

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Hydrologic Control, Formative Geometry, and Physical Habitat of Sandbars in the Niobrara River, Nebraska

Discipline: Natural

Type of Project: Research/Technical Assistance

Funding Agency: National Park Service

Other Partners/Cooperators: University of Wyoming

Student Participation: Yes, graduate and undergraduate students

Effective Dates: 12/1/2015 - 12/31/2017

Funding Amount: \$85,887

Investigators and Agency Representative:

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Project Abstract: The Niobrara River, located in north central Nebraska, flows through two National Park Service units, the Niobrara National Scenic River (NIOB) and the Missouri National Recreational River (MNRR). Together these two units span nearly 100 miles of one of the last remaining Great Plains rivers that continues to flow in a free-flowing condition with few impoundments and very little development along its banks. The free-flowing condition and geomorphic processes that shape the river corridor are part of the reason the river was designated as part of the wild and scenic river system.

The Niobrara River provides important habitat for two State- and federally listed bird species: the interior least tern (*Sternula antillarum athalassos*) and the piping plover (*Charadrius melodus*). The free-flowing condition of the river and its geomorphic and hydrologic characteristics provide emergent sandbar habitat important for nesting and feeding by both bird species. The University of Wyoming is proposing a study of emergent sandbar dynamics along the Niobrara River from Norden Bridge to the confluence with the Missouri River.

The purpose of the study is to (1) develop quantitative relations between river hydrology and sandbar height, and (2) develop statistical relations for channel

different magnitudes on sandbar extent, is of particular interest.

This project will satisfy a public purpose since it promotes a better understanding of the resource values that NPS is required to protect. In addition, this project supports research on riverine processes that are important to local, state and federal land and resource managers. Finally, this project provides funding for students to pursue advanced research and to obtain advanced degrees in geological science.

Keywords: Niobrara River, Nebraska, Niobrara National Scenic River, Missouri National Recreational River, sandbar dynamics, NPS- Water Resources Division University of Wyoming