

# Climate Change Conservation Network

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The Climate Change Conservation Network mapping originated from a process to design regional conservation plans resilient to climate change for the East Kootenay. The initial areas were identified as part of the Forest Stewardship Council Certification (FSC) of forest management in that area, and included public advisory teams from Fernie to Golden. The regional conservation and climate change mapping is in the process of being extended into the West Kootenay and North Columbia. The mapping should be considered a “work-in-progress”; periodic updates will become available in the future. This proposed climate change conservation map (see Figure 1) is a simplified version extracted and extended from the more detailed regional maps ([C-Plans](#)), and emphasizes areas identified for connectivity to enhance opportunities for ecosystems and species to shift ranges in response to climate change.

The original detailed mapping involved analyses of satellite imagery and mapping layers of habitat values, including: wetlands, high value mature and old forests, riparian areas, deciduous stands, caribou habitats, ungulate winter ranges, alpine and snow avalanche areas with grizzly bear habitat values, known cross-valley migration corridors, high value fisheries streams, and intactness. The resultant network emphasized areas with habitat niche diversity created by topography (elevation, aspect, slope position, etc.), and variation in tree species composition and moisture regimes. Areas with niche diversity are more likely to offer **temporary refugia**<sup>1</sup>; however, even these will eventually be lost unless greenhouse gas levels begin to decrease.

Secondary considerations included: legally designated areas with compatible conservation management designations, including protected areas (PAs), wildlife management areas (WMAs), wildlife habitat areas (WHAs) and ungulate winter ranges including mountain caribou (UWRs). Consideration was also given to private conservation lands (e.g., lands managed by NCC, NTBC, TLC). Where feasible, the network avoided areas with urban/rural development, intensive agriculture, transportation/ utility corridors and reservoirs.

Increasing temperatures and decreasing summer precipitation will tend to force species to shift their ranges north and or up in elevation to seek habitat niches that are similar to those they presently occupy. Bioclimate modelling has shown that projected future temperatures and precipitation conditions at lower elevations will tend to be more similar to current conditions in areas further south, while upper elevations will tend to shift to conditions more similar to those presently found at lower elevations, or areas toward the west in coastal/ transition areas. Modelling of previous climate change-induced extinction events have shown that north-south dispersal pathways can decrease extinction risks. Decreasing snow accumulation, glacial retreat, and more intense summer drought will necessitate increased emphasis on riparian and wetland conservation.

Throughout the East and West Kootenays the primary barriers to connectivity in the southern portion are primarily transportation and utility corridors, and areas of urban/rural and agricultural development. In the northern portions, north-south trending high altitude mountain ranges combined with hydroelectric reservoirs are the main barriers. Therefore the network in the south tends to emphasize areas with the least development, while in the north, mountain passes play an increasingly important role. Bioclimate mapping has also identified areas most likely to maintain cooler and moister conditions are in the northeastern portion of the Kootenay/ Columbia region ([C-Plans](#)).

The network includes four designations: protected areas, reserves, conservation areas and linkage corridors. The protected areas are existing legally designated provincial and federal parks and ecological reserves that

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<sup>1</sup> Climate refugia are areas where climate change is occurring more slowly than surrounding areas, or where microclimates create areas that have post-climate change conditions similar to the pre-climate change conditions of nearby areas

severely restrict industrial development. Reserves are mainly intact watersheds that are proposed for protection, allowing for research on how climate change interacts with natural undisturbed ecosystems. Conservation areas are designated to identify areas with concentrations of ecosystem values (e.g., extensive wetlands) that are highly significant to regional climate change resilience and opportunities for species persistence. Linkage corridors are generally low elevation valley systems that provide north-south connectivity, enhancing opportunities for species to shift ranges in response to climate change. Linkage corridors also lead to low elevation passes linking across major mountain ranges. This contrasts with and enhances linkage areas traditionally identified to maintain or improve “cross-valley” connectivity.

It is recommended that management strategies be tailored to those designations. Management of protected areas and reserves should be limited to restoration and/or actions to minimize catastrophic regime changes, with all development strictly limited. Many conservation areas already include some development, therefore restoration may be required and further development should be restricted. Management of conservation areas must focus on maintaining and/or enhancing identified conservation values. Linkage area management can include some disturbance, but it should also place emphasis on maintaining connectivity and diversity. Forest harvesting and other development in linkage areas should emphasize riparian and wetland protection, diversity of tree species, diversity of seral stages (including old) and landscape connectivity.

Further information and references: [Kootenay Connect Priority Places - Kootenay Conservation Program](#) or [C-Plans](#)

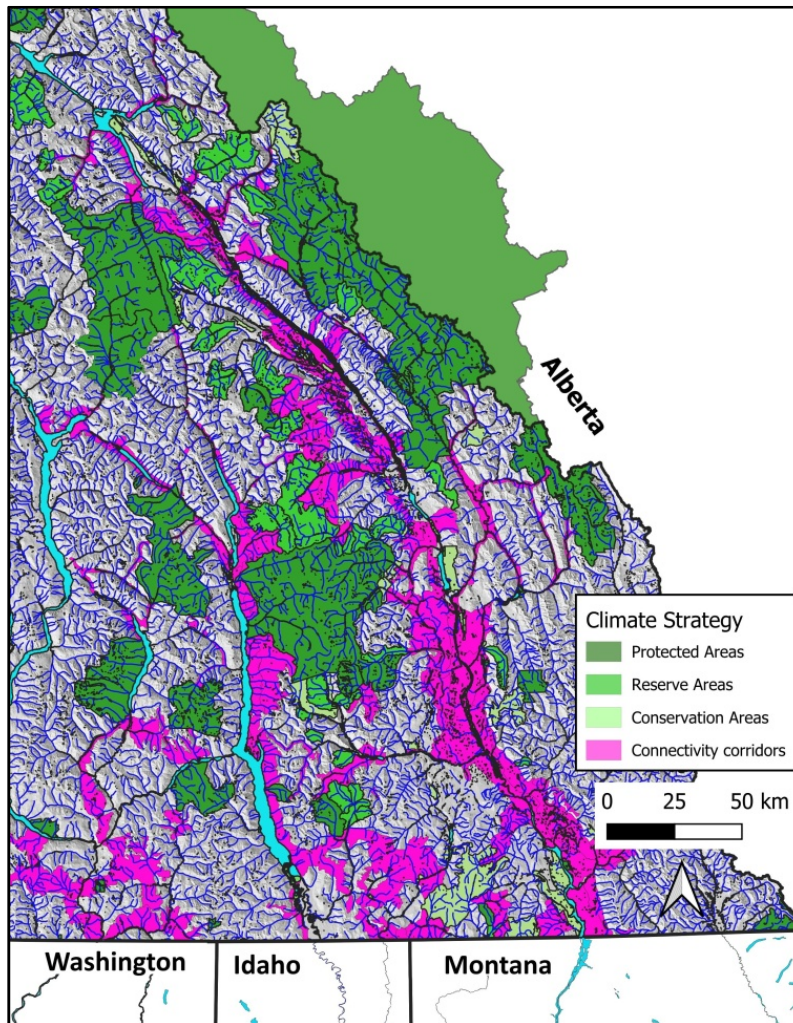


Figure 1. Climate change conservation network map for southeastern BC.