

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: 2015 Aquatic Invertebrate Monitoring at Agate Fossil Beds National Monument

Discipline: Natural Resources
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: University of Wyoming
Effective Dates: 7/10/2014 - 9/30/2017
Funding Amount: \$10,903

Investigators and Agency Representative:

NPS Contact: Marcia H. Wilson, PhD., Northern Great Plains I&M Network, National Park Service, 231 East Saint Joseph Street, Rapid City, SD 57701, Tel: 605-341-2803, Fax: 605-341-7192, marcia_wilson@nps.gov

Investigator: Lusha Tronstad, PhD.; Wyoming Natural Diversity Database; University of Wyoming; Laramie, Wyoming 82070-3381; (307) 766-3115; tronstad@uwyo.edu

Project Abstract: In 1996, Agate Fossil Beds National Monument (AGFO) was part of the original Prairie Cluster Prototype Long-term Ecological Monitoring Program which then became part of the Heartland Inventory and Monitoring Network (HTLN). HTLN continued with the land birds, macroinvertebrates, and vegetation monitoring responsibilities. However, given that AGFO fits best ecologically within the Northern Great Plains, the continued monitoring of these 3 vital signs was transferred to the Northern Great Plains Inventory and Monitoring Network (NGPN) in 2010.

For the macroinvertebrate monitoring, sporadic sampling was conducted at AGFO between 1989 and 1995. In 1996, with the formation of the Prairie Cluster Prototype a more concerted effort to monitor aquatic invertebrates on an annual basis began at AGFO utilizing Hester-Dendy sampling plates (Peitz and Cribbs 2005). Recently the HTLN staff completed a review of their invertebrate sampling protocol and found that they needed to revise the original protocol to allow for the collection of statistically robust data (Bowles et al. 2008). Mack (2003) also determined that "Hester-Dendy artificial substrate samplers were ineffective for sampling most wetland macroinvertebrates, except oligochaetes, Chironomidae, and Mollusca".

Thus, the NGPN set up an agreement with Dr. Tronstad to compare two sampling methods (Hester-Dendy Sampler and Hess Sampler) in 2010. At the end of the 2010 field season it was determined that another 4 years of data collection using the Hester-Dendy sampling plates and the Hess Sampler would provide a more robust comparison of the two methods.

With this current agreement, the Network is providing funds for Dr. Tronstad to publish the 2014 Annual Report, to conduct the 2015 field work, and to publish the 2015 Annual Report.

SCOPE OF WORK:

Task Number 1:

With earlier agreements developed last year and earlier this year, NGPN provided funds for Dr. Tronstad to collect the 2014 field data (Agreement P14AC00724) and identify (Agreement P13AC00828) the 2014 collected aquatic invertebrates for the final year of collecting invertebrates using both methods. Task #1 of this agreement is to provide funds for Dr. Tronstad to publish the 2014 Annual Report.

Task Number 2:

In 2015, the NPS staff will again sample the aquatic invertebrates at AGFO using the selected sampling methodology (either the Hester-Dendy or the Hess sampler). Task #2 of this agreement is to provide salary and travel expenses for Dr. Tronstad so that she can collect the 2015 field data at AGFO.

Task Number 3:

Task #3 is to provide funds for Dr. Tronstad to publish the 2015 Annual Report using the selected sampling methodology (either the Hester-Dendy or the Hess Sampler).

Outcomes with Completion Dates: Dr. Tronstad will provide the Aquatic Invertebrate Monitoring at Agate Fossil Beds National Monument: 2015 Annual Report either in the NPS Natural Resource Technical Report Series or in the NPS Natural Resource Data Series to the Network by January 30, 2017

Keywords: aquatic invertebrates, monitoring, report, Agate Fossil Beds National Monument Northern Great Plains I&M Network, University of Wyoming, Wyoming Natural Diversity Database