



FOR IMMEDIATE RELEASE – JULY 18, 2012

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## Study Sets Out Path to Protect the Rocky Mountains' Wildest Area

(Canmore, AB) At a time when National and Provincial Parks increasingly are under threat, a new study released today by the Yellowstone to Yukon Conservation Initiative (Y2Y) sets out a path to protect one of Canada's great success stories – B.C.'s [Muskwa-Kechika Management Area](#).

Roughly the size of Ireland, the Muskwa-Kechika Management Area was created in 1998 to implement the latest thinking in land use management: accommodating resource development while also protecting a large, intact and predominantly roadless wilderness. Fifteen years later, the Muskwa-Kechika is still the wildest area in the Rocky Mountains.

"The Muskwa-Kechika Management Area proves that good management practices work," says Wendy Francis, Program Director at Y2Y and one of the report's contributors. "And this study, *The Muskwa-Kechika – Biodiversity Conservation and Climate Change Assessment*, will give land managers a clear picture to update their practices in the face of budget cuts, development pressures and most importantly, climate change."

"Under a changing climate, northern B.C. can expect major transformations in biodiversity on land, in water, and across all levels of species and ecosystems," notes Dr. Jim Pojar, one of the report's lead scientists. "It could have such a dramatic effect on the types of plants that grow, for example, that the terms 'alpine' and 'boreal forest' may no longer apply."

"In many ways, the old saying '*variety is the spice of life*' holds true in the face of climate change," explains Juri Peepre, Muskwa-Kechika Project Manager for Y2Y. "The more variety a landscape has today, the more variety of life is likely to be found there in the future. This study provides new maps and information to advise management practices that support the protection of biodiversity."

"This report outlines two very important pieces of information to the Muskwa-Kechika Advisory Board and the B.C. government," says Francis. "First, it points out areas outside protected landscapes that are in greater need of protection because of their importance to wildlife, their biological diversity, or their rarity. Secondly, it suggests where development proposals should be assessed very carefully so that negative impacts on wildlife movement, biodiversity and rare ecosystems can be avoided."

The study, commissioned by the Muskwa-Kechika Advisory Board and completed in collaboration with the Canadian Parks and Wilderness Society-B.C. Chapter and Gregory Kehm Associates, is meant to advise the Muskwa-Kechika Advisory Board, which in turn may make recommendations to the B.C. government on proposed actions. Other land managers and levels of government, such as First Nations and communities, who may be developing land use plans, as well as resource and tourism businesses, may also find its conclusions relevant.

The Muskwa-Kechika is a unique 16M acre land use complex. Over fifty contiguous, roadless watersheds receive special protection through a network of parks surrounded by zones where industrial use may be permitted. The Muskwa-Kechika is an important northern anchor in the Yellowstone to Yukon region. Copies of a [summary report](#) and the [full report](#) are available for download from <http://y2y.net/our-work/ontheground-efforts/greater-muskwa-kechika-collaborative-projects>.

**For more information contact:**

Wendy Francis, 403.763.8633 or [wendy@y2y.net](mailto:wendy@y2y.net)

Jim Pojar, 250.847.9429, [jpojar@telus.net](mailto:jpojar@telus.net)

Juri Peepre, 250-688-1005 or [jpeepre@yahoo.ca](mailto:jpeepre@yahoo.ca)

# BACKGROUND

## *Muskwa-Kechika Management Area - Biodiversity Conservation and Climate Change Assessment*

The Yellowstone to Yukon Conservation Initiative (Y2Y), in collaboration with its partners and contributing scientists, completed a *Biodiversity Conservation and Climate Change Assessment* of the greater Muskwa-Kechika Management Area—located in the northern Rocky Mountains of British Columbia, and one of Y2Y's northern priority areas.

Completed for the Muskwa-Kechika Management Area Advisory Board in May 2012, the summary and full report are available for viewing and download at <http://y2y.net/publications/reports>.

This conservation assessment identifies opportunities, and aims to help solve challenges, in the management of the Muskwa-Kechika Management Area and adjacent northern Rocky Mountain region. The report provides information and a variety of resource maps to help strengthen conservation now and into the future, especially since projected climate change will affect wildlife, plants and the ecosystem.

Y2Y proposed this project because of the important role that the Muskwa-Kechika plays within the Yellowstone to Yukon region. The wild and natural landscapes that once covered most of the North American continent largely have disappeared, but the Muskwa-Kechika is still intact. This report recommends ways to protect the variety of life in the Muskwa-Kechika region using protected areas and other conservation management tools as building blocks.

### **Y2Y's Approach to the Conservation Assessment**

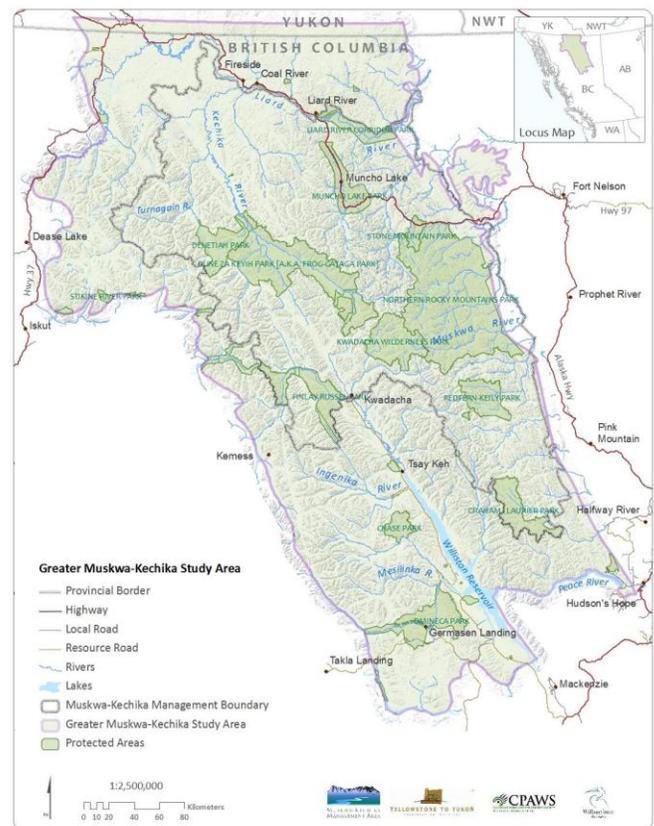
A rich variety of life in the greater Muskwa-Kechika ecosystem is shaped in large part by the variety of the land. This includes landforms, bedrock and surface geology, and water bodies—together called “enduring features”. These features are the base upon which Earth’s living skin develops, and where plants and animals grow and evolve.

Many species and ecosystems will change as a result of climate disruption, but all species and all future ecosystems will continue to need the land on which to live. The more variety a landscape has today, the more

variety of life is likely to be found there in the future. If we protect the variety of the land features today, there is a good chance the land will support future biodiversity and wildlife species.

Wilderness, often defined as a large area without roads, is one of the most important features of the Muskwa-Kechika. Maintaining these wilderness characteristics is one of the primary goals of the Muskwa-Kechika management plan. Wilderness areas serve as benchmarks of intact ecosystems, and they are natural reservoirs of wildlife and plant communities that can be buffered from the effects of climate change.

Maintaining biodiversity and healthy wildlife populations depends both on protecting core habitats that meet basic needs for food and shelter, and also on the ability of animals to move among them, called “connectivity.” Connectivity allows interbreeding among many populations to maintain genetic diversity; sustains predator-prey systems; and, enables seasonal and long term migration.



Map 1 shows the Muskwa-Kechika area (grey boundary) and the greater ecosystem study area (outer purple boundary) used for this conservation assessment.

### **Adapting to climate change**

The future climate in the Muskwa-Kechika region will likely be warmer and wetter, with the mean annual temperature increasing by 3°C. These changes will have widespread but variable ecological effects. For example, in an alpine or boreal forest area where the average temperature increases from below to above 0°C, soils will start to warm up, permafrost (if present) will slowly melt, biological productivity will increase, and the vegetation will respond accordingly. Change in the types of plants that grow there could be so dramatic that the terms 'alpine' and 'boreal forest' no longer may apply.

The *Muskwa-Kechika Biodiversity Conservation and Climate Change Assessment* reflects Y2Y's overall strategy for climate adaptation and wildlife connectivity in the Yellowstone to Yukon region.

See the 2010 Y2Y climate adaptation report: <http://y2y.net/files/963-y2y-climchange-web.pdf>.

### **Projected ecological upheaval from climate change**

As the climate in northern BC changes, there will be disruptions in plant and animal relationships. For example, some alpine ecosystems found at higher elevations will be taken over by scrubby plants and trees from lower down. In general, forests will remain over much of the area, but they will be made up of different kinds of trees. There will be less land area above tree line. Large lakes and streams should remain while small shallow ones could dry up or fill in.

Where areas have a projected high degree of disruption, we need to allow for plants and animals to move or adapt to the new conditions by keeping their habitats intact and maintaining their ability to move among them. Areas with projected low upheaval are potential sanctuaries from climate change for species that use such habitat today and need to be protected.

### **Protected Areas and Wildlife Connectivity**

About 27 % of the Muskwa-Kechika is fully protected today, while more protected lands are located in the study area outside the M-KMA boundary. To ensure the protection of diverse life forms, a protected areas network should represent the variety of lands in the region. In the Muskwa-Kechika, many of the

mountainous lands are well represented, while others - such as productive plateaus and plains - have little or no protection.

Scientific studies recommend that anywhere from 25% to 75% of a landscape be protected to ensure maintenance of biodiversity and connectivity. The median protected area recommendation lies above 50%. Our assessment of existing protected areas in the Muskwa-Kechika locates the most significant gaps in protection. The assessment points to the need for special land use management in areas with concentrations of high enduring feature variety and/or rarity, in areas with little or no representation of typical enduring features, in areas that have high use as "gateways" of wildlife connectivity, and in lands with high plant productivity.

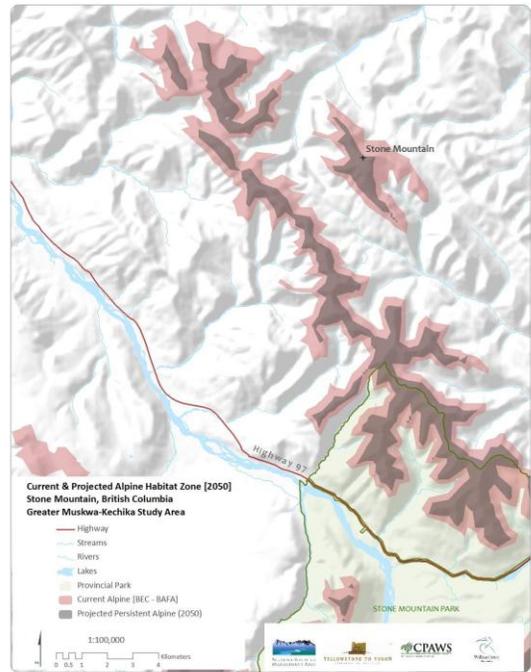
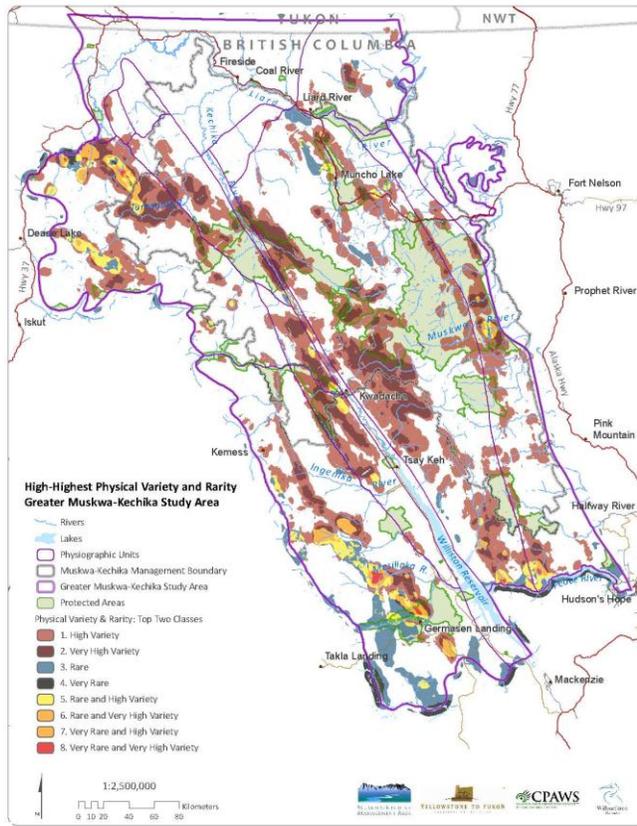
### **Management for biodiversity and climate change adaptation**

Planning for long term biodiversity conservation and climate change adaptation calls for a holistic approach to land management. The report provides advice to the Muskwa-Kechika Advisory Board, which in turn may make recommendations to the BC government on the proposed actions.

The report's recommendations include the following themes:

- Maintain the ecological health of high conservation value lands that are not represented in protected areas;
- Conserve existing wilderness;
- Implement an Muskwa-Kechika climate change adaptation strategy to meet long term conservation goals;
- Enhance public awareness of the Muskwa-Kechika and its crucial ecological role in the Yellowstone to Yukon region.

These recommendations are also meant for other land managers and levels of government, such as First Nations and communities, who may be developing land use plans. Resource and tourism businesses also have a role to play in considering the study findings, as do non-government organizations and the general public. Ensuring the ecological health of the Muskwa-Kechika now and through long term climate change is the responsibility of everyone.



The pink area of Map 3 shows the projected shrinkage of alpine zone by 2050 in the Stone Mountain area of the Muskwa-Kechika.

Map 2 shows concentrations of areas with a combined high variety of enduring features, and areas with a high incidence of rare features. Note the distribution of existing protected areas, in green.