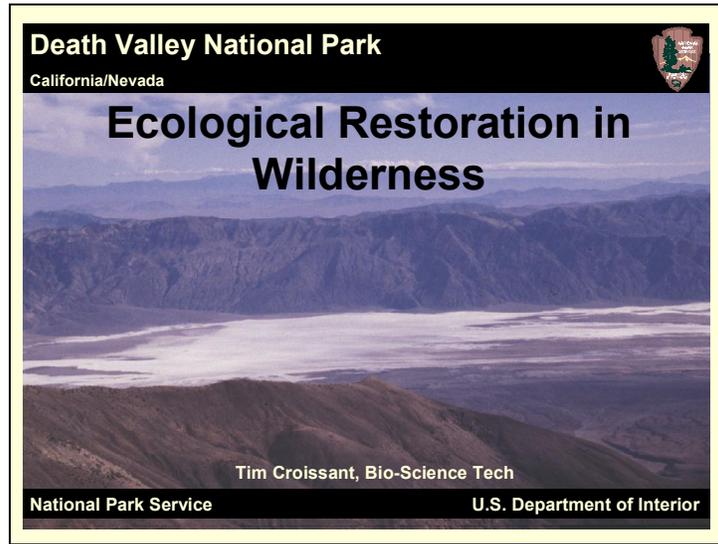


Slide 1



**Death Valley National Park**  
California/Nevada



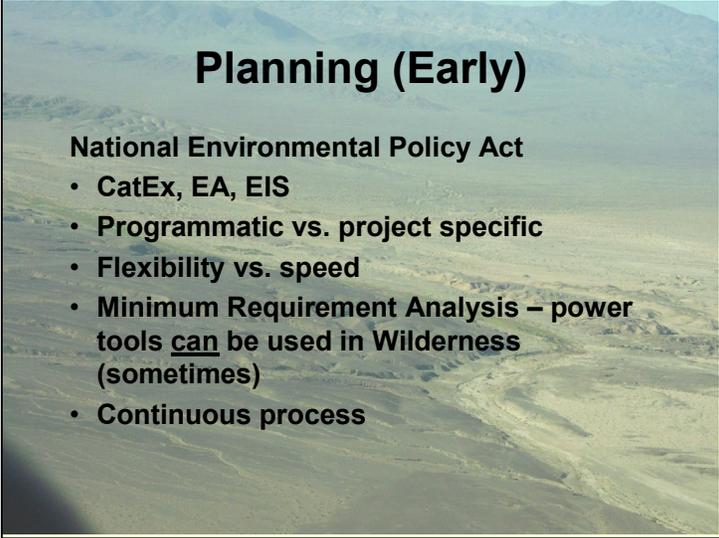
# Ecological Restoration in Wilderness

Tim Croissant, Bio-Science Tech

National Park Service U.S. Department of Interior

The slide features a central photograph of a vast, flat, light-colored desert valley floor, likely a salt flat, surrounded by dark, rugged mountains under a clear sky. The text is overlaid on this image, with a black background for the top and bottom sections.

Slide 2



## Planning (Early)

**National Environmental Policy Act**

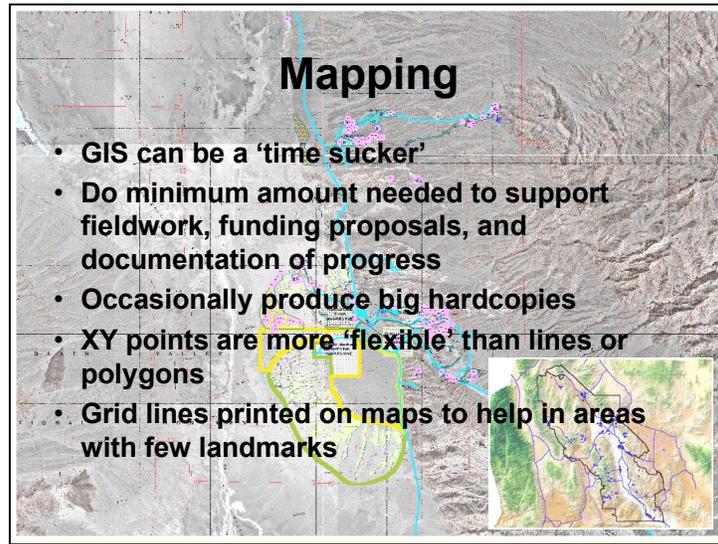
- CatEx, EA, EIS
- Programmatic vs. project specific
- Flexibility vs. speed
- Minimum Requirement Analysis – power tools can be used in Wilderness (sometimes)
- Continuous process

Early on, there are two different basic planning needs  
Funding  
NEPA

## **Funding**

- **Programmatic vs. project specific**
- **Real, discrete goals**
- **Non-subjective objectives**
- **Try to plan at least three years in advance**
- **Relate to nation-wide agency goals and enabling legislation**
- **Receiving lawsuit threats can make proposals more competitive**

Slide 4



## Mapping

- GIS can be a 'time sucker'
- Do minimum amount needed to support fieldwork, funding proposals, and documentation of progress
- Occasionally produce big hardcopies
- XY points are more 'flexible' than lines or polygons
- Grid lines printed on maps to help in areas with few landmarks

XY points can be in tables (database or spreadsheet), entered into GPS units. You can do a lot with GIS, but it takes lots of time, and requires lots of skill to attain proficiency with software



## Planning (Labor)

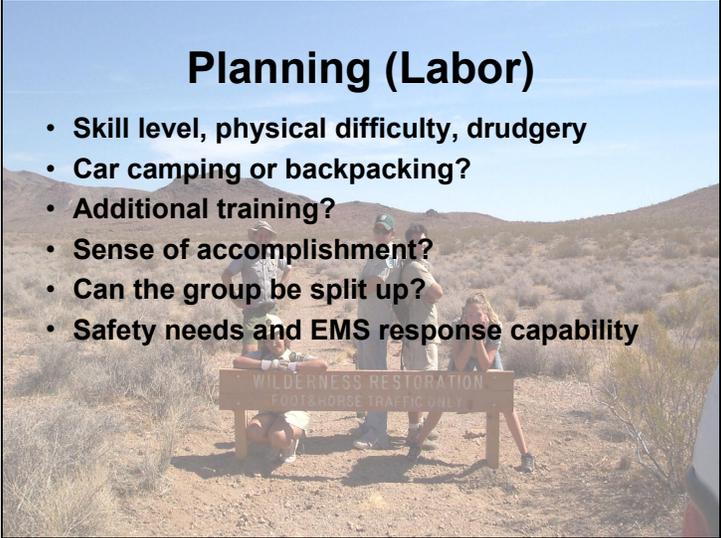
- **Labor Source – Agency or Contract**
- **State CC, Youth CC, SCA, fire, other agency, convict/community service, non-profits**
- **Regular volunteer/student groups**

Lots of different labor sources – Labor can be very cheap  
Most outside groups need a daily agency guide  
'Site supervisor'  
to guide them, help with safety issues  
knowledge of local terrain  
skills specific to the job  
agency goals and culture  
to monitor them and prevent un-intentional damage

Slide 6

## Planning (Labor)

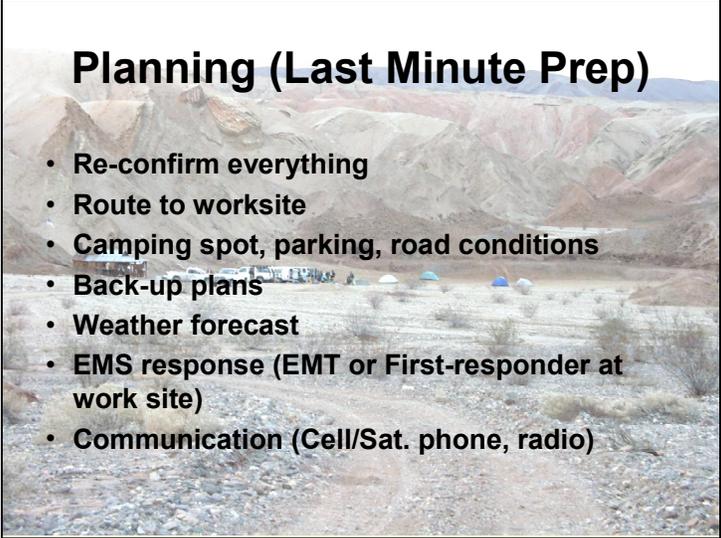
- **Skill level, physical difficulty, drudgery**
- **Car camping or backpacking?**
- **Additional training?**
- **Sense of accomplishment?**
- **Can the group be split up?**
- **Safety needs and EMS response capability**

A photograph of a group of people in a desert landscape. In the foreground, a wooden sign is visible with the text "WILDERNESS RESTORATION" and "EMERGENCY TRAFFIC ONLY". The background shows a dry, hilly desert under a clear blue sky.

Lower paid groups need more fun  
More highly paid groups can do the less fun stuff



These groups don't get paid very much – their best motivation will be either how fun the project is, or their perception of the value of the project



### **Planning (Last Minute Prep)**

- **Re-confirm everything**
- **Route to worksite**
- **Camping spot, parking, road conditions**
- **Back-up plans**
- **Weather forecast**
- **EMS response (EMT or First-responder at work site)**
- **Communication (Cell/Sat. phone, radio)**

Roads might have been destroyed by rain  
Other groups may have stolen your camp spot  
Port-a-potties may be full, or knocked over by wind  
(Hopefully not both at the same time)  
Water source may have gone dry



### **Fieldwork -- General**

- **Tools – power tools and/or hand tools**
- **Move labor and equipment to worksite**
- **Consider caching equipment on site (secure containers, well hidden)**
- **Stock or manpower**
- **Pack boards, water cubes**
- **Most people can carry  $\frac{1}{4}$  to  $\frac{1}{3}$  of body weight if they have a good pack**
- **Safety session – daily**

Replace hydraulics and machines with people

You can do a lot by hand, build pyramids, even highway bridges

Don't re-invent the wheel – copy some firefighting methods

Working is not the same as backpacking, even if you are backpacking

For NPS, remember that GeoCaching is illegal, try to hold ourselves to a similar standard

Don't set up caches too long in advance, remove as soon as possible



Don't re-invent the wheel – call Curt Deuser instead  
Hungry Bill's Ranch  
Not very photogenic  
Isolated cultural site  
Tree of Heaven x 400  
unable to get stock in  
initially planned on cut stump, Garlon 4  
switched to hack and squirt, Stalker  
needed only ¼ as much labor as initially planned



## **Fieldwork – Restoration**

- **Traditional revegetation not normally practical in Wilderness**
- **Create conditions beneficial to native seed germination**
- **Scarification, creating 'roughness' (right angles to prevailing winds)**
- **Vertical mulching, pitting, raking**
- **Visual – darken or lighten to match**
- **Create poor driving conditions**
- **Consider signage**

02 25 2003

Try to accelerate natural recovery  
Most restoration is either closed roads, or off-road damage  
Some construction mitigation

Slide 12



Before

Slide 13



After – mostly moved medium sized (10 to 20 pound) rocks  
filled plastic buckets with dark covered gravel, scattered  
100m road leading to 35x35m parking area  
Four high school kids and two adults, five hours



NPS – PMIS Entries, 19jj Case Reports, etc...

Kris Heister can recommend good data management strategies for NPS units

Slide 15



General Location

Date

Direction

Coordinates

Datum

Try to include info in the photograph itself – can't lose it that way

Slide 16



Leave no trace, etc...