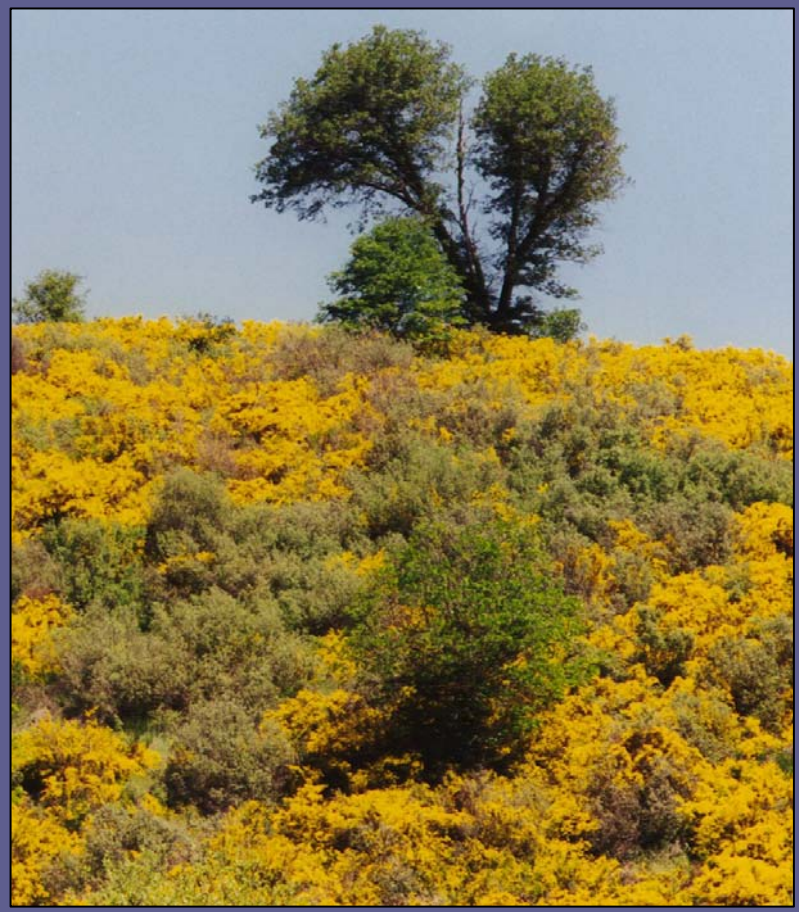
Preventing the Introduction and Spread of Invasive Weeds

Wendy West
University of California
Cooperative Extension
wkwest@ucdavis.edu

What makes a weed invasive?

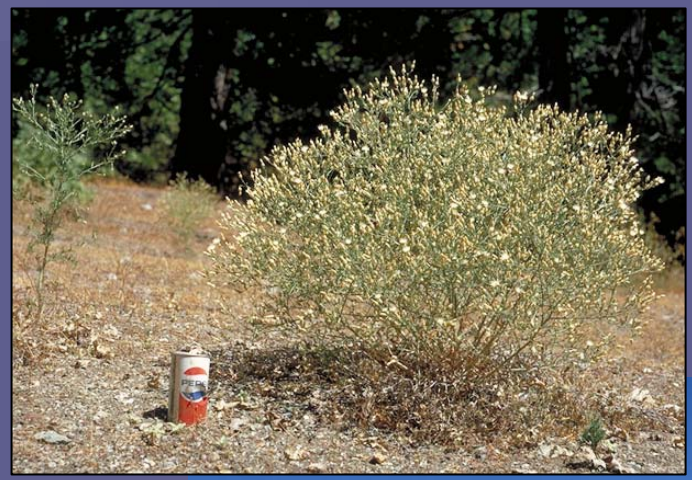
- Highly aggressive
- Difficult to control
- Form monocultures



Scotch broom taking over!

Invasive Weed Biology

- Seed production and viability
- Reproduce from parts
- “Tricks” to out-compete other plants



Damage and Impacts

- Decrease wildlife habitat
- Reduce recreational values and uses
- Decrease land productivity and value
- Contribute to soil erosion and lake/stream sedimentation
- Increased fuel loads and fire risks
- Harm human and animal health
- and….

Damage and Impacts

- Expensive to control

Degrade Wildlife Habitat

Cape ivy

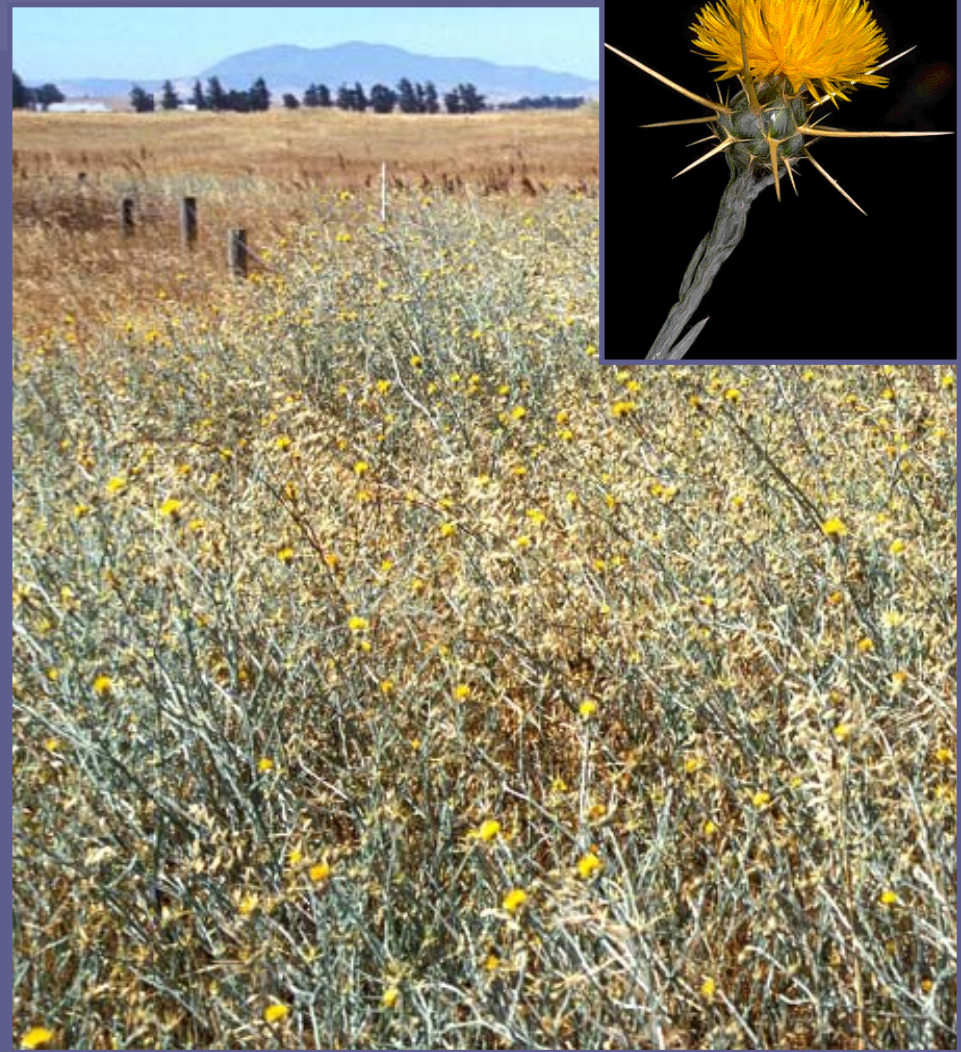
- Smothers native vegetation
- Toxins in the leaves make it inedible to animals

Loss of Recreation Access

- Aquatic invasives can clog waterways
- Yellow starthistle and Scotch broom block trails – hiking, horseback and bike trails

Reduces Land Productivity

- Yellow starthistle
  - reduces forage quality and yield
- Nationwide, invasive plants in pastures and farmland cost an estimated $33 billion per year
- Invasives can reduce forest regeneration



Increasing Flooding

- Giant reed (*Arundo donax*) clogs creeks throughout California
  - Reduces creek capacity
  - Increases risk of floods during winter storms

Increase Soil Erosion

- Perennial pepperweed – roots do not hold soil well

Increasing Fire Danger

- Increased fuels and fire frequency

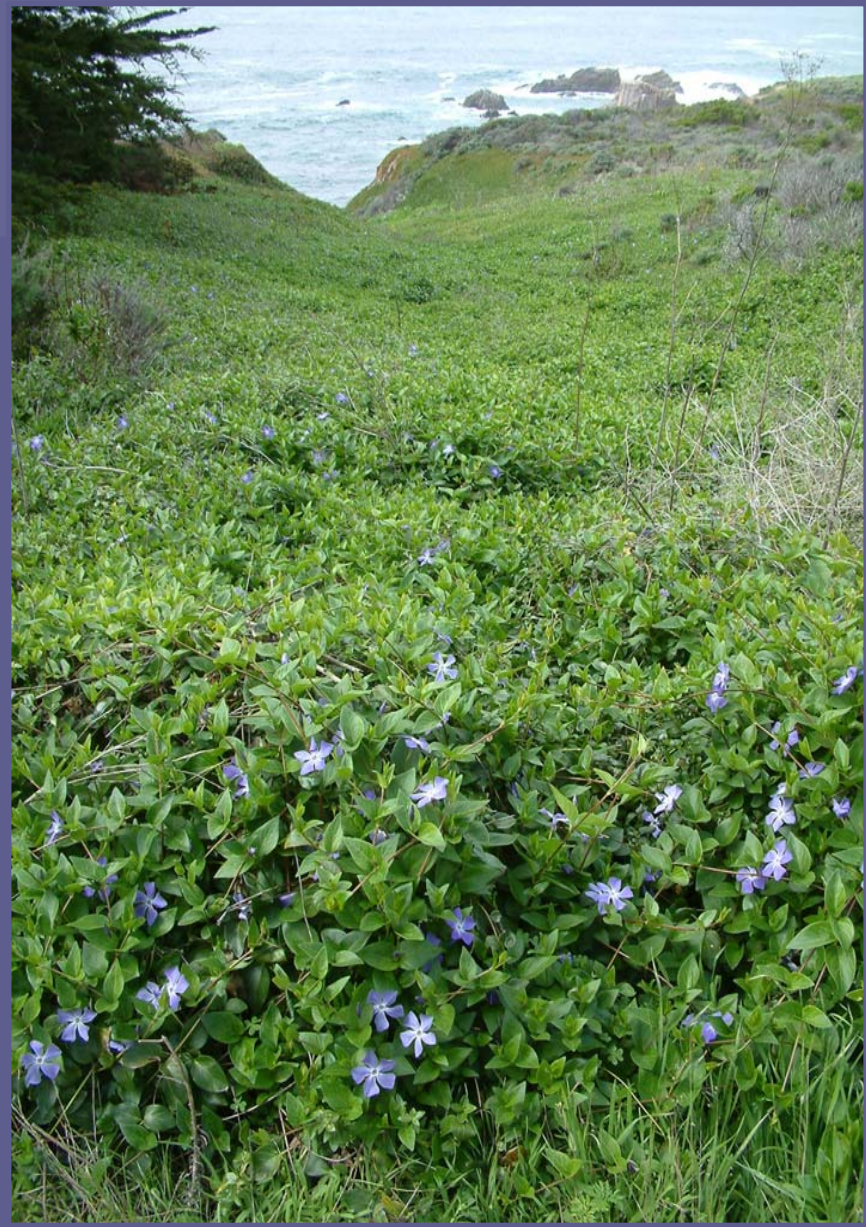
Displace Native Plants

- Periwinkle

  (Vinca major)

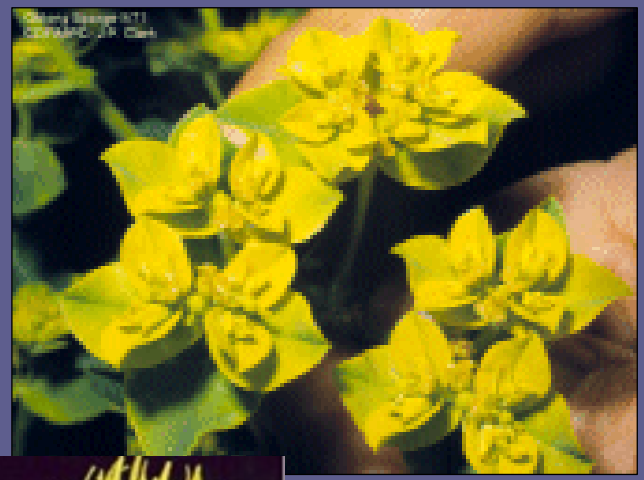
  - Trailing stems that root easily

  - Loves shade, moist areas – creeks and drainages



Harm to Animal and Human Health

- Oblong spurge sap irritates skin



- Yellow starthistle can be poisonous to horses

How Invasive Weeds are Spread

- Animals and birds
- Humans – on boots, clothing, tires
- Wind and water
- Escaped ornamental plants
- Via equipment and materials used during site disturbing activities

Animals and Birds

- On fur
- In droppings

Moved by Humans

- Clothing
- Boots
- Tires/equipment
- Relocating plants

Wind and Water

Sesbania seed pods can float in streams for 10 days

Escaped Ornamentals

Prevention is the key!

- Protect agriculture
- Protect recreational areas
- Protect land values
- Protect wildlife habitat and plant diversity
- Decrease threats from fire

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Site-Disturbing Projects

- Building construction
- Road construction and improvements

Site-Disturbing Projects

- Landscaping
- Fire prevention
  - Fuels reduction
  - Fire breaks
  - Defensible space

Site-Disturbing Projects

Why be concerned during these projects?

- Seed bank
- Bare ground – invasives love open areas
- Seeds/plant parts moved by equipment

PREVENTION is the most economical "treatment" of invasive weeds!

Prevention Guidelines

- Learn which plants are invasive in your area
- Identify and eradicate weeds prior to project start

Prevention Guidelines

- Avoid creating conditions that promote weed germination:

  - ✓minimize soil disturbance
  - ✓retain shade
  - ✓retain vegetation
  - ✓retain topsoil

Prevention Guidelines

- Locate and use weed-free equipment staging areas
- Start in non-infested area and then move to infested areas

Prevention Guidelines

- Require all equipment to be cleaned BEFORE entering the site; remove all mud, dirt and plant parts

Diffuse knapweed at a storage yard

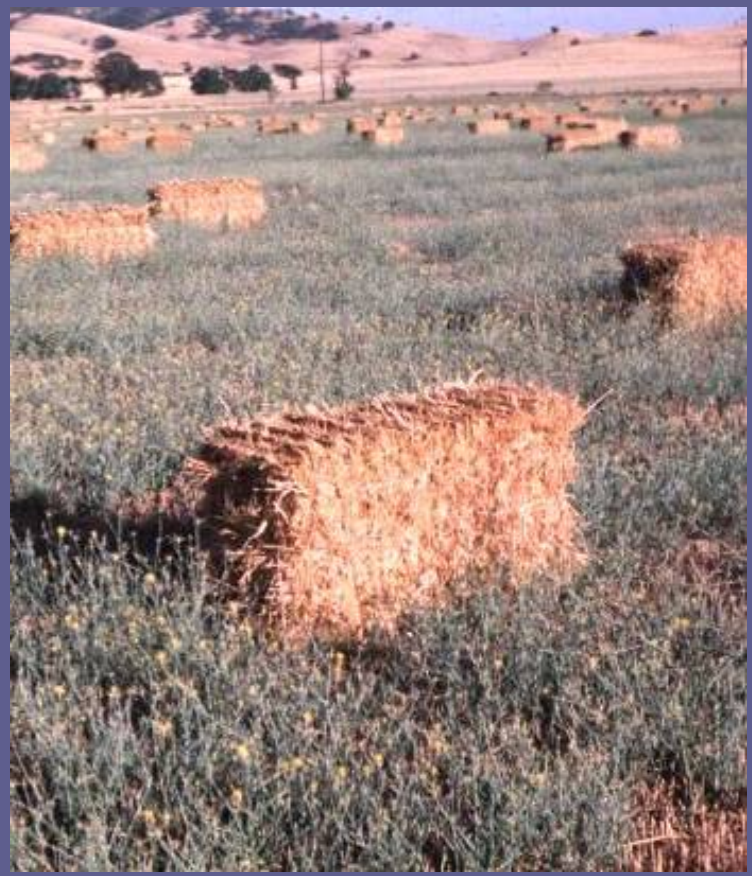
Prevention Guidelines

- Inspect and remove plant parts from equipment before leaving an infested site

Equipment inspection training at El Dorado Irrigation

Prevention Guidelines

- Use weed-free materials - fill, gravel, sand, mulch, straw, etc.
- Consider chipping local brush for mulch – seed may help restore vegetation



Yellow starthistle infested bales

Prevention Guidelines

- Re-establish vegetation with local weed-free seed mixes
- Mulch to “shade out” invasive weeds and prevent seed germination

Revegetation of a site at Lake Tahoe

Prevention Guidelines

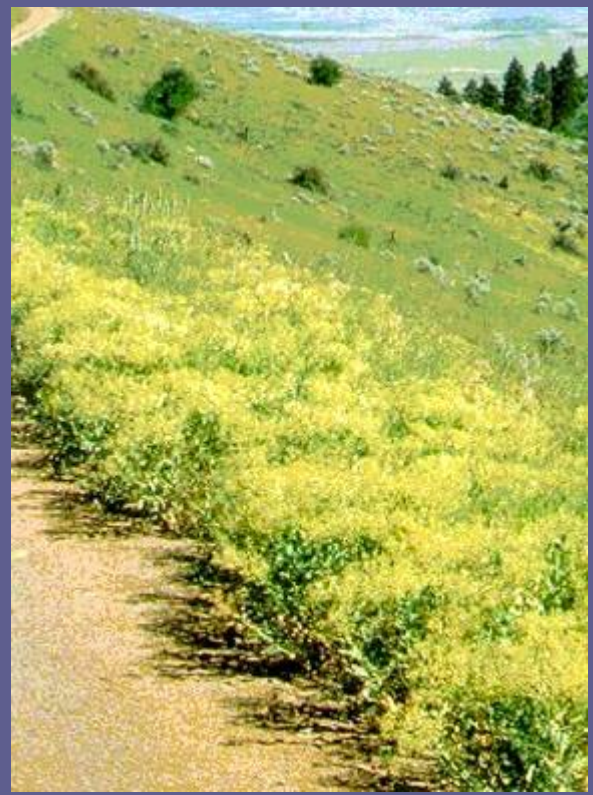
Inspect the site for at least three growing seasons after completion of the work

Perennial pepperweed

Dalmatian toadflax

Prevention Guidelines

New weed infestations should be controlled immediately!



Hoary cress moving into wildlands from a road

Prevention Guidelines

Educate staff and crews

- Weed identification
- Impacts
- Prevention measures

For Road and Utility Projects:

- Eradicate/control invasive weeds near stockpile sites
- Train on-the-ground crews on weed identification

For Road and Utility Projects

- Establish a reporting process for new infestations

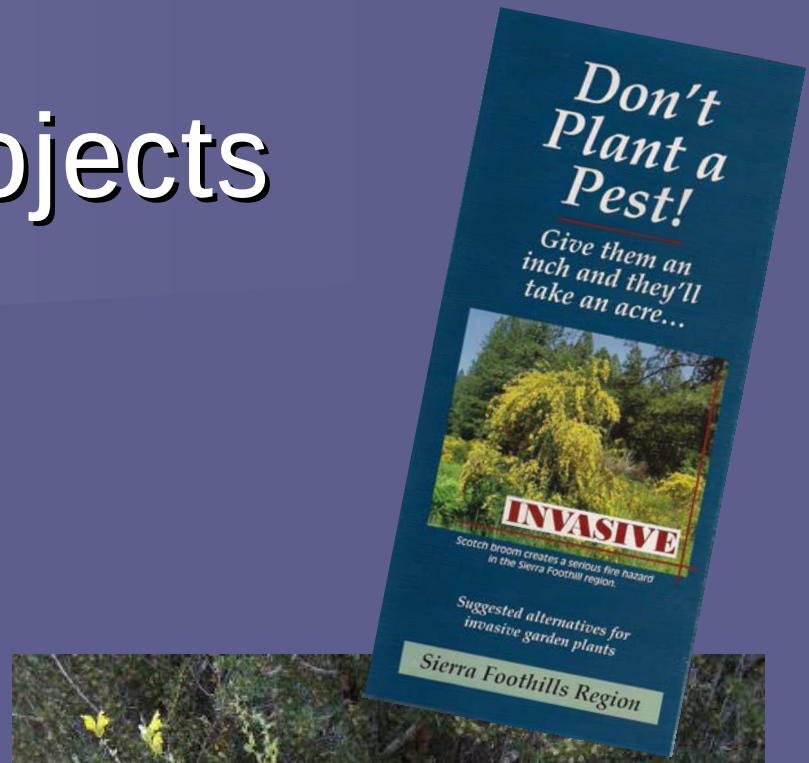
For Road and Utility Projects

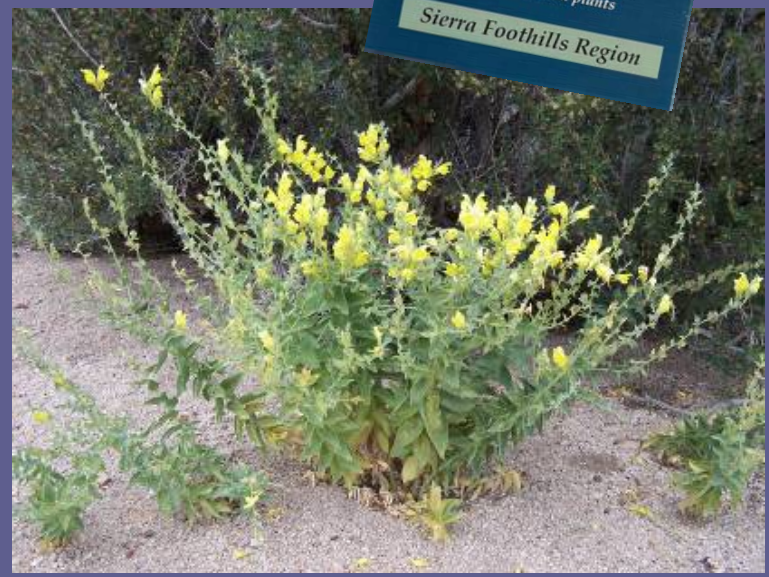
- On roadsides that are weed-free - mow AFTER seeds are mature
- Mow weedy roadsides at flowering stage
- Blade from uninfested area to infested area

For Landscape Projects

- Do not plant invasive ornamental plants

- Consider replacing invasive ornamental plants with non-invasive alternatives

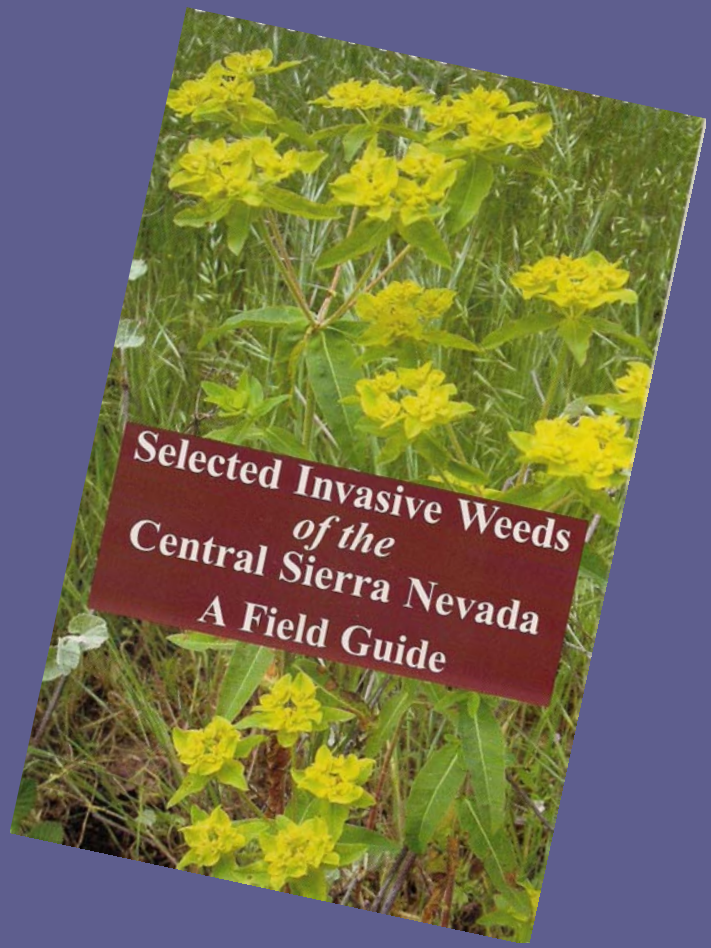




Dalmatian toadflax

For Landscape Projects

- Limit use of fertilizers since over fertilizing can encourage invasive weeds
- Promote invasive weeds management to homeowners



A Builder and Contractor's Guide to Preventing the Introduction and Spread of Invasive Weeds

What Every Construction, Utility & Landscaping Professional Needs to Know About Invasive Plants

Hoary cress (above) and Oblong spurge (right).

Invasive weeds are damaging our parks, farmland, forests and natural areas. Contractors, landscapers, builders, and road and utility management and crews can play a critical role in stopping their introduction and spread.

The most effective, economical, and ecologically sound method of managing invasive plants is to prevent their invasion in the first place. Too often, landowners and land managers pour resources into fighting weeds after they are firmly established. In such cases, control is extremely expensive and eradication is often no longer feasible. Resources can be spent more efficiently on proactive weed management activities that focus on prevention of new invasions.

Invasive weed seeds and root fragments can be moved to a construction site on equipment or tires, in gravel or fill materials, or in erosion control materials and mulch. Seeds or root fragments can then reproduce, especially in disturbed areas which favor invasive weed development. The best defenses against invasive weeds are prevention of introductions and early detection and eradication, before new infestations get established.

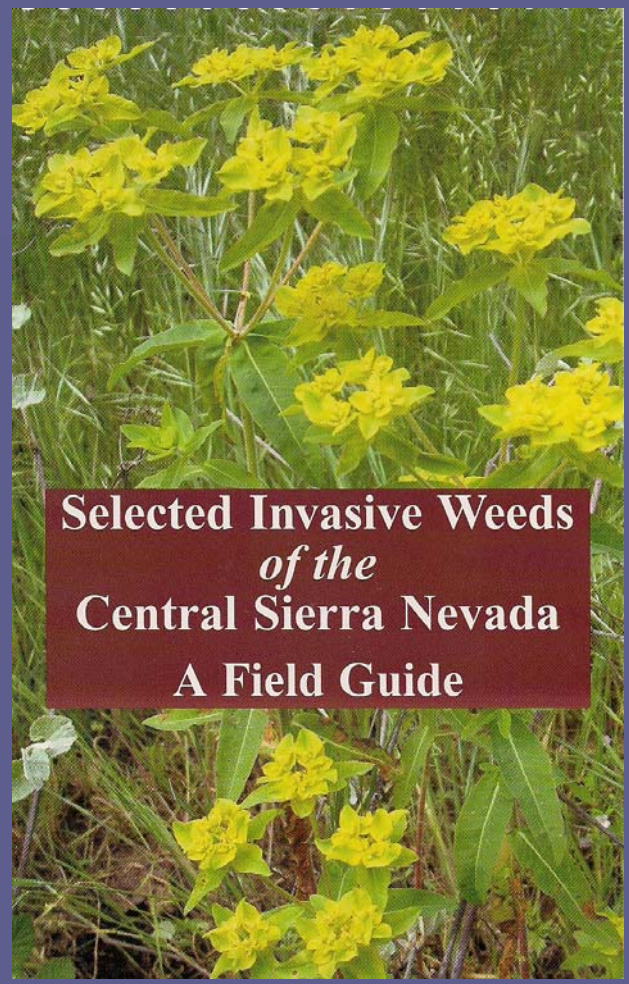
Understanding the Problem...

Invasive plants, otherwise known as invasive weeds, are a serious problem in California and the United States, causing billions of dollars in damages annually to agricultural, forestry, recreational and tourist industries. Invasive weeds are characteristically non-native, adaptable, aggressive plants that have a high reproductive capacity. Plants like yellow starthistle, spotted knapweed, Scotch broom and tree-of-heaven are crowding out native plants and reducing the productivity of range and farmlands. Invasive weeds change the structure of soil, alter water flows and conditions, reduce the food and shelter available for wildlife, reduce forest regeneration, change fire regimes and disrupt recreational experiences. Human and animal health can also be harmed by invasive plants.

Thousands of plant species have been brought to North America in the past three centuries. Most are well-behaved, rarely invading natural and agricultural areas. A few, however, do not have the natural enemies from their native homelands to keep them in check, allowing them to out-compete our native plants and farm crops.

To prevent the introduction and establishment of invasive plants during construction and landscaping projects, a proactive plan should include:

- *limiting the introduction of weed seeds and plant parts into an area;*
- *managing land to build and maintain healthy communities of native and desirable plants to compete with weeds;*
- *early detection and eradication of small patches of weeds; and*
- *evaluating annually the effectiveness of the prevention plan so appropriate steps can be taken the following year.*



Resources

Questions?

Thank you!

Wendy West
University of California
Cooperative Extension

(530) 621-5533
wkwest@ucdavis.edu