

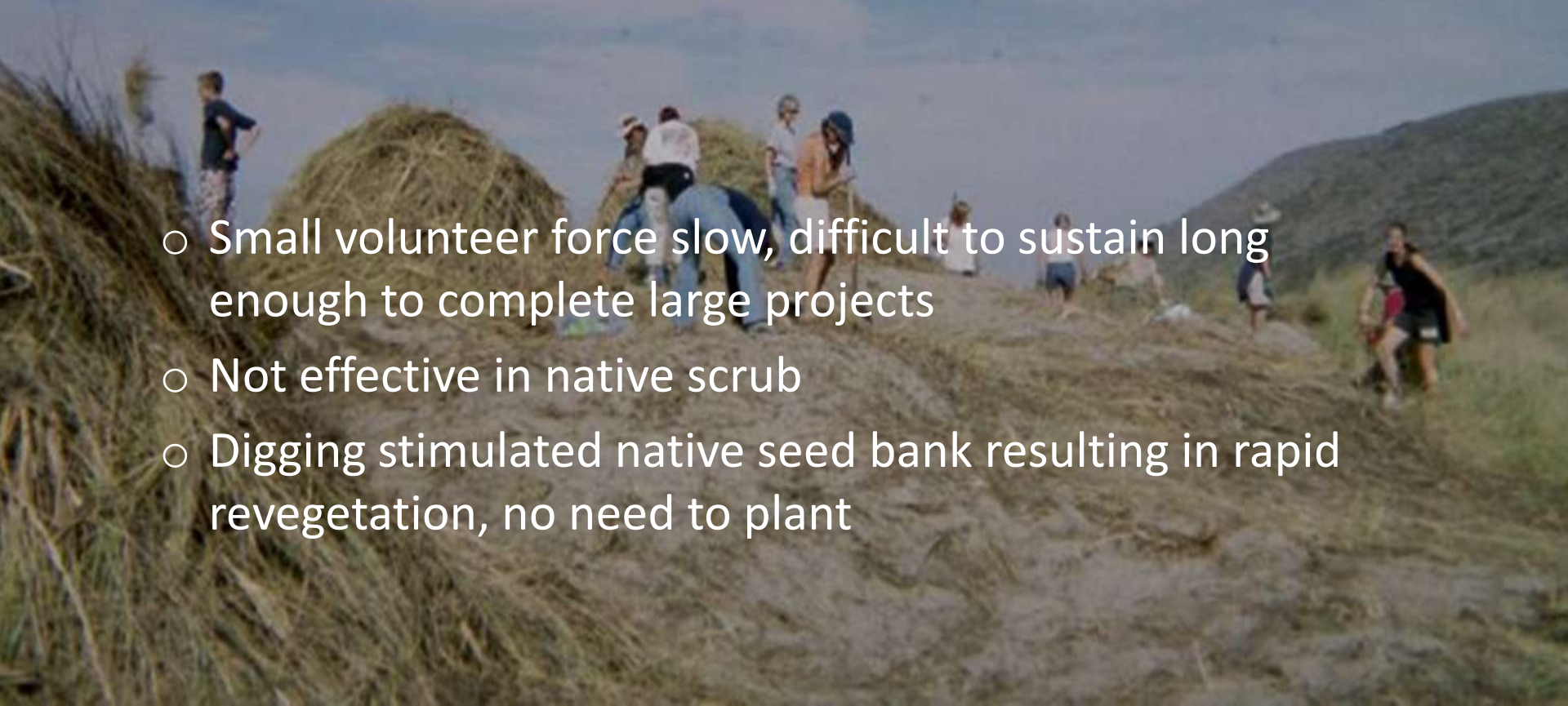
European Dune Grass Control

15 Years of Adaptive Management



Sunset State Beach 1995, Began with hand removal using CNPS volunteers pulling 7 times per year, and burning piles

- Small volunteer force slow, difficult to sustain long enough to complete large projects
- Not effective in native scrub
- Digging stimulated native seed bank resulting in rapid revegetation, no need to plant





\$36,600 - \$69,001 Hectare




\$7,331 - \$13,246 Hectare



\$3,000 - \$5,000 Hectare

September 2000 - First dune grass plot burned.

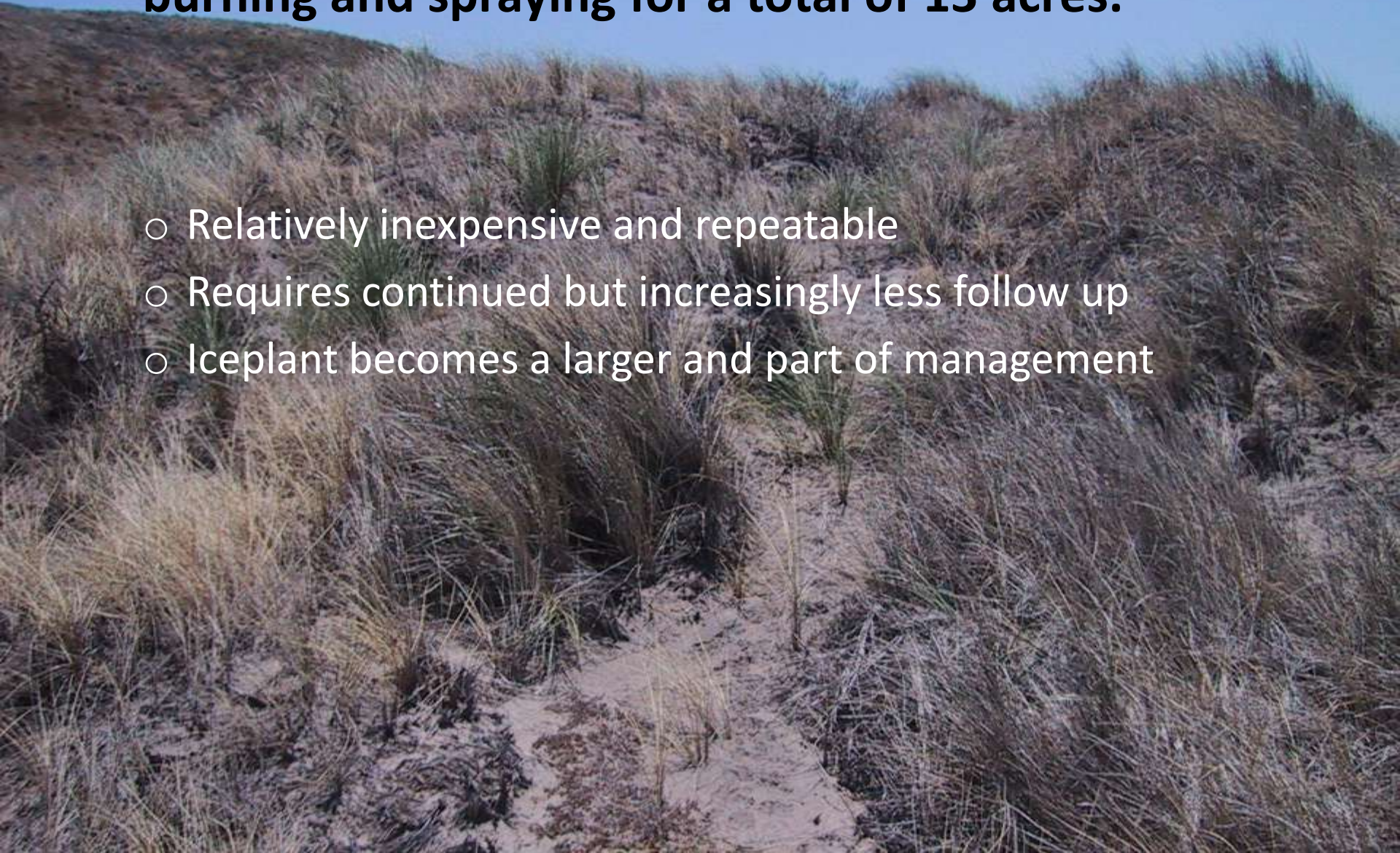
- Easy to treat large areas cheaply
 - Removes biomass
 - Stimulates growth
 - Facilitates herbicide application
 - Maintains root structure to mitigate erosion
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Fall 2001, treated resprouts with 7% Glyphosate (Roundup Pro Concentrate)

- Individual treatments only achieve about 60% control
- Issues with exceeding limits on amount of herbicide per acre/ year
- Unable to treat > 3 acres in a season due to staffing and workload
- Timing works well to avoid annual plants and plovers breeding season
- Allowing dune grass to regrow acts to straw dune and reduce sand transport

2002 to 2007, Sunset State Beach Continued burning and spraying for a total of 13 acres.

- Relatively inexpensive and repeatable
- Requires continued but increasingly less follow up
- Iceplant becomes a larger and part of management





An aerial photograph of a coastal landscape. In the foreground, there is a sandy beach with waves breaking onto it. Behind the beach is a wide, flat area of dunes covered in low-lying vegetation. In the background, a steep hillside rises, covered in a dense forest of trees. The overall scene is a mix of natural coastal and forested environments.

2007, Funded for new project at Año Nuevo State Park; Began Spraying, and preparing a burn plan

- Good kill initially
- Significant resprouting
- Difficult to retreat due to thatch



**2008 to 2009 Burn and Spray 20 acres using
1.5% of Stalker,
2% Roundup Pro Concentrate,
.5% R11**

- Larger burns required significant prep
- Able to complete 10 acre plots in one day (Oceano Dunes SRVA burned 80 Acres in one day)
- Tank mix provided quick burn down allowing more rapid follow-up treatment
- Provided >90% control when applied correctly
- Likely the minimum effective concentration
- No apparent impact on natural revegetation



**2009-2011 Conducted test using only Stalker @
3 oz./ gallon on unburned dune grass**

- Requires approximately 1 year to achieve kill
- Did not kill coyote brush on dune despite some overspray
- Follow-up is more difficult than with burning, but not as difficult as Roundup treatment

