Rocky Mountain National Park Soils Not Significant Sources of Ammonia

Increasing nitrogen loads in the Rocky Mountains raise concerns about negative impacts on the water, soils, and wildlife. It was recently suggested that soils within the park itself might be important sources of ammonia (NH$_3$). However, no studies have until now confirmed this claim.

In the July–August issue of the Journal of Environmental Quality, researchers report on a study of ammonia (NH$_3$) emissions from subalpine forest and grassland soils in Rocky Mountain National Park, CO. Moreover, the researchers parameterized an emission model and investigated the effects of ammonium (NH$_4^+$) deposition on soil emissions.

The researchers found forests soils to have smaller (roughly 40%) ammonia emissions than grassland soils although forest ecosystems tend to be more commonplace in the Rocky Mountains. The reported magnitudes are vital to understanding nitrogen cycling in these sensitive ecosystems.

Given the urgent need for understanding sources of reduced nitrogen in the Rocky Mountain National Park airshed, this study provides important information indicating that native soils are not major natural sources. Thus, more work is clearly needed to fully understand reduced nitrogen source apportionment within these sensitive ecosystems.


doi:10.2134/csa2018.63.0906

Economic Forces Impact Student Engagement in Field-based Learning Experiences

Learning experiences led by professionals in field-based courses for non-soil science majors provide an opportunity for students to apply soil science skills and knowledge in the context of a relevant profession. Little is known about how these learning experiences impact the student engagement and future career plans.

In an article recently published in Natural Sciences Education, researchers report on a four-year study that surveyed student preferences and perceptions of three learning experiences in a field-based course: one led by an academic, another by a government professional, and the third by an industry professional.

Overall, most students preferred the government-led learning experience and perceived it to be most relevant to future career plans although student comments indicated that they valued both professional learning experiences. Year-to-year variation indicated that the industry-led experience was least preferred and perceived to be least relevant in 2014 and 2015, years that coincided with the crash of crude oil prices and economic downturn in western Canada.

The inclusion of professionally relevant learning experiences added considerable value to the student experience, but student preferences and perceptions of these experiences can be altered by related employment market and economic forces.


doi:10.2134/csa2018.63.0907