

Project Title: Facilitating climate change adaptation planning and implementation through the GNLCC Rocky Mountain Partner Forum (Year 3 – previously funded by GNLCC in FY12 and FY13)

Project Coordinator: Molly Cross, Wildlife Conservation Society, 301 N. Wilson Avenue, Bozeman, MT 59715, 406.522.9333, mcross@wcs.org

Project PI(s): Molly Cross (see above), Gary Tabor and Nina Chambers (Center for Large Landscape Conservation, P.O. Box 1587, Bozeman, MT 59771, 406.600.7030, wildcatalyst@gmail.com, nchambers@bresnan.net), Lara Hansen (EcoAdapt, P.O. Box 11195, Bainbridge Island, WA 98110, 206.201.3834, lara@ecoadapt.org)

Partners: This project engages the Rocky Mountain Partner Forum (RMPF). We will facilitate participation in the RMPF, help build its capacity, and engage RMPF members and Leadership Team throughout the project.

Project Summary: We propose to work with the Rocky Mountain Partnership Forum to expand upon the successful approach applied in the first two years of this project to help managers incorporate climate change science into their natural resource management decisions for a new resource of interest that will be chosen by the Rocky Mountain Partner Forum members. This project will be implemented through the Rocky Mountain Partner Forum to share information with and among partners about emerging climate science and strategies for integrating climate change into natural resource management decisions in the region. We will also support the Rocky Mountain Partner Forum Leadership Team as it seeks to formalize the Forum and set directions for future collaborative work.

Category of Proposal: Partner Forum Sponsored, Rocky Mountain (We worked with the Rocky Mountain Partnership Forum Leadership Team to tailor this proposal to the Forum’s needs, and they selected this project for the Partner Forum-sponsored category)

Need: The Great Northern Landscape Conservation Cooperative (GNLCC) Strategic Conservation Framework identified climate change as a priority landscape-scale stressor in the region because of its potential to directly and indirectly (via interactions with other important stressors such as invasive species and land development) alter terrestrial and aquatic integrity. The need to consider climate change in natural resource management decisions has been identified in many agency plans and initiatives, including the USFWS National Fish, Wildlife and Plants Climate Adaptation Strategy; the NPS Climate Change Action Plan; DOI America’s Great Outdoors; the Western Governors Association Climate Adaptation Initiative; and the U.S. Forest Service Climate Change Performance Scorecard, among others. Many researchers have specifically recommended that climate change effects on natural resource conservation and management be addressed at a large landscape and seascape scale (e.g., Heller and Zavaleta 2009, Groves et al. 2012). It can be challenging to plan for climate change across large landscapes that encompass multiple jurisdictions with sometimes differing missions and mandates; however, the implementation of some climate adaptation principles—such as providing connectivity needed to facilitate species’ responses to climate change—requires taking a larger landscape perspective (Hilty et al. 2012).

The number of climate science products and tools is growing; however, resource managers can be stymied by the complexity and uncertainty involved in understanding local effects of future climate change scenarios, a lack of guidance on how to apply climate science to decision making, and the absence of readily apparent ways to respond (Lawler et al. 2010, Cross et al. 2013). Recent efforts to advance climate change planning for natural resources illustrate that constructive dialogue between scientists and managers, focusing on local interpretation of climate change projections and ecological responses, can

help overcome these barriers and produce pragmatic and evidence-based strategies for climate change adaptation (Littell et al. 2012, Cross et al. 2013).

We propose to work with the Rocky Mountain Partner Forum (RMPF) to continue to advance climate change planning and implementation for natural resource management at a landscape scale in the GNLCC. Building on previous efforts that were focused on cold-water ecosystems, we will apply our approach of linking climate science with resource management decisions to other natural resource conservation targets (for example, looking at how vegetation may shift in response to climate change and possible effects of those shifts on wildlife). This approach has worked well in bringing greater awareness among managers regarding existing climate science and potential effects on cold-water ecosystems, and what adjustments to management goals and actions may be warranted to adapt to climate change. We will share information about climate science and tools available to managers, facilitate a workshop that brings relevant scientists and managers together, and provide decision-support resources to inform management decision-making in light of existing and on-going climate change analyses. The project will be consistent with the approach described in the GNLCC Science Plan, particularly Step 2 (Map Conservation Targets to Goals and Scope Threats and Actions) and Step 3 (Build Conceptual Models). To the extent possible, given available time and funding resources, the project will initiate other more quantitative planning steps outlined in the GNLCC Science Plan.

Partnerships are essential for addressing climate adaptation at the landscape scale. Our efforts will continue to strengthen the GNLCC RMPF by actively engaging the many partners in decisions related to the proposed project (such as identifying the highest priority resource that they want the project to focus on, shaping the workshop, and identifying and sharing information), while at the same time building cohesion and sustainability of the group. The RMPF members will draw upon the GNLCC Strategic Conservation Framework (e.g., the vision, goals and conservation targets) when selecting the focal natural resource management issue for this project, and will identify an issue that addresses at least two of the conservation targets (most likely an ecosystem and at least one associated species) that have been identified for the Rocky Mountain ecoregion.

Objective: This project focuses on incorporating existing and on-going climate science into management decisions for priority natural resources, and will result in the identification of science needs for considering the effects of climate change in management decisions. It will also help bring a large-scale perspective into climate adaptation efforts underway by RMPF partners, and facilitate climate adaptation implementation (on-the-ground conservation delivery) through network learning and the involvement of diverse decision-makers.

The outcomes for this project are to:

1. ***Link climate science to natural resource decisions.*** We will build on the effectiveness of initial adaptation planning efforts from our current project, which has already convened a group of regional scientists and managers to explore vulnerability and adaptation issues around cold-water ecosystems, by replicating (and improving upon) the process and focusing on a new topic chosen by the RMPF. We will also refine a decision support framework related to cold-water systems that is being created in year 2 of our current project, and draft a similar tool for the newly selected natural resource topic.
2. ***Strengthen the GNLCC Rocky Mountain Partner Forum.*** Through collaborative work and network-building around climate change adaptation, the RMPF will strengthen relationships among member groups, increase its capacity to engage in the GNLCC, and increase on-the-ground conservation capacity. Progress has been made over the last year in creating a charter, forming a leadership team, and expanding/diversifying membership. Because these are new structures and new members are getting engaged, there is continued need for facilitating dialogue among the group and building cohesion. By the end of this project the forum will be prepared to continue its

work with new leadership and new projects to bring them together. We will use this year to cultivate both the leadership and thematic direction of the group.

Methods: For this project, we will follow models for collaborative climate adaptation planning involving diverse stakeholders employed by EcoAdapt and partners in Florida (FRRP 2010); the Wildlife Conservation Society and U.S. Fish and Wildlife Service in the Greater Yellowstone Ecosystem and transboundary U.S.-Canadian Rocky Mountains (Cross and Servheen 2009, Servheen and Cross 2010); and the Center for Large Landscape Conservation’s Kresge-funded Adaptive Management Initiative with the stakeholders of the Crown of the Continent Roundtable. We will draw on existing climate science to employ tools such as the Adaptation for Conservation Targets (ACT) framework (Cross et al. 2012) and recent guidance documents (Glick et al. 2011) to assess climate change vulnerabilities and identify adaptation strategies for selected natural resources in the GNLCC.

Specific project activities include:

- Compiling existing climate change adaptation science and tools related to the specific topic chosen by the RMPF.
- Gathering information that describes relevant scenarios of change and what management-relevant vulnerabilities might result.
- Conducting a workshop of RMPF partners (including scientists, managers, and non-profit conservation practitioners) to discuss how to achieve or adjust management goals and actions based on climate change impact and vulnerability information.
- Drafting a decision support framework that provides a clear logic for integrating available scientific analyses of climate change effects into management decisions, and bringing a larger landscape perspective to place-based adaptation efforts.
- Convening the RMPF via phone and one in-person meeting (in conjunction with the adaptation planning workshop mentioned above) as a way to strengthen partnerships and build a learning network. On these calls, partners will learn about existing efforts in the region, discuss gaps in science and coordination that would enable more or better landscape scale conservation planning and implementation. A key goal for the calls will be to increase cohesion among the group and identify next steps and projects for coming years.

This project leverages climate adaptation efforts funded by the Kresge Foundation in the Crown of the Continent (e.g., by the Confederated Salish-Kootenai Tribes, the Blood, the Blackfeet Confederacy, the Crown Managers Partnership, the Southwest Crown Initiative, and Working Lands Council of the Crown); climate change planning for connectivity in the “High Divide” landscape by the Wildlife Conservation Society (supported by the Wilburforce Foundation); and Wilburforce Foundation funding for EcoAdapt. This project will also leverage: (1) climate science syntheses and vulnerability assessments being conducted or supported by the GNLCC, the Northwest and North Central Climate Science Centers, NASA, University of Montana and Montana State University, USFS Region 1 and others; (2) climate change adaptation planning and implementation efforts in the region, and (3) climate adaptation partnerships, such as the Yellowstone to Yukon Climate Adaptation Working Group (Graumlich and Francis 2010). While this project focuses on partners in the Rocky Mountain region of the GNLCC, the results and methods of this work could be applied to other GNLCC partner forums and across LCCs.

Deliverables: Deliverables and products from this project include:

1. GNLCC data management plan (October 2014).
2. Selection of the priority theme for the project and a compilation of relevant references, tools, and adaptation case studies from the region (February 2015).
3. Workshop bringing scientists, managers, and other conservation practitioners together to address climate change adaptation decision-making for the selected theme (June 2015).

4. Workshop report that includes deliverables from the GNLCC Science Plan: 1) Identification of important climate change-related stressors, threats and consequences for existing management goals and actions for the identified theme, 2) Conceptual models linking those stressors, threats and consequences to selected conservation targets (e.g., ecosystems and species) from the GNLCC Strategic Conservation Framework, 3) Draft decision support framework that links existing climate science analyses to workshop discussions on whether and how management goals and actions may need to be adjusted in light of climate change (September 2015).
5. All data and products will be delivered according to the data management plan (September 2015).
6. Regular meetings of the GNLCC Rocky Mountain Partner Forum as a learning network for climate change adaptation, and educational webinars to disseminate results across Rocky Mountain region partnerships, GNLCC partner forums, and other LCCs (at least six during the year).

Statement of compliance: The Project Coordinator and Principal Investigators have all read and agree to comply with the GNLCC Information Management, Delivery, and Sharing Standards. As specified, we will submit a Data Management Plan within the first three months, if we are awarded a grant, and will make available all products resulting from this project, in accordance with that plan.

Schedule: The following is a schedule of project activity implementation October 2014-September 2015.

Project Activities	2014			2015								
	O	N	D	J	F	M	A	M	J	J	A	S
Submit data management plan												
Identify theme, compile and share adaptation information												
Workshop bringing scientists, managers, and other conservation practitioners together												
Partner forum meetings and educational webinars												
Final workshop report, draft decision support tool and all other products												

Budget: Please see the attached Budget file.

Literature Cited

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