Weed Management in Reclamation

Reclamation 101

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Today’s Assumption:
In today’s discussion we are working in lands that have been “drastically disturbed”

Working with newly seeded desirable species
Prevention is crucial
Do not assume weeds are gone – continue to monitor
Decisions should shift competitive advantage toward desirable species
Why worry about weeds?

- Reduce forage quality and availability
- Livestock poisoning
- Change ecosystem function
  - Hydrology, fire frequency
- Impede recreation
- Outcompete and exclude many native species
Common Traits of Weeds

- Prolific seed production
- Adaptations for dispersal
- Rapid establishment
- Long-term seed or propagule survival
- Ability to recruit quickly on disturbed sites
By the numbers…

• Russian thistle (*Salsola iberica*) can germinate quickly over temperature range of _______ °F

• After 100 years of burial, _____% of common mullein (*Verbascum thapsus*) seeds were still viable

• Rush skeletonweed (*Chondrilla juncea*) was first recorded in Idaho in 1954, by 1964 it had invaded 40 acres, currently—_______ acres invaded.
Resource Availability
Take a landscape perspective
Take a landscape perspective
Weed Management Principles

1. Prevention should be a priority
2. Correctly identify the target weed species
3. Map & prioritize your weeds by “threat level”
4. Select a method of control suited for your situation
5. Implement
6. Evaluate your results
7. Continue to monitor and follow up
Prevention

• Eliminate transport of seeds on equipment, vehicles, etc.

• If using a mulch, use only certified weed-free materials

• Cultural control (establishing healthy desirable species) is crucial
Fig. 1  The dependence of the eradication success (%) and the mean eradication effort per infestation (work hours) on the initial size of infestations. Based on the data for eradication projects of 18 noxious weed species and 53 independent infestations in California (see Table 1).

Rejmanek 2004
Initial evaluation

• Are you starting with a weed patch, or with a fresh slate?

• If weeds are already present, make sure your weed management strategy and seeding are complementary.

• Is pre-planting weed control necessary?
Precautions - herbicides

• Consider re-plant interval if using herbicide prior to seeding (start re-plant clock in spring if sprayed in fall)
  – Or use a bio-assay

• If newly emerged seedlings are present, consider waiting until they mature

• Especially important for forb and shrub seedlings when spraying broadleaf weeds
  – Consider a step-wise approach to reclamation (grasses then interseed with forbs, shrubs)
<table>
<thead>
<tr>
<th>Species</th>
<th>Rate oz/acre</th>
<th>Replant Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkali sacaton</td>
<td>1/2</td>
<td>1</td>
</tr>
<tr>
<td><em>Sporobolus airoides</em></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>&gt;3</td>
</tr>
<tr>
<td>Bluestern, Big</td>
<td>1/2</td>
<td>3</td>
</tr>
<tr>
<td><em>Andropogon gerardii</em></td>
<td>1/2</td>
<td>1</td>
</tr>
<tr>
<td><em>Bromus marginatus</em></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>&gt;3</td>
</tr>
<tr>
<td>Gramma, Blue</td>
<td>1/2</td>
<td>1</td>
</tr>
<tr>
<td><em>Bouteloua gracilis</em></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>&gt;3</td>
</tr>
<tr>
<td>Gramma, Sideoats</td>
<td>1-2</td>
<td>&gt;3</td>
</tr>
<tr>
<td><em>Bouteloua curtipendula</em></td>
<td>1-2</td>
<td>&gt;3</td>
</tr>
<tr>
<td>Switchgrass</td>
<td></td>
<td>&gt;3</td>
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<tr>
<td><em>Panicum virgatum</em></td>
<td></td>
<td>&gt;3</td>
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<tr>
<td>Wheatgrass, Bluebunch</td>
<td>1 1/3</td>
<td>1</td>
</tr>
<tr>
<td><em>Agropyron spicatum</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheatgrass, Crested</td>
<td>2/3</td>
<td>1</td>
</tr>
<tr>
<td><em>Agropyron cristatum</em></td>
<td>1 1/3</td>
<td>1</td>
</tr>
<tr>
<td>Wheatgrass, Intermediate</td>
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<tr>
<td><em>Agropyron intermedium</em></td>
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<tr>
<td>Wheatgrass, Slender</td>
<td>1 1/3</td>
<td>1</td>
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<tr>
<td><em>Elymus trachycaulm</em></td>
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<tr>
<td>Wheatgrass, Siberian</td>
<td>1 1/3</td>
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<tr>
<td><em>Agropyron fragile</em></td>
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<tr>
<td>Wheatgrass, Streambank</td>
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<tr>
<td><em>Agropyron riparium</em></td>
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<tr>
<td>Wheatgrass, Thickspike</td>
<td>1/2-2</td>
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<td><em>Agropyron dasystachyum</em></td>
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<tr>
<td>Wheatgrass, Western</td>
<td>1/2</td>
<td>1</td>
</tr>
<tr>
<td><em>Agropyron smithii</em></td>
<td>1</td>
<td>2</td>
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<tr>
<td></td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

The recommended minimum intervals are for applications made in the spring to early summer. Because TELAR® XP
Russian thistle (*Salsola iberica*)
Kochia

(*Kochia scoparia*)
Kochia and Russian thistle

• Chemical control
  – Many different herbicides (dicamba; 2,4-D; glyphosate) are effective; resistance can be a problem
  – May not be necessary if weed density is low
Halogeton

(*Halogeton glomeratus*)

- Annual
- Prolific seed producer
- Highly toxic
Halogeton

Leaves are small, fleshy, nearly cylindrical, and tipped with a weak spine.

Young plants can be distinguished from Russian thistle (*Salsola australis*) by leaf shape and by halogeton having tiny cotton-like hairs at leaf bases.

Stems red; late in season whole plant may turn red.
Halogeton

• Chemical control
  – Escort: 0.5-1.0 oz product / A
    • Early post-emergence for best control
  – Telar XP: 0.5-1.0 oz product/A
    • Early post-emergence for best control
  – 2,4-D Ester: 2 qt product / A
    • Apply to actively growing plants up to early bud stage, use COC for consistent control
  – Plateau: 4-12 oz product / A
    • Use pre-emergence at lower rates, increase to 6 or more ounces postemergence (+ surfactant)
Black henbane
*(Hyoscyamus niger)*

Petal distinctively colored: greenish-yellow or whitish but tinged with purple

Enloe & Brasher
Black henbane

- Large rosettes have serrated leaves covered with fine hair.
- Pungent odor
- Has 2 rows of pineapple-shaped fruit with hundreds of tiny black seed
Black henbane

• Chemical Control
  – Escort + 2,4-D: 0.5-1.0 oz + 1-2 qt product / A
    • Actively growing plants from rosette to bloom, larger plants may require the higher rate
  – Tordon: 1-2 pt product / A
    • Apply to plants from rosette to bolting stage, may tank mix with 2,4-D (1 qt / A)
Houndstongue
(Cynoglossum officinale)

• Biennial
• Sometimes found with black henbane
Houndstongue

• Chemical control:
  – 2,4-D: 2 qt product / A
    • Apply when actively growing; early treatments prevent seed production
  – Escort: 1 oz product / A
    • Apply to actively growing plants from rosette to bolting stages
Swainson pea
(*Sphaerophysa salsula*)
Swainsonpea

• Chemical control
  – 2,4-D LVE
    • 2 qt product / A (4EC)
    • 2.7 qt product / A (6EC)
Cheatgrass

(Bromus tectorum)
Cheatgrass

- Plateau, BASF (imazapic)
- Glyphosate
- Matrix, DuPont (rimsulfuron)
- Journey, BASF (glyphosate + imazapic)
Wrapup

• Make a fair and realistic evaluation of current situation

• Develop a weed management strategy that will move you toward your reclamation goals

• Catch new infestations EARLY before they gain a foothold

• Continue monitoring and follow-up treatments
Questions?