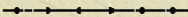


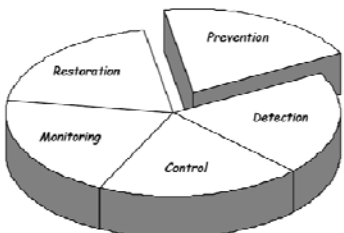
Managing weeds to conserve diversity and productivity

Joe DiTomaso
University of California, Davis



Prevention

Our first line of defense

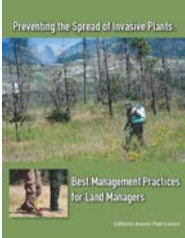


Prevention BMPs

Goal: To prevent accidental introduction and spread of invasive plants

Two Prevention BMP Manuals:

1. for Land Managers
2. for Transportation and Utility Corridors



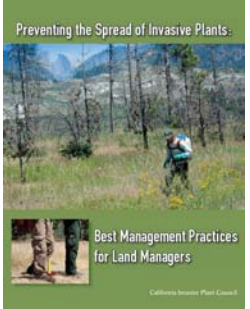
Prevention BMPs

Manual Chapters: Pathways of Invasion

1. Planning & Inventory
2. Project Materials
3. Travel
4. Tool, Equipment & Vehicle Cleaning
5. Clothing, Gear & Boots Cleaning
6. Waste Disposal

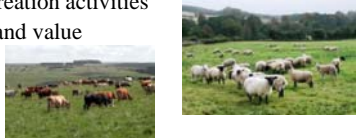
Land Manager Prevention BMPs

Available at:
www.cal-ipc.org

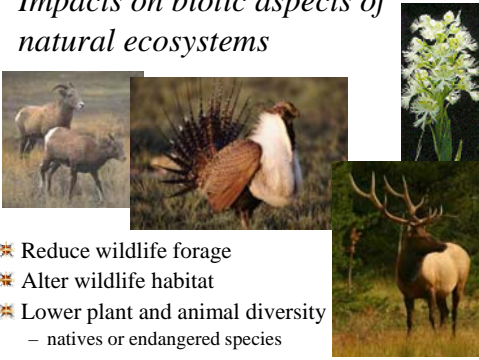


Impacts on human activities

- ⊙ Lower livestock forage quality and quantity
- ⊙ Physically interfere with grazing
- ⊙ Compromise livestock, horse or human health
- ⊙ Increase cost of managing and producing livestock
 - slow animal weight gain
 - reducing the quality of meat, milk, wool, and hides
- ⊙ Impede recreation activities
- ⊙ Reducing land value



Impacts on biotic aspects of natural ecosystems



- ✦ Reduce wildlife forage
- ✦ Alter wildlife habitat
- ✦ Lower plant and animal diversity
 - natives or endangered species

Control options in rangelands

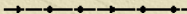
- ✦ Mechanical
 - Hand pulling, hoeing, weed whips
 - Tillage
 - Mowing
- ✦ Cultural
 - Grazing
 - Prescribed burning
 - Flaming
- ✦ Biological
 - Pathogens
 - Insects
- ✦ Chemical
- ✦ Integrated approaches
 - Combination of techniques
 - Revegetation + other technique

Consideration of primary long-term land-use objective

- ✦ Forage production for livestock
- ✦ Timber production
- ✦ Preservation of native or endangered plant species
- ✦ Wildlife habitat development
- ✦ Water management
- ✦ Recreational land maintenance

Mechanical Control Strategies

- Tillage or cultivation
- Mowing



Mowing

Will select for

- low growing annuals
- perennials
- species that have just started their life cycle at the mowing timing
- species that have just completed their life cycle at the mowing timing



Tillage

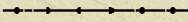
Will select for ruderal annual species




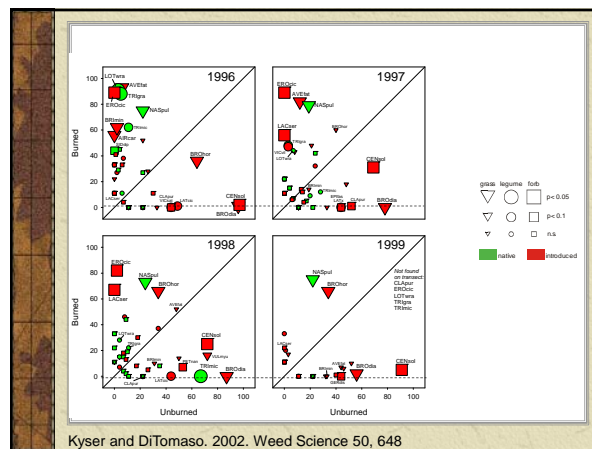
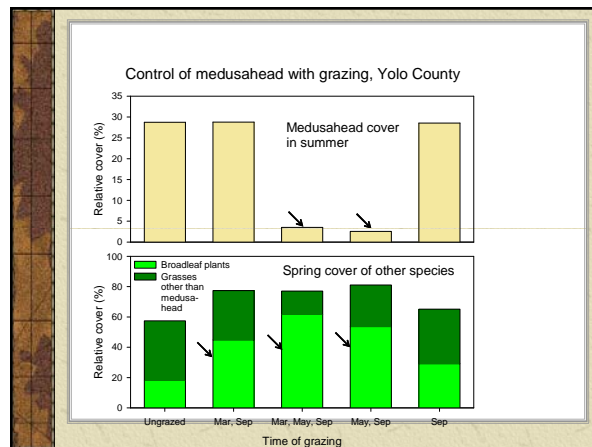
When tillage is conducted too early it can select for other annuals that germinate over a long period

Cultural Control Strategies

- Grazing
- Prescribed burning



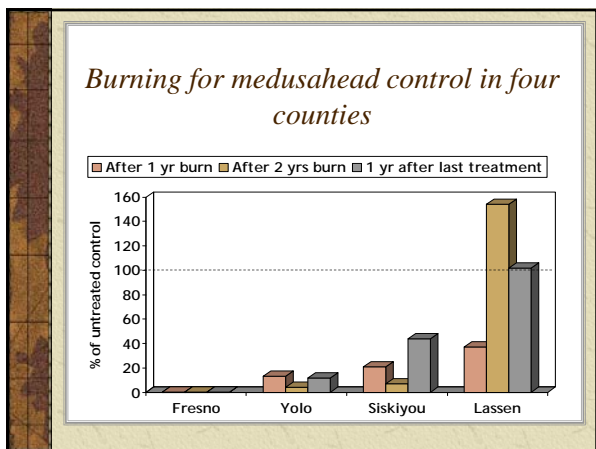
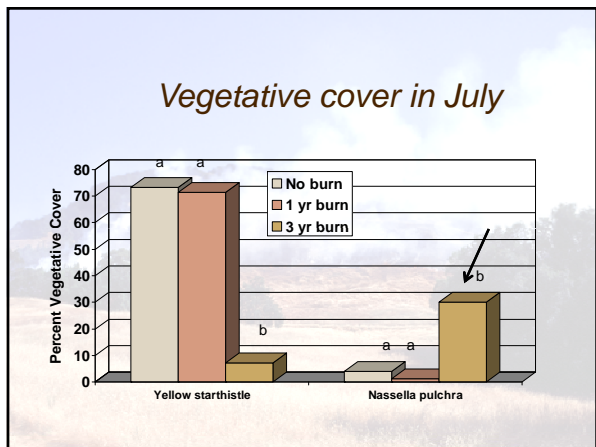
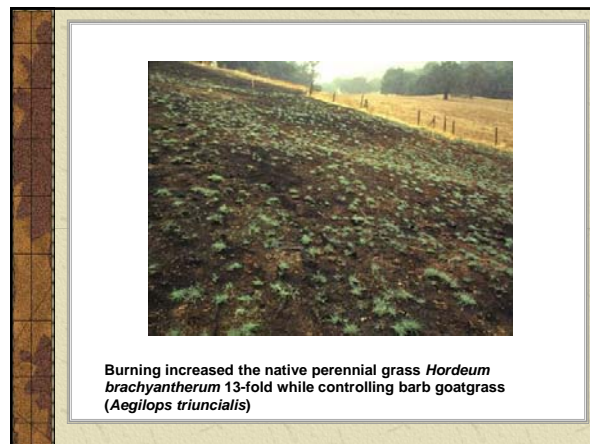
Grazing

Barb goatgrass control burn

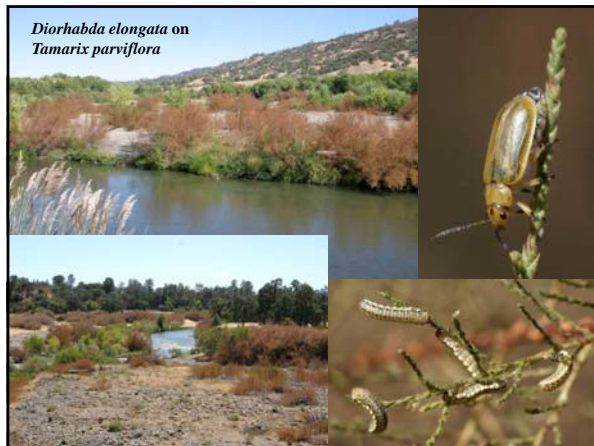
Vegetation type	% Vegetative cover or index value					
	Unburned			burn		
	1997	1998	1999	1997	1998	1999
Pre-burn						
Grasses						
barb goatgrass	45	62	63	55	54	0
native perennials	0	0	1	1	9	10
total grasses	127	156	152	116	173	68

DiTomaso et al. 2001. Cal. Ag. 55, 47.



Biological Control

- Pathogens
- Insects



Herbicide Application Methods

- ✦ Broadcast
- ✦ Directed
 - Backpack sprayer or wick applicator
 - Woody plant control
 - Cut stump
 - Stem injection (hack-n-squirt)
 - Basal bark

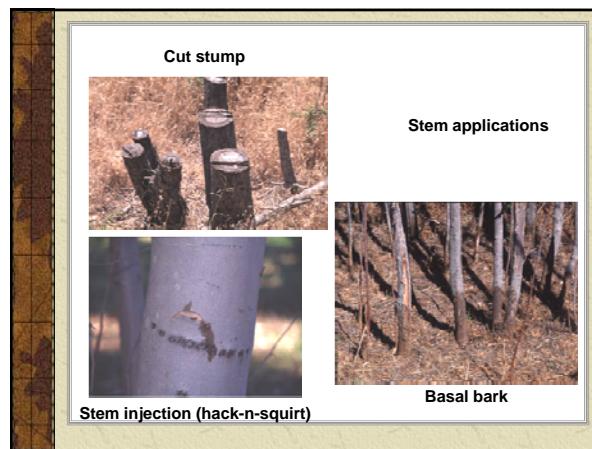
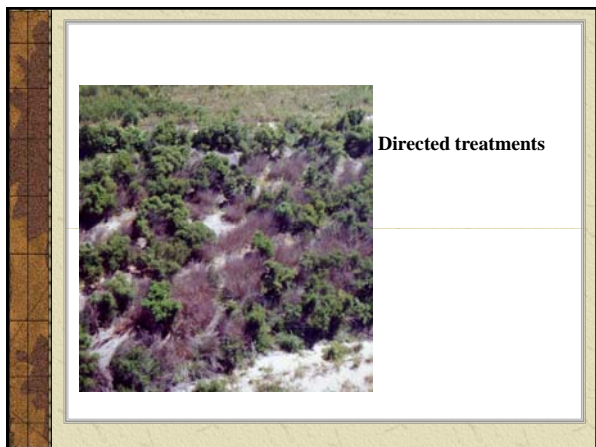
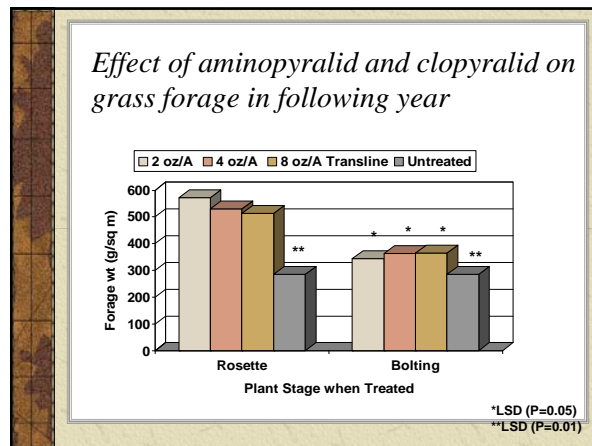
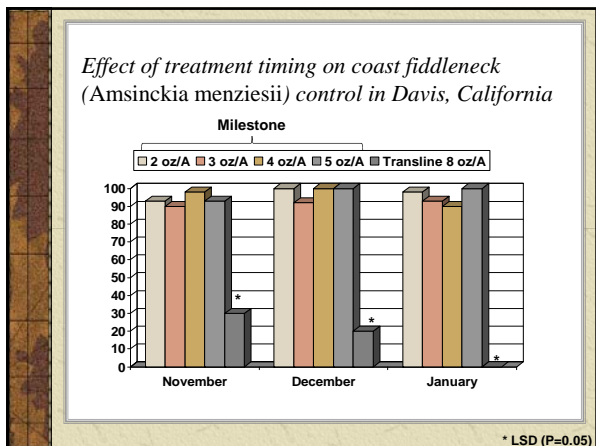
Chemical

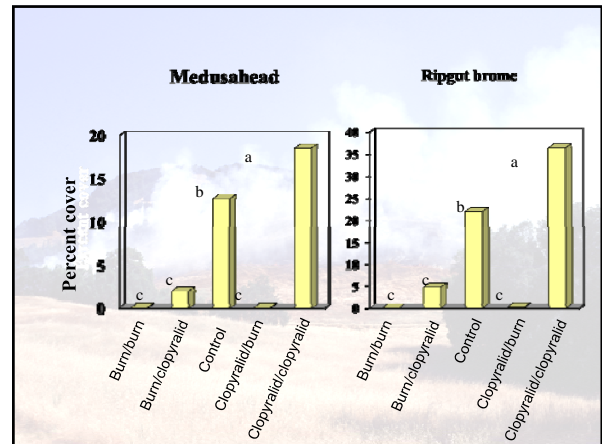
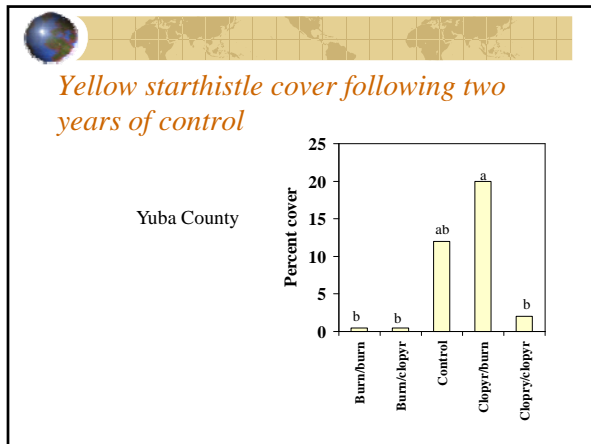
Broadcast applications

To achieve selectivity:
 -use selective herbicide
 -apply at specific timing

Transline (clopyralid) treated rangeland on right

Aminopyralid 3 oz/A Untreated





Thank you! Questions?