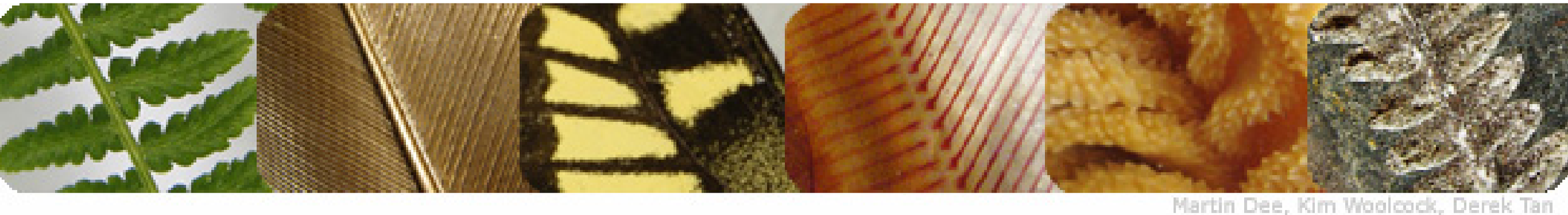
An analysis of recovery strategies for Canada's species at risk

Jeannette Whitton, William Harrower, Jenny McCune



Martin Dee, Kim Woolcock, Derek Tan

jeannette.whitton@botany.ubc.ca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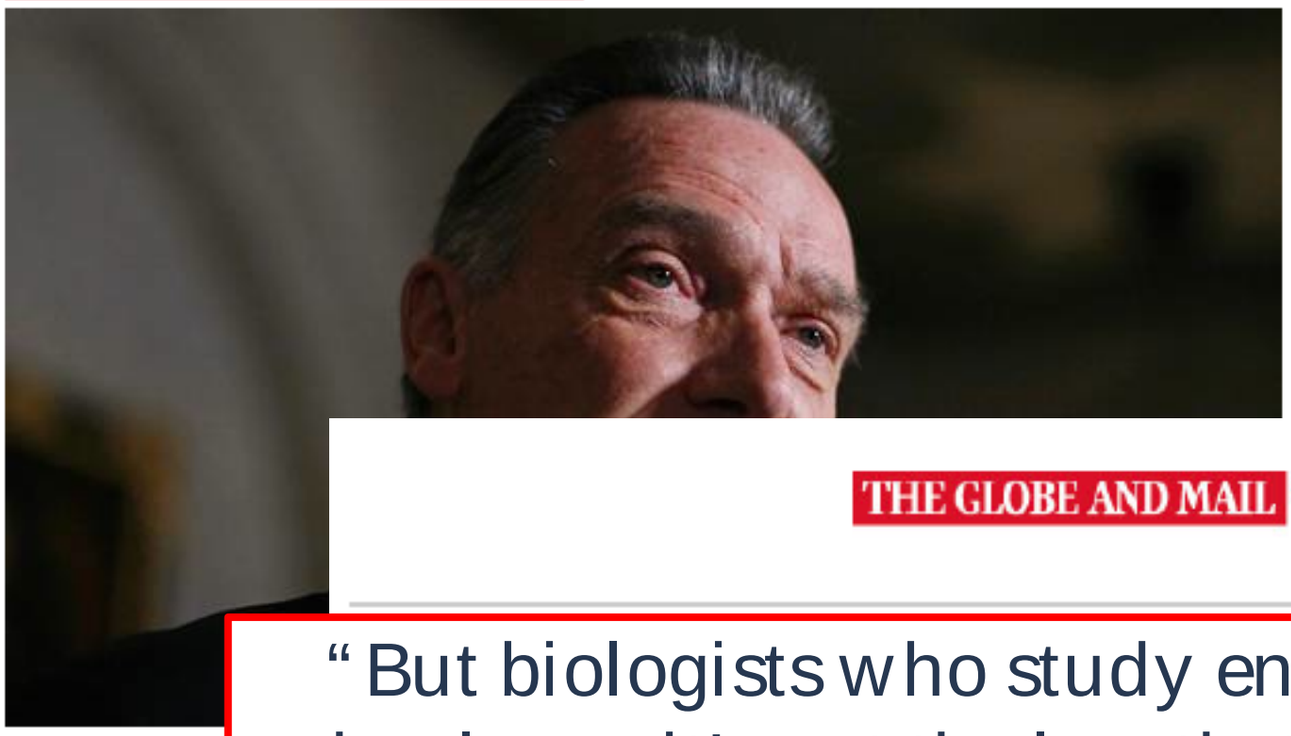
SARA on the chopping block?

THE GLOBE AND MAIL



THE GLOBE AND MAIL

Environment Mini
REUTERS

OTTAWA

Environ

HEATHER SCOFF
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After 10 years of ups and

In an interview with The

In particular, he wants the

"There are improvements

federal Conservative government's recently announced plans to revise it are aimed at weakening it, not giving it more teeth.

Environment Minister Peter Kent said last month that the Species At Risk Act (SARA) is due for an overhaul and he would spend this fall considering how to make it more efficient. Specifically, said the minister, recovery plans for species under threat must consider the whole ecosystem in which they live, not just the species itself.

But biologists who study endangered plants and animals says it's not the law that is flawed, it is the lack of vigour that has been applied to its implementation. And they are looking with trepidation at the government's move last spring to change the Fisheries Act by eliminating the need to protect fish habitats that are not of direct use to society.

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Recovery Strategy Working Group

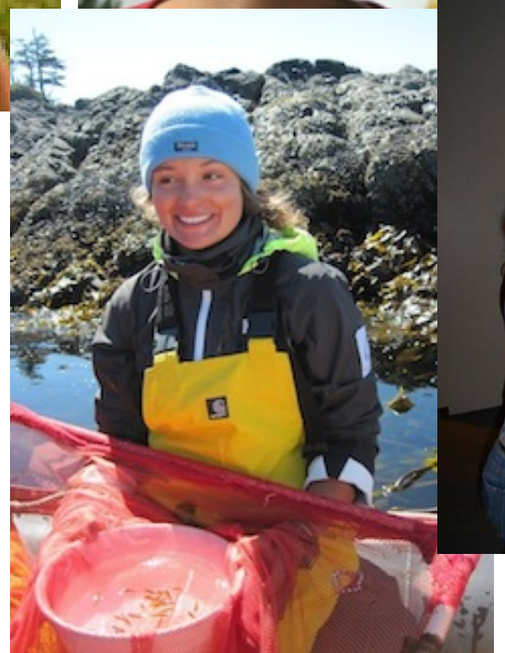












Canada's SARA: Not exactly the ESA

CHAPTER 29

SPECIES AT RISK ACT

SUMMARY

The purposes of this enactment are to
species, subspecies and
extirpated or extinct, to
threatened species, to encour
prevent them from becoming at ris

This enactment establishes the Comm
gered Wildlife in Canada (COSEWIC)
experts responsible for assessing and
provides that COSEWIC's assessments
Minister of the Environment and to the
Conservation Council and it authorizes
establish by regulation the official list o
process.

It requires that the best available knowl
and short-term objectives in a recovery strat
threatened species and it provides for action plans to identify specific actions.

It creates prohibitions to protect listed threatened and endangered species and their critical habitat.

CHAPITRE 29

LOI SUR LES ESPÈCES EN PÉRIL

SOMMAIRE

rétablissement des espèces en voie de disparition ou menacées et porte que les plans d'action doivent comporter les mesures spécifiques à prendre.

Il crée des interdictions en vue de protéger les espèces inscrites comme espèces en voie de disparition ou menacées et leur habitat essentiel.

"The purposes of this enactment are to prevent Canadian indigenous species…of wildlife from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species and to encourage the management of other species to prevent them from becoming at risk."

1. Assessing Status

Step 1 is done by COSEWIC

2. Listing Decision

3. Recovery Planning

Steps 2-4 are led by the federal government

4. Recovery Action Planning

1. Assessing Status

Science-based

2. Listing Decision

3. Recovery Planning

Can include socio-economic considerations

4. Recovery Action Planning

Key Differences between SARA and the ESA

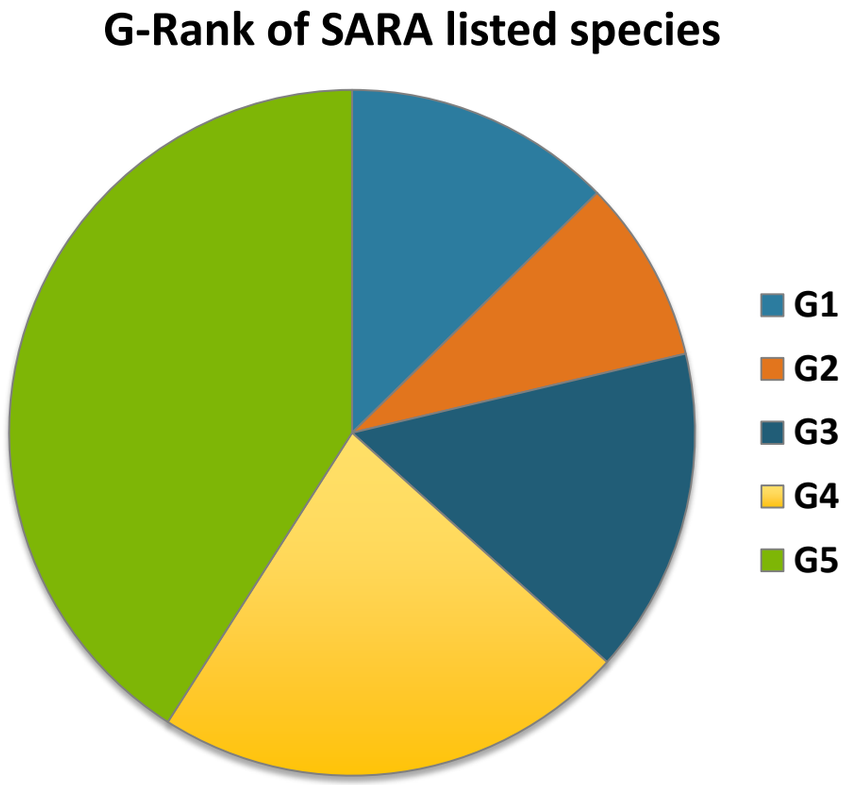
- SARA came into force in 2003 (10 years old!)
- Separates scientific assessment and listing decisions
- Applies primarily to federal land (4% of the provincial land base)
- No delisting – reassessment every 10 years.
- Recovery planning is a two-step process: (scientific) recovery strategies and action plans (which incorporate non-science)
- Status categories include extirpated, endangered, threatened and special concern (=IUCN vulnerable).

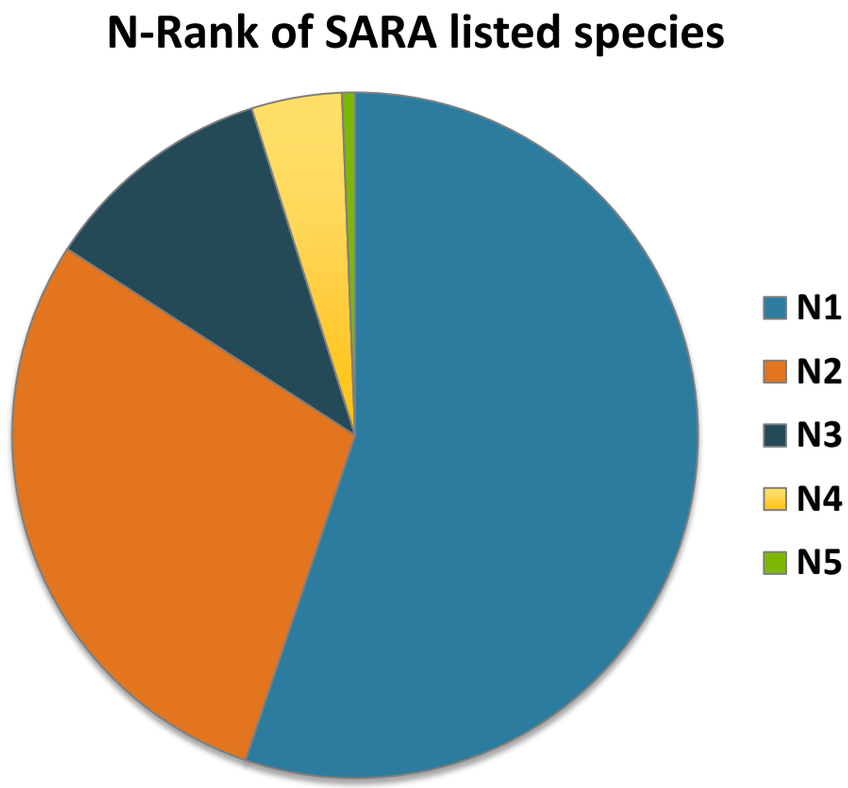
- ESA enacted in 1973 (40 years old!)
- Assessment is part of the listing process
- Applies to federal and state, private and public lands
- Explicit delisting process

- Recovery plans include a description of specific recovery actions to be taken.

- Lists species as endangered or threatened.

Who are the SARA-listed species?

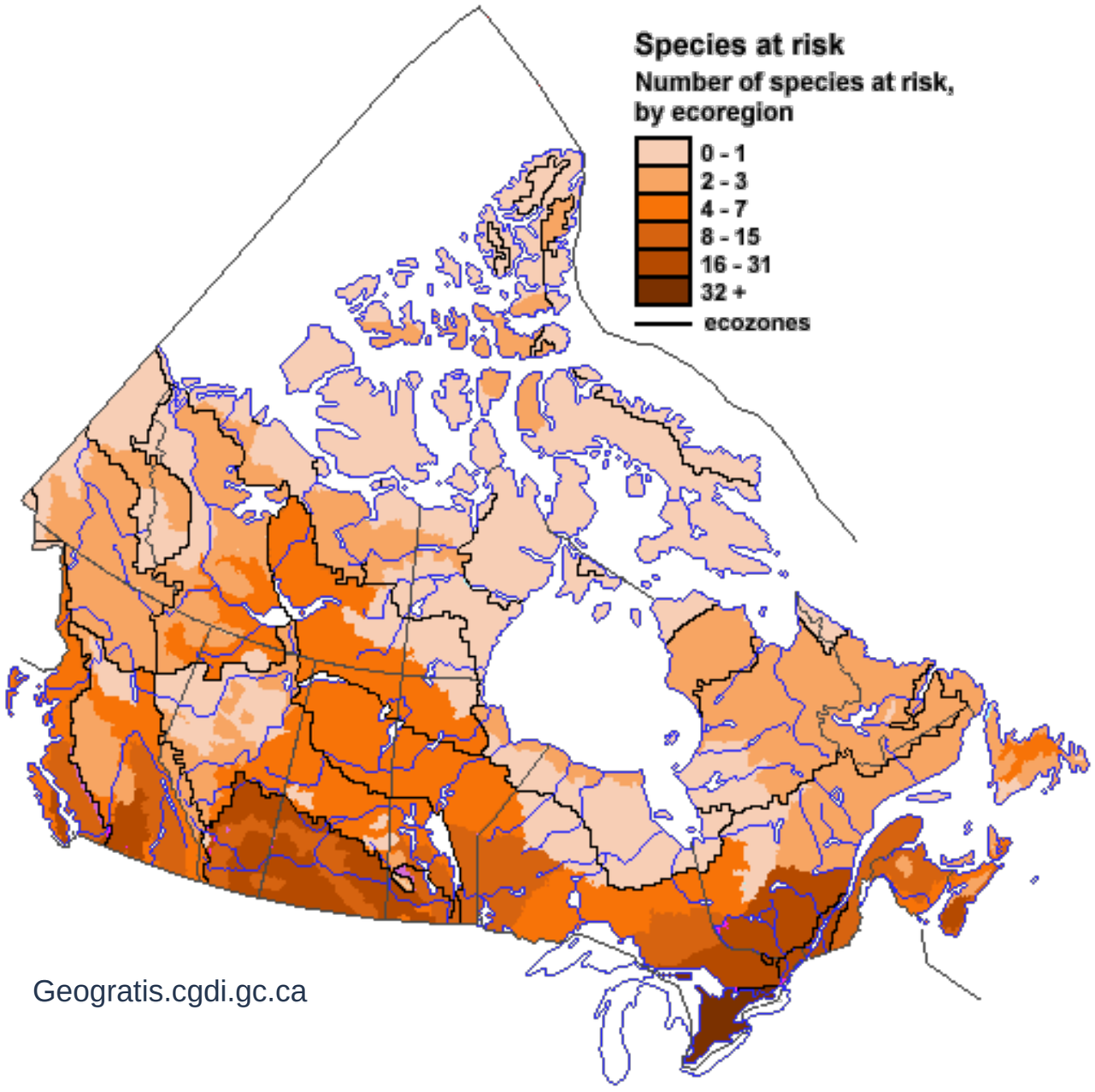




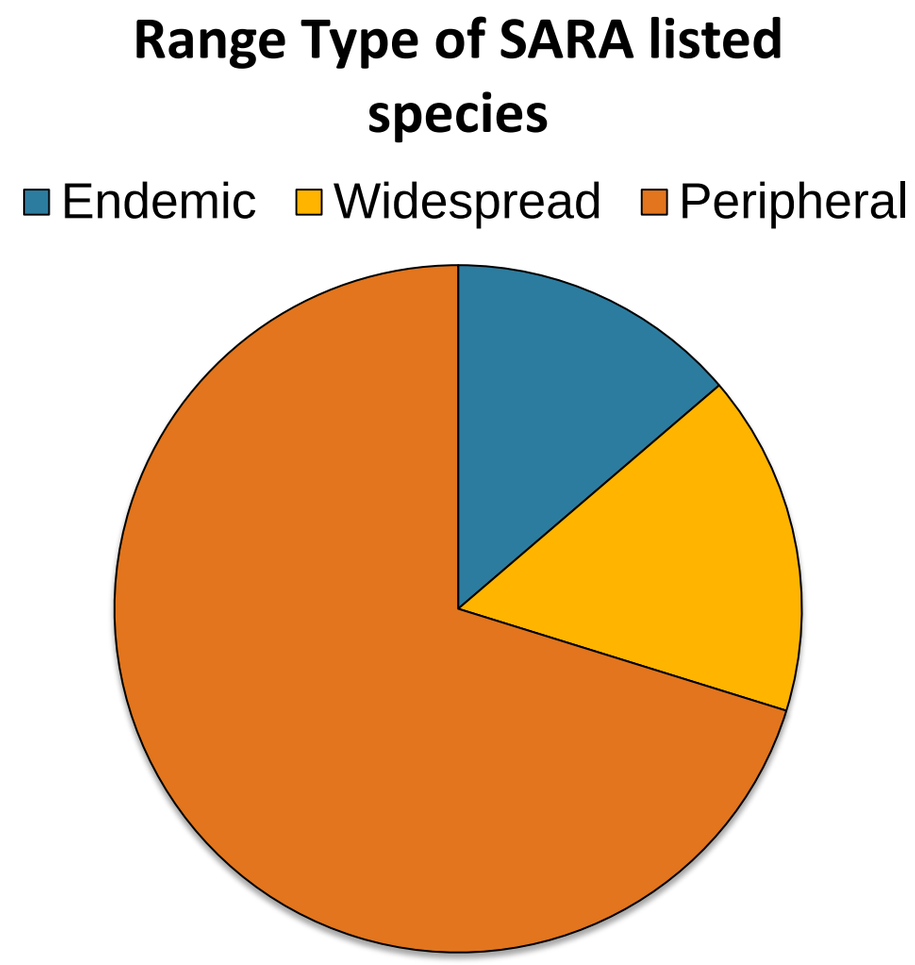
Most of Canada's SAR are globally secure (G5) or apparently secure (G4)

Most US ESA listed species are critically imperiled (G1) or imperiled (G2)

Who are the SARA-listed species?

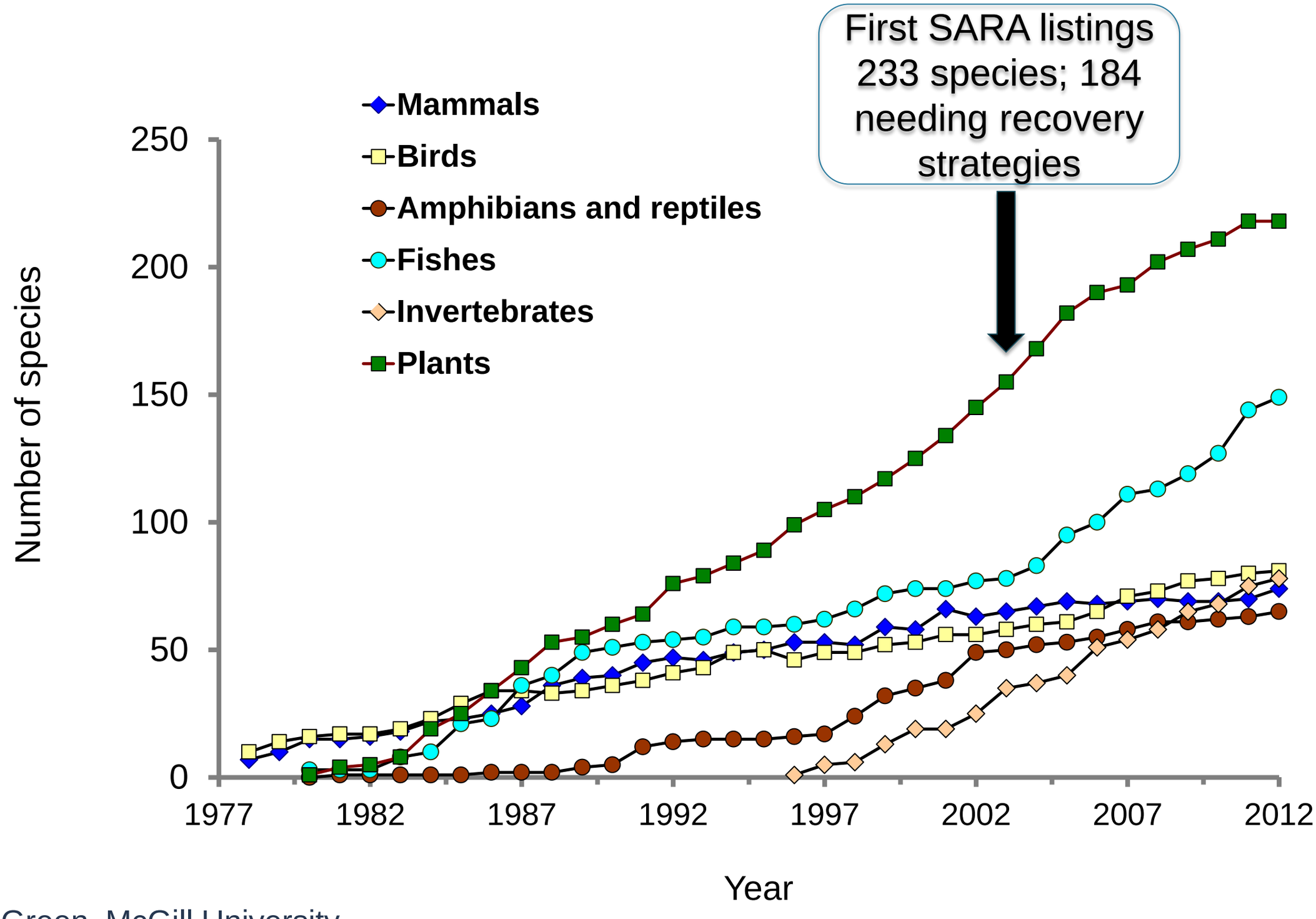


Geogratis.cgdi.gc.ca



Peripheral species: <10% (usually <1%) of total global population in Canada

Even though SARA is only 10, status assessment is 35!



David Green, McGill University

SARA Numbers

676 Species Assessed by COSEWIC as “at risk” (+15 extinct)

570 Species Listed under SARA (84%) 386 need recovery plans

187 Species with Recovery Plans (48% of the 386)

7 Species with Action Plans (<2% of 386)

Biases in SARA Listing: Who gets left out?

- Studies by Mooers et al. (2007) and Findlay et al. (2009) reveal biases in which species are listed:
  - Marine fishes are rarely listed (12 of 61)
  - Nunavut species are less likely to be listed (14 of 25)
  - Species under the jurisdiction of DFO (all aquatic species) are less likely to be listed
  - Species subject to commercial, recreational or aboriginal harvest are rarely listed.
- Listing decisions are **slow**, and especially slow for species that end up not listed. Some species have been waiting for a listing decision **since 2005**.

What is a SARA recovery strategy?

- Best available (scientific) information
- **Includes:**
  - Description of threats
  - Statement on feasibility of recovery
  - Description of critical habitat (to the extent possible)
  - A statement of population and distribution objectives

Analysis of Recovery strategies

Key Questions:

- **Which species** that have received a finalized recovery strategy (as of June 2013)?
- What are the features of species that for which Critical Habitat is designated in a finalized recovery strategy (as of June 2013)?
- **How ambitious are the recovery objectives** set out in finalized recovery strategies? How does the level of ambition related to SARA status, global conservation status and range type?

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Some of the traits scored

- **Species traits**: taxon, habitat type (marine, freshwater or terrestrial), range type (endemic, peripheral), number of provinces.
- **Timelines:** date of assessment, listing, finalized recovery strategy, expected date of action plan.
- **Process:** SARA status, global and national rank (G-rank, N-rank), responsible authority, listing criteria (IUCN A-E).
- **Threats**: number and type of threats (following IUCN/ Salafsky et al. 2008 categories). **[McCune et al. Biological Conservation, *in press*]**
- **Recovery goals and objectives**: targets for population numbers and extent of distribution, translated into an “ambition score”, designation of critical habitat.

Progress on Recovery Strategy Completion (as of June 2013)

- **386** species listed as:

  Threatened (123 species)

  Endangered or (237 species)

  Extirpated (23 species)

- **363** with recovery strategies due by end of 2012 (note that 47% of these come from listings at SARA enactment)
- **187** strategies (52%) have been finalized.

Bight side: The backlog could be cleared in 5-8 years (depending on new listings)

Which species are being prioritized?

Species from different habitat types differ significantly in completion of RS.
Marine species are significantly more likely to have a completed RS. terrestrial species are less likely.

Habitat Type	Completed	Total Expected	% complete
Terrestrial	127*	289	44%
Freshwater	38	70	54%
Marine	22**	27	81%

Which species are being prioritized?

Taxonomic Group	Completed	Expected	% Completed
Arthropods	11*	32	34%
Birds	23	53	43%
Fishes	27*	43	63%
Molluscs	13	20	65%
Tetrapods (non-avian)	27**	78	35%
Plants (incl. lichens)	86	160	54%
Overall	**187**	**386**	**48%**

Broad Taxonomic/ functional groups differ significantly in degree of completion of RS. Tetrapods and arthropods are significantly less likely, and fishes more likely to have a completed RS.

Which species are being prioritized? (Model selection using logistic regression)

Stared with a model based on taxonomic group and habitat type as covariates, then looked at the effect of adding the following:

- Global status (G-rank)
- Responsible authority (DFO, EC)
- Status (Endangered, Threatened, Extirpated)
- Range type (Endemic, Widespread, Peripheral)
- Number of provinces and territories

Which species are being prioritized? (Model selection using logistic regression)

Stared with a model based on taxonomic group and habitat type as covariates, then looked at the effect of adding the following:

- Global status (G-rank: **G1**, G2, G3, G4, **G5**)
- Responsible authority (**DFO**, EC)
- Status (Endangered, **Threatened**, Extirpated)
- Range type (**Endemic**, Widespread, **Peripheral**)
- Number of provinces and territories (**species that occur in more provinces less likely to have a RS)**

Less likely to have a finalized recovery strategy
More likely to have a finalized recovery strategy

How ambitious are recovery objectives?

Ambition was scored for objectives related to number of **individuals**, number of **populations** and **distribution area**, and also counted as an **overall index** as follows:

No stated objective

Less than current levels

Maintain current levels

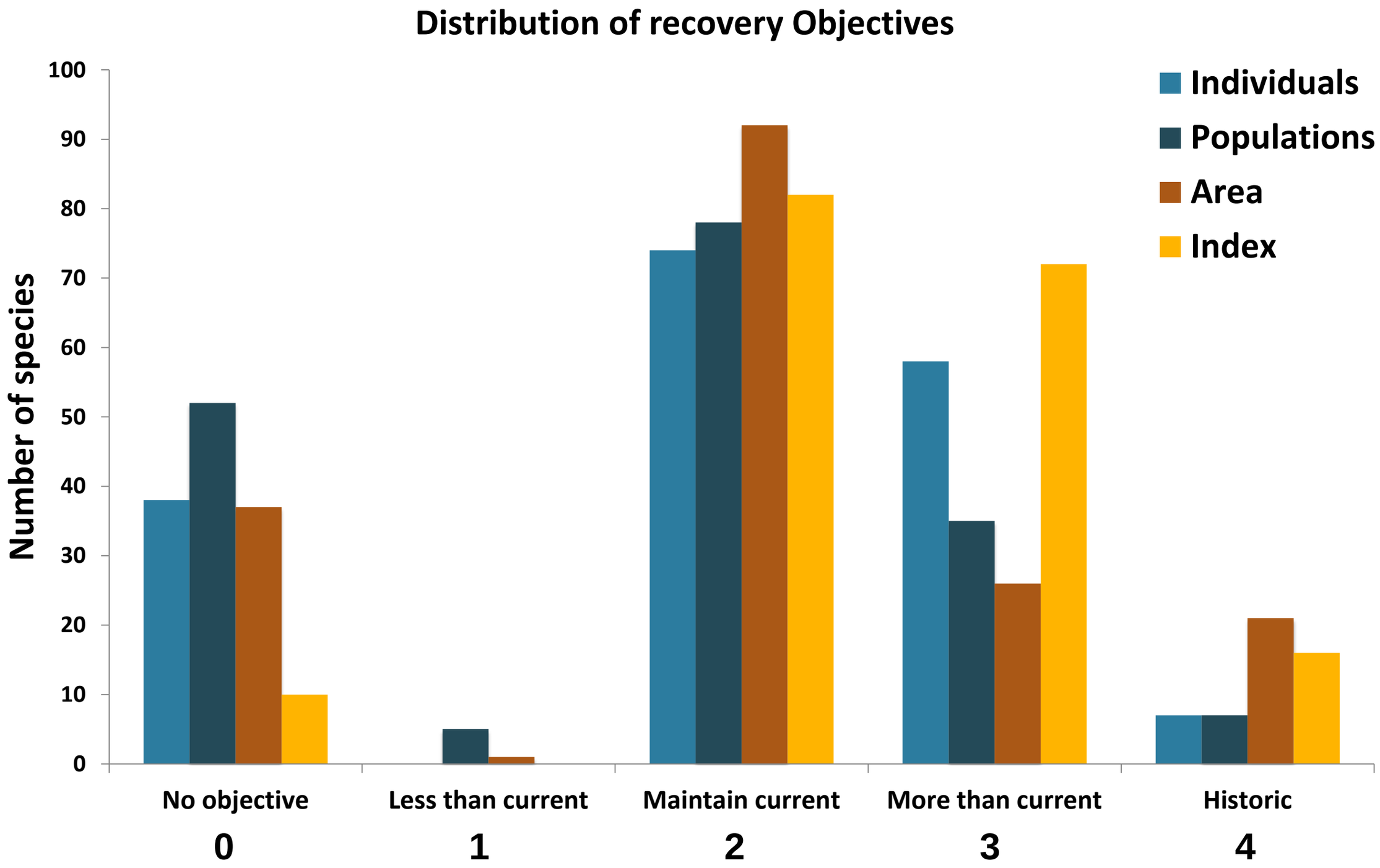
Greater than current levels but less than historic levels

Restore to historic levels

Least ambitious

Most ambitious

How ambitious are recovery objectives? Overall patterns



How ambitious are recovery objectives? Are there any bright spots?

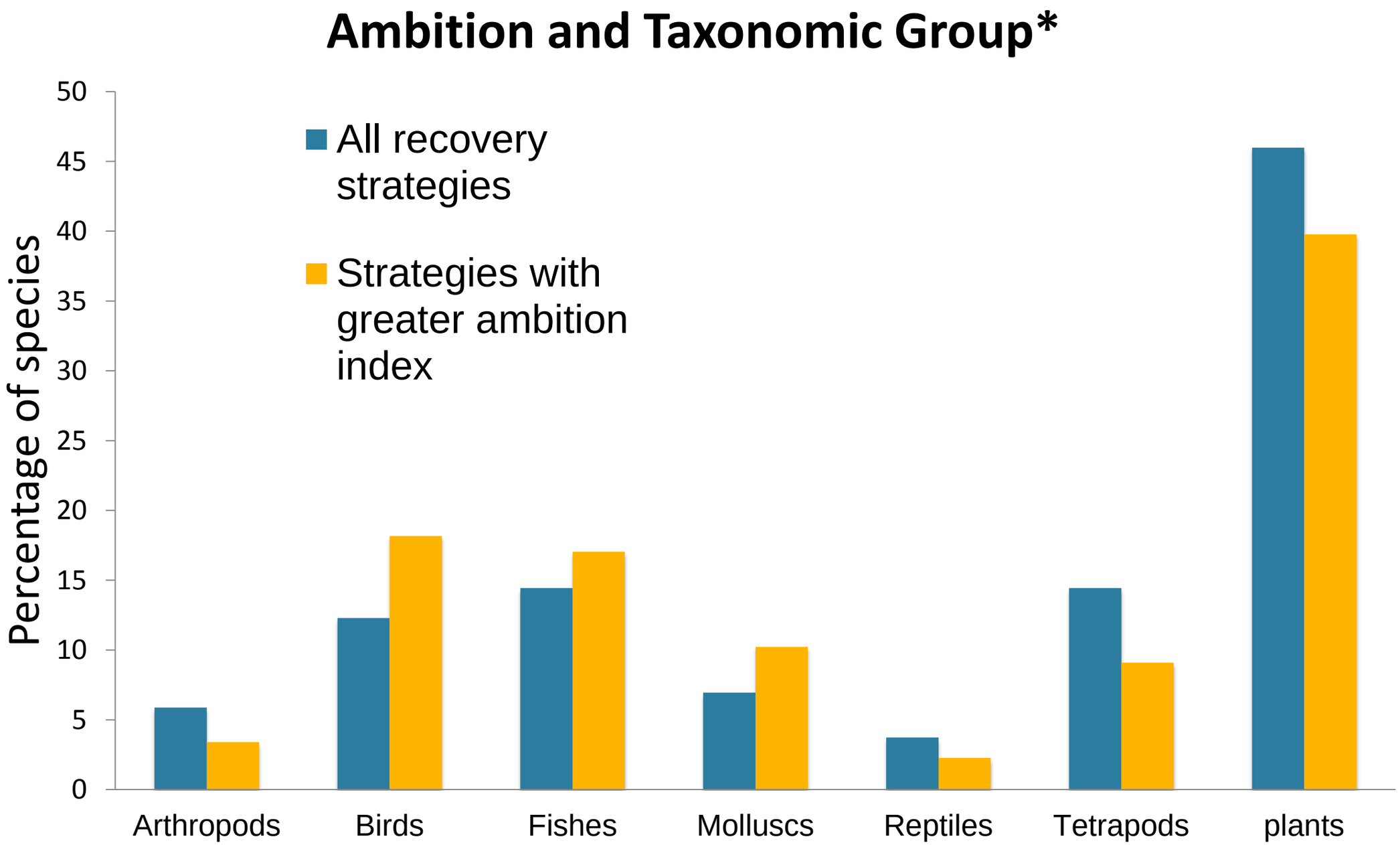
- **Average Ambition Index: 2.3 (median is 2)**
- Fewer than half of the species with objectives have a recovery objective that goes beyond maintaining the *status quo*.
- What are the features of species with greater ambition scores (where there is at least a stated goal to increase numbers of individuals, populations or overall extent of occurrence)?

Which species have the most ambitious recovery objectives?

Hypotheses:

- Species for which Canada has the greatest responsibility might have more ambitious objectives.
  - Globally imperiled species?
  - Canadian endemics?
  - Species at greatest risk of extinction? (status=endangered)
- Species with a higher perceived importance might have more ambitious objectives.
  - Differences among broad taxonomic groups?

Which species have the most ambitious recovery objectives?



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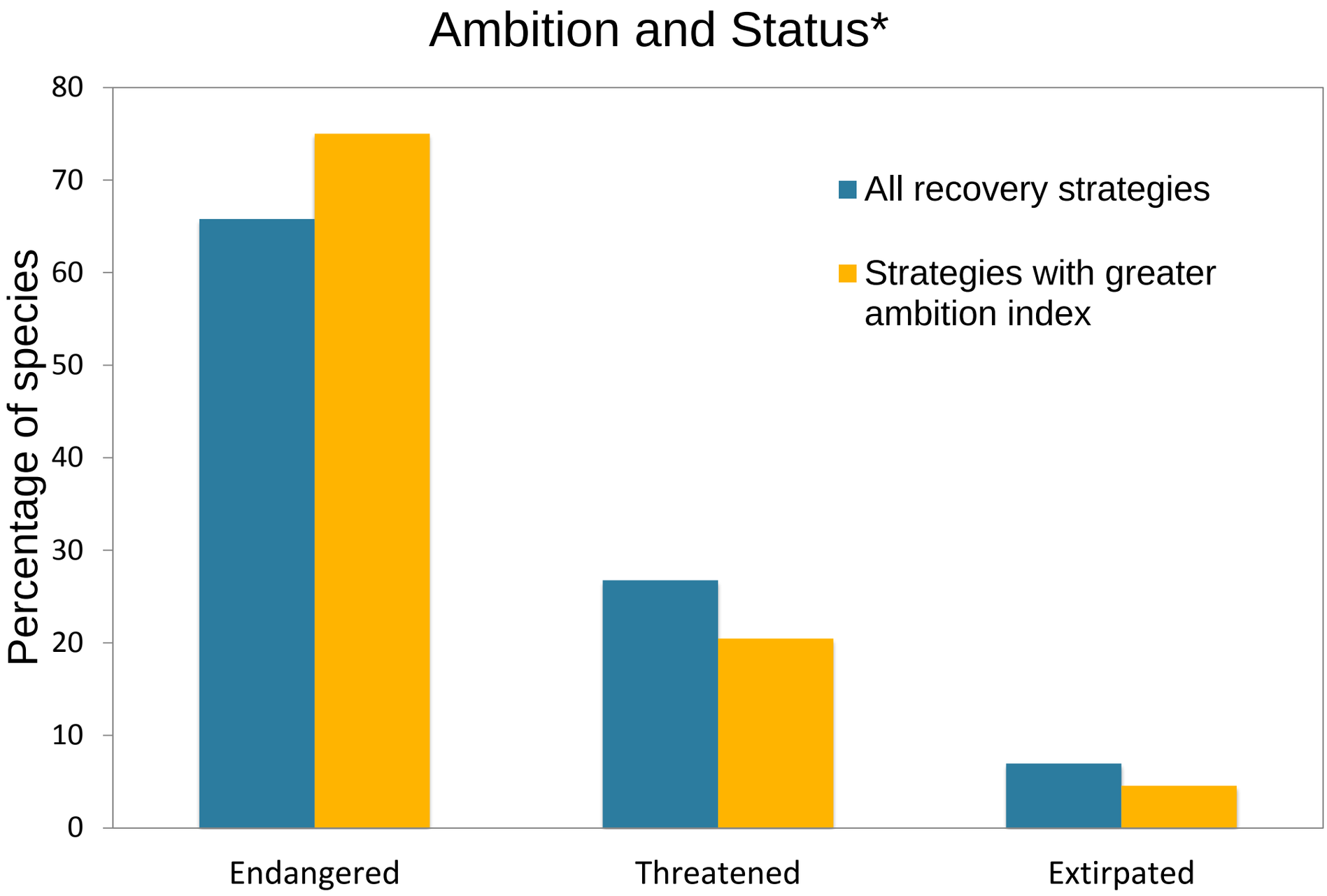
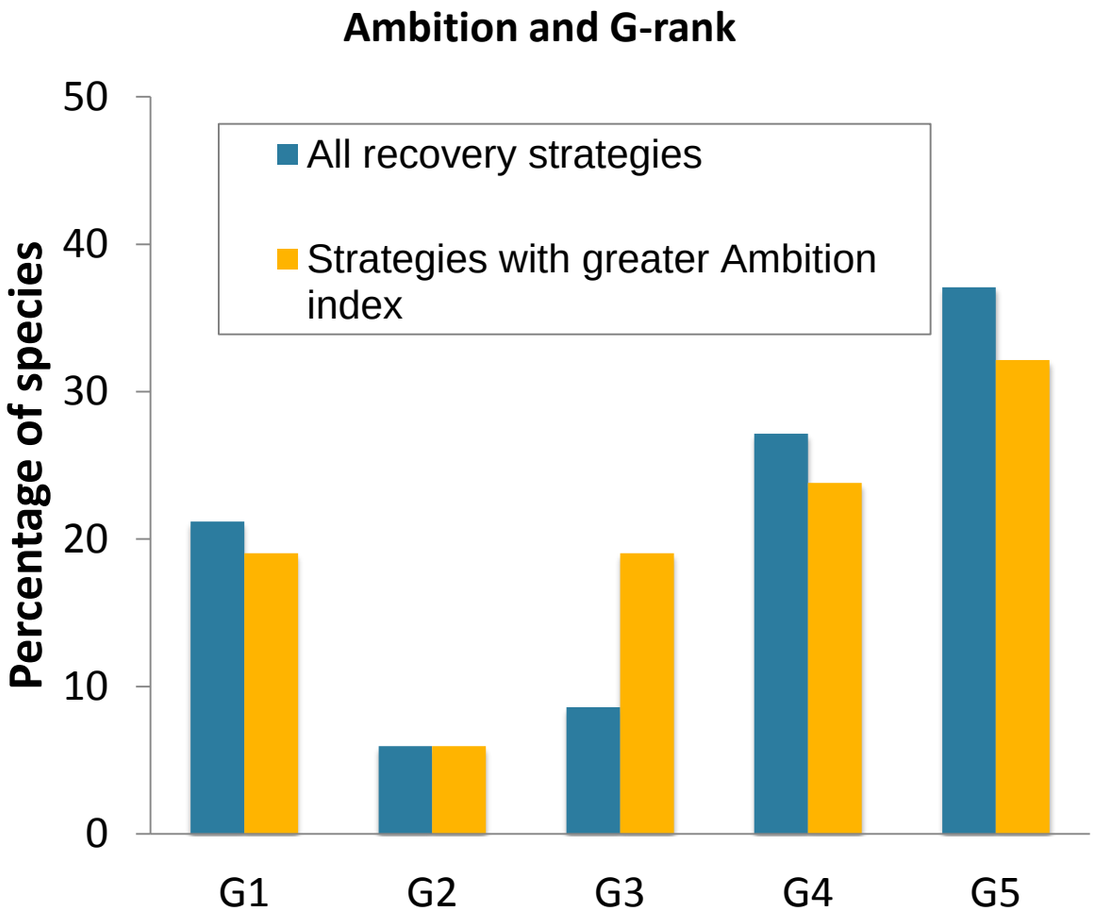
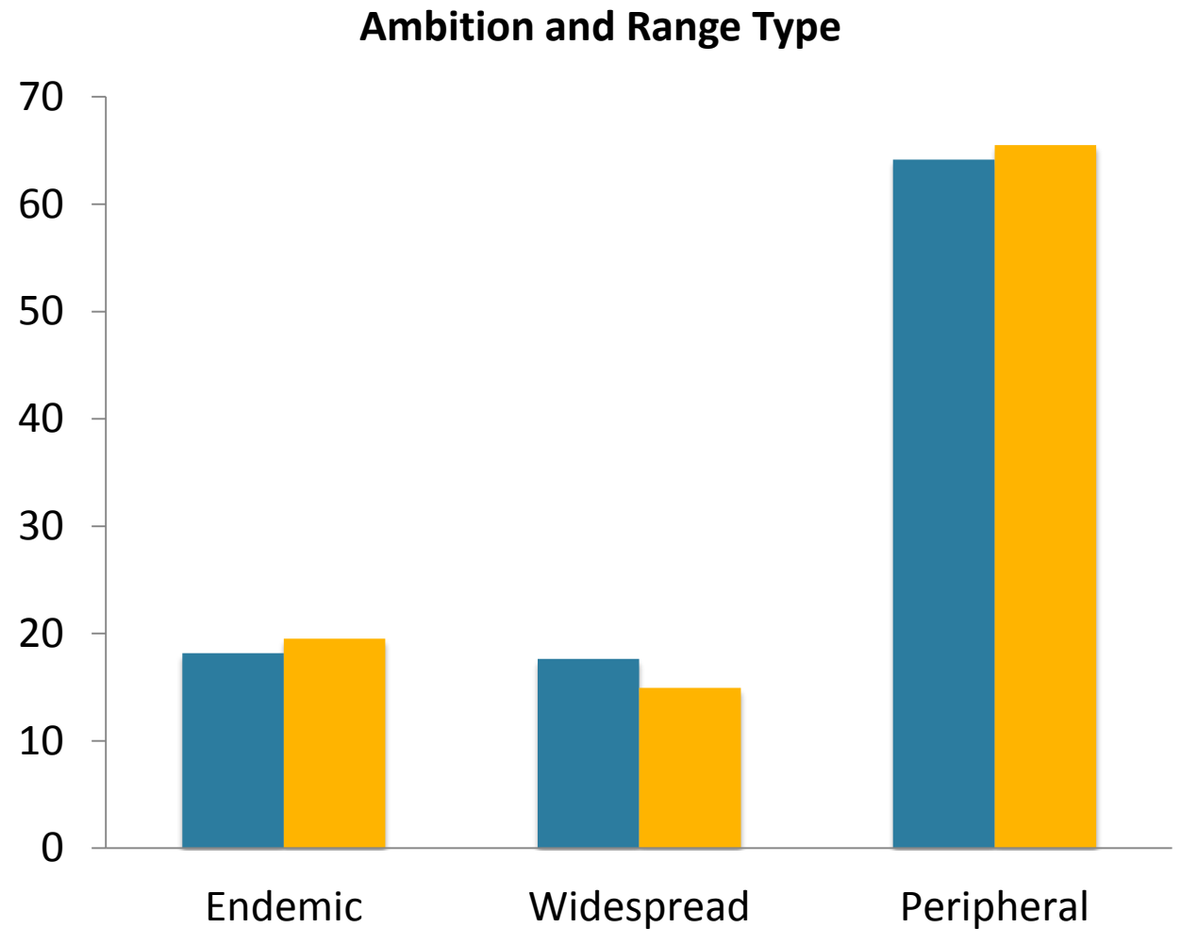


Which species have the most ambitious recovery objectives?





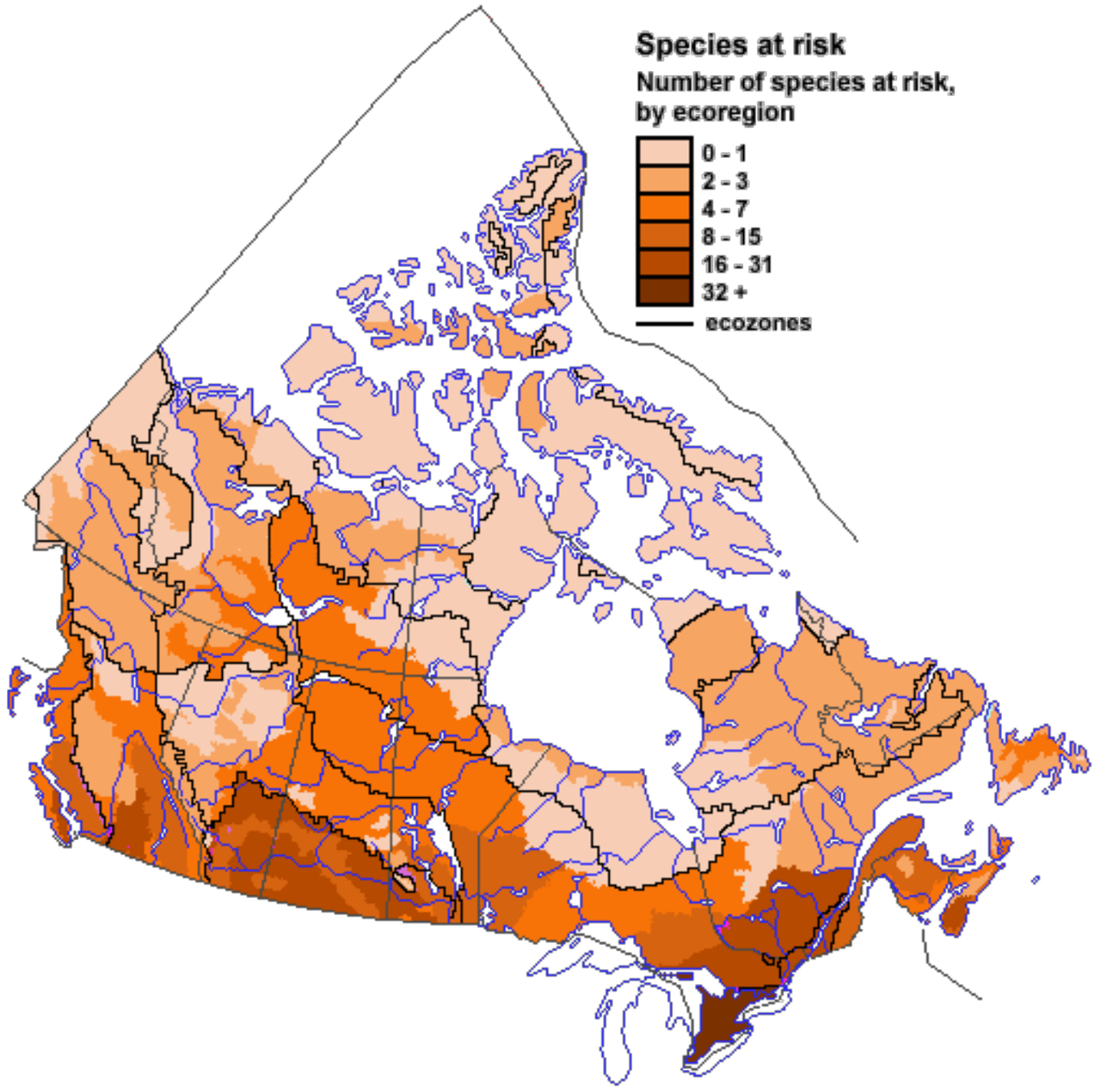
Randomizations indicate that species with greater ambition index values are a random sample based on G-rank, range type, ecosystem type and responsible authority.

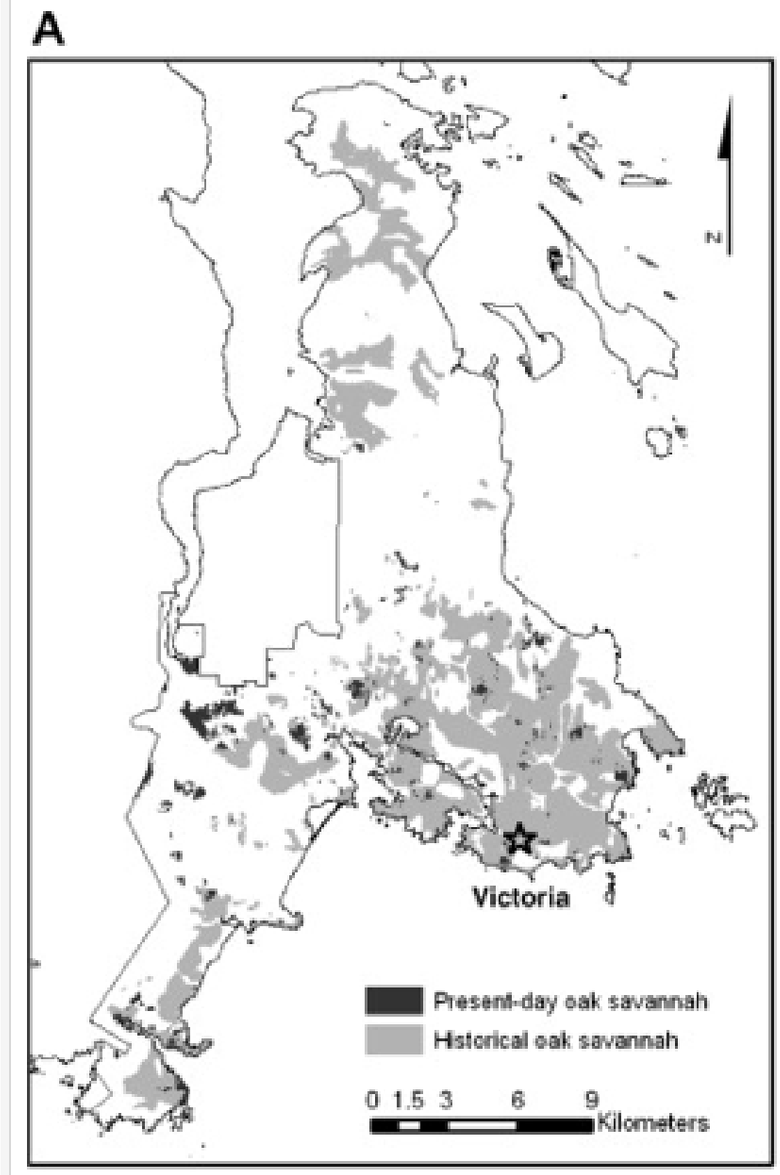
How ambitious should we be about recovery, given the peripheral nature of many SARA-listed species?

- Fewer than half of the species with objectives have a recovery objective that goes beyond maintaining the *status quo*.
- Given that species get listed primarily on the basis of declines, it seems unlikely that recovery can occur without increases.
- Is this low ambition (somehow) related to the peripheral species problem?

Deltoid Balsamroot

How ambitious should we be about recovery, given the peripheral nature of many SARA-listed species?





Vellend et al. (2008)

1. Assessing Status

Science-based

2. Listing Decision

3. Recovery Planning

Can include socio-economic considerations

4. Recovery Action Planning

What does recovery mean?

From SARA:
Long-term persistence or where decline is arrested ***or*** reversed.

Defintions in policy documents:

- “restoring a species to a viable self-sustaining population level, able to withstand stochastic events and other environmental variables of a non-catastrophic nature” (National Recovery Working Group 2004);
- “any improvement in a species’ probability of long- term persistence in the wild” (Environment Canada *et al.* 2004).”

Conservation Biology definition:
Something more than long-term persistence.
Return to self-sustaining?

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Department of Botany
Biodiversity Research Centre

Key Resource:
SARA Public Registry
COSEWIC public website