David Little Livestock
Range Management Endowment
AT THE UNIVERSITY OF IDAHO

2017 Project Progress Report:

Use of Plateau® for control of cheatgrass and reestablishment of rangeland species seeded in spring or fall

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PERSONNEL:

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PRELIMINARY RESULTS FOR 2017:

BACKGROUND:

Cheatgrass (*Bromus Tectorum*) is one of the most widespread invasive annual grass species in Idaho. In 1993, cheatgrass was found on 3.3 million acres of public land in the Northern Great Basin desert (Oregon, Idaho, Nevada, California and Utah) with more than 76 million acres of public land at risk for invasion by cheatgrass and other invasive annual grasses (Hall, 1994). Cheatgrass has been able to overtake these desert landscapes because of its ability to invade disturbed ecosystems and out-compete native perennial grasses. Because cheatgrass is an invasive species it has very few natural control mechanisms, leaving it unchecked in the vast rangeland ecosystems of south central Idaho.

Historically, range fires have occurred at intervals of 20-50 years in southern Idaho. However, in more recent years the invasion of cheatgrass has changed the cycle to 2-10 years. In the summer of 2017 alone, over 100,000 acres of Lincoln County burned in range fires, the largest of which was the Mammoth Fire, burning over 50,000 acres in a few days' time. Following a significant fire event land managers that apply the herbicide Plateau® will typically wait to re-seed until the next fall. However, this delays when livestock can re-enter the area for grazing. Land owners are interested in knowing if they can re-seed the spring following a Plateau® application and what implications this may have on the long-term use of the land for livestock grazing. Our research is designed to investigate the use of the herbicide Plateau® and seeding following herbicide application.

HYPOTHESIS or OBJECTIVES:

The objective of this research was to determine methods of preventing cheatgrass invasion and reestablishing dryland range pasture following a range fire event. Note the intended use of *Pseudomonas fluorescens* as a cheatgrass control was no longer feasible because the commercial production of that bacteria ceased in the summer of 2017. Because of this, the experimental design changed to look at the use of Plateau® prior to spring or fall range plantings.

Objective 1: Determine what effects reseeding pasture the spring following a Plateau® application has on desirable range species.

Hypothesis 1: Reseeding pasture the spring following a Plateau® application will have a lower rate of seed establishment than reseeding the following fall, but will still be successful.

Objective 2: Determine if reseeding is more successful in the spring or fall following a Plateau® application or no Plateau® application.

Hypothesis 2: Reseeding is most successful following a Plateau® application, as the herbicide will suppress invasive annual grasses such as cheatgrass from competing with the desirable species planted.

PROCEDURES:
Two sites within Lincoln County were identified in the spring of 2017 and were established on October 16, 2017.

Site A: Evaluate use of imazapic herbicide (tradename – Plateau®) use, with separate spring and fall seedings after application.

5 1	**2** 2	**1** 3	**3** 4	**4** 5	**3** 6	**4** 7	**2** 8	**1** 9	**5** 10
3 11	**1** 12	**5** 13	**4** 14	**2** 15	**1** 16	**2** 17	**4** 18	**5** 19	**3** 20

Figure 1. Plot map of Site A. Treatments are as follows: 1- Plateau + Spring Planting, 2- Plateau + Fall Planting, 3- No Plateau + Spring Planting, 4- No Plateau + Fall Planting, 5- Control.

Site B: Case Study - Evaluate Plateau® use after a range fire with a spring and a fall seeding. This site is 40 acres in size and was burned in August 2017 during the Mammoth Fire. The initial Plateau® treatment was applied on October 17 and a portion of the site will be planted in spring and in fall 2018.

Image 1. Application of Plateau by county weed supervisor, Terry Ruby, on Site B on October 17, 2017, two months after the Mammoth Fire.

ACCOMPLISHMENTS or RESULTS:

Data including measurements of percent vegetative cover, precipitation and temperature will be collected starting January 2018. Sampling will occur in the spring, summer and fall until 2020.

PUBLICATIONS or OUTPUTS:

Since plots were initially established in October 2017, and this will be a long-term study, no publications have been produced to date. However, the research team has plans to present background of the project at Extension meetings this winter, followed by field days in the years to come. The team also plans to publish an extension bulletin on the use of Plateau® in post-fire rehabilitation, and a scientific peer-reviewed journal article on the use of Plateau® in conjunction with spring or fall re-seeding.