

## Principles of Weed Management 7/30/15

Chris McDonald PhD [cjmcdonald@ucanr.edu](mailto:cjmcdonald@ucanr.edu)

Natural Resources Advisor, University of California Cooperative Extension  
Serving San Bernardino, Riverside, San Diego and Imperial Counties

Managing vegetation is one of the single most important parts of natural resource management. Without significant vegetation management activities, weeds can dominate landscapes, habitat for native species can be lost, and risk of habitat loss can be increased (i.e. by wildfire). Large tracts of Southern California that were once dominated by native plants are now covered with weeds and new weeds are constantly entering the state and local areas. Below is a brief list of basic invasive plant management principles.

- Weed populations can grow exponentially
  - o Weeds produce an abundance of seeds, often thousands to millions of seeds per plant
  - o A single population of a highly invasive weed can increase from a few individuals to thousands in just a few years
- Weed seeds can survive a long time in the soil
  - o The seeds of a most weed species survive more than one year, oftentimes 3-5 years, and occasionally longer than a decade in the soil.
  - o Seed banks reduce over time, only a small fraction of seeds survive to the maximum extent
- Invasive plants do a better “job” than native plants
  - o Weeds tend to grow faster, produce more seeds, reproduce faster, use resources more efficiently, or disperse their seeds farther than native plants. Delaying action allows for bigger and/or more weeds.
- Preventing reproduction is critical to weed management
  - o With annual weeds, seed production needs to be stopped
  - o With perennial weeds, treatments can target the whole plant, above ground parts or specific plant parts (bark, limbs, etc.)
- Preventing weeds from spreading reduces overall costs of control
  - o An ounce of weed prevention is worth a pound of weed treatments
    - Studies find a cost savings when investing in prevention, compared to long term management and loss of resources
  - o Inventory and monitoring is a critical part of vegetation management
    - What weeds are on your property? Where? Are they spreading or declining? What interactions do they have with the environment (i.e. do they decrease during a drought)?
    - What critical resources are on your property that you want to protect?

- Early detection and rapid response programs can slow or stop new invasions.
  - o If a new weed arrives on your property it needs to be discovered. Inventory and monitoring activities can help find weeds.
    - If a new invasive plant arrives on your property do you have a plan to eradicate it?
    - What resources can be used (labor, equipment, money, expertise, network contacts) to stop it from spreading?
  
- Best management practices (BMP's) can be used to reduce the impacts of weeds or prevent the arrival of new weeds.
  - o Plan for weeds and managing weeds
    - Before a management activity is implemented, identify pathways or actions that can lead to an increase in weeds.
  - o Reduce disturbances (fire, erosion, illegal trails, vegetation clearing,)
  - o Work with clean equipment (tools, vehicles, equipment, livestock clothing, and boots)
    - Wash/sterilize before working on a site
    - Wash/sterilize after finishing work on an infested site
    - Monitor washing locations for infestations
  - o Maintain desired levels of beneficial plants
    - Many weeds favor sites that have reduced competition.
  - o Communicate regularly with your neighbors about weeds
    - Weeds easily cross fences and boundaries
    - Develop a coordinated response to weed management
  - o Use weed-free sources during management and restoration activities
    - Erosion control devices
    - Restoration plantings and seeds
    - Mulches
    - Sand, gravel or fill materials
    - Livestock feed
  - o Reduce the ability for weeds to hitchhike
    - Clean vehicles thoroughly inside and out
    - Reduce or eliminate travel into and out of infested areas
    - Thoroughly clean boots, shoes and clothes
  - o Designate a staging or cleaning area
    - Inspect staging or cleaning area for weeds before and after management activities
    - Clean tools, equipment, vehicles, clothes, and footwear in as few places as possible.