

## Appendix H: Noxious Weed Chemical and Mechanical Control Options

All applicators must read the herbicide label for complete information. **The label is the law!**

### **Biennial thistles –Bull, Musk, Scotch** (List B – Biennial)

- Chemical
  - Milestone (aminopyralid)
    - 5 oz/ac with non-ionic surfactant
    - Apply at spring rosette to early bolting stage or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Curtail (clopyralid + 2,4-D)
    - 2 qt/ac with non-ionic surfactant
    - Apply at rosette to bolt stage
    - Do not apply near water
  - Tordon 22K (picloram) – Restricted Use
    - 1 pt/ac with non-ionic surfactant
    - Apply at spring rosette to bolting stage or fall rosette
    - Do not apply near water or high water tables
    - Do not apply under desirable trees
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply at spring rosette to very early flower stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1 oz/ac with non-ionic surfactant
    - Apply at spring rosette to very early flower stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Do not apply under desirable trees or shrubs
  - Hardball (2,4-D acid)
    - Use highest rate allowable with non-ionic surfactant
    - Irrigation ditch banks
      - Limit 2 applications per season
      - Max 1.15 gal/ac per application
      - Max 2.25 gal/ac per season
      - Min 30 days between applications
      - Do not overspray more than 2 feet into water
      - Do not spray across water to opposite ditch bank
- Mechanical
  - Mowing ineffective
  - Sever tap root 2-4 inches below ground with shovel
    - Must cut off and bag flowers

### **Bouncing bet** (List B – Perennial)

- Chemical
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply at bolting to bud stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Hardball (2,4-D acid)
    - Use highest rate allowable with non-ionic surfactant
    - Irrigation ditch banks
      - Limit 2 applications per season
      - Max 1.15 gal/ac per application
      - Max 2.25 gal/ac per season
      - Min 30 days between applications
      - Do not overspray more than 2 feet into water
      - Do not spray across water to opposite ditch bank
- Mechanical
  - Ineffective

### **Canada thistle** (List B – Perennial)

- Chemical
  - Milestone (aminopyralid)
    - 5-7 oz/ac with non-ionic surfactant
    - Apply at spring rosette to early bud stage or fall regrowth
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Curtail (clopyralid +2,4-D)
    - 2 qt /ac with non-ionic surfactant
    - Apply at spring rosette to bud stage or fall regrowth
    - Do not apply near water
  - Tordon 22K (picloram) – Restricted Use
    - 1 qt/ac with non-ionic surfactant
    - Apply at early bud stage or fall regrowth
    - Do not apply near water or high water tables
    - Do not apply under desirable trees
- Mechanical
  - Periodic mowing to prevent flowering followed by a fall herbicide application to regrowth can increase herbicide effectiveness
  - Mowing alone is ineffective

### **Cheatgrass** (List C – Winter annual)

- Chemical
  - Plateau (imazapic)
    - 6 oz/ac with non-ionic surfactant or methylated seed oil (MSO)

- MSO results in better control but also increased injury to desirable grasses
        - Apply in the fall as pre-emergent or early post-emergence before tillering (typically under 3 inches tall)
        - High rates or excessive overlap can leave bareground
        - Do not apply to hillsides sloping towards water or to water or irrigation ditches
  - Matrix (rimsulfuron) + Telar (chlorsulfuron)
    - Matrix at 2.5 – 3 oz/ac + Telar at 0.5 oz/ac with non-ionic surfactant
      - Apply at early fall emergence before anticipated rain
      - May be applied to water’s edge
  - Roundup (glyphosate)
    - 16 -32 oz/ac
    - Apply to cheatgrass when desirable cool season grasses are still dormant during the winter but late enough to get late emerging seedlings
- Mechanical
  - Ineffective

**Common burdock** (List C – Biennial)

- Chemical
  - Milestone (aminopyralid)
    - 4-7 oz/ac with non-ionic surfactant
    - Apply at spring rosette to bolt stage or fall rosette
    - May be applied to water’s edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Curtail (clopyralid +2,4-D)
    - 2 qt /ac with non-ionic surfactant
    - Apply at spring rosette to bud stage or fall regrowth
    - Do not apply near water
- Mechanical
  - Mowing ineffective
  - Sever tap root 2-4 inches below ground with shovel
    - Must bag flowers

**Common mullein** (List C – Biennial)

- Chemical
  - Milestone (aminopyralid)
    - 7 oz/ac with non-ionic surfactant
    - Apply at spring rosette to bolting stage or fall rosette
    - May be applied to water’s edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Telar (chlorsulfuron)
    - 1-2 oz/ac with non-ionic surfactant
    - Apply at spring rosette or fall rosette
    - May be applied to water’s edge
    - Cannot be applied to irrigation ditch banks

- Escort (metsulfuron methyl)
  - 1-2 oz/ac with non-ionic surfactant
  - Apply at spring rosette or fall rosette
  - May be applied to water's edge
  - Cannot be applied to irrigation ditch banks
  - Do not apply under desirable trees or shrubs
- Mechanical
  - Mowing ineffective
  - Sever tap root 2-4 inches below ground with shovel
    - Must bag flowers

**Common/Cutleaf teasel** (List B – Biennial)

- Chemical
  - Milestone (aminopyralid)
    - 4-7 oz/ac with non-ionic surfactant
    - Apply at spring rosette to bolt stage or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
- Mechanical
  - Mowing ineffective
  - Sever tap root 2-4 inches below ground with shovel
    - Must bag flowers

**Dalmatian toadflax** (List B – Perennial)

- Chemical
  - Telar (chlorsulfuron)
    - 1.5 -2 oz/ac with non-ionic surfactant
    - Apply at flowering stage in the spring or to fall regrowth
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
- Mechanical
  - Handpulling throughout the season followed by a fall herbicide application to regrowth can increase herbicide effectiveness
  - Mowing is ineffective

**Dame's rocket** (List B – Biennial)

- Chemical
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply at spring rosette or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1 oz/ac with non-ionic surfactant
    - Apply at spring rosette or fall rosette
    - May be applied to water's edge

- Cannot be applied to irrigation ditch banks
  - Do not apply under desirable trees or shrubs
- Mechanical
  - Handpulling is effective
    - Must bag flowers

**Diffuse knapweed** (List B – Biennial)

- Chemical
  - Milestone (aminopyralid)
    - 5-7 oz/ac with non-ionic surfactant
    - Apply at spring rosette to early bolting stage or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Tordon 22K (picloram) – Restricted Use
    - 1-2 pt/ac with non-ionic surfactant
    - Apply at spring rosette to bolting stage or fall rosette
    - Do not apply near water or high water tables
    - Do not apply under desirable trees
- Mechanical
  - Mowing can increase density of populations
  - Sever tap root 2-4 inches below ground with shovel
    - Must bag flowers

**Hairy willow herb** (List A – Perennial)

- Chemical
  - Milestone (aminopyralid)
    - 0.5% by volume solution with non-ionic surfactant
    - Apply at early bloom stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Rodeo or Aquamaster (aquatic labeled glyphosate)
    - 1.5% by volume solution with non-ionic surfactant
    - Apply at early bloom stage
    - May be applied to emergent plants in water
    - Non-selective
  - Habitat (imazapyr)
    - 1 pt/ac with non-ionic surfactant
    - Apply at early bloom stage
    - May be applied to emergent plants in water
    - Non-selective
- Mechanical
  - Small infestations can be dug up. Must remove all of the roots and bag flowers.

### **Hoary cress** (List B – Perennial)

- Chemical
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply at early bud to flower stage (broccoli stage) or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1 oz/ac with non-ionic surfactant
    - Apply at early bud to flower stage (broccoli stage) or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Do not apply under desirable trees or shrubs
  - Hardball (2,4-D acid)
    - Use highest rate allowable with non-ionic surfactant
    - Irrigation ditch banks
      - Limit 2 applications per season
      - Max 1.15 gal/ac per application
      - Max 2.25 gal/ac per season
      - Min 30 days between applications
      - Do not overspray more than 2 feet into water
      - Do not spray across water to opposite ditch bank
- Mechanical
  - Periodic mowing to prevent flowering followed by a fall herbicide application to regrowth can increase herbicide effectiveness
  - Mowing alone is ineffective

### **Houndstongue** (List B – Biennial)

- Chemical
  - Telar (chlorsulfuron)
    - 1-2 oz/ac with non-ionic surfactant
    - Apply at early bud to flower stage (broccoli stage) or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1-2 oz/ac with non-ionic surfactant
    - Apply at early bud to flower stage (broccoli stage) or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Do not apply under desirable trees or shrubs
- Mechanical
  - Mowing ineffective
  - Sever tap root 2-4 inches below ground with shovel
    - Must bag flowers

### **Knotweed** (List A – Perennial)

- Chemical
  - Rodeo or Aquamaster (aquatic labeled glyphosate)
    - 1.5% by volume solution with non-ionic surfactant
    - Apply at flower bud stage and follow up by mid-September before first frost
    - Spot treat resprouts in July the following year
    - May be applied to emergent plants in water
    - Non-selective
  - Habitat (imazapyr)
    - 3-4 pt/ac with non-ionic surfactant
    - Apply at flower bud stage and follow up by mid-September before first frost
    - Spot treat resprouts in July the following year
    - May be applied to emergent plants in water
    - Non-selective
- Mechanical
  - Periodic mowing throughout season to keep plants under 3-4 feet tall by a fall herbicide application in September is most effective

### **Kochia** (Unlisted – Annual)

- Chemical
  - Vista (fluroxypyr)
    - 6 to 12 oz/ac with methylated seed oil (MSO)
      - Do not exceed 22 oz/ac applied per year
      - Use 13-17 oz/ac w/ 1-2 qts/ac of 2,4-D for larger plants or plants at more advanced stages of growth.
      - MSO may increase damage to desirable grasses.
    - Apply to actively growing plants before flowering
    - Maintain a buffer along surface water to prevent runoff
- Mechanical
  - Handpulling is effective
  - Mow large plants at height that leaves some leaf surface and then spray
  - Mowing alone is ineffective

### **Moth mullein** (List B – Biennial)

- Chemical
  - Milestone (aminopyralid)
    - 7 oz/ac with non-ionic surfactant
    - Apply at spring rosette to bolting stage or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Telar (chlorsulfuron)
    - 1-2 oz/ac with non-ionic surfactant
    - Apply at spring rosette to bolting stage or fall rosette
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)

- 1-2 oz/ac with non-ionic surfactant
  - Apply at spring rosette to bolting stage or fall rosette
  - May be applied to water's edge
  - Cannot be applied to irrigation ditch banks
  - Do not apply under desirable trees or shrubs
- Mechanical
  - Mowing ineffective
  - Sever tap root 2-4 inches below ground with shovel
    - Must bag flowers

**Oxeye daisy** (List B – Perennial)

- Chemical
  - Milestone (aminopyralid)
    - 4-6 oz/ac with non-ionic surfactant
    - Apply at pre-bud stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply at flowering stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1 oz/ac with non-ionic surfactant
    - Apply at flowering stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Do not apply under desirable trees or shrubs
- Mechanical
  - Handpulling small infestations can be effective
  - Mowing is ineffective

**Perennial pepperweed** (List B – Perennial)

- Chemical
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply at bolting to early flower stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1 oz/ac with non-ionic surfactant
    - Apply at bolting stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Do not apply under desirable trees or shrubs
- Mechanical
  - Ineffective



**Poison hemlock** (List C – Biennial)

- Chemical
  - Milestone (aminopyralid)
    - 4-6 oz/ac with non-ionic surfactant
    - Apply at rosette to bolting stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply at rosette to bolting stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1 oz/ac with non-ionic surfactant
    - Apply at rosete to bolting stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Do not apply under desirable trees or shrubs
- Mechanical
  - Mowing ineffective
  - Sever tap root 2-4 inches below ground with shovel
    - Must bag flowers

**Purple loosestrife** (List A – Perennial)

- Chemical
  - Rodeo or Aquamaster (aquatic labeled glyphosate)
    - 1.5% by volume solution with non-ionic surfactant
    - Apply at bolting to early bloom stage
    - Must cut off and bag flowers before spraying
    - May be applied to emergent plants in water
    - Non-selective
  - Habitat (imazapyr)
    - 1 pt/ac with non-ionic surfactant
    - Apply at bolting to early bloom stage
    - Must cut off and bag flowers before spraying
    - May be applied to emergent plants in water
    - Non-selective
- Mechanical
  - Small infestations can be dug up. Must remove all of the roots and bag flowers.

**Russian knapweed** (List B – Perennial)

- Chemical
  - Milestone (aminopyralid)
    - 4-6 oz/ac with non-ionic surfactant

- Apply at bud to flowering stage or dormant plants in late fall
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Caution under certain tree species
  - Tordon 22K (picloram) – Restricted Use
    - 1 qt/ac with non-ionic surfactant
    - Apply at bud to early flower stage or fall regrowth
    - Do not apply near water or high water tables
    - Do not apply under desirable trees
- Mechanical
  - Periodic mowing to prevent flowering followed by a fall herbicide application to regrowth can increase herbicide effectiveness
  - Mowing alone is ineffective

**Russian olive** (List B – Perennial)

- Chemical – Foliar application
  - Garlon 4 (terrestrial triclopyr)
    - 1% by volume solution with non-ionic surfactant
    - May be applied to seasonally dry wet-lands, transitional sites, and non-irrigation ditch banks.
    - May be applied to water's edge
    - More effective than Garlon 3A
  - Garlon 3A (aquatic triclopyr)
    - 2% by volume solution with non-ionic surfactant
    - May be applied to emergent plants and non-irrigation ditch banks
  - Habitat (imazapyr)
    - 1% by volume solution with non-ionic surfactant
    - May be applied to irrigation ditches if 120 days passes before water runs in ditch
- Cut-stump
  - Habitat (imazapyr)
    - 8-12 oz/gal of basal bark oil
    - Apply to cambium and collar immediately after cutting tree
    - May be applied to irrigation ditches if 120 days passes before water runs in ditch
  - Glyphosate
    - 100% solution
    - Apply to cambium and collar immediately after cutting tree
    - Aquatic labeled formulas such as Rodeo may be applied to irrigation ditches
  - Pathfinder II (triclopyr)
    - 100% solution
    - Apply to cambium and collar immediately after cutting tree
    - Cannot be applied to surface water

**Sulfur cinquefoil** (List B – Perennial)

- Chemical
  - Milestone (aminopyralid)
    - 6 oz/ac with non-ionic surfactant
    - Apply at pre-bud stage to very early flower stage
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
- Mechanical
  - Ineffective

**Tamarisk (salt cedar)** (List B – Perennial)

- Chemical – Foliar application
  - Garlon 4 (terrestrial triclopyr)
    - 1% by volume solution with non-ionic surfactant
    - May be applied to seasonally dry wet-lands, transitional sites, and non-irrigation ditch banks.
    - May be applied to water's edge
    - More effective than Garlon 3A
  - Garlon 3A (aquatic triclopyr)
    - 2% by volume solution with non-ionic surfactant
    - May be applied to emergent plants and non-irrigation ditch banks
  - Habitat (imazapyr)
    - 1% by volume solution with non-ionic surfactant
    - May be applied to irrigation ditches if 120 days passes before water runs in ditch
- Cut-stump
  - Habitat (imazapyr)
    - 8-12 oz/gal of basal bark oil
    - Apply to cambium and collar immediately after cutting tree
    - May be applied to irrigation ditches if 120 days passes before water runs in ditch
  - Glyphosate
    - 100% solution
    - Apply to cambium and collar immediately after cutting tree
    - Aquatic labeled formulas such as Rodeo may be applied to irrigation ditches
  - Pathfinder II (triclopyr)
    - 100% solution
    - Apply to cambium and collar immediately after cutting tree
    - Cannot be applied to surface water

**Venice mallow** (Delisted – Summer annual)

- Chemical
  - Telar (chlorsulfuron)
    - 1 oz/ac with non-ionic surfactant
    - Apply before flowering

- May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
  - Escort (metsulfuron methyl)
    - 1 oz/ac with non-ionic surfactant
    - Apply before flowering
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
    - Do not apply under desirable trees or shrubs
- Mechanical
  - Handpulling is effective

**Yellow toadflax** (List B – Perennial)

- Chemical
  - Telar (chlorsulfuron)
    - 1.5 -2 oz/ac with non-ionic surfactant or methylated seed oil (MSO)
      - MSO will increase damage to desirable grasses
    - Apply at flowering stage in the spring or to fall regrowth
    - May be applied to water's edge
    - Cannot be applied to irrigation ditch banks
- Mechanical
  - Ineffective