



## **NOXIOUS WEED MANAGEMENT PLAN**

### ***FOREST LAKES RESIDENTIAL DEVELOPMENT El Paso County, CO Project No. 16-038***

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## EXECUTIVE SUMMARY

CORE Consultants, Inc. (CORE) was retained by Classic Homes, Inc. (“Client”) to prepare a Noxious Weed Management Plan (“Plan”) for the proposed Forest Lakes Residential Development, in El Paso County, Colorado. The Project is located approximately two miles west of the intersection of Baptist Road and Interstate 25 (I-25) in El Paso County, Colorado, and would consist of single family residential lots, access roads, recreational trails, and associated infrastructure.

This Plan is a Project-specific document that has been designed to set forth Project-level regulations to prevent and control the spread of noxious weeds within the Project and vicinity. Noxious weeds are defined as those non-native plants that aggressively invade and are detrimental to native vegetation communities and ecosystems. The *Colorado State Noxious Weed Act* (Colorado Revised Statute 35-5.5-103) developed a list of plants considered noxious in the state of Colorado that should be targeted for control by various methods dependent on list category (A, B, or C). The Plan shall tier to the requirements set forth by the El Paso County (EPC) Noxious Weed Management Plan (2003, updated 2014), which contains guidelines for control and treatment of noxious weeds found in the County. EPC requires that commercial or industrial projects that include ground disturbing activities submit a project-specific noxious weed management plan. This Plan provides methods to prevent and control the spread of noxious weeds during construction and post-construction phases of the Project.

## 1.0 INTRODUCTION AND PROJECT LOCATION

Classic Homes, Inc. (“Client”) retained CORE Consultants, Inc. (CORE) to prepare a Noxious Weed Management Plan (“Plan”) for the proposed Forest Lakes Residential Development Project (Project) located in El Paso County (EPC), Colorado. The Project would consist of single family residential lots, access roads, recreational trails, and associated infrastructure, and is located approximately two miles west of the intersection of Baptist Road and Interstate 25 (I-25) in El Paso County, Colorado (**Appendix I: Site Location Map**).

The proposed Project is located in the Fountain watershed (8-digit hydrologic unit code [HUC] 11020003). Topography of the Project consists of hills and ridges of the Foothill Shrublands Level IV ecoregion within the Southern Rockies Level III ecoregion (Chapman et al. 2006). Project elevations range between approximately 6,900 feet above mean sea level (amsl) along foot slopes and 7,100 feet amsl along shallow ridges; Project elevations trend lower towards the Beaver Creek drainage and associated tributaries traversing the Project. Beaver Creek drains the Project in an easterly direction. North Beaver Creek drains to Beaver Creek in a southeasterly direction, and South Beaver Creek and Hell Creek drain to Beaver Creek in a northeasterly direction. Land use in the region is typified by rangeland and wildlife habitat with increasing residential development (Chapman 2006). Typical vegetation includes pinyon-juniper woodlands interspersed with foothill-mountain grasslands. Dominant botanical species include mountain mahogany (*Cercocarpus montanus*), Gambel oak (*Quercus gambelii*), skunkbush (*Rhus trilobata*), fringed sage (*Artemisia frigida*), rabbitbrush (*Chrysothamnus* spp.), blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), and Indian ricegrass (*Oryzopsis hymenoides*).

## 2.0 NOXIOUS WEED MANAGEMENT BACKGROUND

The spread of invasive species roughly mirrors the rise in human travel and commerce (Mack et al. 2000 and Sheley et al. 1996). Many noxious weeds have been identified as aggressive, weather resistant, escaped ornamentals from residential landscapes (Westbrooks 1998). The *Federal Noxious Weed Act* (7 U.S.C. 2801 et seq.; 88 Stat. 2148) was enacted in 1975 in an effort to halt the spread of noxious weeds across the country. Following guidelines set forth by the *Federal Noxious Weed Act*, Colorado passed the *Colorado Noxious Weed Act* (“Act”; C.R.S. 35-5.5-103) in 1990. The Act identified noxious weeds particular to the landscape of Colorado. As defined in the Act, noxious weeds are any non-native plant that:

- aggressively invades or is detrimental to economic crops or native plant communities;
- is poisonous to livestock;
- is a carrier of detrimental insects, diseases, or parasites;
- or is detrimental, either by direct or indirect effects, to the environmentally sound management of natural or agricultural ecosystems.

The Act was amended in 2002 to require counties to establish individual management plans relevant to local municipalities. EPC developed the *El Paso County Noxious Weed Management Plan* in 2003 (updated in 2014) to identify county-level noxious weed management practices that would preserve the economic and environmental value of EPC lands (EPC 2014).

Disturbed areas are vulnerable to infestation from noxious weeds due to the aggressive nature by which noxious weeds can spread. Construction activities including clearing, grading, and excavation promote the

establishment of noxious weed species before native vegetation can reestablish within the cleared area. As such, the *EPC Noxious Weed Management Plan* requires integrated management plans for any activities requiring dirt moving activities within El Paso County (EPC 2014). Project-specific integrated management plans should include methods to prevent, control, and monitor the spread of noxious weeds and should consider the multiple methods by which noxious weeds germinate. Annuals typically reproduce through seed which can easily attach to equipment during construction activities. Perennials often propagate through an extensive root system. Ground disturbing activities have the potential to redistribute root sections that could quickly propagate in other areas. Because of the multiple methods by which noxious weeds spread and propagate, integrated management plans should outline education and native revegetation methods, in addition to chemical control methods (EPC 2014).

## 3.0 NOXIOUS WEED MANAGEMENT PLAN

### 3.1 Project Noxious Weed Management History

EPC Environmental Division has the authority to survey for and enforce the treatment of noxious weeds on private property within the county. Noxious weeds visible from county Right-of-Way (ROW) can be targeted for treatment, depending on the species observed and severity of the infestation. The Project received a letter from the county on August 5, 2010 stating that diffuse knapweed was observed from the county ROW and/or adjacent property. The Client notified the county on August 10, 2010 of their plan to treat the knapweed mechanically on August 17 and 18, 2010. No further county correspondence was received since that time.

A site reconnaissance was conducted on October 13, 25, and 26, 2016. A CORE biologist observed additional noxious weed populations on the Project including common mullein (*Verbascum Thapsus*), Canada thistle, (*Cirsium arvense*), and persistent diffuse knapweed. Since new and persistent noxious weed populations were observed in 2016, it is anticipated that those populations would be treated and managed chemically during the construction phase of the Project. Canada thistle and diffuse knapweed are List B species, while common mullein is a List C species. Methods for management follow.

### 3.2 Purpose and Goals

Construction of the Project will occur over several months. Upon completion of construction, the Project will consist of single family residential lots, access roads, recreational trails, and associated facilities. It is anticipated that noxious weeds will concentrate along road medians and highly trafficked areas within the development for the life of the Project. As such, this integrated management plan includes construction and maintenance methods to prevent, control, and monitor the spread of identified noxious weed populations within the development for the life of the Project. It will be the responsibility of the Homeowner's Association (HOA) to establish covenants to prevent and control the spread of noxious weeds. Typically, an HOA will contract a licensed herbicide applicator to seasonally survey and spray for noxious weeds throughout the development. Additionally, it is likely that landscaped community areas shall be regularly mowed and treated for noxious weeds. As such, CORE recommends that initial surveys and treatment occur concurrent with initial ground disturbing activities and periodically throughout the construction phase. Doing so would effectively manage and prevent the control of any established populations (e.g. the diffuse knapweed populations previously observed on the property). At the completion of construction, the HOA would assume responsibility for noxious weed management within the development for the life of the Project. Integrated management methods shall include the following:

- surveys to inventory and map established noxious weed populations;
- sharing of data with EPC to aid in EPC-level inventory;
- chemical treatment of all identified noxious weed populations;
- and periodic post-construction treatment as needed and as determined by the HOA.

Management methods identified within this Plan will comply with *Chapter 6: General Development Standards of the EPC Land Development Code* (EPC 2015), the *EPC Noxious Weed Management Plan* (EPC 2014) and the Act (Colorado Revised Statutes 35-5.5-103). Biological control methods are not included due to the prohibition of their use on plants targeted for eradication (Colorado Weed Management Association [CWMA] 2015). Noxious weed species targeted would be those identified in the Act, with special consideration for those species listed in the *EPC Noxious Weeds and Control Methods* (EPC 2008).

### 3.3 Regulated Species

The Act identifies three levels of priority for control of noxious weeds throughout the State of Colorado (State). The CWMA maintains an updated list of noxious weeds known to occur in the State. CWMA also maintains a “watch list” of noxious weeds that occur in proximity to State borders and/or those species with a distribution that is not yet understood (**Appendix II: Colorado State Noxious Weed List**). List A noxious weeds are those species targeted for eradication. List A noxious weed populations are typically isolated in nature or rare throughout much of the State (*Colorado Revised Statutes 35-5.5-103*). Eradication and reporting of List A populations is required by law (Colorado Department of Agriculture [CDA] 2006). List B species are discretely distributed throughout the State and must be eradicated, contained, or suppressed (*Colorado Revised Statutes 35-5.5-103*). EPC requires control of all List B noxious weed populations located within the Project area (EPC 2014). List C noxious weed populations are widespread and well established. EPC requires control of List C species through education of the public and/or chemical control (EPC 2014).

### 3.4 Construction

Noxious weed management protocols for construction include prevention, treatment, and maintenance. Prevention and treatment shall be accomplished at the Project through surveys of construction easements, followed by primary chemical treatment. Initial surveys and treatment can occur concurrent with initial ground disturbing activities since the HOA will continue noxious weed management throughout the life of the Project.

Noxious weed surveys shall be conducted within all construction easements concurrent to any initial ground disturbing activities. Surveyors shall use GPS units to collect data on noxious weed populations. Data collected for List C populations shall include species and general coordinates of population; data collected for List A and List B populations shall include species, coordinates for the approximate center of each identified population, and the approximate radius of the infestation. EPC shall receive a map of identified noxious weed populations within the Project. Should surveyors locate List A species, specific data collected shall be sent to EPC. Treatment type shall be selected depending on the priority rank of the noxious weed species (List A, B, or C), and the location and density of the infestation. Chemical treatment shall include herbicide application; the suggested chemical treatment protocol is described below.

List A species must be eradicated by law (USDA 2006). Should surveyors identify List A species, a plant sample shall be collected for positive identification through EPC’s Environmental Division. Upon

positive confirmation of a List A species, hand pulling of the population shall be performed to remove the mechanism for creation of a seed-bank. Chemical treatment shall be applied to the area and shall be selected in compliance with the *EPC Noxious Weeds and Control Methods* (EPC 2008). List B species shall be chemically treated with an herbicide selected in compliance with the *EPC Noxious Weeds and Control Methods* (EPC 2008). Herbicide selection may vary depending upon the time of year and the life cycle of the plant. All herbicide application shall occur concurrent with initial ground disturbing activities. The herbicide applicator shall treat noxious weed populations with EPC recommended chemicals (EPC 2014). CORE recommends not treating List C noxious weeds; List C noxious weeds are well established and difficult to treat since many have hardy seed beds that are not affected by herbicide application. Rather than completely eradicate List C populations, herbicide applicators manage populations with continued seasonal treatments. A more efficient protocol would be to avoid List C weeds to the greatest extent possible during construction. It is anticipated that the HOA will treat all noxious or weedy species within the development post-construction, including List C species, and will maintain a weed-free landscape within the Project.

Additional construction-phase noxious weed management protocols shall include prevention and maintenance. Contractors shall prevent the spread of noxious weeds through the use of clean equipment and through treatment of all List A and List B populations concurrent with initial ground disturbing activities. Heavy equipment used on the site shall be washed and sprayed before mobilization to the Project. Doing so will ensure that soils and seeds are not transported from other sites. Noxious weed treatment shall occur to areas slated for ground disturbance or immediately after initial ground disturbance activities. Doing so will ensure that active List A and List B noxious weed populations will become inactive and/or effectively managed throughout the construction phase of the Project.

It is anticipated that a large portion of the Project will be landscaped including public roads and open spaces. Top-soil sources for landscaped areas shall be provided from native site top-soil. Any salvaged top-soil piles shall be treated for noxious weeds and maintained and protected from erosion and/or noxious weed establishment during construction through Best Management Practices (BMPs) as identified in the Project's Grading, Erosion, and Sediment Control (GESC) Plan.

### **3.5 Post-Construction**

Post-construction noxious weed management protocols shall be limited to maintenance treatment, as needed and as determined by the HOA. It is anticipated that the landscaped areas of the Project, including private lots, will require seasonal noxious weed treatment and maintenance for the life of the Project. CORE notes that any existing List A and List B noxious weed populations should be treated concurrent with construction. Treatment of the site concurrent with initial ground disturbing activities may halt the spread of List A and List B noxious weeds in the immediate vicinity of the Project. However, noxious weed populations may persist on the Project's periphery. It shall be the HOA's responsibility to identify and treat any persistent noxious weed populations on the Project.

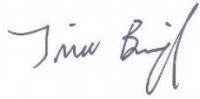
## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

The Forest Lakes Noxious Weed Management Plan was written to comply with guidelines in the Colorado Noxious Weed Act (Colorado Revised Statutes 35-5.5-103) and the EPC Noxious Weed Management Plan. CORE recommends that the Client survey for all noxious weed populations and treat any List A and List B noxious weed populations located on the Project. The development's HOA shall be responsible for

maintaining a weed-free property following construction. Typically, chemical treatment is applied between late spring and early fall depending on the recommended treatment protocols for each noxious weed species (EPC 2014).

Should you have any questions regarding this or any other matter, please feel free to contact our office at (303) 703-4444.

Sincerely,  
**CORE Consultants, Inc.**

A handwritten signature in cursive script, reading 'Tina Brazil'.

**Tina Brazil**  
Environmental Consultant

A handwritten signature in cursive script, reading 'Dan Maynard'.

**Dan Maynard**  
Senior Ecologist



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## REFERENCES

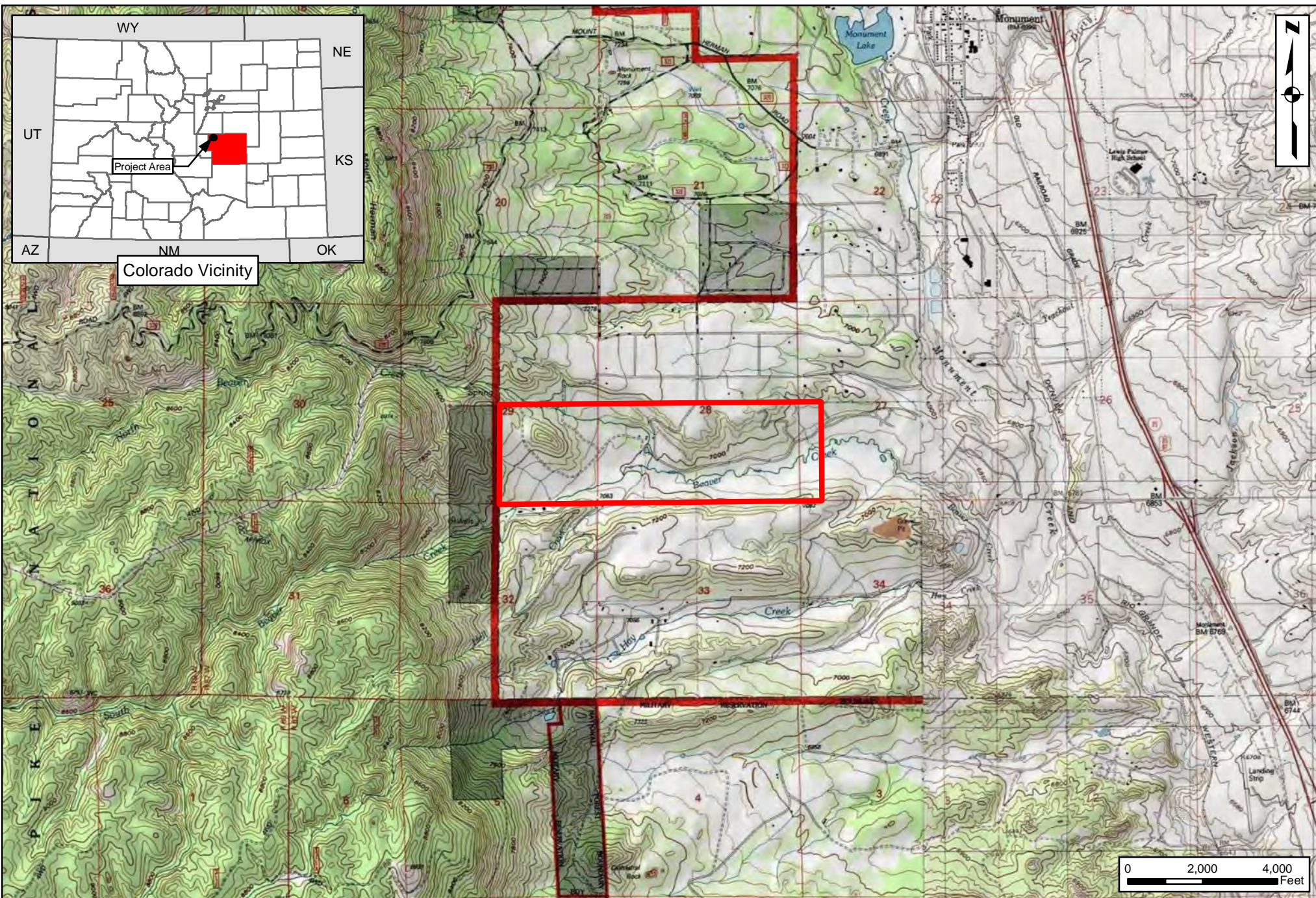
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# APPENDIX I

## *SITE LOCATION MAP*





Study Area

# Forest Lakes Site Location Map El Paso County, Colorado

Reference:  
USGS 7.5 Minute  
Topographic Quadrangle  
Palmer Lake, CO Quad

Date: 12/21/2016  
CORE Project #: 16-038





## **APPENDIX II**

### *COLORADO STATE NOXIOUS WEED LIST*

## Colorado Noxious Weeds (including Watch List), effective March 31, 2017

### **List A Species (25)**

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

### **List B Species (40)**

<i>Common</i>	<i>Scientific</i>
Absinth wormwood	( <i>Artemisia absinthium</i> )
Black henbane	( <i>Hyoscyamus niger</i> )
Bull thistle	( <i>Cirsium vulgare</i> )
Bouncingbet	( <i>Saponaria officinalis</i> )
Canada thistle	( <i>Cirsium arvense</i> )
Chinese clematis	( <i>Clematis orientalis</i> )
Common tansy	( <i>Tanacetum vulgare</i> )
Common teasel	( <i>Dipsacus fullonum</i> )
Corn chamomile	( <i>Anthemis arvensis</i> )
Cutleaf teasel	( <i>Dipsacus laciniatus</i> )
Dalmatian toadflax, broad-leaved	( <i>Linaria dalmatica</i> )
Dalmatian toadflax, narrow-leaved	( <i>Linaria genistifolia</i> )
Dame's rocket	( <i>Hesperis matronalis</i> )
Diffuse knapweed	( <i>Centaurea diffusa</i> )

## **List B Species (40) continued**

<i>Common</i>	<i>Scientific</i>
Eurasian watermilfoil	( <i>Myriophyllum spicatum</i> )
Hoary cress	( <i>Cardaria draba</i> )
Houndstongue	( <i>Cynoglossum officinale</i> )
Jointed goatgrass	( <i>Aegilops cylindrica</i> )
Leafy spurge	( <i>Euphorbia esula</i> )
Mayweed chamomile	( <i>Anthemis cotula</i> )
Moth mullein	( <i>Verbascum blattaria</i> )
Musk thistle	( <i>Carduus nutans</i> )
Oxeye daisy	( <i>Leucanthemum vulgare</i> )
Perennial pepperweed	( <i>Lepidium latifolium</i> )
Plumeless thistle	( <i>Carduus acanthoides</i> )
Russian knapweed	( <i>Acroptilon repens</i> )
Russian-olive	( <i>Elaeagnus angustifolia</i> )
Salt cedar	( <i>Tamarix chinensis</i> , <i>T. parviflora</i> , and <i>T. ramosissima</i> )
Scentless chamomile	( <i>Tripleurospermum perforata</i> )
Scotch thistle	( <i>Onopordum acanthium</i> , <i>O. tauricum</i> )
Spotted knapweed	( <i>Centaurea stoebe</i> )
Spotted x diffuse knapweed hybrid	( <i>Centaurea x psammogena</i> = <i>C. stoebe</i> x <i>C. diffusa</i> )
Sulfur cinquefoil	( <i>Potentilla recta</i> )
Wild caraway	( <i>Carum carvi</i> )
Yellow nutsedge	( <i>Cyperus esculentus</i> )
Yellow toadflax	( <i>Linaria vulgaris</i> )
Yellow x Dalmatian toadflax hybrid	( <i>Linaria vulgaris</i> x <i>L. dalmatica</i> )

## **List C Species (16)**

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

## ***Watch List Species (24)***

<i>Common</i>	<i>Scientific</i>
Asian mustard	( <i>Brassica tournefortii</i> )
Baby's breath	( <i>Gypsophila paniculata</i> )
Bathurst burr, Spiney cocklebur	( <i>Xanthium spinosum</i> )
Brazilian egeria, Brazilian elodea	( <i>Egeria densa</i> )
Common bugloss	( <i>Anchusa officinalis</i> )
Common reed	( <i>Phragmites australis</i> )
Garden loosestrife	( <i>Lysimachia vulgaris</i> )
Garlic mustard	( <i>Alliaria petiolata</i> )
Himalayan blackberry	( <i>Rubus armeniacus</i> )
Hoary alyssum	( <i>Berteroa incana</i> L.)
Japanese blood grass/cogongrass	( <i>Imperata cylindrica</i> )
Meadow hawkweed	( <i>Hieracium caespitosum</i> )
Onionweed	( <i>Asphodelus fistulosus</i> )
Purple pampas grass	( <i>Cortaderia jubata</i> )
Scotch broom	( <i>Cytisus scoparius</i> )
Sericea lespedeza	( <i>Lespedeza cuneata</i> )
Swainsonpea	( <i>Sphaerophysa salsula</i> )
Syrian beancaper	( <i>Zygophyllum fabago</i> )
Water hyacinth	( <i>Eichhornia crassipes</i> )
Water lettuce	( <i>Pistia stratiotes</i> )
White bryony	( <i>Bryonia alba</i> )
Woolly distaff thistle	( <i>Carthamus lanatus</i> )
Yellow flag iris	( <i>Iris pseudacorus</i> )
Yellow floatingheart	( <i>Nymphoides peltata</i> )