

Planning and Monitoring Discussion Group  
Leader: Susan Hubbard, Bureau of Land Management

*Controlling invasive plants obviously involves time in the field actually removing weeds. But what else is necessary to have a successful program to control invasive plants? This workshop will focus on planning and monitoring – the things you need to do before and after weed removal. We will look at some of the basic concepts that will prevent you from making time consuming and costly mistakes and suggest how to develop a plan to ensure that you are being the most effective you can be. And we will look at monitoring and making sure we can document our successes (and learn from our failures). After covering the basics we will open up the discussion to see what has worked and not worked for those present and together answer questions.*

Introductions

1) Planning

- a. Ask: should a project be done at all?
  - i. consider timeline and commitment level
  - ii. is your organization committed?
- b. Prioritizing and mapping help at this stage
- c. Are you actually trying to eradicate?
  - i. can also eliminate – local eradication but expect weed to return at some future point.
  - ii. no net expansion as a goal? may be a good interim goal until realistic goal or agreement is reached.
- d. Consider the users and decide on an appropriate restoration plan.

2) Organization

- a. Build the program with transition to other project leaders in mind so that a project can be successfully handed off later.
  - i. Be Organized
  - ii. Back up all records. Digital and hard copies!
- b. Consider what needs you will have to meet
  - i. Defend funding?
  - ii. Research?
  - iii. Reports – formats and questions required to answer
  - iv. Plan data collection around reporting and organization needs
- c. Database!
  - i. Searchable records and summaries
  - ii. MS Access-based databases are fine and can be used with GIS etc.
  - iii. GeoWeed
  - iv. Wims (sp?)
    1. Program was Wims first and became Geoweed later with further development
    2. Lets you tie GIS polygons with database information
    3. Programs still have some bugs!

4. Can work better with pricey Trimble units than with handheld GPS units because you can download the Access database to the Trimble.
  5. However, Garmins etc. can get a better satellite signal and you can always enter the data later to link the geodata.
  6. Another benefit to handhelds is that you can buy different chips and get one that suits you best – Bluetooth is available! Cannot do that with a Trimble.
  7. MTK (co.) makes good chips but technology changes rapidly.
  8. Platform compatability, updates, and tech support are major considerations when building geodata because they represent an investment of time and money.
- v. Plan to have tech support from your company of choice throughout your project, not just for training.
- d. Mapping
- i. Don't collect more data than you need
  - ii. Collect data to answer your questions and spend the rest of your effort on the project itself
  - iii. Mapping is critical for an efficient and effective project
- e. Paper Trails
- i. Trip reports after management each day creates continuity.
  - ii. Digital and paper
- f. Photo Monitoring
- i. Can help show change over time
  - ii. Established photo points make photo monitoring more effective.
    1. Try to have a unique landscape feature in any photo point to help you come back to it later.
    2. Include orientation.
    3. Include GPS location
  - iii. Keep a consistent labeling scheme with both date AND location for all pictures and files.
  - iv. Date can be autostamped by digital cameras. Just make sure your camera has the correct date set!
  - v. Take pictures with the unexpected in mind – you won't know what's useful until later!
    1. Imagine bigger implications of your photos
    2. Can help defend land management decisions!
  - vi. Helps motivate volunteers to see before / after photos.
- g. Data Collection During Project
- i. Weed counts can help you gain an idea of the scale of your project.
    1. Ballpark figures are fine for most purposes.
    2. Counts can be useful for publicity, fundraising, volunteer morale, illustrates effectiveness of the project.
    3. Can be burdensome if too detailed or complicated for your needs.

4. Golden Gate parks count everything, but some workers find this to be a distraction from the rest of the work.
5. Variability can be a confounding factor in usefulness of the data (variability among volunteers, plant size, etc.)
- ii. Collect presence AND (especially!) absence data.
  1. Presence usually collected
  2. Absence often more important in weed management.
  3. Important for early detection (compare with past assessments)
  4. checklists of species?
- iii. Quantify time spent on a site.
  1. Shows how management needs change over time
- iv. Helps defend decisions
- h. Monitoring: Before, During, After
  - i. Of the three steps (Planning, Eradication, Monitoring), Monitoring can be the most difficult.
    1. Effort goes up as plant # goes down
    2. People get bored looking for the “needles in the haystack.”
    3. Helps to have someone doing it who has ownership in the work.
    4. Be aware of habits and how these may bias your monitoring impressions.
    - 5.
  - ii. Design your monitoring program early on.
  - iii. Get scientific advising from University, Extension resources
    1. Saves you time from the beginning
    2. Better data, especially for time spent.
  - iv. Techniques
    1. Transect density monitoring
    2. Rapid Vegetation Assessment
      - a. CNPS developed
      - b. CNPS does training sessions
  - v. Set up plots that are appropriate to your needs and time available
    1. “Dirty Data” is appealing for projects or organizations with rapid turnover....
    2. ....But try to keep design transferable between people and crews.
    3. Consider the scale of the system and the project. Have a template for several common scales and follow it
  - vi. Make sure to bring everyone who is invested in the project to agreement early on.
    1. Agree on a goal
    2. Avoid a disconnect between levels in the organization
    3. Clarify plans ahead of time.
  - vii. All projects involve Adaptive Management!
    1. Plans will not always happen as intended

2. Feedback loops lead to new decisions
3. Use new information wisely
4. Consider the worst-case scenario and try to plan for it – especially considering weather.
5. Don't spend money just because you feel like you're under a deadline.
  - a. Ex: Santa Catalina Isle. had lots of money to spend and eradicated weeds during 2 dry years. The third and final year was wet, tons of weeds came up, but by then the budget was mostly gone.
  - b. Don't be afraid to ask for an extension from your funding agency.
6. How to explain Adaptive Management?
  - a. Can be tricky!
  - b. Be honest about your expectations and emphasize from the beginning that it is an ongoing battle.
  - c. Last few % of weeds often cost the most money for the least plants. But it's still important to spend that money!
  - d. Seedbanks can obliterate all progress when conditions change (i.e. removal of canopy cover due to an insect infestation produces a resurgence of broom) – not much to be done about these situations.
  - e.
7. **We need to lobby for long-term funding.**
  - a. Look at weed management as maintenance, not an isolated event.
  - b. Use “Maximo” (?) program to detail weed management as maintenance.
    - i. Tracks maintenance events
    - ii. Justifies spending
    - iii. Defends a totally different approach and structure to weed management.
- viii. Summarizing and Stats
  1. Check with universities for short-term help, experimental design, etc.
  2. Collaborate?
    - a. Grad students
    - b. Undergrad student projects
    - c. Partnerships
    - d. Student volunteers
    - e. Coordinate with Profs for coursework projects!!
    - f. Must establish connections and potentially compromise plans to meet mutual goals.
  3. Can get paid interns

**Thanks for a great discussion!**