



Weed Management Plan

Overlook at Homestead
El Paso County, Colorado

December 4, 2023

Prepared for:



PT OVERLOOK, LLC.

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Kimley»Horn

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1.0 INTRODUCTION

This Weed Management Plan was prepared to be used alongside the Natural Resource Assessment submitted June 28, 2023, revised September 22, 2023. The proposed project development will consist of 62, five (5) acre residential lots with associated general site grading, roadways, and drainage improvements. Due to the nature of the proposed activity, which involves limited disturbance to the natural features with the project area, there is minimal potential for environmental resource impacts or changed conditions. The proposed project is located in El Paso County, Colorado in Sections 22 and 27 of Township 11 South and Range 64 (**Figure 1 – Project Location Map**).

El Paso County has established a Noxious Weed Management Plan. The current version as of October 2, 2019, states:

The purpose of this El Paso County Noxious Weed Management Plan ("Plan") is to provide guidelines for managing the noxious weeds that represent a threat to the natural and agricultural ecosystems of El Paso County. The Plan implements the mandates of the Act and strives to strengthen, support, and coordinate noxious weed management efforts between private, municipal, county, state, and federal entities. It is ultimately the responsibility of all landowners to employ methods and strategies to manage noxious weeds found on their property.

According to the Policy, landowners and occupants in El Paso County are required to manage any noxious weed infestations. The policy also states criteria for any county officials to investigate for any noxious weed infestations on any public or private land and to also identify any methods of notification to landowners if any infestation is found and it requires that the notified landowner comply with the terms of the notification and the policy. If the landowner were to ignore the terms of the policy, the county may act and enter the land, undertaking the management of the noxious weeds. In the event of this occurrence, the El Paso County Plan outlines a method for the county to recover the costs of the management.

2.0 DESCRIPTION OF SURVEY AREA

The project area is predominantly native grassland with various spring-fed drainages. A residential lot makes up the northern extent. A shrubland ecotone exists leading to an evergreen ridge making up the eastern extent. Sparse amounts of noxious weeds are dispersed throughout the uplands likely due to previous rangeland utilization. Dominant vegetation species include the following:

Upland Grassland and Shrubland Areas

- Prairie junegrass (*Koeleria macrantha*)
- Mountain bluebells (*Mertensia ciliata*)
- Yucca (*Yucca glauca*)
- Rubber rabbitbrush (*Chrysothamnus nauseosus*)
- Cheatgrass (*Bromus tectorum*)
- Musk thistle (*Carduus nutans*)

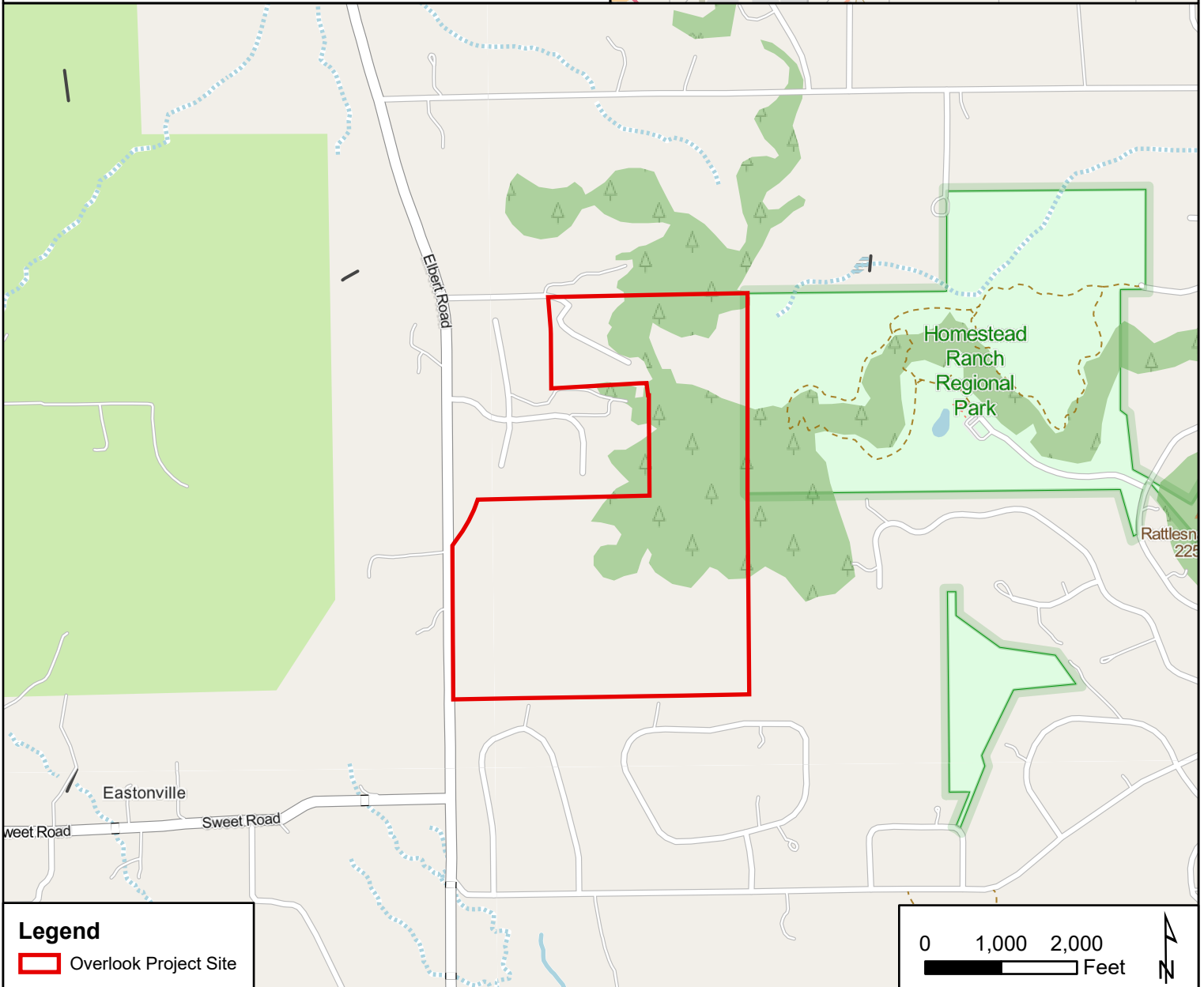
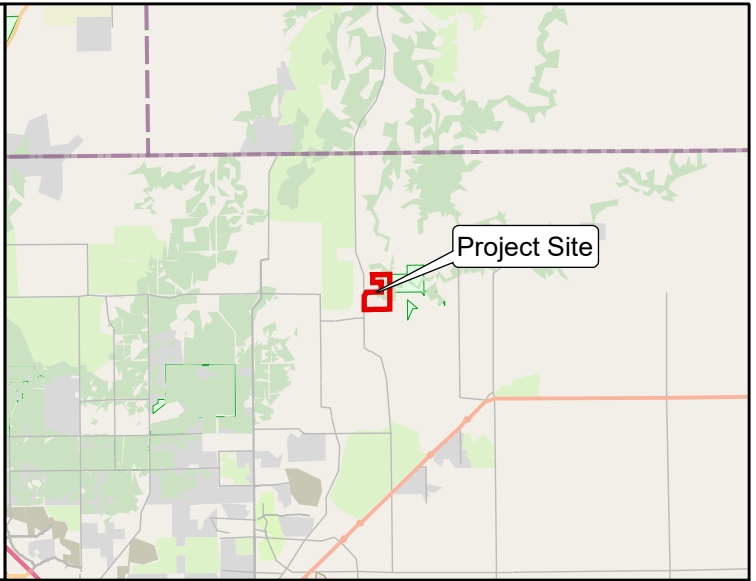
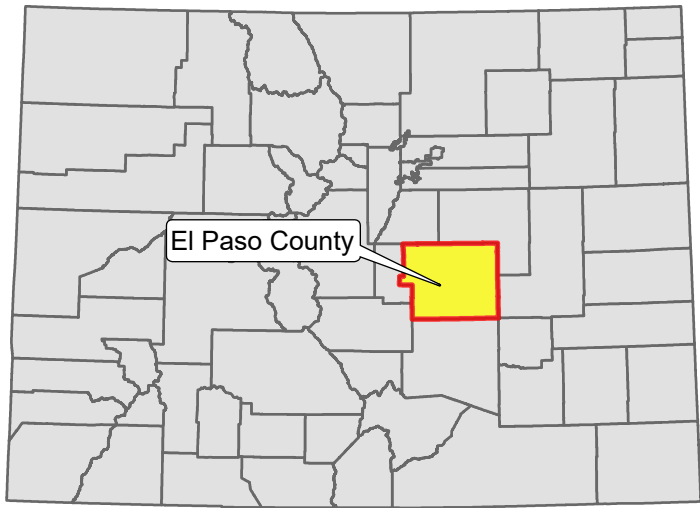
Upland Forested Areas

- Ponderosa pine (*Ponderosa pinus*)

Wetland Areas

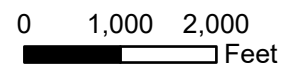
- Nebraska sedge (*Carex nebrascensis*)
- Arctic rush (*Juncus arcticus*)
- Fowl bluegrass (*Poa palustris*)

Representative photos of the project area are included in **Appendix A**.



Legend

 Overlook Project Site



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Project Location Map

**Overlook at Homestead
 El Paso County, Colorado**

1 IN = 2,000 FT

PROJECT NUMBER: 196239003

DECEMBER 2023

FIGURE 1

Folder: K:\COS_Civil\196239003_Overlook_Project_Files\Environmental\GIS\PRO\

3.0 NOXIOUS WEED SURVEY RESULTS

One (1) List B and one (1) List C species were observed within the project area (**Table 1**). No List A species were observed within the project area. Musk thistle (*Carduus nutans*), a List B species, was observed in small quantities scattered within the disturbed uplands within the project area. Cheatgrass (*Bromus tectorum*), a List C species, was observed in small patches within the project area.

Table 1 – Noxious Weeds Observed Within the Project Area

CDA Designation ¹	Common Name	Scientific Name
List B	Musk thistle	<i>Carduus nutans</i>
List C	Cheatgrass	<i>Bromus tectorum</i>

¹ Colorado Noxious Weed list: <https://ag.colorado.gov/conservation/noxious-weeds/species-id>

The CDA Noxious Weed List is included in **Appendix B**.

4.0 NOXIOUS WEED MANAGEMENT RECOMMENDATIONS

4.1 MANAGEMENT RECOMMENDATIONS OVERVIEW

To meet the requirements of the Colorado Noxious Weed Act weed management goals, Kimley-Horn recommends implementing management techniques for noxious weeds included on any of the CDA State Weed Lists:

- List A – designated for statewide eradication
- List B – managed to prevent further spread and, for selected species, designated for eradication in large areas
- List C – of more localized concern, but for which the State will provide education, research, and biological control assistance to jurisdictions that choose to manage the species.

Additionally, Kimley-Horn recommends eliminating or minimizing those noxious weeds and invasive plants designated as “undesirable species” to meet reclamation objectives associated with the project. Undesirable species include CDA “watch list” species such as common reed (*Phragmites australis*), garlic mustard (*Alliaria petiolata*), and Siberian elm (*Ulmus pumila*). Other unlisted species such as Russian thistle (*Salsola tragus*), kochia (*Bassia scoparia*), and crested wheatgrass (*Agropyron cristatum*) are also species that should be targeted for control due to their non-native status and tendency for rapid colonization.

Control of invasive species is a difficult task and requires repeated and on-going control measures. Care must be taken to avoid negatively impacting desirable and native plant communities and inviting infestation by other pioneer invaders. Weed management is best achieved by employing aggressive control early on and persistent control efforts over several growing seasons. This includes direct treatments, prevention through best management practices, monitoring of treatment efficacy, and

subsequent detection efforts. Weed management is often limited to minimizing existing infestations and the prevention of further infestations, rather than eradication.

Weed management methods such as preventative, cultural, mechanical, biological, chemical, and water source protection methods are discussed below and recommended for the project area, where applicable.

4.2 INTEGRATED WEED MANAGEMENT

4.2.1 Musk Thistle

Musk thistle is a biennial herbaceous noxious weed that is often found in disturbed areas such as rangelands and roadsides. This weed reproduces only from seed, therefore, preventing seed production is the best method of control. This weed is best controlled by a combination of repeated chemical treatments in conjunction with mechanical removal.

Chemical Treatments: Tordon 22K (picloram), Milestone (aminopyralid), Transline (clopyralid), Perspective (aminocyclopyrachlor + chloresulfuron), Banvel/Vanquish/Clarity (dicamba), 2,4-D, or Banvel/Vanquish/Clarity plus 2,4-D are the most common treatments in pastures and rangelands (CSU 2013). Escort (metsulfuron) or Cimarron X-tra (metsulfuron + chloresulfuron) also can be used in pastures, rangeland, and non-crop areas. Herbicide application rates must not exceed the rates recommended on the manufacturer's label. Adherence to state and federal laws must also be a priority. In addition, only aquatic herbicides approved to be used in water shall be used where wetlands, waters of the US, and groundwater table are present.

Chemical Treatment Timing: Apply chemical treatment in spring or fall when species are in rosette stage. The latest time to apply these herbicides is when developed terminal flowers have opened to the size of a dime. Add a good agricultural surfactant at 0.25 percent v/v to Escort or Cimarron X-tra treatments or control is inadequate (CSU 2013).

Mechanical Treatment: Musk thistle can be removed easily by severing its root below ground with a shovel or hoe. Mowing can effectively reduce seed output if plants are cut when the terminal head is in the late-flowering stage. Gather and burn mowed debris to destroy any seed that has developed (CSU 2013).

Mechanical Treatment Timing: Mechanical removal of seed heads should occur at the onset of seed production, but prior to seed maturity/dispersal. This typically occurs mid-summer.

Biological Treatment: The Colorado Department of Agriculture has established a weevil (*Trichosirocalus horridus*). This weevil attacks the crown area of musk thistle rosettes and kills or weakens the plant before it bolts. This weevil is being distributed throughout Colorado by the Department of Agriculture (CSU 2013).

Biological Treatment Timing: Certain herbicides or mowing can be combined with the weevil if these are used during late flowering stages. This allows the weevils to complete their life cycle and ensures their presence in subsequent growing seasons.

Cultural Treatment: The maintenance of pastures and rangeland is a primary factor for musk thistle management. Overgrazing should be controlled, and fertilizing should be only when necessary and must follow soil testing recommendations. Seed formation prevention is the best form of control.

Cultural Treatment Timing: Ecologically vulnerable areas should be monitored at a minimum once a year during the growing season. Ideally, the area in question is monitored once during late spring and once during mid to late summer. This allows the opportunity to detect and eradicate both early season and late season germinators.

Extent of musk thistle: A majority of the musk thistle observed within the project area was in minimal quantities within the uplands.

4.2.2 Cheatgrass

Cheatgrass is an invasive winter annual grass species commonly found in disturbed areas. This grass has the tendency to dominate landscapes if left unmanaged. This weed is best controlled by repeated chemical treatments.

Chemical Treatments: Broadcasting indaziflam, a pre-emergent herbicide, with glyphosate, a non-selective herbicide, is a highly effective means of cheatgrass control. Great care must be taken to ensure that the application of glyphosate does not affect non-target species. Herbicide application rates must not exceed the rates recommended on the manufacturer's label. Adherence to state and federal laws must also be a priority. In addition, only aquatic herbicides approved to be used in water shall be used where wetlands, waters of the US, and groundwater table are present.

Chemical Treatment Timing: Timing is crucial for the successful treatment of cheatgrass. Apply the indaziflam/glyphosate mixture during winter, prior to a major precipitation event. Applying the mixture during winter ensures that cheatgrass is the only active species and that desirable native vegetation is dormant and is not susceptible to the effects of glyphosate. A major precipitation event is needed to assist the indaziflam penetrate the soil surface and remain viable later on in the growing season.

Mechanical Treatment: Mechanical treatments are not effective methods for the control of cheatgrass. For example, cheatgrass will adapt to mowing regimes and produce seed heads below the mowing blade height (Connely 2007).

Cultural Treatment: Planting and/or maintaining a robust native plant community is an effective means of control if budget and time are not a constraint. A healthy native plant community will out-compete cheatgrass and other noxious weeds for water, nutrients, and sunlight.

Cultural Treatment Timing: Ecologically vulnerable areas should be monitored at a minimum once a year during the growing season. Ideally, the area in question is monitored once during late spring and once during mid to late summer. This allows the opportunity to detect and eradicate both early season and late season germinators.

Extent of Cheatgrass: Cheatgrass was observed in minimal patches on site.

4.2.3 Undesirable Species

Undesirable weed species tend to be annual plants which are heavy seed producers and adapted to live in a variety of conditions. These species tend to congregate in newly or frequently disturbed areas such as roadsides, construction sites, and parking lots. These species are typically controlled by repeated chemical treatments and supplemented by mechanical and cultural treatments.

Chemical Treatment: Spot spray or broadcast spray with selective broadleaf herbicides such as aminopyralid, chlorsulfuron, 2,4-D, dicamba, or triclopyr. Non-selective herbicides, such as glyphosate, can also be used as a spot treatment. Great care must be taken to avoid non-target species. Herbicide application rates must not exceed the rates recommended on the manufacturer's label. Adherence to state and federal laws must also be a priority. In addition, only aquatic herbicides approved to be used in water shall be used where wetlands, waters of the US, and groundwater table are present.

Chemical Treatment Timing: Treat weed-infested areas at least twice per year. The first treatment should coincide with initial weed germination in the spring. Plants are most susceptible during this stage, requiring a smaller dose of herbicide and reducing the amount of chemicals released into the environment. A second treatment mid-summer will target any early season germinators missed during the first treatment, as well as late season germinators.

Mechanical Treatment: Hand pulling, chopping, mowing, and seed head collection are all effective mechanical treatments. Though labor intensive, mechanical treatments limit the number of viable seeds entering the seed bank. These efforts can be paired with chemical treatments for a multi-faceted approach to noxious weed control.

Mechanical Treatment Timing: Annual weeds with shallow root systems can be successfully eradicated if hand pulled early in its life cycle. Other rhizomatous perennial species are best targeted with seed head collection prior to seed maturation in mid-summer.

Cultural Treatment: Planting and/or maintaining a robust native plant community is the most effective means of noxious weed and invasive plant control. A healthy native plant community will out-compete noxious weeds for water, nutrients, and sunlight. A self-sustaining native plant community, however, is typically the end stage in restoration timeline and requires several seasons of chemical and mechanical control prior to reaching this objective.

Cultural Treatment Timing: Each plant community should be visited at a minimum of once a year during the growing season to monitor for the presence of new populations of noxious weeds and other factors that may lead to the spread of noxious weeds such as flooding and erosional events.

4.3 DRINKING WATER QUALITY

The project area occurs primarily in the Upper Arkansas watershed but also includes the South Platte watershed in the northern extent. The majority of drinking water within El Paso County is sourced from Rocky Mountain drainages, the Arkansas River, and the Denver basin. There are no recent reports covering drinking water near Peyton, Colorado as much of the water supply is resourced from private wells. Application of herbicides must follow label directions, as well as State and Federal laws and regulations. Selective spot spraying is recommended to ensure targeted treatments of noxious weeds, the prevention of over-application of herbicide, and the protection of native vegetation, insect pollinators, and water resources.

5.0 REFERENCES

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- Beckman, Ben and Stephenson, Mitch. 2020. Targeted Grazing to Manage Cheatgrass. <https://beef.unl.edu/beefwatch/2020/targeted-grazing-managecheatgrass#:~:text=Dense%20patches%20of%20cheatgrass%20can,to%20purple%2C%20selectivity%20usually%20ends>. Accessed March 2022.
- CNAP. 2000. Creating an Integrated Weed Management Plan: A Handbook for Owners and Managers of Lands with Natural Values. Colorado Natural Areas Program, Colorado State Parks, Colorado Department of Natural Resources; and Division of Plant Industry, Colorado Department of Agriculture. Denver, Colorado. 349 pages.
- Connely, Brian. 2007. Cheatgrass: the ecology, biology, and control of a biological time bomb. Natrona County. 3 pages.

APPENDIX A REPRESENTATIVE SITE PHOTOS

Site Conditions



Representative Site Photos – June 26 and July 26, 2023

**Overlook at Homestead
Peyton, El Paso County, Colorado**

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Site Conditions



Representative Site Photos – June 26 and July 26, 2023

Overlook at Homestead
Peyton, El Paso County, Colorado

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Site Conditions



Representative Site Photos – June 26 and July 26, 2023

**Overlook at Homestead
Peyton, El Paso County, Colorado**

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APPENDIX B CDA NOXIOUS WEED LIST

List A Species (26)

Common	Scientific
Camelthorn	<i>(Alhagi maurorum)</i>
Giant reed	<i>(Arundo donax)</i>
Elongated mustard	<i>(Brassica elongata)</i>
Flowering rush	<i>(Butomus umbellatus)</i>
Yellow starthistle	<i>(Centaurea solstitialis)</i>
Squarrose knapweed	<i>(Centaurea virgata)</i>
Meadow knapweed	<i>(Centaurea x moncktonii)</i>
Rush skeletonweed	<i>(Chondrilla juncea)</i>
Common crupina	<i>(Crupina vulgaris)</i>
Hairy willow-herb	<i>(Epilobium hirsutum)</i>
Cypress spurge	<i>(Euphorbia cyparissias)</i>
Myrtle spurge	<i>(Euphorbia myrsinites)</i>
Japanese knotweed	<i>(Fallopia japonica)</i>
Giant knotweed	<i>(Fallopia sachalinensis)</i>
Bohemian knotweed	<i>(Fallopia x bohemicum)</i>
Orange hawkweed	<i>(Hieracium aurantiacum)</i>
Hydrilla	<i>(Hydrilla verticillata)</i>
Yellow flag iris	<i>(Iris pseudacorus)</i>
Dyer's woad	<i>(Isatis tinctoria)</i>
Purple loosestrife	<i>(Lythrum salicaria)</i>
Parrotfeather	<i>(Myriophyllum aquaticum)</i>
African rue	<i>(Peganum harmala)</i>
Mediterranean sage	<i>(Salvia aethiopsis)</i>
Giant salvinia	<i>(Salvinia molesta)</i>
Tansy ragwort	<i>(Senecio jacobaea)</i>
Medusahead	<i>(Taeniatherum caput-medusae)</i>

List B Species (38)

Common	Scientific
Jointed goatgrass	<i>(Aegilops cylindrica)</i>
Mayweed chamomile	<i>(Anthemis cotula)</i>
Absinth wormwood	<i>(Artemisia absinthium)</i>
Plumeless thistle	<i>(Carduus acanthoides)</i>
Musk thistle	<i>(Carduus nutans)</i>
Wild caraway	<i>(Carum carvi)</i>
Diffuse knapweed	<i>(Centaurea diffusa)</i>
Spotted knapweed	<i>(Centaurea stoebe ssp. micranthos)</i>
Spotted x diffuse knapweed hybrid	<i>(Centaurea x psammogena)</i>
Canada thistle	<i>(Cirsium arvense)</i>
Bull thistle	<i>(Cirsium vulgare)</i>
Chinese clematis	<i>(Clematis orientalis)</i>
Houndstongue	<i>(Cynoglossum officinale)</i>
Yellow nutsedge	<i>(Cyperus esculentus)</i>
Common teasel	<i>(Dipsacus fullonum)</i>
Cutleaf teasel	<i>(Dipsacus laciniatus)</i>
Russian-olive	<i>(Elaeagnus angustifolia)</i>
Leafy spurge	<i>(Euphorbia esula)</i>

List B Species Continued (38)

Common	Scientific
Dame's rocket	<i>(Hesperis matronalis)</i>
Black henbane	<i>(Hyoscyamus niger)</i>
Hoary cress	<i>(Lepidium draba)</i>
Perennial pepperweed	<i>(Lepidium latifolium)</i>
Oxeye daisy	<i>(Leucanthemum vulgare)</i>
Dalmatian toadflax, broad-leaved	<i>(Linaria dalmatica)</i>
Dalmatian toadflax, narrow-leaved	<i>(Linaria genistifolia)</i>
Yellow x Dalmatian toadflax hybrid	<i>(Linaria vulgaris x L. dalmatica)</i>
Yellow toadflax	<i>(Linaria vulgaris)</i>
Eurasian watermilfoil	<i>(Myriophyllum spicatum)</i>
Scotch thistle	<i>(O. tauricum)</i>
Scotch thistle	<i>(Onopordum acanthium)</i>
Sulfur cinquefoil	<i>(Potentilla recta)</i>
Russian knapweed	<i>(Rhaponticum repens)</i>
Bouncingbet	<i>(Saponaria officinalis)</i>
Salt cedar	<i>(T. chinensis)</i>
Salt cedar	<i>(Tamarix. ramosissima)</i>
Common tansy	<i>(Tanacetum vulgare)</i>
Scentless chamomile	<i>(Tripleurospermum inodorum)</i>
Moth mullein	<i>(Verbascum blattaria)</i>

List C Species (18)

Common	Scientific
Velvetleaf	<i>(Abutilon theophrasti)</i>
Tree of Heaven	<i>(Ailanthus altissima)</i>
Common burdock	<i>(Arctium minus)</i>
Downy brome, cheatgrass	<i>(Bromus tectorum)</i>
Chicory	<i>(Cichorium intybus)</i>
Poison hemlock	<i>(Conium maculatum)</i>
Field bindweed	<i>(Convolvulus arvensis)</i>
Quackgrass	<i>(Elymus repens)</i>
Redstem filaree	<i>(Erodium cicutarium)</i>
Halogeton	<i>(Halogeton glomeratus)</i>
Common St. Johnswort	<i>(Hypericum perforatum)</i>
Wild proso millet	<i>(Panicum miliaceum)</i>
Bulbous bluegrass	<i>(Poa bulbosa)</i>
Perennial sowthistle	<i>(Sonchus arvensis)</i>
Johnsongrass	<i>(Sorghum halepense)</i>
Puncturevine	<i>(Tribulus terrestris)</i>
Siberian elm	<i>(Ulmus pumila)</i>
Common mullein	<i>(Verbascum thapsus)</i>

Watch List Species (19)

These species are not regulated by the Noxious Weed Act/Rule.

Common	Scientific
Garlic mustard	<i>(Alliaria petiolata)</i>
Common bugloss	<i>(Anchusa officinalis)</i>
Tall Oatgrass	<i>(Arrhenatherum elatius)</i>
Onionweed	<i>(Asphodelus fistulosus)</i>
Hoary alyssum	<i>(Berteroa incana L.)</i>
Caucasian bluestem	<i>(Bothriochloa bladhii)</i>
Yellow bluestem	<i>(Bothriochloa ischaemum)</i>
White bryony	<i>(Bryonia alba)</i>
Scotch broom	<i>(Cytisus scoparius)</i>
Baby's breath	<i>(Gypsophila paniculata)</i>
Meadow hawkweed	<i>(Hieracium caespitosum)</i>
Perennial Sweet Pea	<i>(Lathyrus latifolius)</i>
Garden loosestrife	<i>(Lysimachia vulgaris)</i>
Common reed	<i>(Phragmites australis)</i>
Yellow mignonette	<i>(Reseda lutea)</i>
Himalayan blackberry	<i>(Rubus armeniacus)</i>
Swainsonpea	<i>(Sphaerophysa salsula)</i>
Ventenata grass	<i>(Ventenata dubia)</i>
Syrian beancaper	<i>(Zygophyllum fabago)</i>