Prioritizing Weed Populations for Eradication

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Presentation Outline

- CDFA weeds targeted for eradication
- Reasons to prioritize
- Species-level prioritization
- Population-level prioritization
- Building the prioritization model
- Using the prioritization tool
- Conclusions

CDFA's Weed Eradication Program

- CDFA Pest Plant Rating System
- History of setting targets
- Program cuts decreased staff to 5
- Dilemma: too many weeds, too little time
- 52 A-rated species, 13 eradicated, 39 to go…
  - ~ 1700 discrete populations + containment zones
- Current situation: we have the biological information, control methods and maps… now what?

Species-level Weed Prioritization

- California State Noxious Weed List
  Early 1960s
- *Alien Plant Ranking System*
  Heibert 1993
- *A WRA System for New Conservation Weeds in New Zealand*, Williams and Newfield 2002
- *An Invasive Species Assessment Protocol*
  NatureServe 2004
- *California Invasive Plant Inventory*
  Cal-IPC 1994, 2006
- South Australia Weed Risk Management Protocol
  Virtue et al. 2006

Species-level Example

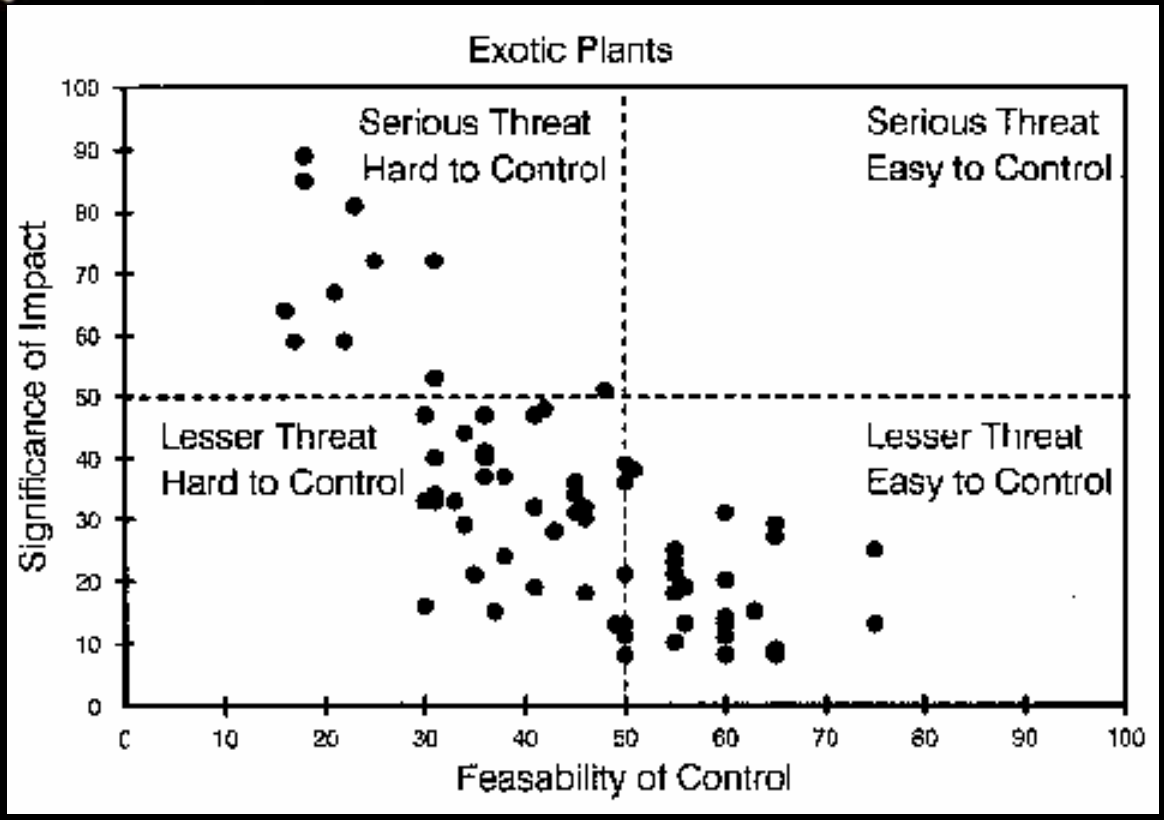

Figure 1. Plot of level of impact vs. feasibility of control for exotic plant species at Pipestone National Monument, Minnesota (Heibert 1993).

Population-level Weed Prioritization

- Considering each population separately will allow the prioritization score to vary by site

- *Biology and Management of Non-Native Plant Species in the Santa Monica Mtns NRA*, UCSB Group Master's Thesis 2007

This tool uses multi-criteria prioritization to determine which weed ***populations*** should be considered a priority for ***management*** based on:

- Habitat quality
- Potential to be a source population
- Ease of control
- Public concern

Building the Eradication Prioritization Model

Criteria contributing most to eradication success and cost:

- **Pre-assessment conditions**
- **Level of Impact**
- **Spatial considerations**
  - *Size, Spread, Isolation, Site Value*
- **Biological Considerations**
  - *Seed set and Seed bank longevity*
- **Logistic Considerations**
  - *Detectability, Accessibility, Cost, Effectiveness*

Using the Eradication Prioritization Tool

Step 1: Identify priority weed species

Step 2: Conduct survey for location and extent

Step 3: Gather information about your weed species

Step 4: Adjust weighting of criteria

Step 5: Complete ranking summary form

Step 6: Assess resource availability

Step 7: Choose eradication projects

Hypothetical Example Output

Pop Code	Score	Pop Cost	Cumulative
LFS 001	817	$635	$635
DTF 010	810	$740	$1,375
SCT 229	799	$330	$1,705
DTF 038	798	$750	$2,455
SPK 091	770	$1,255	$3,710
…	…	…	…
RSW 045	302	$900	$10,900
JKW 002	287	$100	$11,000
SCT 023	275	$700	$11,700
…	…	…	…
YST 967	117	$4,000	$26,400
EUC 057	112	$2,200	$28,600

Conclusions

- Statewide eradication is not the only measure of success
- Species-level weed risk assessment is common
- For eradication programs, species-level WRAs do not allow for regional and population-level considerations
- Prioritization scheme can be designed to look at discrete population eradication

- In the short-term, land managers will be able to demonstrate and evaluate performance measures
- The long-term effect is a positive impact on the environmental health and economy of California

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