

## Chapter Four - Protecting Species

By the end of this section, you should understand why diversity is important, why some species are threatened, and what kinds of action can be taken to help species in trouble.

**Species** - a group of related creatures capable of mating together to produce fertile young

### Why Do Species Go Extinct ?

Natural selection process -

Some creatures are not suited to an environment after it has changed (all environments change) and may not be able to carve out a niche for themselves in that new environment. Their numbers lower, perhaps to the point of going extinct.

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If the species is lost due to natural events, any loss of a species is a

**“natural extinction”**

Ex. Disease, genetic changes

As a result of human activity -

Through loss of habitat, introducing new species into ecosystems, exploiting resources, or pollution. These activities are greatly increasing the RATE of extinctions. Species have always gone extinct throughout history, but our activities make these events happen more often.

If the species is lost due to our activity, any loss of a species is a

**“Anthropogenic extinction”**

Ex. Climate change, trade, invasive species

Many wildlife species are threatened by human activity if nothing is done to reverse the process. Losing a species reduces biodiversity and has ripple effects throughout any ecosystem. A potential food source, building material, medicine source, or habitat may also be lost for humans.

*“Wolffish: A Balance of Life” DVD if available*

Ex. **Habitat Loss or degradation...**

A) **Urban and Agricultural sprawl...**

Land clearing, introducing farm animals, soil erosion, loss of native plants

B) **Logging / Forestry...**

Demand for paper, lumber, firewood, soil erosion

C) **Introducing silt into rivers and lakes...**

Choke off waterways, affect plant and insect communities, fish gill damage

D) **Sewage and industrial runoff...**

Introduces chemicals, spreads disease, lowers oxygen levels, bioaccumulation

E) **Building dams...**

Floods land area, changes fish movement

F) **Destructive fishing practices...**

Bycatch, trawl nets scraping the bottom, ghost nets ( see leatherback turtle, page 80, whale entanglement also )

Ex. **The planned or accidental introduction of a new species.....**(“alien species” - one that has been introduced outside its normal distribution range)

They may out compete a native species, prey on them, or introduce a disease ( like new tree fungi that kills local species - page 85).

Ex. Purple loosestrife, dandelions, zebra mussels, Green crab, Asian long horned beetle, Asian carp, Pine Blister rust, coyotes ( more examples on page 83 )

Check out mammals lists, page 81 !

Check out the story of the Great Auk, pages 86-87 !

Ex. **Pollution.....**

(Sewage, garbage, radioactive material, hazardous waste)

Related issues include acid precipitation, bioaccumulation, leaching

Ex. **Climate Change....**

Changing the feeding behavior and migration of Arctic animals, melting permafrost, changing species distribution.

## Qualifying for “Species At Risk” Protection

Canada’s “Species At Risk” Act ( SARA ) (2003) outlines laws for recovering species in trouble, making sure they do not face greater threats. NL also has an “endangered Species Act”. The federal Government has set up a “Committee on the Status of Endangered Wildlife in Canada” (COSEWIC).

Once we identify a species declining, a “species assessment” is done to find out what’s happening. The species may then be categorized into one of the following levels of threat : ( page 96 )

Not at risk -

Data deficient -

Special Concern -

Threatened -

Endangered -

Extirpated -

Extinct -

See NL examples, page 97 !

COSEWIC will carry out research to determine the level of threat to a species. If it is legally listed as “at risk”, killing, harming, taking, harassing, or capturing is prohibited. Its habitat is also protected. Monitoring will carry on ( what are its needs, its threats, and what needs to be done ). Public education intensifies and stewardship promoted ( outside organizations like DU or PPA ). A recovery team may be set up ( stakeholders that oversee the recovery process ). We also identify socio-economic factors - what benefits this species may hold for us, how it affects us and public education programs set up. People can learn more about the species, how we affect it, and how to avoid harm. We are all a part of the recovery process.

## Chapter Five - Protecting Spaces

By the end of this section, you should understand what protected areas are, identify the types, explain their benefits to us, and briefly describe how one is created.

**Protected areas** - spaces that are legally protected from harmful human use in order to keep their special biodiversity.

They can be any size, on land or areas of ocean. They can be set up to protect a special habitat, a particular species, or important natural features ( like waterways, old growth forests, nesting colonies ). Their uniqueness will be there for future generations. About 10 % of Canada is protected area ( 42 national parks, plus National Wildlife Areas and Migratory Bird Sanctuaries ). NL protects about 5 % of the Province in 60+ areas.

### **Nationally -**

Responsibility of Parks Canada, Environment Canada, Canadian Wildlife Service, and Department of Fisheries and Oceans.

#### **National Parks :**

Examples of Canada's natural ecosystems protected from development, for the recreation and enjoyment of all Canadians. 3 in NL : Torngat Mountains, Terra Nova, and Gros Morne.

#### **National Historic Sites :**

Places recognized for their national importance ( historic people, use, places, or now rare species once important in history). Ex. L'Anse aux Meadows.

#### **Migratory Bird Sanctuaries :**

Overwintering areas or nesting areas for seabirds. Ex. Shepard Island

#### **Marine Conservation Areas :**

Unique wetlands, estuaries, coastlines, or islands protected from contamination or development activities.

### **Provincially -**

#### **Ecological Reserves : 4 kinds**

Examples of the Province's ecosystems, ranges of species at risk ( woodland caribou, Pine marten). Ex. Bay du Nord

**Provincial Parks** - 32 in NL. 14 set aside for recreational camping, the rest for protecting natural features or species.

**Wildlife Reserves** - 3 in NL. Protection of wildlife. Middle Ridge, Big Barasway, and Little Grand Lake.

**Wildlife Parks** - for public education and tourism. One in NL....Salmonier Nature Park.

**Crown / Public Reserves** - set aside for public use, not industry use.

### Why Are Protected Spaces Important ?

1. To protect NL's biodiversity from development activities
2. Public recreation
3. Public Education - awareness of diversity, special features and sustainable use
4. Economic Benefits - provides tourism and science jobs
5. Nature experiences - wild places left alone for personal enjoyment
6. For science research - to compare what we've done in other places to untouched nature.

### How Are Protected Areas Created ?

Legislation has to exist that lays out Government's role and responsibilities of stakeholders. Which legislation is used depends on the kind of protected place that will be established, and whose role it is to oversee it.

A slow process. May take years or decades.

- Support for protecting a place needs to come from the public and experts . Research must be done to determine WHY a place demands protection. What's so special about it ?
- The boundaries of the protected area have to be decided on.
- Public consultation meetings and Q&A sessions must be held to identify every stakeholder affected by the process, and meet their concerns as best as possible ( including historical uses, Aboriginal use).
- The land area rights must be obtained from the Government responsible.
- More public meetings are held. Who has land or water use rights must be clearly defined. What activities can or cannot be done identified by now.

Ex. [Burnt Cape Ecological Reserve, pages 129 - 133](#)

## How Are Protected Areas Managed ?

Even the best protected areas face threats : “stressors”. Habitat loss around the protected area can isolated the protected space. Changes in the surrounding food webs can change species numbers inside the protected area. Air pollution can be carried in. Waterways might introduce problems from outside. Climate change affects all areas - protected or not. Non- native species could arrive. Visitors could reduce the environment’s quality over time.

Ongoing management is needed to ensure the environment remains special and of high quality - which is why it was protected in the first place.

Ongoing science study (monitoring) provides evidence of any changes made to the protected area when compared to the originally studied condition of the area ( ex’s....population sizes, age pyramids, reproduction rates, death rates, diseases). Public education has to continue ( people have to be made aware of how their activities affect the area, and what they can do to minimize their impacts....examples pages 135, 137, 140-142 ). Regulations have to be successfully enforced with people in sufficient numbers ( blue boxes, pages 135, 136, 137). People have to practice good stewardship both in and near protected areas.