



A Study of Cheatgrass on the Uncompahgre Plateau

In Summer 2004, the UP Project invited Dr. Allan Stevens, the chair of the Biology Department at Snow College, UT, to undertake a study of the ecology, distribution, and occurrences of different populations (genotypes) of the invasive weed, cheatgrass (*Bromus tectorum* L.) on the Uncompahgre Plateau.

Through funding provided by the BLM and U.S. Forest Service, Dr. Stevens was able to inventory and map the areas of cheatgrass infestation on the Plateau. The level of each infestation was noted, causes for the infestation were observed, and random samples of seed were collected to analyze genotypes. The results of this study can assist land managers in their understanding of cheatgrass infestations and in their restoration efforts.



Cheatgrass invasion after a fire on the Plateau

Cheatgrass, an annual grass introduced from Eurasia at the turn of the century, is considered the most significant plant invasion into North America [1] with over 40 million hectares overtaken [2]. Like other aggressive, noxious weeds, after disturbances, cheatgrass can displace diverse native vegetation - creating a monoculture and degrading wildlife habitat and natural resources. Once cheatgrass dominates a plant community, reestablishment of natives is extremely difficult [3].



Cheatgrass infestation in an area recently logged and not revegetated

Cheatgrass invasions also increase the frequency of fires [4], further damaging the ecosystem.

Cheatgrass infestations were found across the entire Uncompahgre Plateau. They ranged from very high density to very low density. The areas of highest density were usually low elevation sites where major disturbances had occurred. The two most common major disturbances to cause such infestations were fire and overgrazing. Areas with moderate infestations were low to medium elevations and the result of moderate to major disturbances such as: fire, logging, roads, and overgrazing. Areas with the lowest densities were medium to high elevation sites and the result of moderate to low disturbances.

It was found that the ecosystems most susceptible to cheatgrass infestations are lower



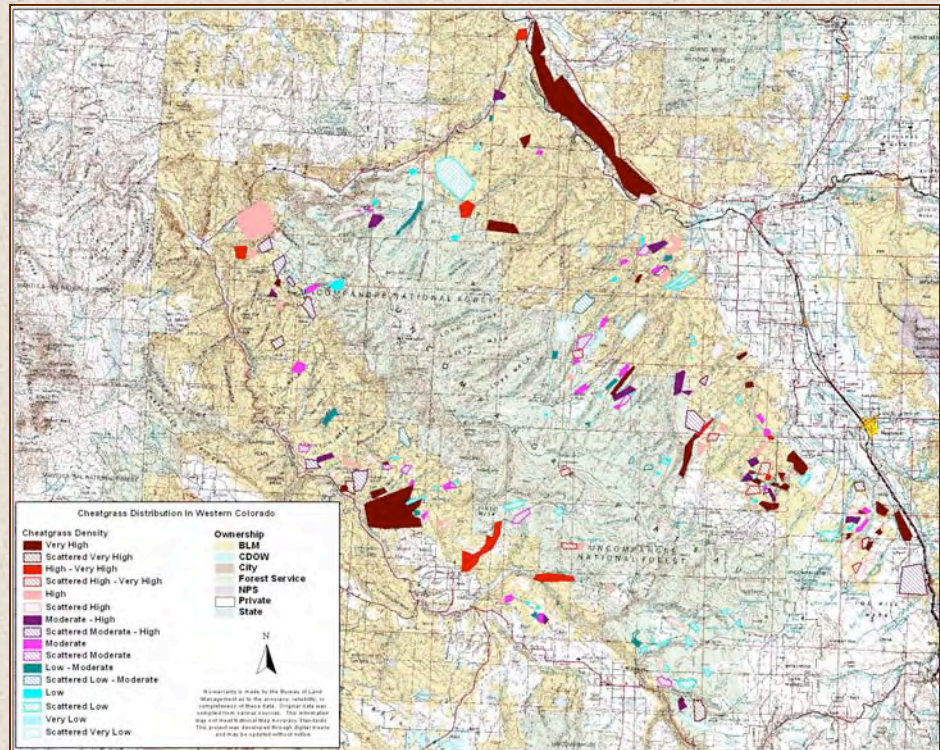
Cheatgrass infestation at high elevation in a ponderosa pine community



elevation sites in the sagebrush and pinyon- juniper communities. There should be a concentrated effort by land managers, user groups, permittees, and private citizens to prevent the spread of cheatgrass in these critical areas.

The DNA studies, conducted at Brigham Young University, UT, identified 22 different genotypes of cheatgrass on the Plateau. These results indicate that there were a series of introductions of cheatgrass on the Plateau. The genotypes found are well adapted to the range of environmental variables present. The results of this study show the need for a concerted effort to restore areas infested by cheatgrass and to prevent the further spread of this species. Recommendations include:

- Seed after disturbances with native, perennial species.
- Graze at the proper time of year. Possibly eliminate spring grazing in high risk areas.
- Eliminate grazing on disturbed areas for at least 4 years. Areas were found where the beneficial effects of range improvements and fire restoration were completely negated by allowing livestock to graze these areas too soon after treatment.
- Reseed areas along roads. Road maintenance is a major cause of the spread of cheatgrass.
- Treat small areas of infestation with chemicals and seeding. There is the opportunity to save native vegetation in areas where cheatgrass is not yet a monoculture.



Map of cheatgrass populations on the Uncompahgre Plateau depicting various densities and areas of infestations.

The baseline data of this study can be used to measure the success of management strategies and restoration projects and to continue to track the status of cheatgrass on the Plateau. This information can also benefit land managers in their understanding of what areas are most susceptible to cheatgrass infestations, possible disturbance mechanisms that create and spread this annual, and what treatments are most effective in the prevention of additional infestations.

References

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