

Ecosystem services from endangered species: Estimates from Canadian data

Peter Morrison, EcoEcoAnalysis
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Source: Parks Canada

Outline

- ▶ What are the ecosystem services attributable to endangered species?
- ▶ How does this change as population size drops?
- ▶ How do the overall benefits change?
- ▶ What is happening to endangered species in Canada?
- ▶ What are the implications for ecosystem services?
- ▶ What are the possible policy responses?

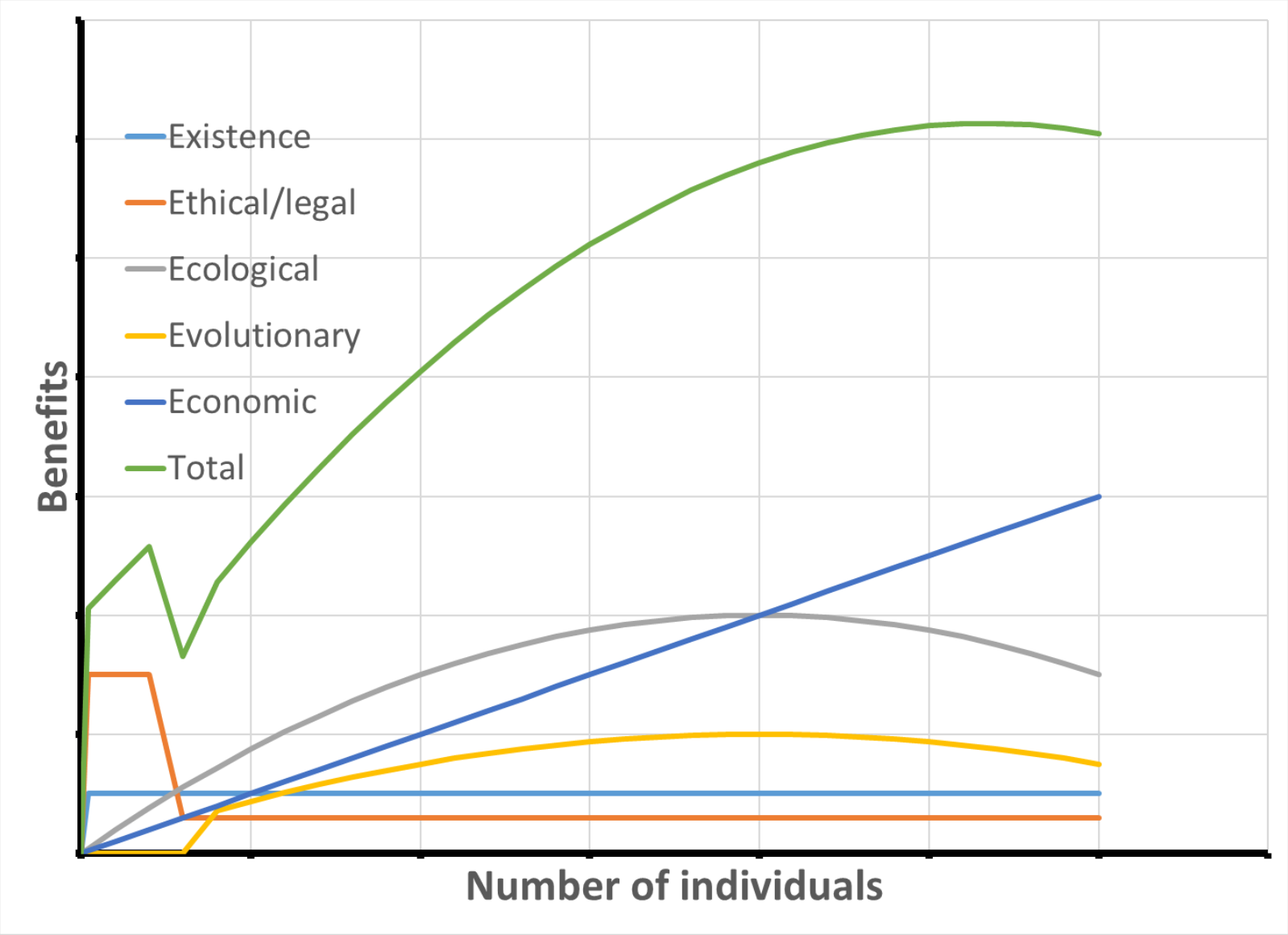
What is the mix of ecosystem services attributable to endangered species?

Category	Sub-category
Provisioning/extractive	Nutrition
	Materials
	Genetic material
Regulating	Pollination
	Pest control
Cultural	Direct interaction
	Symbolic/spiritual
Non-use	Existence
	Bequest

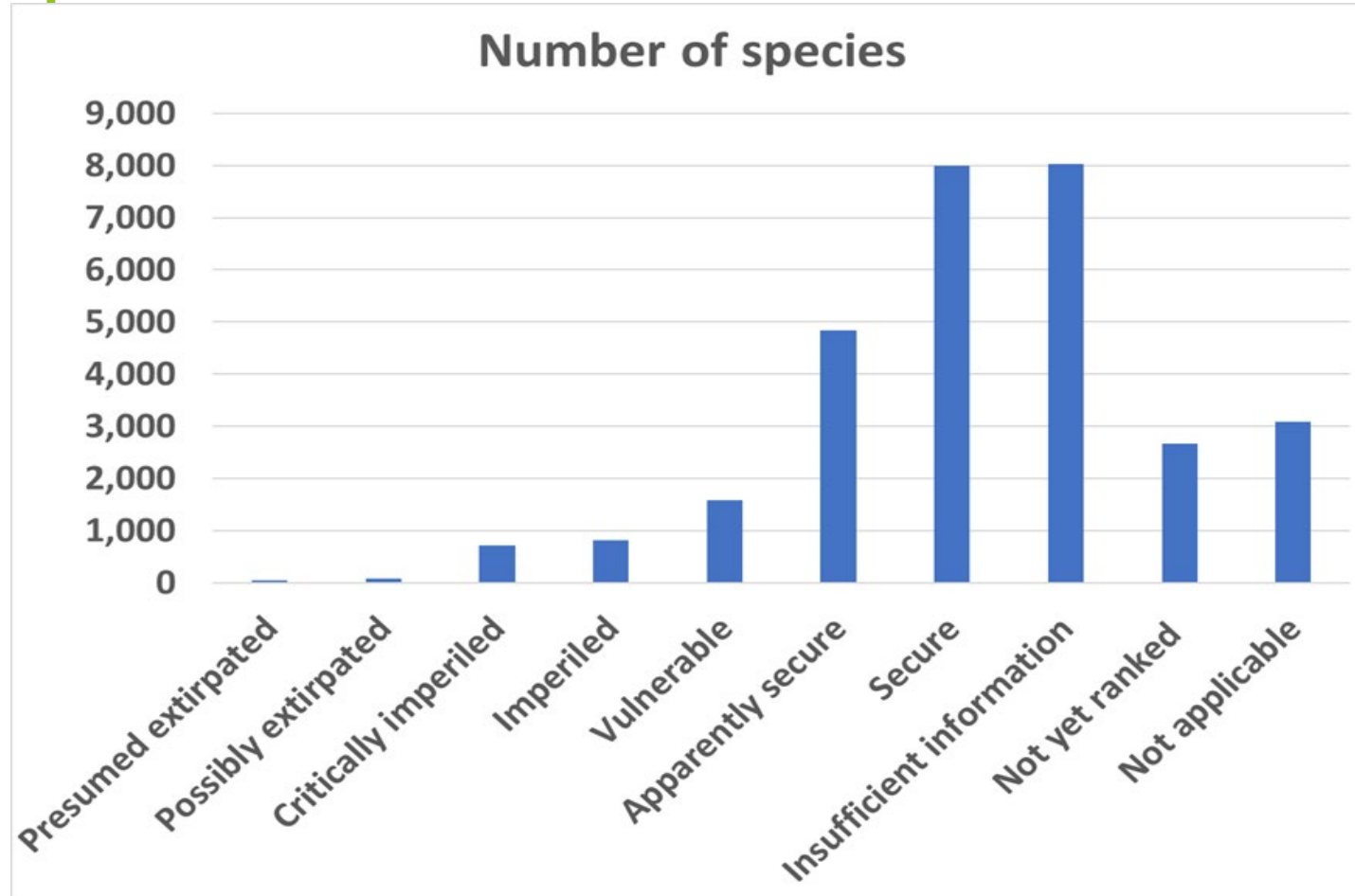
How does this change as population size drops?

Category	Sub-category	Expected effect on ES
Provisioning/ extractive	Nutrition	Decrease
	Materials	Decrease
	Genetic material	Slow decrease
Regulating	Pollination	Decrease
	Pest control	Decrease
Cultural	Direct interaction	Decrease
	Symbolic/spiritual	Constant?
Non-use	Existence	Increase?
	Bequest	Increase?

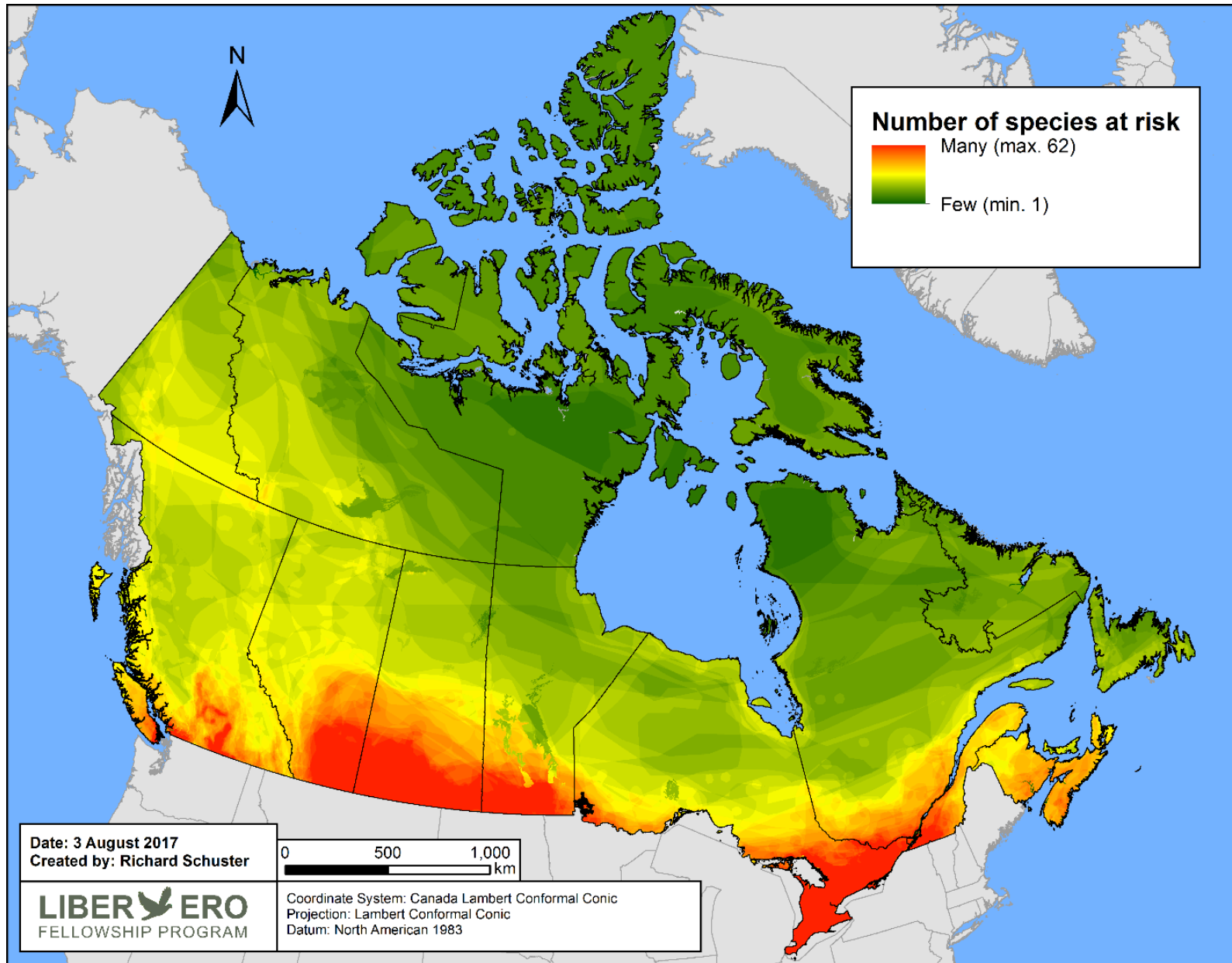
How do the overall benefits change?



What is happening to endangered species in Canada?



Source: Canadian Endangered Species Conservation Council (2016)

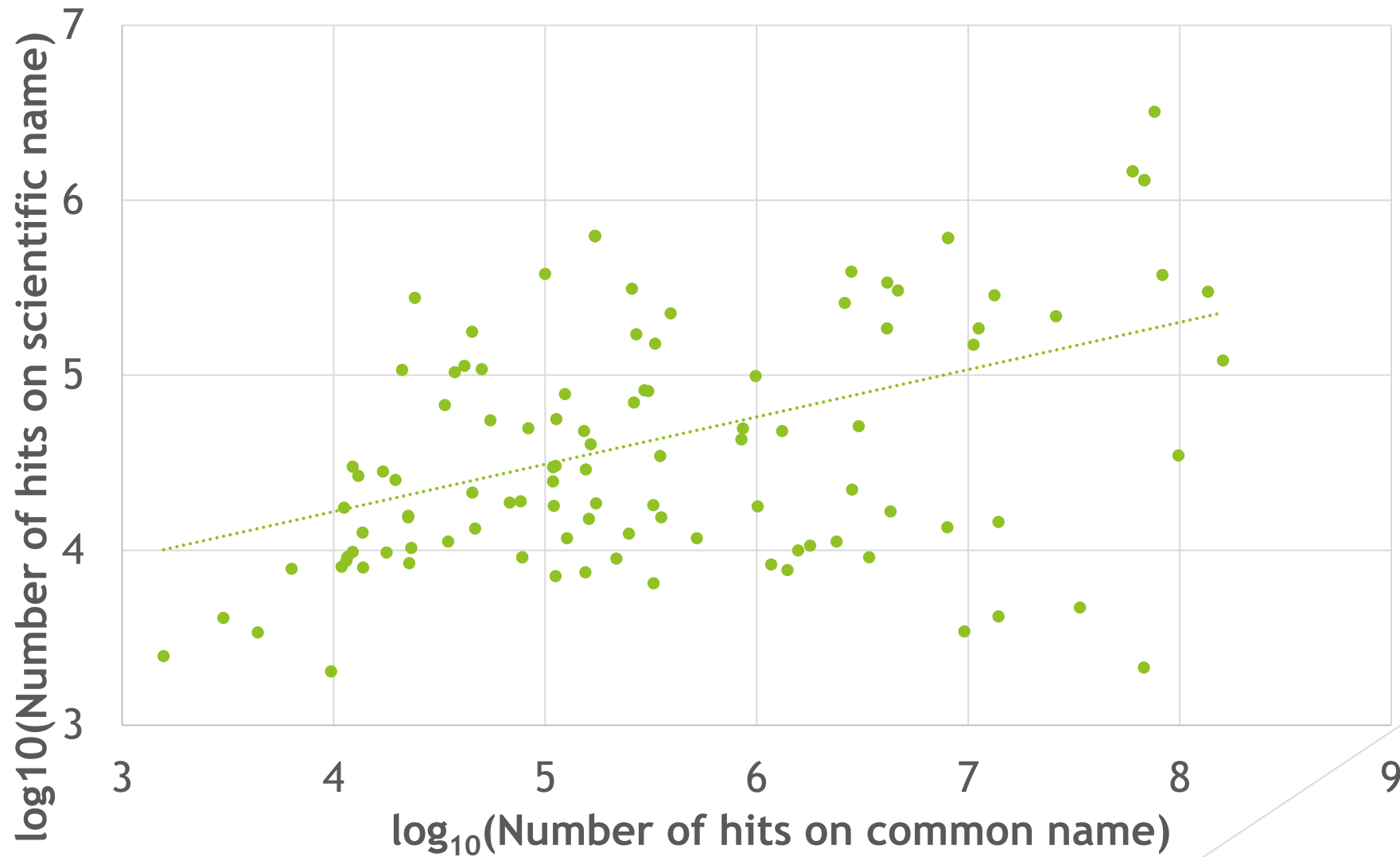


Data source: Scott Findlay and ECCC

What are the implications for ecosystem services?

Category	Sub-category	Potential?	Observed?
Provisioning/ extractive	Nutrition	19%	11%
	Materials	15%	9%
	Genetic material	100%	0%
Regulating	Pollination	13%	5%
	Pest control	5%	5%
Cultural	Direct interaction	100%	42%
	Symbolic/spiritual	100%	29%
Non-use	Existence	100%	100%
	Bequest	100%	100%

Wide variation in awareness of different endangered species





Differences in awareness may be cumulative effect of:

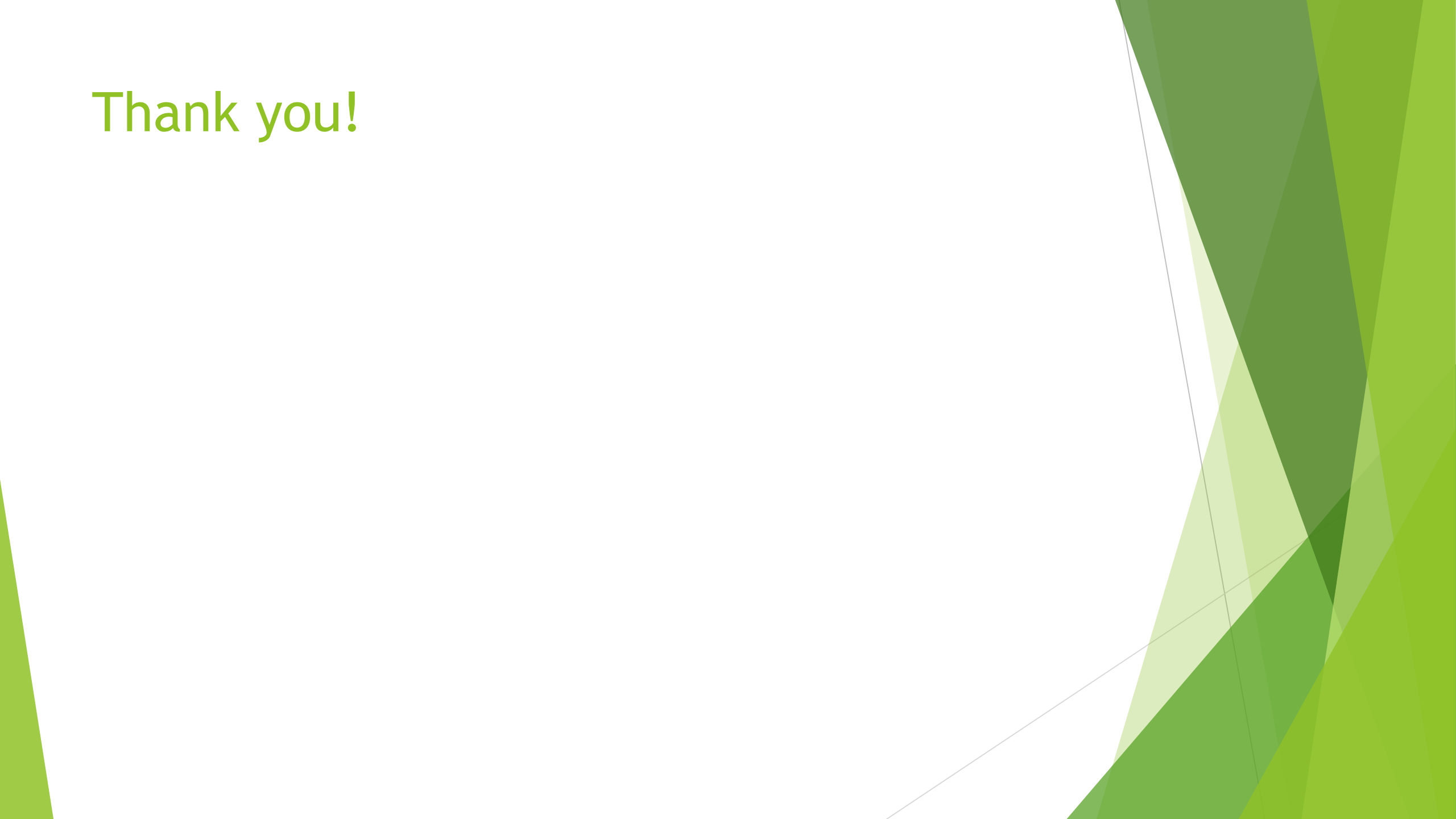
- Body size (role in food web)
- Evolutionary similarity
- Geographic proximity
- Visible distinctiveness

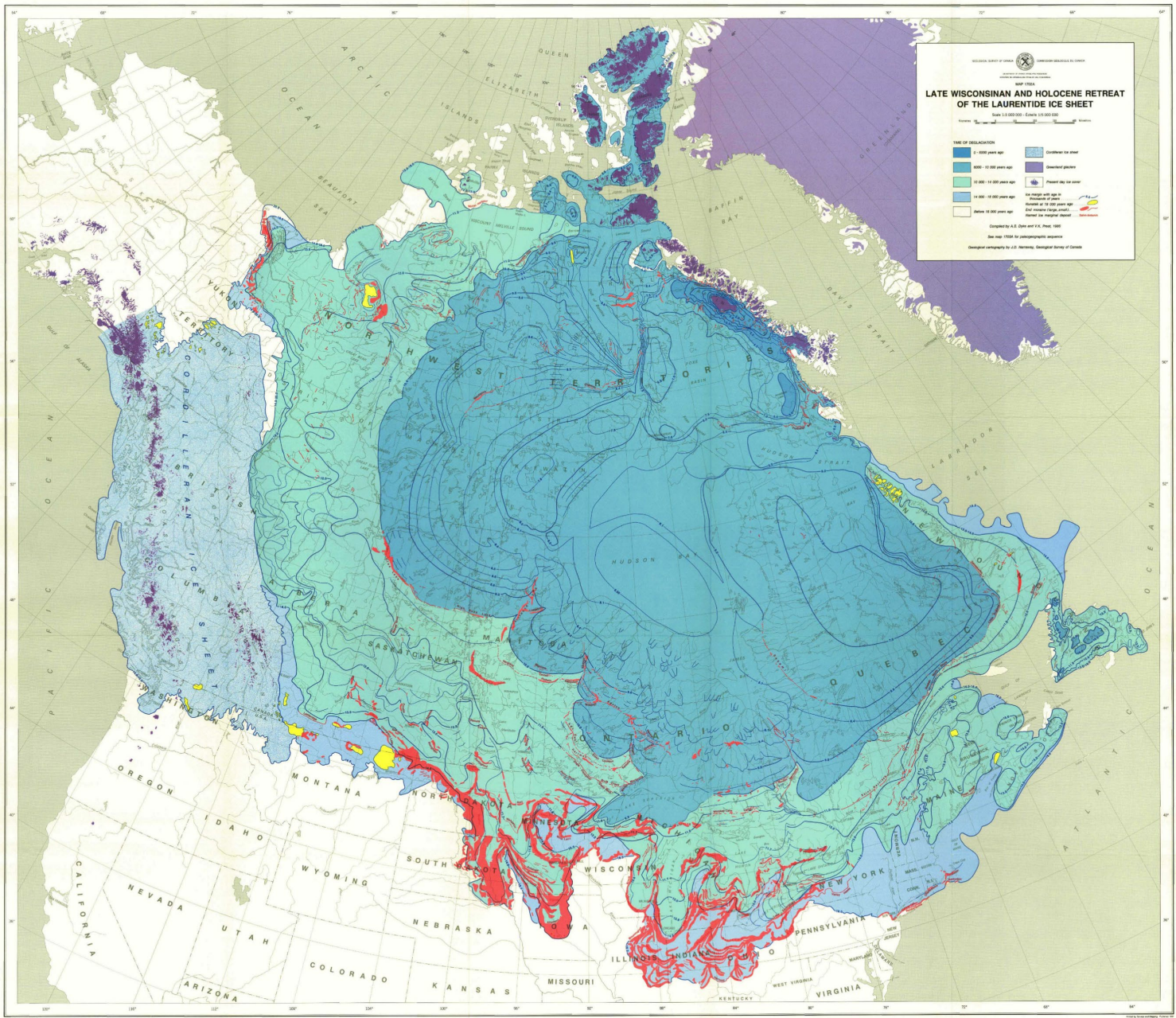
Photo sources: NOAA (R. Pitman), and Barnhart, M. C. 2008. Unio Gallery: <http://unionid.missouristate.edu>.

What are the possible policy responses?

- ▶ Work with other countries to manage species and beneficiaries
- ▶ Recognize importance of awareness and information
- ▶ Develop methods to value and manage “low awareness” species
- ▶ Look at values around status designation thresholds
- ▶ Shift how priorities are set

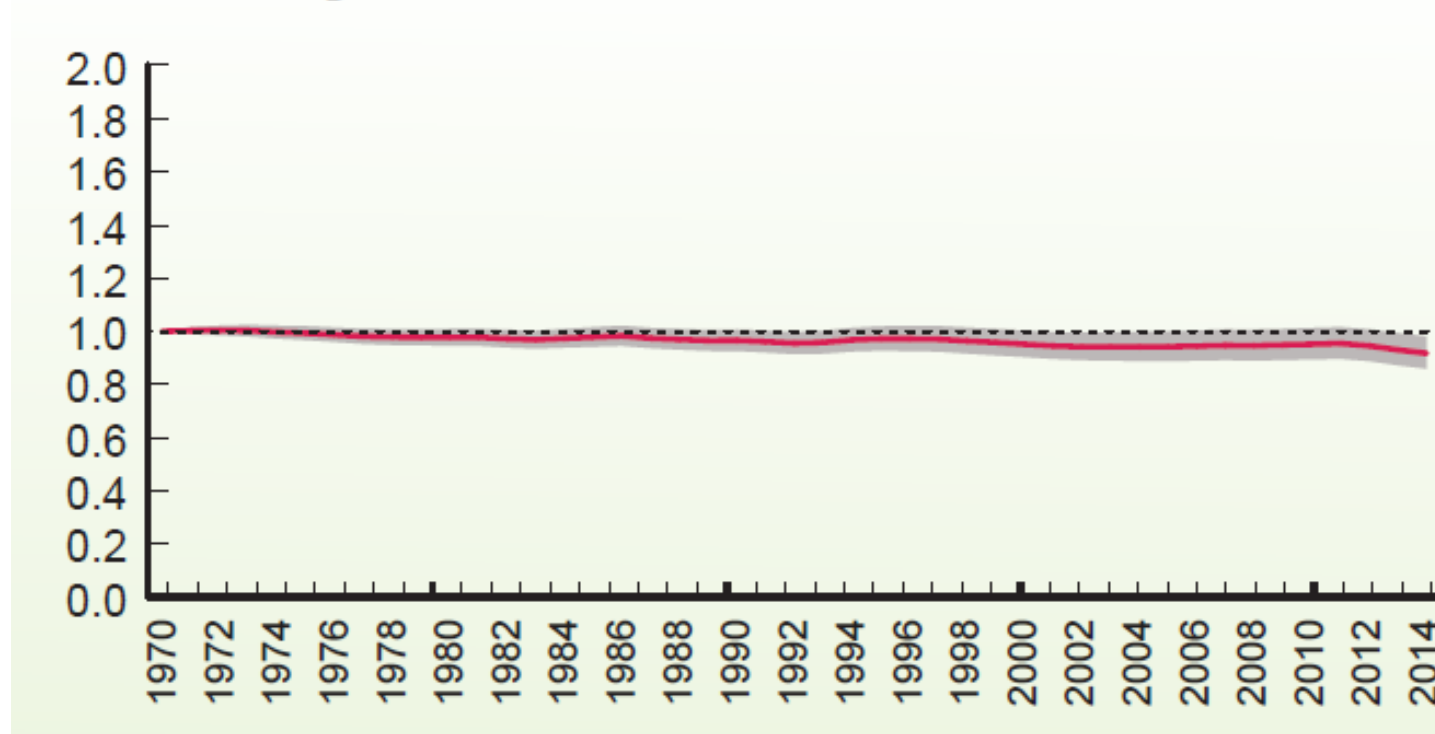
Thank you!





Trends in selected Canadian vertebrate populations - 1970-2014

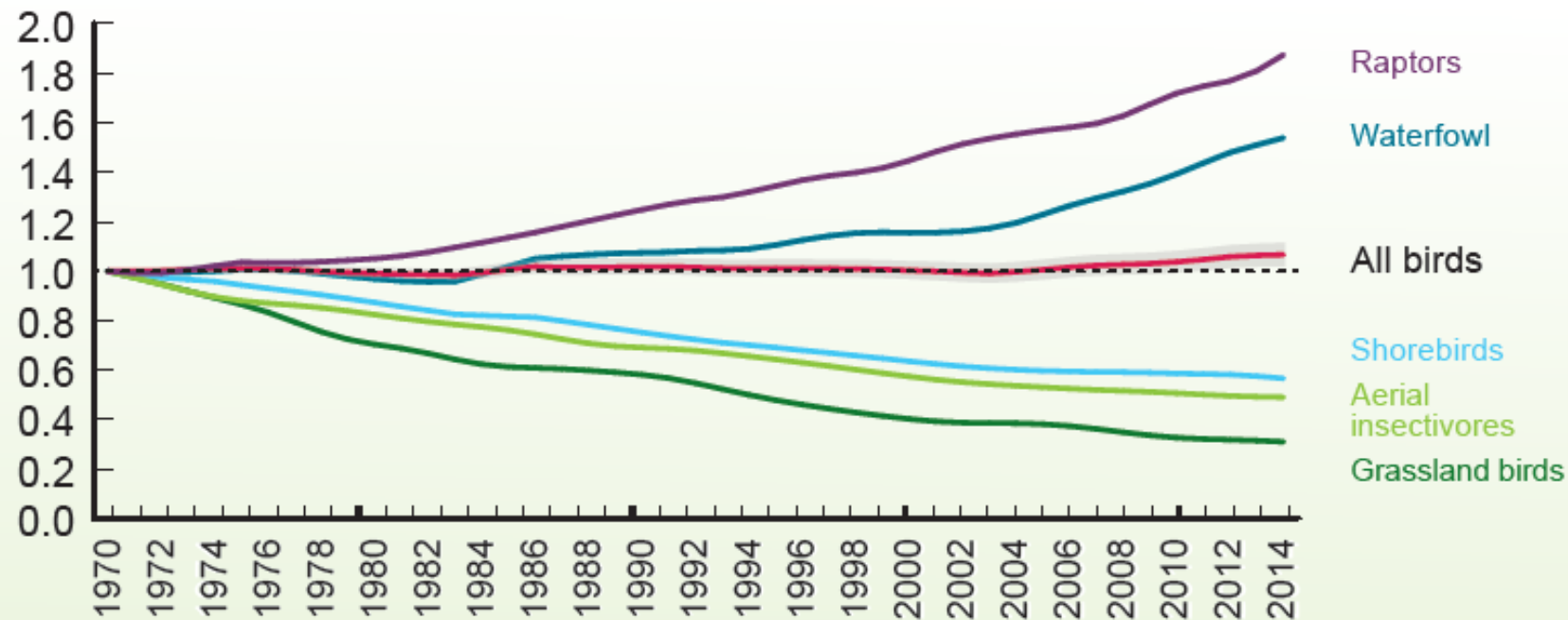
National Living Planet Index



Source: World Wildlife Fund (2017)

Trends in selected Canadian bird populations 1970-2014

Bird Living Planet Index



Source: World Wildlife Fund (2017)

