A Habitat Conservation Network Based Upon Focal Species: Design for The Inland Rainforest of North America

Lance Craighead, Thomas Olenicki, and Brent Brock, Craighead Environmental Research Institute, 201 South Wallace Avenue, Suite B2D, Bozeman, MT 59715

Baden Cross, Applied Conservation GIS, P.O. Box 356, Heriot Bay, British Columbia V0P1H Canada

Justin Williams, Department of Geography and Environmental Engineering, Ames Hall, Johns Hopkins University, 3400 North Charles Street, Baltimore, MD 21218

A conservation plan should maintain ecologically functional populations of native plants and animals across large regions. In planning for the 194,799 km^2 Inland Temperate Rainforest (ITR) of British Columbia, Montana, Idaho, and Washington we focused on three animal groups: terrestrial wildlife, aquatic species, and birds. Terrestrial wildlife conservation requires core secure habitat large enough to maintain populations of large carnivores. These

species serve as umbrella species for other less sensitive animals. We developed terrestrial habitat suitability models for grizzly bear, wolf, wolverine, lynx, cougar, and mountain caribou. Results identify habitat cores for each of the six focal species that were merged into optimal composite cores to meet needs for several species. Optimized cores cover 102,326 km^2 or 52.52 percent of the ITR. Of this, 17,847 km2 or 17.44 percent of the cores was non-habitat. Habitat cores thus comprised 42.44 percent of the ITR. Least-cost-path connectivity methodology identified probable movement corridors between cores. Secondly we modeled aquatic species habitat based on the work of Chris Frissel. Optimal terrestrial wildlife cores included most of the best aquatic habitats. Highest quality watersheds mostly within the optimized cores added an additional 4,584.04 km2 of area to the network, or 2.35 percent of the ITR. Thirdly we used bird richness models developed by Andy Hansen to prioritize avian specie. habitat. Over 50 percent of the best avian habitats were included within the terrestrial core solution. This broad-scale habitat network comprised 44.79 percent of the ITR: this guides site-specific conservation solutions at finer scales which integrate into the overall design.