

# Management of Cheatgrass Fuel Loading in the Shrub-Steppe<sup>1</sup>

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## Project Report

The Columbia Basin Natural Wildlife Refuge (CNWR) had been periodically grazed until the Refuge was established in 1944. Cheatgrass became a prominent plant in the area. In 1986 a fire occurred near the study area. The area was reseeded with *Elymus wawawaiensis* (Snake River Wheatgrass, Secar cultivar). This grass has established reducing cheatgrass cover to very low levels.



The study area was established in 2002 to test hypotheses on the effects of herbicides on plant community structure and establishment of *Elymus wawawaiensis*. In 2002 study plots were established and characterized before treatment applications. Treatments were initiated in October 2002 by burning the area. Plateau herbicide (0, 1, 2, 4 and 8 oz acre<sup>-1</sup>) was applied in October to a set of plots. On February 19, 2003, *Elymus wawawaiensis* was drill seeded in split plots. In March 2003 Roundup herbicide was applied to another set of plots. In March 2004 Roundup was application was

repeated on another set of plots. Plots were monitored in 2002, 2003, and 2004. Plots were again monitored in 2008, 2009, and 2010. Associated fire risk assessments were made in restored plant communities at CNWR in 2004. A fire risk assessment with respect to cheatgrass cover was done at the Saddle Mountain National Wildlife Refuge.

On May 29, 2013 the NW Fire science Consortium sponsored a technical field tour to the research site, led by Dr. Steven Link of the Confederated Tribes of the Umatilla Indian Reservation & Native Plant Landscaping and Restoration LLC. Dr. Link discusses the results of his recent research on controlling cheatgrass and fire risk on the CNWR. Discussion points included:

1. The relationship between fire and cheatgrass
2. Estimating cheatgrass cover and mapping fire risk using aerial photography
3. Integrated weed management: using prescribed fire, herbicides, and seeding native bunchgrass to control cheatgrass
4. Risks associated with using "Plateau" herbicide

Research results suggested the following:

1. Fire risk is 100% when cheatgrass cover is about 45% or greater.
2. Cheatgrass cover can be estimated using aerial photography and with the relationship between cover and fire risk, fire risk can be mapped.

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<sup>1</sup> Prepared by Janean Creighton, June 10, 2013

3. Reducing cheatgrass cover to about 3% using Snake River wheatgrass reduces fire risk to 66%.
4. After three seasons it was concluded that application of imazapic (Plateau) herbicide at a rate of 4 or 8 oz. /acre after a prescribed burn in October and then drill-seed in mid-February was the best strategy to establish *E. wawawaiensis*.
5. In the eighth year after treatment application, *E. wawawaiensis* cover of 12% resulting in significantly ( $p = 0.002$ ) less *B. tectorum* cover ( $21.2 \pm 4.1\%$ ) in treated plots than in plots that were only burned ( $46.9 \pm 4.4\%$ ).
6. Increasing the seeding rate of *E. wawawaiensis* is likely to increase bunchgrass cover that will likely reduce cheatgrass cover further.
7. At the study site it was observed that the percent of senescent *E. wawawaiensis* bunchgrass plants had risen to about 17% in the eighth year after seeding. Older populations had large patches of senescent *E. wawawaiensis*.
8. It likely is better to increase seed of native bunchgrasses for local efforts to sustainably control cheatgrass.



## Evaluation results

One hundred percent of respondents indicated that they intend to use the information they received during the workshop in their work. When asked if they would recommend the tour to others, 100% said yes. When asked if they would attend another field tour on the subject, 86% of respondents said that they would attend.

Participants were asked to indicate the usefulness of the materials and information presented (where “5” is very useful and “1” is not at all useful):

### Material overall

<u>Rating</u>	<u>Mean = 3.9 (n=7)</u>
5 (very useful)	14%
4	72%
3	0
2	14%
1 (not at all useful)	0

### Level of specificity

<u>Rating</u>	<u>Mean = 3.7 (n=7)</u>
5 (very useful)	14%
4	58%
3	14%
2	14%
1 (not at all useful)	0

### Overall delivery

<u>Rating</u>	<u>Mean = 3.6 (n=7)</u>
5 (very useful)	28%
4	28%
3	16%
2	28%
1 (not at all useful)	0

Participants were also asked to rate opportunities for networking (where “5” is great and “1” is poor)

### Opportunities to engage with others

<u>Rating</u>	<u>Mean = 3.7 (n=7)</u>
5 (very useful)	44%
4	14%
3	14%
2	28%
1 (not at all useful)	0

### Mix of people on the tour

<u>Rating</u>	<u>Mean = 3.7 (n=7)</u>
5 (very useful)	28%
4	28%
3	28%
2	16%
1 (not at all useful)	0

### Overall satisfaction with the tour

<u>Rating</u>	<u>Mean = 4.0 (n=7)</u>
5 (very useful)	28%
4	44%
3	28%
2	0
1 (not at all useful)	0

Participants were asked a series of open-ended questions. Below are the aggregated responses:

#### 1. Comments about the materials:

- The material was informative but the presentation seemed to lack a bit of depth for me
- It is more info to add to the store of info about managing cheatgrass
- Meeting provides better opportunity to ask questions about material that you don't get just reading a report
- Good presentation

**2. Comments about networking opportunities:**

- It is always good to get together with other professionals and share ideas and create professional contacts
- It was good for the short time we had
- Would have been nice to do intros/ice breaker at the start
- Okay

**3. What did you find most useful?**

- It was good to be able to see the results of the application on the ground. Always good to learn from others that have “been there; done that”. Helps to avoid making the same mistakes
- Looking in the field
- Discussing opportunities for lessening cheatgrass continuity

**4. What would have made this tour more valuable to your work?**

- It would have been nice to have a bit more diversity of panel presenters to answer questions. i.e. specialists in botany, chemicals, region, etc.
- Better prep for the field discussion

**Additional comments:**

- This topic is extremely relevant to restoration of shrub steppe ecosystems. If we can shift the focus from post fire restoration efforts to preventative management (reducing fire risk) then we will be ahead. This research shows that reducing cheatgrass is a key to reducing fire risk
- Just an appreciation for including WDFW on these field tours