

**Project Summary**  
**Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title: Continuation of Investigation of Nitrogen Deposition into Loch Vale, Rocky Mountain National Park**

**Discipline:** Natural  
**Type of Project:** Research/Technical Assistance  
**Funding Agency:** National Park Service  
**Cooperators:** Colorado State University  
**Student Involvement:** yes  
**Effective Dates:** 7/1/2017 - 12/31/2020  
**Funding Amount:** \$20,000

**Investigators and Agency Representatives:**

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**Project Abstract:** Atmospheric nitrogen deposition has increased significantly in several western National Parks, which are protected under the Clean Air Act Amendments of 1977 as Class 1 areas. The National Park Service, the United States Environmental Protection Agency, and Colorado Department of Public Health and Environment have entered into an agreement to address the issue of nitrogen deposition and its effects in Rocky Mountain National Park. The Nitrogen Deposition Reduction Plan established by the State of Colorado stipulates that wet deposition measured at the Loch Vale site in Rocky Mountain National Park be used to determine the effectiveness of emissions controls. One objective of this agreement states that Rocky Mountain National Park will continue to research, investigate, and report current levels of nitrogen deposition. It is imperative that additional investigation into atmospheric nitrogen deposition and its effects is conducted through 2020.

This project addresses public purpose by 1) researchers benefitting from an opportunity to conduct nitrogen deposition research in designated wilderness at RMNP, an International Biosphere Reserve, and conduct research in a National Park with differing rules, regulations and research permit processes than those found in other public lands, 2) this project will foster good field techniques and analytical skills, 3) publication of results in Rocky Mountain Conservancy newsletters, peer-reviewed publications, agency reports, environmental compliance documents, and presentations at conferences will provide land managers within RMNP and those outside of the park and the NPS with results and lessons learned in monitoring of nitrogen deposition in a high elevation environment, 4) Colorado State University and the research project will benefit from having a high quality natural area in which to conduct the field research and educational activities, 5) the research and results will be incorporated into educational materials taught in undergraduate and graduate courses at CSU, Rocky Mountain National Park will benefit from improved information, greater knowledge of nitrogen deposition in the park, and advanced professional skills of ecologists who may make future significant scientific contributions in RMNP and the surrounding areas.

**Keywords:** nitrogen deposition, monitor, Loch Vale, Rocky Mountain National Park, Colorado State University