

Wonderful World of Weeds

- Characteristics
- Identification & Grouping
- Noxious & Invasive weeds
- Control Strategies



First Let's Look at Weed Characteristics

A weed is sometimes defined as “a plant out of place.”



- Colonizers – take advantage of any opening
- Reproduce successfully— some have numerous, long-lived seeds.
- Others quickly reproduce by vegetative reproduction
- Tolerant of heat, drought, floods, etc
- Have become successful hitchhikers, on anything that moves including boots, tires, water, and wind

Weeds are Competitors

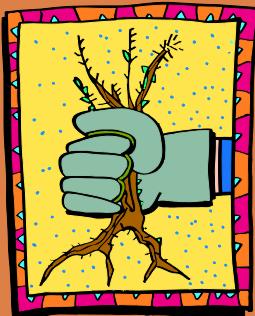
Weeds can also be a plant whose virtues have not been discovered yet

Pacific Yew produces taxol, spotted spurge for skin cancer treatment?

- Plant competition defined as the depletion of one or more resources required for growth (water, light, CO₂, nutrients)
- Law of constant final yield: There is a limit to the productivity of a defined unit of area (same biomass)
- Reason behind use of ground covers to control weeds

More Weed Characteristics

Klamath
Weed:
invasive, non-
native,
poisons
livestock BUT
in same family
as St. Johns
Wort



- May engage in chemical warfare by suppressing the growth of surrounding plants
 - Allelopathic – Black Walnut, Tree of Heaven
 - Just Competitive - Eucalyptus
- Many survive in nutrient poor soil—some are even nitrogen fixers to gain a competitive advantage in poor soils

Why Control Weeds?

- Reduce competition
- Reduce fire hazard
- Reduce health risks & allergens
- Control of insects & diseases
- Aesthetics





Miner's
Lettuce

What's Your Weed?

Identification is Critical

Weed or
not?

Important to
control?

How best to
control?



- Weeds of the West
- Weeds of California and other Western States (Volume 1 & 2 with CD)
- Pest Notes
- Growers Weed Identification Handbook
- Click on Weed ID at wric.ucdavis.edu
- www.ipm.ucdavis.edu

Why it's important

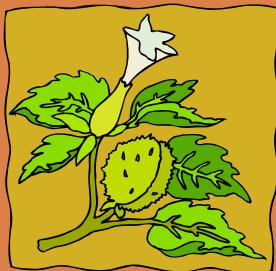
These two major groups of flowering plants can require different kinds of control



- Some weeds are Monocotyledons, including most notably weedy grasses and sedges
- Other weeds, often referred to as broadleaf, are Dicotyledons
- If you are controlling broadleaf weeds such as dandelions in lawns using herbicides, be careful to choose appropriate products so as not to kill the grass as well

Weed Categories

Different groups require different control methods



- Winter Annuals – some of our most challenging garden pests
- Summer Annuals
- Biennial weeds
- Perennials
 - ▣ Some have deep and persistent taproots
 - ▣ The “nastiest” create underground runners or storage systems
- Shrubs, Vines and Trees

Winter Annuals

Because they bloom and produce seed in the winter, these weeds tend to catch us by surprise if we are not watching



- Typically germinate in the fall and flower in the winter or early spring
- Examples include cheeseweed, annual bluegrass, chickweed, star thistle, groundsel, henbit, shepherd's purse, and sowthistle.
- They spread through seed production

Winter
Annual



Yellow Starthistle

Germinates in fall – spring, produces rosettes. Produces LOTS of seeds. “Control” takes persistence, by preventing reseeding and encouraging competition (water). Try hand-pulling, browsers, and perhaps herbicides.

Winter
Annual



UC Statewide IPM Project

Annual Sowthistle

Sowthistles are among the most common weeds in farms and gardens in spring. Stems release a milky sap when cut open.



UC Statewide IPM Project
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Common Groundsel

Winter annual with strong taproot. Tubular yellow disk flowers, no ray flowers.



Winter
Annual

Cheeseweed, *Malva Parviflora*

The seedling rapidly develops a strong taproot, making the plant difficult to remove even at young stages. Poultry that consume mallow leaves or seeds can produce lower quality eggs.



Yet another familiar weed is annual bluegrass,
Poa annua, a common lawn pest.

Annual bluegrass is extremely difficult to control because it seems to thrive with our common garden practices. Even though these plants have been sprayed with herbicide, they do not seem to be responding and even these small plants have already produced seeds.

Summer Annuals

At least, summer annuals are more visible, but that does not mean they are always easy to control

- Seeds of summer annuals germinate in the spring, then bloom and set seed before fall frosts
- Examples include lambsquarters, pigweed, ragweed, fleabane and spurge



Lambsquarters, *Chenopodium album*

Common summer annuals, found throughout California up to an elevation of 5900 feet. Generally common lambsquarters is considered edible. However under certain conditions, plant production of oxalates can increase to levels toxic to livestock when large amounts of leaves are consumed in a short time period. Common lambsquarter is also susceptible to many viruses that affect several crops.



Spotted Spurge, *Euphorbia maculata*

Milky sap can cause dermatitis. Harbors insect pests & fungal diseases. Loves bare spots, so maintain healthy ground cover or turf.



Puncturevine, *Tribulus terrestris*

AKA “goathead”, known for its spiky seedpods. Forms dense mats, deep taproots, is drought tolerant, but not freeze tolerant. Can be toxic to sheep.



Black medic, *Medicago lupulina*

Low trailing summer or winter annual. Legume, sometimes used for livestock forage. CA Burr Clover looks similar, but has spiny pods.



Redstem Filaree, *Erodium cicutarium*

Winter annual or biennial. Grown for livestock forage.

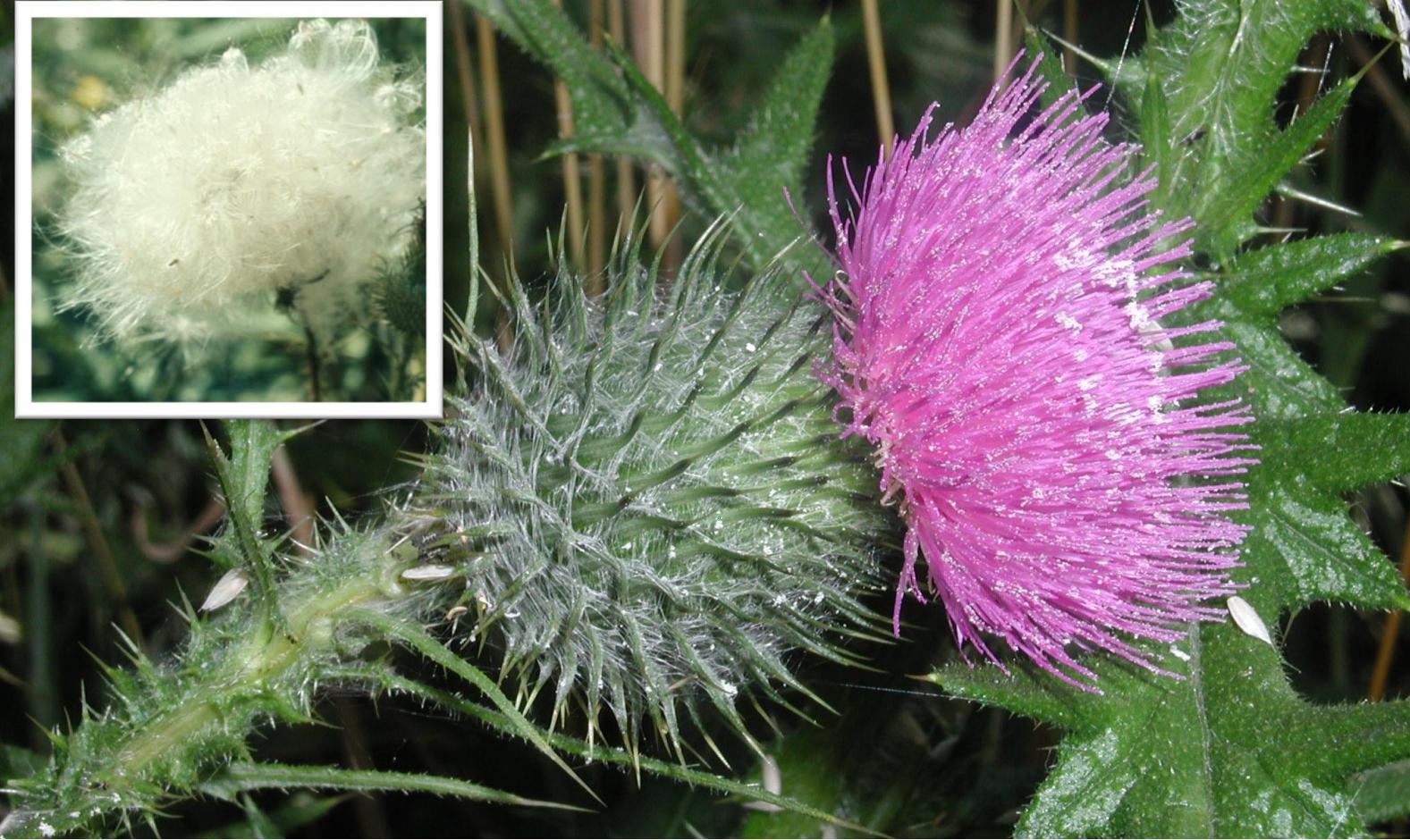
Biennials

Since they form rosettes the first year, they may escape our attention until the second year flowering stem suddenly bolts



- Biennials typically have a 2-year life cycle. The first year, the seed germinates and the plants produce a rosette, a round “circle” of leaves that remains flat to the ground. The following year, the stem “bolts” to produce flowers and seeds
- Examples include bull thistle, wild carrot, and common mullein

Biennial Weed



Bull thistle, *Cirsium vulgare*, is a biennial forming a prickly rosette the first year, than a tall blooming stalk

One control for bull thistle is removal of all flowers before they set seed. Hoeing while plants are small is also effective. Seed are prolific. Repeated tilling or mowing and control with contact herbicides can also be effective.

Biennial
Weed



Mullein, *Verbascum thapsus*

This biennial produces hairy felt-like leaves in a rosette (shown above) the first year. The second year, it sends up a tall stalk of attractive yellow flowers. A single plant can produce more than 100,000 seeds. Control is through competition with other plants (it likes bare ground), hand removal when the soil is loose, and deadheading to remove flowers and seeds before dispersal.

Biennial
Weed

Western Salsify, *Tragopogon dubius*

This biennial has grass-like leaves, milky juice and large dandelion-like flower heads on stalks that are swollen just below the heads. Garden cultivars (common salsify) have purple flowers, edible roots.



Perennial Weeds

- Perennials are herbaceous plants that die back and regrow from underground roots or stems each year
- Dandelions are simple perennials spreading by seed
- Canada thistle, quackgrass, field bindweed, yellow nutsedge and others create underground networks as part of their reproductive strategy



Simple
Perennial



Ahh. Our old favorite the dandelion, *Taraxacum officianale*

Each plant can produce hundreds of seeds which take off on the wind to infest the neighbor's lawn as well as yours. Can be controlled through persistent hand-weeding with a weeding tool or selective broadleaf herbicide applications. Young leaves of dandelion are often available for use as salad greens.

Spreading
Perennial



Canada thistle, *Cirsium arvense*, is difficult to control –it is a perennial and spreads underground

Unlike the biennial bull thistle, even persistent hand weeding or deadheading makes control difficult because underground pieces readily regenerate into new plants. Can sometimes be effectively controlled with weed barriers and with repeated 2-4 D or other contact herbicides beginning in September.

Spreading
Perennial



Wild morning glory aka field bindweed, *Convolvulus arvensis*, is another perennial weed requiring persistence

Very hard to control. Persistent clipping and covering with landscape cloth are sometimes effective controls in smaller landscapes.

Perennial



Common plantain, *Plantago major*

Here's another familiar lawn weed. Each flower stalk reproduces over a long period of time, producing hundreds of seeds.

Weedy “Woody” Plants

- Many woody plants can become pests, even invasive ones
- Examples of invasive woody plants are Himalayan blackberry, honey locust, English ivy, and Scotch broom.
- Less invasive but common ones include the nightshades and poison oak



Himalayan blackberry, *Rubus armeniaca*

A vigorous grower introduced as a berry crop which subsequently escaped to the wild. Control is usually mechanical (mowing, cutting) or chemical (typical applications in the fall).



The cutleaf blackberry, *Rubus laciniatus*

This introduced species is also considered to be invasive. Control methods are generally the same as for Himalayan blackberry

Native Plants as Weeds?

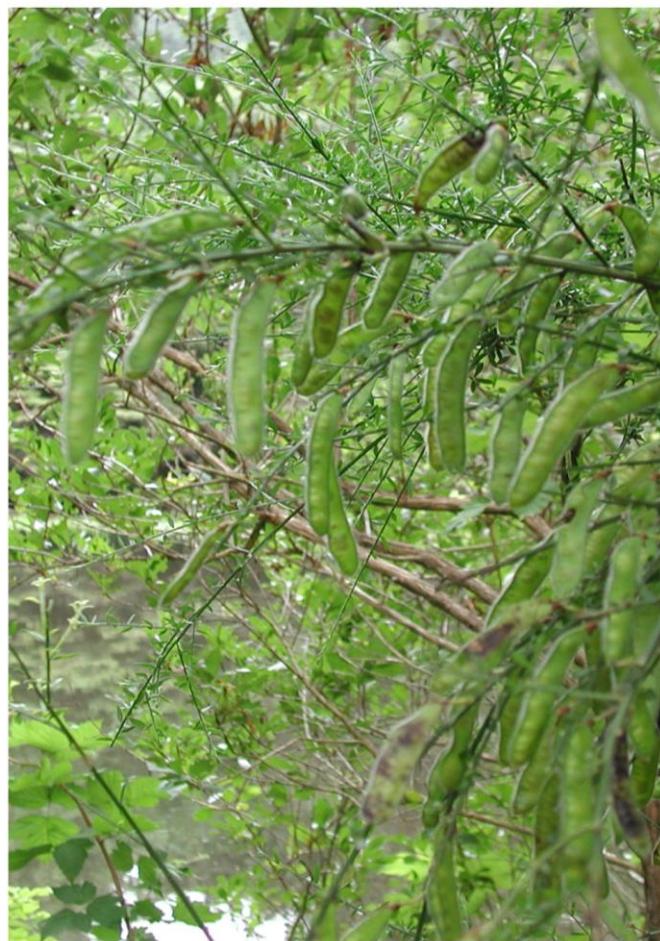


- You may be confused to find native plants listed as weeds in some of the resources
- Examples are yarrow (shown left), wild cucumber, poison oak, native irises, and horsetail
- This is because some of these plants are considered to be agricultural pests, garden pests, or cause human or animal health issues-so control methods are available and may be appropriate in some cases



Invasive & Noxious Weeds

Any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture or important native species, and difficult to control or eradicate. Designated by regulation by CDFA.



Scotch broom, *Cytisus scoparius*

Scot's broom is a shrub first introduced as an ornamental. Now it "ornaments" our landscape, displacing native species and causing allergic reactions for many allergy sufferers. Biological controls have been introduced and are sometimes available. Other methods of control include pulling with a "weed wrench," burning, and herbicides. Can increase fire danger.



Klamathweed or St. Johnswort

Produces a toxin that causes photosensitization in livestock, mostly young cattle & sheep. Check out “Livestock Poisoning Plants of California”.

IPM for Weeds

Don't bring
them home
with you

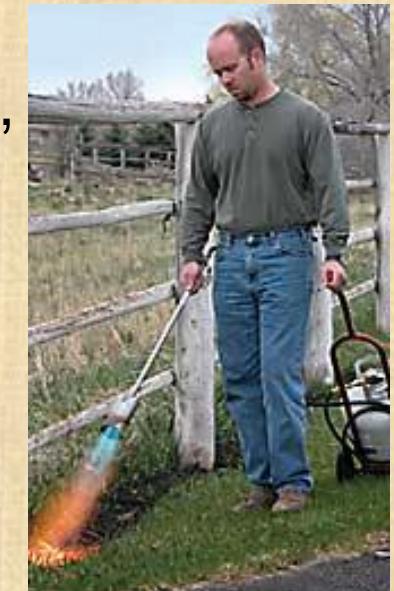


- Prevention First
 - ▣ Don't import them in soil, compost, road mix, etc
 - ▣ Minimize disturbance
 - ▣ Think about "hitchhikers"
 - Clean equipment, boots, pets
 - Roadside spreading
- Identify & monitor
- Determine your tolerance level
 - ▣ i.e. clover in your lawn

Weed Control – Mechanical & Cultural

Fast action can save a lot of effort. If you can keep a weed from flowering or spreading, you have eliminated untold hours of future control!

- Deadheading, hoes or hand weeding
- Weed whackers, mowers, flame torches
- Turfgrass or cover crop for competition
 - Use dense multilevel plant material like bedding plants, shrubs & trees
- Drip irrigation
- Mulching or covering



Mulching

Works best
for annuals



Don't place
against
trunks of
trees

- Layer of opaque material over the soil surface to exclude light – most weeds need sunlight to germinate & photosynthesize
- Can be synthetic (landscape fabric) or organic (bark, straw, shredded leaves)
- Usually 1-3" for fine materials, 3-6" for coarser materials (should breathe)
- Soil underneath is cooler & wetter



Check out
Handout

Soil Solarization

Use during 4-6 weeks in hot summer months. Place clear plastic over tilled, wet beds.



Browsers & Grazers

Consider goats, sheep, geese and other poultry – depending on the type of weed you're trying to control

Step up the arsenal

Biological control is by nature, very specific.

Already have beetles, weevils, & flies released in Trinity County

- Chemical control if it is effective – the last choice – always read the label
 - Herbicides kill plants – can be organic like citrus oil or vinegar
 - Important to apply at proper time, to specific weed, and follow directions.
 - Understand pre-emergent (before seeds germinate, has soil residual effect) vs post-emergent
 - Systemic vs contact herbicides
 - Selective vs non-selective

Herbicides

“Organic” are contact herbicides, don’t kill roots, need to be reapplied.



People may react to adjuvants.

- Organics less effective, don’t kill roots
- Glyphosate, 2,4 D, dicamba and triclopyr are the most common non-organics
 - Glyphosate (Roundup) inhibits enzyme that plants need to grow, is systemic, **nonselective**, controls broadleaf & grasses, no residual soil activity.
 - 2,4 D and Dicamba are growth regulators (plant hormone mimic), systemic, control broadleaf plants, does not harm grasses
 - Triclopyr (Garlon) is a growth regulator, controls woody broadleaf plants , does not harm grasses.

Genetically Modified ???

People sometimes have a reaction to the adjuvants (spreaders & stickers) in Glyphosate. Also a potential carcinogen.

- “Round-up Ready” by Monsanto
- Genetically modified corn, soybeans, etc. that are immune to glyphosate. These plants produce an enzyme that performs the same function as EPSP synthase but is not inhibited by glyphosate.
- Some weeds seem to be developing a resistance/tolerance