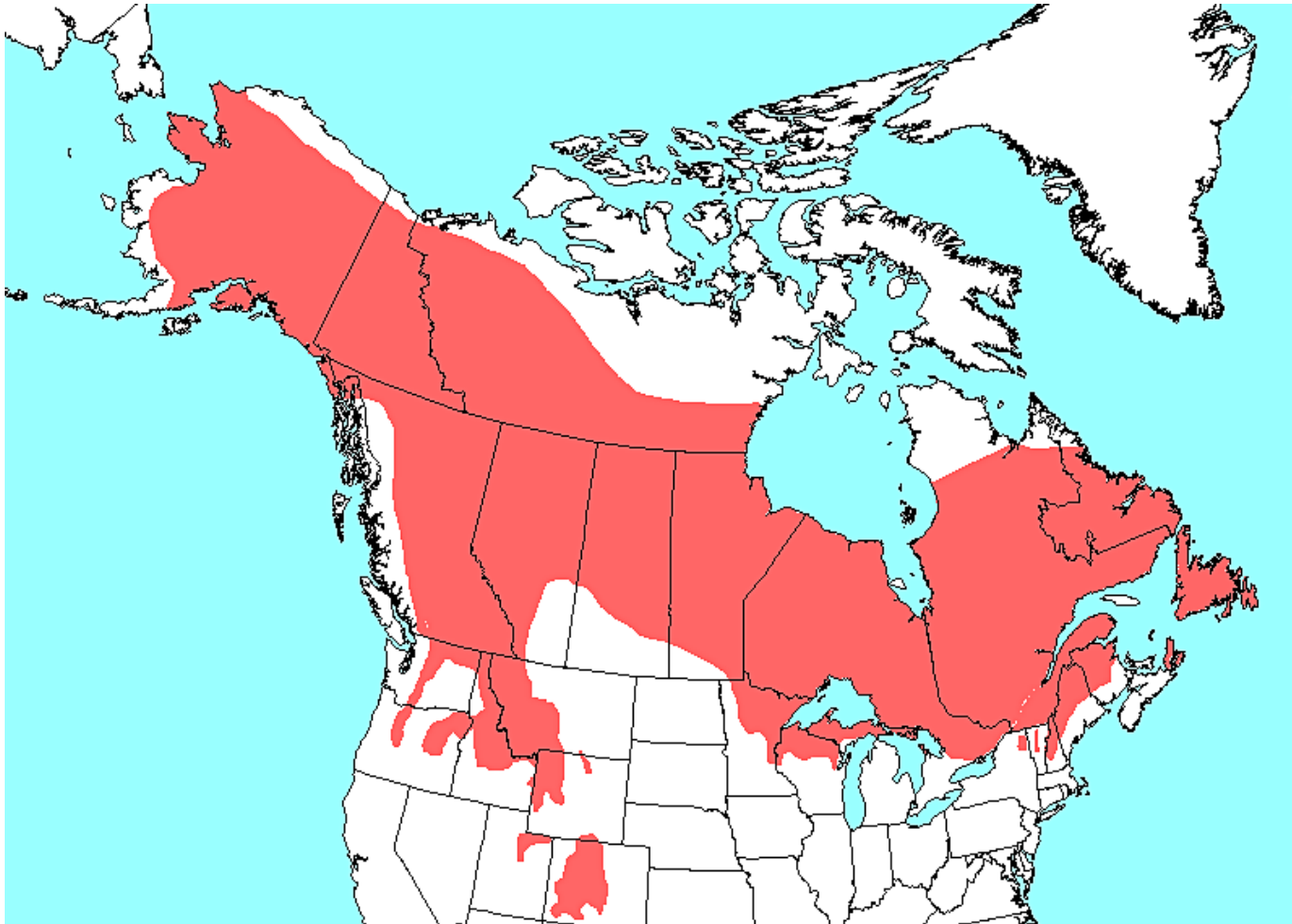


A photograph of two hikers walking away from the camera through a snowy forest. The hiker in the foreground is wearing a blue jacket, black pants, and a green backpack. The hiker in the background is wearing a dark jacket and a green backpack. The trees are heavily covered in snow, and the ground is a deep, white snowdrift.

# Lynx distribution, status, and management in southern Canada

Jeff Bowman  
Ontario MNRF  
and Trent University





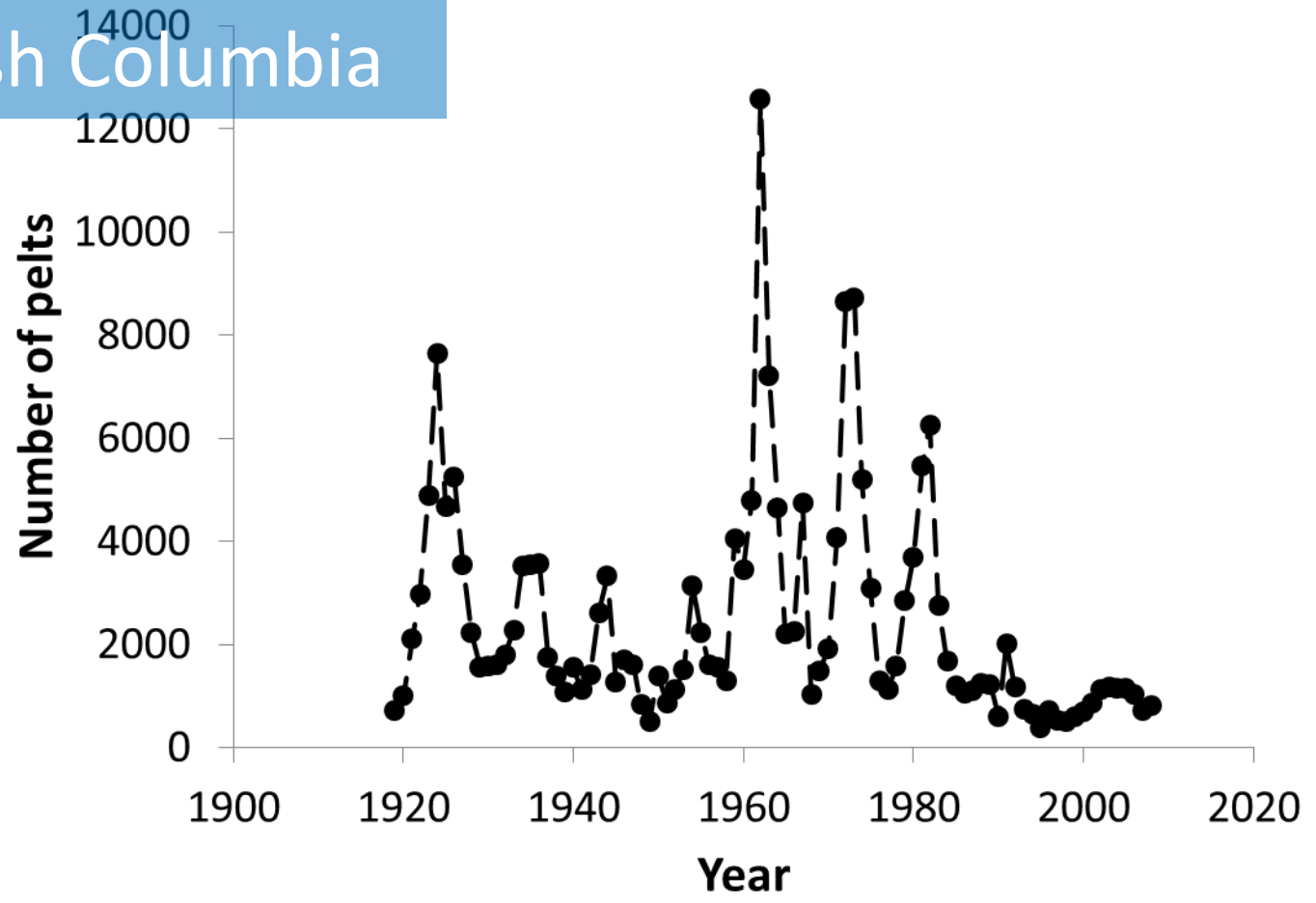
Wildlife management in Canada is largely a provincial responsibility

A map of Ontario, Canada, showing a network of traplines. The traplines are represented by a dense web of thin black lines. A thick green line outlines a specific region in the western and central parts of the province. A blue rectangular box is overlaid on the upper right portion of the map, containing the text "Registered traplines in Ontario".

## Registered traplines in Ontario

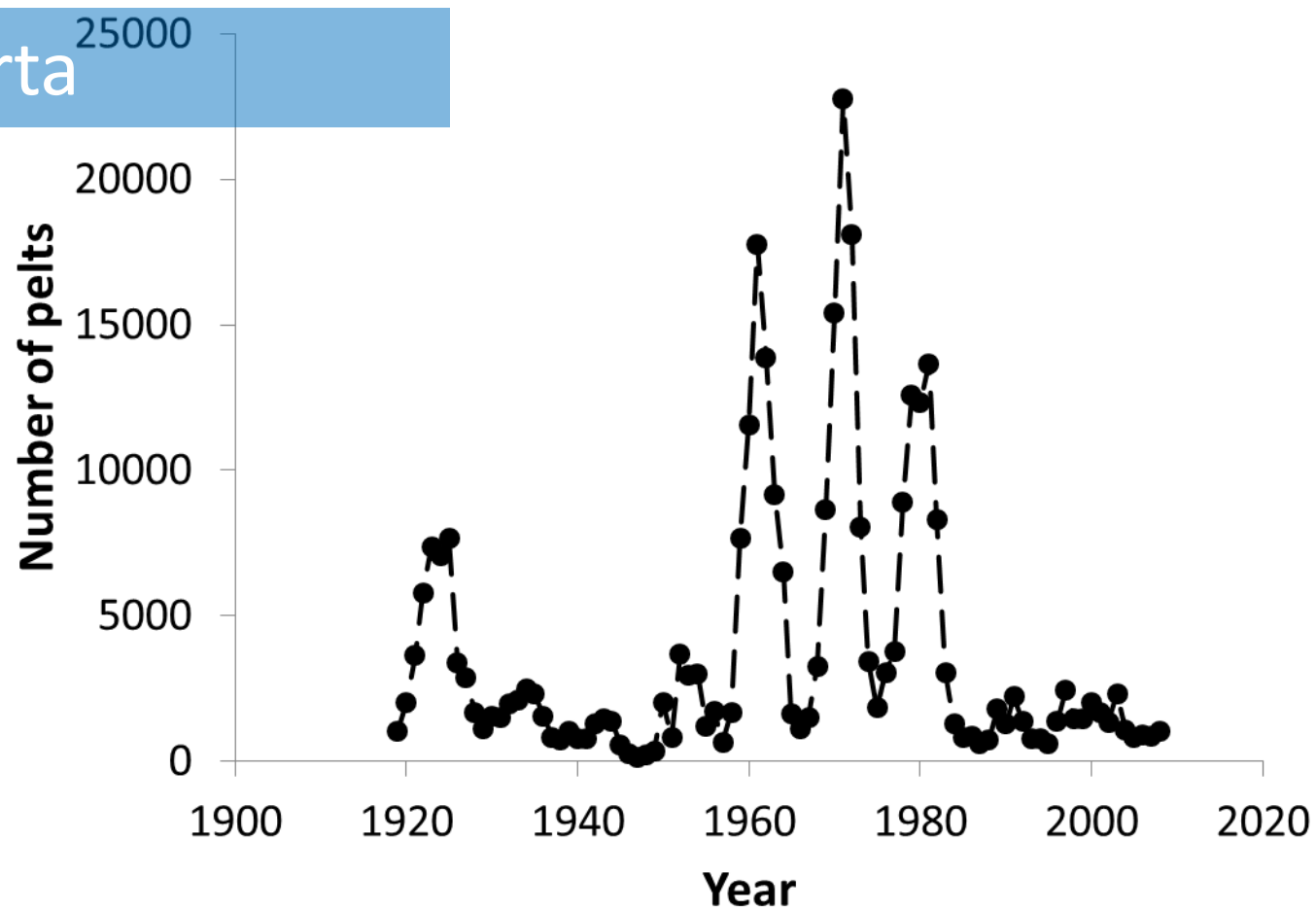


# British Columbia



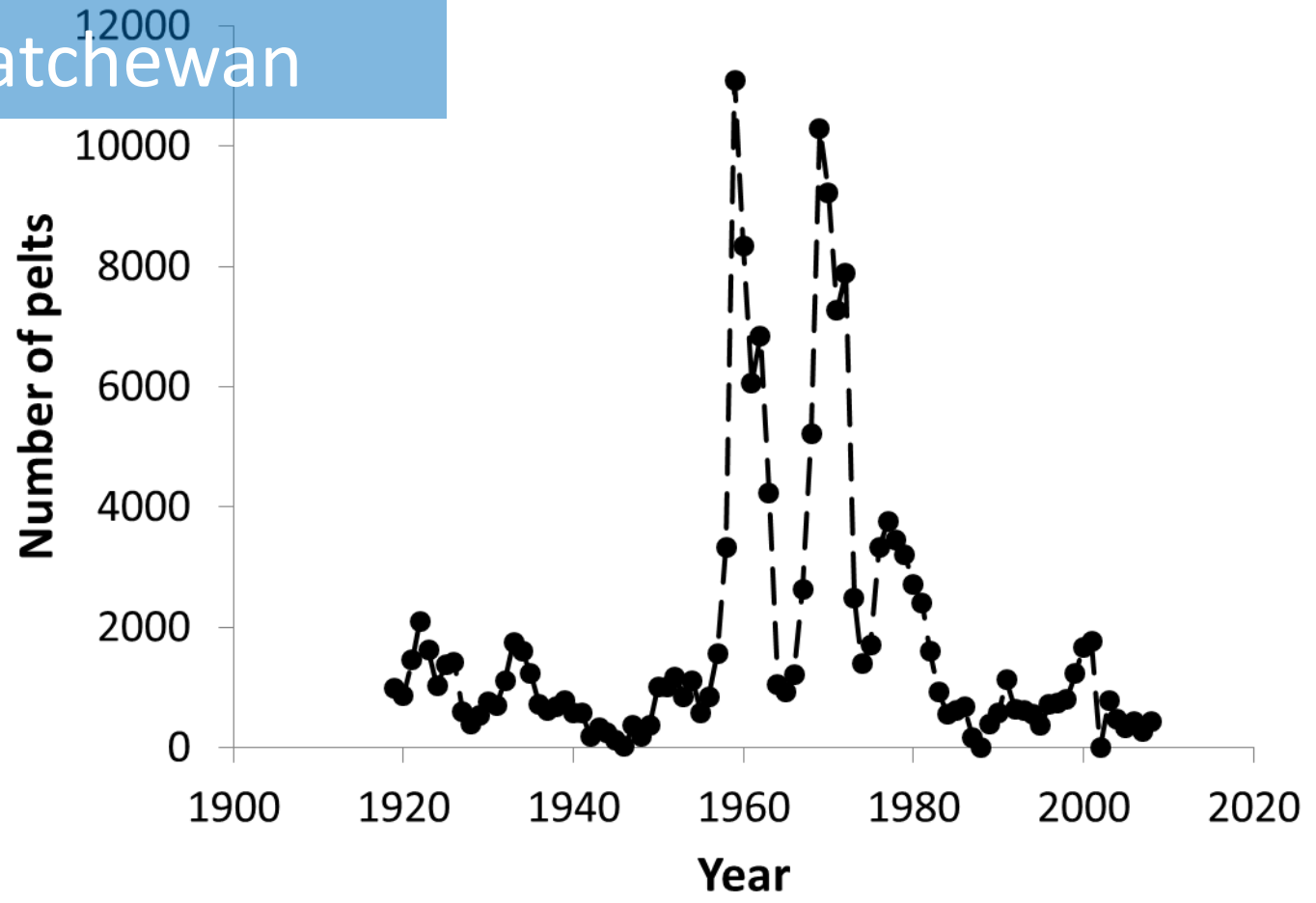


# Alberta



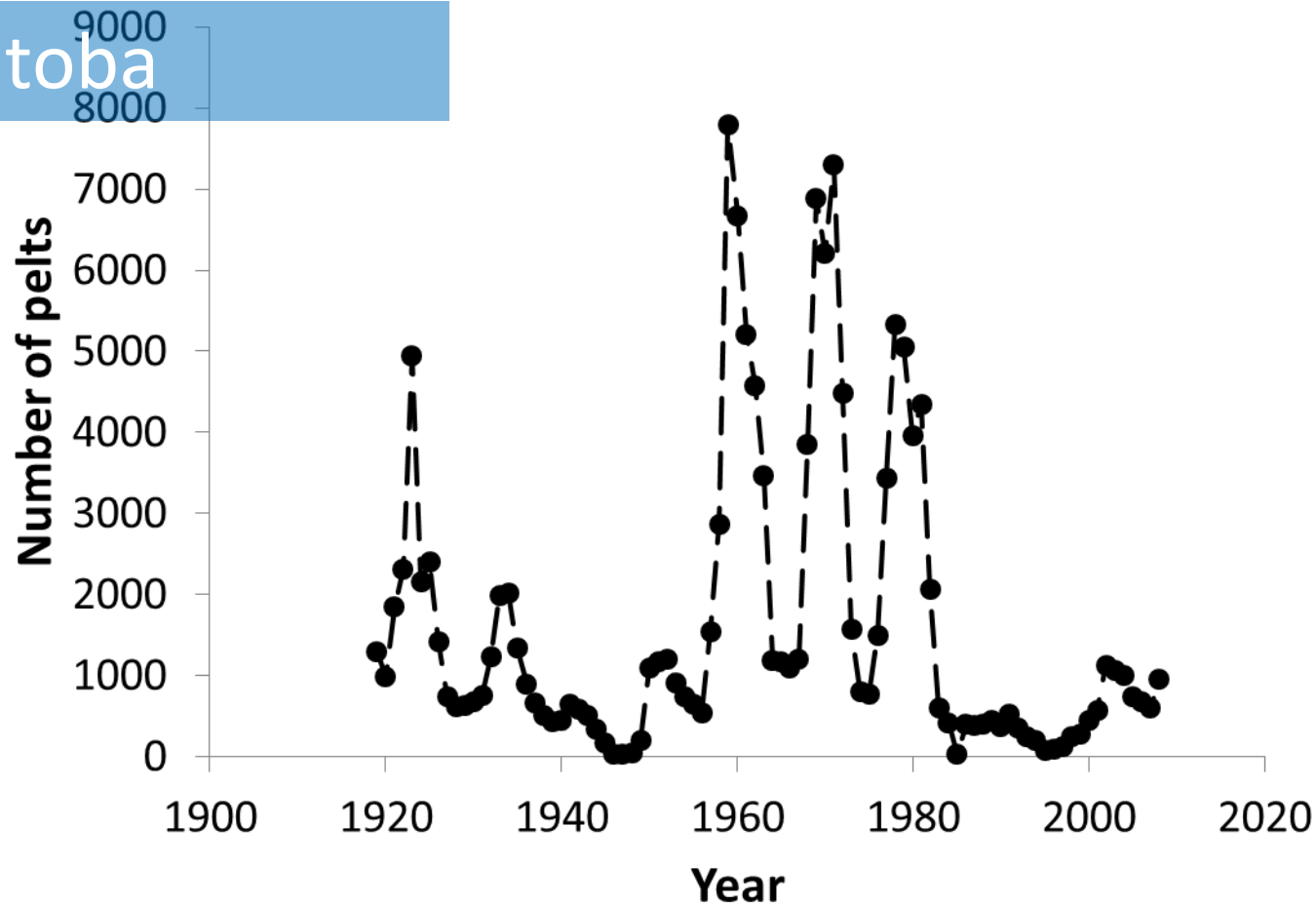


# Saskatchewan



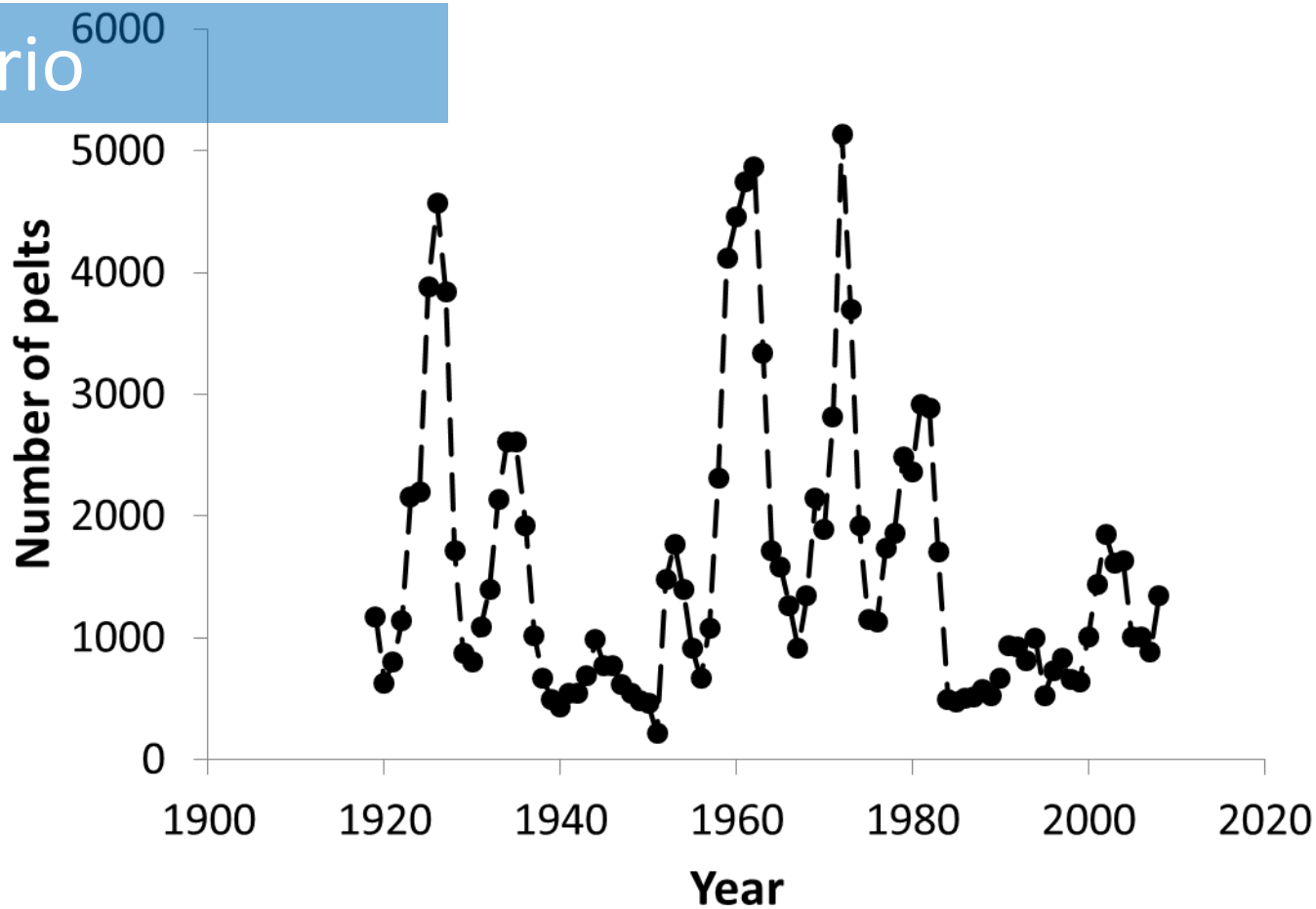


# Manitoba





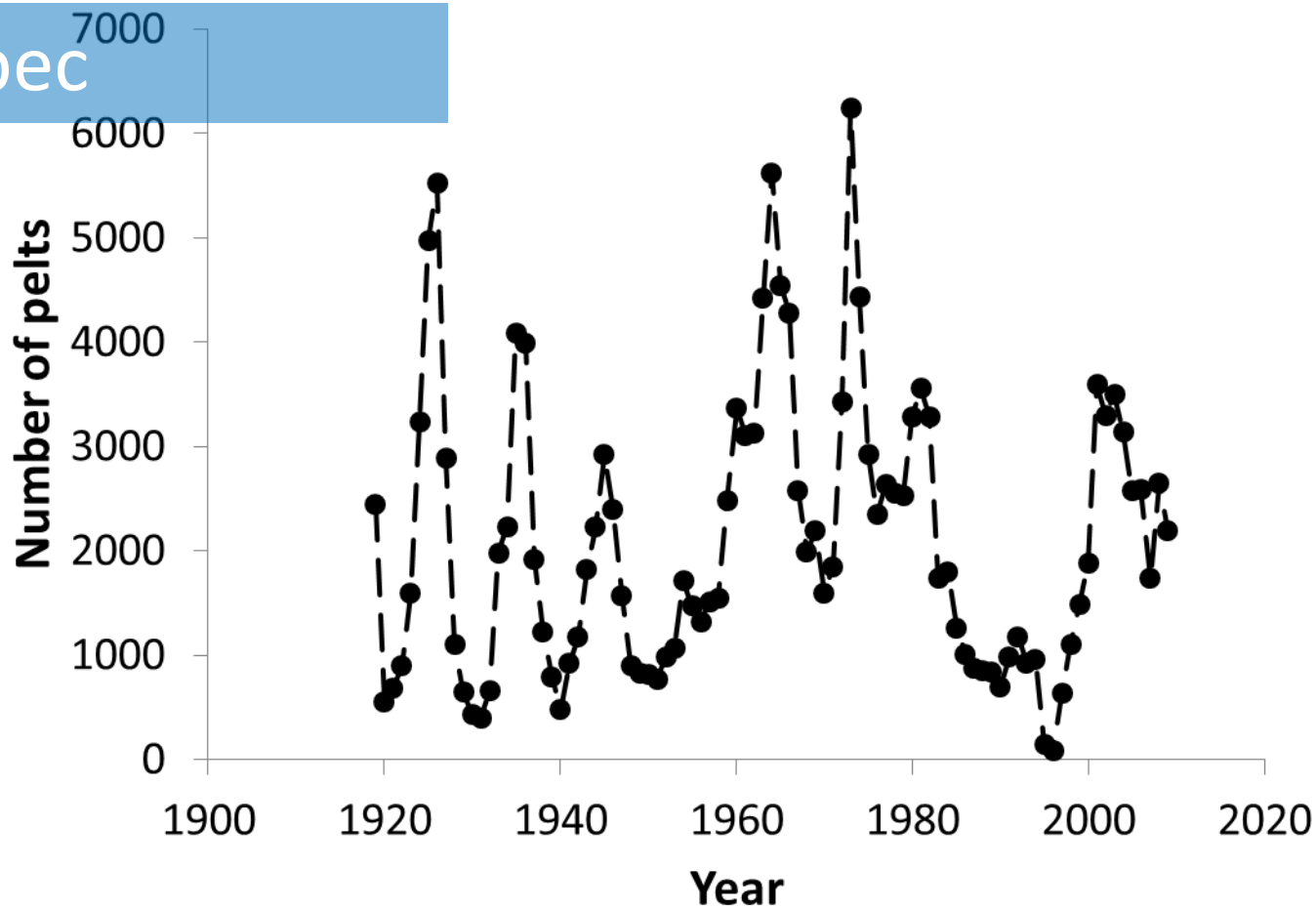
# Ontario





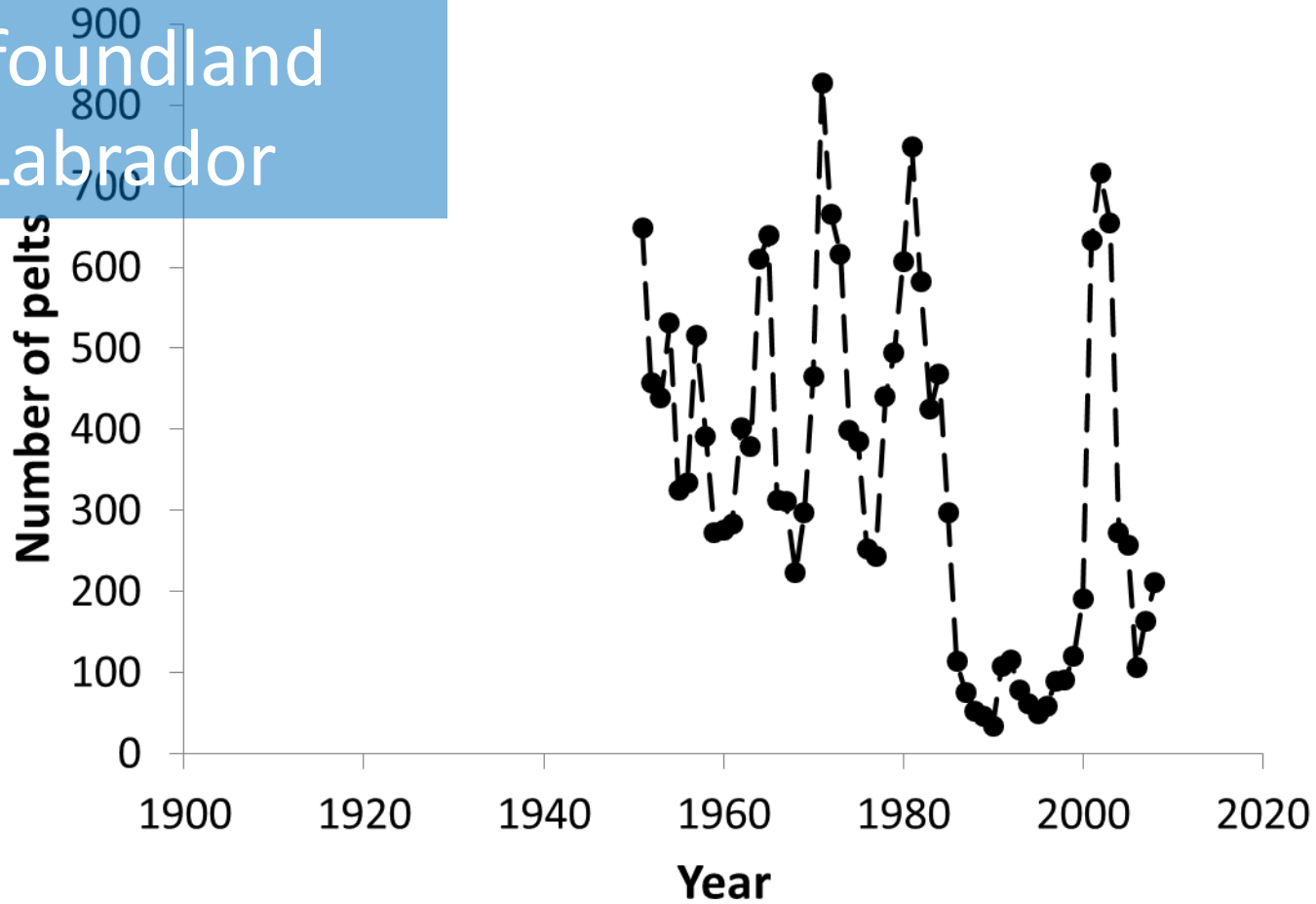


# Quebec



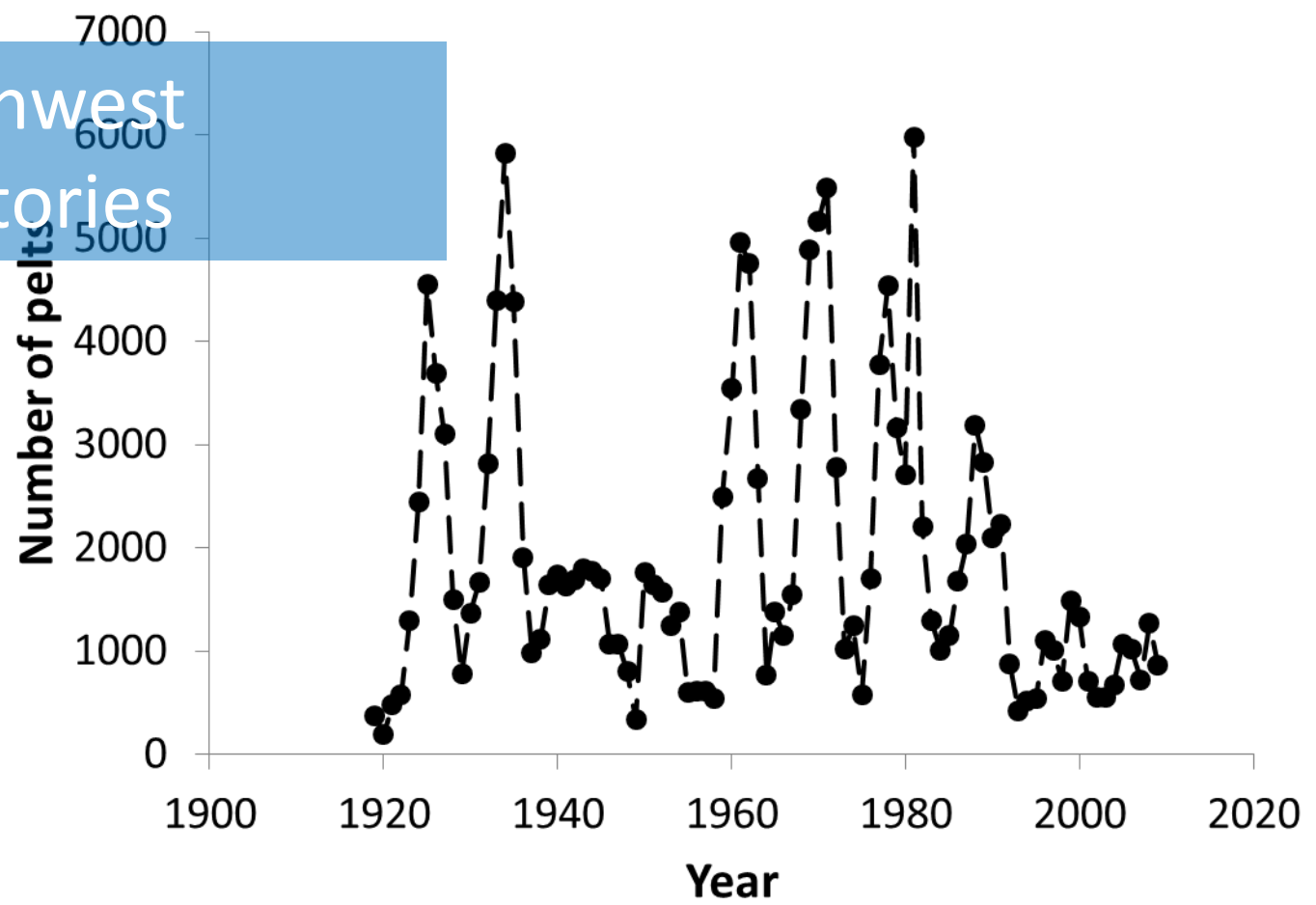


# Newfoundland and Labrador



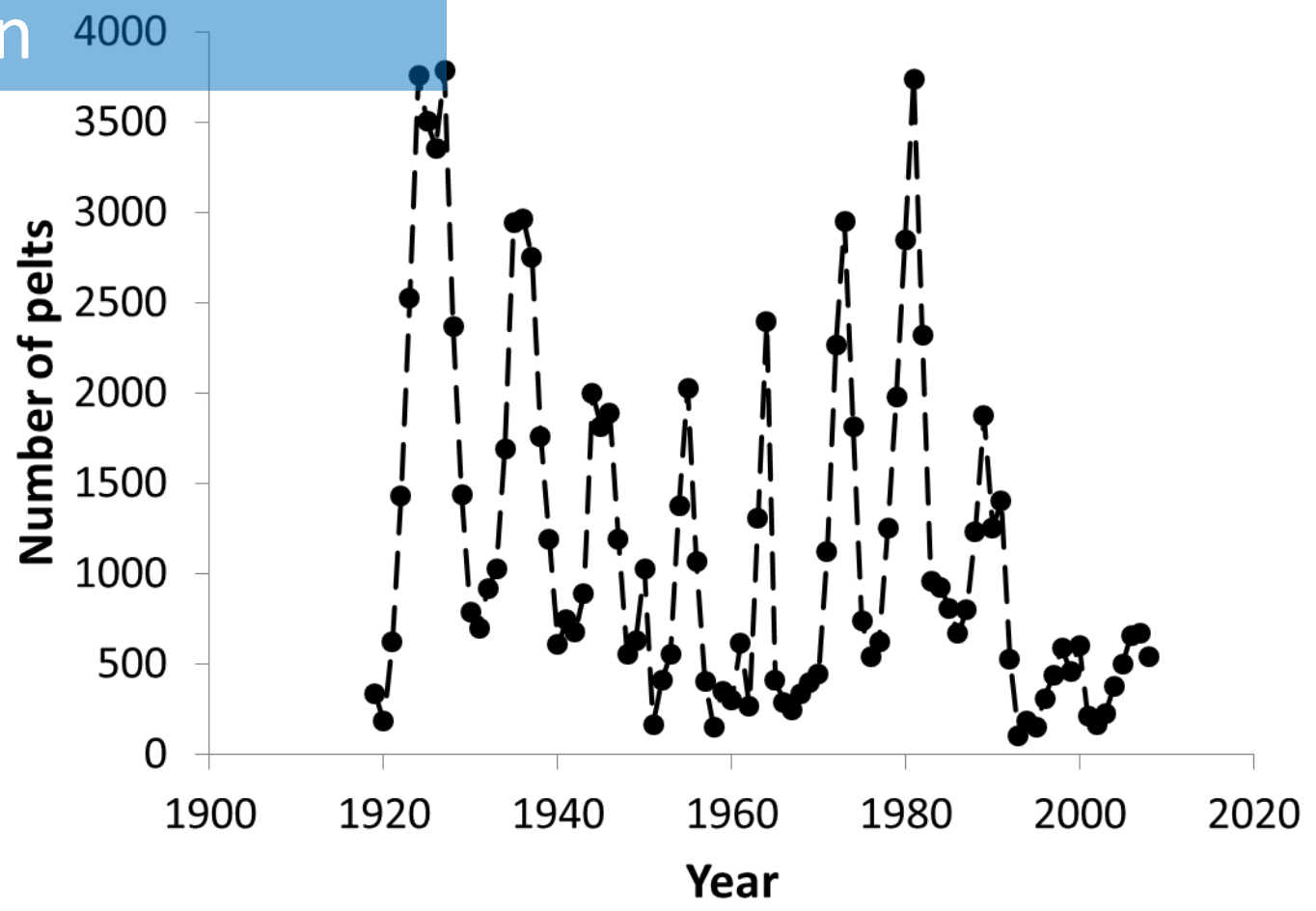


# Northwest Territories

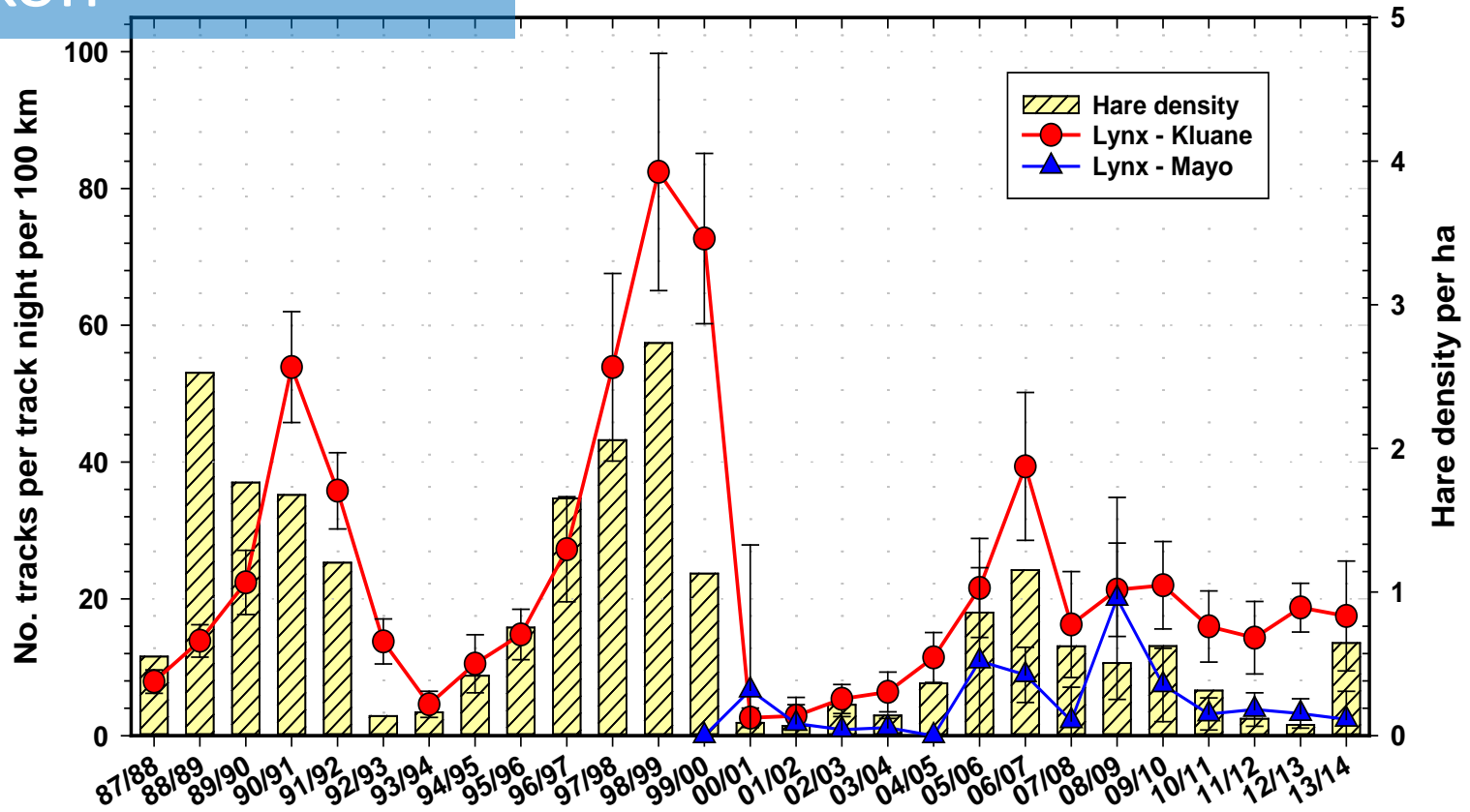




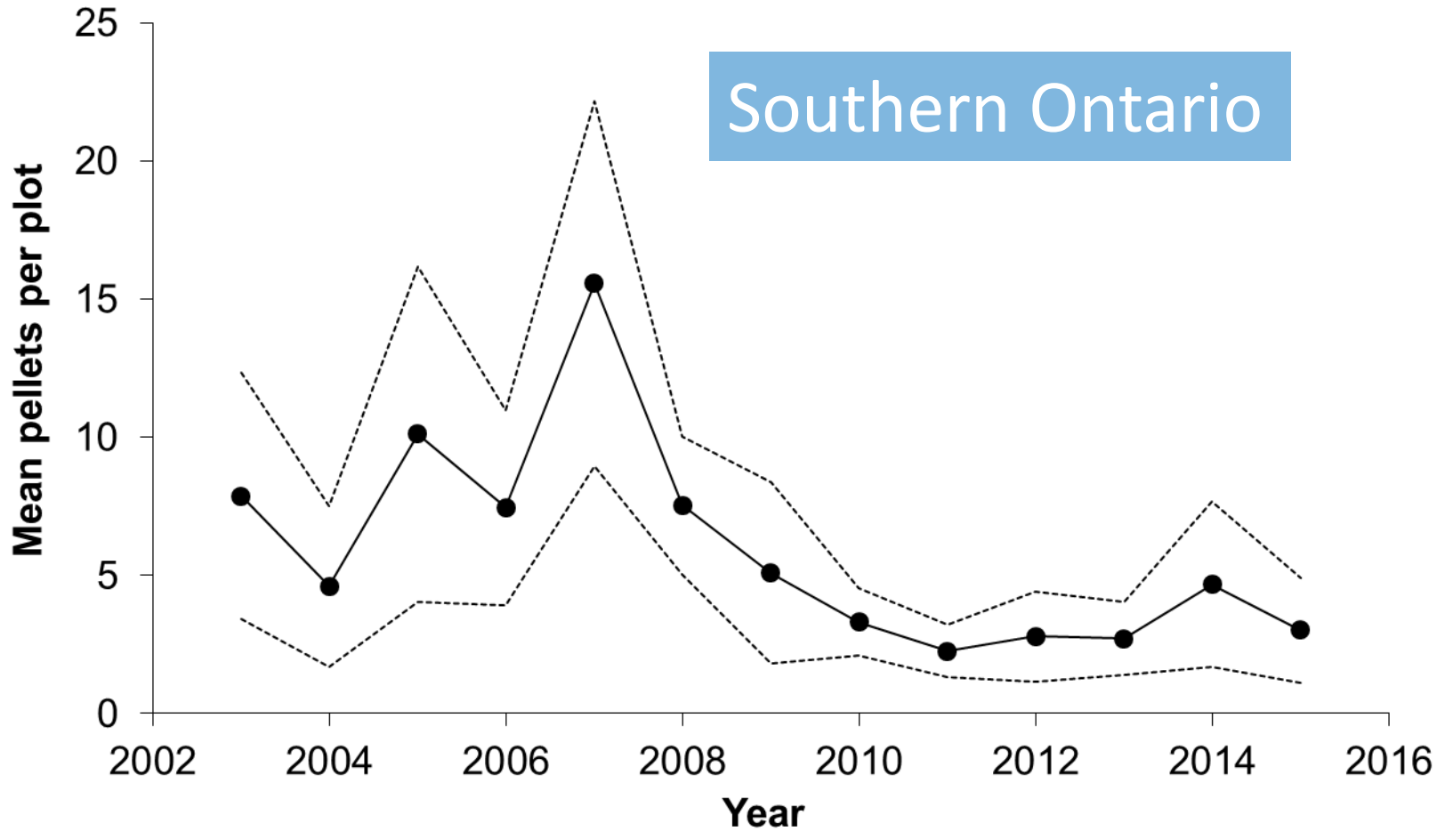
# Yukon



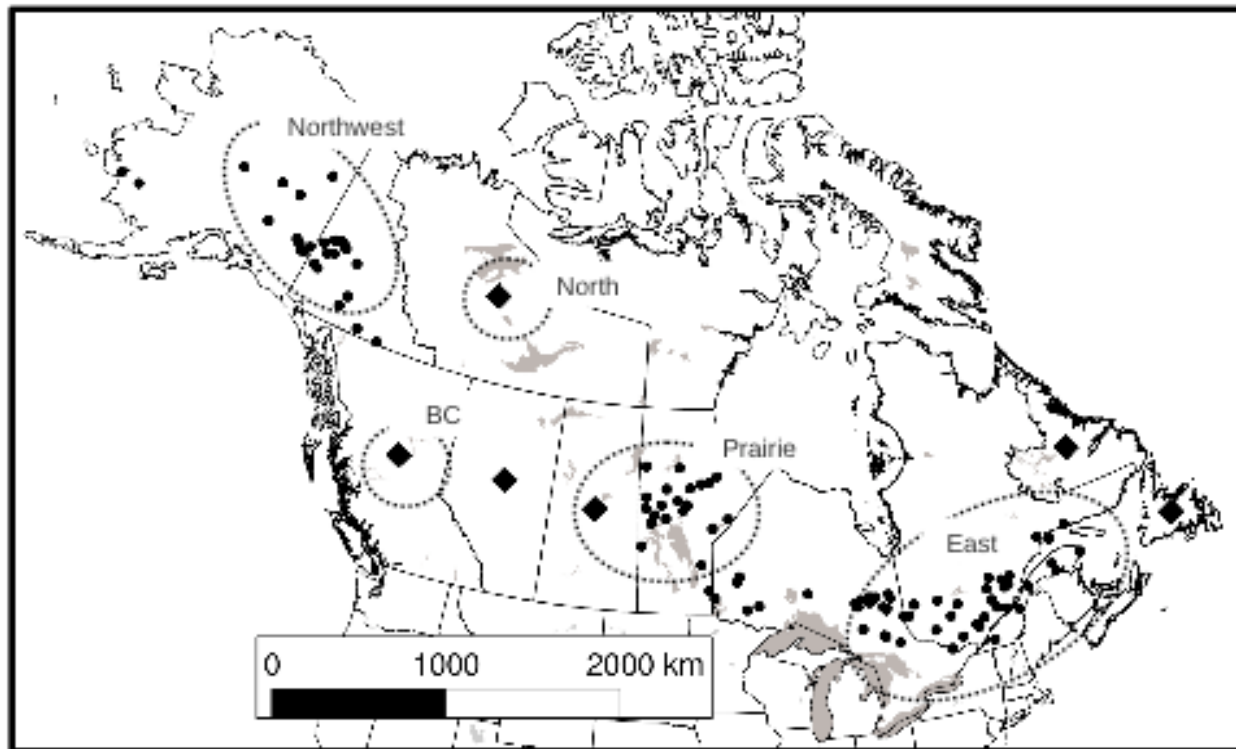
# Yukon





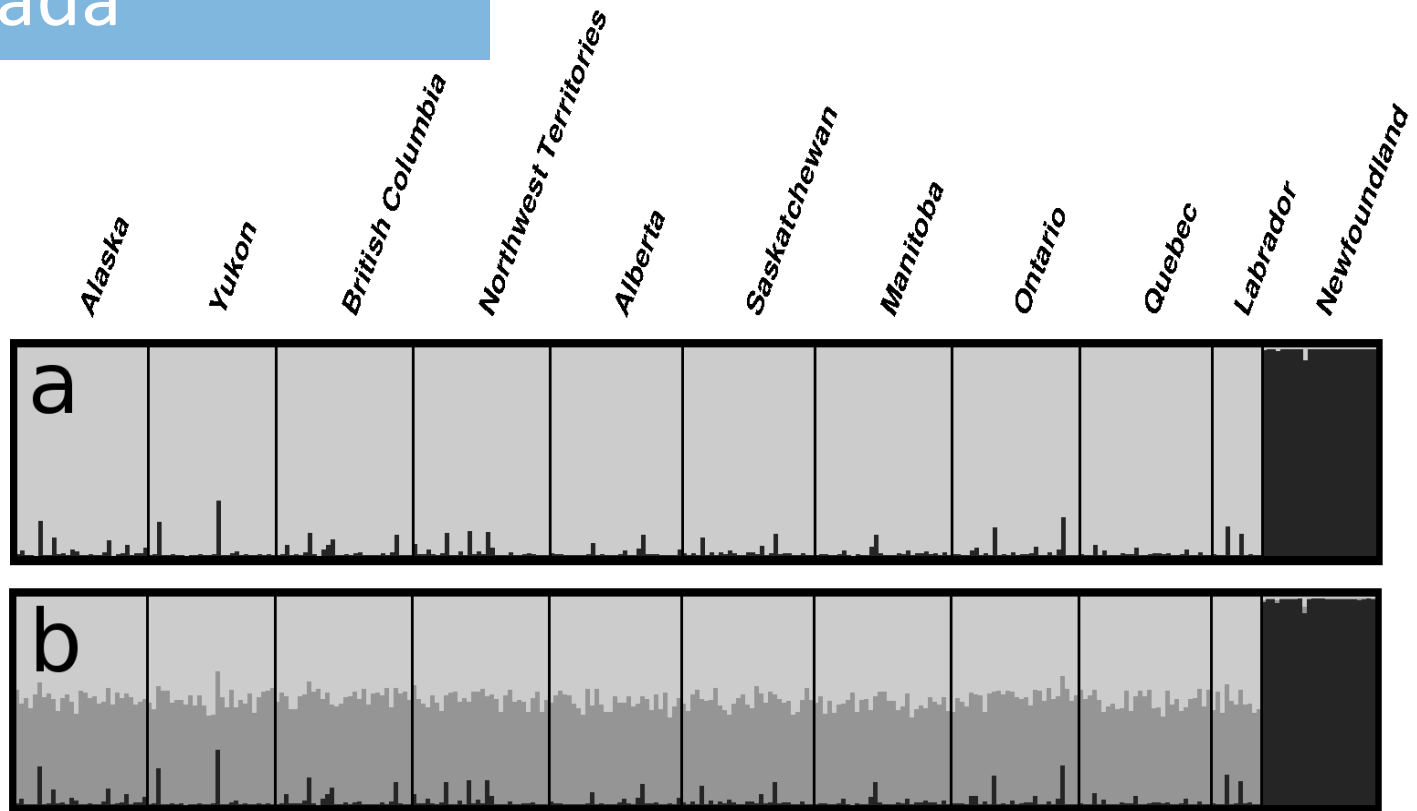


# Gene flow across Canada



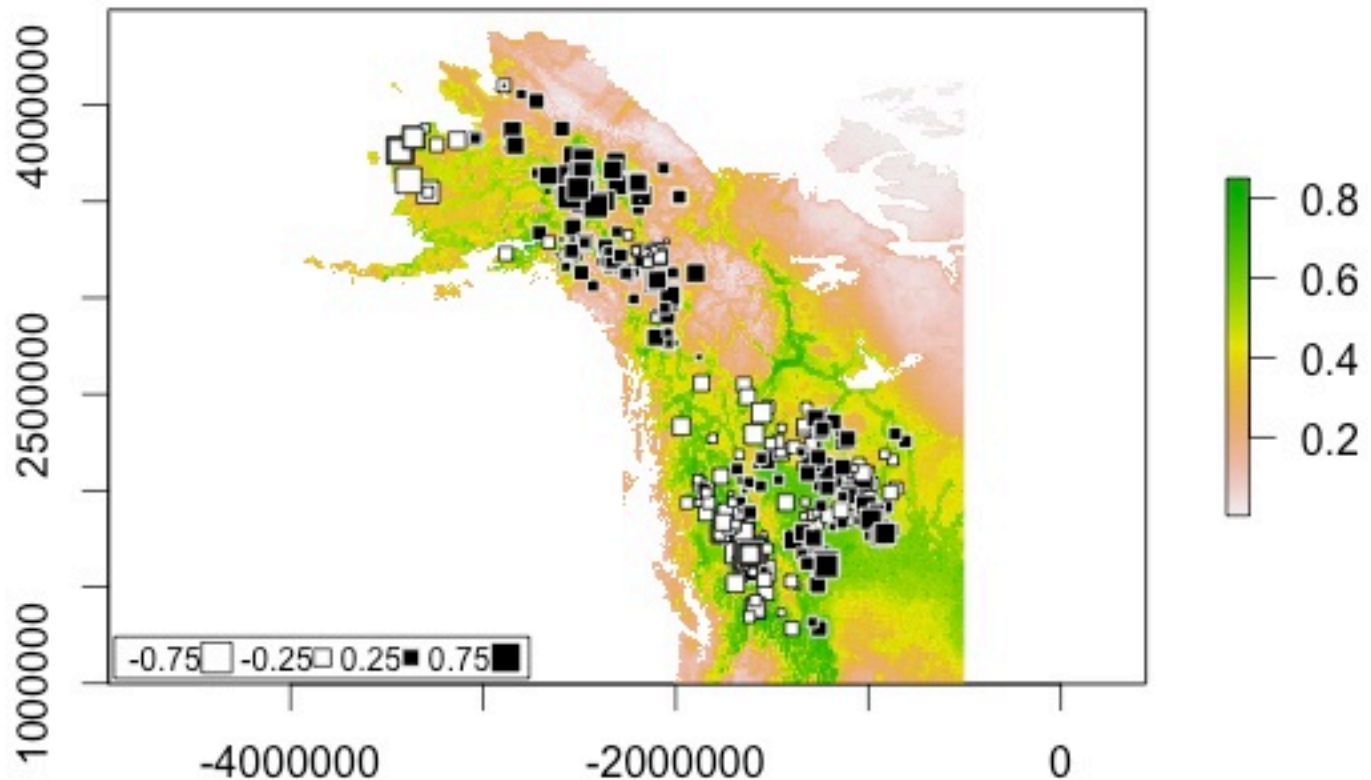
Row et al. 2012. *Conservation Genetics* 13:  
1259-1268.

# Gene flow across Canada



Row et al. 2012. Conservation Genetics 13:  
1259-1268.

# Subtle genetic structure



Cristen Watt, Trent University, ongoing thesis work.



A satellite-style topographic map of the St. Lawrence River basin. The river is shown as a dark, winding path through a rugged, mountainous terrain. The river flows from the upper left towards the lower right, where it meets a large body of water. The surrounding land is characterized by complex, branching drainage patterns and varying elevations, indicated by different shades of gray and brown. A semi-transparent blue rectangular box is overlaid on the upper left portion of the map, containing white text. The overall scene illustrates the geographical barrier created by the river's course through the mountains.

# Barrier effect of St. Lawrence River

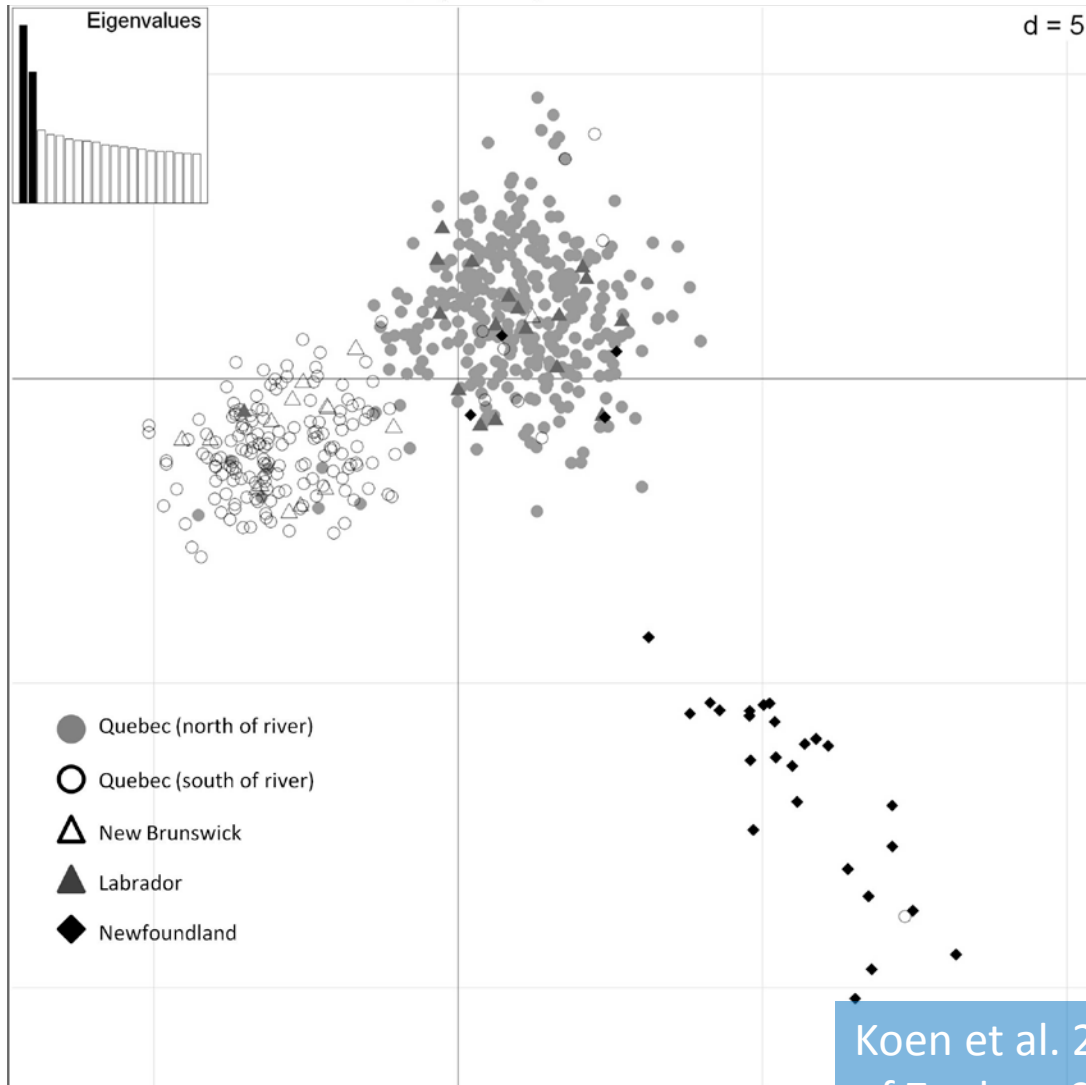




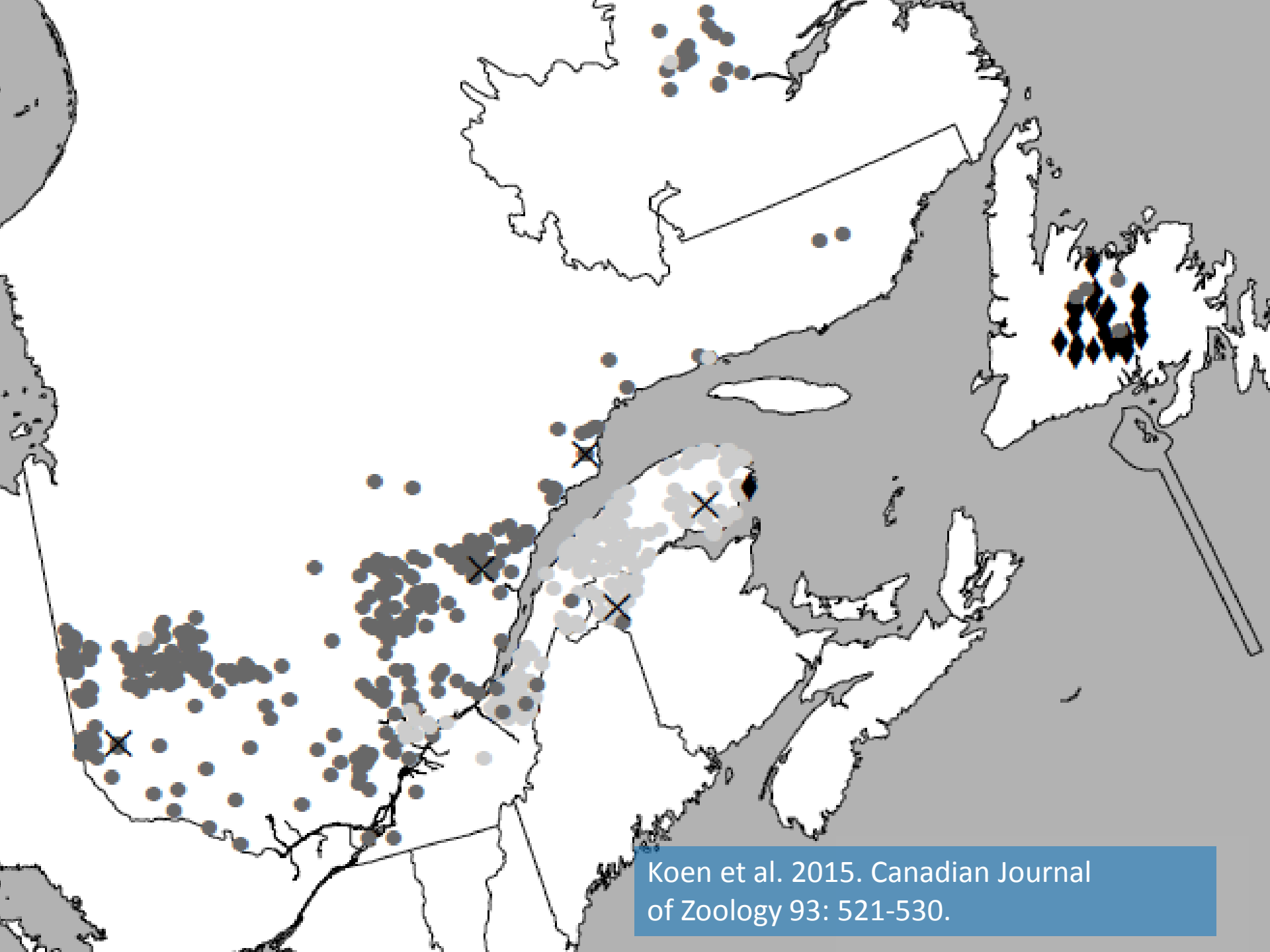
QC (north)

QC (south)

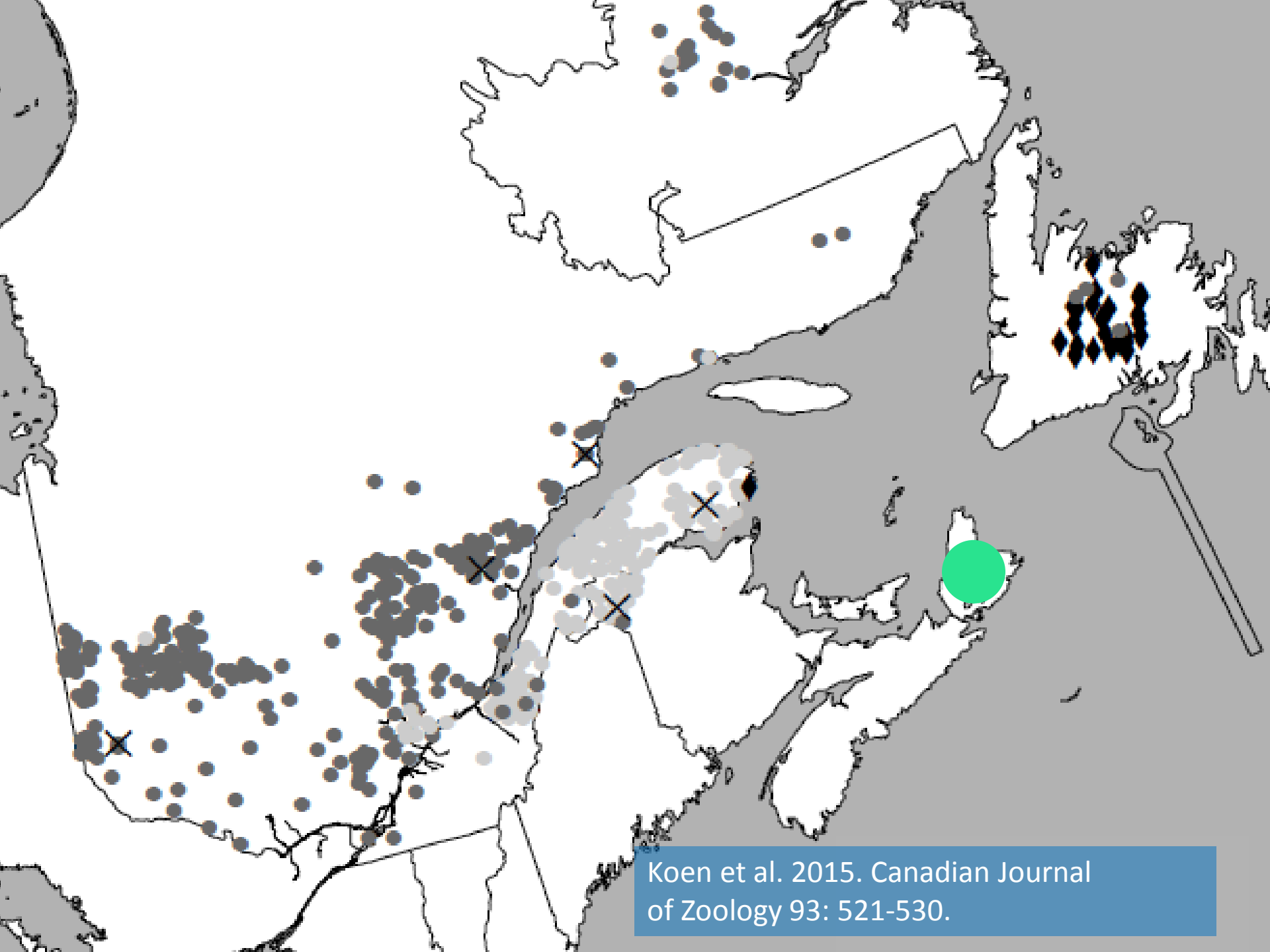
NB LAB NFL



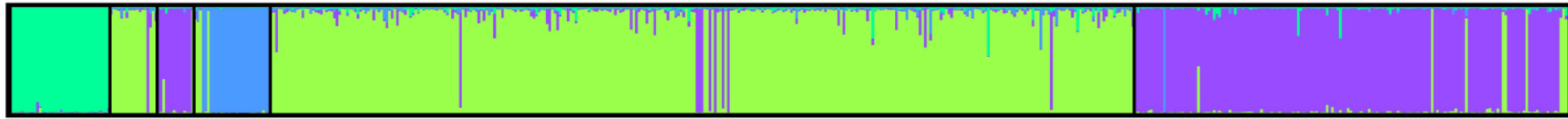
Koen et al. 2015. Canadian Journal of Zoology 93: 521-530.



Koen et al. 2015. Canadian Journal of Zoology 93: 521-530.



Koen et al. 2015. Canadian Journal of Zoology 93: 521-530.



Cape Breton Island

Labrador

New Brunswick

Newfoundland

Quebec North

Quebec South

Melanie Prentice, Trent University, ongoing thesis work.

UNITED STATES  
Genomics

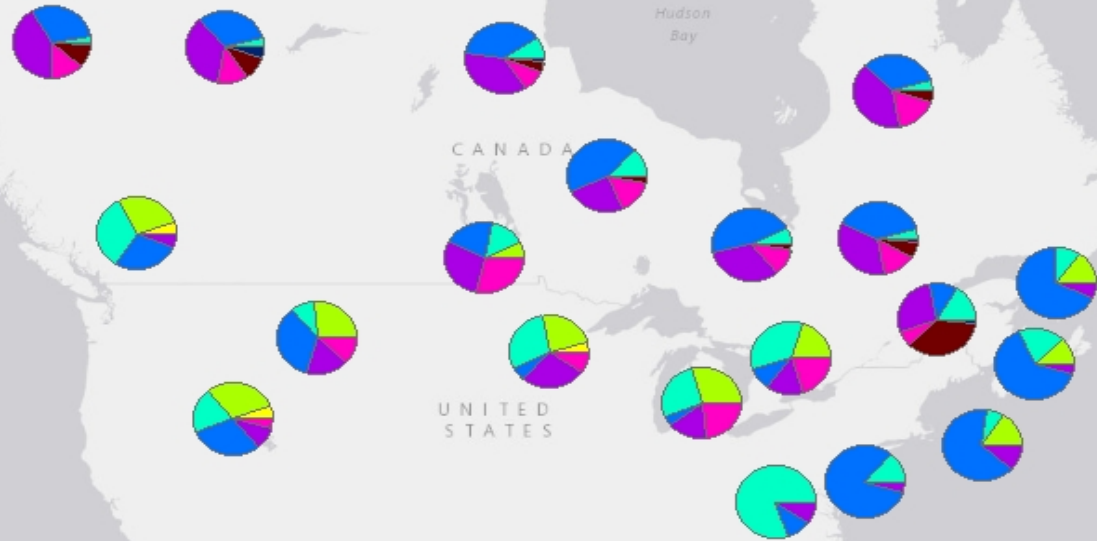
NR1D1

Melanie Prentice, Trent University, ongoing this work.



# Genomics

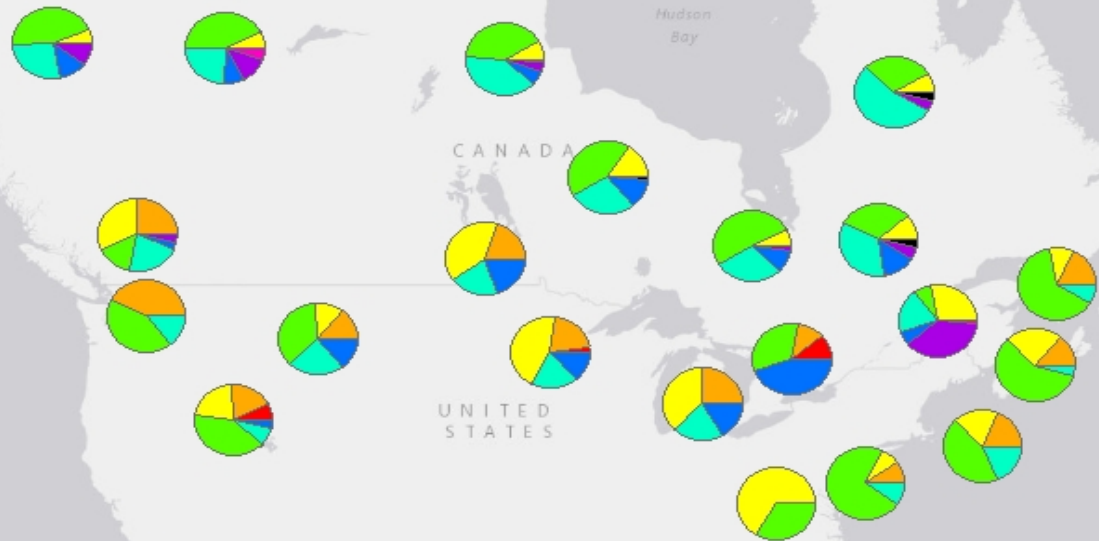
# AR - Females



Melanie Prentice, Trent University, ongoing this work.

Genomics

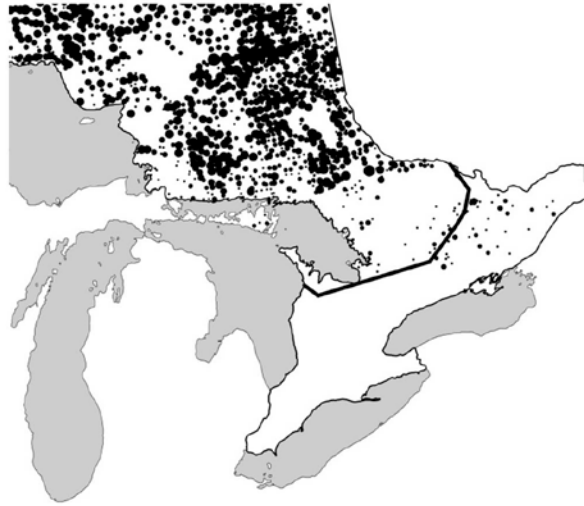
AR - Males



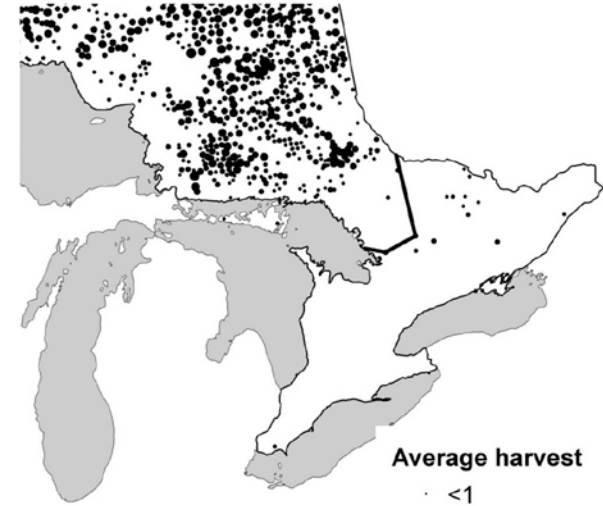
Melanie Prentice, Trent University, ongoing this work.

# Range contraction

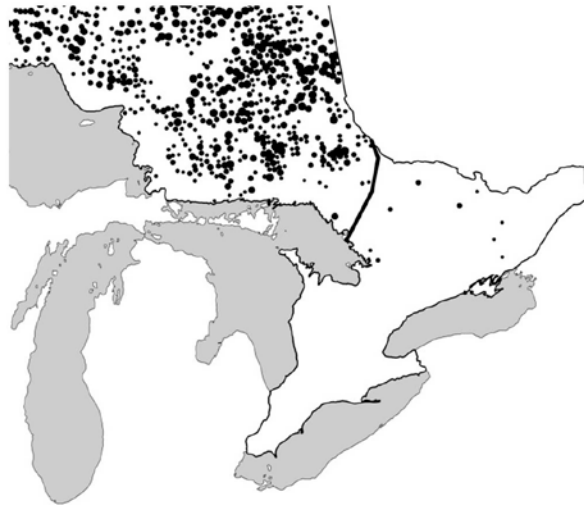
(a) 1972 - 1981



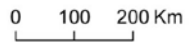
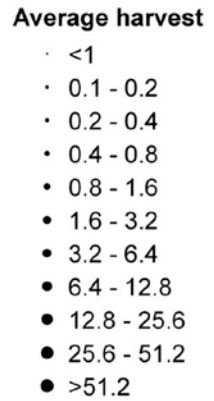
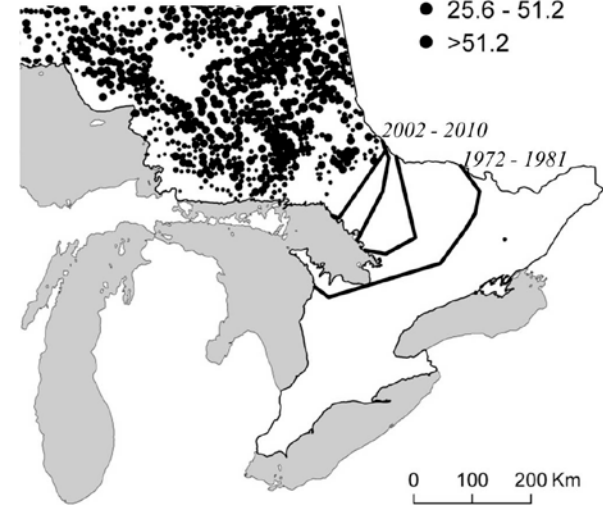
(b) 1982 - 1991



(c) 1992 - 2001



(d) 2002 - 2010



# Range contraction

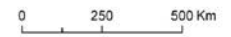
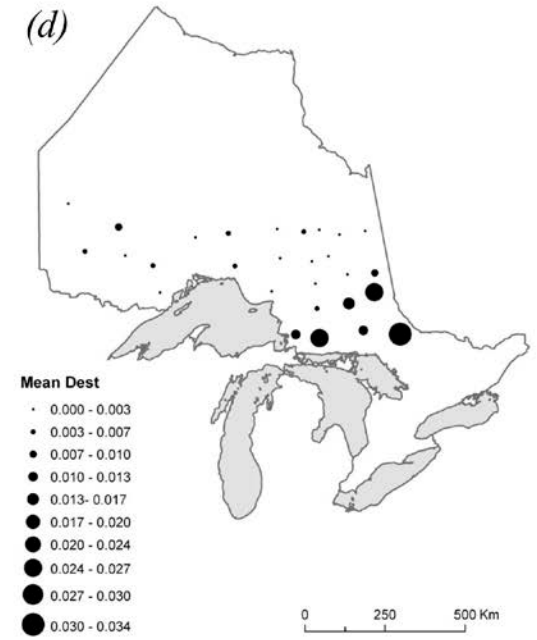
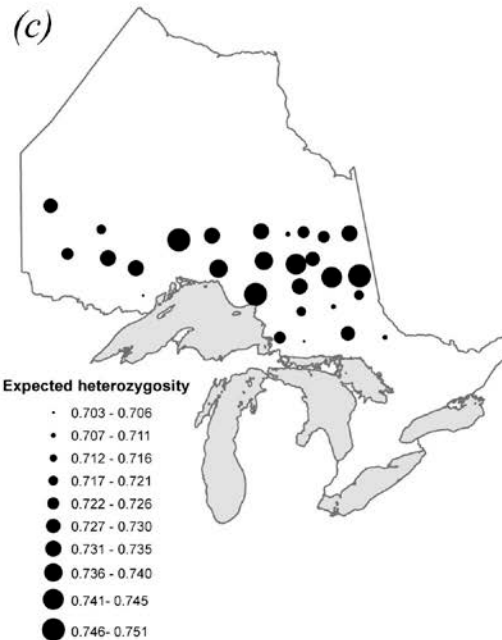
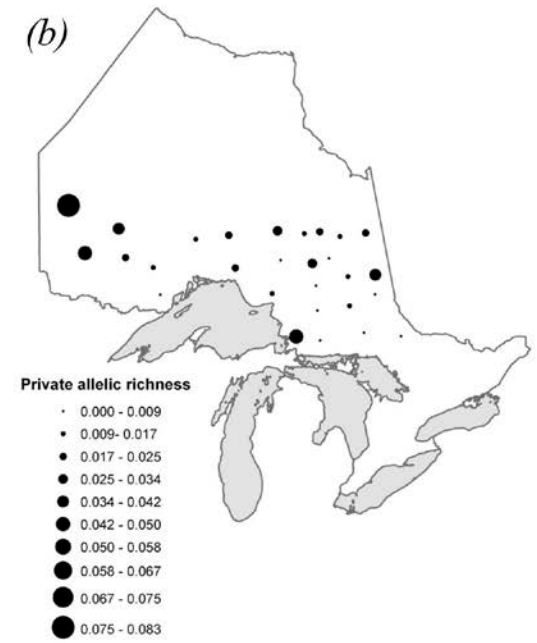
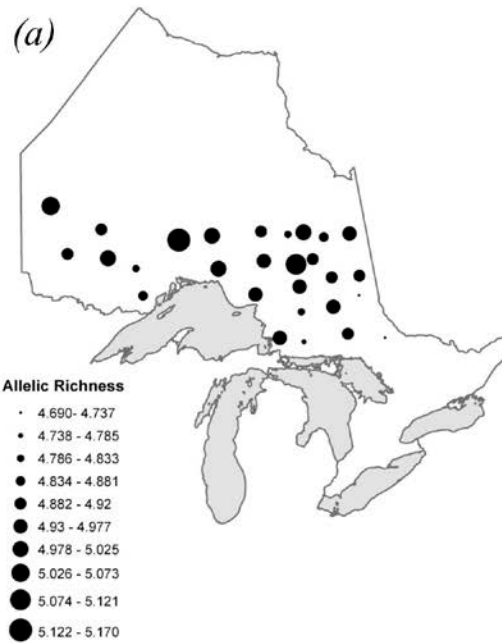
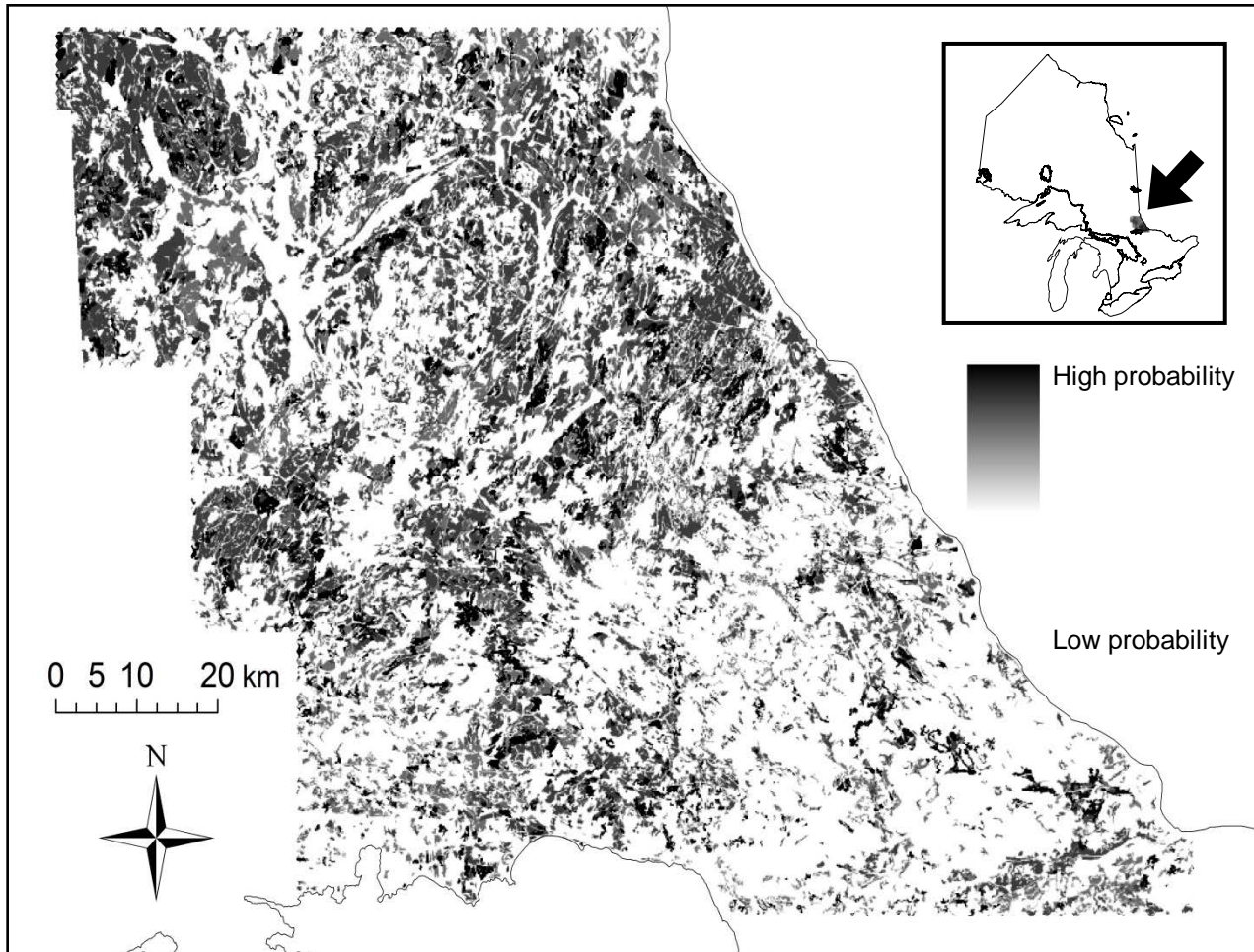


Table 2. Top models ( $\Delta AICc < 2$ ) predicting the effect of land cover and climate on genetic structure of Canada lynx *Lynx canadensis* sampled from 28 sites in Ontario, Canada.

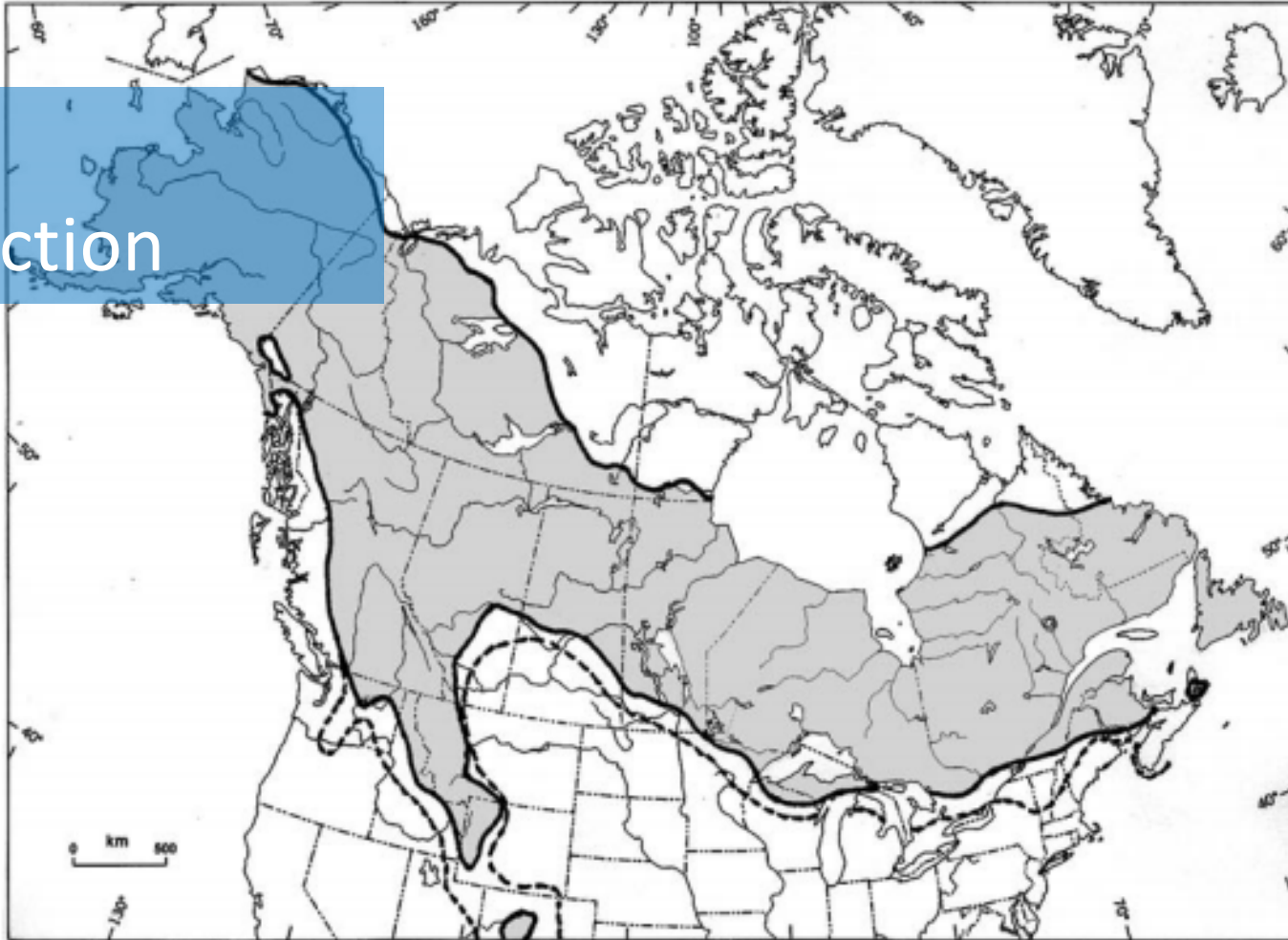
| Dependent variable       | Model <sup>1</sup>       | logLik | AICc    | w <sub>i</sub> | R <sup>2</sup> |
|--------------------------|--------------------------|--------|---------|----------------|----------------|
| Allelic richness         | Temp + non-forest        | 30.24  | -50.75  | 0.67           | 0.41           |
| Private allelic richness | Temp                     | 76.24  | -145.49 | 0.51           | 0.21           |
|                          | Temp + non-forest        | 76.73  | -143.72 | 0.21           | 0.23           |
| Expected heterozygosity  | Snow depth               | 86.21  | -165.43 | 0.47           | 0.26           |
|                          | Snow depth + non-forest  | 86.93  | -164.12 | 0.25           | 0.30           |
| Mean $D_{est}$           | Temp                     | 99.84  | -192.64 | 0.29           | 0.47           |
|                          | Temp + non-forest        | 101.2  | -192.59 | 0.28           | 0.52           |
|                          | Temp + non-forest + snow | 102.45 | -192.04 | 0.21           | 0.56           |
|                          | Temp + snow depth        | 100.87 | -191.93 | 0.20           | 0.51           |

<sup>1</sup>Variable names are as in footnote of Table 1.

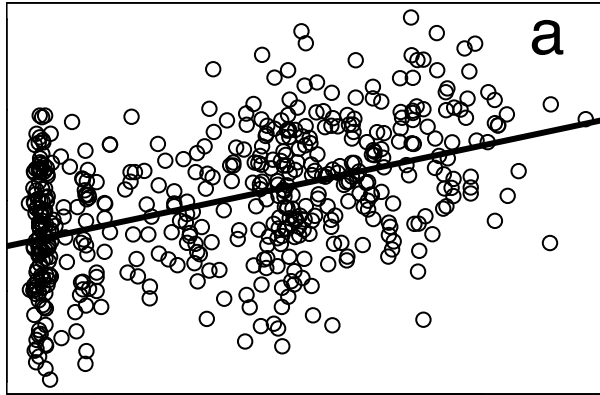




Range  
contraction



Poole. 2003. Canadian Field-Naturalist 117: 360-376.




Effect of winter climate



Row et al. 2014. Global Change Biology 20: 2076-2086

# Lynx-bobcat hybridization

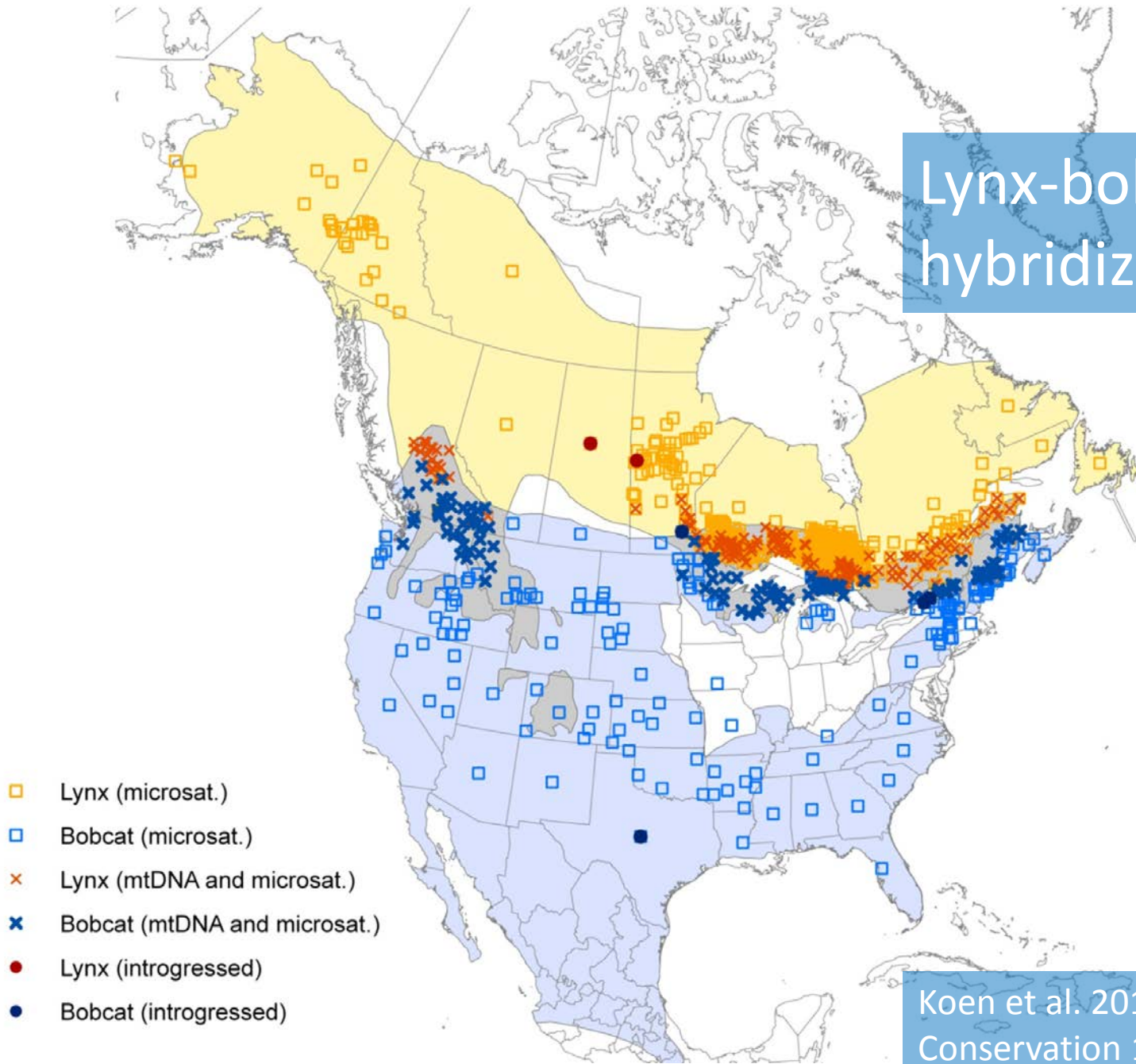


A close-up photograph of two animal paws. The paw on the left is dark brown with distinct dark spots and stripes, characteristic of a bobcat. The paw on the right is lighter, with a mix of tan, grey, and white fur, characteristic of a lynx. The background is a soft, out-of-focus white surface.

Lynx-bobcat  
hybridization

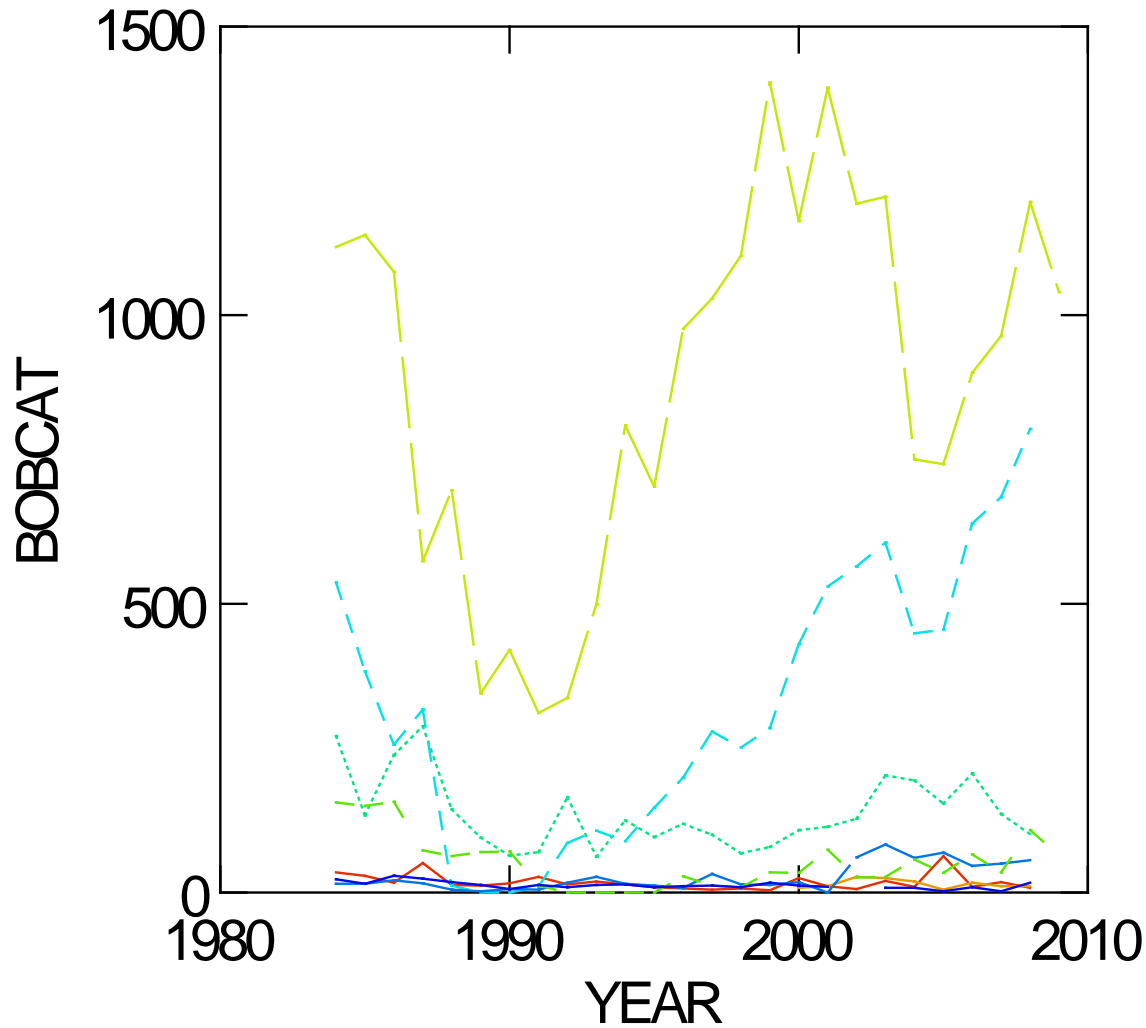


# Lynx-bobcat hybridization



Koen et al. 2014. Biological Conservation 178: 107-115.

# Bobcat harvest in Canada



## PROVINCE

- Alberta
- ⋯ BC
- - Manitoba
- - NB
- - Nova Scotia
- - Ontario
- - Quebec
- - Saskatchewan



Questions?

Collaborators: Paul Wilson, Dennis Murray, Erin Koen, Melanie Prentice, Jeff Row, Cristen Watt, Aaron Walpole

More information:  
[people.trentu.ca/jebowman](http://people.trentu.ca/jebowman)





