Effects of grass seeding on native and exotic vegetation following fuels-reduction treatments by mastication and burning

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INTRODUCTION

Brush mastication has been widely used throughout the Applegate Valley of southern Oregon to reduce fuels in wildland-urban interfaces dominated by fire-suppressed chaparral. This study examines the effects of prescribed fire and seeding of native bunchgrass in brush masticated chaparral on (1) germination and establishment of native grasses, (2) control of exotic annual grasses and forbs, and (3) maintenance of native species richness.

METHODS

Study Site: China Gulch, Applegate Valley, Oregon
Study Design: 30 paired plots, seeded and unseeded, in each of 4 treatment blocks: Spring Burn, Spring Control, Fall Burn, Fall Control
Total of 120 1-m² plots
Test Species: Bromus carinatus, Elymus glaucus, Festuca roemeri, Achnatherum lemmonii

Protocol: Randomly selected plots were sowed with 0.28 g/1-m² plot of seed of each grass species 48 hrs after burning in fall 2005 and spring 2006.
Pre-treatment vegetation surveys: summer 2005
Post-treatment vegetation surveys: spring and summer 2006
FIREMON protocol was used to estimate plant species cover for all 1-m² plots.

Germination of native grasses
The fall burn consumed all the litter and left bare soil in which seeded grass germinated. Cool wet weather followed the fall burn. Spring conditions were too wet to burn evenly, but the season dried out too quickly for germination to occur.

HYPOTHESES
H1: Seeded native grasses will germinate in burned plots.
H2: Exotic species will decrease and native species will increase after burns.
H3: Total species richness will increase in burned plots.
H4: Vegetation composition will shift toward natives following burning.

GOAL: To develop a management protocol for areas converted from chaparral to herbaceous vegetation for fire safety in wildland-urban interfaces.

Effects of Madia on species richness

Dense populations of Madia spp. (tarweed) may prevent establishment of other forbs due to allelopathy.

REFERENCES

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