Development of Tribal Ecosystem Workforce Initiatives for the Implementation of Landscape Scale Restoration in southern Oregon and northeastern California

DOI National Workshop, NRDAR Program
Phoenix, Arizona, April 30, 2014
Marissa Fierro, Pit River Tribe
Marko Bey, Lomakatsi Restoration Project
Klamath Reservation Forest
Fremont-Winema National Forest
Klamath Reservation Forest
Fremont-Winema National Forest

Data from Forest Inventory collected from 1918-1922.
Present Conditions:
forest densification; stress related mortality; insect infestations.
Impacts to tribal subsistence species:
Lack of fire, decadent bitterbrush

Mule deer (Odocoileus hemionus)
Historical Fire Regimes for Forested Potential Vegetation Groups

Klamath Reservation

http://www.dbmpj.gov/spatial/disturbance/
Goals for Restorative Management of the Klamath Reservation Forest

- Restoration of diverse, structurally complex forest ecosystems; and
- Enhancement and protection of the forest, wildlife, water, and soil resources of the reservation.
Multi-Scale Approach

Landscape Scale
(~100,000 ha)

Macrohabitat Scale
(~1000 ha)

Microhabitat Scale
(0.04 ha)
The Klamath Tribes approach to ecosystem restoration workforce capacity development.

Four Interrelated Initiatives:

1) Forming strategic partnerships

2) Recruiting and training a tribal restoration workforce

3) Securing long-term restoration agreements (MSA, MPA, CA, CCPI)

4) Building internal NRD staffing capacity for managing restoration programs and projects.
Klamath Tribal Ecosystem Restoration Workforce Initiative

**Phase 1:** 2011-2014
Classroom and field training on federal, state, municipal, and private forest lands.

**Phase 2:** 2011-2014
Advanced technical skills training

20 person tribal crew established
“Stewardship contracting is a means for federal agencies to contribute to the development of sustainable rural communities, restore and maintain healthy forest ecosystems and provide a continuing source of employment”.

-U.S Forest Service Contracting Guide
Tribal Stewardship Agreement
Klamath Reservation Forest-Fremont-Winema NF

1.7 million acres where restoration projects can be developed and conducted.
Klamath Tribes’ Forest Restoration Master Stewardship Agreement

Technical support, Project Design, Administrative Oversight

Senior Partner, Fiscal lead, Project Design, Technical Expertise

Contracting, Workforce Training & Development, Technical Expertise

Multi-Party Monitoring, Science delivery, Technical Expertise
Master Stewardship Agreement with Supplemental Project Agreements (MSA with SPA’s)

Klamath Tribes / Fremont-Winema NF
Master Stewardship Agreement

- **Black Hills SPA**
  - 9,000 acres

- **Coyote Fuels SPA**
  - 3,000 acres

- **Red Knight SPA**
  - 32,000 acres
Klamath Tribal Ecosystem Restoration Workforce Initiative

Summary of Program
Accomplishments 2011-2014

- Established 10-year Master Stewardship for restoration implementation on 1.7 million acres
- Approximately $10 million in project funding secured by tribal partners through restoration revenue, federal, state, and private programs.
- 32 active habitat restoration projects developed and implemented
- 25 tribal workers employed
Klamath Basin Tribal Youth Employment and Education Initiative

VISION

Engage and increase Tribal Youth participation in the preservation of natural resources and ecosystems through the effective use of water, conservation and restoration projects and mutual planning opportunities.
Addressing impacts to aquatic / terrestrial habitats, and eco-cultural systems.

Creating long-term sustainable employment for Pit River tribal members in ecosystem restoration.
The Pit River Tribe is a sovereign federally recognized California Indian Tribe, comprised of eleven different autonomous tribal bands that include:

PIT RIVER TRIBE ANCESTRAL BOUNDARY MAP

Legend:
- Medicine Lake Highlands TCP
- Indian Claims Commission (ICC) Boundary
- Koffen Boundary
- NatGeo_World_Map

(The 100 Mile Square)
The Pit River Tribe has great interest and legal stake in Regional Land-use Planning and Management

- Forests- source of traditional medicines, food, firewood, and basketry materials.
- Sacred sites- valued for their importance in sustaining cultural traditions and life-ways.
- Protection of endangered species, tribal water rights, fisheries water quality and quantity.
- Traditional Ecological Knowledge application to restore watershed and forests.
- Jobs creation for preservation and livelihood.
WATER QUALITY DATA COLLECTION
Protecting Riparian Buffer zone through solar offsite cattle watering systems.
Provide water to Cattle while protecting riparian vegetation; essential to:
- maintain trout fisheries
- Protect water quality
- reduce sediment loading and bank erosion.
Cattle Exclusion with Riparian Fencing

Restoring riparian vegetation buffer zones on the North Fork of the Pit River

Spring 2013

January 2012
Hat Creek Aquatic Habitat Restoration and Cultural Protection Project
Pit River Tribal Restoration Workforce Initiative

Pit River Tribe
- Staff
- Cultural monitors $350,000
- Muskrats mitigation
- 20X30 Propagation Greenhouse

Tribal Restoration Jobs
- Aquatic restoration
- Trail construction

Workforce Training & Employment
15-20 Seasonal Jobs
Restoring Stream and Riparian Habitat for Native Trout

Hat Creek North
Proposed Planting Locations

Hat Creek South
Proposed Planting Locations

Legend
- small clusters
- high density guild
- medium density guild
- low density guild
- wood placements
- planting zones

0 300 600 1,200 Feet
0 300 600 1,200 Feet
“Ecological restoration is a process, a directed action aimed at repairing damage to ecocultural systems for which humans are responsible”.

- Indigenous Peoples Restoration Network of the Society of Ecological Restoration
### Species List

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Type</th>
<th>Purpose</th>
<th>Composition</th>
<th>Total Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific willow</td>
<td><em>Salix lasiandra</em></td>
<td>hydrophytic</td>
<td>1</td>
<td>49.4%</td>
<td>2224</td>
</tr>
<tr>
<td>Cattail</td>
<td><em>Typha spp.</em></td>
<td>emergent</td>
<td>1</td>
<td>8.2%</td>
<td>368</td>
</tr>
<tr>
<td>Tule</td>
<td><em>Scirpus spp.</em></td>
<td>emergent</td>
<td>1</td>
<td>8.2%</td>
<td>368</td>
</tr>
<tr>
<td>Spreading rush</td>
<td><em>Juncus patens</em></td>
<td>hydrophytic</td>
<td>1</td>
<td>8.2%</td>
<td>368</td>
</tr>
<tr>
<td>&quot;White Root&quot; sedge</td>
<td><em>Carex barbarae</em></td>
<td>hydrophytic</td>
<td>1</td>
<td>7.7%</td>
<td>348</td>
</tr>
<tr>
<td>White alder</td>
<td><em>Alnus rhombifolia</em></td>
<td>hydrophytic</td>
<td>1</td>
<td>3.7%</td>
<td>165</td>
</tr>
<tr>
<td>Sierra gooseberry</td>
<td><em>Ribes roezlii</em></td>
<td>mesic</td>
<td>1, 2</td>
<td>2.5%</td>
<td>112</td>
</tr>
<tr>
<td>Douglas spirea</td>
<td><em>Spiraea douglasii</em></td>
<td>hydrophytic</td>
<td>1, 2</td>
<td>2.5%</td>
<td>112</td>
</tr>
<tr>
<td>Oregon ash</td>
<td><em>Fraxinus latifolia</em></td>
<td>hydrophytic</td>
<td>1, 2</td>
<td>1.3%</td>
<td>60</td>
</tr>
<tr>
<td>Black hawthorn</td>
<td><em>Crataegus douglasii</em></td>
<td>mesic</td>
<td>1, 2</td>
<td>1.2%</td>
<td>53</td>
</tr>
<tr>
<td>Klamath plum</td>
<td><em>Prunus subcordata</em></td>
<td>mesic</td>
<td>1, 2</td>
<td>1.2%</td>
<td>53</td>
</tr>
<tr>
<td>Red osier dogwood</td>
<td><em>Cornus sericea</em></td>
<td>mesic</td>
<td>1, 2</td>
<td>1.2%</td>
<td>52</td>
</tr>
<tr>
<td>Ponderosa pine</td>
<td><em>Pinus ponderosa</em></td>
<td>mesic/ xeric</td>
<td>1, 3</td>
<td>1.0%</td>
<td>44</td>
</tr>
<tr>
<td>Skunkbush</td>
<td><em>Rhus trilobata</em></td>
<td>mesic/ xeric</td>
<td>1, 2</td>
<td>1.0%</td>
<td>44</td>
</tr>
<tr>
<td>California rose</td>
<td><em>Rosa californica</em></td>
<td>mesic</td>
<td>1, 2</td>
<td>0.8%</td>
<td>37</td>
</tr>
<tr>
<td>Common chokecherry</td>
<td><em>Prunus virginiana</em></td>
<td>mesic/ xeric</td>
<td>1, 2</td>
<td>0.8%</td>
<td>37</td>
</tr>
<tr>
<td>Blue elderberry</td>
<td><em>Sambucus mexicana</em></td>
<td>mesic/ xeric</td>
<td>1, 2</td>
<td>0.8%</td>
<td>36</td>
</tr>
<tr>
<td>Incense cedar</td>
<td><em>Calocedrus decurrens</em></td>
<td>mesic/ xeric</td>
<td>1, 3</td>
<td>0.4%</td>
<td>17</td>
</tr>
<tr>
<td>Totals:</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
<td>4500</td>
</tr>
</tbody>
</table>

**Purpose codes:**
- 1 = stabilize banks with dense root network
- 2 = increase native plant diversity
- 3 = provide for future in-stream large wood recruitment
Cultural Plants

- Cultural uses of some of the plants suggested for the Hat Creek Planting Plan. Cultural use data source: Dennis Martinez, E

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Cultural Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific willow</td>
<td><em>Salix lasiandra</em></td>
<td>basketry, clothing, medicine</td>
</tr>
<tr>
<td>Cattail</td>
<td><em>Typha spp.</em></td>
<td>food</td>
</tr>
<tr>
<td>&quot;White Root&quot; sedge</td>
<td><em>Carex barbarae</em></td>
<td>basketry</td>
</tr>
<tr>
<td>White alder</td>
<td><em>Alnus rhombifolia</em></td>
<td>tools, medicine, dye</td>
</tr>
<tr>
<td>Oregon ash</td>
<td><em>Fraxinus latifolia</em></td>
<td>tools, bows</td>
</tr>
<tr>
<td>Black hawthorn</td>
<td><em>Crataegus douglasii</em></td>
<td>food, tools, medicine</td>
</tr>
<tr>
<td>Chokecherry</td>
<td><em>Prunus virginiana</em></td>
<td>food, tools</td>
</tr>
<tr>
<td>Klamath plum</td>
<td><em>Prunus subcordata</em></td>
<td>food</td>
</tr>
<tr>
<td>Skunkbush</td>
<td><em>Rhus trilobata</em></td>
<td>basketry, food</td>
</tr>
<tr>
<td>Sierra gooseberry</td>
<td><em>Ribes roezlii</em></td>
<td>food</td>
</tr>
<tr>
<td>Blue elderberry</td>
<td><em>Sambucus mexicana</em></td>
<td>food, medicine</td>
</tr>
<tr>
<td>Dogwood</td>
<td><em>Cornus spp.</em></td>
<td>tools, medicine</td>
</tr>
</tbody>
</table>
Riparian Upland Oak / Pine Restoration

Hat Creek Upper WTA
Pine - Oak Woodland Restoration Zone and
Recommended Prescribed Fire Areas

Legend
- Upland Pine-Oak Treatment Unit
- Grassland Restoration Units
- 10ft contour

0 200 500 1,000 1,500 2,000 Feet
Riparian Upland Oak / Pine Restoration

- Legacy tree protection
- Recruitment of riparian zone wood
- Restoration of historic fire regime (Agee, 1996; Martinez, 2001)
Acknowledgements

Will Hatcher, Klamath Tribes (photo credits)
Steve Rondeau, Klamath Tribes
Klamath Tribal Council
Pit River Tribal Council
Craig Benz, The Nature Conservancy (photo credits)
U.S. Fish and Wildlife Service Regions 1 and 8
U.S. Forest Service, Fremont-Winema National Forest
Questions?

Marissa Fierro, Pit River Tribe (530)335-1118, marissa.fierro@pitrivertribe.org
Marko Bey, Lomakatsi Restoration Project,(541)-488-0208, marko@lomakatsi.org