

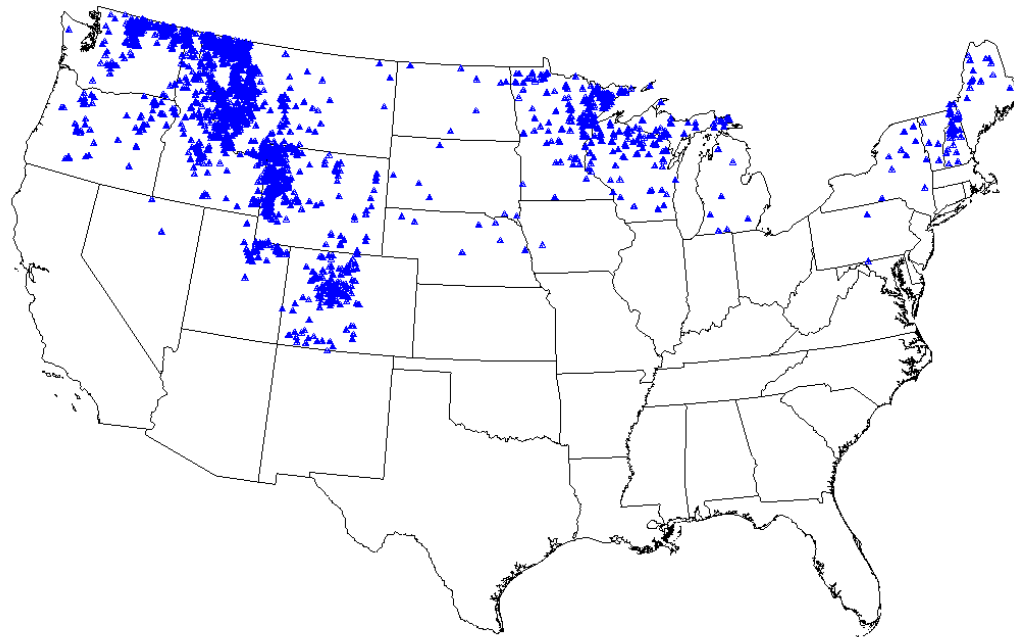
Historical distribution of lynx in the contiguous U.S.

Kevin S. McKelvey

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Yvette K. Ortega

Lynx Records 1842 - 1998



From: McKelvey, K. S., K. B. Aubry, and Y. K. Ortega. 2000. History and distribution of lynx in the contiguous United States. pgs. 207-259. *In*: Ruggiero et al., Ecology and conservation of lynx in the United States. University Press of Colorado, Boulder Colorado, 480 p. ; RMRS GTR-30

Historical range important: provides context for modern conservation
Generally weak



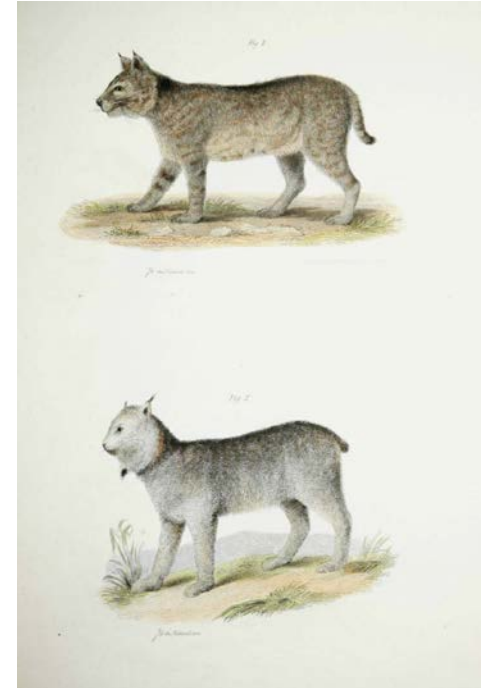
Seton 1929

Issues associated with historical data

Not representative

Oftentimes not reliable

Meaning unclear



Everything has something that it is confused with



Lynx and bobcats are closer than many

Lynx or Bobcat?: You Make the Call



Mike Schwartz
March 2002

The problem with relatively rare organisms



Actual population = 0.1x

90
100

1000 detections
90% success in identification
Equal detection likelihood

900
10

53% misidentification

1% misidentification

In the extreme...



Actual population = 0

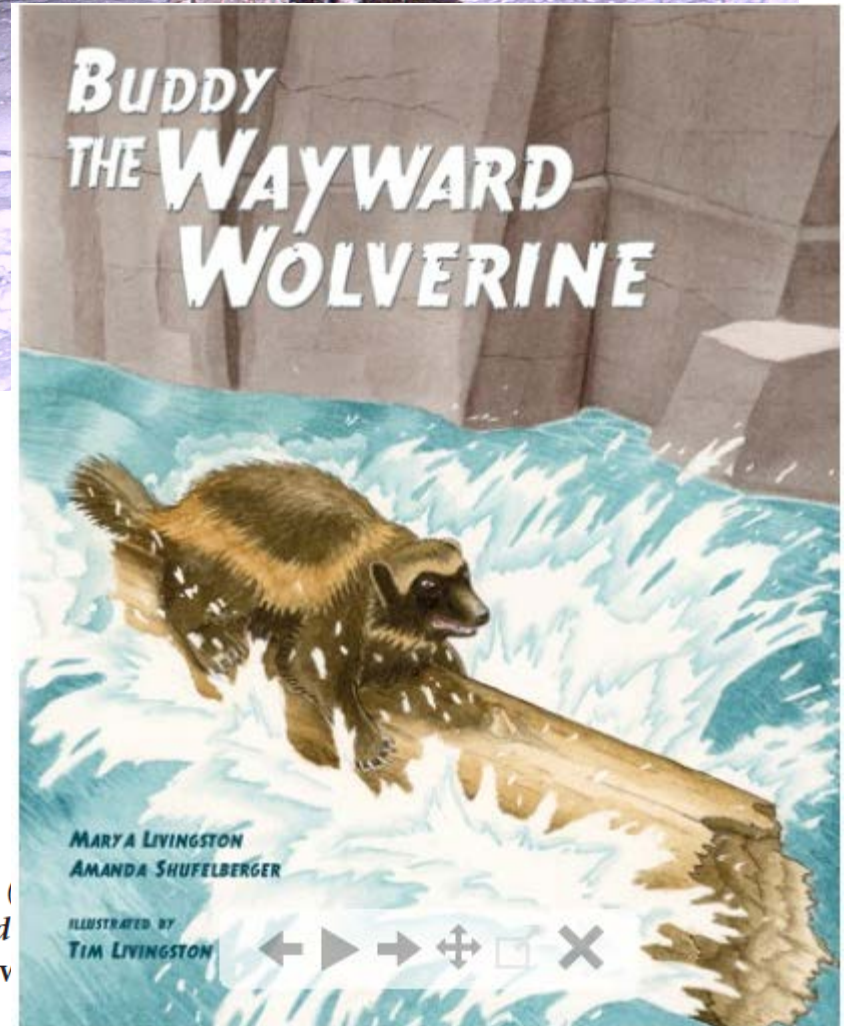
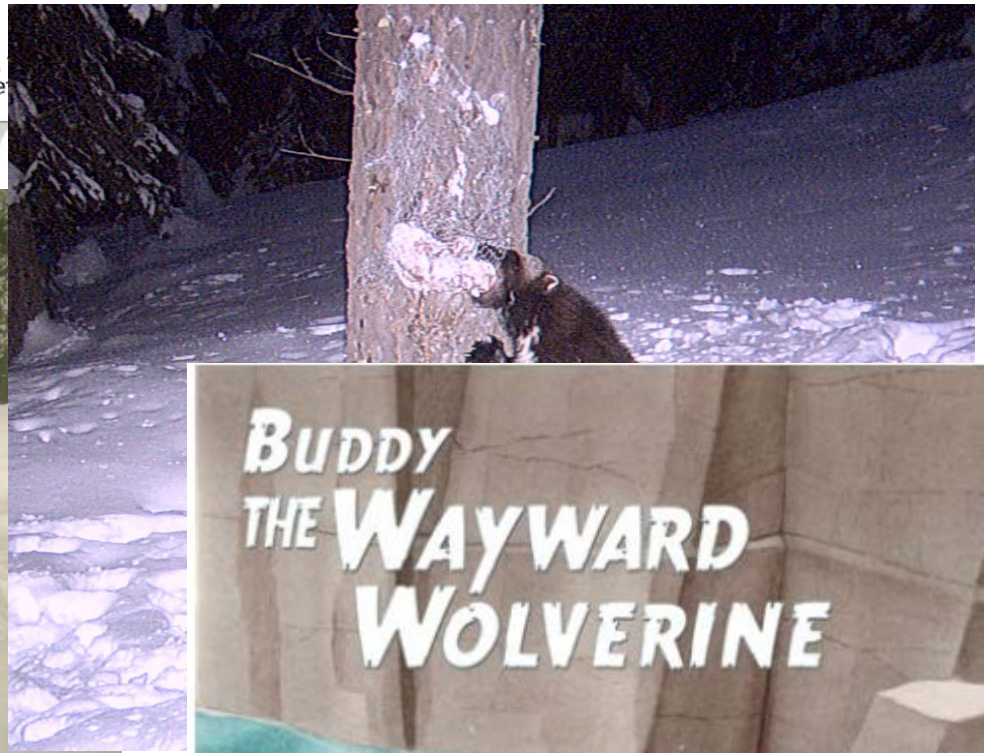
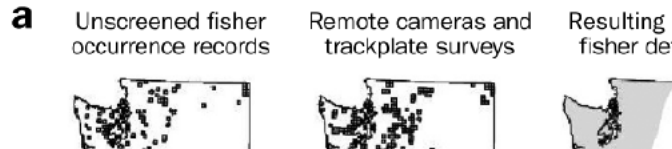
0
100

1000 detections
90% success in identification
Equal detection likelihood

900
0

100% misidentification

0% misidentification



Numerous photos
 20 DNA samples (most recent 2014)
 Named: "Buddy"

Figure 1. Recent occurrence records for (a) fisher in the Pacific states ([2003]), (b) wolverine in California (ca. 1960–1974; map reproduced woodpecker in the southeastern states (1944–2005; modified from ww

Animals will leave reliable occurrence data



A population over time = many organisms

Heavy screening is warranted

Need stringent standards; can't eliminate all locations

Another problem with historical data: it's finite

Goldilocks problem: verified records

formal analyses based on these designations. Rather, for analyses where high reliability for each occurrence is essential, we used a subset of these data we call "verified records." We considered a record to be verified only if it was represented by a museum specimen or a written account in which a lynx was either in someone's possession or observed closely, i.e., where a lynx was killed, photographed, trapped and released, or treed by dogs. Information obtained from snow-tracking surveys conducted by trained individuals are discussed where appropriate, but neither tracks nor sighting reports were considered to represent a verified record.

Novak et al. 1988 Furbearer harvests in North America 1600-1984

COMMENTS

In the pre-20th century fur trade, a distinction was not always made between lynx and bobcat pelts. The bobcat was variously referred to as bay lynx, cat common, lynx cat, or wild cat by fur dealers; the lynx was referred to as lynx.

Given the Hudson's Bay Company's area of operation until the early 1800s and the geographic range of the lynx and bobcat, it seems likely that few bobcats were obtained by Hudson's Bay Company traders. Indeed, Poland (1892) noted that "cat common" were rarely imported by the Hudson's Bay Company, although a few were obtained from their Columbia Department. Both lynx and cat common are listed in the tables of quantities of non-Hudson's Bay Company furs imported to London. However, Davidson (1918) simply lists "cased" and "open" cats exported by the North West Company. As there is no reason to assume that lynx and bobcats were skinned differently, no subdivision of the harvest can be made on that basis. Because of the inconsistency in recording of these pelts we have lumped the data for the pre-20th century period; these data are presented in Table 15. The 20th century harvest data for lynx are presented in Table 16; that for the bobcat in Table 7.

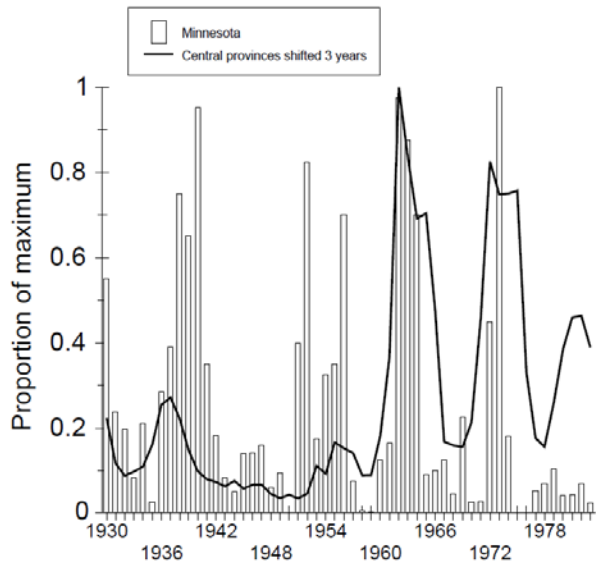


Figure 8.10—Lynx trapping data from Minnesota (Fig. 8.4) overlaid on lynx trapping data from Ontario, Manitoba, and Saskatchewan combined (Fig. 8.3). The strongest correlation between these data sets was with a three-year lag between Minnesota and south-central Canada.

Lynx periodically move south from Canada after eruptions

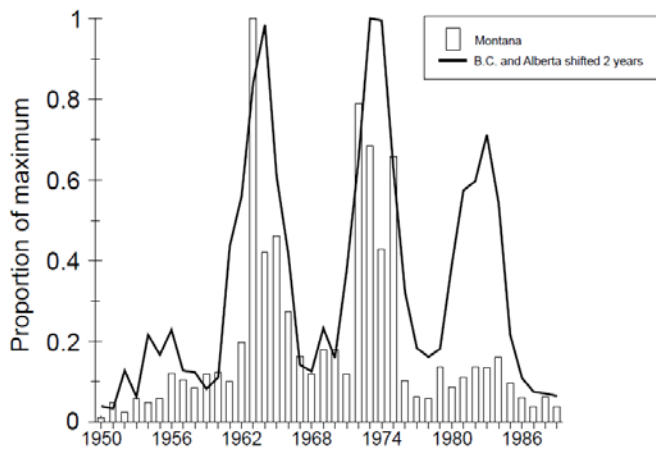
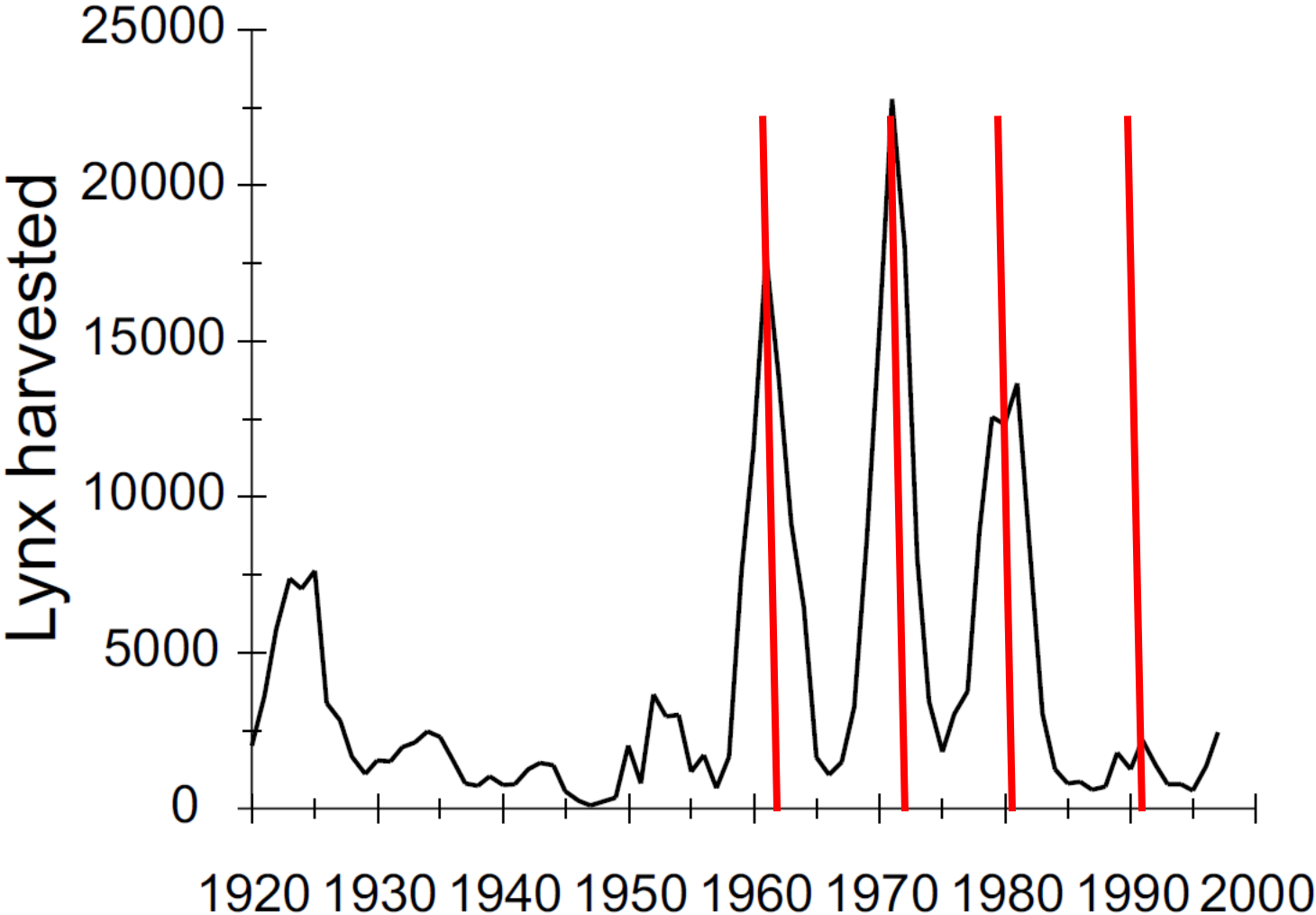


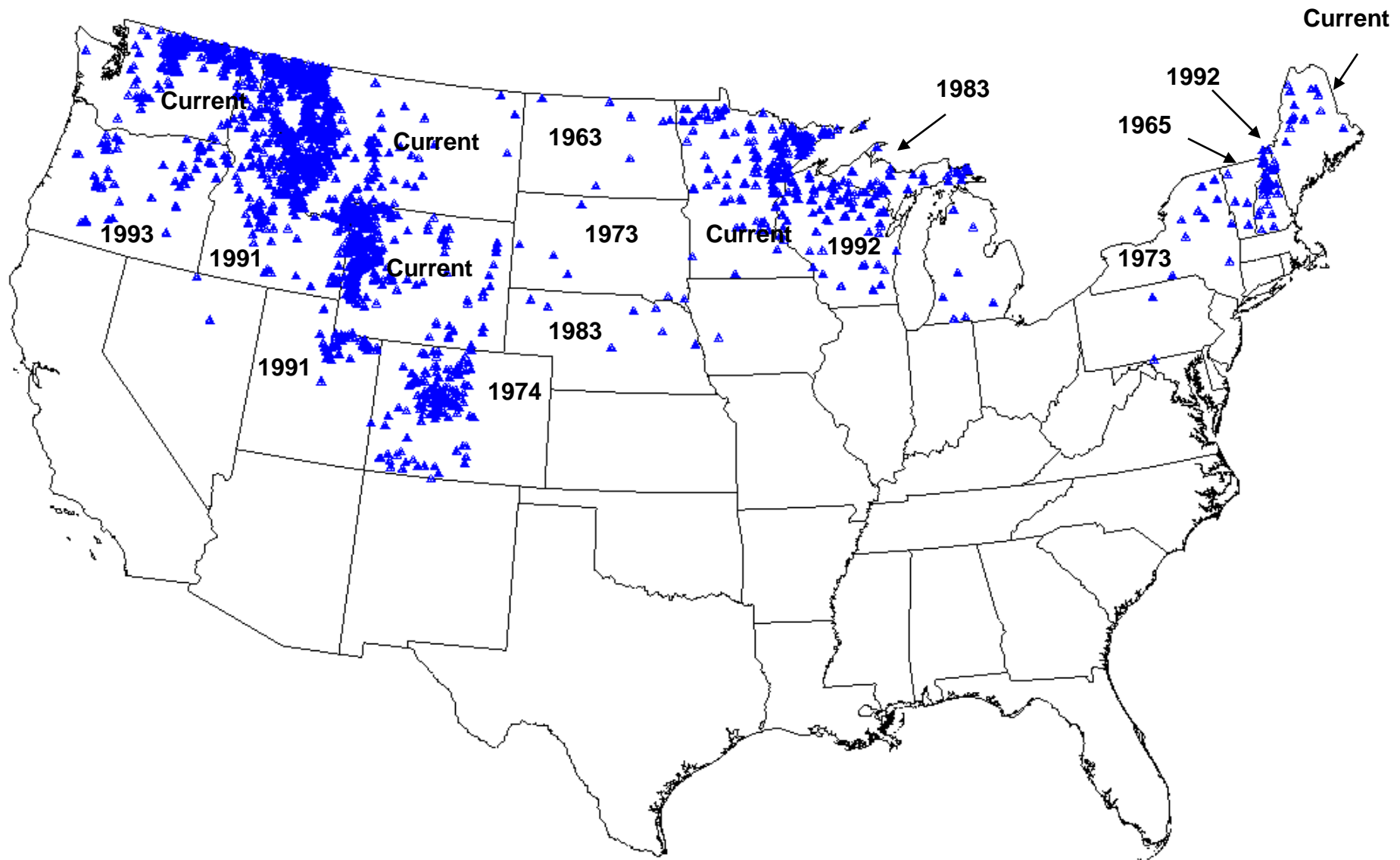
Figure 8.11—Lynx trapping data from Montana (Fig. 8.5) overlaid on lynx trapping data from Alberta and British Columbia combined (Fig. 8.6). The strongest correlation between these data sets was with a two-year lag between Montana and southwestern Canada.

Alberta

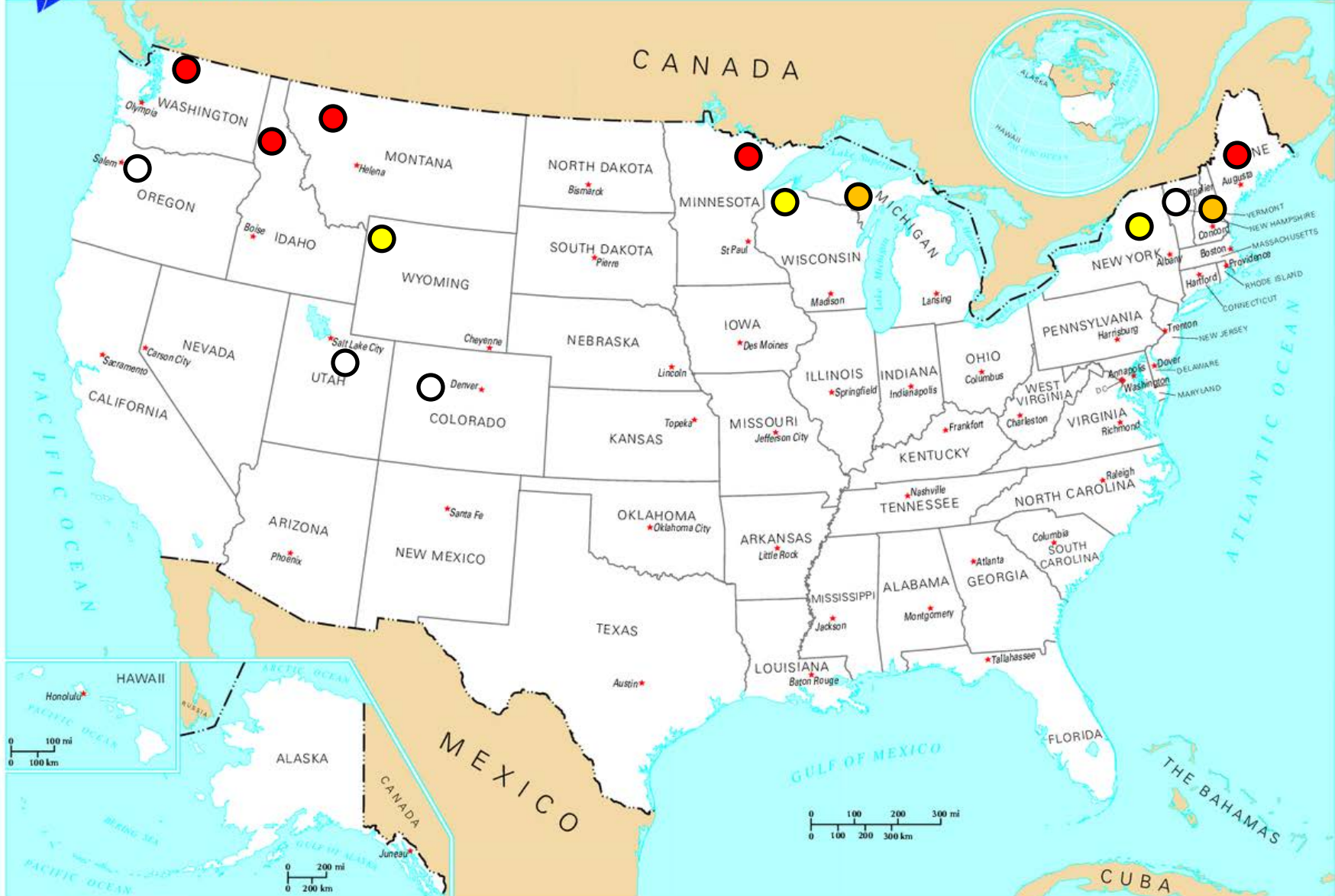


Data from Novak et al. 1988

Lynx Records 1842 - 1998



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Efficacy of lures and hair snares to detect lynx

Gregory W. McDaniel, Kevin S. McKelvey, John R. Squires, and Leonard F. Ruggiero

Peer Reviewed

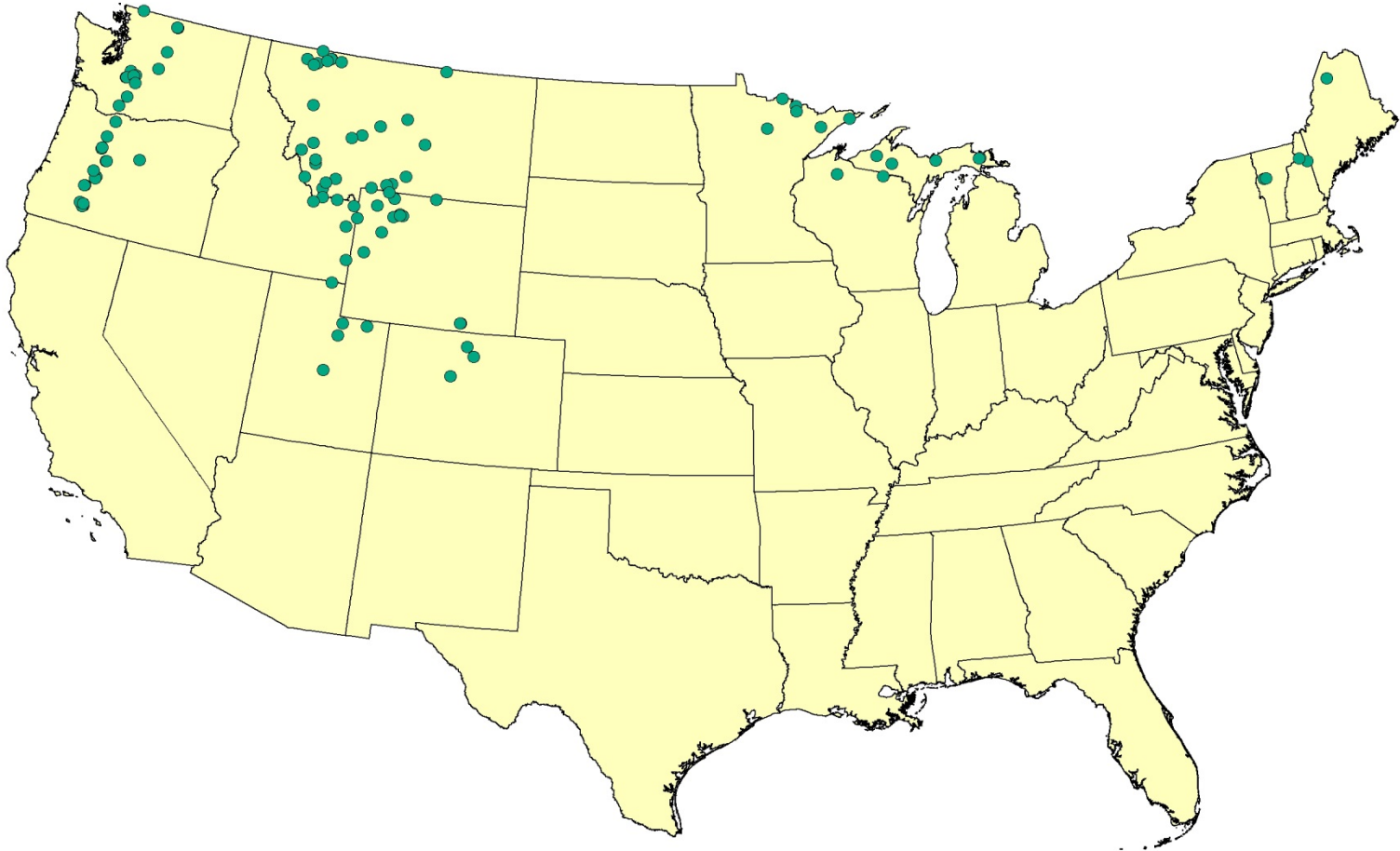
DNA Analysis of Hair and Scat Collected Along Snow Tracks to Document the Presence of Canada Lynx

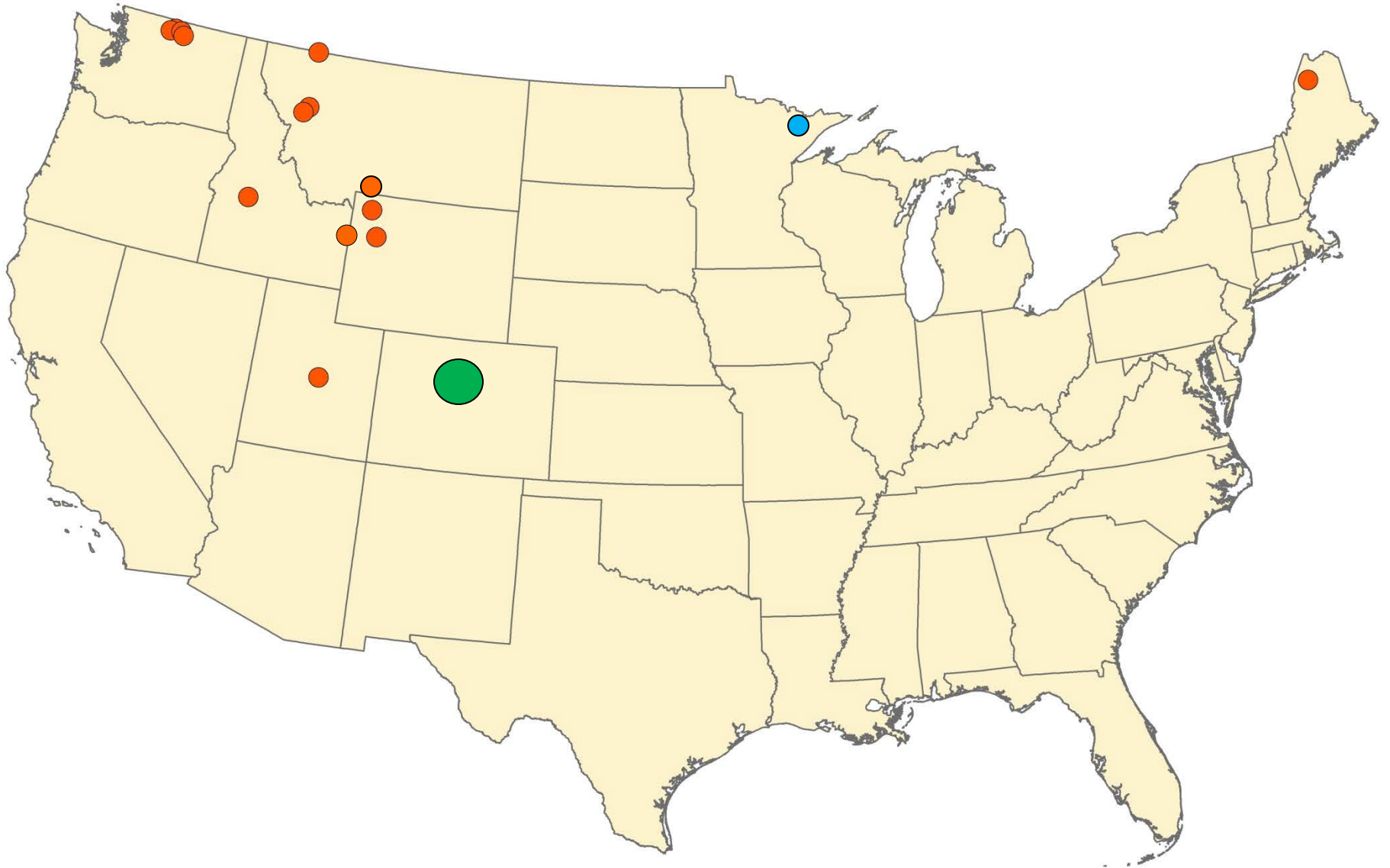
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MICHAEL K. SCHWARTZ, Rocky Mountain Research Station, United States Forest Service, Missoula, MT 59807, USA

A Snow-tracking Protocol Used to Delineate Local Lynx, *Lynx canadensis*, Distributions

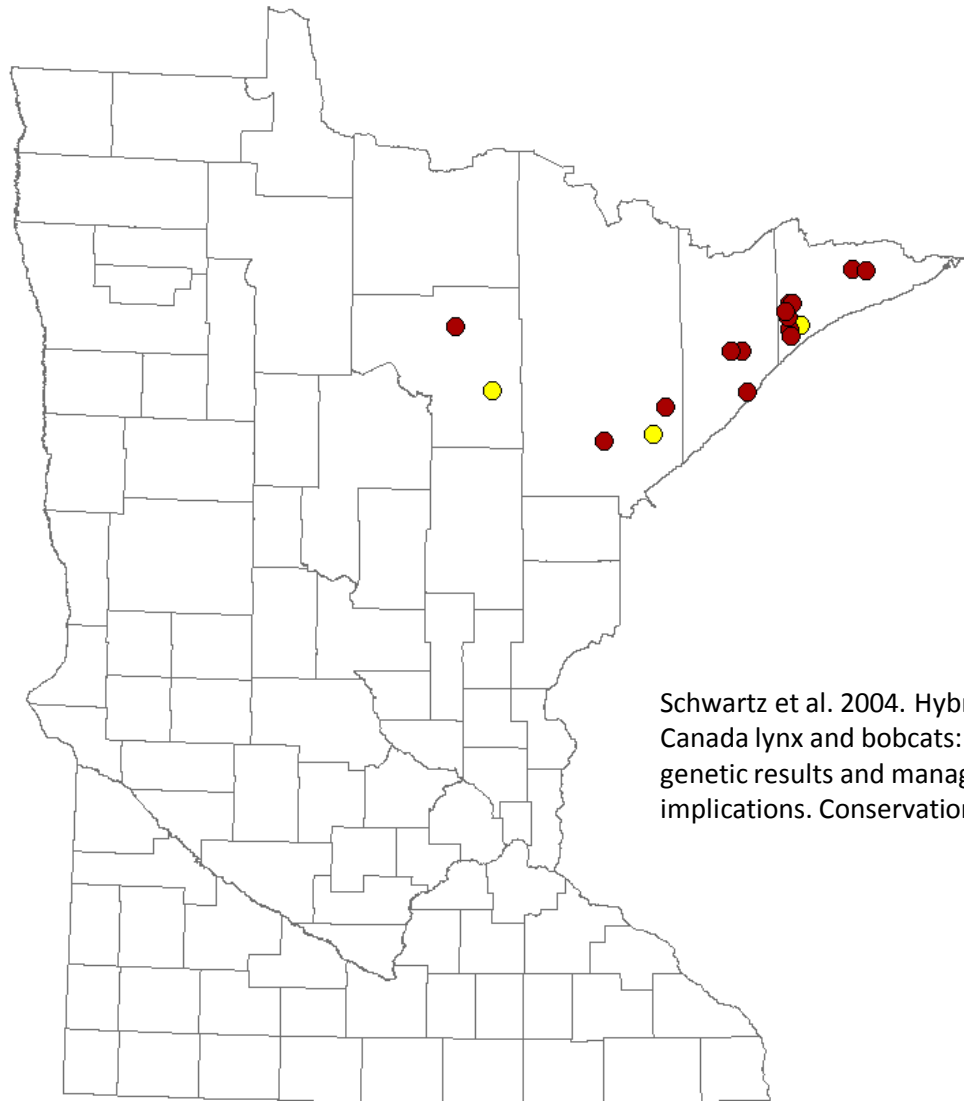
JOHN R. SQUIRES, KEVIN S. MCKELVEY, and LEONARD F. RUGGIERO

National Lynx Survey Grid Locations





Grids on which the National Lynx Survey
has detected lynx , 1999-2003



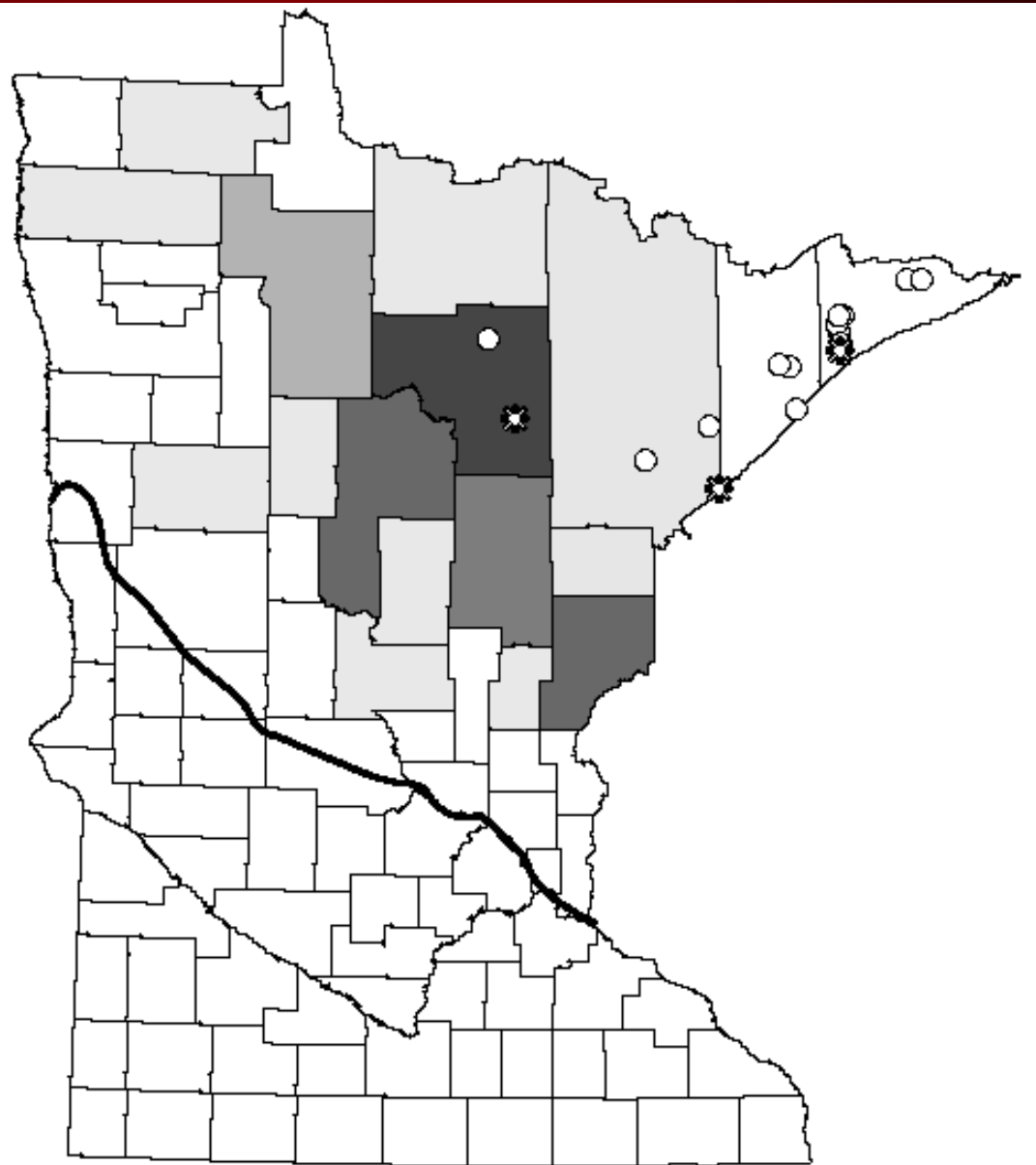
Schwartz et al. 2004. Hybridization between Canada lynx and bobcats: genetic results and management implications. *Conservation Genetics* 5 (3), 349-355

- Hybrids
- Unique Lynx

0 100 200 400
Kilometers

**Number of bobcats trapped
by county (1989 - 2002)**

- 0 - 50
- 51 - 100
- 101 - 150
- 151 - 200
- 201 - 250
- 251 - 300
- 301 - 350
- 351 - 400



0 100 200 400 Kilometers

Conclusions:

Historical lynx data are fraught with ambiguities

- Confusion with bobcats

- Periodic immigration obvious

- Dependency unknown

Strong data streams consistent with persistent lynx populations:

- Maine

- New Hampshire

- Michigan

- Minnesota

- Montana

- Idaho

- Washington

Specific location data in these states: proximity to Canada important

Losses: New Hampshire, Michigan (New York, Wisconsin)

Additions: GYA

