NB Legislative Committee on Climate Change
Presentation

The following is the text of the presentation Roberta Clowater, executive director of CPAWSNB, made to the NB Legislative Committee on Climate Change on September 1, 2016.

Thank you for your engagement on the topic of climate change and for the opportunity to provide our ideas about how New Brunswick can contribute to climate change mitigation, adaptation and planning.

Background
The Canadian Parks and Wilderness Society (CPAWS) is a not-for-profit conservation organization that works on public land and marine conservation, and sustainable use of natural resources across the country. CPAWS New Brunswick and our supporters have already experienced the impacts of climate change on ecosystems and have seen how the impacts, such as increased and more extreme flooding and coastal storms, affect the communities in which we work.

New Brunswick's communities rely upon our natural ecosystems for abundant and clean water, fertile soils, native pollinators, flood control and temperature regulation. We are also highly dependent on ecosystems for tourism, recreation and renewable natural resources, from lumber and pulp to fish.

Unpredictability - Climate change is forcing upon us a degree of uncertainty and unpredictability that is not easy to accept. When it comes to managing natural resources, or conserving forests, rivers or oceans, past performance is no longer a predictor of future performance. One example relates to forestry. Experts are concerned that a combination of droughts, erosion from flooding, new or increased pests and diseases, and fires can reduce the ability of forests to produce trees at the rates we have come to expect. We have built our entire forest management system by deciding how much to cut based upon how quickly the forests will grow back – and we can't count on past growth rates to be consistent under future conditions. The rate and magnitude of future climate change may be too much for all of our tree species to naturally adjust.
The basic sciences we have counted on for guidance in natural resources management and environmental conservation are in the same uncertainty boat with the rest of us. Scientists don't have all the answers, but they are giving us some very good indications of what we should do to build our resilience. Our proposed solutions are based upon that guidance.

Inadequate Safety Net - Unplanned or inappropriately managed human development in intact ecosystems significantly weakens the ecological safety net that we will need to help our communities

be resilient to climate change impacts. New Brunswick still has relatively intact ecosystems in many parts of the province, and the ability to connect them via well managed lands and waters. However, these intact natural areas are becoming much smaller and further apart, due to large scale industrial activity and smaller piece-meal development. We are the 2nd to last in Canada with respect to the proportion of our province that is in protected areas (we are protecting 4.7% of our province, while the national average is 10%) . By neglecting protected areas as a conservation tool, in CPAWS' opinion, we are putting ourselves at increased risk from climate changes, as we haven't provided ourselves with the baseline insurance policy against risk.

Problems for New Brunswick Associated with Climate Change and Nature

Flooding - New Brunswickers are already experiencing the first waves of changes in flooding and runoff associated with the predicted impacts of climate change. For example, we are experiencing periods of extreme flooding on the Restigouche and in the Saint John River system in summer and fall, when flooding has historically not been a problem. The rapid rise and fall of river levels will contribute to erosion of river banks, increased sedimentation, and loss of fish habitat.

Sea-level rise - Coastal storm surges associated with more extreme storms are anticipated to become more the norm, especially along the Northumberland Strait coastline. According to studies by the Geological Survey of Canada, New Brunswick's coasts are one of two areas of Canada with the highest sensitivity to sea level rise (along with the Beaufort Sea coast) .

Water quality and quantity - The availability of clean drinking water will become a major issue in some areas due to a combination of impacts. More severe storms will result in increased runoff from farms and other developed areas, leading to potential for increased water pollution and siltation. Extended periods of drought inland can result in lower water tables throughout the province, causing drinking water quantity and quality problems. Higher sea levels may result in increased salt water intrusion into water tables near the coast.
We will be spending a lot more money and effort trying to replace the ecosystem services we now take for granted – like the cooling effects of green spaces and water bodies, the natural flood and erosion control provided by forests and wetlands, and the natural water filtration done by natural areas.

Natural Resource Use – Economic activity associated with our extensive public forest land base will always be an important component of New Brunswick's economy and livelihoods. However, any natural resource management, especially when done intensively as is happening in New Brunswick, has an impact on biodiversity, and therefore on forest resilience to changes. There are significant impacts associated with climate change that may reduce the productivity of our forests for timber

products and other resources we obtain from forests. We have already altered the natural age patterns of our forests, and reduced diversity associated with old growth forests. Older (mature and late-successional) diverse forests currently make up less than 45% of today's Crown forest, but are estimated to have been approximately 85% of the overall Acadian forest before large scale forestry activities began.

A combination of droughts, erosion from flooding, new or increased pests and diseases, and fires can reduce the ability of forests to produce trees at the rates we have come to expect. The rate and magnitude of future climate change may be too much for all of our tree species to naturally adjust. If we don't conserve the basic natural diversity and functions that allow our forest to be resilient, we risk a long transition period where forests may partially die off or have very little productivity. This would cause a disruption in parts of the economy that rely upon the forest to be predictable and productive.

In our ocean, overfishing of certain species has resulted in entire marine ecosystems shifting, as well as the loss of certain species entirely. The collapse of the Atlantic cod fishery has led to a long term, perhaps permanent, shift to invertebrates such as lobsters, which are particularly sensitive to climate change impacts like warming oceans and acidification.

Proposed Solutions for New Brunswick

With regard to preparing for the impact of climate change, CPAWS believes an important step will be to implement the nature conservation measures that will help maintain healthy ecosystems over time – including creating large and connected protected areas, limiting new industrial footprint in our land and seascapes, and implementing sustainable land management practices such as maintaining wide buffers around riparian areas. These types of concrete solutions will give our ecosystems, and the species they contain, the best chance of adapting to climate change. Functional ecosystems with full complement of native species will more likely be able to adapt and shift with climate change, than stressed ecosystems where species populations have undergone significant declines.

Solutions for Crown lands and waters, Crown Forests:

a) Conserving large tracts of intact and road-less natural areas in permanent protected areas would allow us to ensure that we have a diversity of habitats that are large enough to conserve ecological integrity and to represent the variety of our native ecosystems. Protected areas that are connected to other suitably conserved habitats through ecosystem-based management will provide the kind of ecological safety net that will allow forests, rivers and coastlines to respond resiliently to climate change. New Brunswick would need to set a new target and timeline for protected areas establishment (which other provinces have already done), and CPAWS New Brunswick recommends we try to at least meet the national average of 10% of the province in permanently designated protected areas. There are internationally significant coastal ecosystems that are part of Crown lands

(submerged Crown lands included), and ecologically important old forests, wetlands, lakes and riparian ecosystems that should be added to the PNA system as part of our Province's contribution to Canada's overall protected areas targets.

b) Managing forests through regulation and policy to conserve diversity and resilience – conserving older forests, multiple canopy and understory layers, and the natural patterns of native species abundance and distribution, will be more likely to result in forests that are resilient in the face of new or increased pests and diseases, droughts, floods and fires. This will be critical to maintain the productivity of the forest, and help provide the ecological services and resources we need (from river protection to timber). The current approach to forest management is not considering this element of climate change preparation, so government would need to make changes to the Crown forest management strategy to integrate these objectives.

c) Minimizing deforestation, or total removal of forests, through built development, road-building or other land conversion on Crown land, will maintain the options for conserving diversity, resilience and productivity of Crown land.

d) Conserving or restoring the genetic diversity of native tree species can help ensure that trees have the potential to adapt to new climatic conditions, by conserving a variety of seed sources for the future forest conditions.

e) Working in close cooperation with the federal government to establish marine protected areas in the submerged Crown lands and oceans around New Brunswick would help exploited fish populations to recover, and restore and maintain ecosystem balance and function. This will in turn increase resilience and adaptive capacity, allowing ecosystems to adjust to rising sea temperatures, the stresses of ocean acidification, and other climate change impacts.

f) Planning and managing all Crown land uses with specific consideration for the combined impacts of climate change, forest harvesting, biomass removal, mining, wind energy development. aquaculture and agriculture will allow us to better conserve diversity and the climate buffering services that Crown lands provide to us.

Solutions for Conservation Planning for Provincial Parks and Protected Areas:
Developing 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. The few parks and protected areas we have are providing some of the only locations in the province where natural processes are relatively undisturbed, and are more likely to be resilient to climate changes. They provide the core

areas necessary for the long-term conservation of biodiversity across the province. There have been a number of instances of recent provincial parks operations where development has reduced the ecological integrity of the parks, reducing their resilience to climate change. It is important that the province prioritize the objective of conserving the resilience of provincial parks and protected natural areas, through the development of management plans and operational policies.

Solutions for Climate Change Planning for Recovery of Species at Risk:

The province should incorporate climate change considerations into all species at risk activities, including the development of recovery plans for species at risk, as well as other management plans for native species, and implement them. This will involve adjusting recovery and action plans to a) recognize the impact of climate change on the species and their habitat; and b) accommodating their future needs to move to more appropriate habitat as climate change impacts increase. The Atlantic salmon, both Inner and Outer Bay of Fundy populations, is an example of an ecologically and economically valuable species at risk, and it will need us to take specific measures to protect their cold water refuges in rivers and streams.

Nature-based Adaptation Strategies to Buffer Communities from Climate Change:

Drinking water, liveable temperatures, fertile soil, supply of food and natural resources for shelter are the basics of life for communities. Making it a priority for every community and every rural or urban plan to conserve the functions of forests, rivers, wetlands and coastal features will increase the likelihood we can continue to have these critical services. This will become even more of a priority as we respond to a climate change environment that will be much less comfortable and more unpredictable.

Nature-based or ecosystem-based adaptation strategies look at how natural systems and ecosystem processes can be used to help buffer communities from climate change. These take advantage of our natural assets, rather than degrade them. Examples of nature-based adaptation strategies that should be applied in New Brunswick include:

a) Protecting coastal ecosystems such as salt marshes, dunes and beaches to buffer communities from storm surges;

b) Protecting and restoring wetlands to reduce flooding and filter water;

c) Maintaining and enhancing riparian buffers to reduce flooding, and to protect river banks from erosion due to flooding, which often degrades water quality;

d) Protecting green and blue spaces in and around communities to absorb rainwater and snowmelt, and to moderate temperatures.

All of these strategies can be implemented using a combination of Crown land conservation, the community planning that is done by individual municipalities and the Regional Service Commissions, and private conservation organizations.

How to Engage New Brunswick Society in these Solutions

The solutions that will help us adapt to climate change will require us to break free from old models of resource management and use. We cannot simply tinker around the edges of existing land and resource management systems and hope to keep up with the changes around us. As governments and engaged citizens we should help people to expect and accept some societal changes – changes to the ways that governments and businesses operate, to the ways we live our lives, and how we accept and live within nature's limits.

This kind of break-through change can be uncomfortable and threatening to some, which is why it will require us to all pull together. We need government to "open up the tent" on land and ocean conservation and management. Government and politicians cannot try to do this by themselves, or to make decisions for us, behind the scenes. We all need a robust public engagement model that allows people inside and outside government to use all of our skills, expertise and enthusiasm to figure out the solutions together. If the legislature and government keep listening only to people and sectors who are most resistant to change, or who feel that their sectors are threatened by solutions – we will never find the hopeful and creative solutions that put us on that more resilient path.

The Canadian Parks and Wilderness Society – New Brunswick Chapter wants to encourage you to have the courage of your convictions. Boldly facilitate new thinking, new investments, new partnerships and engagement processes. At CPAWS, we commit to being by your side to help find and implement sustainable solutions.