



Effects on native plant regeneration and understory plant community response following post-fire rehabilitation with seeding in the Warm Fire

Melissa McMaster, Andrea Thode, Ethan Aumack, Dave Mertz

Introduction

On June 8th, 2006, a lightning strike ignited the Warm Fire on the northeastern edge of the Kaibab Plateau. The fire burned in mixed conifer, ponderosa and pinyon/juniper communities. Our study is focusing on ponderosa and we have begun an assessment across two fire severities: high and low and seperated out the high severity seeded and not seeded areas. We also have unburned controls around the perimeter of the fire.

The objectives of this research are to: 1) determine the effects of seeding with *Lolium multiflorum* on native vegetation 2) characterize the understory vegetation response to fire severity 3) assess, anecdotally, the differences in pre- and post-fire vegetation with eleven 2005 GCT plots

Abstract

On June 8th, 2006, a lightning strike ignited the Warm Fire on the northeastern edge of the Kaibab Plateau. The fire was managed first as a Wildland Fire Use (WFU) fire and then as a wildland fire, burning a total of 24,000 ha, and was one of the most substantial fires to burn in the Southwest in recent history. The fire has caused a tremendous amount of controversy about the WFU program and management decisions made by the Kaibab National Forest, thus, illustrating the pressing need to resolve a growing interest in WFU with the need to safely manage fires for community protection and ecological health. Through the partnership with Grand Canyon Trust, Northern Arizona University and the Forest Service, we have completed two seasons of assessment with a total of 100 plots spread throughout the high severity portions of both the wildland and WFU sections of the fire, low severity areas and controls outside the burn. This research characterized understory vegetation response (plant community, percent cover of vegetation, diversity and density) across the ponderosa pine forests in the Warm Fire. Interpretation of these effects will be instrumental in guiding post-fire management decisions.

Analysis

Methods

Treatments:

25 plots per category=100 total plots

- High: seeded and not seeded
- Low severity
- Unburned controls

Measurements:

Ocular estimates: Taken per 1x1m quadrat

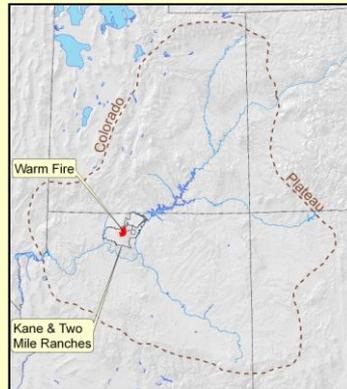
- % plant canopy cover per species
- % cover of grasses, forbs and total vegetation
- average height of species

Biomass: Taken per 1x.3m quadrats

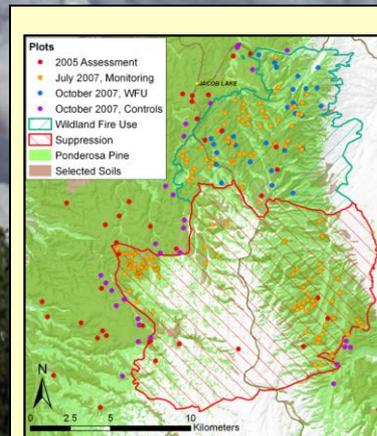
- density of species
- dry weight per species

Total Plot:

- Species diveristy
- Tree seedling search for recruitment
- Shrub count



Location of the Warm Fire



Potential plots after stratification

Discussion

Implications for post-fire management:

• WFU is an increasingly important tool for land managers working to restore a fire regime in the forests. It is of critical importance that we understand the ecological implications of such fire use and compare that with suppression actions and subsequent BAER treatments.

• We will provide a framework for the Forest Service to identify and prioritize post-fire rehabilitation and management regarding the effects on understory vegetation and ponderosa pine mortality.

• Our results will assist land managers in ecologically appropriate landscape approaches to fire management and forest restoration.

Literature Cited

Acknowledgements

Thank you to the Joint Fire Sciences Program and the Grand Canyon Trust for funding this project and the Kaibab National Forest for supporting my efforts. Thanks to my amazing field crews the past two summers and the Grand Canyon Trust volunteers that made this project possible.