



SMITH ENVIRONMENTAL AND ENGINEERING

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NOXIOUS WEED MANAGEMENT PLAN

COTTAGES AT MESA RIDGE

EL PASO COUNTY, COLORADO



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COTTAGES AT MESA RIDGE
EL PASO COUNTY, COLORADO

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1.0 INTRODUCTION

Smith Environmental and Engineering (SMITH) prepared this noxious weed report for the proposed Cottages at Mesa Ridge development (Study Area) in unincorporated El Paso County, Colorado in July 2021. This report was written to support the requirements of El Paso County, and includes a) applicable weed management laws and regulations, b) an inventory of noxious weeds in the Study Area, c) and recommendations for management.

1.1 LOCATION

The Study Area (Figure 1) consists of approximately 13 acres located northwest of the intersection of Mesa Ridge Parkway and S Powers Boulevard in unincorporated El Paso County, Colorado. The Study Area occurs at the corner where Sections 20, 21, 28, and 29 of Township 15 South, Range 65 West meet. It is located on the Fountain US Geological Survey (USGS) quadrangle at 38.721538 degrees north, 104.683862 degrees west with an elevation range from approximately 5,765 to 5,800 ft. The Study Area is currently vacant, but it has been subject to ongoing disturbance during development in the local area, most notably in 2019 during the construction of apartments to the southwest. The surrounding area is primarily residential with some remaining vacant land east of S Powers Boulevard.



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THE COTTAGES AT MESA RIDGE

0 150 300
Feet

Figure 1
Study Area
El Paso County, CO
July 2021

2.0 WEED MANAGEMENT

2.1 COLORADO NOXIOUS WEED ACT

The Colorado Noxious Weed Act (35-5.5-101-119 CRS) is the regulation that outlines management requirements for noxious weeds in the state. The Act requires all residents to control noxious weeds, though voluntary compliance is preferred over active enforcement. Local governments are charged with developing management plans and providing resources to landowners within their jurisdictions. The Act also establishes a noxious weed list with prioritized management goals for the weeds on the A, B and C Lists. List A species have been designated for state-wide eradication. List B species have targeted management plans designed to stop their spread. List C species also have targeted management plans, but the goal is not to stop the spread as these species have become too widespread for this to be realistic (Colorado Department of Agriculture 2021).

2.2 LOCAL REGULATIONS

Per the requirements of the Colorado Noxious Weed Act, the El Paso County Board of Commissioners established a local Noxious Weed Advisory Committee. The primary function of the committee is to develop and frequently evaluate an integrated weed management plan for noxious weeds within El Paso County. Though it is ultimately the responsibility of landowners to manage weeds on their property, the County plan strives to strengthen, support, and coordinate weed management efforts between private, municipal, county, state, and federal entities. Management efforts outlined in the County plan include prevention; inventory, mapping, and monitoring; control; restoration; and education and awareness (El Paso County 2017).

2.3 MANAGEMENT APPROACHES

The recommended approach for controlling noxious weeds is Integrated Weed Management (IWM). IWM combines the use of mechanical, cultural, biological, preventative, and chemical control techniques to eradicate weeds. Mechanical control involves physical removal by mowing, mulching, tilling, prescribed burning, grazing, and hand pulling. Cultural control involves enhancement of native plant community using methods such as revegetation or reduction in grazing. Biological control incorporates releasing beneficial insects which feed only on certain noxious weeds and well-managed grazing practices that target specific plants. Preventative techniques entail planting weed free seed, mulching with weed free material, cleaning machinery before moving between sites and controlling weeds prior to their setting seed. Chemical control involves the use of herbicides to destroy noxious weeds that do not adversely affect the desirable plant community.

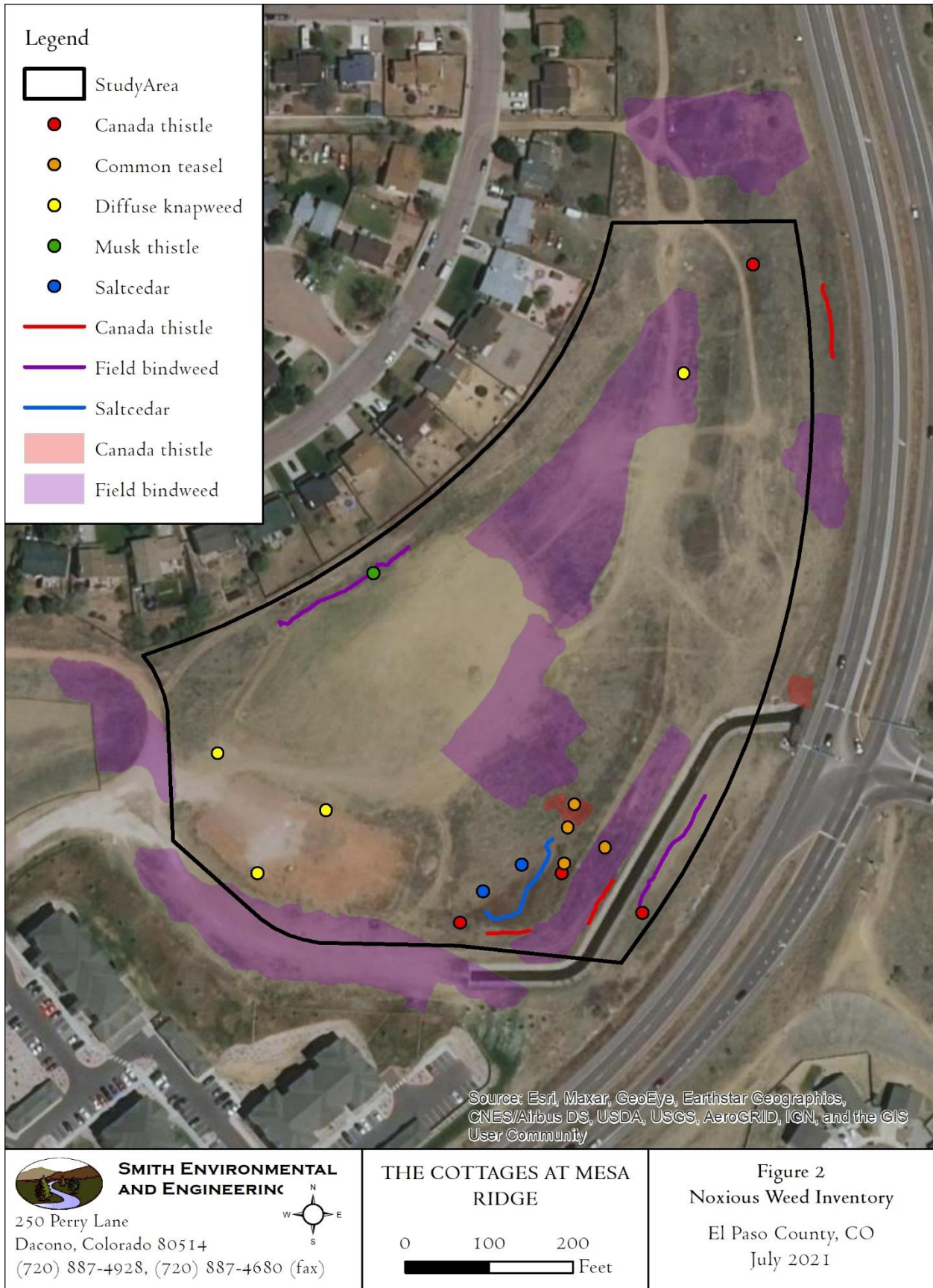
3.0 NOXIOUS WEED INVENTORY

The field survey for the noxious weed inventory was conducted on July 27, 2021. SMITH walked transects through the Study Area and used a Trimble Geo 7X Global Positioning System unit with TerraSync software to record the locations of infestations. Areas with sparsely distributed, isolated groupings of plants are noted on the map, but only by a point. Extensive infestations, even with lower densities, are indicated by polygons and polylines. The features were plotted on a map using ArcGIS.

SMITH observed six Colorado state-listed noxious weed species in the Study Area: five B-List species and one C-List specie (Table 1 and Figure 2). Musk thistle, diffuse knapweed, and common teasel were all observed in low densities, and saltcedar was observed only in one area. Canada thistle and field bindweed were abundant throughout much of the Study Area. It is possible that other species are present and were not detected, but in general, most noxious weed species are readily identifiable in July.

TABLE 1
NOXIOUS WEEDS OBSERVED IN THE STUDY AREA

Common Name	Scientific Name	State List
Canada thistle	<i>Cirsium arvense</i>	B
Common teasel	<i>Dipsacus fullonum</i>	B
Diffuse knapweed	<i>Centaurea diffusa</i>	B
Field bindweed	<i>Convolvulus arvensis</i>	C
Musk thistle	<i>Carduus nutans</i>	B
Saltcedar	<i>Tamarix</i> spp.	B



4.0 MANAGEMENT RECOMMENDATIONS

Identifying and inventorying noxious weeds on a property is important as the first step in management, because rarely can multiple species be managed with a single approach. A chemical pesticide applied to one species may have no effect on a different species, or the optimal seasonal timing of an application may vary for different species. Similarly, some species may be controlled effectively with mechanical removal, but others can actually be spread if such techniques are used. Therefore, Table 2 presents targeted weed management approaches for each species observed in the Study Area. Adherence to these recommendations, which are adapted from the Colorado Department of Agriculture (2021), over several seasons should yield significant results in managing the current noxious weed infestations in the Study Area.

Active construction sites can yield additional opportunities for noxious weeds to establish and spread throughout a site. Frequent incoming vehicles, especially those with muddy tires or undercarriages, and large expanses of disturbed ground create ideal circumstances for introduction and establishment of many noxious weeds. Fortunately, there are several preventative techniques that can be implemented on construction sites to reduce the potential for new infestations and the expansion of existing populations.

- Prior to entry onto the property, all construction vehicles should be inspected and cleaned to ensure that they are free of soil and debris capable of transporting noxious weed seeds or roots.
- Potential areas of topsoil salvage should be assessed for presence and abundance of noxious weeds prior to salvage and replacement. Topsoil heavily infested with weeds can be chemically treated, removed from the site, or buried.
- Any fill materials or revegetation products, including topsoil, seed, mulch, and soil conditioners (if needed), should be certified weed-free.
- Chemical control should only be performed by a certified applicator licensed with the Colorado Department of Agriculture. Applicators must follow all pertinent federal and state laws, including all pesticide label requirements.
- If possible, construction activities should be phased in order to minimize the amount of disturbed surface at any given moment. Construction traffic should also be restricted to established access roads, parking areas, and laydown yards.
- Noxious weed management activities should occur approximately twice per year; late spring and early fall are generally recommended, especially for chemical treatments, because most species are susceptible to management at one or both seasons. Management activities should occur before, during, and for at least one year after construction.
- Annual monitoring should be conducted to assess the effectiveness of the ongoing management activities. The weed inventory map should be updated to determine if new species have become established and if existing populations are being managed effectively. The results of the monitoring should inform the management approach for future treatments.

TABLE 2
NOXIOUS WEED MANAGEMENT

Common Name	Scientific Name	CDA List	Seasonality of Occurrence	Recommended Chemical Control Measures	Cultural Control Measures	Biological Control Measures	Mechanical Control Measures
Canada thistle	<i>Cirsium arvense</i>	B	Deep-rooted perennial that spreads by seeds and rhizomes. Emerges late April through May. Flowers late spring to early summer.	Aminopyralid: Apply in spring until flowering and/or to fall regrowth. Clopyralid + Triclopyr: Apply from rosette to bud stage when all plants have emerged (spring or fall). Aminocyclopyrachlor + Chlorsulfuron: Apply in spring until flowering and/or to fall regrowth.	Prevent bare ground. Continually monitor for new infestations.	Cattle, goats and sheep will graze when plants are young and succulent. Methods for Canada thistle rust (<i>Puccinia punctiformis</i>) are being refined.	Mowing can be effective if done every 10-21 days throughout the growing season. Combining mowing with herbicides will further control.
Common teasel	<i>Dipsacus fullonum</i>	B	Biennial or sometimes shortlived perennial forb. Reproduces by seed. Flowers June to September.	Metsulfuron: Apply to spring or fall rosettes, or early summer bolting. Aminopyralid: Apply to spring or fall rosettes, or early summer bolting. Imazapic: Apply to spring or fall rosettes, or early summer bolting. Aminocyclopyrachlor + chlorsulfuron: Apply from seedling to bolting stage.	Maintain a competitive assemblage of forbs and cool and warm season grasses. Minimize soil compaction and disturbance, especially in wetlands and moist soil.	Common teasel is not palatable to domestic livestock, but properly managed grazing can improve vigor of desired species. There are no biological control agents.	Sever roots below the soil surface during the first year before the plant stores energy and in the second year before seed production. Mowing, chopping and deadheading stimulates more flower production. Flower heads must be collected, bagged, and disposed of or destroyed.

Common Name	Scientific Name	CDA List	Seasonality of Occurrence	Recommended Chemical Control Measures	Cultural Control Measures	Biological Control Measures	Mechanical Control Measures
Diffuse knapweed	<i>Centaurea diffusa</i>	B	Biennial forb that reproduces exclusively by seed. Emerges in the spring or fall, flowers July through August, and seeds by mid-August.	Aminocyclopyrachlor + Chlorsulfuron: Apply pre-emergence or from seedling to mid-rosette stage. Aminopyralid: Apply in spring at rosette to early bolt stage, and/or to the rosette in fall. Clopyralid: Apply to rosette in spring or fall before the flowering stalk lengthens.	Establish native grasses and forbs to prevent it from colonizing.	The seedhead weevil (<i>Larinus minutus</i>) and root weevil fly (<i>Cyphocleonus achates</i>) can be effective for large infestations when used together.	Any method that severs the root below the surface. Mowing or chopping are effective when plants are in full bloom.
Field bindweed	<i>Convolvulus arvensis</i>	C	Deep-rooted perennial that reproduces from seed and rhizomes. Emerges in the spring and flowers from April to October.	Dicamba + 2,4-D Amine: Apply after full bloom and/or in fall. Picloram: Apply after full bloom and/or in fall. Glyphosate: Apply at full-bloom and/or fall.	Maintain healthy pastures and prevent bare spots. Bare ground is prime habitat for weed invasions.	The bindweed gall mite, <i>Aceria mablerbae</i> , has proven to be effective for large infestations.	Cutting, mowing, or pulling has a negligible effect unless the plants are cut below the surface in the early seedling stage. Well-established populations have a large seed bank in the soil that can remain viable for over 40 years.
Musk thistle	<i>Carduus nutans</i>	B	Biennial forb. Flowers from late May to June.	Aminopyralid: Apply in spring to rosette or early bolt stages, and/or in the fall to rosettes.	Restore competitive forb and grass assemblage using locally adapted seeds. Include	<i>Trichosirocalus horridus</i> is the only biological control agent available in Colorado.	Hoing, tilling, and digging can be effective on small populations if the root is severed below the soil

Common Name	Scientific Name	CDA List	Seasonality of Occurrence	Recommended Chemical Control Measures	Cultural Control Measures	Biological Control Measures	Mechanical Control Measures
				<p>Chlorsulfuron: Apply in spring to rosette through early flower growth stage.</p> <p>Clopyralid: Apply to rosettes through bud stage in spring or rosettes in fall.</p>	annuals and perennials, as well as warm and cool season grasses.		surface. Mowing, chopping, and deadheading require several years of season-long treatment.
Saltcedar	<i>Tamarix</i> spp.	B	Perennial shrub or small tree. Bud break dormancy in February or March. Flowers May to August. Reproduces vegetatively and by small seeds spread by wind.	<p>Triclopyr Cut-Stump Treatment: Apply to the cambial layer immediately after cutting and to roots above soil surface (summer to fall). Basal Bark Treatment: Spray roots above soil surface, root collar, and lower trunk 12-15 inches above ground until wet (summer to fall). Glyphosate: Apply to the cambial layer immediately after cutting and to roots above soil surface (summer to fall). Triclopyr + Aminopyralid: Apply foliar treatment when plants are growing rapidly.</p>	After a saltcedar infestation is managed, revegetation is necessary to protect the soil and reduce the threat of reinvasion.	The saltcedar leaf beetle (<i>Diorhabda elongata</i>) larvae and adults feed on foliage. The leaf beetle should be available for limited distribution.	Chainsaws, or loppers for smaller plants, are effective for cut-stump treatments to smaller infestations or in environmentally-sensitive management areas.

*Seasonality of occurrence information from Colorado Weed Management Association 2020. Control measures from Colorado Department of Agriculture 2021.

5.0 REFERENCES

Colorado Department of Agriculture. 2021. Noxious Weeds. Available online at: <https://ag.colorado.gov/conservation/noxious-weeds>. Accessed July 30, 2021.

Colorado Weed Management Association. 2020. Noxious Weeds of Colorado, 14th edition.

El Paso County. 2017. Noxious Weed Management Plan. Available online at: <https://assets-communityservices.elpasoco.com/wp-content/uploads/Environmental-Division-Picture/Noxious-Weeds/Weed-Management-Plan-December-2017.pdf>. Accessed July 30, 2021.