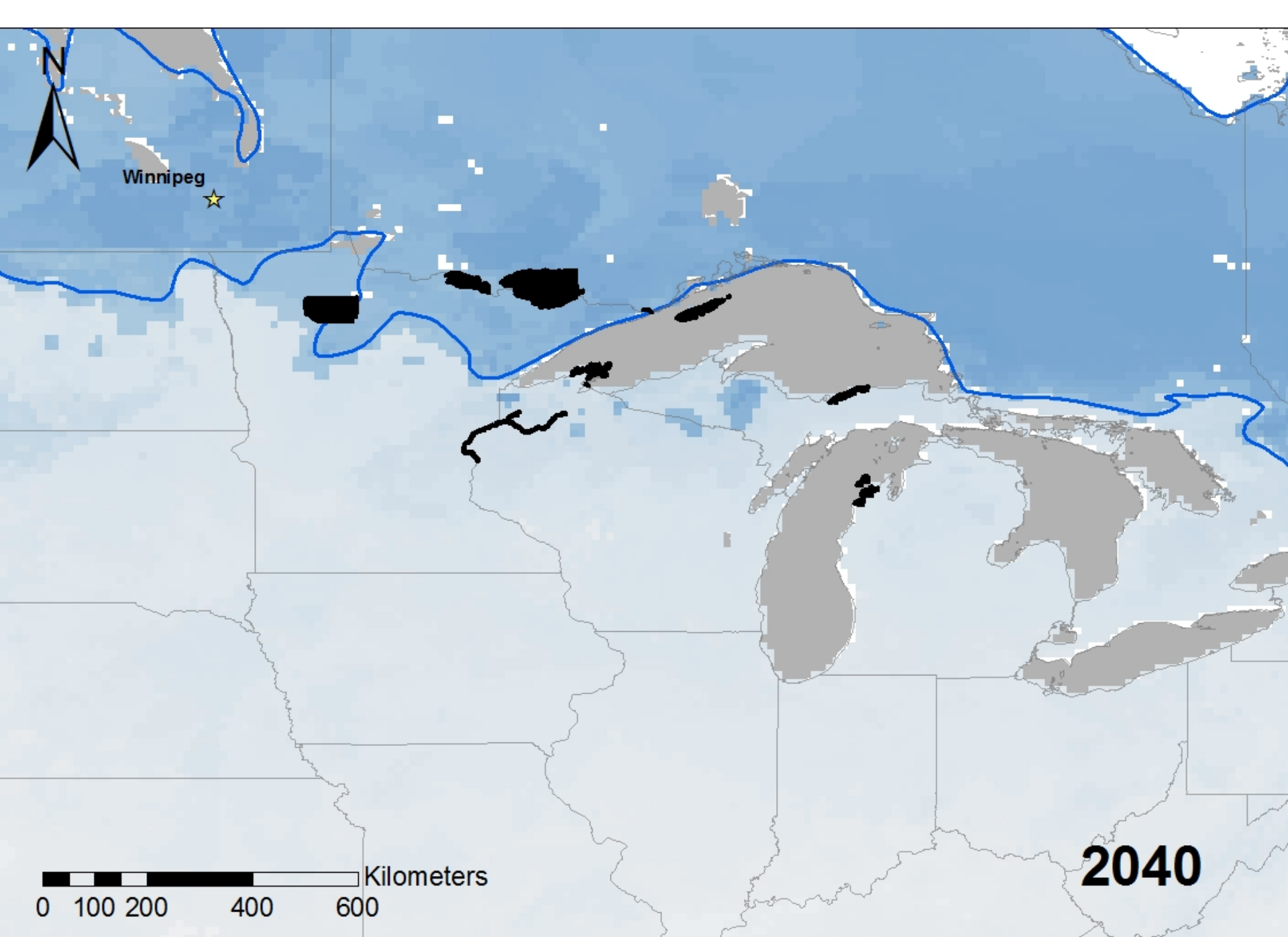


Winnipeg



0 100 200 400 600 Kilometers

2025

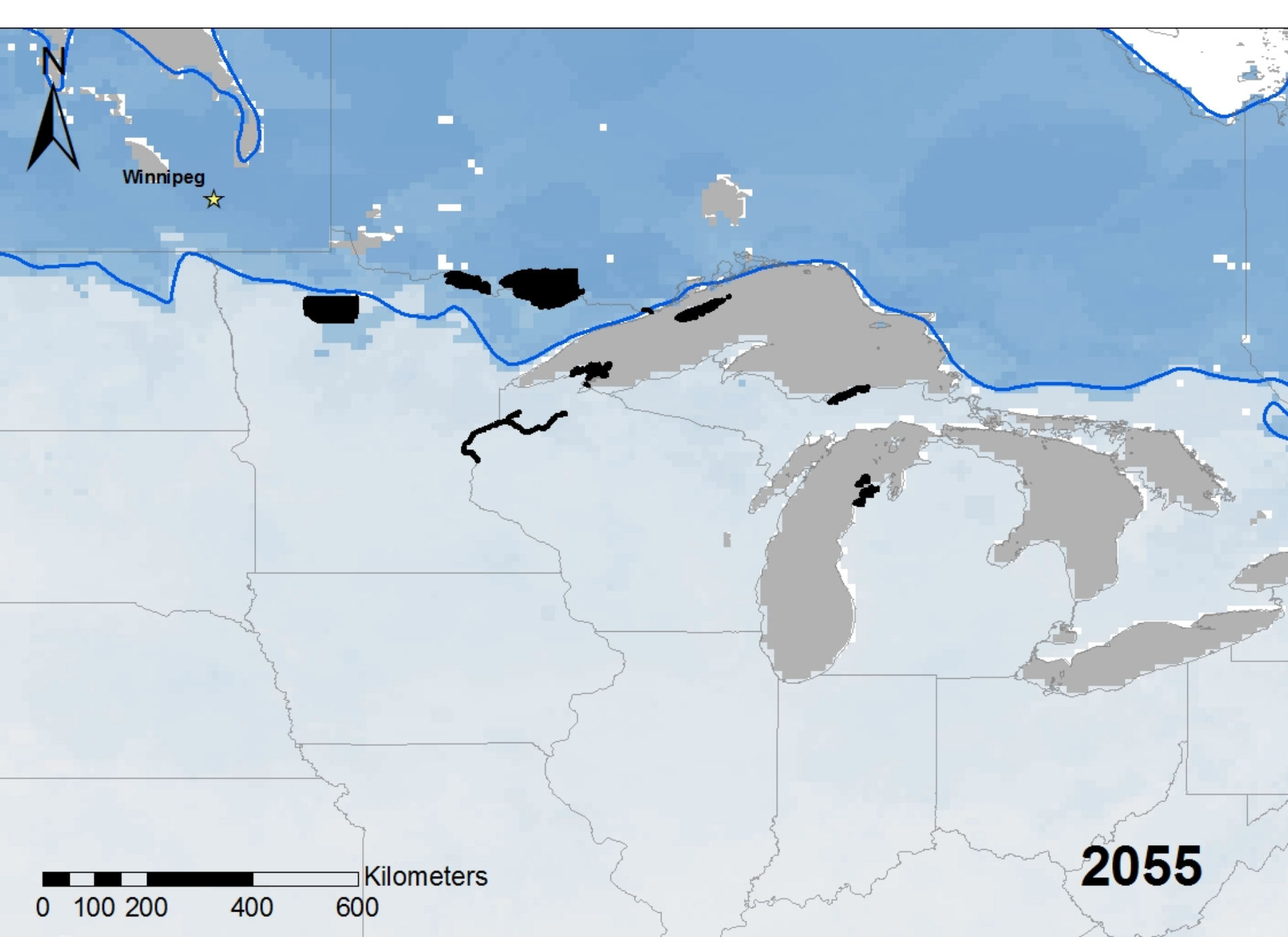


Winnipeg



0 100 200 400 600 Kilometers

2040

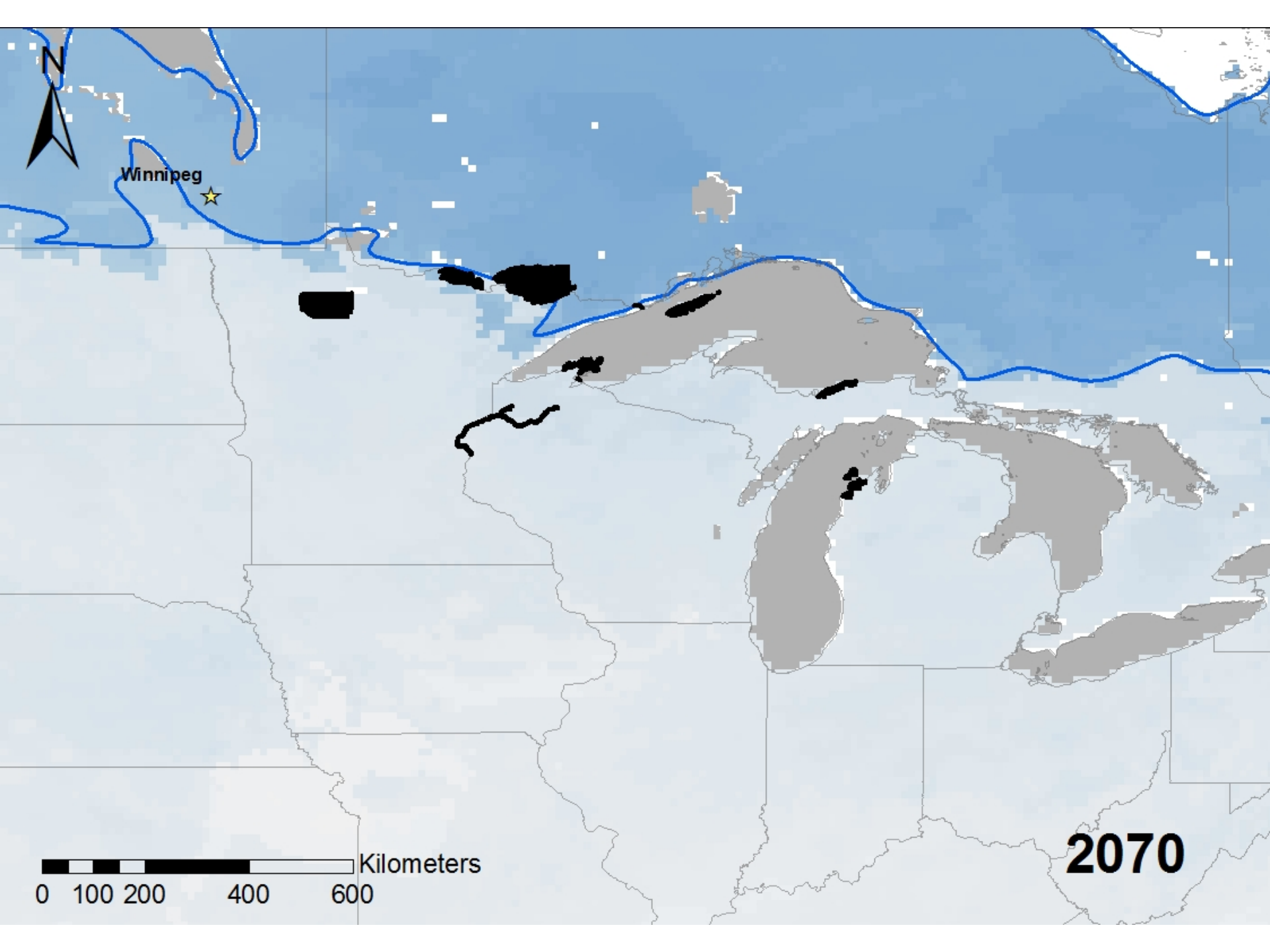


Winnipeg

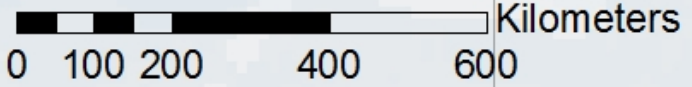


0 100 200 400 600 Kilometers

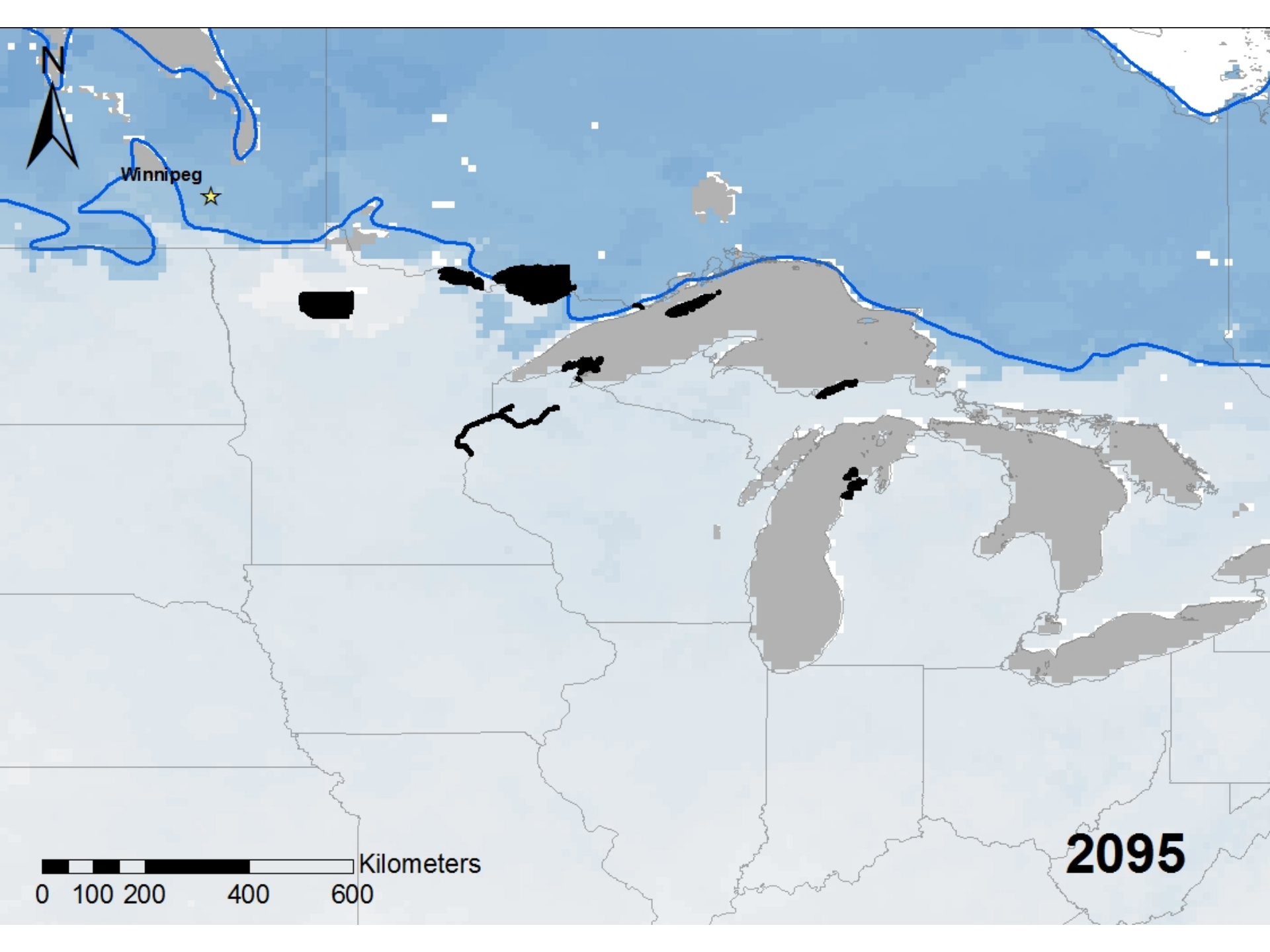
2055



Winnipeg



2070

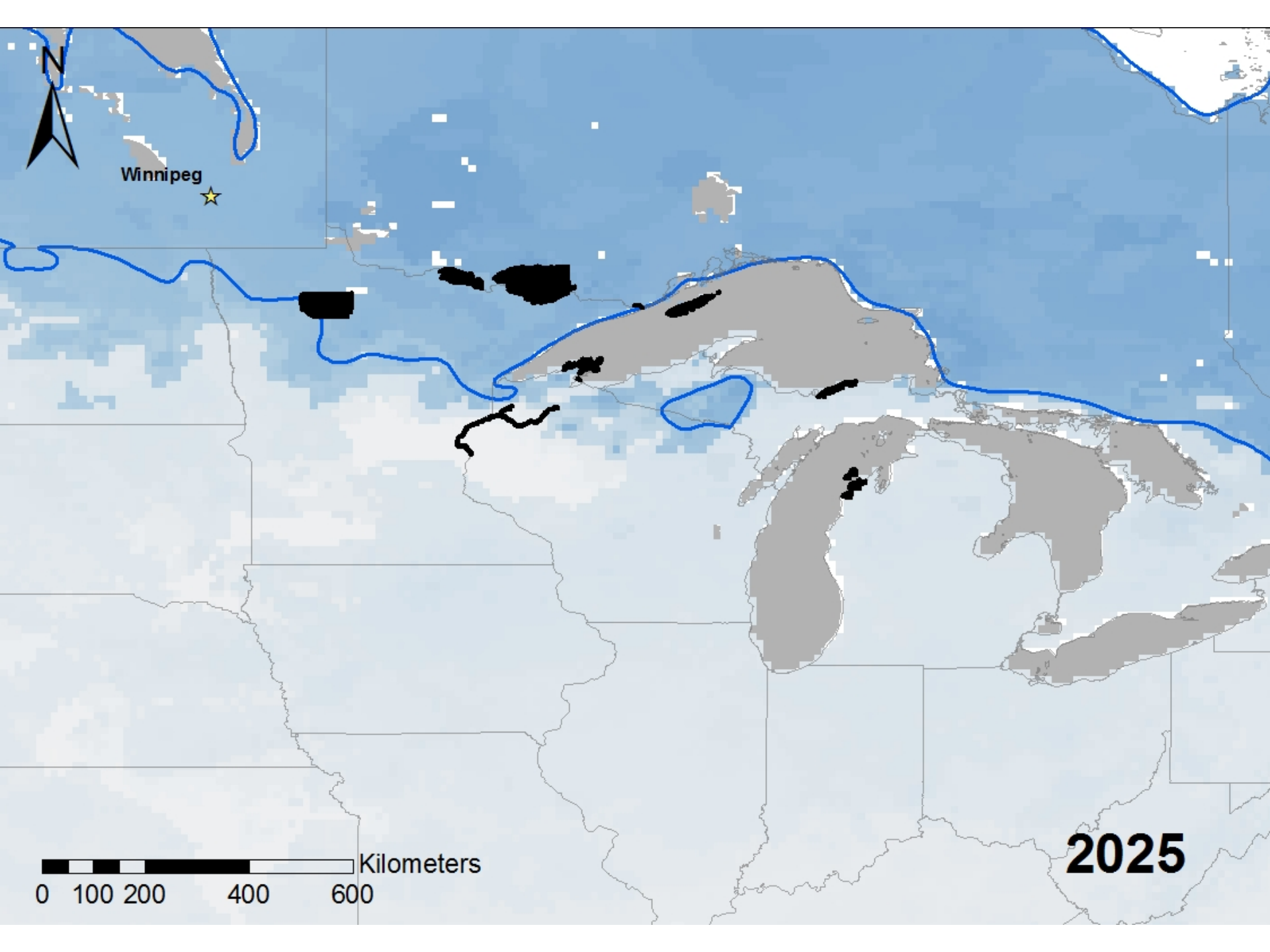


Winnipeg



0 100 200 400 600 Kilometers

2095

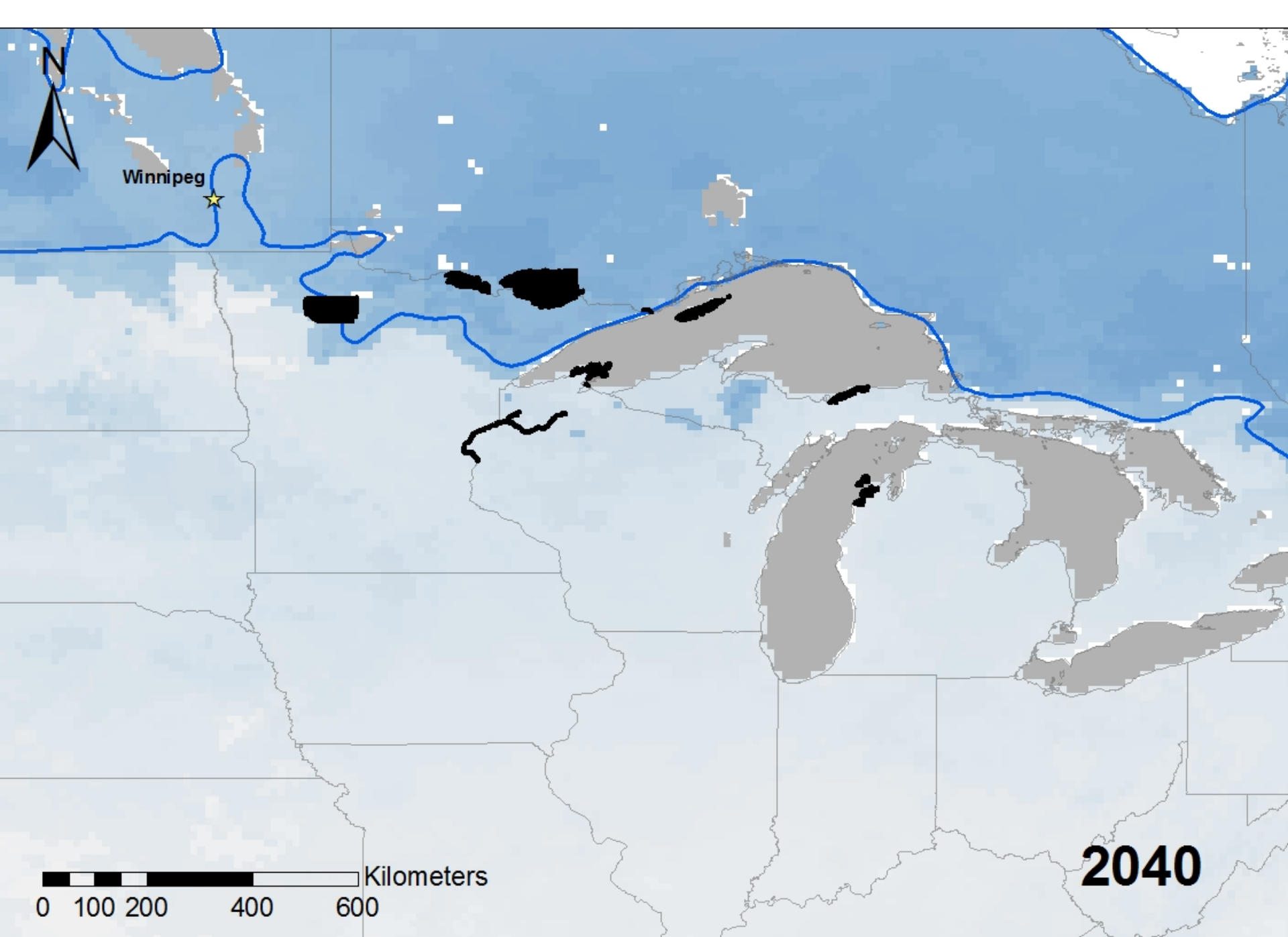


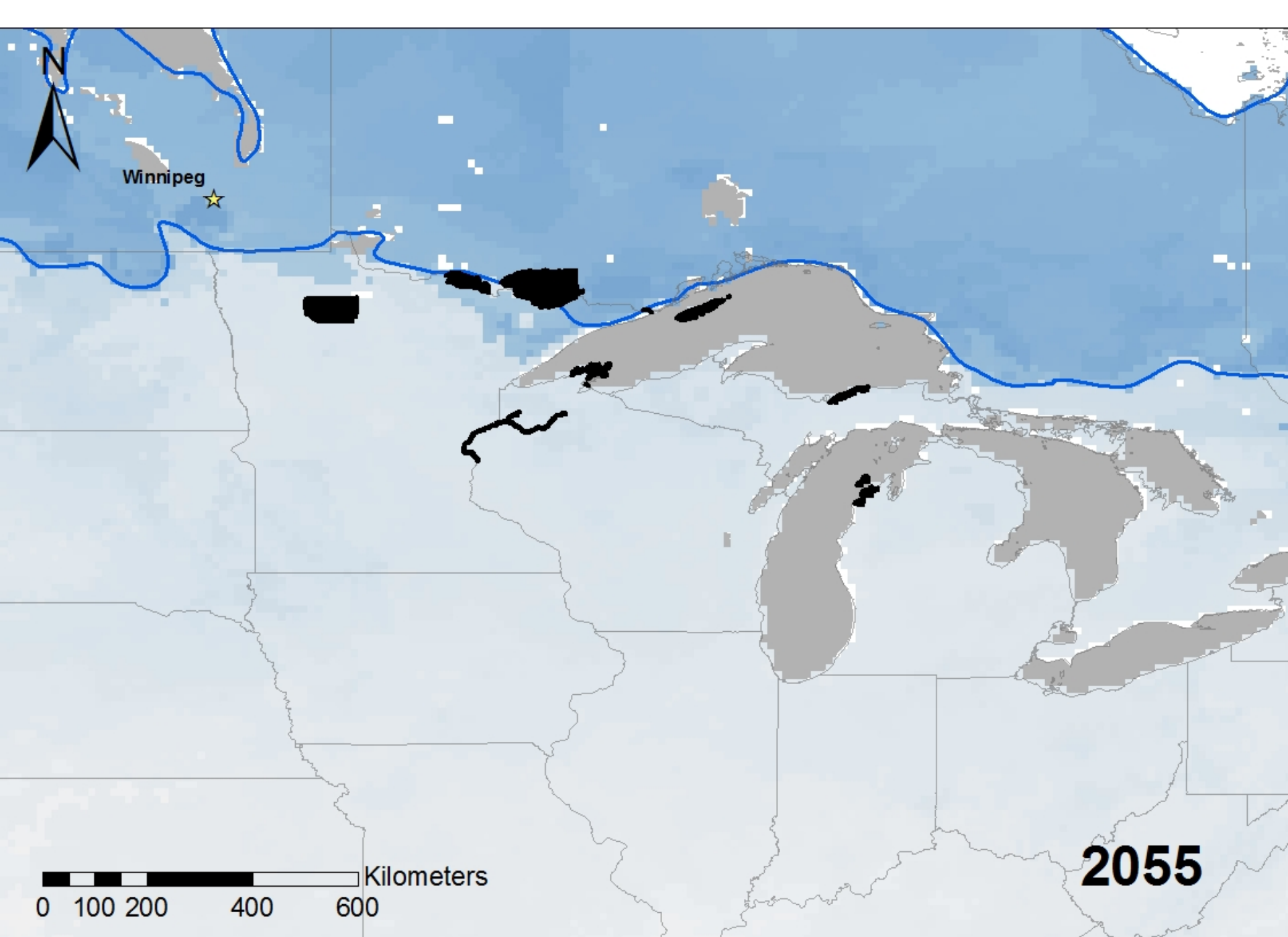
Winnipeg



0 100 200 400 600 Kilometers

2025



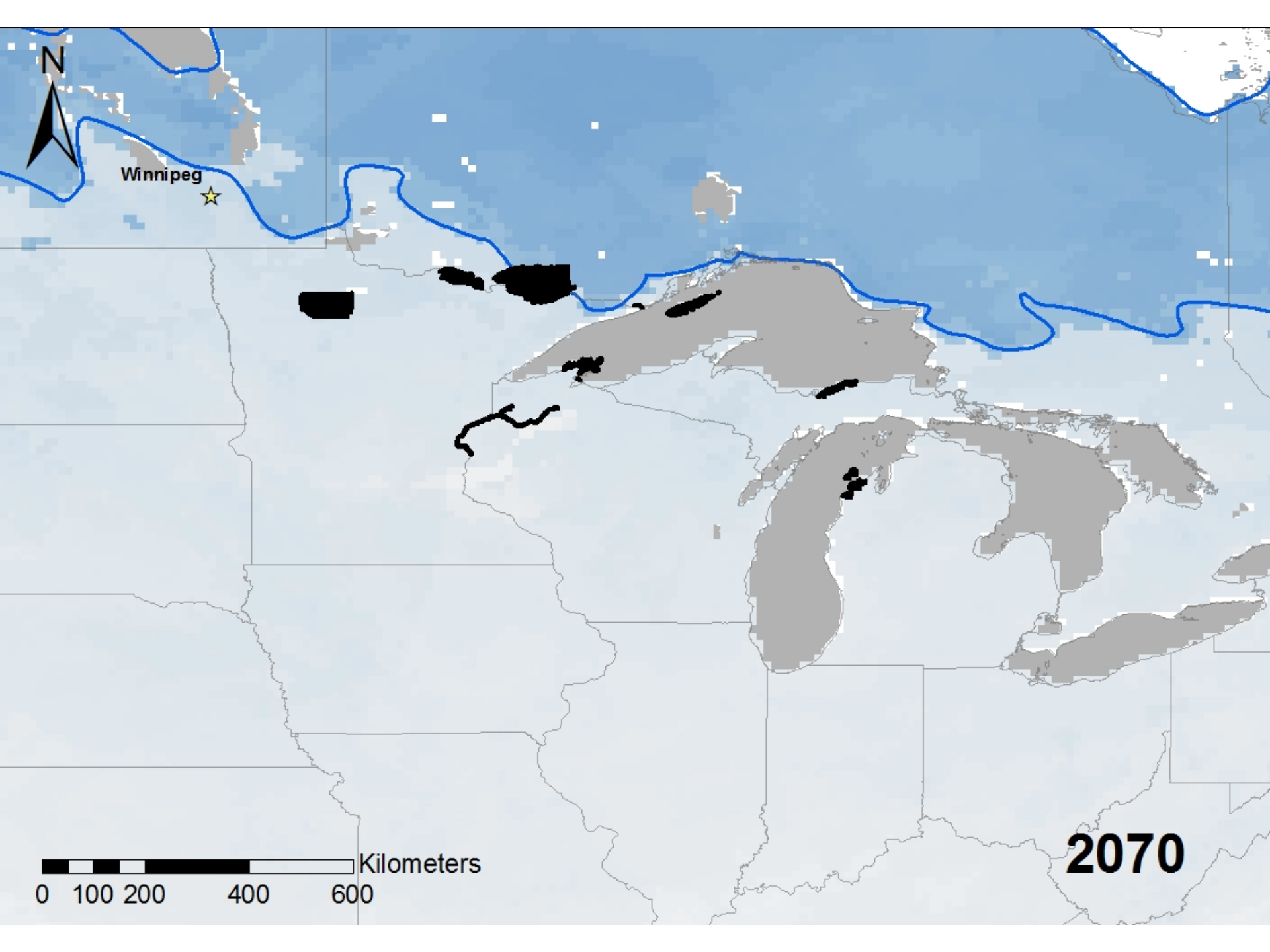


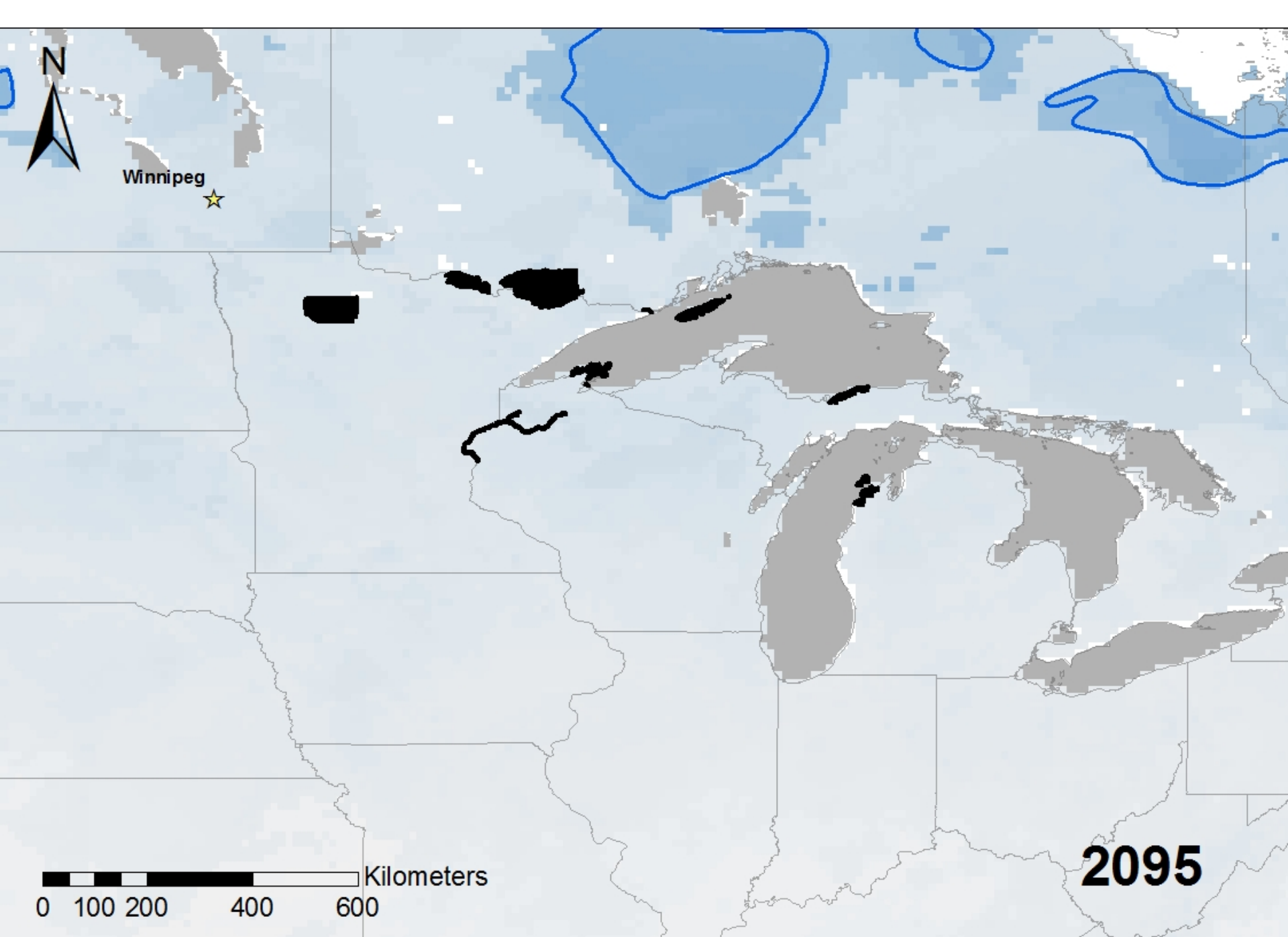
Winnipeg



0 100 200 400 600 Kilometers

2055





Winnipeg



0 100 200 400 600 Kilometers

2095



CANADA LYNX IN THE GREAT LAKES REGION

- Home
- Research
- Methods
- Animals and Images
- Information
- Publications

2008 Annual Report

Minnesota historically supported the largest lynx population in the Great Lakes region.

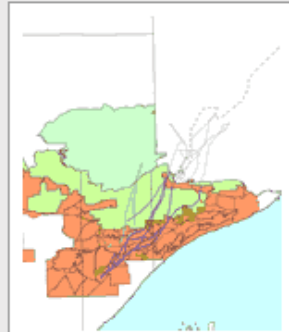
We are studying distribution, abundance, persistence, and habitat use of Canada lynx in northeastern Minnesota. Since 2003 we have placed radiocollars on 33 lynx, obtained over 15,000 lynx locations, located dens, and documented movements and habitat use.



The lynx project is in transition from biological research to using research results for management. Annual reports, publications, and these will be added periodically.



Sights and sounds of Lynx. We've been lucky enough to catch some lynx on tape. [Watch the videos](#) or [listen to the recordings](#).



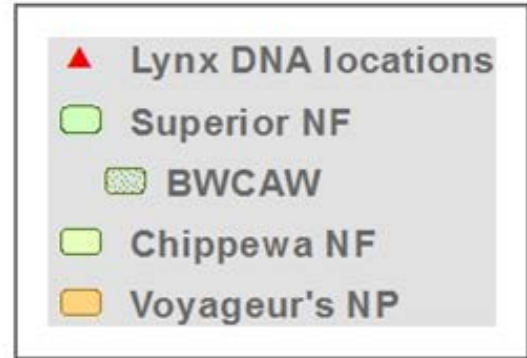
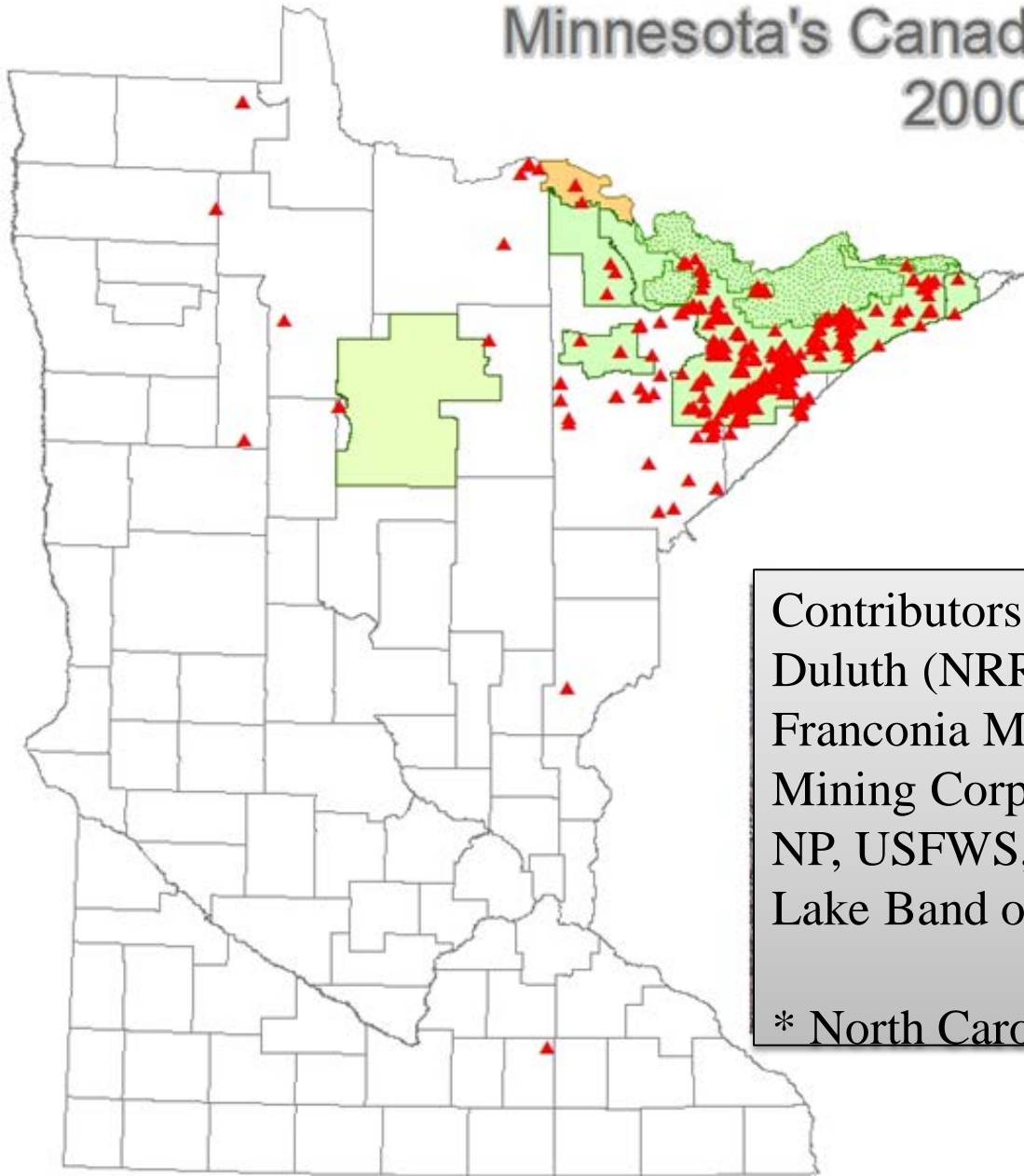
Read about how **Canada lynx make long-stance movements** from Minnesota to Ontario [here](#) (946 KB pdf)



A LCCMR proposal was recently recommended for funding to work on lynx issues with agencies and stakeholder groups. If approved, this project would begin in 2011. See the LCCMR recommendations [here](#).

Click [here](#) to find out how to report a lynx sighting.

Minnesota's Canada lynx DNA locations 2000-2015



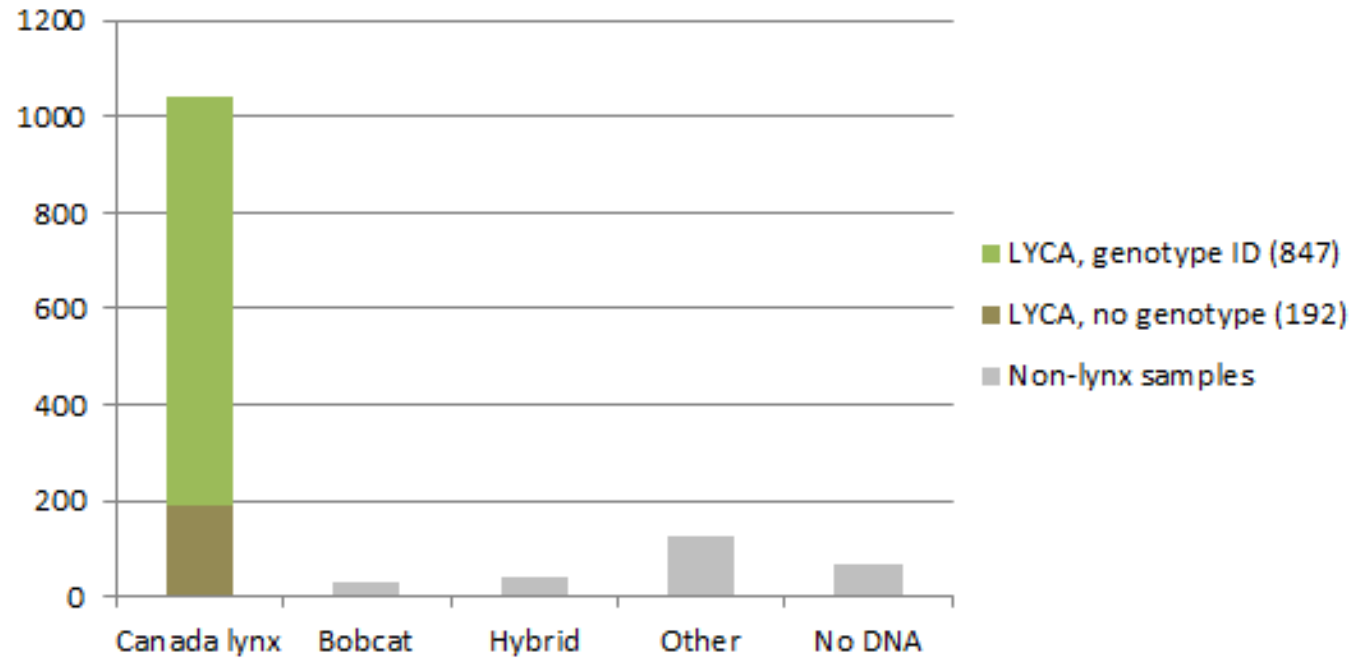
Contributors: Superior NF, UM-Duluth (NRRI), Steve Loch, Franconia Mineral Corp., Polymet Mining Corp., MN DNR, Voyagers NP, USFWS, Chippewa NF, Leech Lake Band of Ojibwe

* North Carolina State University



Species ID and Individuals

- 1,306 samples
- 1,039 (80%) lynx
- 268 individual lynx (47%F, 53%M)

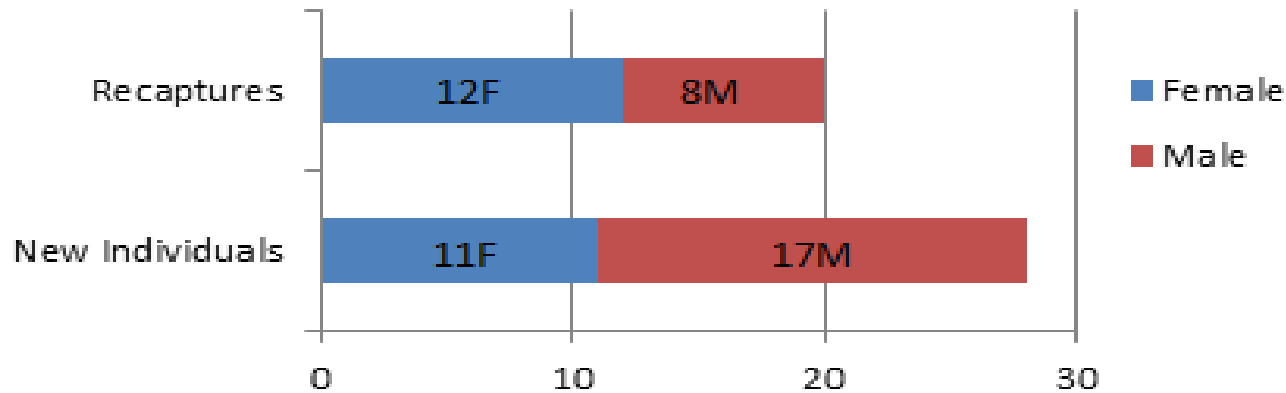


Species Identification Results (n = 1,240)

Hybrids

- 42 samples F1 lynx- bobcat hybrid
- 13 unique individuals (5F, 8M)

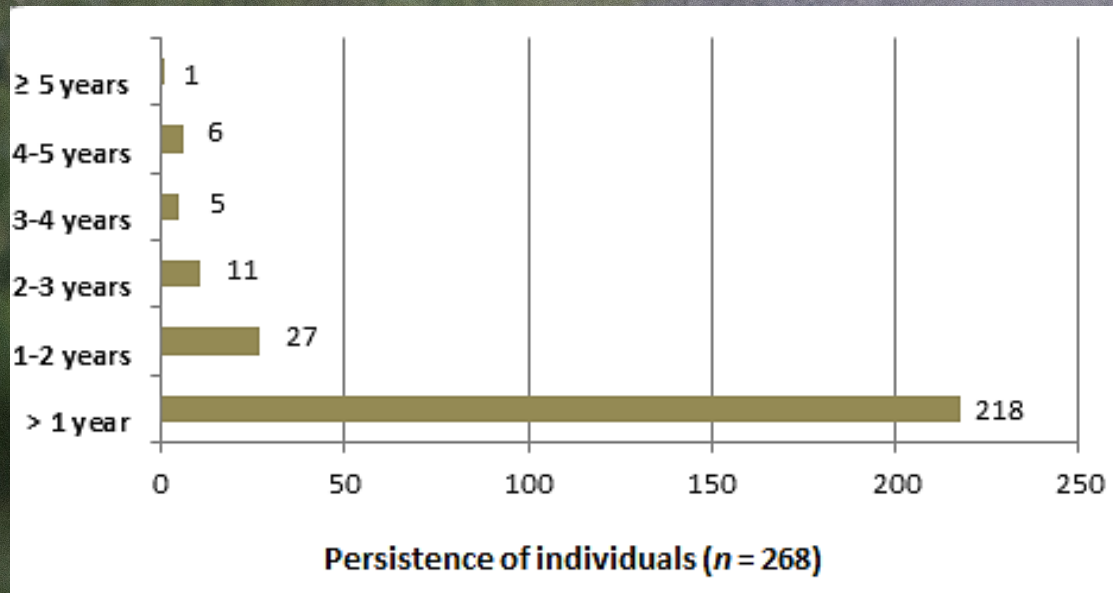
2014-2015 results



2015 Canada lynx individuals detected ($n = 48$)

- 133 samples
- 84% lynx
- 48 unique individuals (23F, 25M)
- 20 recaptures
- 28 new captures
- 2 F1 Canada lynx-bobcat hybrid recaptures (both male)

Persistence



Recruitment

