# Environmental Science Graduate Program Student Seminar Series

*Ecosystem impacts of and control methods for non-native plant species on National Park lands*

**Zach Hoyer**

**Smith 3150 | 11/22/19 | 2:00 - 3:00 pm**

**Abstract:**

The presentation will detail my seasonal work as a biological science technician for NPS. At both Badlands (2018) and Grand Tetons (2019) parks, I had the opportunity to work in Science and Resource Management (SRM) and address the ongoing intrusion of non-native plant species. These primarily fieldwork positions allowed me to improve ecosystem functionality firsthand in park regions that would otherwise continue to degrade. Additionally, I will discuss control methods and standards set by the National Park Service as well invasive flora variability between the two contrasting locations. An introduction to my personal research will be included, for which data was collected during my six-month residency in Wyoming.

The study serves to analyze CO2 soil flux (fCO2), or the movement of CO2 gas out of soils though respiration processes. A spatial analysis of invasive Bromus tectorum (cheatgrass) in Grand Teton National Park hayfields and a localized quantitative analysis of fCO2 will aim at determining how the presence of non-native plant species in an alpine-sagebrush ecosystem impact CO2 soil flux. Cheatgrass surveys were conducted in hayfields using Trimble Geo7x handheld technology to calculate for localized percent cover. These data were reformatted and later analyzed spatially using ArcGIS and associated programs. fCO2 measurements were taken using LI-8100 Soil CO2 Flux System with 100-A chamber and soil collars.