



## Working Together Against Weeds: workshops and materials to prevent weed spread through management operations

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# Outline

- The problem
- The idea
- Workshops
- Materials
- What we learned



# Land Management Operations Can Spread Weeds

- Invasive plant control
- Road or trail maintenance / building
- Visitors
- Fire management / suppression
- Research activities







Photo by Jerry Asher.

# Seeds, Seeds Everywhere...





# Walking Can Be Dangerous...



Pampas grass seeds on a hiker's shirt along the trail to the Ventana Wilderness  
Photo by Jerry Asher



Weed seeds being carried by boots (non-native grasses). Photo by Jerry Asher.



Squarrose knapweed seeds on pant legs. Photo by Jerry Asher.





Medusahead along trail. Photo by Jerry Asher.





U.S. Forest Service Ranger Combing weed seeds from a horse's tail. Photo by Jerry Asher.



Yellow star thistle seeds in tire. Photo by Jerry Asher.



# An Interdisciplinary Approach to Formulating Solutions

- No more Jack of All Trades in NPS
- What will work?
- Generating buy-in





# 2007 Workshop

- Goals
- Participants
- Format





# Outcomes of Initial Workshop

- Introductory presentations
- Background information
- Best management practices
- Sample park directives
- Sample educational programs
- Binder and cd



# Invasive Plants Negatively Affect Parks in Many Ways

- Reduce visitor use
- Destroy biodiversity
- Degrade ecosystem services
- Impair facilities
- Harm cultural resources
- Destroy viewsheds
- Increase fire frequencies
- Interfere with management activities
- Cost parks money



NPS Staff and giant plumeless thistle at Pt. Reyes National Seashore. Photo by Jerry Asher.

# Invasive Plants and Visitor Use

- Parks are for people
- People use parks to:
  - Hike
  - View wildflowers
  - View wildlife
  - Boat
  - Camp and more!!
- Invasive plants negatively impact all of these activities



Yellow starthistle crowding native wildflowers. Photo by Jerry Asher.



# Invasive Plants Limit Recreational Access



This recreational trail along the Klamath River was closed due to yellow starthistle. Photo by Jerry Asher.

# Invasive Plants Impact Park Facilities

- Invasive plants can:
  - over-run campgrounds
  - Increase fire danger around buildings
  - Increase the frequency for needed trail clearance
  - Overgrow roads more rapidly than native vegetation
  - Disrupt sewage and other belowground systems



Invasive broom overgrowing roads in Marin. Photo by Janet Klein.



# Invasive Plants Reduce Biodiversity

- Bad for wildlife (birds, deer, elk, small mammals, insects, etc.)
- Exclude native plants
- Threaten rare and endangered plant and animal species (second only to habitat loss as a cause of endangerment)

A field of Cape Ivy.  
Photo by John Randa,  
The Nature  
Conservancy.



Federally endangered Lyon's Pentachaeta battles with invasive Tocolote for light, space, and water. Photo by Jolene Pucci.



# Invasive Plants Reduce Ecosystem Services: Clean Air, Clean Water

- In comparison to native habitats, many invasive plants:
  - increase erosion
  - do NOT produce oxygen year-round
  - increase run-off OR dry up streams through high water use



Perennial pepperweed is one of many invasive species that increases erosion. This pepperweed infestation dominates a sensitive habitat drainage in the Santa Monica Mountains N.R.A. Photo by Christy Brigham.

# Six Ways to Shut Down Weed Invasions

Guiding principles and golden rules to live by  
as we go about our daily work

Presented by Sylvia Haultain

Plant Ecologist, Sequoia and Kings Canyon National Parks

Working Together Against Weeds Workshop

June 16<sup>th</sup>, 2009

Joshua Tree National Park



# 1. Stop seeds at the source

- Prevent introduction of weed propagules
- One flowering stem of Canada thistle can produce as many as 40,000 seeds, which can lie in the ground for 20 years and still germinate





# Stop movement of weeds from infested areas

- Document existing populations of invasive plants and control or contain them
- Know where your fill is coming from and where it is going to
- Protect high quality habitat



### 3. Avoid creating soil conditions that promote weed establishment

- Minimize soil disturbance
- Where project disturbance creates bare ground, re-establish vegetation or mulch
- Avoid compacting soils
- Prevent the addition of soil nutrients; increasing soil fertility often favors weeds over native plants



## 4. Avoid creating canopy conditions that promote weed establishment

- Maintain closed canopies
- Restore areas opened up by construction activities
- Re-vegetate with native plants



## 6. Increase awareness of weed prevention practices

- Work together to develop weed awareness
- Create a culture of prevention



# 2009 Workshops

- Workshop goals
- Workshop format
  - One day workshop
  - introductory power points
  - scenarios and discussions
  - Small working groups focused on specific operations
  - Next steps and recommendations
  - Report to management





# State of the Parks

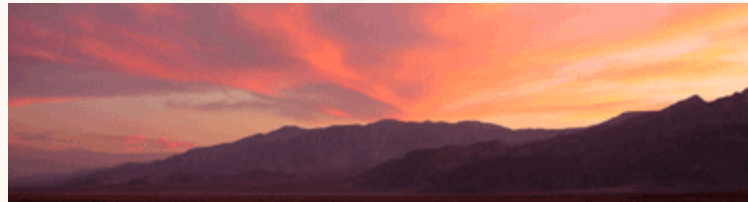
- All parks under-staffed
- Serious problem weeds present in all parks
- Window of opportunity is closing
- “We’re ready to give up”
- Impediments are park specific





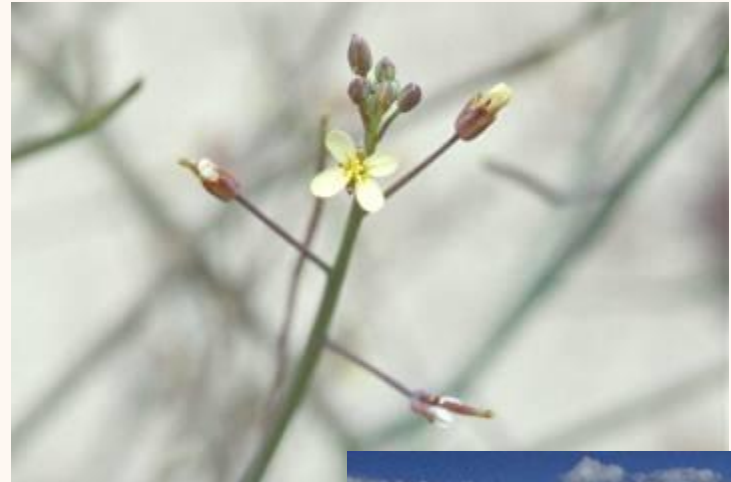
# Two Examples

- Joshua Tree and Death Valley
- Olympic National Park



# Desert Parks

- Range in degree of invasion
- Game changers present
- Staff feel overwhelmed



# Olympic National Park

- Naturally resistant ecosystems
- Relatively un-invaded
- Major threats present





# Conclusions

- Approach has promise
- May be useful for other land management agencies
- Have good BMPs?
- Will it be effective?



# Future Work

- Give more workshops at other parks
- Track metrics to evaluate implementation and success
- Solicit more feedback from parks on process



A wide-angle photograph of a field filled with numerous small, bright yellow flowers and clusters of light purple flowers. The plants are green and appear to be in full bloom. In the background, there is a dense line of trees or shrubs, and the sky is overcast and grey. A semi-transparent white rectangular box is centered over the middle of the image, containing the text "Questions?".

Questions?