Weeds on Rangelands: How do we discourage them in the first place?

Scott Oneto
University of California
Cooperative Extension

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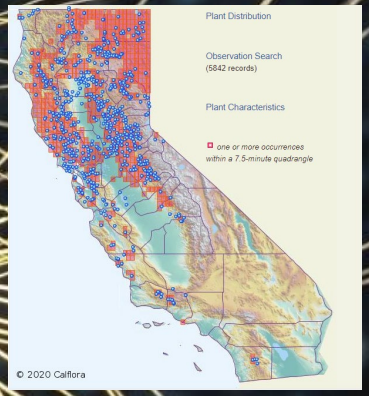
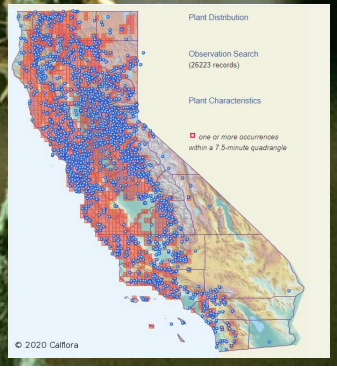
Medusahead

(*Elymus caput-medusae*)



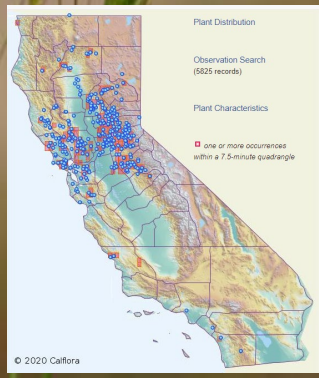
Yellow starthistle

(*Centaurea solstitialis*)



Barb goatgrass

(*Aegilops triuncialis*)



Impacts

- Transformer species – create monocultures
- Poor forage or unpalatable during certain periods
  - Can reduce carrying capacity
  - Nasty awns/spines can cause injury to animals
- Medusahead is high in silica
- Produces a thick thatch
  - Prevents other plant seeds from contacting soil surface
  - Ties up nutrients

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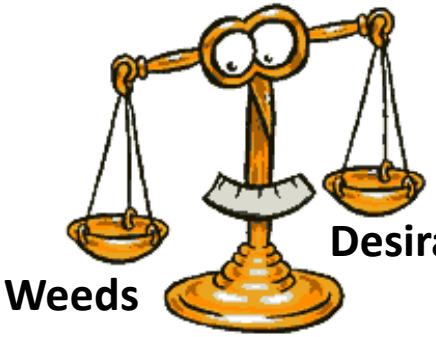
Why are these weeds invading?

- Weather
- Highly competitive
- Low palatability
- Low grazing pressure
- Grazing timing
- Grazing desirables and leaving the junk?



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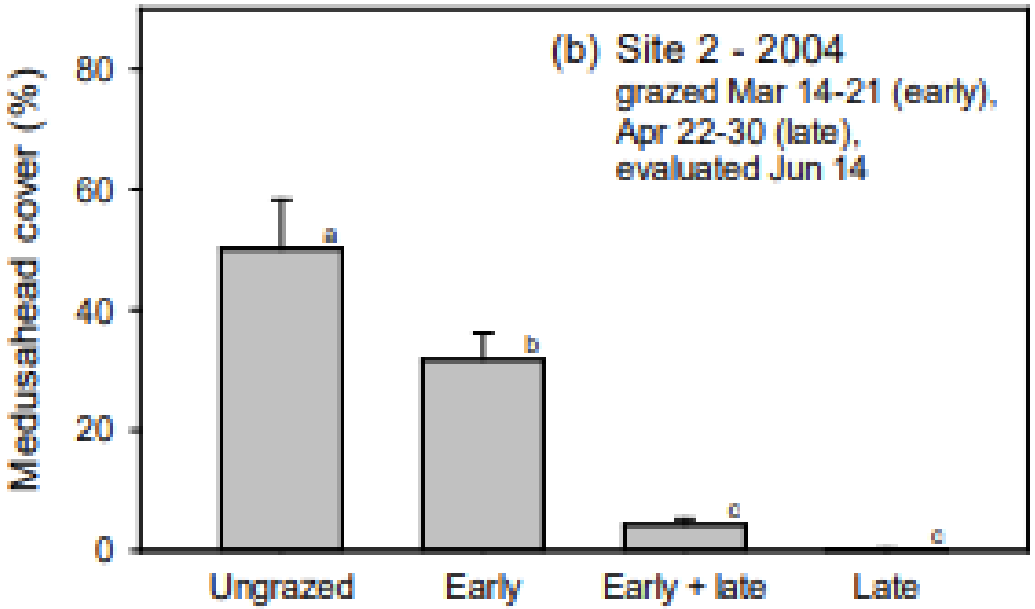
Grazing

The effects of timing on medusahead control



4 treatments:

- Ungrazed
- Early spring
- Early spring & late spring
- Late spring

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Grazing Strategies

- High intensity – short duration grazing
  - 2-3 week window (April – May)
  - For Mh and Bgg, graze when awns are just starting to appear
  - For YST graze during the bolting stage
- Graze intensively throughout spring/summer

Other strategies

- Increase utilization using supplement tubs

Grazing Hurdles

- California rangelands are not setup for intensive grazing
  - Consider cross fencing (funding might be available through NRCS – EQIP Program)
  - Portable electric fence
  - Increase utilization using supplement tubs
  - Virtual fencing
  - Herding with drones

Burning

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Compost Trial

Treatments

1. No treatment
2. Seeded with clover mix
3. Compost applied
4. Compost applied & Seeded with clover mix

Legend

- No treatment
- Seed only
- Compost only
- Compost + Seed

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Compost Applications and Seeding - Fall 2019

200 yards of compost was delivered to each ranch.

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Compost was applied using a spreader at a rate of 1/2 inch (roughly 67 cubic yards/acre).

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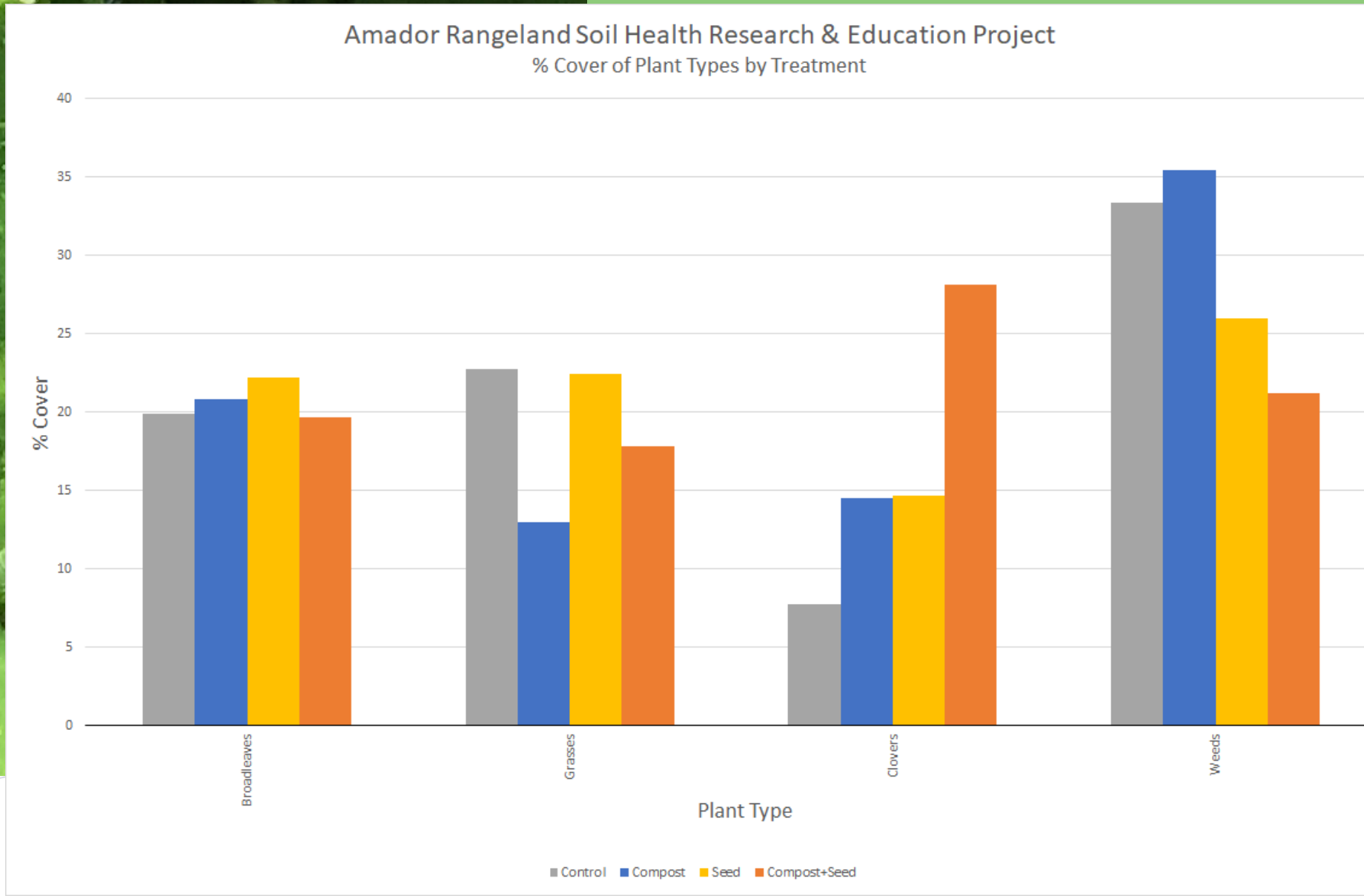
Legume cover crop mix was applied to two treatments; seed only, and seed plus compost

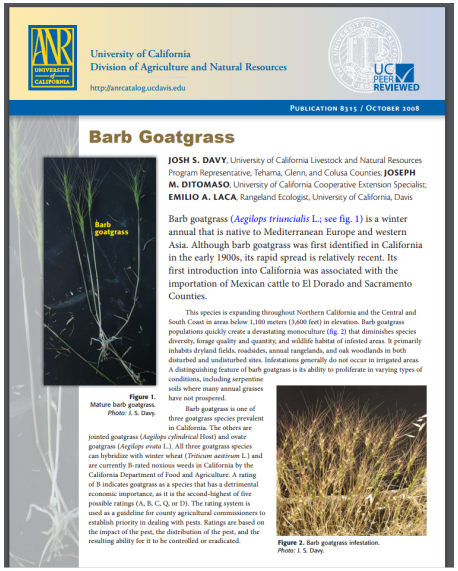
Plant Diversity



6 Step Program

1. Know your enemy
   - Learn to identify your weeds
   - Learn about their biology
2. Develop a prescription for each pasture every year
3. Use all your tools
4. Prevent weed seed production
   - Annuals
5. Deplete seed bank
   - Yst: 3 – 5 years
   - Mh: usually one year
   - Bgg: 2 - 3 years
6. Monitor

Resources



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PUBLICATION 8315 / OCTOBER 2008

Barb Goatgrass

JOSH S. DAVY, University of California Livestock and Natural Resources Program Representative, Tehama, Glenn, and Colusa Counties; **JOSEPH M. DITOMASO**, University of California Cooperative Extension Specialist; **EMILIO A. LACA**, Rangeland Ecologist, University of California, Davis

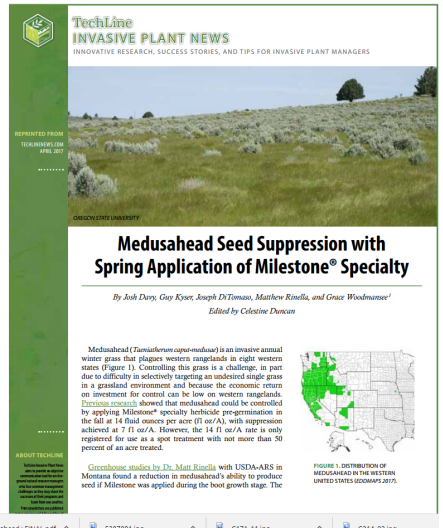
Barb goatgrass (*Aegilops triuncialis* L.; see fig. 1) is a winter annual that is native to Mediterranean Europe and western Asia. Although barb goatgrass was first identified in California in the early 1900s, its rapid spread is relatively recent. Its first introduction into California was associated with the importation of Mexican cattle to El Dorado and Sacramento Counties.

This species is expanding throughout Northern California and the Central and South Coast in areas below 1,100 meters (3,600 feet) in elevation. Barb goatgrass populations quickly create a devastating monoculture (fig. 2) that diminishes species diversity, forage quality and quantity, and wildlife habitat of infested areas. It primarily inhabits dryland fields, roadsides, annual rangelands, and oak woodlands in both disturbed and undisturbed sites. Infestations generally do not occur in irrigated areas. A distinguishing feature of barb goatgrass is its ability to proliferate in varying types of conditions, including serpentine soils where many annual grasses have not prospered.

Barb goatgrass is one of three goatgrass species prevalent in California. The others are jointed goatgrass (*Aegilops cylindrical* Host) and ovate goatgrass (*Aegilops ovata* L.). All three goatgrass species can hybridize with winter wheat (*Triticum aestivum* L.) and are currently B-rated noxious weeds in California by the California Department of Food and Agriculture. A rating of B indicates goatgrass as a species that has a detrimental economic importance, as it is the second-highest of five possible ratings (A, B, C, Q, or D). The rating system is used as a guideline for county agricultural commissioners to establish priority in dealing with pests. Ratings are based on the impact of the pest, the distribution of the pest, and the resulting ability for it to be controlled or eradicated.

Figure 1. Mature barb goatgrass. *Photo:* J. S. Davy.

Figure 2. Barb goatgrass infestation. *Photo:* J. S. Davy.



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INVASIVE PLANT NEWS
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REPRINTED FROM TECHLINENEWS.COM APRIL 2017

OREGON STATE UNIVERSITY

Medusahead Seed Suppression with Spring Application of Milestone® Specialty

By Josh Davy, Guy Kyser, Joseph DiTomaso, Matthew Rinella, and Grace Woodmansee[1]
Edited by Celestine Duncan

Medusahead (*Taeniatherum caput-medusae*) is an invasive annual winter grass that plagues western rangelands in eight western states (Figure 1). Controlling this grass is a challenge, in part due to difficulty in selectively targeting an undesired single grass in a grassland environment and because the economic return on investment for control can be low on western rangelands. Previous research showed that medusahead could be controlled by applying Milestone® specialty herbicide pre-germination in the fall at 14 fluid ounces per acre (fl oz/A), with suppression achieved at 7 fl oz/A. However, the 14 fl oz/A rate is only registered for use as a spot treatment with not more than 50 percent of an acre treated.

Greenhouse studies by Dr. Matt Rinella with USDA-ARS in Montana found a reduction in medusahead's ability to produce seed if Milestone was applied during the boot growth stage. The

FIGURE 1. DISTRIBUTION OF MEDUSAHEAD IN THE WESTERN UNITED STATES (EDDMAPS 2017).

ABOUT TECHLINE

Weed Control in Natural Areas in the Western United States

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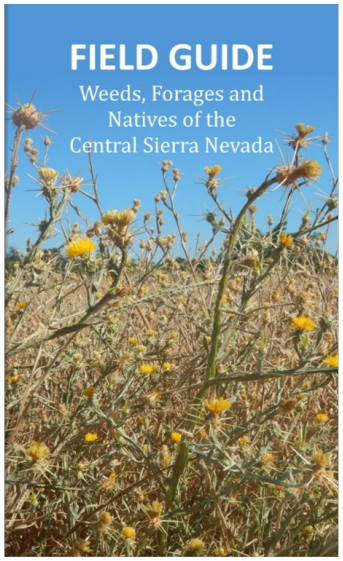

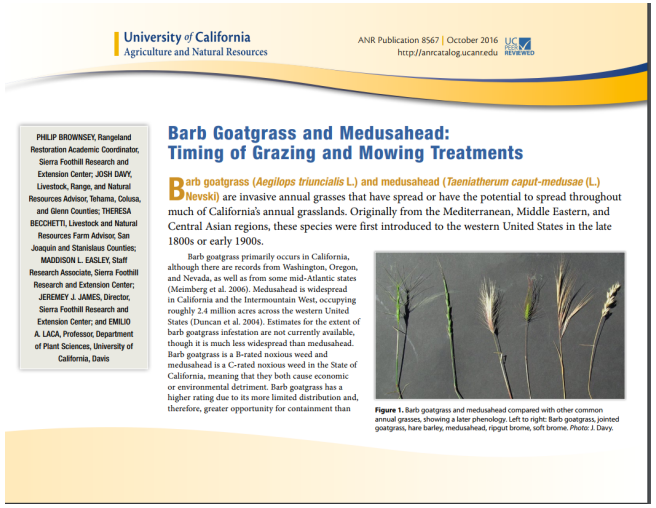

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ANR Publication 8567 | October 2016
http://anrcatalog.ucanr.edu

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Barb Goatgrass and Medusahead: Timing of Grazing and Mowing Treatments

Barb goatgrass (*Aegilops triuncialis* L.) and medusahead (*Taeniatherum caput-medusae* (L.) Nevski) are invasive annual grasses that have spread or have the potential to spread throughout much of California's annual grasslands. Originally from the Mediterranean, Middle Eastern, and Central Asian regions, these species were first introduced to the western United States in the late 1800s or early 1900s.

Barb goatgrass primarily occurs in California, although there are records from Washington, Oregon, and Nevada, as well as from some mid-Atlantic states (Meimberg et al. 2006). Medusahead is widespread in California and the Intermountain West, occupying roughly 2.4 million acres across the western United States (Duncan et al. 2004). Estimates for the extent of barb goatgrass infestation are not currently available, though it is much less widespread than medusahead. Barb goatgrass is a B-rated noxious weed and medusahead is a C-rated noxious weed in the State of California, meaning that they both cause economic or environmental detriment. Barb goatgrass has a higher rating due to its more limited distribution and, therefore, greater opportunity for containment than

Figure 1. Barb goatgrass and medusahead compared with other common annual grasses, showing a later phenology. Left to right: Barb goatgrass, jointed goatgrass, hare barley, medusahead, ripgut brome, soft brome. *Photo:* J. Davy.

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