Multi-Benefit Weed Control: San Joaquin River Invasive Species Management and Jobs Creation Project

Jason Faridi
River Partners
• Project Background
• Site Assessment
• Management
• Monitoring & Adaptive Management
• Restoration
• Jobs Creation

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Project Background

Reaches and Extent

- Friant Dam to Merced River, including Mendota Pool, and the East Side and Mariposa bypasses
- Trust (Reach 1 Friant Dam to HWY 145)
- River Partners (Reaches 2-5 HWY 145 to Merced River confluence)
Site Assessment

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Site Assessment

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Site Assessment
Reconnaissance
Site Assessment
Surveying

- Trimble
  - Data Dictionary
  - Aerial Maps
- Transects
  - Lower Floodplain
    - 10-15 m
  - Upper Floodplain
    - 50 m

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## Site Assessment

### Surveying

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Field Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object ID</td>
<td>Auto generated</td>
<td></td>
</tr>
<tr>
<td>Shape</td>
<td>Auto generated</td>
<td></td>
</tr>
<tr>
<td>Occurrence No.</td>
<td>Auto generated</td>
<td>Unique key</td>
</tr>
<tr>
<td>Date</td>
<td>Click on calendar icon</td>
<td>Date</td>
</tr>
<tr>
<td>Location</td>
<td>Property description</td>
<td>Text</td>
</tr>
<tr>
<td>Observer</td>
<td>Name of person recording</td>
<td>Text</td>
</tr>
<tr>
<td>Plant Name</td>
<td>Common name of plant</td>
<td>Text</td>
</tr>
<tr>
<td>Distribution</td>
<td>Of plants on the landscape</td>
<td>Text</td>
</tr>
<tr>
<td>Percent cover</td>
<td>Estimated % of patch infested</td>
<td>Text</td>
</tr>
<tr>
<td>Growth Stage</td>
<td>Phenology of plant</td>
<td>Text</td>
</tr>
<tr>
<td>Stand Size</td>
<td>Estimated size – point features</td>
<td>Text</td>
</tr>
<tr>
<td>Treatment</td>
<td>Preferred method</td>
<td>Text</td>
</tr>
<tr>
<td>Site Access</td>
<td>How is site accessible</td>
<td>Text</td>
</tr>
<tr>
<td>Comment</td>
<td></td>
<td>Text</td>
</tr>
</tbody>
</table>

**this is a fill in field- 200 characters**

### Distribution – of plant on the landscape

- Single Plant
- Scattered Plants
- Scattered Dense Patches
- Dense Monoculture

### Percent Cover – estimated % of patch infested

- Trace <1%
- Low 1-5%
- Moderate 6-25%
- High 26-50%
- Majority 51-100%

### Growth Stage – Phenology of Plant

- Seed Dispersing
- Dormant/Senesced
- Bud/Flowering
- Fruiting/setting seed
- Mature Plant/Perennial
- Seedling/Rosette
- Leafing Out

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### Prioritization

#### Species Selection

<table>
<thead>
<tr>
<th>Successfully Treated</th>
<th>Scientific Name</th>
<th>Acres Treated</th>
<th>San Joaquin Parkway and Conservation Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Species</strong></td>
<td><strong>Scientific Name</strong></td>
<td><strong>Acres Treated</strong></td>
<td><strong>Acres Treated</strong></td>
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<tr>
<td>Arundo</td>
<td><em>Arundo Donax</em></td>
<td>25.3</td>
<td>9.62</td>
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<tr>
<td>Sesbania (Rattlebox)</td>
<td><em>Sesbania punicea</em></td>
<td>9.8</td>
<td>155.57</td>
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<tr>
<td>Himalayan Blackberry</td>
<td><em>Rubus Armeniacus</em></td>
<td>0.5</td>
<td>0</td>
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<tr>
<td>Perennial Pepperweed</td>
<td><em>Lepidium Latifolium</em></td>
<td>590.8</td>
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<tr>
<td>Salt Cedar</td>
<td><em>Tamarix Chinesis</em></td>
<td>0.2</td>
<td>0</td>
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<tr>
<td>Fig</td>
<td><em>Ficus carica</em></td>
<td>0.9</td>
<td>0</td>
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<tr>
<td>Tree Tobacco</td>
<td><em>Nicotiana glauca</em></td>
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<td>Tree of Heaven</td>
<td><em>Ailanthus altissima</em></td>
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<tr>
<td>Eucalyptus</td>
<td><em>Eucalyptus ssp.</em></td>
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<td><strong>Total</strong></td>
<td></td>
<td><strong>797.22</strong></td>
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Management

Mechanical

Physical removal of biomass
  – Flail mower
  – Masticator
  – Chainsaws
  – Hand tools
Management
Mechanical

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Management

Chemical

Types of chemical treatments
- Foliar spray
- Spot spray
- Cut stump
- Girdling
- Injection
- Scale to site

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Management
Chemical

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Monitoring & Adaptive Management

- Remap extent of area treated and control area
  - Assess effectiveness of treatments and site factors (comparison to control area)
  - % reduction in stand size and density
  - Survey surrounding areas to document spread, or new populations

- Revisit georeferenced photopoints
  - Visible reduction in stand size
  - Effects on non-target species?

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Monitoring & Adaptive Management

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Restoration

Native Understory

– Use native plants to help prevent the re-infestation of weeds
– Perennial natives
Jobs Creation to Date

<table>
<thead>
<tr>
<th>San Joaquin Parkway and Conservation Trust</th>
<th>River Partners</th>
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<tbody>
<tr>
<td><strong>Labor Source</strong></td>
<td><strong>Labor Source</strong></td>
</tr>
<tr>
<td>Conservation Corps</td>
<td>Conservation Corps</td>
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<tr>
<td># of Workers</td>
<td># of Workers</td>
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<tr>
<td>250</td>
<td>155</td>
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<tr>
<td>Hours</td>
<td>Hours</td>
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<tr>
<td>25,000</td>
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<tr>
<td>Employees</td>
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<tr>
<td>6</td>
<td>66</td>
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<tr>
<td>23,735</td>
<td>20,000</td>
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<tr>
<td>Contract Labor</td>
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<tr>
<td>90</td>
<td>567</td>
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<tr>
<td>9,142</td>
<td>&gt;100,000</td>
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</table>

In addition to contracting with many local agencies:

- Allstate Sanitary Co.
- Covanta
- Colibri Ecological Consulting
- Live Oak Associates
- West Coast Waste Management
- Kroeker Inc.
- H.T. Harvey & Associates
- Gallo Vineyards Compost Inc.

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Questions?