Habitat Restoration and Cheatgrass across Nevada:
Wet and Dry Years: Is There a Difference?

Nevada Partners for Conservation and Development

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Outline

• Nevada Partners for Conservation and Development (NPCD) habitat restoration
• Cheatgrass (*Bromus tectorum*) impacts on Great Basin ecology
  – Sage grouse, Wyoming sagebrush, fire cycle
• Effects of dry and wet years on cheatgrass
  – Does it matter?
• Restoration efforts and planning in the context of weeds, climate change, altered fire cycles
Define Ecological Concepts

• Resilience - ability of a system to recover from disturbance
• Resistance - ability of system to keep invasive species out
  – Contrast with invasibility
• Extensive research on these topics world-wide in variety of ecosystems
What the NPCD is and is not

– Not a new planning effort
– Not intended to disrupt ongoing agency or other entities’ restoration work
– Intent is to:
  • Facilitate diverse coalition building
  • Initiate new project work
  • Add value and expand scope on existing projects
  • Aid in pre and post-treatment monitoring
  • Act as implementation arm for existing planning efforts
  • Implement landscape scale projects
    Projects that address scale of the problem
Great Basin Ecological Problems

- Introduced invasive species increase fire risk
- Longer fire season
- Increased fire intensity and rates of spread
- Many millions of acres
- Photo could be from Nevada
- Ecological site common
- Impacts sage-grouse habitat
Cheatgrass Dominated Rangelands in the Great Basin

Millions more acres have cheatgrass in the understory
Cheatgrass/Wildfire Connection across Great Basin
Cheatgrass in Changing Climate

• Increased CO2
• Shifts in timing of moisture
  – Late, warm season is different than winter
    • On native and non-native plants
• Cheatgrass Die-Off
  – Wet and dry year effects
• Habitat restoration
  – Really, we are trying to restore resilience
Cheatgrass Die-Off

• Cheatgrass dying in numerous places across Great Basin
• Large spatial scale
  – 350,000 acres in Humboldt County, NV in 2011
• Temporal scale unknown
  – Documented as early as 1940s in So. Idaho
  – Persistence of individual die-off areas variable
• Current working hypothesis
  – Summer moisture (warm) may be key to fungus killing seeds
  – Winter moisture may be less important
• Is occurring this year
  –Extent won’t be known for months
• Restoration opportunity?
  – Research underway
  – Plant desirable species in die-offs
  – Satellite imagery to predict
Cheatgrass Die-Off near Winnemucca
Izzenhood Basin
Double H Range
Post-fire revegetation
Rye Grass Fire
Post-fire revegetation
Questions?
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