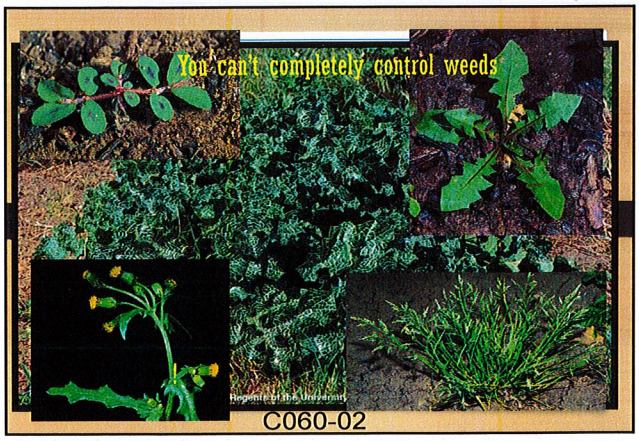
A good garden may have some weeds.
~Thomas Fuller

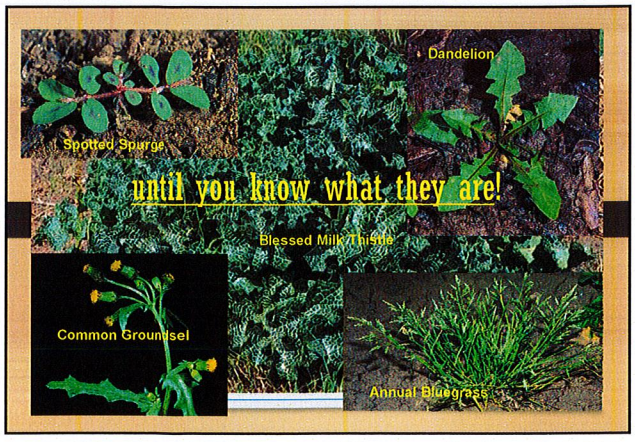
Even the richest soil, if left uncultivated
will produce the rankest weeds.
~Leonardo da Vinci

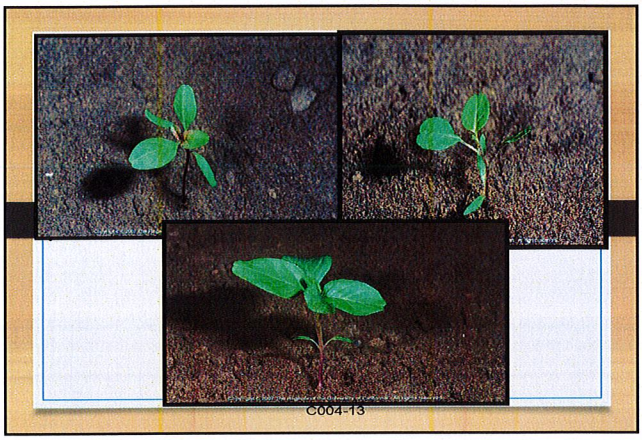
I learn more about God
From weeds than from roses;
Resilience springing
Through the smallest chink of hope
In the absolute of concrete....
~Phillip Pulfrey, "Weeds," *Perspectives*, www.originals.net

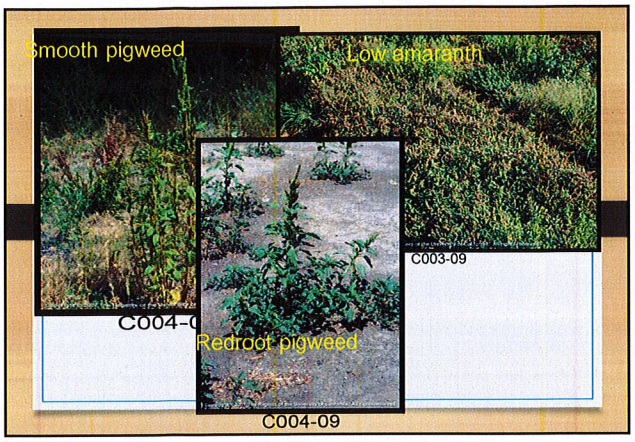
Weed Identification and Biology

Weed Identification





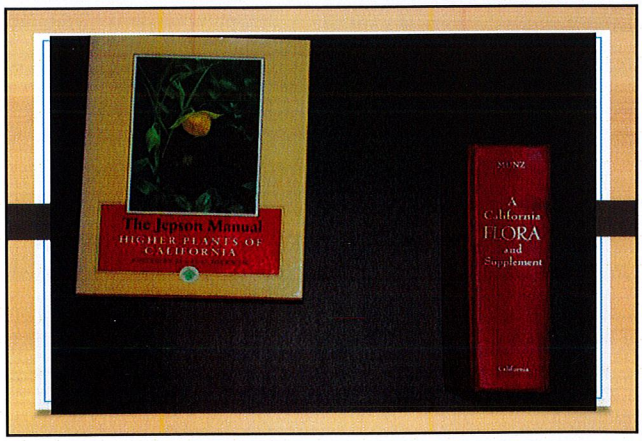


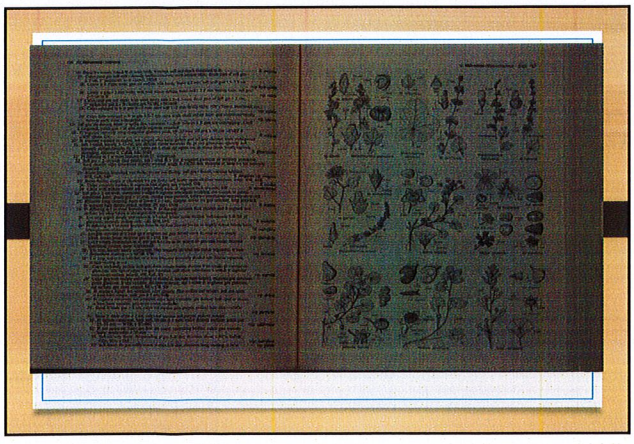


How to Identify Weeds

How to Identify Weeds

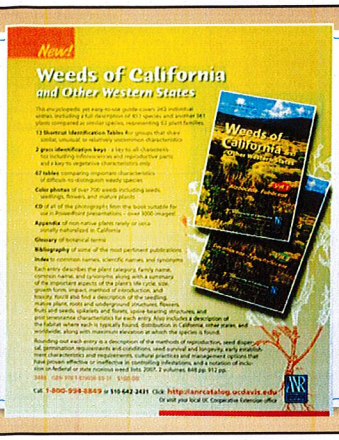
- Use Keys-





How to Identify Weeds

- Use Keys-plus pictures- good if you know 'family' characteristics



How to Identify Weeds

- Use on-line 'Expert' system

wric.ucdavis.edu

UC Weed Research & Information Center

University of California Cooperative Extension WeedRIC

Weed Research & Information Center

WRIC Home
About WRIC
Weed Educ
Weed Info
Weed Sci Prog
Useful Links

Weed Information

Choose an item from the drop-down menus below:

Links marked with an * will take you to a site away from UC WeedRIC.

- **Weed identification tool**
- **Weed photos and information**

Seeding samples for identification

- **UC Pest Notes**

University of California's official guidelines for pest monitoring techniques, pesticides, and nonpesticide alternatives for managing pests in homes and landscapes

This page was updated on Friday November 21 2008

Choose a plant

- **Weed control and herbicide information**

Choose a topic

- **Poisonous plants**

Choose a topic

UNIVERSITY OF CALIFORNIA–DAVIS CAMPUS PEOPLE

University of California Cooperative Extension WeedRIC
Weed Research & Information Center

Weed Identification Tool

Home
Weed ID Tool
Weed Selector Tool

Weed Identification Tool **Search location:** California

Step 1: Select the type of weed you are trying to identify. You may change your choice of weed type, or restart the ID process at any time.

select weed type

BROADLEAF:
These herbaceous (non-woody) plants typically produce noticeable flowers. Leaves are often broad with netted veins, but they may also be narrow and veinless.
GRASSLIKE:
These herbaceous (non-woody) plants lack noticeable flowers. The leaves are ribbon-like with parallel veins, and are often tightly rolled.
WOODY:
Trees, shrubs, and sub-shrubs with obvious woody stems that persist year after year.

University of California Cooperative Extension WeedRIC
Weed Research & Information Center

Weed Identification Tool

Home
Weed ID Tool
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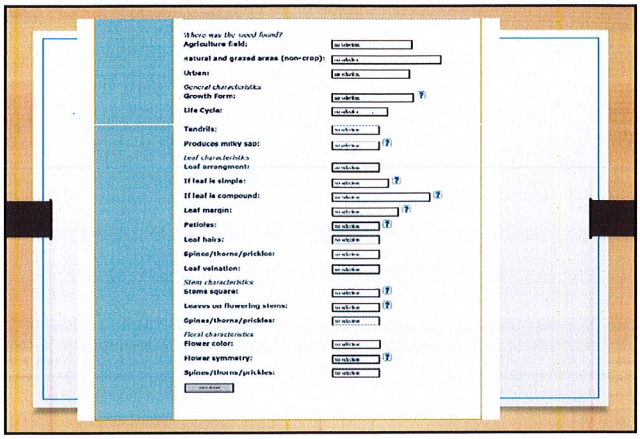
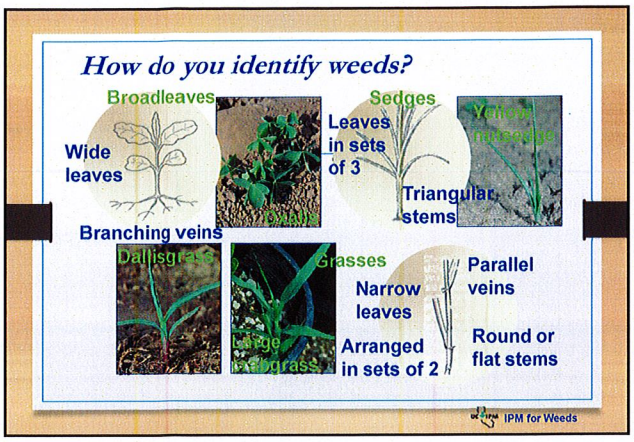
Weed Identification Tool **Search location:** California

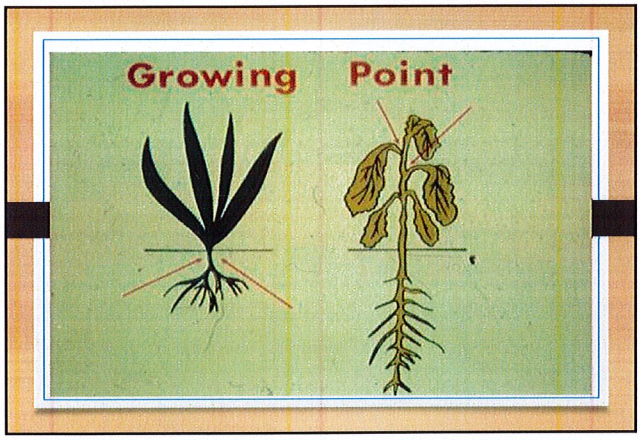
Step 1: Select the type of weed you are trying to identify. You may change your choice of weed type, or restart the ID process at any time.

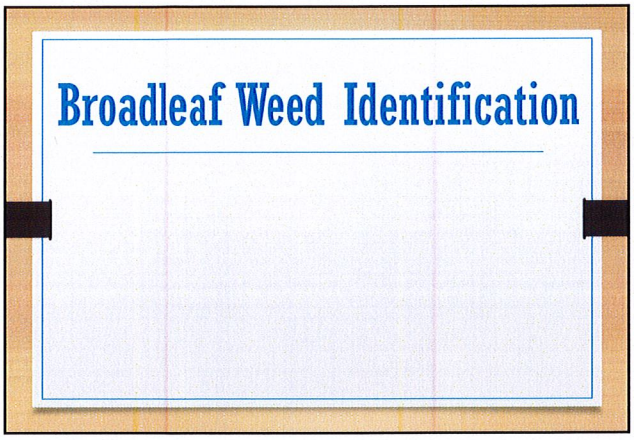
broadleaf

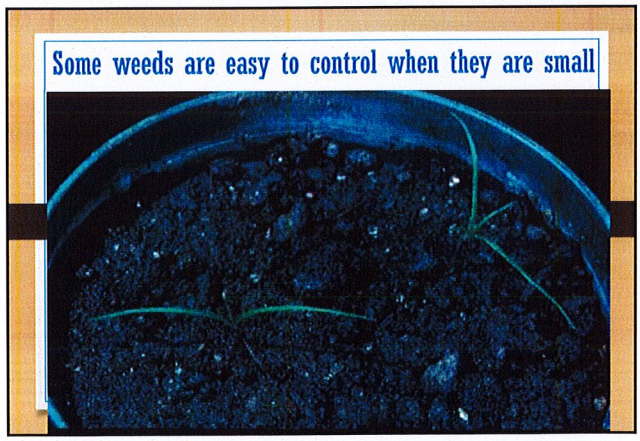
BROADLEAF:
These herbaceous (non-woody) plants typically produce noticeable flowers. Leaves are often broad with netted veins, but they may also be narrow and veinless.
GRASSLIKE:
These herbaceous (non-woody) plants lack noticeable flowers. The leaves are ribbon-like with parallel veins, and are often tightly rolled.
WOODY:
Trees, shrubs, and sub-shrubs with obvious woody stems that persist year after year.

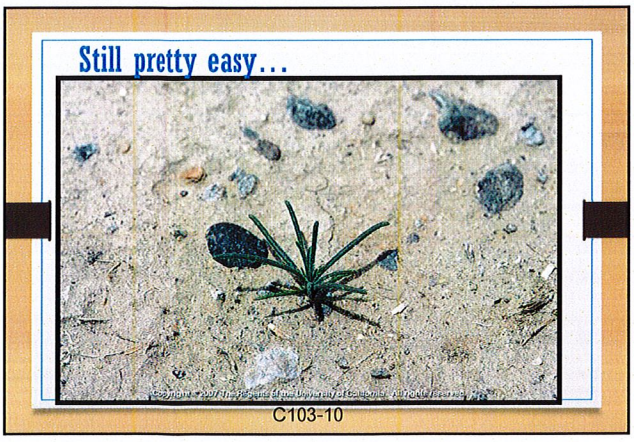

Where was the weed found?
Agriculture field:
natural and grazed areas (non-crop):
Urban:
General characteristics
Growth Form:
Life Cycle:
Tendrils:
Produces milky sap:
Leaf characteristics
Leaf arrangment:
If leaf is simple:
If leaf is compound:
Leaf margin:
Petioles:
Leaf hairs:
Spines/thorns/prickles:
Leaf venation:
Stem characteristics
Stems square:
Leaves on flowering stems:
Spines/thorns/prickles:
Floral characteristics
Flower color:
Flower symmetry:
Spines/thorns/prickles:


How do you identify weeds?
Broadleaves
Wide leaves
Branching veins
Sedges
Leaves in sets of 3
Triangular stems
Grasses
Narrow leaves
Parallel veins
Arranged in sets of 2
Round or flat stems
IPM for Weeds


Growing Point


Broadleaf Weed Identification


Some weeds are easy to control when they are small


Still pretty easy…

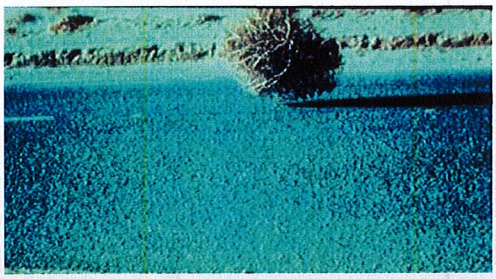
C103-10

Even here, still pretty easy…

C103-09

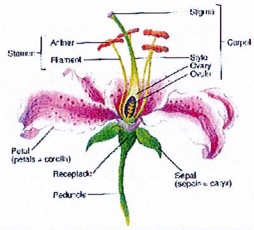
Here?, not so easy…

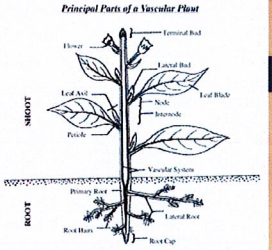
Now? Too late



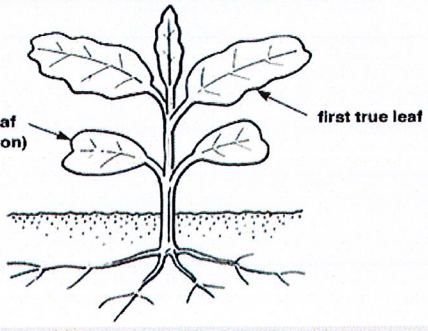
Worlds Fastest Weed-
Clocked at over 60 miles per hour!!!

What a taxonomist uses to ID plants

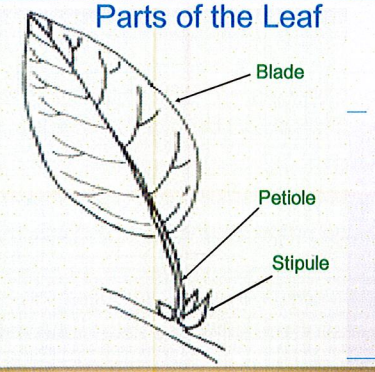


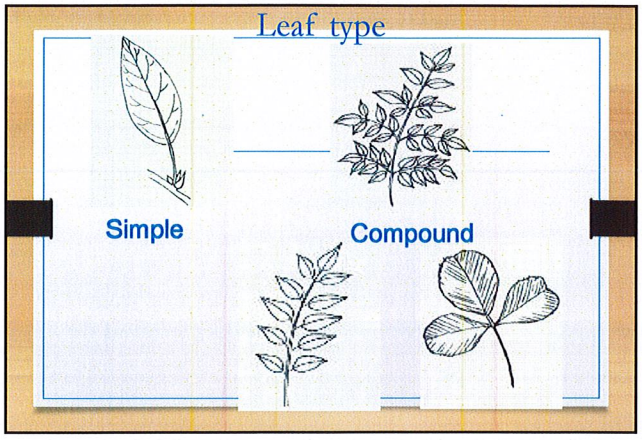


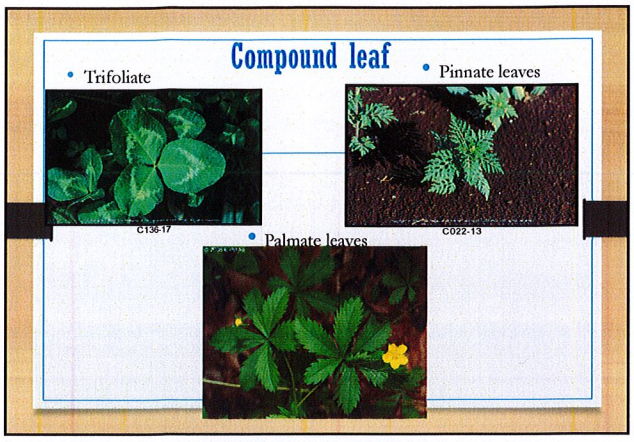
What a Weed Scientist uses to ID a Plant

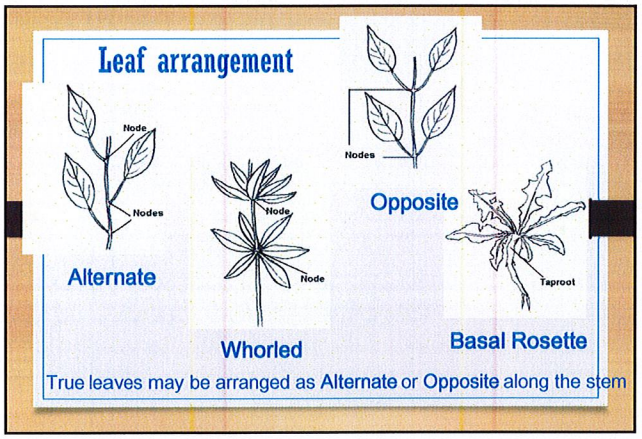


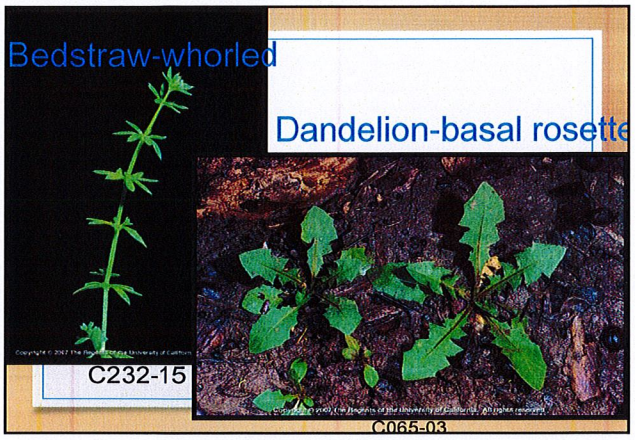
Parts of the Leaf

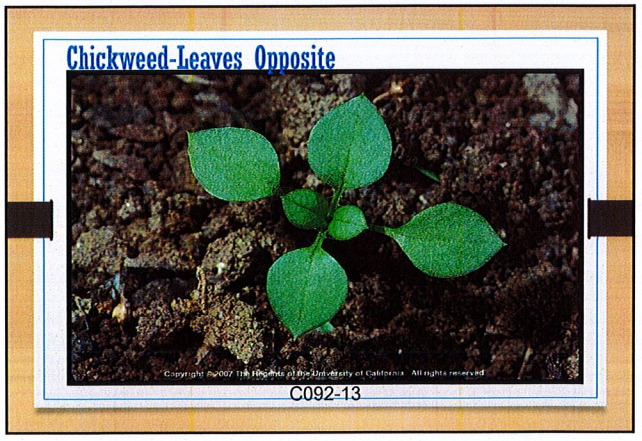


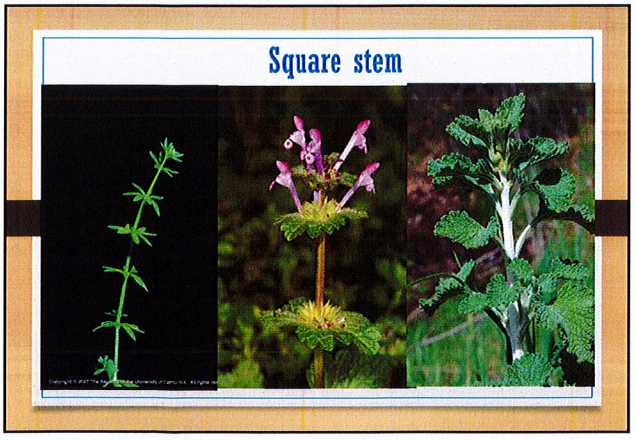

Leaf type
Simple
Compound

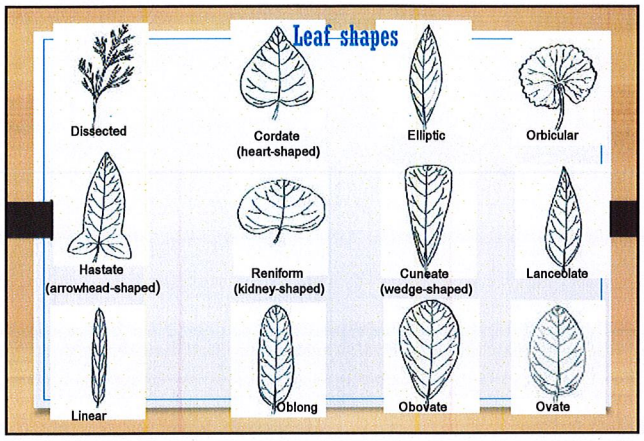

Compound leaf
Trifoliate
Pinnate leaves
C136-17
C022-13
Palmate leaves

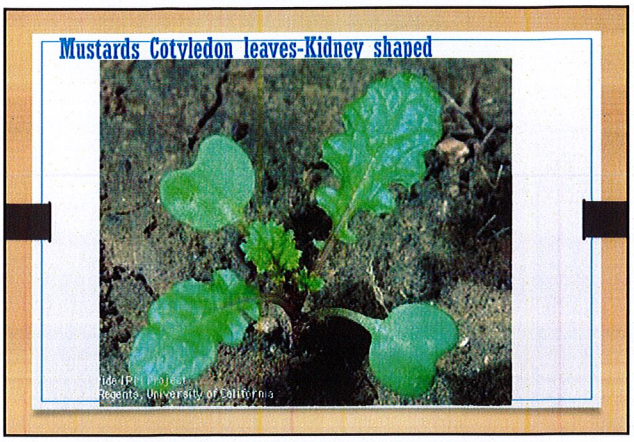

Leaf arrangement
Node
Nodes
Alternate
Nodes
Opposite
Node
Node
Whorled
Taproot
Basal Rosette
True leaves may be arranged as Alternate or Opposite along the stem

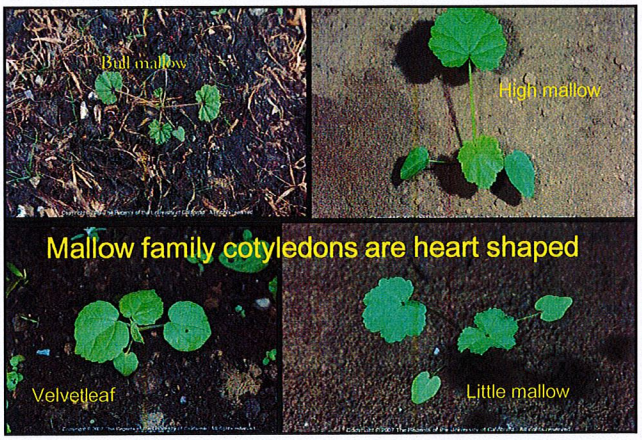

Bedstraw-whorled
Dandelion-basal rosette
C232-15
C065-03

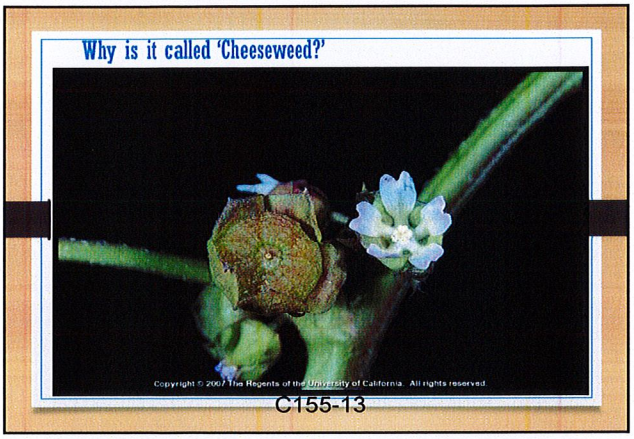

Chickweed-Leaves Opposite
C092-13


Square stem


Leaf shapes
Dissected
Cordate (heart-shaped)
Elliptic
Orbicular
Hastate (arrowhead-shaped)
Reniform (kidney-shaped)
Cuneate (wedge-shaped)
Lanceolate
Linear
Oblong
Obovate
Ovate


Mustards Cotyledon leaves-Kidney shaped
Regents, University of California


Bull mallow
High mallow
Mallow family cotyledons are heart shaped
Velvetleaf
Little mallow


Why is it called 'Cheeseweed?'
Copyright © 2007 The Regents of the University of California. All rights reserved.
C155-13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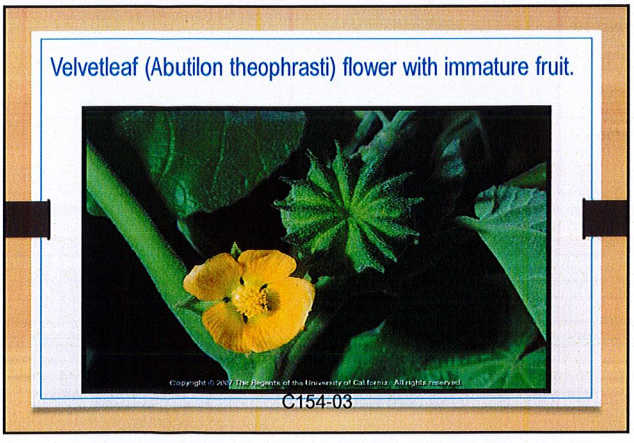
C155-13


Velvetleaf (Abutilon theophrasti) flower with immature fruit.
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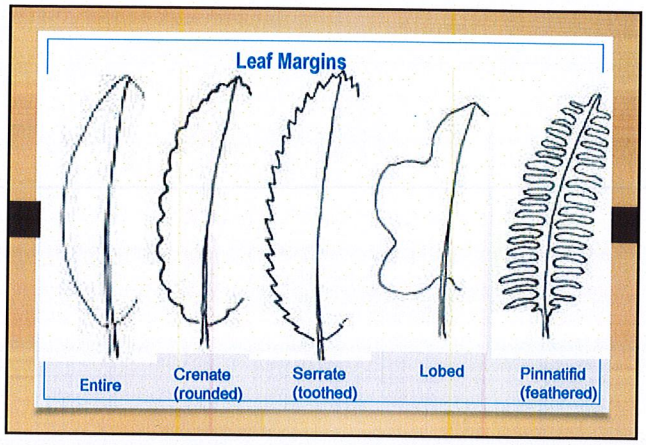
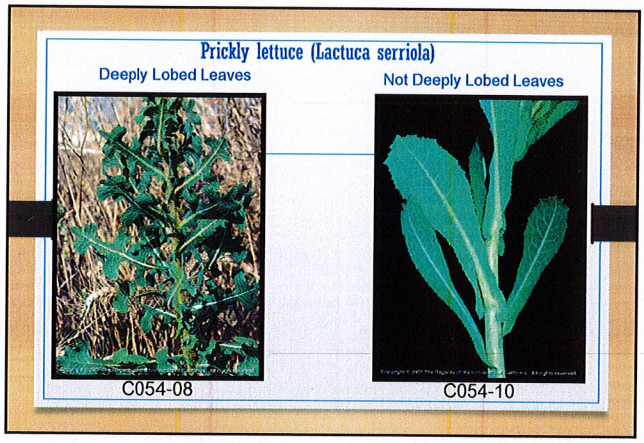
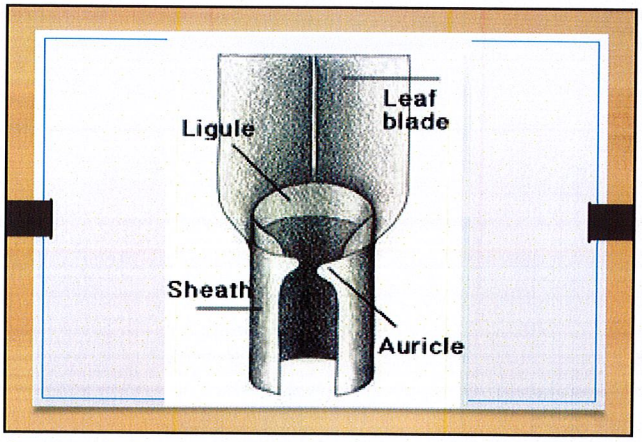
C154-03

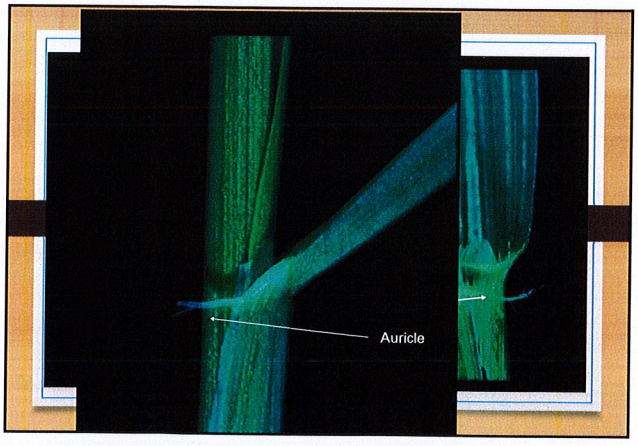


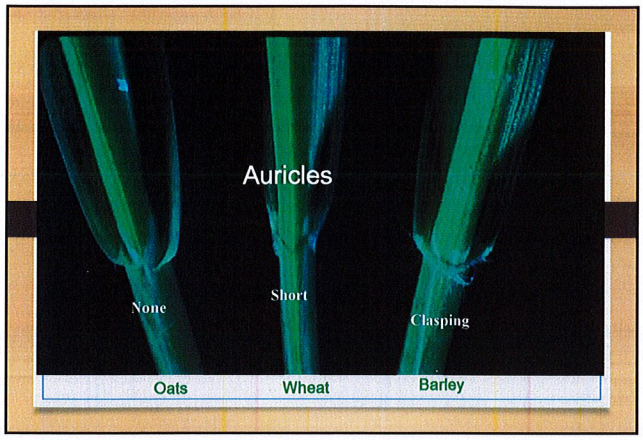


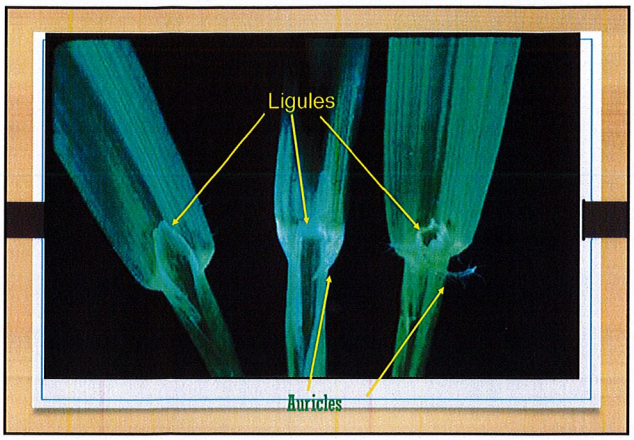
Grass Identification

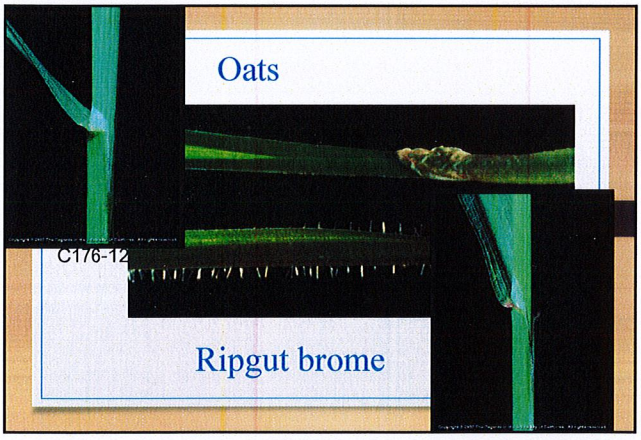
- The **leaf** is composed of the **sheath and blade**. The **sheath** encloses the **stem** and is connected to the blade at the junction found by the **collar.** The **collar** is located on the outer side of the leaf and the **ligule** is located on the inner side of the leaf. **Auricles** are the appendages projecting around the stem from both sides of the collar. **Joints** in the stem are called **nodes.** The part between any two nodes is called the **internode**

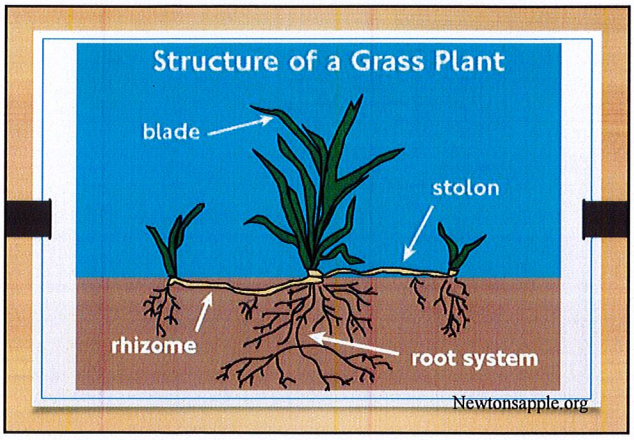




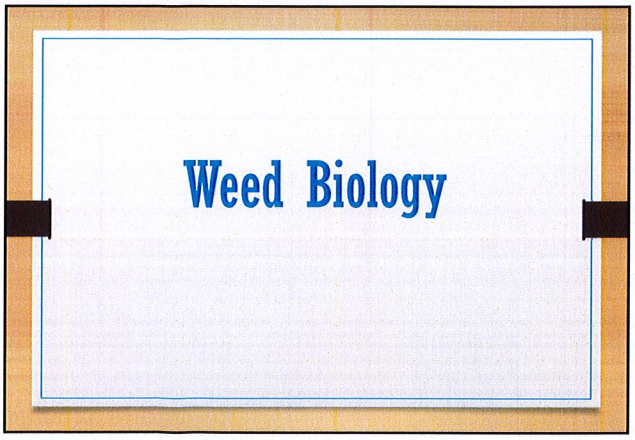

Auricles
None
Short
Clasping
Oats
Wheat
Barley

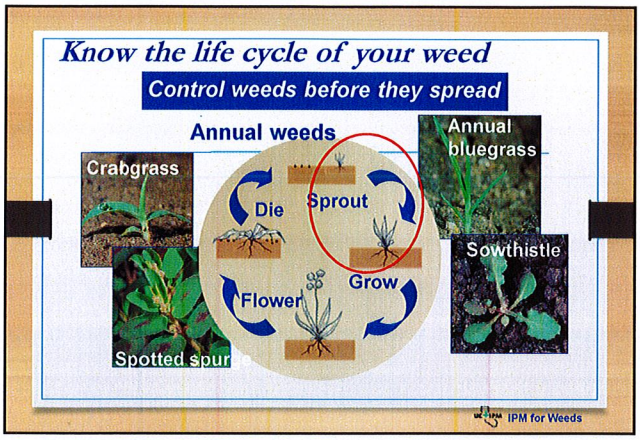

Ligules
Auricles

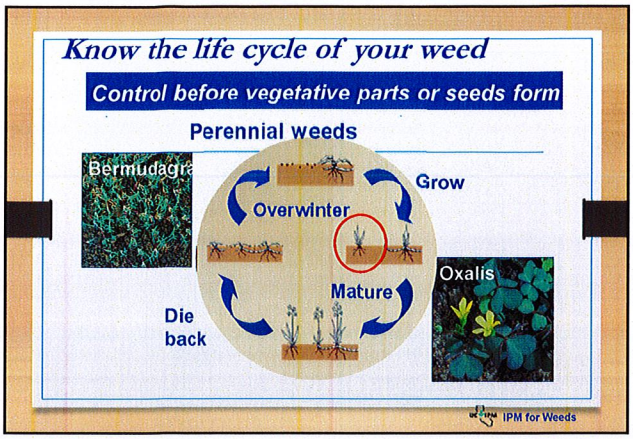

Oats
C176-12
Ripgut brome


Structure of a Grass Plant
blade
stolon
rhizome
root system
Newtonsapple.org


Johnsongrass (Sorghum halepense) rhizomes.
C212-09

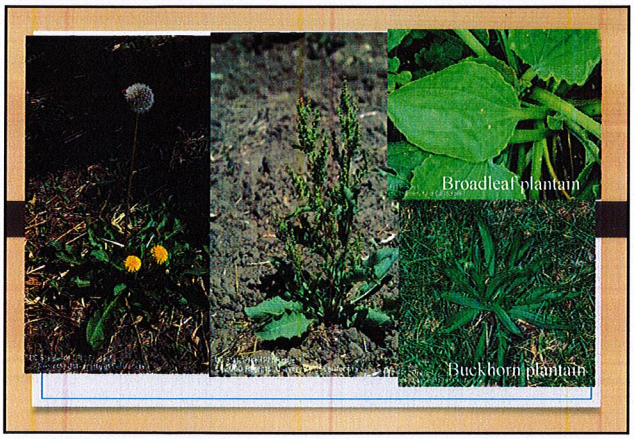

Weed Biology





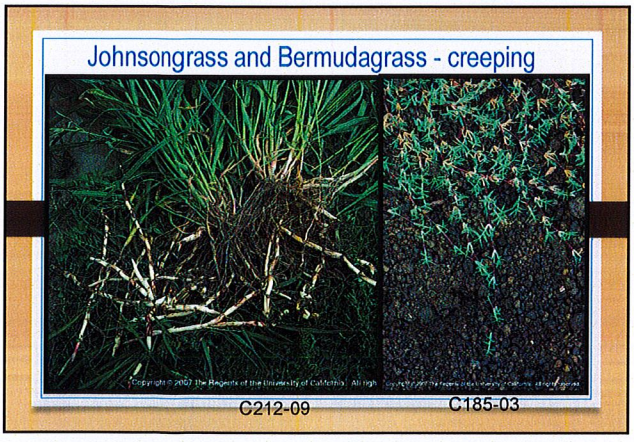
Simple perennial weeds

- Reproduce primarily from seed
- Generally do not reproduce from roots
- However, can reproduce from root segments if root is cut up or broken off.

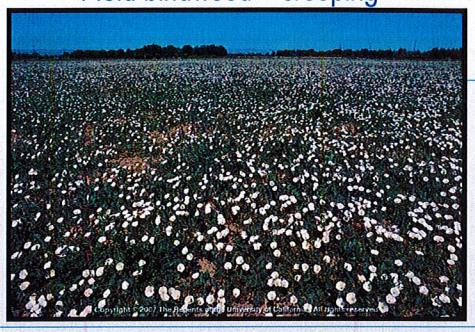


Creeping perennial weeds

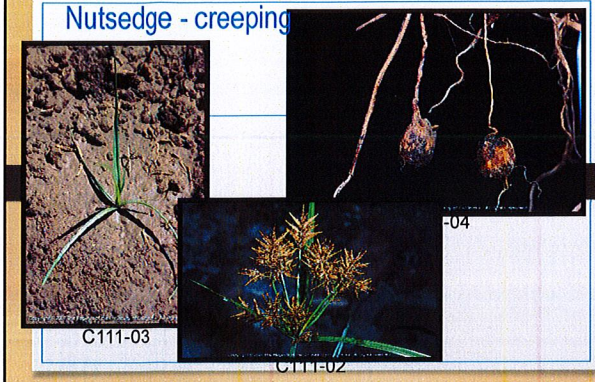
- Are the worst weeds!
- Can spread by seed or by creeping roots, rhizomes, stolons or tubers.
- There are sedges, grasses and broadleaf creeping perennials.

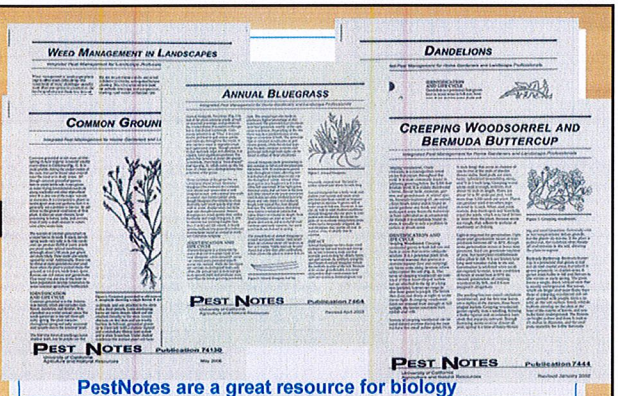


Field bindweed – creeping



Nutsedge - creeping



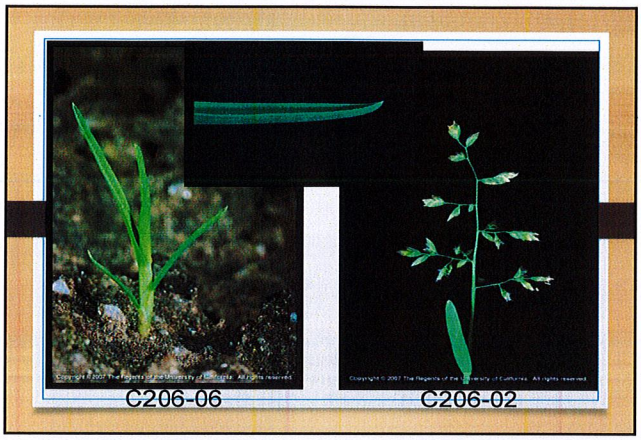


PestNotes are a great resource for biology

Some Troublesome Lawn and Garden Weeds

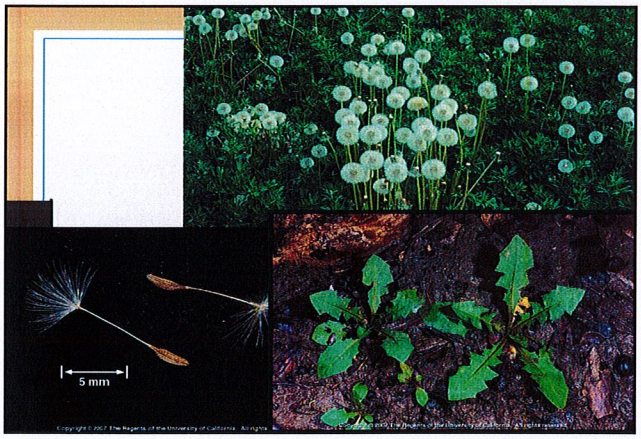
Annual Bluegrass

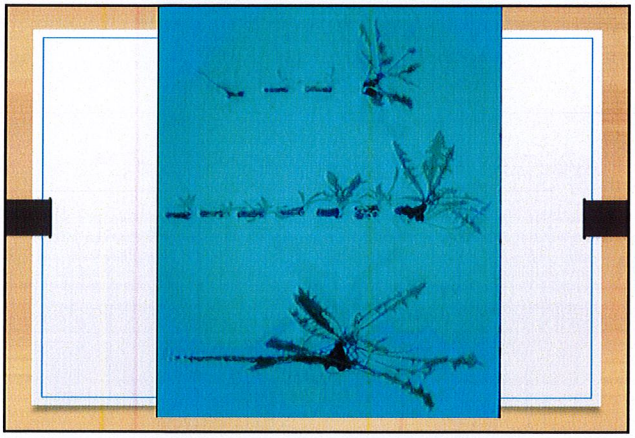
- Cool-season Annual, Biennial, or Perennial
- One of the most abundant weeds
- Annuals die and perennial types go dormant under hot dry conditions.
- Seeds have been reported to survive 30 years under field conditions and some can survive ingestion by cattle!



Dandelion

- Perennial-in this area will grow almost year round
- Each Plant can produce thousands of seeds-
- Seeds can germinate all year around
- Control plants when small-roots can resprout if not completely removed





Common Groundsel

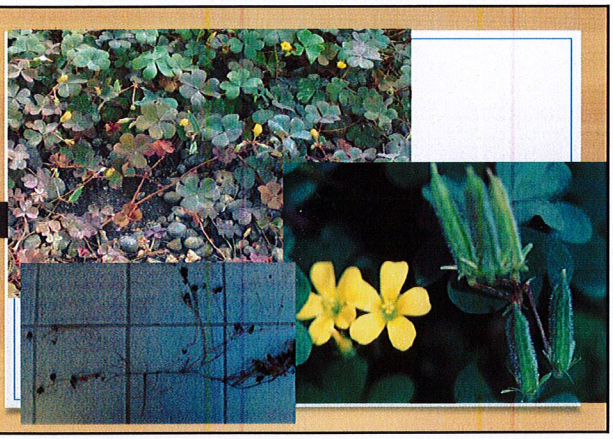
- Winter annual-germinates early in fall and begins to produce seeds in mid winter
- Can produce up to 25,000 seeds per plant!
- Seeds usually only last one year
- Can be easily controlled with mulch or if pulled before seed production

Oxalis

- Two species of Oxalis- both perennial
- One spreads by seed- Creeping Woodsorrel
- One spreads by bulbs- Bermuda Buttercup

Creeping Woodsorrel

- Perennial- in colder area acts like an annual
- Spreads by seed-up to 5000 per plant that can be expelled up to eight feet from parent plant!
- Light is required for germination
- Whole plant must be pulled- severed stems can develop into new plants
- Control before seeds are produced- seedlings flower in as little as 4 weeks- nearly year round



Bermuda Buttercup

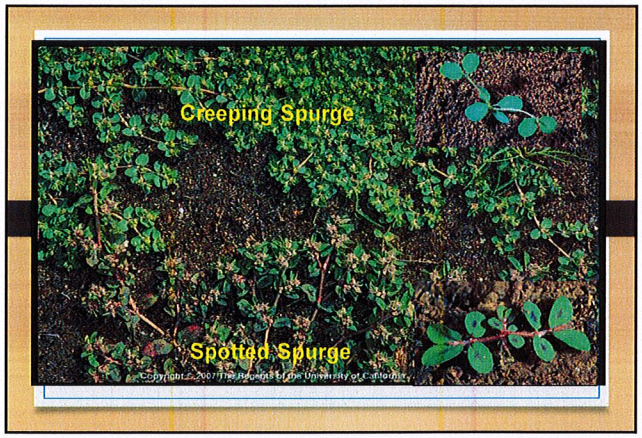
- Bulbs germinate in fall after first rain. Foliage dies and bulbs become dormant as temperatures rise in late spring and summer
- Plants in California very rarely produce seeds
- Forms a single, short underground vertical stem
- Small, whitish bulblets develop on the stems at the base of the rosette of leaves and new bulbs form underground.
- Repeated cultivation before bulbs are developed may reduce infestation

Bermudagrass

- Perennial Grass-
  - Spreads by Stolon, Rhizome and Seeds!
- Growth is reduced by shade
- Will go dormant in winter
- Must use geotextile mat under mulch
- Can be controlled by drying out in summer… not easily-

Creeping and Spotted Spurge

- Seedlings germinate when temperature warms in the spring and can produce seeds within 2 weeks!
- Light burial can dramatically reduce germination
- Creeping spurge can spread by rooting at nodes
- Ants have been know to spread seeds
- Major method of control- prevent invasion

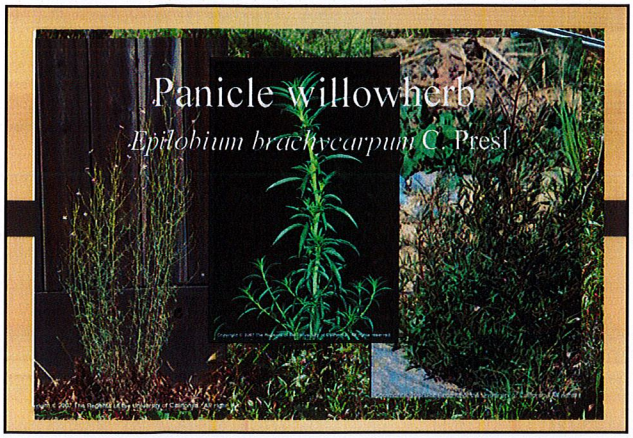


Yellow Nutsedge

- Does not move by seed
- Nutlets- tubers will form after 2-3 weeks
- Infestation is by soil movement
- Repeated pulling- every 2-3 weeks will eventually reduce population
- Often confused with Tall flatsedge- grows in wet areas- does not produce nutlets

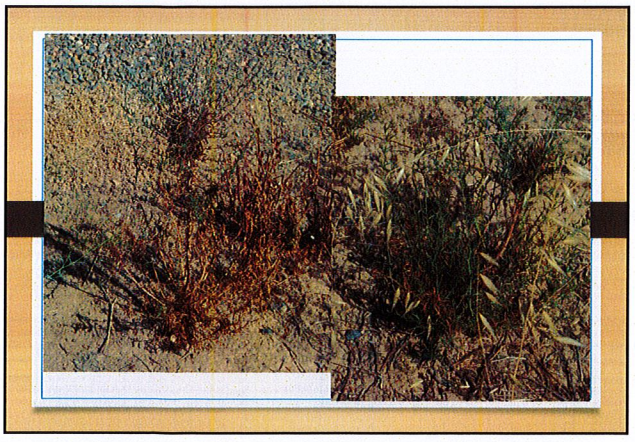
Tall flatsedge- similar to Yellow Nutsedge

Other weeds


Panicle willowherb
Epilobium brachycarpum C. Presl

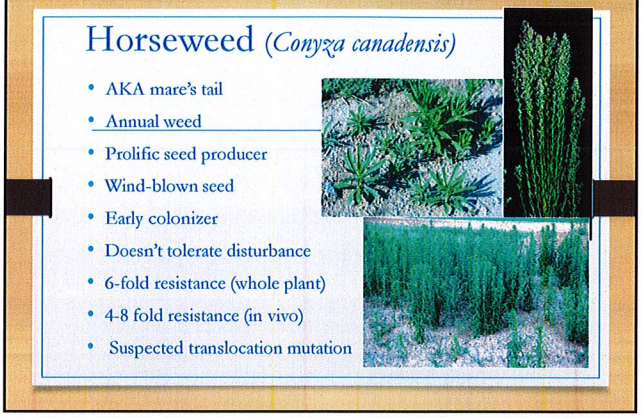

November 28
February 28


Roundup on willowherb



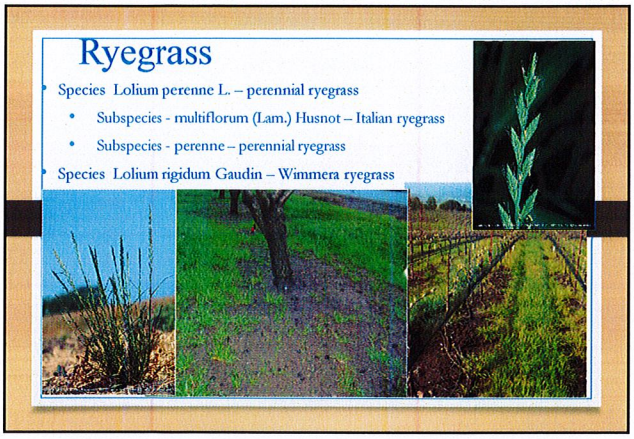
Horseweed (*Conyza canadensis*)

- AKA mare's tail
- Annual weed
- Prolific seed producer
- Wind-blown seed
- Early colonizer
- Doesn't tolerate disturbance
- 6-fold resistance (whole plant)
- 4-8 fold resistance (in vivo)
- Suspected translocation mutation



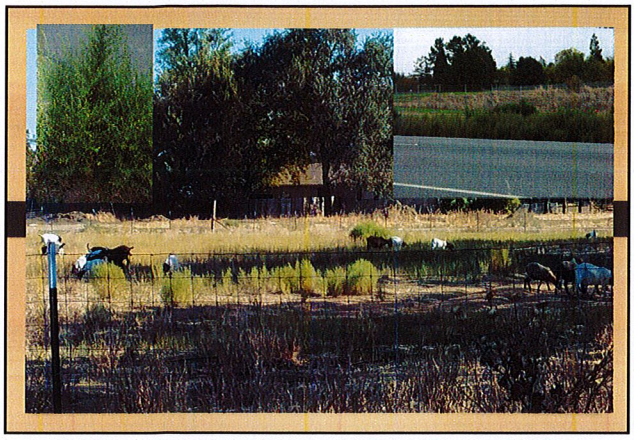
Ryegrass

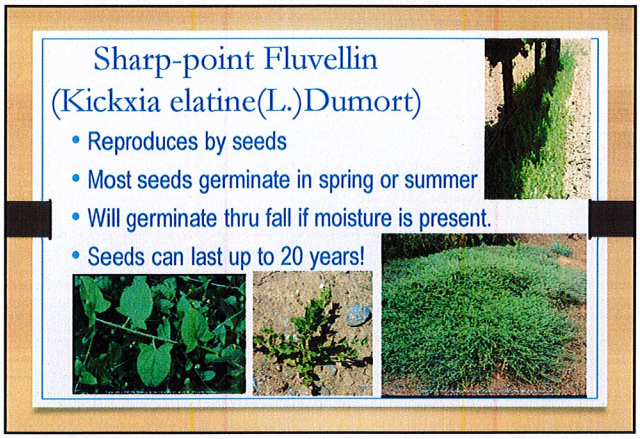
- Species Lolium perenne L. – perennial ryegrass
  - Subspecies - multiflorum (Lam.) Husnot – Italian ryegrass
  - Subspecies - perenne – perennial ryegrass
- Species Lolium rigidum Gaudin – Wimmera ryegrass



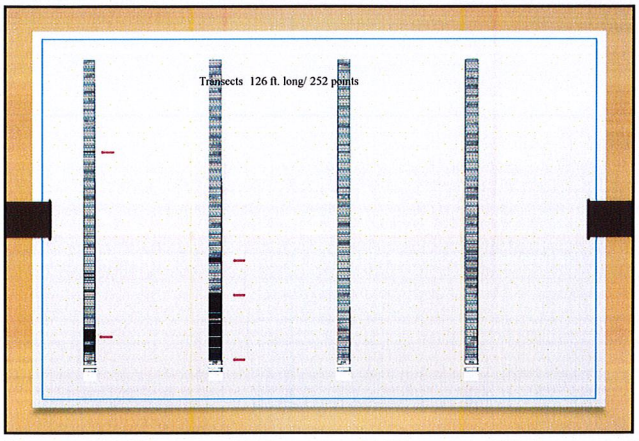
Stinkwort (Dittrichia graveolens)

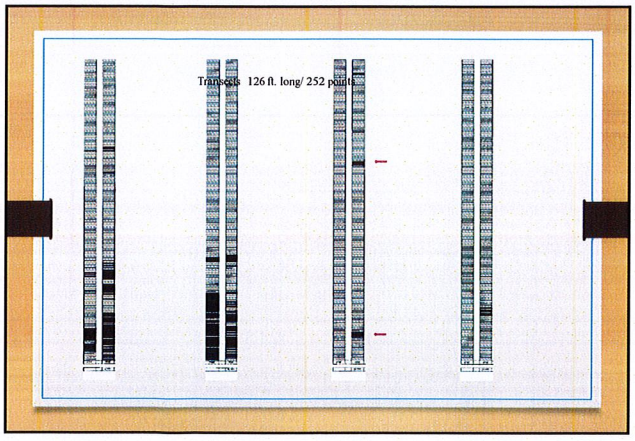
- Native to Mediterranean region
- Erect, fall flowering, aromatic annual about 2 feet tall.
- First reposted in Alameda County in 1995
- Unpalatable to livestock
- Resembles Russian thistle, but is more similar to tarweed
- Causes dermatitis
- Germinate February-? Flowers in November




Sharp-point Fluvellin
(Kickxia elatine(L.)Dumort)
• Reproduces by seeds
• Most seeds germinate in spring or summer
• Will germinate thru fall if moisture is present.
• Seeds can last up to 20 years!


Sharp-point Fluvellin
There is a milk carton under this plant!
Fluvellin competing with newly planted grapes
Fall 'variation' of fluvellin


Transects 126 ft. long/ 252 points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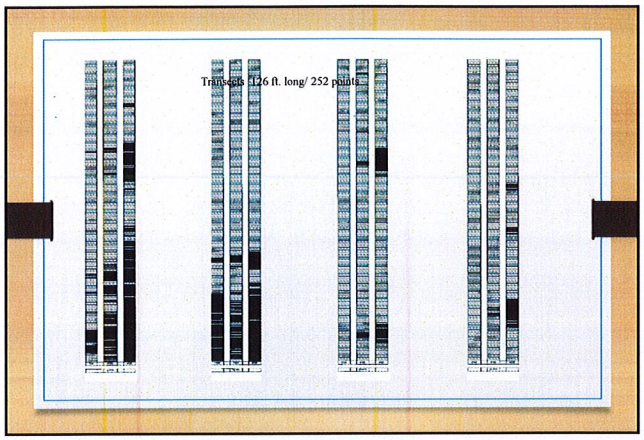
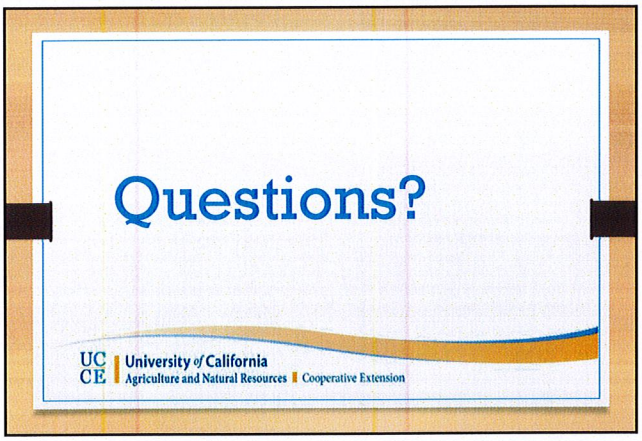

Transects 126 ft. long/ 252 points


Sharp-point Fluvellin


Questions?
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