

Chapter 3: Ecosystems, Ecoregions and Biodiversity

Ecosystems

We have seen how food webs along with their cycles of energy and nutrients make up an ecosystem

Organisms can exist within set of physical conditions: _____

Organisms prefer their _____.

A _____ is all of the members of a species living in the same ecosystem or habitat. A _____ is all organisms living together in a common habitat.

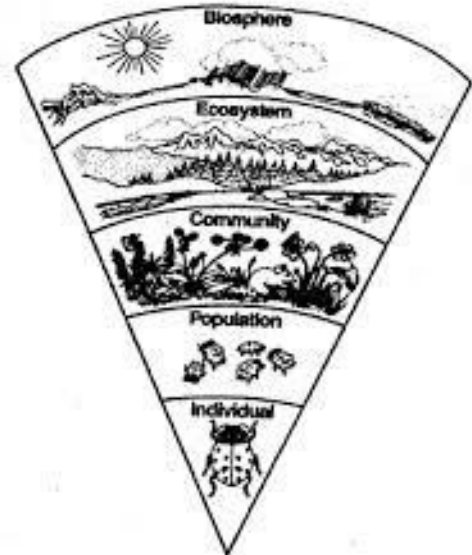
Example: Terra Nova National Park is a community of populations of black bears, moose, coyotes, ravens, ospreys, salmon, many plants, etc.

Diversity of Ecosystems

The diversity or variety of ecosystems NL is spectacular. For example, we have oceans, rugged coastlines, maritime barrens, boreal forests, lakes, mountains (alpine), and sub arctic tundra.

A _____ includes

_____. If we remove one species from one trophic level, other trophic levels can be affected (domino effect).



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What does being an island mean to our diversity?

What was the effect of the ice age on our ecosystems and their diversity?

These are related questions!

After the last ice age our island was mostly stripped of life and our island was pretty much scraped to the bedrock!

Thus, our plant life is limited to what could travel across the gulf on the westerly winds and our animals are those that could come across the frozen ocean in winter.

Also, no animals that hibernate in winter made it across the gulf (Except for black bears).

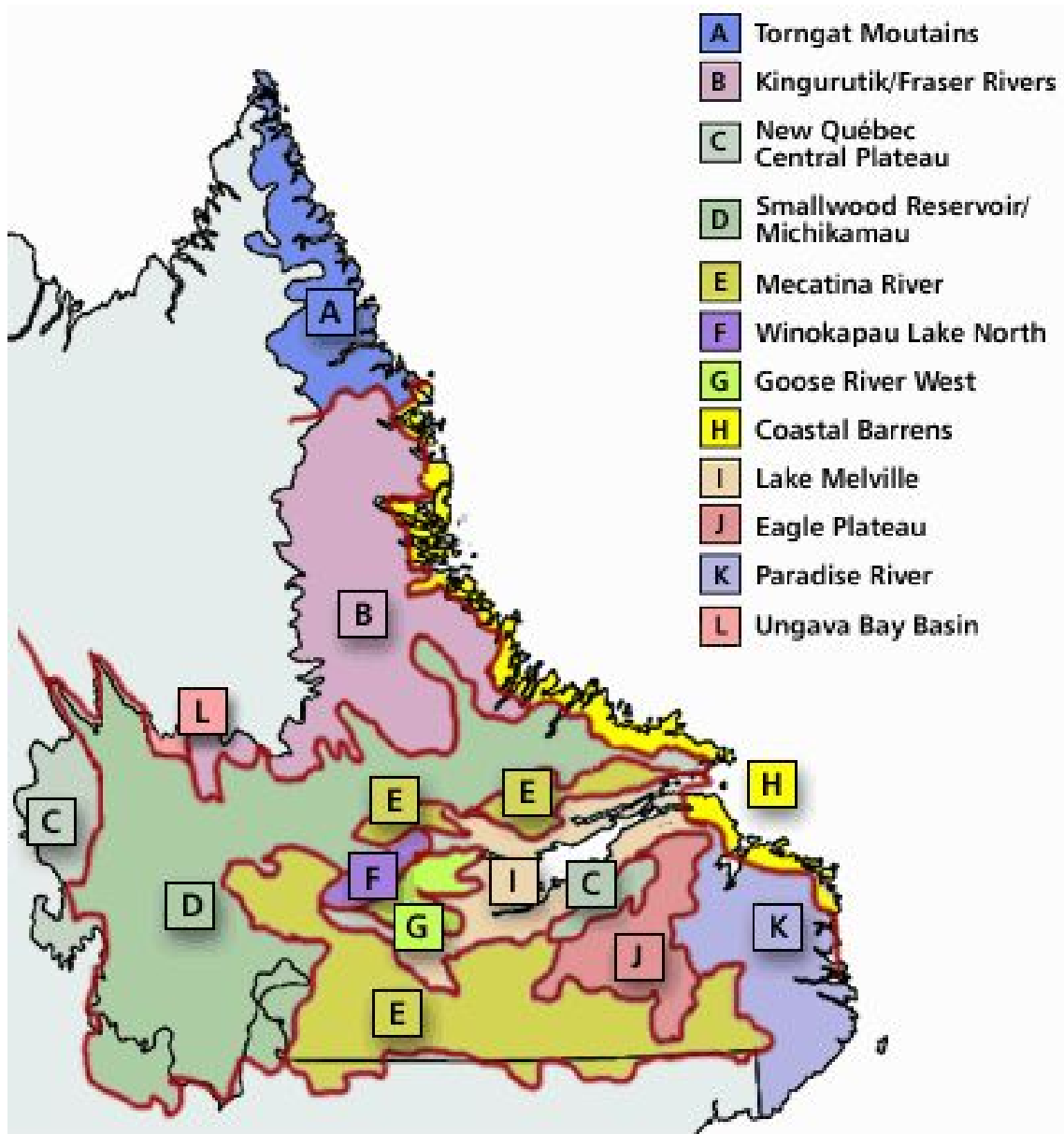
It makes sense then that there are only _____ and there are _____.

Ecoregions (Pg. 58-70)

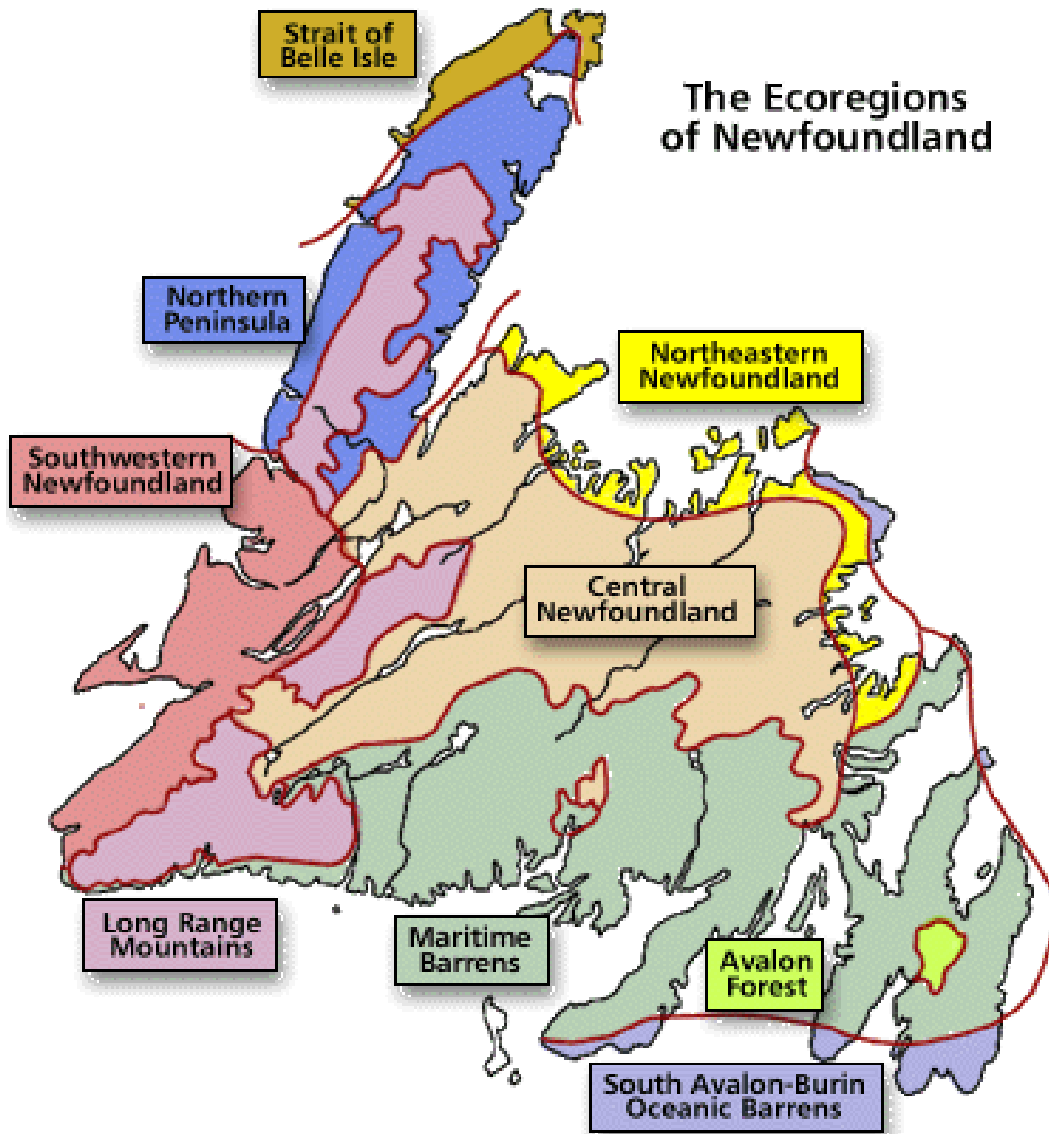
Newfoundland and Labrador has a variety of ecoregions and ecosystems.

These are areas of general similarity in ecosystems. The _____ of NL has _____ has _____. They differ from one another in climate, soil, geology, flora (plants) and fauna (animals).

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Biodiversity

Biodiversity is the _____ within a given ecosystem, biome, or for the entire Earth.

Biodiversity is often used as a _____ in that the greater the biodiversity the healthier the biological systems will be.

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Three Tiers of Biodiversity

1. Species Biodiversity refers to the _____ of plants, animals and other organisms in a _____.
2. Genetic Biodiversity describes the range of _____. For example, the Newfoundland Marten is genetically different from the American Marten
3. Community or Ecological Biodiversity refers to the _____ of _____ plant and animal life as the big picture of biodiversity.

Within each species there also exists _____.

That is, slight _____ of characteristics within the _____.

For example, some people can see better, or run better than others. The same is true for other species, eg. Lynx.

These differences enable a species to adapt and survive when there is environmental change. If a species are all identical, it reduces their chances that some would survive change.

All species are important, either directly or indirectly. Eg. Insects are important in pollination.

Both _____ are important to a _____.

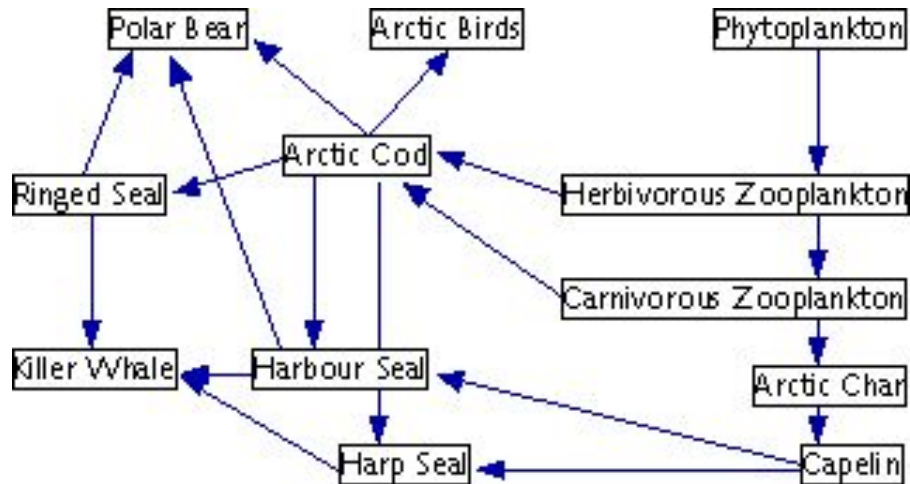
What is the relationship between genetic diversity and species diversity in the overall biodiversity of an ecosystem?

Genetic biodiversity makes a species healthier and gives it survival advantages
Species biodiversity increases the strength of ecosystem biodiversity therefore you need genetic diversity to have a

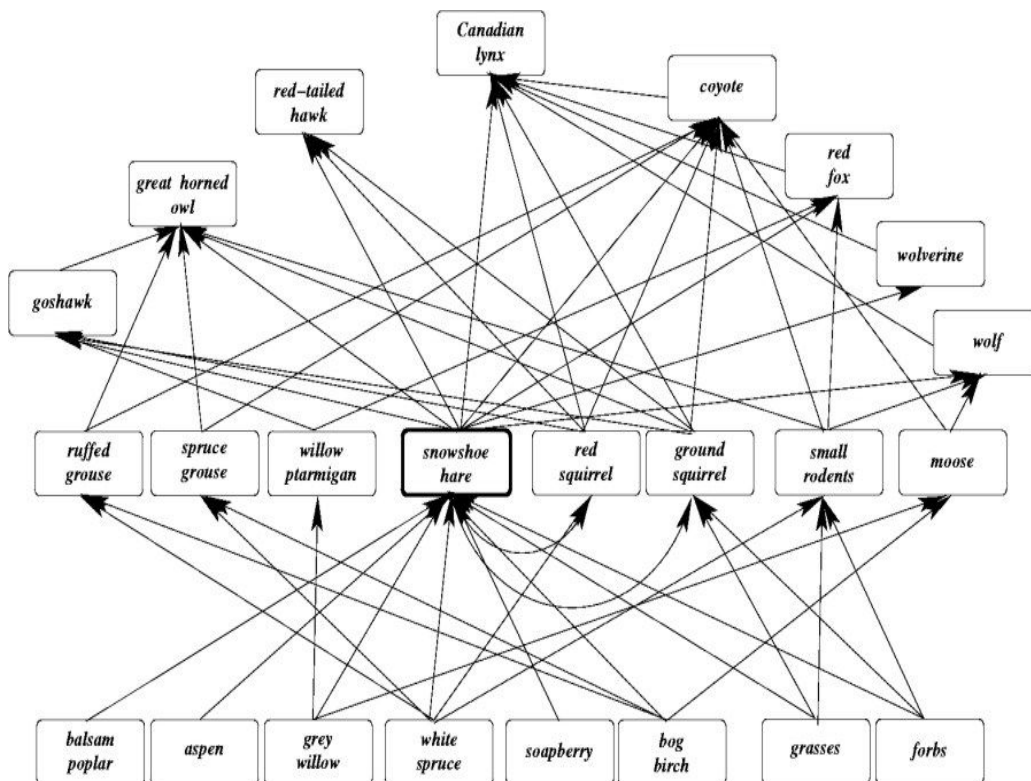
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healthy species which will in turn be able to live with other species to create a healthy ecosystem.

For example, in an Arctic ecosystem the biodiversity is low because of the number and types of species are all highly specialized for surviving in this ecosystem, which has limited places to exploit.



In the Boreal forest, there is a greater biodiversity because there are a greater number of species present. This is related to the greater number of available ecosystems for them to exploit.



Mini Lab Activity :
 "What Ecoregion do I live in?"

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Species Preservation

In terms of preserving species, _____ for maintaining healthy ecosystems since _____ within an ecosystem are _____ (e.g. food webs).

Therefore removal of one species directly and indirectly affects those that remain.

CORE Lab: "Biodiversity - Why is it important?"

Candy activity & Biodiversity Index

Tree species and healthy ecosystems card activity.

Genetic Diversity and Environmental Change

Genetic diversity equips organisms with the _____ when environments change.

This in turn will increase species survival in a changing environment.

When genetic diversity is reduced (i.e. when all members of a species are identical) the possibility of having the variability to adapt to changes in the environment is reduced.