

Sand Parkland Restoration at the Olympia Wellfield

San Lorenzo Valley Water District

1. Sandhills & Sand Parkland Habitat

2. Shrinking Habitat

1. What is left
2. What is ours to protect (District Lands)
3. French Broom

3. Exotic Species Management Methods

1. Assessment of all possible methods

4. Current Proposed Broom Management Plan

1. Regulatory frame work to operate within
2. Risk Factors
3. Cost

5. Next steps: Public Input

Sandhills Distribution

- Originally 6,265 acres of sandhills habitat existed, 600 of which were sand parkland
- By 1992 sandhills had been reduced by 40% and sand parkland by 68%.
- Only 57 acres of “Open Sand Parkland” exist in the world.



SIX Endangered Species confirmed on site



Mt. Hermon June Beetle



Silver leaf
Manzanita



Ben Lomond
wallflower



Zayante band-winged
grasshopper



Ben Lomond
Spine Flower

Olympia Wellfield

180 acres at the Olympia Wellfield
Sandhills ~90 acres
Sand Parkland ~ 30 acres



The Sandhills Treasure

The Swope Jewels

The sand beneath your feet was once part of an ancient sea floor. Here, 100 million years ago, the area was under a vast ocean. Scientists have found fossils of shark teeth, sand dollars, and other evidence of the marine animals that once lived here.

This Fragile Treasure Needs Protection

Like a precious gem, the sandhills are a fragile treasure. They are home to many rare and unique plants and animals. The Olympia Wellfield is a special place that needs our protection. Your care will help ensure this special place for future generations to enjoy.

The Lewis Valley Water District



Priority Areas For Controlling Acacias And Brooms

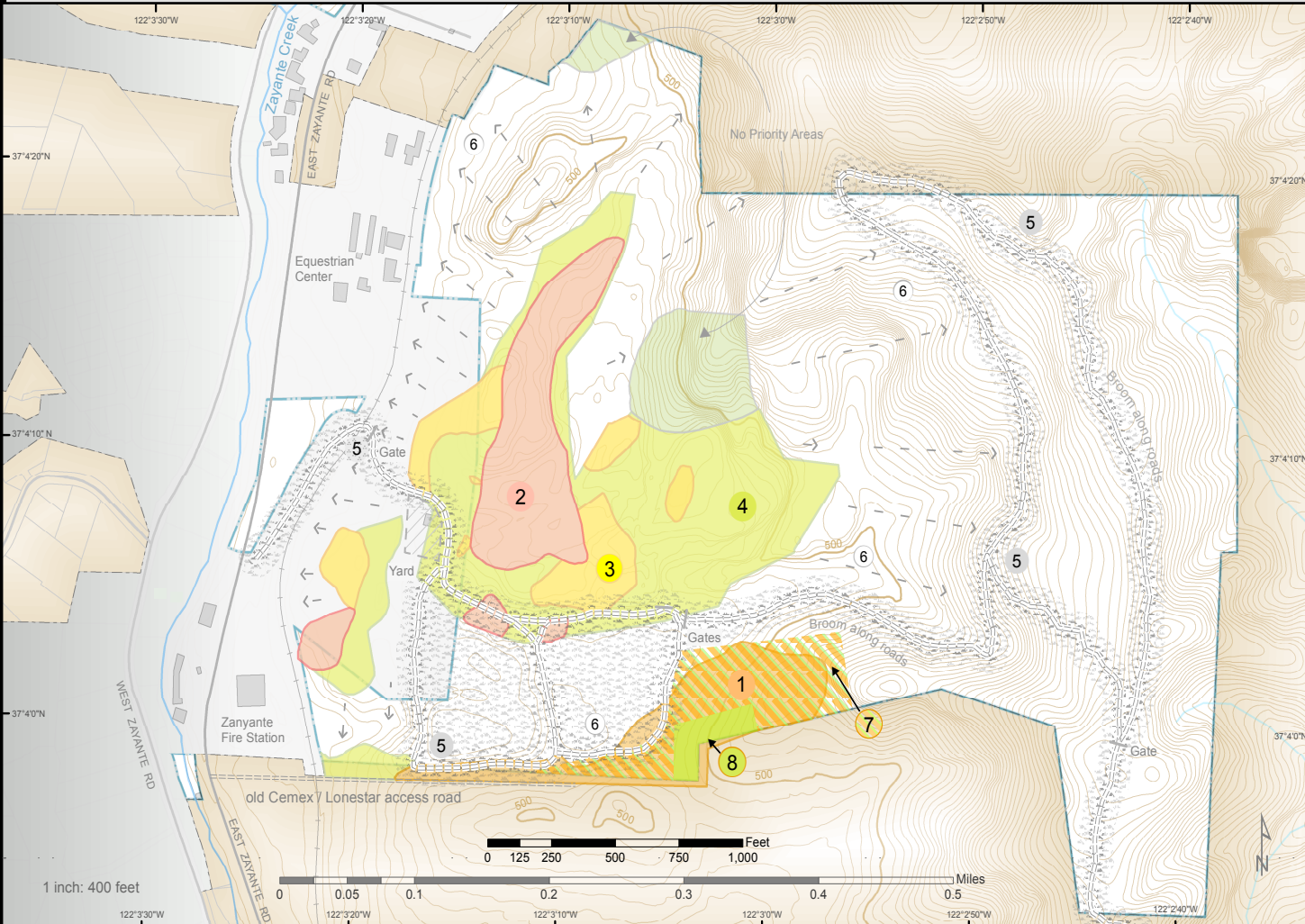
Olympia Watershed Property - San Lorenzo Valley Water District

Density of Specialty Plants

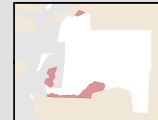
- 1 Highest
- 2 Second Highest
- 3 Third Highest
- 4 Other Sand and Parkland Sites
- 5 Roadsides
- 6 Expansion Areas

Alternative Mitigation Options

- 7 Proposed New Habitat Set Aside
- 8 Mayer Easement



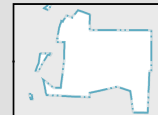
Location



Red Shades Show Sand Parkland Sites



Brown Shaded Areas Outside SLVWD Boundary



Un-Shaded Areas Show Parcels of SLVWD Ownership

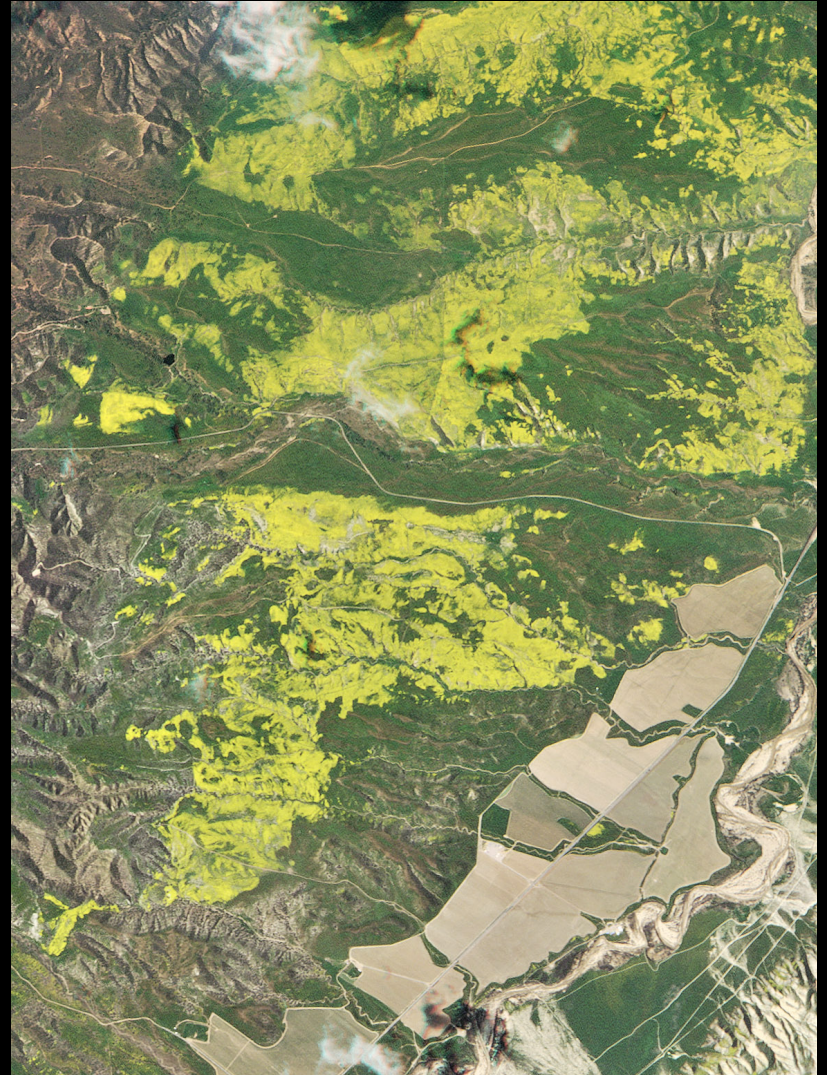
French Broom is currently invading 40 acres of Sandhills and spreading



French Broom Trunks

Urgency

- Super Blooms like 2017 occur following epic droughts followed by gonzo water years.
- The Broom is also producing a super bloom.
- Massive seed production will result in June/July.
- **The mature Broom Plants must be removed before they set seed.**



Sandhills Management Techniques

Sandhills Conservation and Management Plan

Prepared by Jodi McGraw Ph.D

Land Trust of Santa Cruz County

Sandhills Land Management

- Fire Management
- Exotic Species Management
- Recreation Management
- Reclamation, Reconstruction & Restoration
- Research
- Education, Interpretation & Outreach
- Adaptive Management

Exotic Species Management

- Prevent Exotic Species Establishment
- Remove Exotic Seed Sources

Acceptable Methods

- Manual Removal
 - Cutting
 - Pulling (permit)
- Fire
 - Blowtorches & Flamethrowers
 - Prescribed burning
- Chemical

Unacceptable Methods:

- Manual - Girdling
- Mulching
- Solarization
- Biological – Grazing
- Biocontrol

Untreated stump will sprout back and increase labor costs for future cutting efforts.



Current Proposed Sandhills Management Plan

- Current Proposed Plan
- Regulatory Framework (ESA)
- Risk Assessment
- Cost
- Public Input

Current Proposed Plan

Year 1: .2-.5 ml of glyphosate painted on freshly cut stump.

2-4 gallons to treat 40 acres of broom



Year 2 – 6+: Heat treating seedlings.



Current Proposed Management Plan

Focus on Priority Zones

Monitoring Effort to Determine Effectiveness

1st Year:

- Removal of mature broom through cut stump method.

- 2-4 gallons of 50% dilution glyphosate for 40 acres

- Pull seedlings with roots less than 6 inches

Year 2 -6+:

- Heat treatment of seedlings

- Pulling seedlings with roots less than 6 inches

Adaptive Management

Regulatory Framework

Endangered Species Act (ESA)

Administered by USFWS



What is "Take"?

"Take" is defined by the ESA as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect any threatened or endangered species.

- The current plan is designed to avoid "take" of any endangered species.

USFWS Correspondence



- I took a look at the management plan, with a focus on the permitting aspect. The biggest change in it would be that **we wouldn't require a permit to chemically treat stumps (no treatment prior to rain events)**. Also, it is speculated that you would not encounter MHJB larvae at depths less than 6 inches so uprooting any vegetation with root systems around that depth would be fine. - USFWS May 2016
- USFWS March 31, 2017 [I just had a conversation with our recovery permit coordinator and brought forth the idea that the District apply for a recovery permit. The covered activities would consist of: if a MHJB larvae is unearthed it would be reburied at the appropriate depth.] [In the meantime, I do not want to provide any roadblocks for the District to conduct this great work, so the one thing that I think should be in the plan is the requirement that "If a MHJB larvae is unearthed the Service will be immediately notified." This measure would provide the District an avenue if the species is encountered (as we go through getting the recovery permit issued).]

– Do we need a Recovery Permit to pull? – Yes

Herbicide Risk

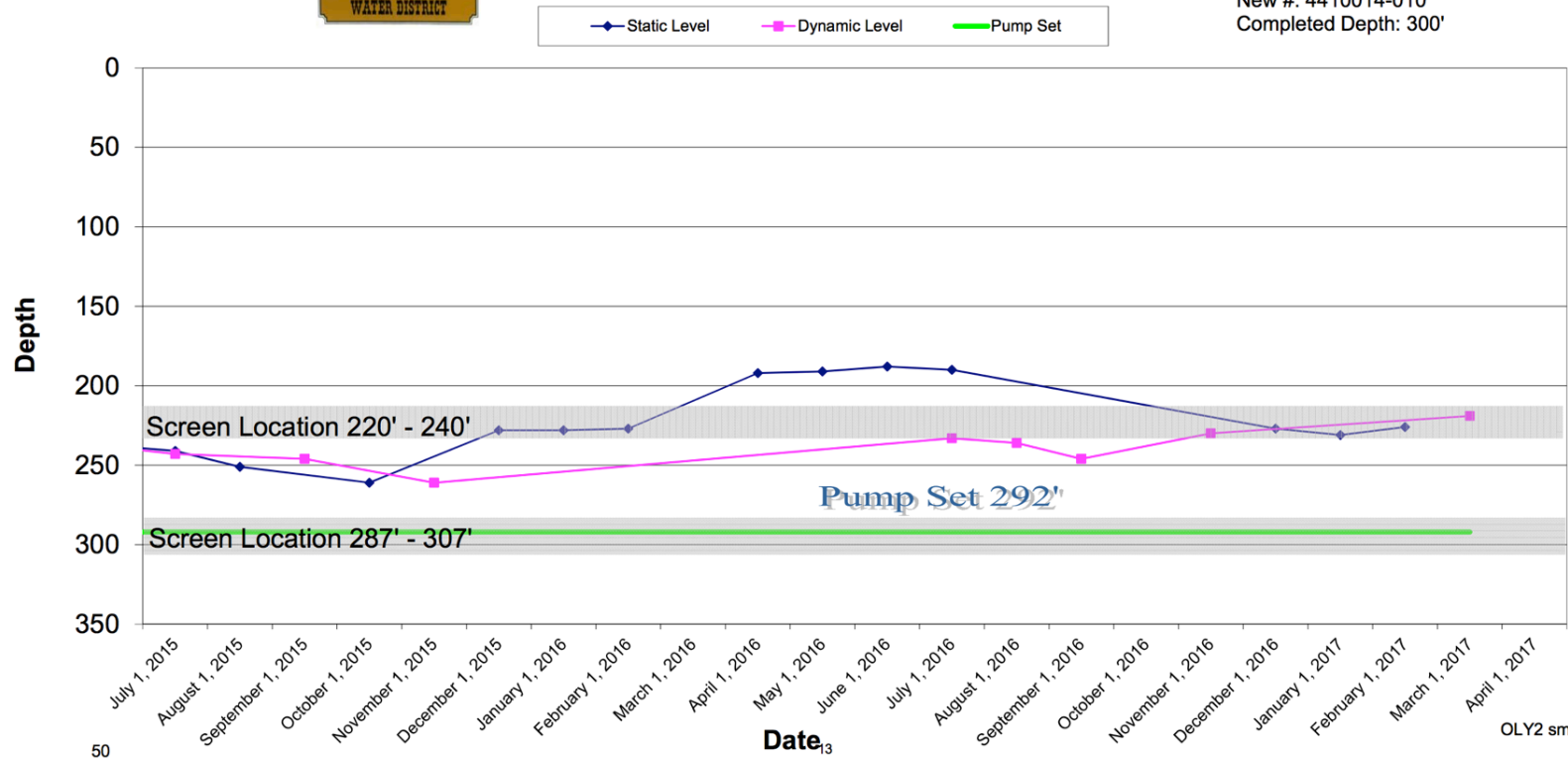
- Animal Toxicity:
 - Rats & Rabbits: Oral - LD50 >2,000 mg/kg bw
 - Honeybees: 100 ug/bee 48 hrs.
 - Non toxic to Moderately toxic at high concentrations
- Water quality: (aerobic) Half life < 7 days, keep out of drains, sewers, ditches & water ways.
- Air Quality: acute inhalation Rat LC50 >5.02 mg/kg
- Soil Quality: Half life: 2-174 days. Adsorbs strongly to soil.
- Worker Safety: Appropriate Personal Protective Equipment would be used as recommended.
- Health and Safety of Watershed Residents: Groundwater Wells on site 200-250 feet below the surface.
- Alternative Manufacturers of Glyphosate?

Depth to Groundwater



SAN LORENZO VALLEY WATER DISTRICT Well Drawdown Report Olympia 2

Location: 7701 E. Zayante Rd.
Elevation: 525'
Installed: April 28, 1980
State Well #: 10S/O2W-11P01
New #: 4410014-010
Completed Depth: 300'



Cost

Fixed Costs:

- Biomass Disposal:
\$1000/40cubic
yards or \$48/Ton
- Qualified
Applicators Licence
(QAL)
- Qualified Biologist

Variable Cost:

- Labor (2434 hours)
 - CCC
 - Prison Crews
 - American
Conservation
Corps
 - Volunteer

WHY?

- Our Mission is to provide our customers and future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding service and community relations; **to manage and protect the environmental health of the aquifers and watershed;** and to ensure the fiscal vitality of the San Lorenzo Valley Water District.

It's up to you.

REFERENCES

- McGraw, J. 2004 The Sandhills Conservation and management Plan.
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- World Health Organization (WHO) Regional Office for Europe, 2016
<http://www.euro.who.int/en/health-topics/disease-prevention/food-safety/news/news/2016/05/results-of-joint-faowho-meeting-on-pesticide-residues-jmpr>