

Humanity is exalted not because we are so far above other living creatures, but because knowing them well elevates the very concept of life.



Photo by Ryan Long

Post-Fire Emergency Watershed Restoration

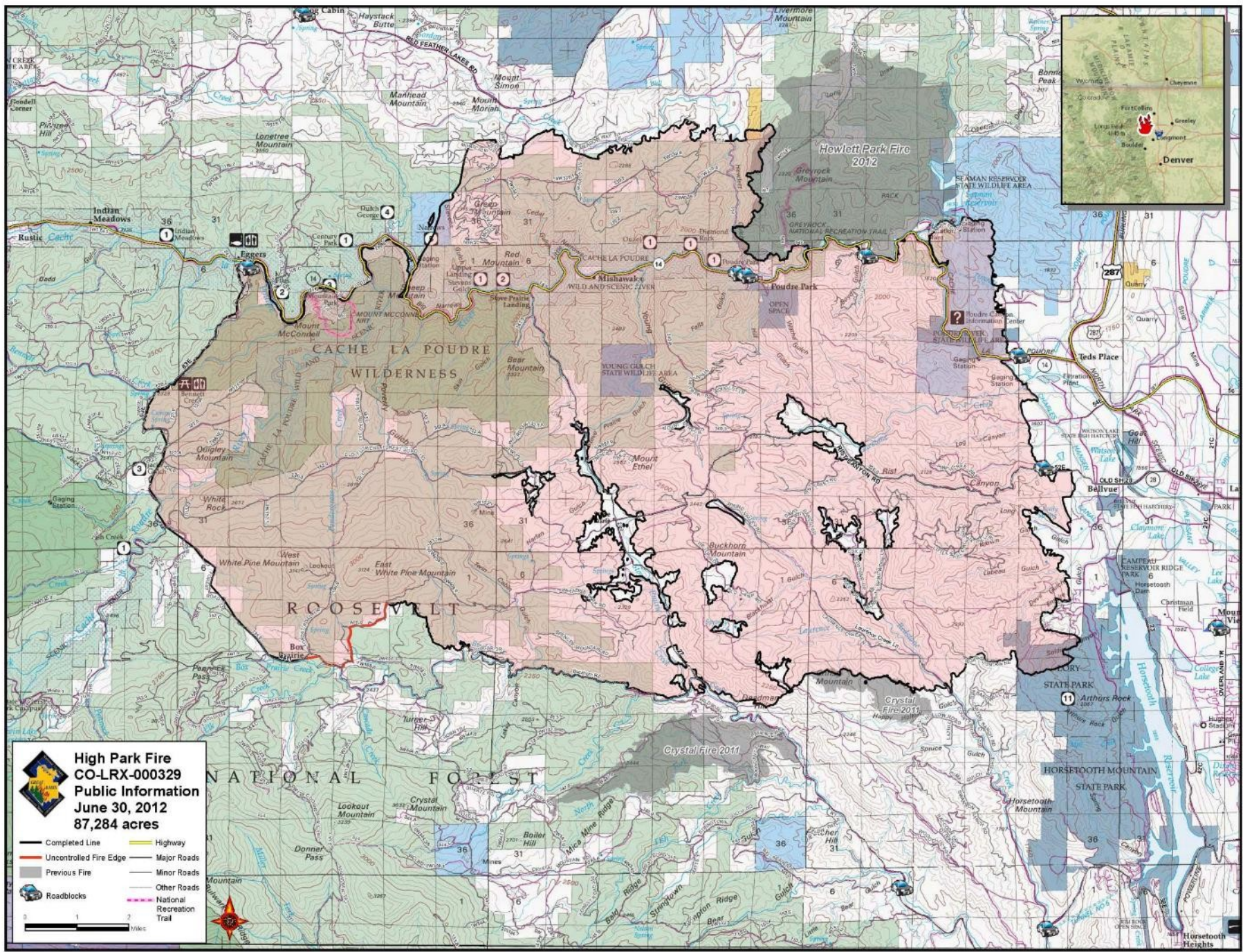
... Why Bother?



Wildlands Restoration Volunteers

- > 4,000 volunteers engaged in 14 years.
- Seed collection; riparian, wetland, and post-fire restoration; etc.
- Crew Leader and Project Team Structure.
- Great PR for little-known agencies (USFS, BLM, NRCS, local storm water utilities).



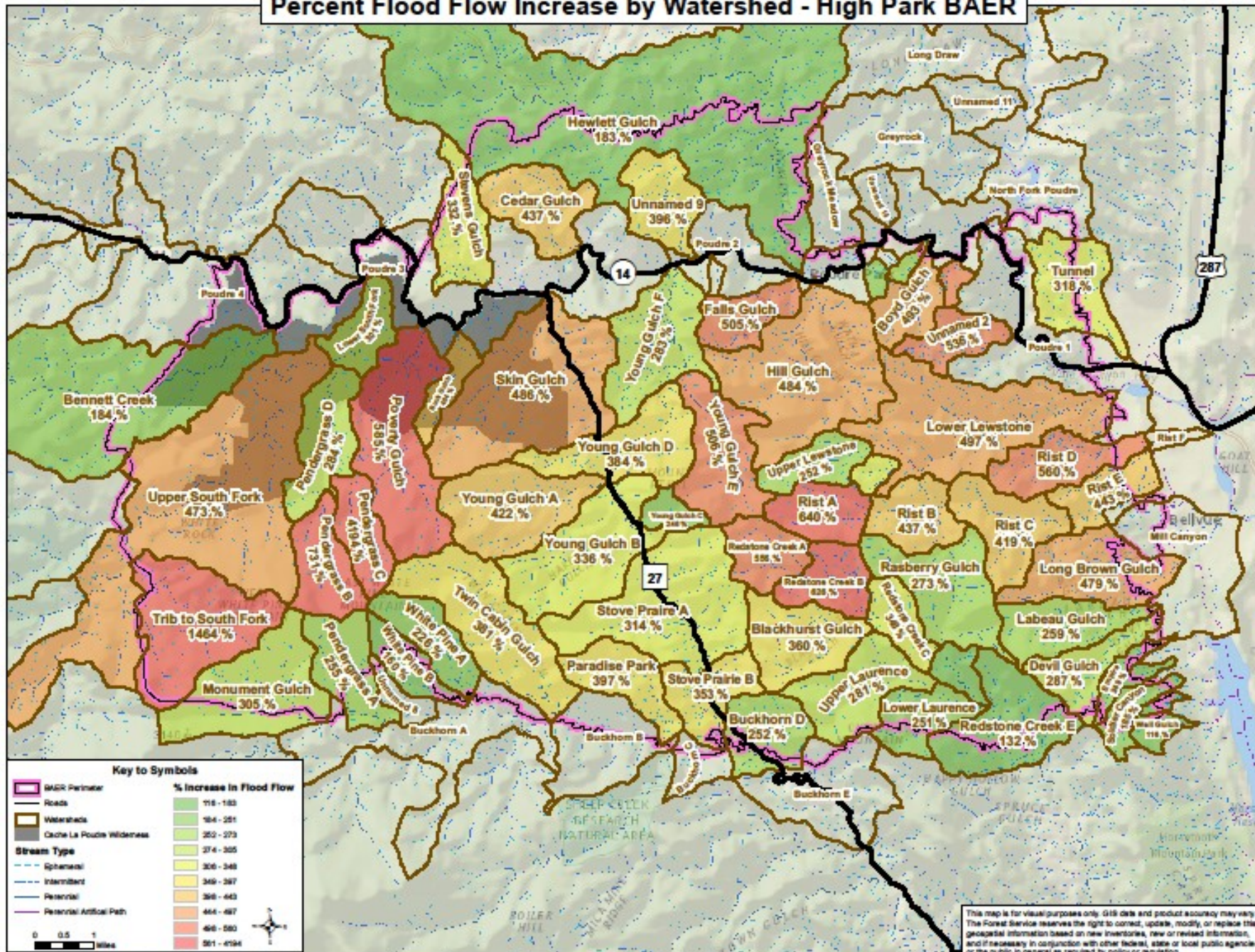


High Park Fire
CO-LRX-000329
Public Information
June 30, 2012
87,284 acres

- Completed Line
- Highway
- Uncontrolled Fire Edge
- Previous Fire
- Major Roads
- Minor Roads
- Roadblocks
- Other Roads
- National Recreation Trail



Percent Flood Flow Increase by Watershed - High Park BAER



This map is for visual purposes only. GIS data and product accuracy may vary. The Forest Service reserves the right to correct, update, modify, or replace the geospatial information based on new inventories, new or revised information, and if necessary in conjunction with other federal, state or local public agencies or the public in general as required by policy or regulation.

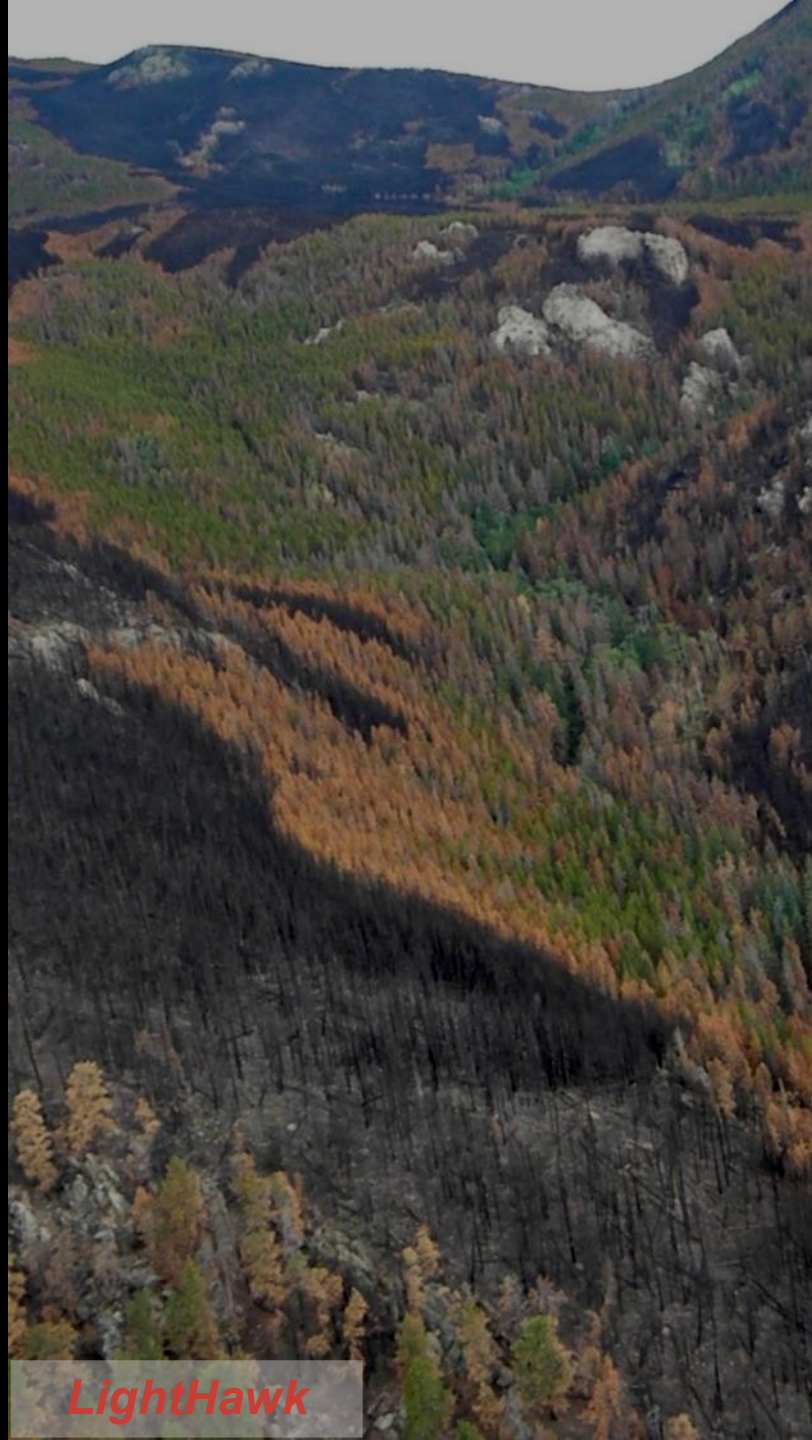


**41,000+
acres**

LightHawk

Burn Severity

- High
- Moderate
- Low



The Fire Mosaic

LightHawk



Ash and debris flows impacting water quality, bridges, and culverts.



Debris/sediment flows affecting roads & homes

Unnamed 3 above Monroe Tunnel



Natural Colonization After High Park



What is Ecological Restoration

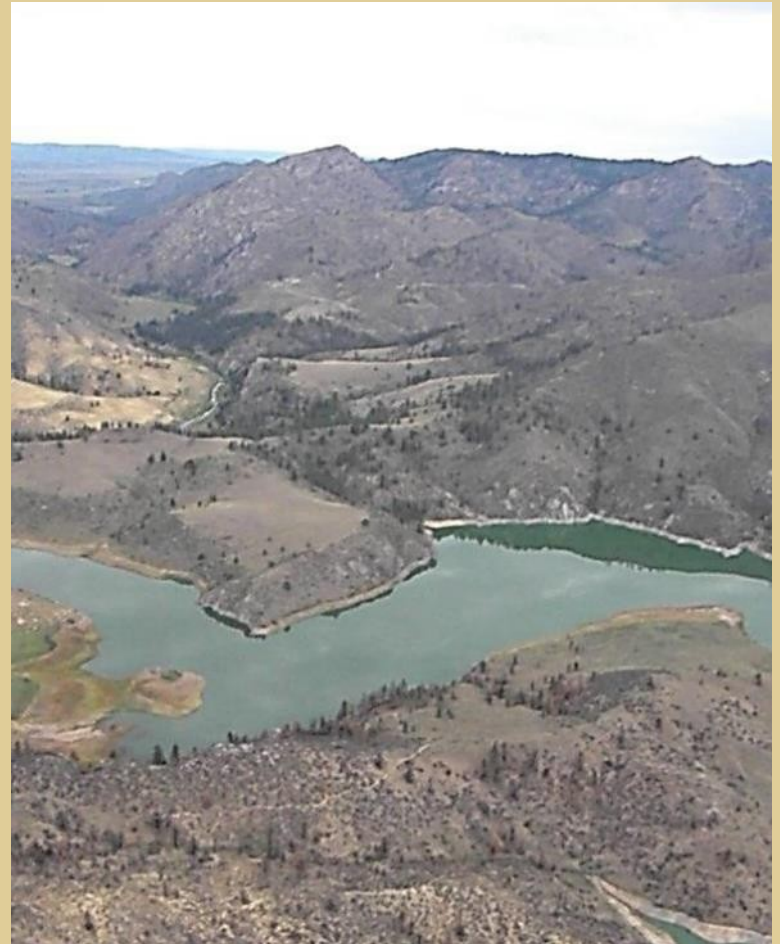
Ecological restoration is the process of assisting in the recovery of an ecosystem that has been degraded, damaged, or destroyed.

The key here is that “RESTORATION IS A PROCESS”, rather than a single action isolated in time.

Goals of Post-Fire Emergency Watershed Protection

Short Term (3-5 yrs)

- Stabilize hillsides at high risk of erosion.
- Protect water quality.
- Protect roads and other infrastructure.



Four Simple Steps to Post-fire Restoration

Site Protection



Slope Stabilization



Revegetation

Monitoring



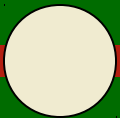
Seeding of Native Grasses



- *Elymus trachecaulus*
- *Bromopsis carinatus*
- *Stipa viridula*
- *Festuca idahoensis*
- *Pascopyrum smithii*
- *Poa secunda*
- Triticale

Feeding the Wildlife

(not always a good thing)







Aerial Re-Mulching



Hand Mulching



Erosion Control: Wattles

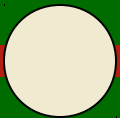








Just before the Great Flood



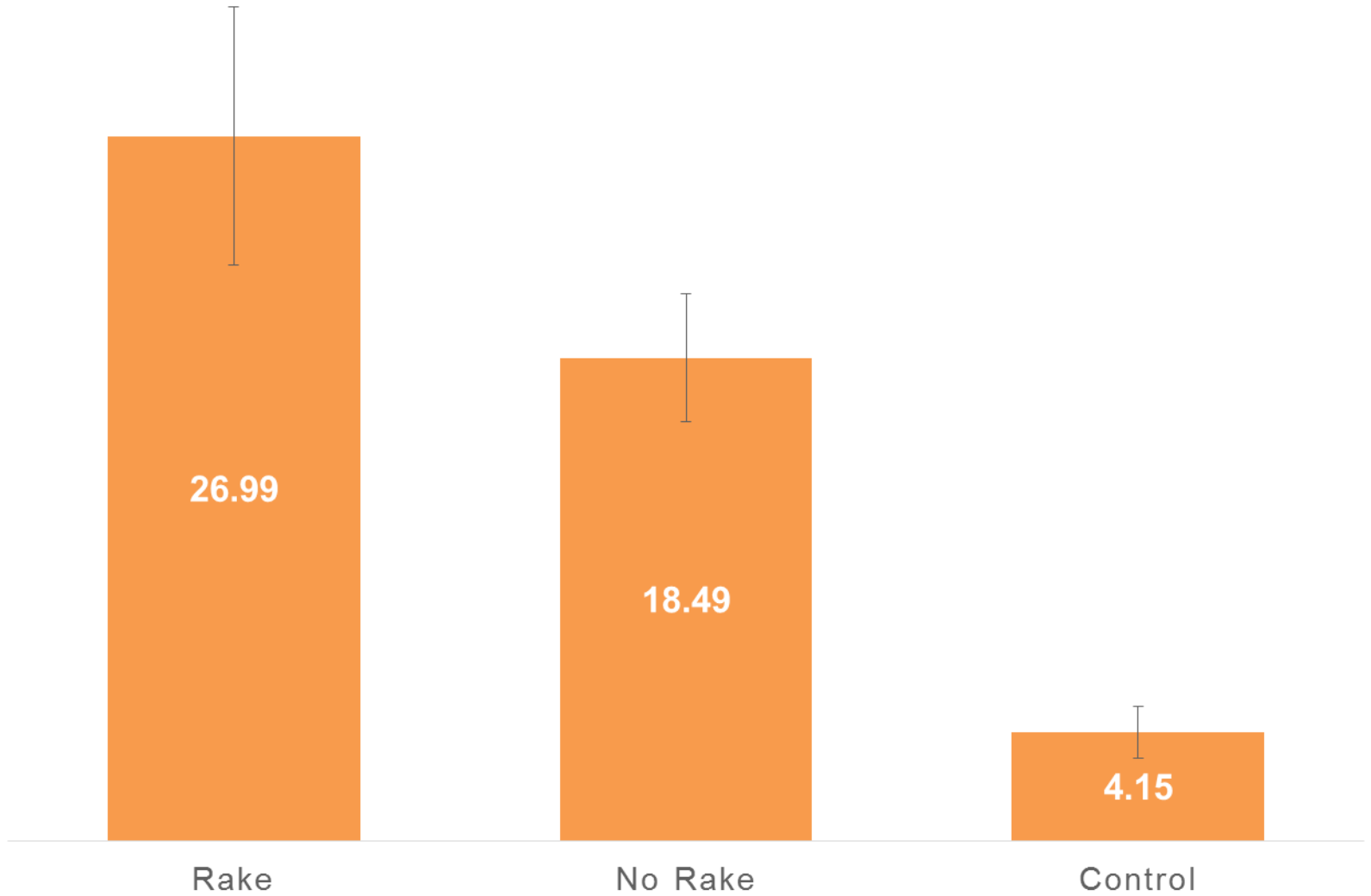
Burning Questions!



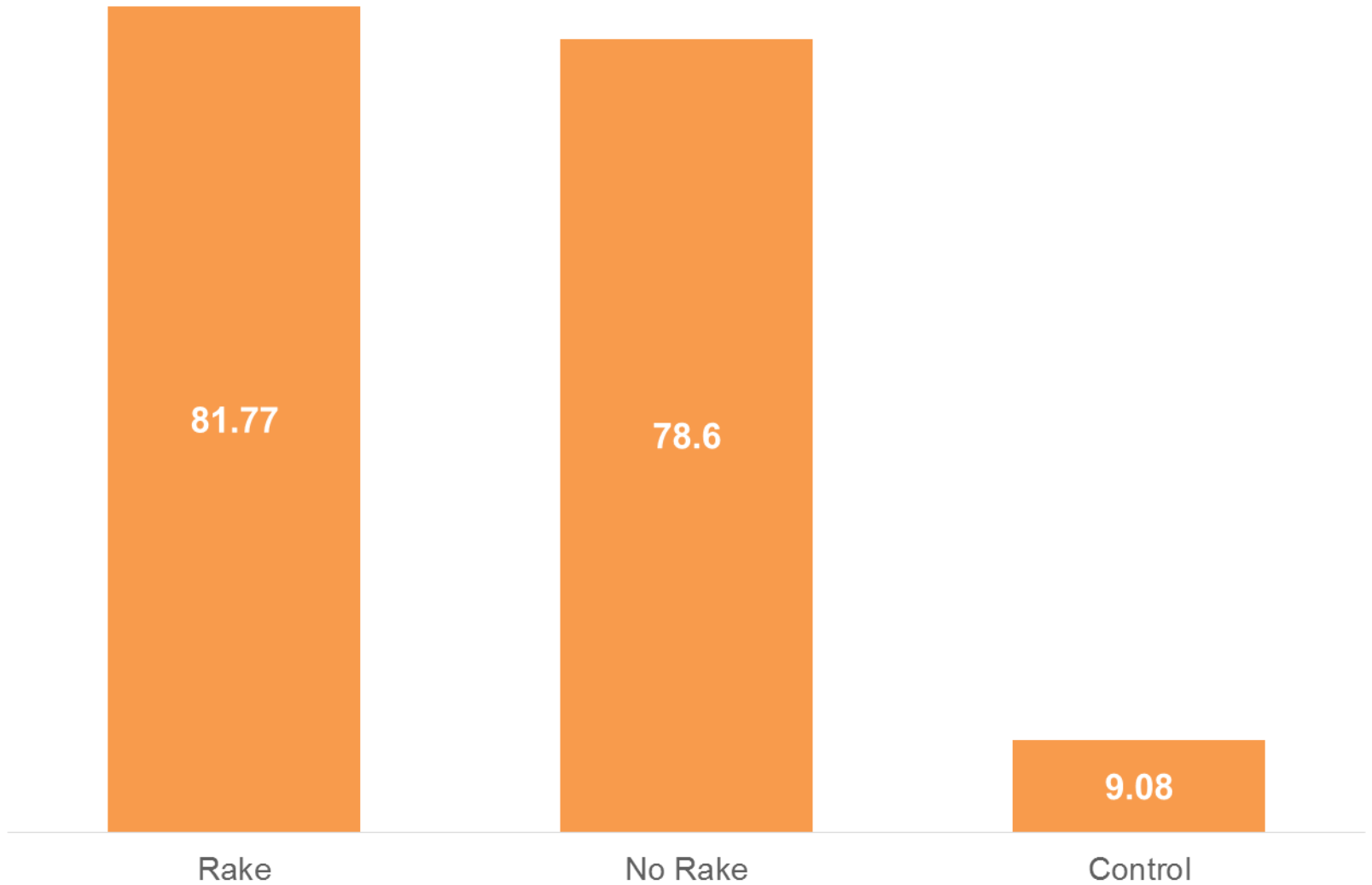
Design

- Three Treatments: Rake, No Rake, Control.
- Four Plots/Trt: 50 x 150 feet.
- Ten 100-foot transects per plot: 68 points per transect.
- 3-foot wide belt transect: for P/A

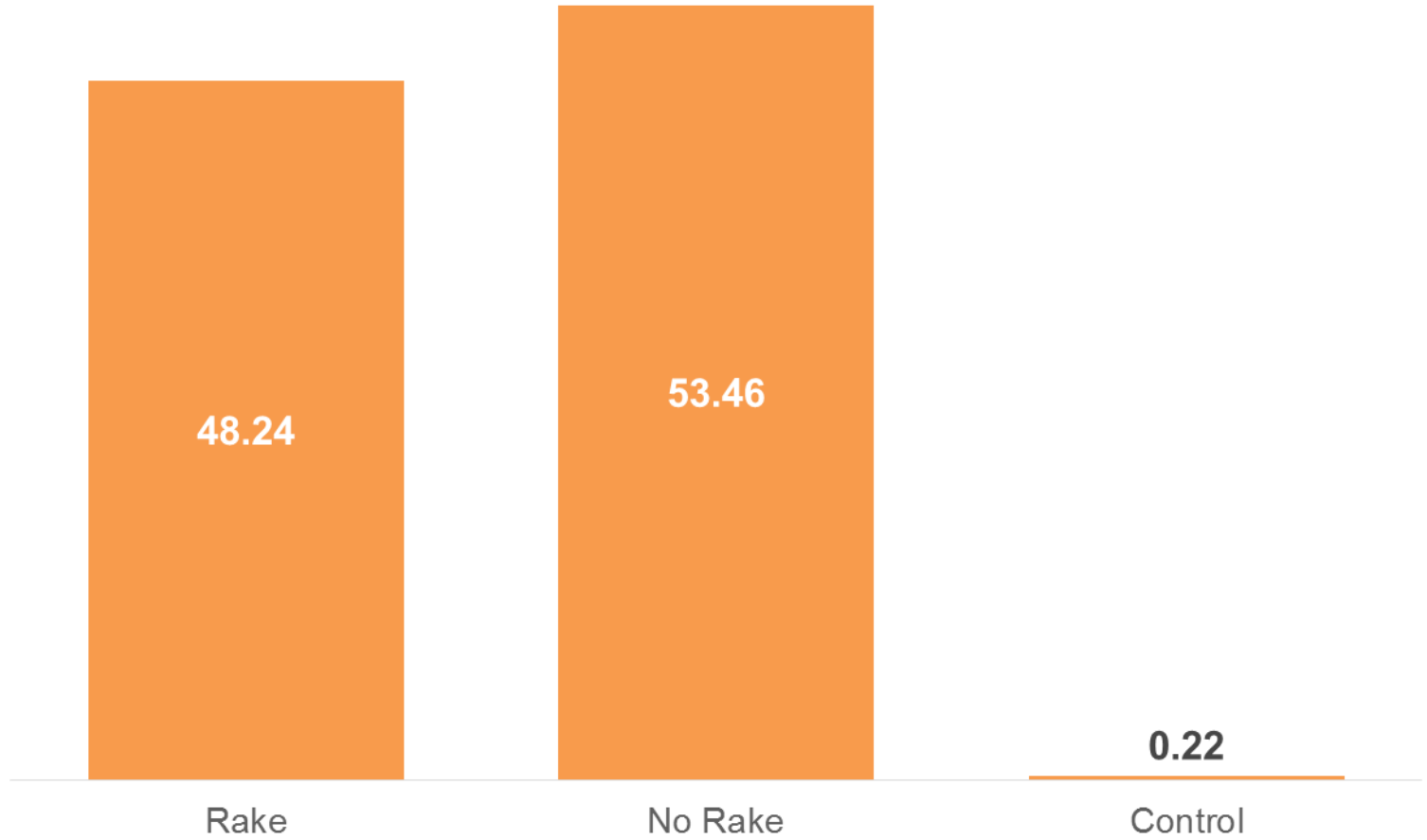
Total Vegetation Cover (%)



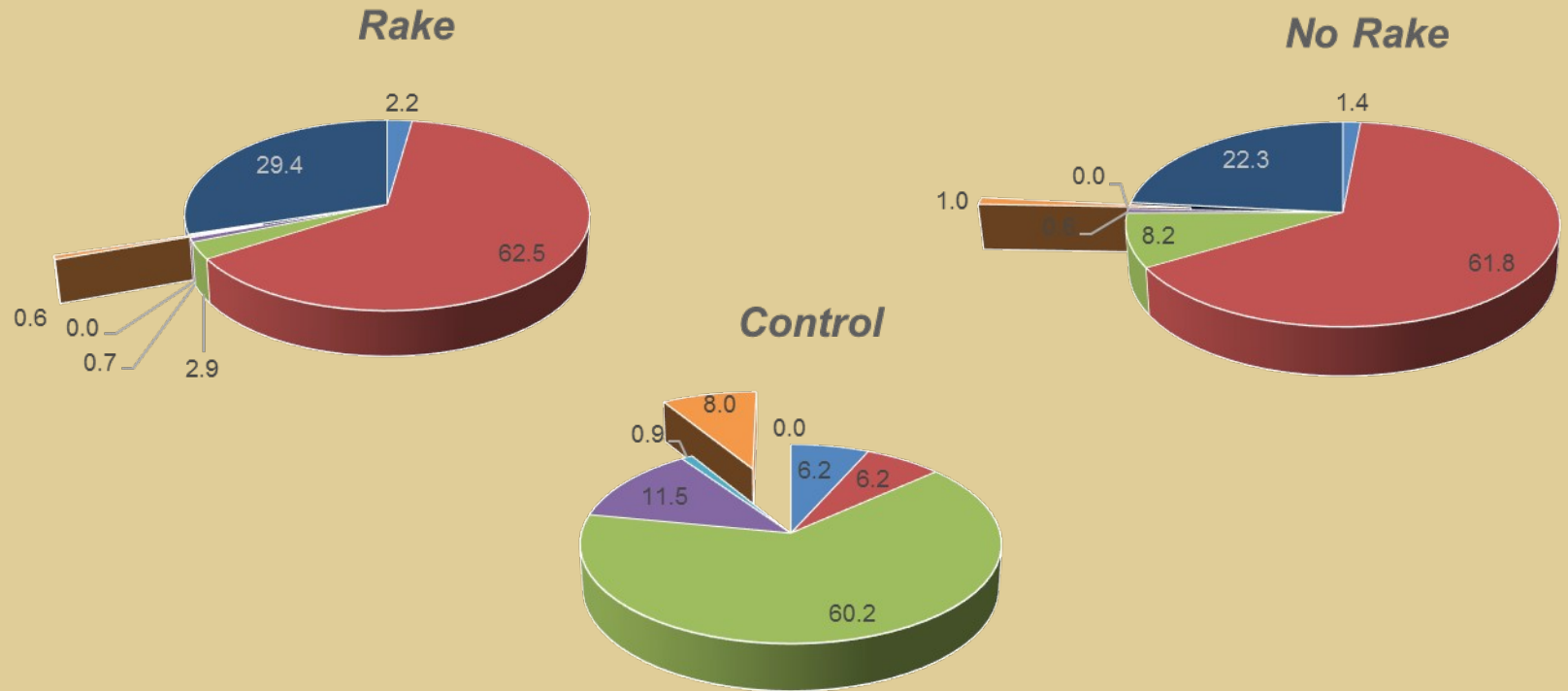
Vegetation and Litter/Straw Cover (%)



Straw Cover (%)



Relative Vegetation Cover

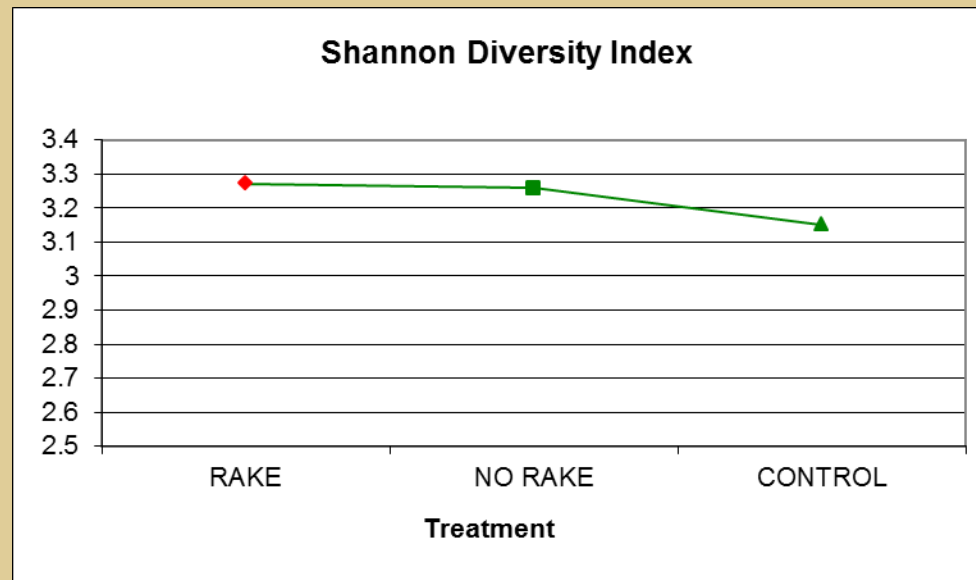


- Native Perennial Forbs
- Native Perennial Grasses
- Native Shrubs
- Native Early Seral Forbs
- Introduced Perennial Forbs
- Introduced Early Seral Forbs/Grasses
- Triticale Cover Crop

Species Richness and Diversity

Diversity-Richness Values

	Rake	No Rake	Control
<i>Number of Species (S)</i>	57	61	52
<i>Diversity (H)</i>	3.90	3.60	3.50
<i>Evenness</i>	0.96	0.86	0.87



Recommendations & Insights

- Seed with native grasses (be vigilant).
- Wattles and LEB's may not provide substantial added benefit.
- Rake seed into ground only in key areas.
- Fighting fires and post-fire restoration = \$\$\$\$



Upcoming Post-Fire Restoration Projects with WRV

- **October 17-20 (Seaman Reservoir)**
- **October 26 (Rist Canyon)**
- **November ?**

Thanks Sponsors

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Thanks Monitoring Volunteers

Amy Randell, Rob Pudim, Alex Tonneson, Ben Barker, Susan Sherrod, April Andujar.

