Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Quantifying the effects of noise and stray light on wildlife and ecosystems in units of the national park system.

Discipline: Natural
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Student Participation: Yes
Effective Dates: 9/1/2018 – 5/31/2020
Funding Amount: $203,500

Investigators and Agency Representative:
NPS Contact: Brent Lignell, Environmental Protection Specialist National Park ServiceWASO Natural Sounds and Night Skies Division. 1201 Oakridge Drive, Suite 100 Fort Collins, CO 80525. Phone: (970) 225-3580 Fax: (970) 267-2109 brent_lignell@nps.gov

Investigator: George Wittemyer, Colorado State Univeristy

Project Abstract:
A: Project Goals – The Overall Goals are to provide direct support to park managers by measuring and interpreting responses of wildlife to noise and stray light, monitor noise and stray light levels in parks and protected areas, and quantify the benefits of managing noise and stray light.
B: Project Objectives – The Objectives are to engage at least ten undergraduates – including military veterans – in analyzing and interpreting noise and light data, support postdoctoral research and career development for 3 young scientists, analyze park acoustic monitoring data, publish scientific papers that and inform park management, and provide scientific support to NPS staff in parks, regions, and national offices. This modification supports the DOI Key Initiatives and Priorities as follows:

- **DOI objective 1.a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment.** The proposed work measures noise and stray light in parks and conducts research on their effects on natural resources and interprets consequences for park visitors. This information provides park managers with options to enhance attainment of NPS mission objectives through upgrades to park infrastructure.

- **Other Key Initiatives: 4. Access to outdoor recreation opportunities.** The sounds and nocturnal scenery of parks, including starry skies, become more accessible to visitors when noise and stray light are reduced. Reduced noise improves visitor access to sounds that signal the presence of fish and game species, birds, and other wildlife. Improved lighting in parks makes starry night skies more visible, improving visitor access to star parties, astrophotography, and other astronomy based park programming. Enhancing nightly activities in parks extends daily and seasonal patterns of visitation, increasing revenues in parks and gateway communities.

Keywords: Noise Pollution, Light Pollution, Natural Sounds, Night Skies, Colorado State University, Yellowstone National Park, National Park Service, Recreation, Park Visitation