

Ecosystems and Species at Risk



What is an Ecosystem?

What is an Ecosystem?

All biotic and abiotic components, and their interactions with each other, in a defined area

- Habitats
- Species
(including humans)
- Interactions
transfer of energy and



Can you name an ecosystem and its components?

What valuable functions does it provide?

Can you name an ecosystem and its components?

- City— houses, people, cars, hospitals, etc.
- Riding Mountain National Park – plants, animals, lakes, rocks
- A backyard – grass, garden, birds, family dog

What valuable functions does it provide?

flood control, water purification, seed dispersal, pollination, pollutant removal, nutrient cycling, habitat provision, shelter, etc.

Ecosystem Hotspots

Ecosystems that support a relatively large number of species at risk:

- Carolinian forest
- Tallgrass prairie
- Douglas fir forest



Hotspots are key areas for conservation

The Convention on Biological Diversity

- ratified by more than 175 countries (including Canada) in 1993;
- defines "the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings" as one of the binding commitments of the ratifying countries;
- created the political necessity to spatially identify ecosystems and somehow distinguish among them.

What is a Species at Risk?

What is a species at risk?

A plant or animal that is at risk of extinction because of threats caused by humans such as building golf courses and roads and cultivating native prairie.



Some species in Canada have already disappeared



Plains Grizzly Bear



Black-footed Ferret

Levels of Risk

Special Concern - a species that may become threatened because of certain biological characteristics and identified threats

Threatened – a species that may become endangered unless actions are taken to reverse the factors leading to its extirpation

Endangered – at imminent threat of extirpation

Extirpated – gone from the wild in Canada, but not other parts of the world

Extinct – no longer exist anywhere

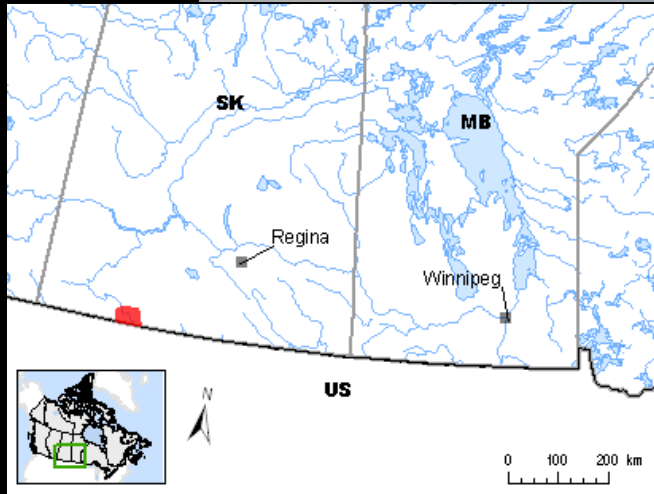
Extinction

- Natural phenomenon - continuous low rate
- Mass extinctions have been relatively rare
- Due to humans, the extinction rate has increased
- We could be in another mass extinction period
- Half the species existing may be extinct by 2100

Examples of Species at Risk in Canada and their Habitats:

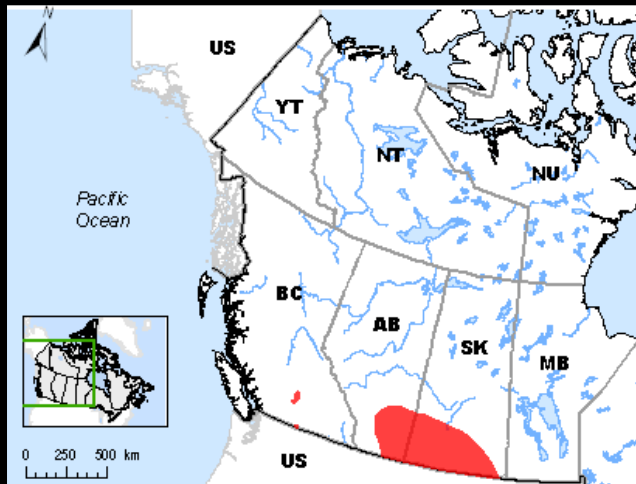
Black-tailed Prairie Dog (special concern)

Broad flat river valleys and upland grasses:



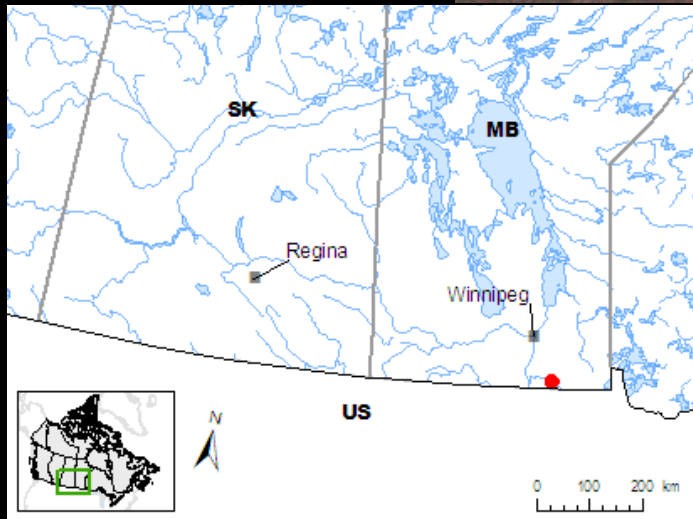
Burrowing Owl Habitat (endangered)

Grazed grasslands and on black-tailed prairie dog towns in Grasslands National Park of Canada:



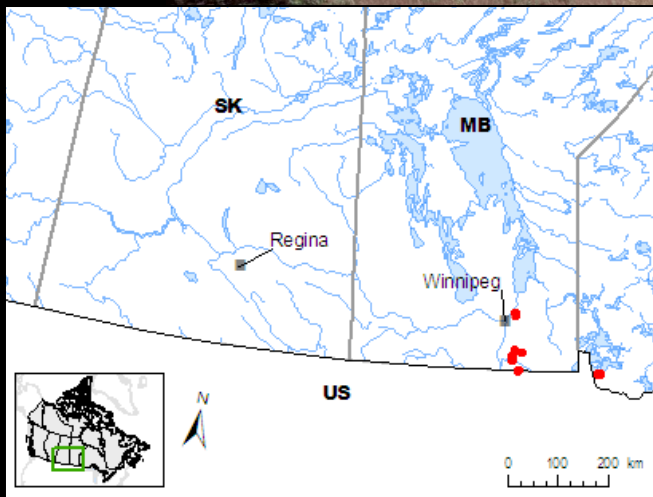
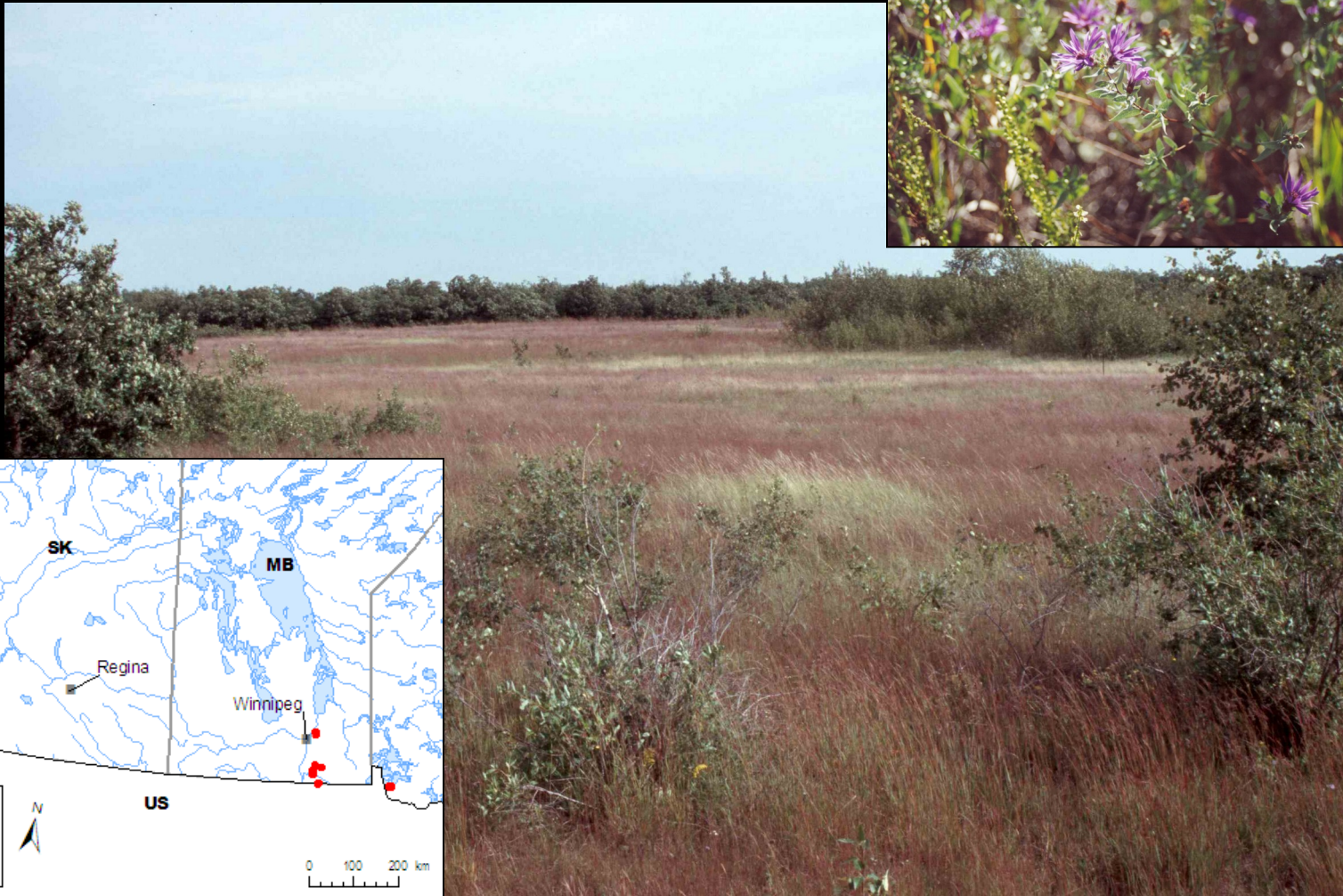
Western Prairie Fringed Orchid (endangered)

Wet, poorly drained, sandy to gravelly soils in the tall-grass prairie:



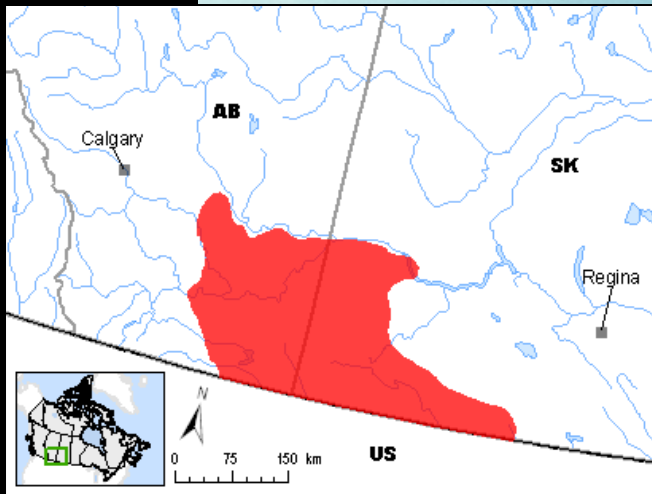
Western Silvery Aster (threatened)

Well-drained soil on the prairies:



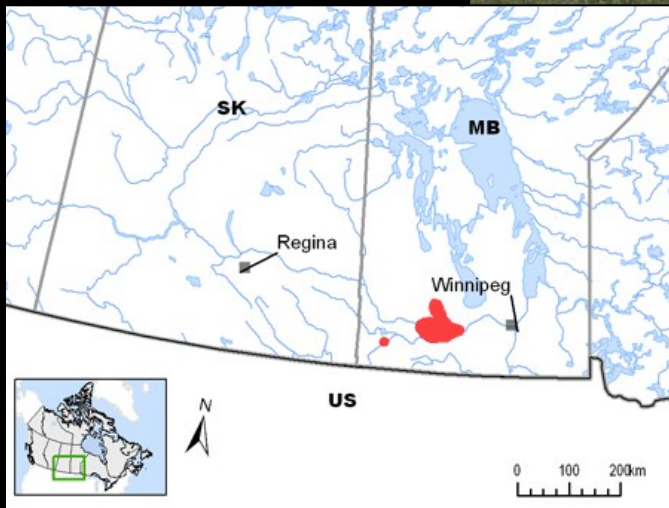
Swift Fox (Endangered)

Open, sparsely vegetated short-grass and mixed-grass prairie, where visibility and mobility are unimpeded:



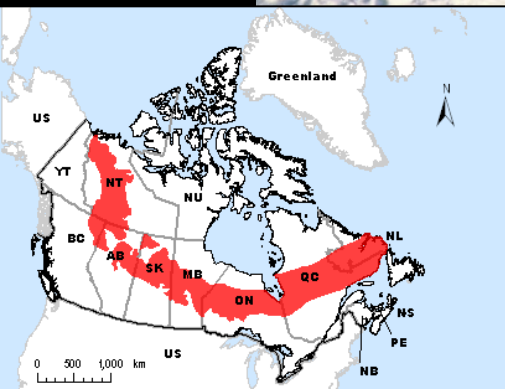
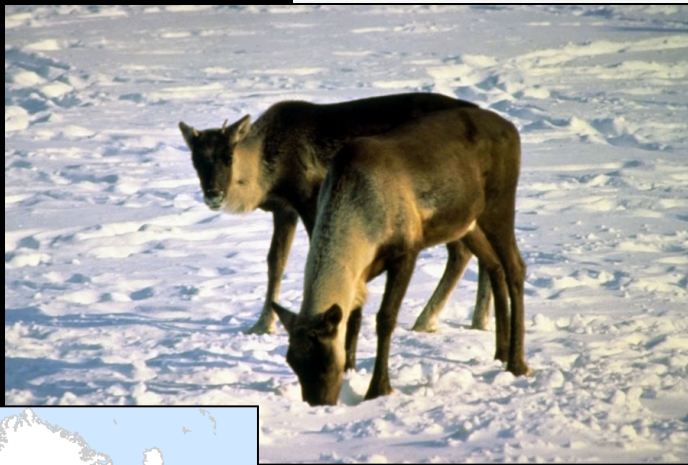
Prairie Skink (endangered)

Sandy areas with adequate cover, such as native grasses:



Woodland Caribou, boreal population (threatened)

Large un-fragmented, mature to old-growth forests:



By protecting the habitat of a species at risk, we hope to protect that species and the ecosystem.

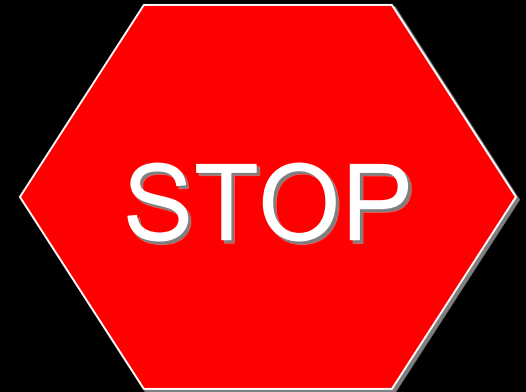


What is the *Species at Risk Act*?

- A federal law that aims to conserve all native wildlife in Canada
- One tool available in Canada for the conservation of wildlife and the fulfillment of promises made in the ratification of the Convention on Biological Diversity
- A pathway to achieve conservation through protection and recovery measures

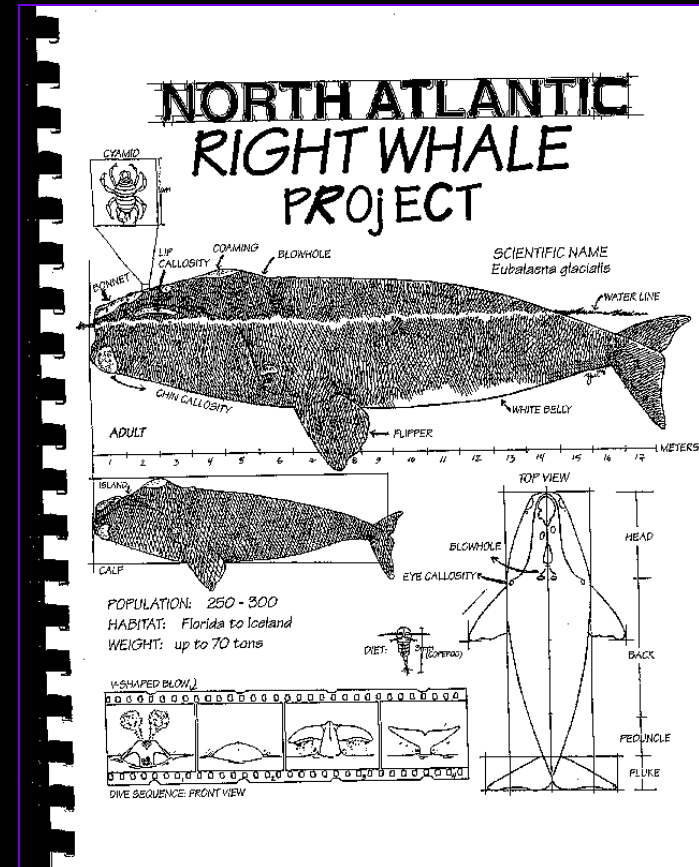
For Listed EX, EN, TH species, you can not:

- ***KILL, HARM, HARASS,
CAPTURE OR TAKE***
- ***POSSESS, COLLECT, BUY,
SELL OR TRADE AN
INDIVIDUAL OR ITS PARTS***
- ***DAMAGE OR DESTROY THE RESIDENCE
OF ONE OR MORE INDIVIDUALS***



Applies automatically on federal lands only

Recovery
plans must be
written for all
listed species



Critical Habitat:

The habitat needed for the survival or recovery of endangered, threatened or extirpated species.



Critical habitat is identified by a group of experts and affected groups or individuals

Critical Habitat Prohibition on Destruction

For Listed **EN, TH and EX** species on
Schedule 1:



- ***NO PERSON MAY DESTROY
ANY PART OF THE CRITICAL
HABITAT***



Socio-economic Factors:

Recovery plans must be written with the cooperation or consultation of directly affected people and organizations.

These plans must include an analysis of the effects of the plan on socio-economic factors.

Efforts are made to incorporate recovery activities that minimize the negative effects for local landowners and industry.

Examples of Recovery Actions that consider Socio-economic Factors:

Conservation Easements – landowners are given money to manage their land in a sustainable manner for a particular species.



Examples of Recovery Actions that consider Socio-economic Factors:

Forestry practices – the logging industry works with conservationists to determine the best parcels of forest to log in order to run their business and conserve habitat for a particular species.



Examples of Recovery Actions that consider Socio-economic Factors:

Aboriginal harvesting quotas – aboriginal groups sit on recovery teams to develop sustainable hunting and fishing quotas while maintaining their aboriginal rights.



Where does Parks Canada fit into the efforts to save Species at Risk?

Where does Parks Canada fit in?

Parks Canada manages National Parks, National Historic Sites, National Marine Conservation Areas and the Pingo Canadian Landmark (NWT).

Many species at risk live in these areas managed by Parks Canada.

Parks Canada has a responsibility to protect and conserve species at risk.

For more information check out this website:

http://www.pc.gc.ca/nature/eep-sar/index_e.asp

Parks Canada has taken the lead on developing recovery plans for these species (and others):

- **Swift Fox**
- Greater Sage Grouse
- **Banff Springs Snail**
- Mormon Metalmark
- **Black-footed Ferret**
- American Badger
- **Dromedary Jumping Slug**
- Seaside Centipede Lichen

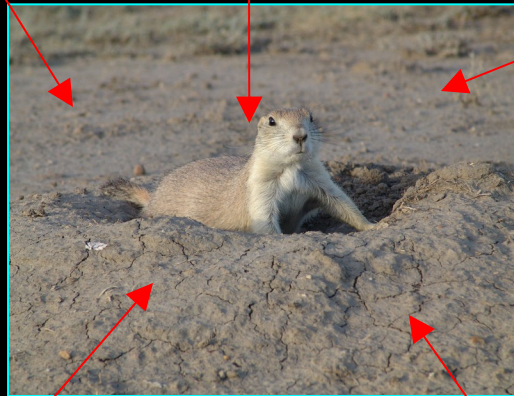
Parks Canada participates on teams to write plans for many other species across the country.

Why are all species important?

Why are all species important?

The disappearance of one species can have large effects on other species. They are all a part of an ecosystem.





Human Interventions

- Affect ecosystems: species and habitats
- Positive and negative effects

Can you name some positive and negative human interventions that affect ecosystems?

Positive Human Interventions:

Protecting Habitats



Positive Human Interventions: Reintroducing Species



Negative Human Interventions:

Fire suppression



Negative Human Interventions:

Resource Extraction = logging, mining and farming

➤ Can destroy the habitat of many species



Negative Human Interventions:

Pollution – can have far-reaching effects such as acid rain and changes in the chemistry of lakes and rivers



**What can you do to help
species at risk?**

What you can do

Learn more about Species at Risk:

[SPECIES AT RISK](#) : An interactive web site for youth about species at risk in Canada. Explore related issues, such as habitat loss, and take the Species at Risk Quiz.

<http://www.on.ec.gc.ca/wildlife/sarwheel/ec-sar-flash/index.html>

Kids Zone – Canadian Wildlife Service <http://www.ec.gc.ca/youth/>

EcoKids On-line - <http://www.ecokidsonline.com/pub/>

WWF for kids -

<http://www.wwf.ca/satellite/wwfkids/index.html?IGNOREcart=>

Oceans Canada – Kid's Corner -

http://www.dfo-mpo.gc.ca/canwaters-eauxcan/bbb-lgb/index_e.asp

What you can do

Learn more about Species at Risk:

<http://www.spaceforspecies.ca/>

http://www.ec.gc.ca/eco/main_e.htm

Join Environmental Groups:

Sierra Youth Coalition - <http://www.syc-cjs.org/tiki-index.php>

Many schools hold a fundraiser and donate the money to an environmental group of their choice (such as the Sierra Club, the World Wildlife Fund or your local wildlife rehabilitation centre).

What you can do

Volunteer:

NATURE WATCH : Existing monitoring programs such as FrogWatch, IceWatch, PlantWatch and WormWatch form the founding components of NatureWatch. These programs encourage schools, community groups and individuals to engage in the monitoring of soil, air, water and other aspects of environmental quality. <http://www.naturewatch.ca/english/>

You can Adopt an Animal through the Toronto Zoo:

<http://www.torontozoo>

Do you want something interesting to do during Canada's long winters? Project FeederWatch participants count the birds at their feeders and submit their data:

<http://www.bsc-eoc.org/national/pfw>