

The Effect of Slash Pile Burning on Plant Communities on the Pine Ridge Escarpment

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Objectives

- Determine invasion sequences on slash pile sites
- Assess the concern of invasive species establishing on these disturbed sites



Study Area & Time Frame

- Second year of a continuing study
- Carried out on the Pine Ridge Escarpment south of Chadron, Nebraska

Methods

- Treatments: unburned, piled and removed, piled and burned
- North/south, East/west transect lines
 - Density counts/species at 20, 70, 120, & 170 cm lengths with 0.1m² frames
- Species list taken within plot
- Species list taken outside plot
- 2 randomly located 0.1m² frames clipped
- Point estimation of basal cover every 10 cm

Methods Pictures



Unburned Plots 2003

- Kentucky bluegrass (*Poa pratensis*) most abundant
- Ponderosa pine (*Pinus ponderosa*) and sedge (*Carex* sp.) were present
- Scribner's panicum (*Dicanthelium oligosanthos* var. *scribnerianum*) and dandelion (*Taraxacum officinale*) also found within the plot
- No extreme basal gaps

Unburned Plots 2004

- Kentucky bluegrass most abundant
- Green needlegrass (*Stipa viridula*) abundant
- Ponderosa pine, dandelion, and sedge were common in sample area
- Western salsify (*Tragopogon dubius*), Scribner's panicum, and moss and fungi also found
- No extreme basal gaps

Unburned 2004



Piled and Removed 2003

- Sedge and Ponderosa pine most prevalent
- Sideoats grama (*Bouteloua curtipendula*) common
- Scribner's panicum, Kentucky bluegrass, prickly lettuce (*Lactuca serriola*), Montana wheatgrass (*Elymus albicans*) also found
- Debris visible

Piled and Removed 2004

- Sedge most prevalent
- Western salsify, Montana wheatgrass, Kentucky bluegrass, downy brome (*Bromus tectorum*) common
- Sideoats grama, dandelion and ponderosa pine also found
- Debris still visible

Piled and Removed Plot 1 2004



Piled and Removed Plot 2 2004



Piled and Removed

- Little change seen
- Average of decrease of 2.5 individuals per plot
- Prickly lettuce went out and downy brome came in

Burned Plot 1

2003

- Some bare spots still present
- Sedge most common
- Wildrye, sideoats grama, and needle and thread (*Hesperostipa comata*) present

2004

- Bare spots less prevalent
- Sedge most common
- Montana wheatgrass, sideoats grama, and downy brome also found
- Prickly lettuce found singularly

Burned Plot 1 2004



Burned Plot 2

2003

- Some bare spots prevalent
- Sedge, false boneset (*Brickellia eupatorioides*), Scribner's panicum, and Kentucky bluegrass found in samples

2004

- Bare spots uncommon to not prevalent
- Sedge most common
- Western ragweed (*Ambrosia psilostachya*), downy brome, Montana wheatgrass, Scribner's panicum, and Kentucky bluegrass common

Burned Plot 2 2004



Burned Plot 3

2003

- Bare areas common
- Scribner's panicum and dandelions most common
- Montana wheatgrass and sand bluestem also present

2004

- Bare areas less common
- Scribner's panicum most common
- Montana wheatgrass, downy brome, and dandelion also found

Burned Plot 3 2004



Burned Plot 4

2003

- Most of plot bare
- Single dandelion present

2004

- Bare areas less prevalent
- Moss and fungi ground cover common
- Wildrye most common
- Downy brome, Montana wheatgrass, Kentucky bluegrass, and dandelion also present

Burnt Plot 4 2004



Burned Plot 5

2003

- Bare spots common
- Dandelions and sedge most common
- Scribners panicum and beebalm (*Monarda* sp.) also present

2004

- Major regrowth shown
- Kentucky bluegrass most prevalent
- Downy brome, Montana wheatgrass, and western ragweed common
- Dandelion, Scribner's panicum, and prickly lettuce also present

Burned Plot 5 2004



Conclusion

- Burned plots showing some level of healing in one year
- Kentucky bluegrass, downy brome, dandelion, and prickly lettuce most common exotics
- No noxious weeds have established yet
- Many species the same across treatments

Invasive Species Study at Jewel Cave Post Jasper Fire





- New exotic species documented
 - Musk thistle (*Carduus nutans*)
- Problem increase in exotic species
 - Prickly lettuce (*Lactuca serriola*) and other minor *Lactuca* species
 - Canada thistle (*Cirsium arvense*)











