

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

Project Title: Characterizing air quality in Carlsbad Caverns and other SW U.S. National Parks

Discipline: Natural

Type of Project: Technical Assistance

Funding Agency: National Park Service

Other Partners/Cooperators: Colorado State University

Effective Dates: 9/1/2017 - 1/31/2019

Funding Amount: \$398,477

Investigators and Agency Representative:

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Project Abstract: The goal of the project is to improve our understanding of the sources, transport, atmospheric transformation, deposition, and impacts of air pollutants in U.S. National Parks. The project efforts are designed to complement measurements from routine monitoring networks (e.g. Interagency Monitoring of Protected Visual Environments (IMPROVE), Ammonia Monitoring (AMon), National Atmospheric Deposition Program, (NADP), Clean Air Status and Trends Network (CASTNet)) to provide more detailed characterization of air quality problems in particular parks and regions and to identify key gaps associated with current air quality and deposition monitoring strategies. These results are critical for understanding the role and contributions of agricultural, energy develop, and other activities on air quality in our National Parks.

Specific objective of this work are to (1) complete the analysis and publication of findings from the 2013/14 field experiments in Theodore Roosevelt National Park and surrounding areas of the Bakken shale region; (2) publish the findings from the summer 2014 Front Range Pollution and Photochemistry (FRAPPE) deployment in Rocky Mountain National Park; (3) continue the monitoring of reactive nitrogen species concentration and deposition in RMNP; (4) analyze the 2017 VOC monitoring results to better understand source contributions and ozone formation chemistry in four southwestern U.S. parks; and (5) expand monitoring of air quality, including reactive nitrogen, fine particles, and VOCs in Carlsbad Caverns NP during spring to fall 2018.

Keywords: Colorado State University, NPS-Air Resources Division, air quality, Carlsbad Caverns