

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Development and testing LIDAR to study insect responses to light and noise

Discipline: Interdisciplinary

Type of Project: Technical Assistance/Research

Funding Agency: National Park Service

Other Partners/Cooperators: Montana State University

Student Involvement: Yes, master's student and undergraduate students

Effective Dates: 08/01/2015 - 09/30/2019

Funding Amount: \$145,473

Investigators and Agency Representative:

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Project Abstract:

This project supports the development and testing of new lidar technology to noninvasively sample the density of nocturnal flying insects and provide clues to their identities from the strength of the reflected light and the oscillation in reflected light (due to the motion of the wings). This instrument will provide new methods for studying the effects of noise and light pollution on the spatial distribution and behavior of the nocturnal flying insect fauna. Artificial light at night is known to affect the movements and behavior of flying insects. This instrument serves a public purpose by: will (1) creating opportunities to measure the effects of lighting in remote locations that have historically been free from artificial light, (2) stimulating interdisciplinary research activity linking electronic and optical engineering with environmental biology, and supporting the recipient in development of new applications of emerging technologies.

Keywords:

Lidar scanning, nocturnal insects, effects of light pollution, effects of noise pollution, Montana State University