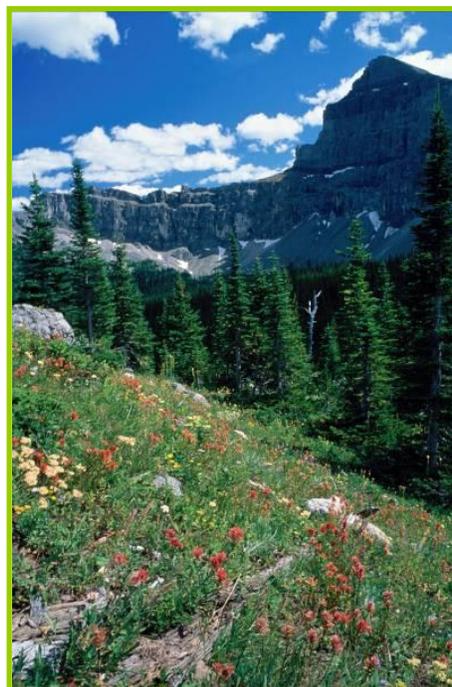




THE FUTURE OF FLORA: IMPACTS ON THE FLORA OF THE CANADIAN CROWN OF THE CONTINENT AND ITS VALUE TO CONSERVATION

The Canadian Crown of Continent (CCOC) ecoregion is home to a remarkable diversity of plant species. The region spans several different biogeoclimatic zones allowing for a huge range of species to flourish; approximately 1340 species of plants thrive in this area. This is substantial, considering the relatively small extent of the CCOC. This area has one of the highest vascular plant species (plants composed of veins that transport fluids and nutrients) densities in Canada.

At a provincial level, the CCOC represents 39% of the plant species found in BC and 55% of those found in Alberta. The region's plant species provide a more comprehensive measure of biodiversity as they form the basis of habitats upon which other species rely on. Having a diversity of flora species present improves resilience to climate change; making increased protection and conservation of the area extremely important.



IMPACTS TO FLORA

The CCOC region has already warmed markedly (3°C) in the past century and as temperature and precipitation patterns continue to change, the following impacts are expected on the flora and vegetation of the area:



- Changes in plant community structure, composition and new species combinations;
- Northward and upslope species migration;
- Inability of species to migrate relative to the rate of climatic change, possibly leading to extinction;
- Loss of range for species requiring cold temperatures;
- Changes in plant phenology (e.g., the timing of bud burst and flowering);
- Increasing occurrence of disturbance and threat of invasive species;
- Decline of old growth communities; and
- Altered growth rates due to temperature and moisture variability.

ADAPTATION TO CLIMATE CHANGE

In addition to having a diverse number of flora species that exist in a relatively natural setting, the CCOC has three features that will allow for greater ecological resilience to climate change:

1. Habitat diversity – Within short distances, plant cover can vary from dense, moist forests to scattered small herbs and lichens on barren dry rock;
2. Repeated climatic gradients; and
3. Occurrence of species and plant communities that have the potential to respond positively to warming conditions.

According to current trends and climate models, the CCOC is predicted to experience a warming of 3-4°C between the years 2041-2070 (Figure 1a) and an increase between 0-40% in winter precipitation is expected (Figure 1b). In general, winters will be much warmer, resulting in more precipitation falling as rain; and summers will be much warmer and slightly drier than present conditions. The diversity and type of flora present in the CCOC lend themselves to successful adaptation to these changing climate characteristics. Thus, experts predict that the CCOC will be a climate change adaptation hotspot.

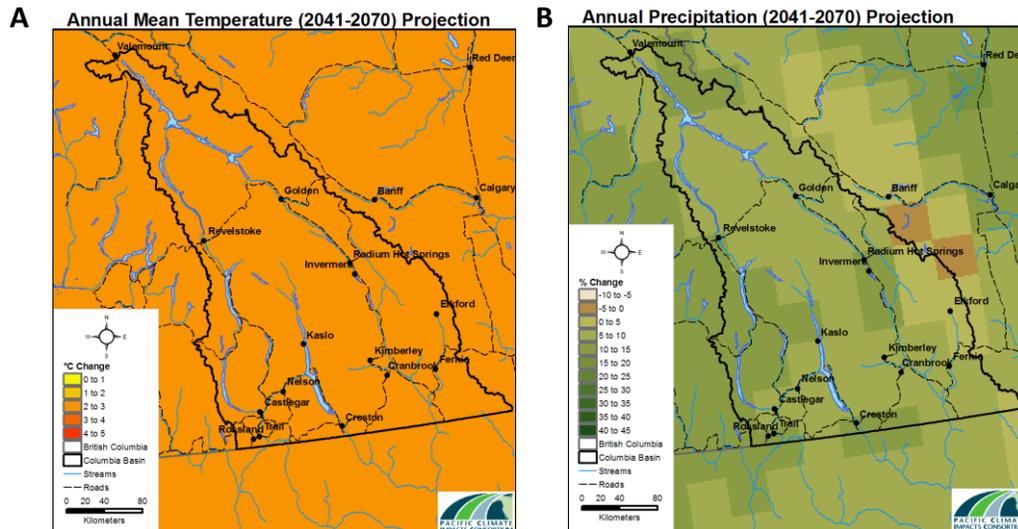


Figure 1: Regional Climate Model (RCM) projected change for the Canadian Columbia Basin (2041-2070) climate as compared to the 1961-1990 baseline for a) annual mean temperature and b) annual precipitation. (Source: Hebda, R., 2010)

RECOMMENDATIONS AND A CALL FOR ACTION

As climate change progresses, the importance of preserving and increasing the number of intact and healthy protected areas will increase, as such areas buffer the risks of rapid changes, and the loss of ecological values and natural resources. Landscape-scale conservation initiatives that protect the region's flora are critical to providing ecosystem resilience to uncertain future conditions. Increasing the level of protected areas will allow for greater opportunities for species adaptation to climate change and will help to ensure that the breathtaking landscapes of the CCOC persist.

For more information please refer to complete report entitled: "The Future of Flora: The Impacts of Climate Change on the Flora of the Canadian Southern Rocky Mountain Region and its Value to Conservation" by Richard J. Hebda, 2010. Or visit www.cpaws.org