Weeds and the New Low-Water Landscapes

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HOW TO DEAL WITH WEEDS.

OBSERVE THE TRUE EXTENT OF THE PROBLEM.
CHOOSE A PLEASANT DAY TO DEVOTE TO YOUR ACTIVITY.
PUT ON OLD CLOTHES
AND STURDY FOOTWEAR.
GO FOR A NICE WALK IN THE COUNTRYSIDE.
Characteristics of low-water landscapes

• Greater emphasis on mulches and hardscaping
• More use of perennials, trees, and shrubs
• Less water
• Less turf
• More empty space between plants
• Managing by hydrozones

All of which impact weed ecology and management!
Weed ecology changes

• Reduced irrigation changes weed management needs
  – Dry landscapes should reduce weed numbers
  – Weed species in the landscape will change with irrigation
    • Archaeologists can tell if fields were irrigated based on the weed species found.
    • Example – foxtail versus Russian thistle

Self-propagating plant populations will shift with time and management.
Low water should mean fewer weeds

• Low water landscape
  – Fewer weeds due to
    • Mulches
    • Minimal soil disturbance
    • Irrigation often with clean or filtered water (drip)

• Traditional landscape
  – More weeds due to
    • No mulch
    • Soil regularly disturbed
    • Irrigation with unfiltered surface water
In Utah, we’ll always have weeds

• In areas like Phoenix, no irrigation means very few weeds

• Utah has just enough moisture to always have weeds
Why are weeds an issue in low-water landscapes?
Aesthetics and value
Competition

• If low maintenance, then weeds can displace desirable plants.
Landscape water conservation

• Definitions
  – Water use:
    • All water that is diverted and used for some purpose, some of which will return to the downstream flow.
  – Water consumption:
    • That portion of water use that will not return to the system, such as cooling tower evaporation.
Weeds waste water

• Weeds consume water through transpiration and growth with no benefit.
  – Over irrigated landscapes use water
  – Weedy landscapes consume water
Controlling weeds in low-water landscapes
Weed identification is critical to control

- Is it really a weed?
- Is it perennial or annual?
- How does it propagate?
- What herbicides should be used and how?
- Is it invasive or potentially invasive?
Weed identification

- It's hard to control weeds if you don't know what they are.

What is it?
Weed identification

- It's hard to control weeds if you don't know what they are.

Aquilegea scopulorum
Utah columbine
Galega officinalis
Goatsrue
Kochia scoparia
Kochia
Tamarix spp.
Tamarisk
Salt cedar
Which is the weed?

Neither -
It is Indian paintbrush on a sagebrush host. They have to grow together for the paintbrush to survive.
Identifying unknowns

• Get a copy of the landscape plan or architect’s plant list and look up materials:
  • Plant selection websites
  • On-line nursery catalogs
• Visit demonstration gardens
• Send photographs or samples to:
  • County agents
  • NRCS
  • Weed supervisors
  • USU Herbarium
What do you need for proper identification?

The more the better!

– Whole plant
– Flowers
– Unique structures
– Habitat
– Focus please!
Good examples
Bad examples
Weed control by hydrozone

• The right plant in the right place is better able to compete with weeds
Weed control by microclimate
Weed control by mulch

HON, HOW DEEP SHOULD I LAY THIS MULCH TO KEEP WEEDS FROM COMING THROUGH?

THEY SAY THREE INCHES. BUT IN MY EXPERIENCE IT TAKES A LITTLE MORE.

HOW MUCH MORE?

ABOUT 250 FEET.
Weed barriers with mulches promised easy, weed-free landscape management.
With any mulch, weed residues should be removed.
Remove weeds when small
Weed fabrics are not a panacea.

- Altered soil conditions
• Fabric penetration by weed roots
• Can be unsightly and restrict growth
Disruption is unsightly and stimulates weed seed germination.
Weed control by prevention
Temperature 140°F or more
## Estimated hours required to kill 90% of seeds

*(after Dahlquist et. al., 2007)*

<table>
<thead>
<tr>
<th>Temperature (°F)</th>
<th>140</th>
<th>122</th>
<th>115</th>
<th>108</th>
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<tr>
<td>Time required to kill 90% of seeds (hours)</td>
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<tr>
<td>Annual sowthistle</td>
<td>&lt;1.0</td>
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<td>unaffected</td>
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<td>107.0</td>
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Working with Mother Nature
Weed control by herbicide

Improper herbicide use can be unsightly
Effectively using pre-emergent herbicides

• Indicators for crabgrass control
  – Some use forsythia bloom
  – Too early – better forsythia petal fall
  – Too early run the risk of “break through”
Granular Crabgrass Pre-emergent prevents the majority of crabgrass plants that will grow in an established lawn.

Granular Crabgrass Control dissolves, creating a barrier in soil that reduces germination.
Effectively using pre-emergent herbicides

- Soil temperature – upper half inch of soil – early in day, not in sun, measure the site you intend to treat.
- Temperature above 50 °F three consecutive days before application!
- Make split-applications if necessary
- First part of split earlier than a single application – second treatment 7-8 weeks later
Effectively using pre-emergent herbicides

• Environmental effects
  – Pre-emergence at right time & activated usually very good/excellent control
  – Must be threshold level herbicide in soil to be effective
  – Abnormally high rainfall could dilute below threshold level – sandy soil is constant problem – consider split applications
  – When do pre-emergence treatments fail?
Effectively using post-emergent herbicides

- Indicators for post-emergent treatment of broadleaf weeds in turf
  - Use lilac bloom for timing
  - Usually corresponds to beginning of dandelion bloom
Effectively using post-emergent herbicides

- Selective materials
Slide from Earl Showing competition in what
Naturalized low-water landscapes

Be very careful when dealing with trees that sucker or root graft.
Herbicides may be the only option in selectively removing woody weeds.

Siberian elm in oakleaf sumac
What to apply?

- Triclopyr, glyphosate, and dicamba are best (in this order)
- Glyphosate usually safest in the landscape
- When removing a tree, treat before cutting it down, or treat stump before removing the stump next year
How to apply?

1. Drill holes – 12” above soil line
2. Use ¼ to ½ inch bit and go 1-2” deep
3. Drill on 45 degree angle
4. Inject into each hole with syringe
5. Cap to prevent evaporation
6. Rule of thumb – 2cc concentrate per 1 inch of trunk diameter
   a. Example – 10” diameter tree (at 12” above ground) will need 20cc of herbicide concentrate
When to apply?

- Treat in late summer/early fall (before leaves change colors)
Frill-cut treatments
Herbicide injection in cut
Frill cuts

- Use ax, hatchet, or machete
- Make series of shallow-horizontal cuts low on trunk
- Penetrate lower bark and get into living tissue (cambium)
- Don’t girdle the tree!
- Cut downward to make a trough
- Apply herbicide concentrate using syringe w/o needle
  - Use standard rule of 2cc/inch trunk diameter
- Don’t cut the tree until spring
What about stump treatments?

- Herbicide pre-treatment is best
- Paint stumps within minutes of cutting the tree down
- If the stump has been cut for some time, drill or frill cut and treat. May take more than usual dose or may require repeat treatments.
- If resprouts have started, cut off all sprouts or suckers and paint the cut areas then drill or frill cut the tree stump
What about stump treatments?

• NOTE – ready to use formulations are too dilute and don’t work when injected into stumps.
• Use 3-4 lb/gal concentrate
• When thinning stands be aware of “flash back” from leakage or from connected roots
Untreated Russian olive
Treated Russian olive
Herbicides for weed control

Hester Foster hasn't turned on the radio since she discovered herbicides can be broadcast.
Final considerations

What is that plant?
Why is it there?
Why is it there now?
How do I kill it?
A significant function of weed management, is understanding consequences.
Keep your low-water landscape weed-free and a happy place for everyone!