

**AGRICULTURAL RESEARCH FOUNDATION
INTERIM REPORT
FUNDING CYCLE 2016 – 2018**

TITLE: Does Soil Conditioning Contribute to the Invasion of *Venttenata dubia* in Oregon?

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SUMMARY:

In the Pacific Northwest, there is a long history of exotic grasses being introduced and then spreading to other parts of the West. Most recently, ventenata (*Venttenata dubia*), first seen in Washington in 1952, has been spreading throughout rangelands, hayfields, and croplands of the Pacific Northwest. Unfortunately, very little is known about venenata's basic ecology, the conditions that enable its spread, or how it can be controlled. What is known is that it has spread at an alarmingly rapid rate and has become the dominant plant in many areas. There are many ways that plants from other parts of the world are able to move into a new environment and become the dominant plant. One of these invasion tactics, called "soil conditioning", involves the ability of some plants to alter the soil in a way that promotes its own growth while inhibiting growth from competing plants. Plants can do this in several different ways including altering nutrient levels, changing the microbial community in the soil, or by secreting poisons that affect other plants.

OBJECTIVES:

The objective of this study is to determine if ventenata is using soil conditioning (altering soils in a way that benefits itself while inhibiting other vegetation) as a mechanism to assist in its invasion. Specifically, I will examine 1) what, if any, soil attributes are affected when ventenata is grown in a soil compared to a native grass, and 2) does the "conditioned" soil from ventenata affect native grass growth and performance?

PROCEDURES:

To test for the impacts of soil condition by ventenata, we compared the final biomass of the native grass bluebunch wheatgrass (*Pseudoroegnaria spicata*) to the final biomass of ventenata grown in a greenhouse in pots of field-collected soils that were in close proximity and either "conditioned" or "non-conditioned" by ventenata in the same soil type from two different sites. We used subsamples from each soil at the two sites for soil pH, texture, and nutrient analysis.

SIGNIFICANT ACCOMPLISHMENTS TO DATE:

An initial greenhouse study for this project was completed in the summer of 2016. The data have been analyzed and summarized for an undergraduate poster presentation at the Society for Range Management meeting in January 2017. Soil sampling for affects from ventenata will continue through the spring of 2017.

ADDITIONAL FUNDING RECEIVED DURING PROJECT TERM:

I was able to obtain funds from the OSU Branch Experiment Station Internship program (\$3,500) to help offset the costs of undergraduate researcher for this study.

FUTURE FUNDING POSSIBILITIES:

Results from this project may be used to pursue additional funding opportunities through the USDA-NIFA (AFRI Foundational Program).