

Project Completion Report

Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)

Project Title: Provide Internship Support and Technical Assistance to the Greater Yellowstone Network monitoring program and the Great Northern Landscape Conservation Cooperative

Project Code: MSU-235 Task Agreement P11AC90764

Type of Project: Technical Assistance

Funding Agency: National Park Service

Partner University: Montana State University

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Start Date of Project: August 1, 2011

End Date of Project: August 1, 2016

Funding Amount: \$94,022

Project Summary:

This task agreement enabled the Greater Yellowstone Network and Montana State University to support six student interns. These individuals gained experience with the National Park Service both conducting fieldwork and in data management. They received training in first aid/CPR and also participated in the Network's annual orientation and safety scenarios in order to be prepared for completing fieldwork. With the assistance from these interns the network was able to safely complete fieldwork throughout the Greater Yellowstone Ecosystem and backlogs of data files were managed over the 5 year period of the agreement. This partnership gave students with little to no work experience the experience needed to start them off on their careers. It gave network staff an opportunity to work with individuals that will become the next generation scientists and managers. In addition the Great Northern Landscape Conservation Cooperative received facilitation support for the Connectivity Managers workshop and prepared for a steering committee meeting.

Monitoring activities during this reporting period included fieldwork related to the following vital signs: alpine vegetation, whitebark pine, amphibians and wetlands, water quality, and upland

vegetation. In addition there were over 3,300 records reviewed or entered into the National Park Services Integrated Resource Management Applications system (an on line program for archiving reports and data).

Deliverables:

Links to most reports, publications, and associated briefs can be reached the Greater Yellowstone Networks website <http://science.nature.nps.gov/im/units/gryn/index.cfm>. Some of the more important ones are highlighted below.

Gould, W.R., D.A. Patla, R. Daley, P. S. Corn, B.R. Hossack, R. Bennetts, and C.R. Peterson. 2012. Estimating Occupancy in large landscapes: evaluating Amphibian Monitoring in the Greater Yellowstone Ecosystem. Wetlands DOI: 10.1007/s13157-012-0273-0. <https://irma.nps.gov/DataStore/Reference/Profile/2193195>

Greater Yellowstone Whitebark Pine Monitoring Working Group. 2013. Monitoring whitebark pine in the Greater Yellowstone Ecosystem: 2012 annual report. Natural Resource Data Series NPS/GRYN/NRDS—2013/498. National Park Service, Fort Collins, Colorado. <https://irma.nps.gov/DataStore/Reference/Profile/2195863>

Greater Yellowstone Whitebark Pine Monitoring Working Group. 2014. Monitoring whitebark pine in the Greater Yellowstone Ecosystem: 2013 annual report. Natural Resource Data Series NPS/GRYN/NRDS—2014/631. National Park Service, Fort Collins, Colorado. <https://irma.nps.gov/DataStore/Reference/Profile/2208506>; <https://irma.nps.gov/DataStore/Reference/Profile/2222931> (brief)

Greater Yellowstone Whitebark Pine Monitoring Working Group. 2015. Monitoring whitebark pine in the Greater Yellowstone Ecosystem: 2014 annual report. Natural Resource Data Series NPS/GRYN/NRDS—2015/796. National Park Service, Fort Collins, Colorado. <https://irma.nps.gov/DataStore/Reference/Profile/2222132>

Greater Yellowstone Whitebark Pine Monitoring Working Group. 2016. Monitoring whitebark pine in the Greater Yellowstone Ecosystem: 2015 annual report. Natural Resource Report NPS/GRYN/NRR—2016/1146. National Park Service, Fort Collins, Colorado. <https://irma.nps.gov/DataStore/Reference/Profile/2227745>

Ray, A., and D. Patla. 2016. Greater Yellowstone Network amphibian monitoring: 2012-2013 biennial status report. Natural Resource Report Series NPS/GRYN/NRR—2016/XXX. National Park Service, Fort Collins, Colorado. <https://irma.nps.gov/DataStore/Reference/Profile/2227717>

Yoder, A., A. Ray, K. Mellander, C. Whaley, and R. Roy. 2016. Water quality summary for the Snake River and alpine lakes in Grand Teton National Park and the John D. Rockefeller, Jr. Memorial Parkway: Preliminary analysis of 2013 data. Natural Resource Report NPS/GRYN/NRR—2016/1228. National Park Service, Fort Collins, Colorado. (NOTE: Alyssa Yoder is lead author and was one of the interns) <https://irma.nps.gov/DataStore/Reference/Profile/2229832>

Yoder, A. Draft report - 2016. Geochemical Analysis of Benthic Sediments, Soda Butte Creek, Park County, Montana. Report on file and available upon request. Will be included in the final Soda Butte Report as an appendix. Planned completion in 2017.

Henderson, T., A. Ray, P. Penoyer, A. Rodman, M. Levandowski, **A. Yoder**, and A. Coleman.

Draft. Mine Tailings reclamation project improves water quality in Yellowstone's Soda Butte Creek. Proposed for Park Science publication in spring of 2017. (Will be available when published)

Olivia Kerney and Kami Crocket completed the following in IRMA .

- 340 new Data Store Records entered
- 606 Data Store records validated, updated, or improved.
- 456 new NPSpecies records entered
- 1925 NPSpecies records validated, updated, or improved

Great Northern Landscape Conservation Cooperative Facilitation activities

2012 Steering Committee Meeting – Grand Teton NP <http://greatnorthernlcc.org/event/273>

2013 Science Workshop – Leavenworth, WA <http://greatnorthernlcc.org/event/364>

2013 Steering Committee Meeting – Leavenworth, WA <http://greatnorthernlcc.org/event/363>

2015 Resource Managers Connectivity Workshop <http://greatnorthernlcc.org/event/646>

2015 Steering Committee Meeting – Walla Walla, WA <http://greatnorthernlcc.org/event/634>

Number of students participating in this project: 7 (Alyssa Yoder, Chris Olsen, Olivia Kerney, Michele Rockwell, Dillon Osleger, Charlie, Kami Crockett) and one Technical Expert to facilitate GNLCC workshops.

Lessons Learned from this project: We continued to build our internship program and ways to improve upon internship opportunities throughout the 5 years of the project. In addition we were able to successfully complete fieldwork throughout the Greater Yellowstone Ecosystem which included adding new five needle pine monitoring transects on BLM lands in the southern and eastern portions of the ecosystem. The interns were instrumental in helping to establish this transects. As a result of working with them in this challenging terrain, we were able to refine the skill sets we need for future interns to guarantee success for both them and our work. In addition we were able to create different types of internships that would provide a range of opportunities based on experience and/or what the interns themselves would like to gain from the experience.

Other RM-CESU agencies or research partners who participated in this project:

Great Northern Landscape Conservation Cooperative

The Network provides long-term monitoring on NPS, USFS, and BLM lands.