

Spatial distribution and conservation of terrestrial mammals in Canada

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Highlights

Smaller range areas, but not peripherality increases extinction risk

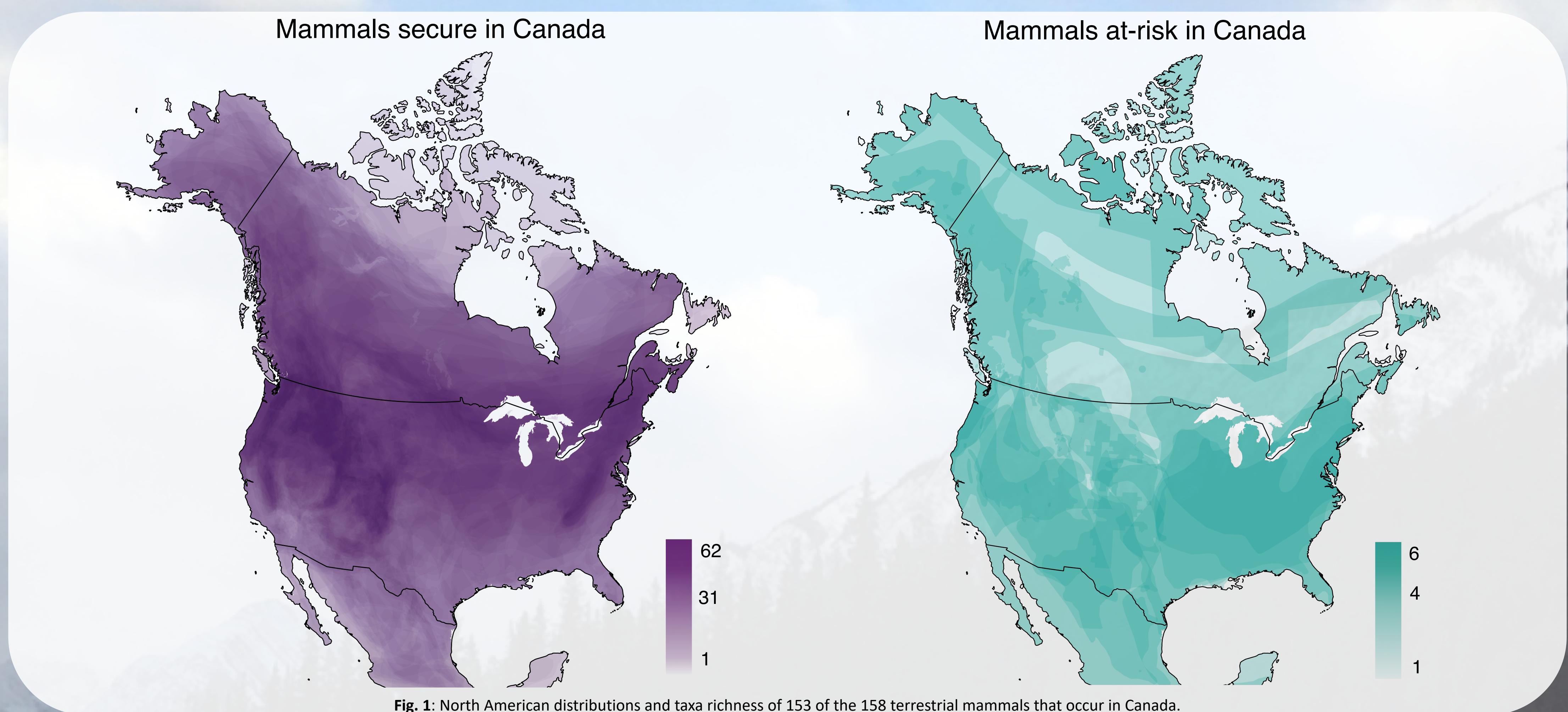
Protecting hotspots of at-risk or range-edge species would also protect species deemed secure

Background

High-latitude countries often contain the polar range edge of species that are common farther south.

If range-edge populations are small, isolated or unproductive they may be particularly likely to be deemed nationally at risk of extinction.

The relative priority of protecting range-edge populations vs. more endemic taxa is controversial, but if nationally at-risk taxa occur where overall diversity is also high, there may be few conservation trade-offs.



Objectives

Investigate how species' distributions relate to

1. their national conservation status
2. and to total mammal richness

Methods

1. Range area ~ status
Range % ~ status
Status ~ range area + range %

2. Hotspot YN ~ total richness

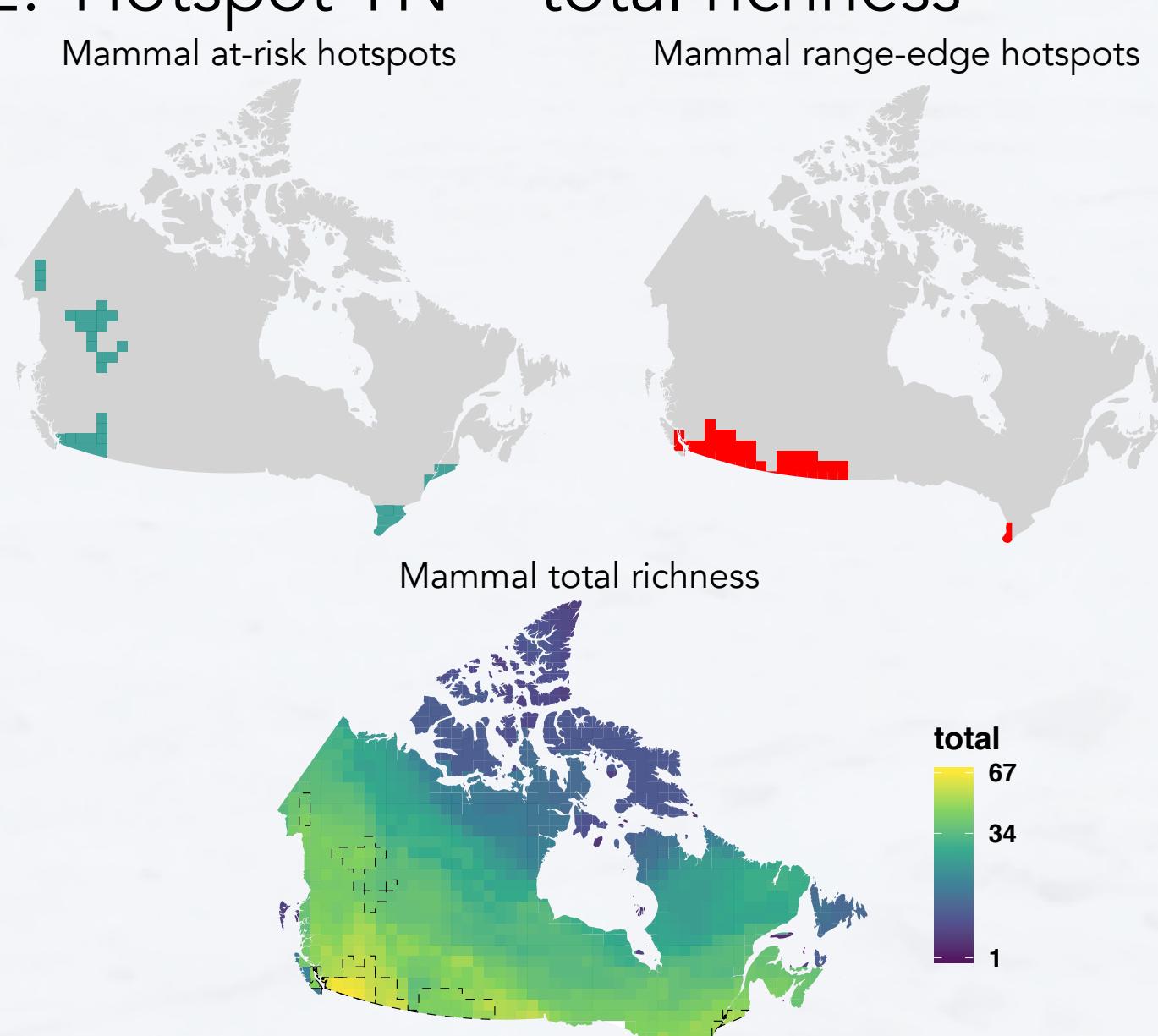
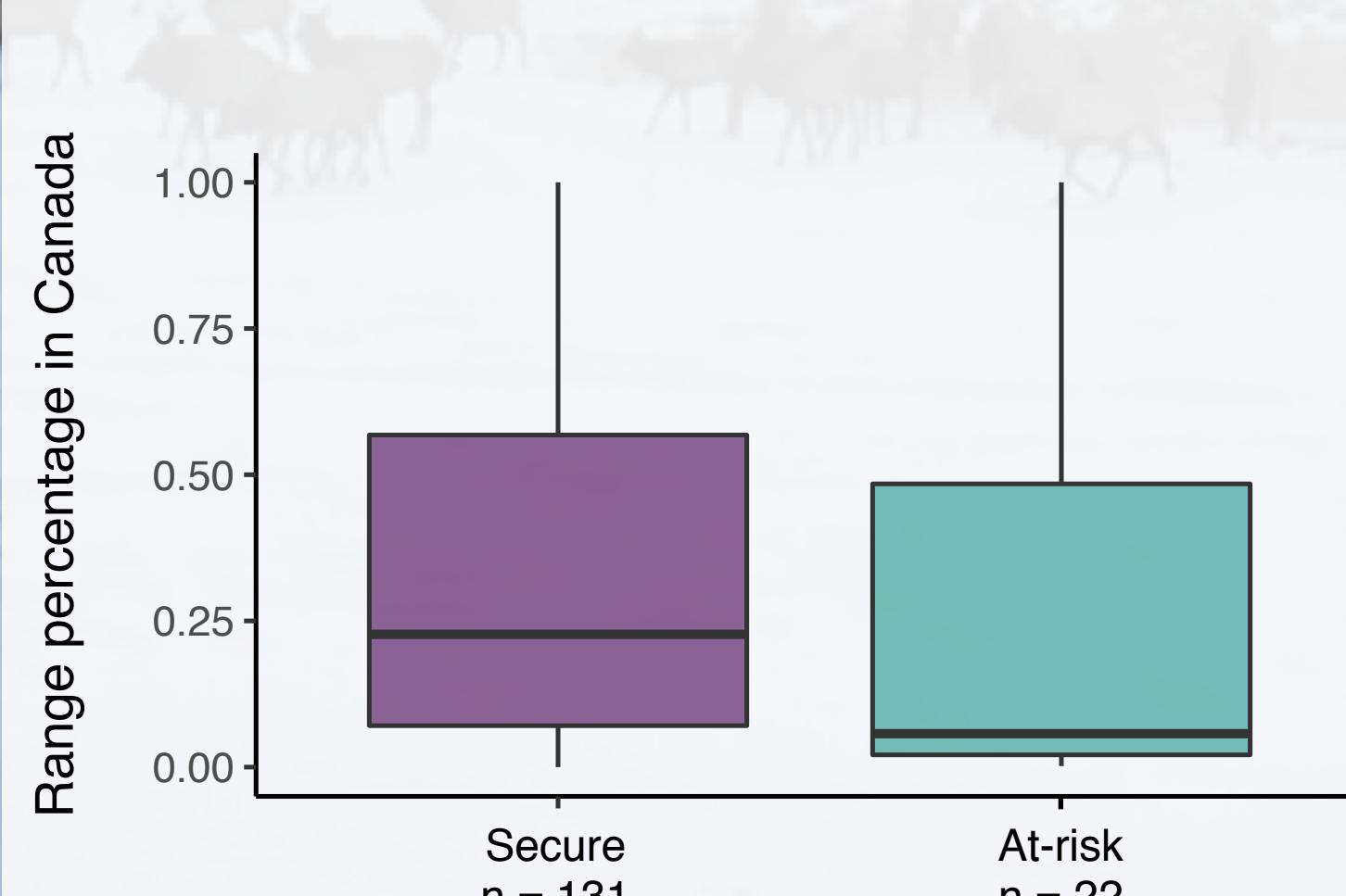
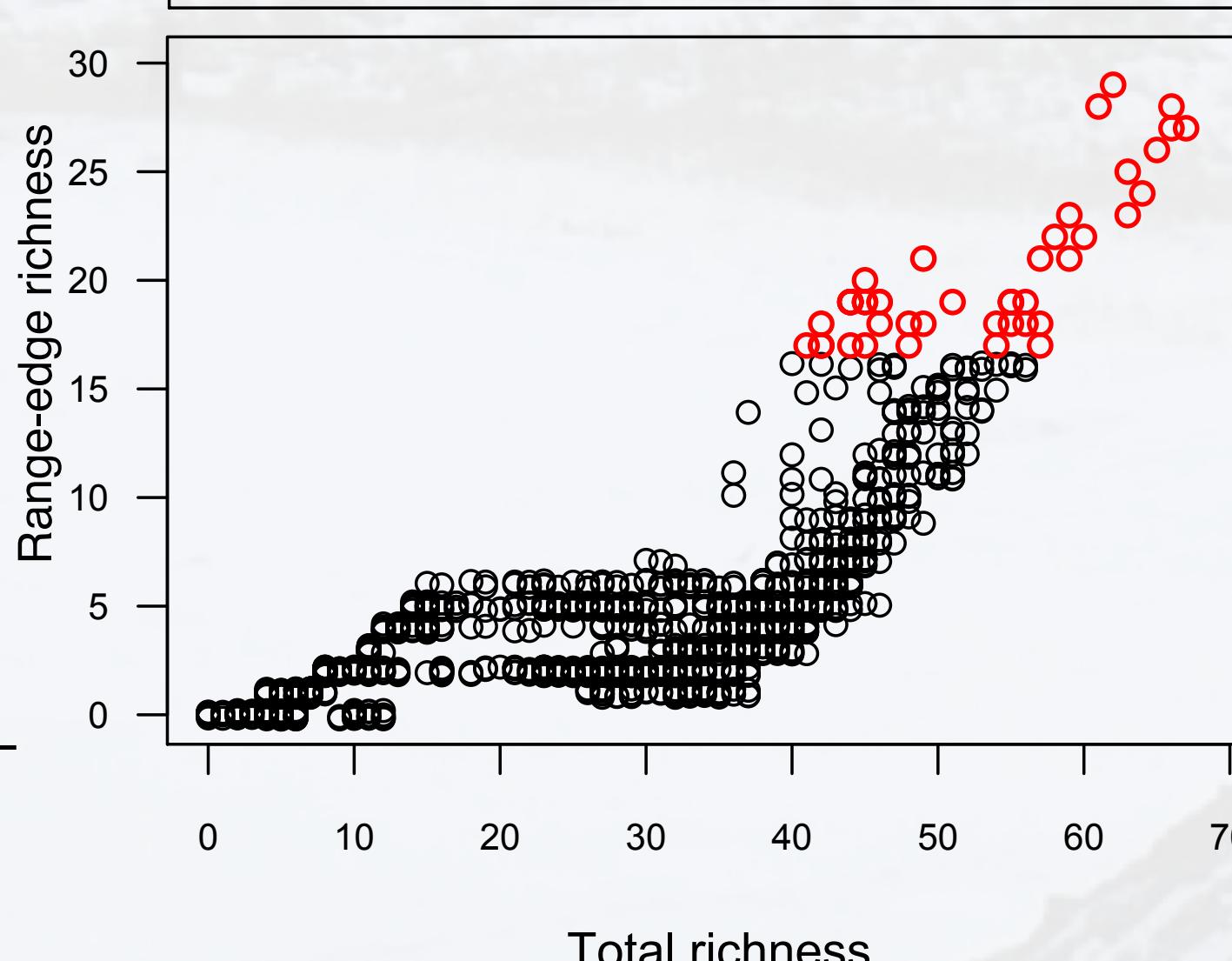
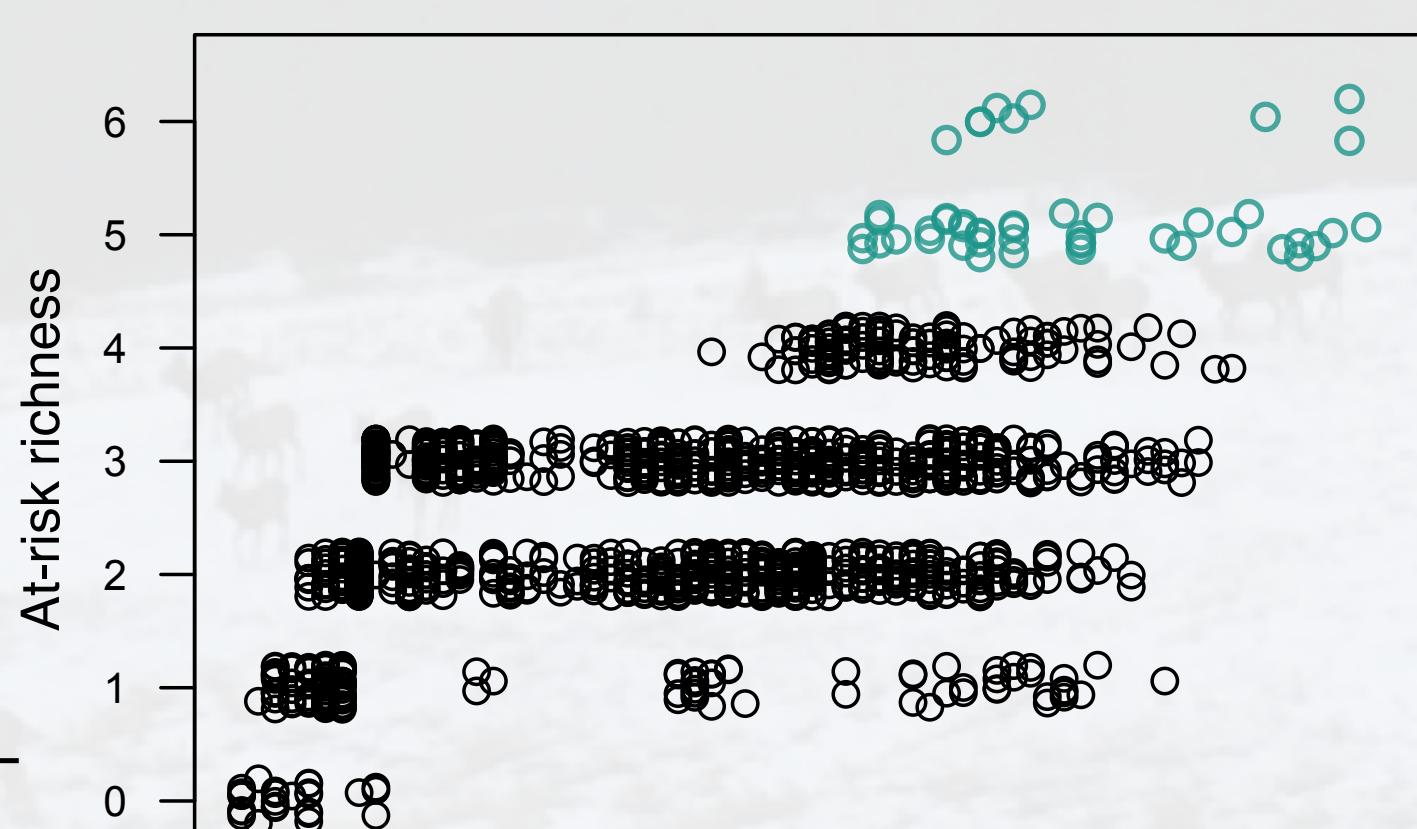


Fig. 2: At-risk, range-edge hotspots and mammal richness distribution in Canada

Results



Conservation status in Canada
Secure n = 131 At-risk n = 22



Total richness
Fig. 4: Cell richness of at-risk mammals in Canada (a) and of range-edge mammals in Canada (b) according to cell's total richness

50% of mammals occurred at their range-edge

At-risk species had 42% smaller ranges

At-risk and range-edge hotspots had 95% and 209% higher total richness and contained up to 44% of mammal diversity

Discussion

Many mammals are present as range-edge populations

Range area is strongly associated with conservation risk, but peripherality is not

Mammals at-risk are no more present as range-edge populations than secure species

We observed congruence of different richness indices in contrast to global studies.

Supplementary factors may need consideration for efficient conservation

Next step: Confirm trend in other taxon

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