California State Parks
Aspen Restoration Projects and Monitoring
Sierra District

Silver Hartman
Skilled Laborer
Agenda

1. Intro to the California State Parks
2. Aspen Stand Location and Condition Assessments
3. Riparian Hardwoods Restoration and Enhancement Project
4. Aspen monitoring
5. Aspen restoration at Donner Memorial State Park
6. Issues California State Parks are facing
The MISSION
of the California Department of Parks and Recreation is to provide for the health, inspiration, and education of the people of California by helping to preserve the state’s extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.
1. Angeles
2. Bay Area
3. Capital
4. Central Valley
5. Channel Coast
6. Colorado Desert
7. Gold Fields
8. Inland Empire
9. Monterey
10. North Coast Redwoods
11. Northern Buttes
12. Oceano Dunes
13. Ocotillo Wells
14. Orange Coast
15. San Andreas
16. San Diego Coast
17. San Luis Obispo
18. Santa Cruz
19. Sierra
20. Sonoma-Mendocino
21. Tehachapi
22. Twin Cities
Aspen Location and Condition Assessments 2002 - 2005

1. Burton Creek State Park
2. Donner Memorial State Park
3. Emerald Bay State Park
4. Plumas Eureka State Park
5. Sugar Pine Point State Park
6. Ward Creek Unit
Aspen Stand Location and Assessment Map: Highlighting the Stand Loss Risk Factor (SLR)

• 21 Aspen Stands at Sugar Pine Point State Park
Riparian Hardwoods Restoration and Enhancement Project 2007-2009

- Five California State Parks in the Sierra District
  1. Burton Creek State Park
  2. Ward Creek Unit
  3. Sugar Pine Point State Park
  4. D.L. Bliss State Park
  5. Washoe Meadows State Park

- Bureau of Reclamation (BOR) Wetlands Grant $286,000

- In-Kind funding by CA State Parks $51,000
Purpose

1. Remove conifers from:
   • Riparian corridors
   • Meadows
   • Aspen and Cottonwood Stands

2. Trail removal at Sugar Pine Point SP
Goals of this Project Specific to Aspen:

✓ Remove conifers from 150 feet of aspen
✓ Increase light penetration
✓ Allow for stand regeneration and expansion
✓ Improve wildlife habitat
Ward Creek Unit Pre Treatment:
WCS3, Photo Point 7, 2007
The Plan:

- Hand crews: State Parks, private and Nevada Division of Forestry (NDF)
  - Chip and remove slash/rounds
  - Build burn piles

Permits:

- CEQA/NEPA compliance & Mitigated NEG DEC
- Lahontan Regional Water Quality Board
- Tahoe Regional Planning Agency

❖ Working in Stream Environment Zones (SEZ)
Implementation

1. Flag project boundaries

2. Flag sites suitable for burn pile placement
   - Safe distance from:
     - aspen
     - watercourses
     - cultural resources

3. Mark trees

4. Install monitoring transects/photo points

5. Contract/State Park hand crews begin work

6. Hand crews rehab trails/walking paths

7. Chip roadside slash/remove rounds

8. Burn piles

9. Post project monitoring/photos
Aspen stands were chosen for treatment based on their accessibility and Stand Loss Risk Factor (SLR).

Three California State Parks with an aspen component:

1. Burton Creek State Park
2. Ward Creek Unit
3. Sugar Pine Point State Park
<table>
<thead>
<tr>
<th>Burton Creek SP</th>
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<tbody>
<tr>
<td># of Aspen Stands in Park</td>
<td>3</td>
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<tr>
<td># of Aspen Stands Treated</td>
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<tr>
<td>Acres of Aspen in Park</td>
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<tr>
<td>Acres Treated in &amp; Around Aspen</td>
<td>~11.5</td>
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<tr>
<td>Total Acres Treated for Riparian Hardwoods Project</td>
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<td># of Monitoring Transects</td>
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<tr>
<td># of &quot;Big Picture&quot; Photo Points (All Riparian Hardwoods sites included)</td>
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Burton Creek SP Pre Treatment:
BC3, Photo Point 4, 2007
Burton Creek SP Post Treatment: BC3, Photo Point 4, 2010
Ward Creek Unit

# of Aspen Stands in Park 5
# of Aspen Stands Treated 3
Acres of Aspen in Park ~1.4
Acres Treated in & Around Aspen ~3.75
Total Acres Treated for Riparian Hardwoods Project ~5.25
# of Monitoring Transects 5
# of "Big Picture" Photo Points (All Riparian Hardwoods sites included) 7
Ward Creek Unit Pre Treatment:
WCS3, Photo Point 5, 2007

Ward Creek Unit Post Treatment:
WCS3, Photo Point 5, 2011
<table>
<thead>
<tr>
<th><strong>Sugar Pine Point SP</strong></th>
<th><strong># of Aspen Stands in Park</strong></th>
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<td><strong>Acres Treated in &amp; Around Aspen</strong></td>
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<td><strong>Total Acres Treated for Riparian Hardwoods Project</strong></td>
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<td><strong># of &quot;Big Picture&quot; Photo Points (All Riparian Hardwoods sites included)</strong></td>
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Sugar Pine Point SP Pre Treatment: GCN3, Photo Point 9, 2008

Sugar Pine Point SP Post Treatment: GCN3, Photo Point 9, 2008
Sugar Pine Point SP Pre Treatment:
GCN5, Photo Point 13, 2008

Sugar Pine Point SP Post Treatment:
GCN5, Photo Point 13, 2010
Aspen Monitoring

Photo Points
• To capture the “Big Picture”

Aspen monitoring Transects
• Protocol used: Effectiveness Monitoring of Aspen Regeneration on Managed Rangelands, 2005
• Installed 22 transects at two parks (Sugar, Ward)
• Data collection
  • Pre treatment: 2007
• Data analysis scheduled for this winter
Monitoring Methods

**Transect Installation:**
- Permanent belt transects 100 ft. x 6 ft.
- 3 transects per stand (if possible)
- Each Transect is named, tagged and GPSed

**Getting Started:**
- Run measuring tape between ends of transect
- Prepare white board and place at base of rebar
- Take photos

**Data Collection:**
Count and record all aspen stems within 3 ft. of each side of the 100 foot transect.
- Size Class 1 = less than 18 inches tall
- Size Class 2 = greater than 18 inches tall and less than 5 ft.
- Size Class 3 = greater than 5 ft. tall and up to 1 inch DBH
- Size Class 4 = greater than 1 inch DBH
## Aspen Effectiveness Monitoring Field Form

**Park Name:**

**Stand Name:**

**Date of Sampling:**

**Examiner(s):**

**Transect #:**

**GPS Type:**

**Camera Type:**

**Focal Length:** (recommend 35mm)

(Make sure to photograph: A --> B and B --> A)

**Compass Declination:**

**Directions to Transect Location:**

### GPS Projection: NAD 83 UTM

#### Transect GPS Coordinates, Side A:

<table>
<thead>
<tr>
<th>Distance</th>
<th>cs1: &lt;18” (class size 1)</th>
<th>&lt;18” Total</th>
<th>cs2: 18”-5’ (class size 2)</th>
<th>18”-5’ Total</th>
<th>cs3: &gt;5’-1” dbh (class size 3)</th>
<th>&gt;5’-1” dbh Total</th>
<th>cs4: &gt;1” dbh (class size 4)</th>
<th>&gt;1” dbh Total</th>
<th>Canopy Cover</th>
<th>Shrub Cover</th>
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**Sign of beaver activity?**

**YES or NO** (circle one)

**If YES Explain:**

**Sign of other browsing?**

**YES or NO** (circle one)

**If YES Explain:**

**Conifer encroachment?**

**YES or NO** (circle one)

**If YES Explain:**
• Date: 2002-2004
• Size & Location: 20 acres/Coldstream Canyon
• Treatment: logs removed, slash put in burn piles
• Monitoring: 4 Transects
  – (Draft) Long-Term Density Monitoring of Aspen for Conifer Removal Projects
• Maintenance: Lop/scatter in 2008
Qualitative Observations & Reflection

1. Suckering
2. New growth/more leaf area
3. No big change
   (Protecting the stand from future loss)

What caused different outcomes?
Theories for Response Variability

Different Stand Characteristics

- Stand Loss Risk (SLR) factors (general stand condition or health)
- Stand size
- History
  - Previous treatments
  - Beaver presence/impacts
- Surrounding conditions

Treatment Variability:

- Treatment intensity
- Burn pile placement and burn intensity
Issues

- Funding
- Staff time
- Burn pile placement in aspen stands
- Beaver
Burn Piles in Aspen Stand
An Example at Emerald Bay State Park

• Date: ongoing (2012)
• Size & Location: general forestry projects that include aspen stands
• Treatment: hand crew thinning/burn piles
• Monitoring: 2013 burn pile monitoring installed, piles not burned yet.
<table>
<thead>
<tr>
<th>Burn Pile #</th>
<th>Tee Species</th>
<th>Horizontal Distance (HD)</th>
<th>Azimuth</th>
<th>Dbh mm</th>
<th>Height m</th>
<th>Crown Height m</th>
<th>Pre Health</th>
<th>Notes (include if tree is hidden)</th>
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HD taken from edge of burn pile at breast height
Azimuth taken from tree looking back to center of burn pile

Pre Heath notes: SK = sick, SC = scar, FK = forked, BT = broken top, DT = dead top, HR = heart rot, LN = leaning
North American Beaver

1. Sugar Pine Point SP
2. Emerald Bay SP
3. Lake Valley SRA
4. Donner Memorial SP
5. Burton Creek SP
6. Plumas Eureka SP
7. Most likely others
Sugar Pine Point State Park Beaver/Aspen

- **2007:**
  - Current/historic beaver
  - Varying intensities

- **November 2012:**
  - Beaver activity on the rise

- **2012 monitoring plan established:**
  - Regular site visits
  - Assess the impact of beaver on aspen to use as a guide for management decisions
Sugar Pine State Park Beaver and Aspen 2013

GCS4
- Dramatic increase in aspen predation between sites visits on October 22 and 30th.
- Portion of the stand fenced

GCN5
- 53 aspen were harvested between July and November
- 13 fences were installed protecting the remaining 19 aspen stems

GCN4 and GCN8
- Beaver present but no monitoring or management actions taken

GCN3, GCN6 and GCN7
- No new signs of beaver

- Did not check the remaining stands
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