Climate Change and Natural Areas Fact Sheet #4
New Brunswick Biodiversity

CPAWS
CANADIAN PARKS AND WILDERNESS SOCIETY
NEW BRUNSWICK CHAPTER

What are the Concerns with Biodiversity and a Changing Climate?

Climate change will have significant impacts on the natural world, food webs and nutrient cycles. As temperatures increase and precipitation patterns change, there will be many changes in the ecosystems which provide habitat for the flora and fauna of New Brunswick. Most species will experience shifts in their natural home ranges to the north and to higher elevations. Plants and animals are generally capable of adapting to changes in their environment, but that ability is dependent on certain factors:

"Sufficient evidence now exists to indicate that early implementation of new protected areas is likely to substantially reduce the threat climate change poses to biodiversity." Hannah (2008)

- *Time:* Many species can adapt quickly, either by migrating to more suitable habitat or altering their patterns. Other species, especially plants, require longer periods to adapt. Should the pace of change be too quick for species, they risk extinction.
- *Genetic variability*: The larger the population of individuals in a given species, the greater the likelihood that the species as a whole will survive, through simple evolution. Species currently endangered have lower genetic variability.
- *New habitat availability*: To adapt, many species may have to change from their current habitat to new ones in order to survive. This requires that there be available places to which they can relocate. In an increasingly developed landscape, finding new habitat may be very difficult.
- *Food sources*: Change in temperature affects how early in the year animals produce young, hibernate and migrate, and when plants bloom and fruit. As species adapt at different rates, the likelihood exists that some animals may not be able to find suitable food sources at the right time and that more stress will be placed on the species.

Many species currently listed as Species at Risk will face increased risk of extinction, and other species not yet on the list may soon be added, due to changes in their habitat. For example:

- The Southern twayblade plant is found in and around bogs and among black spruce. Bogs are at risk of drying up or remaining dry for longer periods. Prototype quillwort plants live on the bottom of spring-filled lakes, in water that is cool and clear. The coming changes in climate may result in these lakes being shallower, warmer and dirtier.

Piping Plover chick - photo USFWS / Gene Nieminen

- Piping plover feed and nest on the gravel-sand beaches of east and south New Brunswick. Increases in sea-levels and erosion due to storm surges will result in less beach habitat.
- Atlantic salmon require unpolluted cold streams and rivers for spawning. Dramatic changes in water levels because of alternating droughts and severe storms, plus overall temperature rise, serve to further endanger the salmon.
- The pollinators, such as butterflies and bees, that help produce many of our food supplies may find that changes to flowering seasons do not correspond to their life cycles, resulting in downward spirals for many pollinators.

What are possible solutions for Biodiversity and Climate Change?

For some species, physically transplanting them to new suitable habitats is possible. How feasible this solution is financially and practically is questionable. The best possible solution for increasing the chances of survival of the full range of our native biodiversity lies in increasing conservation measures across the landscape. We need to consider the combined impacts of climate change, added to the impacts we are already having on habitats and wildlife through sprawling development, road-building, resource extraction, and pollution.

To Implement the Climate Change Action Plan Related to Biodiversity:

- New and larger protected areas, free from development, will help provide the safety net to protect ecosystems and wildlife from the combined impacts of climate changes, development pressures, habitat loss, and pollution. Research is indicating that it will be very important to make sure protected areas are linked by conserved low-impact corridors that allow north-south movement for wildlife, seed dispersal and ecosystem processes.
- Management Plans for all provincial parks and protected areas, with an emphasis on maintaining ecological integrity and decreasing future development, will help provide needed protection for ecosystems and species to adapt to climate impacts.
- Species at Risk recovery plans should evaluate the combined impacts of climate change, habitat loss, and pollution on species at risk and their habitats, and ensure plans include actions to reduce or eliminate those impacts.
- Protecting coastal habitats - beaches, salt marshes, cliffs and dunes - by establishing development-free areas, and buffering those natural areas from the impacts of development, will allow coastal systems to continue to provide habitat for native and migratory wildlife, in addition to protecting our communities from storm surges and flooding.

Restigouche River wilderness - Dave Godin photo

Useful references:

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