



Great Northern Landscape Conservation Cooperative

FY 2011 Funding Allocation – May 2011

Proposal Title	Sponsoring Organization	PI or Project Coordinator	Project Summary	\$Ks
A Regional Stream Temperature Model for Mapping Thermal Habitats and Predicting Vulnerability of Aquatic Species to Climate Change across the Great Northern LCC	Rocky Mountain Research Station, US Forest Service	D Isaak et al.	Existing stream temperature data will be compiled from numerous federal, state, tribal, and private sources to develop an integrated regional database. Spatial statistical models for river networks will be applied to these data to develop an accurate model that predicts stream temperature for all fish-bearing streams in the US portion of the GNLCC. Differences between model outputs for historic and future climate scenarios will be used to assess spatial variation in the vulnerability of sensitive fish species across the GNLCC.	122.5
Applying Vulnerability Assessment Tools to Plan for Climate Adaptation: Case Studies in the Great Northern LCC	School of Forest Resources, University of Washington	J Lawler et al.	This project will apply the results of an on-going climate change vulnerability assessment to the management of two complex landscapes. The vulnerability assessment project team will work with managers, land-owners, and conservation practitioners to explore 1) how downscaled climate datasets, modeled vegetation changes, and information on estimated species sensitivities can be used to develop climate change adaptation strategies, and 2) how model results and datasets can be made more useful for informing the management of species and landscapes. To accomplish these two goals, we will prepare datasets and model outputs for two landscapes—potentially, the Pioneer Mountains-Craters of the Moon region in Idaho and the Columbia Plateau region in Washington—and hold workshops with stakeholders in both regions. This is a multiple-year project.	95
Understanding Observational, Proxy, and Modeled Climate Data: Outreach, training, and support for managers and scientists	Northern Rockies Science Center, USGS	G Pederson et al.	Climate change is one of the most far-reaching challenges land and resource management agencies have ever encountered, and climate data are dramatically increasing in volume, type, and complexity. Increasingly, resource managers, scientists and policy-makers rely on climate data and the associated sensitivity and change analyses to inform decisions that may be both controversial and costly. Thus, it is critical to ensure that the vast amounts of available data are being appropriately applied to research and management questions. <i>We intend to address these needs by 1) developing products to guide diverse user groups through the process of applying climate data and information to real-world problems, 2) developing user awareness of strengths and weaknesses (i.e. uncertainties) in observed, proxy, and modeled climate data, and 3) providing a forum for GNLCC scientists and resource managers to address needs related to climate data and information.</i>	25
Great Northern Landscape Conservation Cooperative Geospatial Data Portal Extension: Implementing a GNLCC Spatial Toolkit and Phenology Server	FORT Science Center, USGS	T Kern et al.	This project has two related parts. The first part, the Great Northern Landscape Conservation Cooperative (GNLCC) Spatial Toolkit, will extend the current GNLCC Geospatial Data Portal and allow users to generate dynamic interactive map viewers, modeled output, and web services for use in ArcExplorer and other client tools. The second part of the project, the GNLCC Phenology Service, will add a full suite of satellite-based land surface phenology data for use in ArcMap and other client tools through ESRI image services to the Geospatial Data Portal.	134

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Predicting Effects of Climate Change on Aquatic Ecosystems in the Great Northern Landscape: Combining Vulnerability Assessments, Landscape Connectivity, and Modeling for Conservation	Northern Rockies Science Center and Flathead Biological Station, University of Montana	C Muhlfeld and R Hauer	Global climate change is likely to dramatically impact the structure and function of freshwater systems, yet no studies have comprehensively assessed the potential effects of climate change on aquatic ecosystems in the Great Northern Landscape. The continued research described herein aims to build on an existing climate change and transboundary research program to assess the potential hydrologic, geomorphic, and thermal effects on foodwebs (rare and endemic macroinvertebrates), native salmonids (threatened bull trout and westslope cutthroat trout), and lotic habitats in the transboundary (US and Canada) Flathead River system. The project will apply new and existing techniques for combining downscaled and regionalized climate models linked with specific spatial data, fine-scale aquatic species vulnerability assessments (invertebrates→fish), population genetic data, and remotely sensed riparian and aquatic habitat analysis. Results may be used to identify populations and habitats most susceptible to the impacts of climate change; develop monitoring and evaluation programs; inform future research needs; and develop conservation delivery options in response to climate change and other stressors (e.g., habitat loss and invasive species) that are often complicated or exacerbated by climate change.	120
The Washington Connected Landscapes Project: Analyzing Ecoregions, Incorporating Climate Change, Providing Analysis Tools, and Validating Models	Washington Habitat Connectivity Working Group, State of Washington	J Schuett-Hames et al.	We are requesting funding to support 12 months of a multi-year project that builds upon our work funded by the Great Northern LCC (GNLCC) during FY2010 (see Appendix B for accomplishments to date). Specifically, we will: (1) identify essential habitats and linkages connecting them for the Columbia Plateau Ecoregion of Washington State and neighboring areas, and initiate pre-planning for future analyses for the Okanogan Ecoregion; (2) identify habitat and connectivity areas expected to be resilient to climate change and to facilitate species' range shifts in response to climate change; (3) develop methods and tools necessary for this work, and package and share them in a way that provides support for their interpretation and implementation; and (4) examine WHCWG model assumptions and predictions using occurrence, movement, and genetic data for sage-grouse and mammalian carnivores. Together this work will provide valuable information and tools that will directly contribute to the GNLCC's efforts to strengthen regional capabilities for designing and implementing connectivity conservation strategies in the face of climate change.	150
Establishing aquatic monitoring programs for large-scale restoration projects: building understanding for watershed conservation in the face of climate change	Southwest Crown Collaborative Forest Restoration Landscape Project (USFS), The Wilderness Society	A Carlson et al.	We are requesting funding to support the design and development of a large-scale aquatics monitoring program across 1.5 million acres of the Crown of the Continent, as part of a 10-year, landscape-level restoration project established and funded by the U.S. Forest Service in 2010. The Forest Service has directed each of ten model projects nation-wide to develop and implement a large-scale monitoring program to inventory current resource conditions and facilitate the short- and long-term evaluation of the effectiveness of restoration projects to inform future management strategies and actions: the work proposed here would address significant challenges associated with maintaining or improving water quality and watershed function. Results from this work will ultimately facilitate broad landscape conservation of watersheds in the Crown of the Continent through better monitoring and understanding of aquatic ecosystems, more informed management and restoration activities, and greater understanding of potential future climate change impacts.	88
Document Fine Scale Linkage Areas and Conservation Delivery in the Northern Rockies of US and Canada – Phase II	University of Montana, US Fish and Wildlife Service	C Servheen	This project is an initiative to secure landscape-scale movement opportunities for multiple wildlife species in the Rocky Mountains of Montana and Idaho and adjacent transboundary areas of British Columbia and Alberta. This project has a goal of re-linking all the large blocks of public land in the Northern Rockies for more functional and healthy wildlife communities in response to climate change. The proposal would complete unfunded efforts on this project that was started in 2010 as a GNLCC project.	77

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Crown of the Continent Landscapes Analysis/Ecological Indicators Project, Phase II: Transboundary Data Integration and Habitat Connectivity	Crown Managers Partnership	E Sexton	We are requesting funding to support one year of a multi-year initiative entitled <i>Crown of the Continent Landscapes Analysis/Ecological Indicators Project1</i> . The work is designed to focus on issues on transboundary data integration and synthesis, habitat-connectivity analysis for grizzly bears (<i>Ursus arctos</i>) and other key wildlife species, and outreach programs aimed at disseminating knowledge, information products, and geospatial tools arising out of this work to the extensive network of Crown Managers Partnership (CMP) and GNLCC collaborators.	75
Species Adaptations to Climate Change: Grassland, Sagebrush, and Riparian-associated Landbirds in Bird Conservation Region 10	Intermountain West Joint Venture and Montana-Idaho Bird Partnership	C Wightman	This region-wide coordinated bird monitoring program, supported by state, federal, tribal, nongovernmental organizations, and a statewide bird conservation partnership, is designed to provide spatially-referenced baseline data for science-based biological planning and conservation design for the Great Northern LCC and its partners that is directly comparable with other landscapes and BCRs. We are requesting a second year of funding to augment sampling in BCR10 Montana, and to expand our efforts in Idaho as part of an emerging bird conservation partnership, within traditionally under-sampled landscapes to enhance our ability to make robust inference to bird populations on grassland, shrublands, and riparian systems. This will fill gaps in existing data identified by the Intermountain West Joint Venture, Montana Bird Conservation Partnership, and other leaders in conservation science in the Northern Rocky Mountains.	25
Tracking Wetland Changes over Time at Multiple Scales in Bird Conservation Regions 9 and 10	Canadian Intermountain Joint Venture	T Sargent	This proposal is to deliver the pilot component of a wetland tracking project initiated by the CIJV in 2010. The wetland trend project will deliver an assessment of wetland trends and develop an approach for tracking wetland trends into the future; this will have relevance to conservation planning throughout transboundary ecological planning units, including Bird Conservation Regions (BCRs) 9 and 10, and the Cold Deserts and Western Cordillera Ecoregions (Figure 2). The project is currently in a “scoping” stage, wherein high-level approaches are being developed for wetland tracking in 2-3 regional priority areas of the CIJV. Delivery of the pilot projects will support wider implementation of the tracking project as well as validating predictive modeling of the long-term effects of climate change throughout BCR 9 and 10 wetlands.	50
Communicating and involving the public and stakeholders in the use of fish and wildlife data and information for purposes of landscape level management and decision support	Idaho Fish and Game	G Servheen	This project is part of an ongoing effort to develop and implement a landscape level decision support system (DSS) across the boundaries of Idaho, Washington, Oregon, and Montana. The project will strengthen public understanding in the use of objective and scientific fish and wildlife data and predictive modeling for purposes of developing geospatially-based landscape science to inform conservation and development actions. The project will inform, educate, and garner public and user support of the DSS upon its public release, aid in the development and use of the DSS web interface based on customer input and preferences, and provide communications strategies, tools, messages, forums, and feedback for improving public understanding of landscape science and conservation in the Columbia Plateau and Idaho – Montana WGA pilot areas.	75