INVASIVE PLANT RISK ASSESSMENT

NORTH TAHOE SHARED-USE TRAIL – SEGMENT 1

LAKE TAHOE BASIN MANAGEMENT UNIT USDA FOREST SERVICE

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1 INTRODUCTION

In 2003, the United States Forest Service (USFS) identified invasive species as one of four critical threats to the nation's ecosystems (Bosworth 2003). Invasive plants pose a significant threat to ecological function due to their ability to displace native species, alter nutrient and fire cycles, decrease the availability of forage for wildlife, and degrade soil structure (Bossard et al. 2000). Infestations can also reduce the recreational or aesthetic value of native habitats.

Forest management activities can contribute to the introduction and spread of invasive plants by creating suitable environmental conditions for establishment and by acting as vectors for spread. The following risk assessment has been prepared to evaluate the risk associated with potential invasive plant introduction and spread as a result of the North Tahoe Multi-Use Trail – Segment I project.

1.1 ANALYSIS FRAMEWORK: PERTINENT LAWS, POLICIES, AND DIRECTION

A comprehensive summary of principal statutes governing the management of invasive plants on the National Forest System is available in FSM 2900. A brief summary of the pertinent laws, policies, and direction is provided below.

1.1.1 Federal Laws and Executive Orders

Executive Order 13112 (1999)—directs federal agencies to prevent the introduction of invasive species; detect and respond rapidly to control such species; and to minimize the economic, ecological, and human health impacts from invasive species on public lands.

1.1.2 Forest Service Policies and Direction

Region 5 Noxious Weed Management Strategy (USDA Forest Service 2000)—guides regional Forest Service goals and objectives for invasive plant management, emphasizing actions necessary to: promote

USFS National Strategy and Implementation Plan for Invasive Species Management (USDA Forest

Service 2004a)—identifies for all Forest Service programs the most significant strategic actions for addressing invasive species. It emphasizes prevention, early detection and rapid response, prioritization in control and management, and restoration or rehabilitation of degraded areas.

Forest Service Manual 2070 (USDA Forest Service 2008)—provides guidelines for the use of native material on National Forest System lands. It restricts the use of persistent, non-native, non-invasive plant materials and prohibits the use noxious weeds for revegetation, rehabilitation and restoration projects. It also requires that all revegetation projects be reviewed by a trained or certified plant material specialist for consistency with national, regional, and forest policies for the use of native plant materials.

Forest Service Manual 2900 (USDA Forest Service 2011)— Replaced FSM 2080 which revised USFS national policy on noxious weed management to emphasize integrated weed management, which includes prevention and control measures, cooperation, and information collection and reporting. FSM 2900 directs the Forest Service to manage invasive species with an emphasis on integrated pest management and collaboration with stakeholders, to prioritize prevention and early detection and rapid response actions, and ensure that all Forest Service management activities are designed to minimize or eliminate the possibility of establishment or spread of invasive species on the NFS or to adjacent areas.

the overall management of noxious weeds; to prevent the spread of weeds; control existing stands of weed infestations; and promote the integration of weed issues into all forest service activities.

1.1.3 Forest Plan Direction

Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004b)—Establishes goals, standards, and guidelines for invasive plant (noxious weed) management for the Sierra Nevada forests. It emphasizes prevention and integrated weed management. It establishes the following invasive plant management prioritization: 1) prevent the introduction of new invaders; 2) conduct early treatment of new infestations; 3) contain and control established infestations. It also requires forests to conduct an invasive plant risk assessment to determine risks for weed spread (high, moderate, or low) associated with different types of proposed management activities and develop mitigation measures for high and moderate risk activities with reference to the weed prevention practices in the Regional Noxious Weed Management Strategy.

2 **PROJECT DESCRIPTION**

2.1 PROPOSED ACTIVITIES

The proposed North Tahoe Multi-Use Trail – Segment 1 project (project) will construct a regional trail connecting the communities of Tahoe Vista and Carnelian Bay, California. The project will provide public access to existing recreational trails, enhance accessibility to public land, provide educational and recreational opportunities, and provide a non-motorized transportation alternative for visitors and residents. Additionally, the project will enhance the safety of bicyclists and connect residential neighborhoods to commercial, tourism, and recreational facilities.

The trail will begin at Carnelian Bay Avenue on the west end and will terminate at a junction with the existing Pine Drop Trail within the North Tahoe Regional Park in Tahoe Vista.

The project will be on federal forest lands managed by the United States Forest Service, open space parcels managed by the North Tahoe Public Utility District (NTPUD), and will utilize one existing public easement through a private parcel.

Area plans are considered land use and zoning guidance documents for both the TRPA and the County. The project's area of potential effect (APE) is included within the Placer County Tahoe Basin Area Plan (Placer County 2017). Land use in the majority of the APE is designated under the "recreation" subdistrict with the western section of the APE designated as "conservation".

2.2 LOCATION AND EXTENT

The project is located in the North Lake Tahoe area of Placer County, California. The project is located in Sections 10 and 11 in Township 16 North and Range 17 East of the Mt. Diablo Meridian which may be found on the following U.S. Geological Survey 7.5 minute quadrangle maps: *Martis Peak* and *Kings Beach* in Placer County, California. It is within two TRPA Priority Watersheds: Carnelian Canyon (Priority three), and Tahoe Vista (Priority three).

The project encompasses 2.52 miles of the trail alignment. The trail will begin at Carnelian Bay Avenue on the west end and terminate near the northeast corner of the North Tahoe Public Utility District's (NTPUD) managed North Tahoe Regional Park in Tahoe Vista, California (**Appendix B, Figure 1**). The project is primarily located in wildland adjacent to rural development with a regional park in the eastern section.

The biological survey area is the same as the APE and includes a corridor that extends 60-feet on either side of the trail centerline with a wider corridor where the trail terminates at the North Tahoe Regional Park to accommodate a paved pad with a kiosk; the total area of the APE is approximately 39 acres.

3 NON-PROJECT DEPENDENT FACTORS

3.1 INVENTORY

3.1.1 Surveys and existing data

A literature and database review was conducted to identify documented noxious weed species within and adjacent to the APE. All the references utilized for this Assessment are listed in Section 6.0. The most relevant searches, reviews, and requests are listed below. Agencies referenced include the United States Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU), the California Department of Food and Agriculture (CDFA), and the Lake Tahoe Basin Weed Coordinating Group (LTBWCG).

| Agency/Entity | Date | Information Received |
|---------------|--------------------|--|
| USFS LTBMU | Accessed 7/1/20 | Terrestrial Invasive Plant Management Program, 2015 Annual Report (LTBMU 2015) |
| CDFA | Accessed 7/1/20 | Noxious Weed Species List (CDFA 2020) |
| LTBWCG | Accessed 7/1/20 | • Priority Invasive Weeds of the Lake Tahoe Basin (LTBWCG 2011) |

Table 1. Database and Literature Review Summary

Field investigations were conducted to identify the presence of noxious weeds on Forest Service (FS) and non-Forest Service land (Non-FS) by NCE biologists on August 30, 2019 and on July 8, 2020. The focus of these investigations was to document all noxious weeds occurring within the proposed trail alignment and areas immediately adjacent to the alignment (**Appendix B (Figure 2)**). The methods used for the NCE survey included a walking transect survey of the APE to identify invasive plants to the extent necessary to determine listing status. Infestations were mapped in the field using a handheld electronic tablet and ESRI ArcGIS Collector (used to collect photographs, spatial, and attribute information).

3.1.2 Assessment summary

During field surveys, it was determined that the phenology of vegetation on site was appropriate for identification of invasive plants. It was therefore concluded that the timing was appropriate for presence/absence surveys of the invasive plant species assessed in this evaluation. The surveys, in conjunction with the review of existing data of known infestations, is sufficient to complete this Invasive Plant Risk Assessment.

3.2 KNOWN INVASIVE PLANTS IN ANALYSIS AREA

The results of the field surveys found no non-native/invasive plant species in the APE. The surveys found one non-native/invasive plant species outside of and adjacent to the APE: cheatgrass (*Bromus tectorum*). The location of this infestation is shown in **Figure 2**.

| Species | Common Name | CDFA | Cal-IPC | Number of sites within: | | |
|-----------------|-------------|------------------------|---------------------|--|-----------------------------|--|
| | | Noxious Weed Y/N | rating ¹ | Forest Service Parcels in APE (FS) | Entire APE (FS + Non-FS) | |
| Bromus tectorum | cheatgrass | N | High | 0 | 1 | |
| TOTAL | | | | 0 | 1 | |

Table 2. Invasive plant species within the survey area

¹ Cal-IPC ratings- High: attributes conducive to moderate to high rates of dispersal and establishment; usually widely distributed among and within ecosystems. Moderate: impacts substantial and apparent, but not severe; attributes conducive to moderate to high rates of dispersal; distribution may range from limited to widespread. Limited : ecological impacts are minor or information is insufficient to justify a higher rating, although they may cause significant problems in specific regions or habitats; attributes result in low to moderate rates of invasion; distribution generally limited, but may be locally persistent and problematic. (California Invasive Plant Council 2010)

3.2.1 Cheatgrass (Bromus tectorum)

3.2.1.1 Species description and summary of management options

Cheatgrass is a winter annual in the grass family (*Poaceae*), bearing many finely hairy, drooping, yellowish-green, bristly spikelets in a loose, much-branched, terminal cluster. It forms small tufts 8 to 24 inches tall, and has a fine, fibrous root system. Stems are erect and slender; leaf blades are flat and pubescent. At maturity, the foliage and seed heads often become reddish; after maturity the fine herbage is characterized by a light tan reflectance. Cheatgrass reproduces by seed that germinates in the fall, over-winters as a seedling, then flowers in the spring. Seeds have the potential to remain viable in the seed bank for 2 to 5 years. Cheatgrass commonly grows on roadsides, open areas, and eroded sites, and is most commonly found on coarse textured soils that are low in nitrogen. Mulch and litter promote germination and establishment of seedlings. Cheatgrass was found at one location in the eastern portion of the APE.

Cheatgrass is not a ranked species on the CDFA list. It has a "high" rating on the Cal-IPC list, which implies "attributes conducive to moderate to high rates of dispersal and establishment; usually widely distributed among and within ecosystems (Cal-IPC 2020)." Cheatgrass is a low priority on the LTBMU list, which suggests it is a lower priority species managed on LTBMU and not always treated. It is not ranked on the Lake Tahoe Basin Weed Coordination Group (LTBWCG) top priority weed list. Within the LTBMU, the primary focus for this species is to prevent further spread where possible through management practices including a combination of chemical control, cultural control, seeding perennial grasses, and proper land management (USFS 2010).

3.2.1.2 Infestations in the APE

There are no invasive weed infestations within the APE. There is one diffuse infestation of cheatgrass adjacent to the APE. The infestation is located south of the APE for a total of 1,000 square feet of

infested area. The infestation does not occur on Forest Service land. The infestation is approximately 500 feet south of Forest Service parcel APN 112-010-001-000.

3.2.1.3 Management Actions

Management outside of the APE focuses on avoidance and prevention. When this species intersects with proposed project activities, it shall be mapped and managed (avoided or treated); recommended management will be project- and site-specific, consisting of the following methods:

- Manual: Preferred treatment method for small infestations. Pull plants prior to seed set. Plants without flowers can be left on site. Plants with flowers should be bagged and disposed properly. Repeat as new plants appear. May not be feasible for large infestations.
- Mechanical: Disk/till live plants in spring (prior to seed set). Repeat as new plants appear. Revegetate with native species. Do not mow; mowed plants can still produce seed. May not be feasible for large infestations.
- Cultural (small infestations only): Flaming in late spring-early summer may be considered in consultation with the Forest Botanist and Forest Fuels Officer (requires an approved burn plan). Not feasible for large infestations.
- Manage to avoid spread (large infestations): Use a combinations of the following techniques: 1) flag and completely avoid infestations; 2) lay down barriers over infestations during staging and construction; 3) work in infested areas first, then wash equipment before moving to uninfested areas; and/or 4) use manual or mechanical techniques (above) in staging or construction areas.
- Chemical: Chemical treatment of cheatgrass is not approved.

3.2.2 Assessment summary

Cheatgrass is the only weed infestation present within the survey area, and the infestation is located outside of the APE. The infestation is in several diffuse patches scattered throughout an open area of disturbed soil south of the proposed trail alignment between the proposed trail and the soccer field (**Figure 2**). This infestation is located on property owned and managed by the North Tahoe Public Utility District within the North Tahoe Regional Park.

3.3 HABITAT VULNERABILITY

The APE is characterized by predominantly mixed conifer and chaparral wildland adjacent to urban development intermixed with fragmented Jeffrey Pine forest and perennial grasslands. No fires, cultivation, or grazing practices are in the recent history of this area.

Overall habitat vulnerability is considered moderate because: a) no invasive plants were identified within the APE; B) there are established roads, foot and animal traffic; and c) spread can be limited by proper treatment and eradication (if applicable) both pre and post construction.

3.4 NON-PROJECT DEPENDENT VECTORS

Residential roads and informal trails exist in the APE. The APE is predominantly existing recreational trail with undeveloped wildland in the western half of the APE. Traffic and visitor use is moderate as the area borders a well-used open space comprised of formal and informal trails. Livestock is not grazed in this area, but wildlife could utilize the existing trail systems to gain access to natural surrounding area.

Non-project vectors are considered medium because although these vectors are found in the area, such activities are not heavy on parcels considered for improvement.

4 PROJECT-DEPENDENT FACTORS

4.1 HABITAT ALTERATION EXPECTED AS A RESULT OF THE PROJECT

Proposed project activities will include ground disturbance, particularly in areas designated for new trail development. Revegetation of disturbed areas with native species will limit the potential for invasive plant species to re-colonize in the APE. No fuels reductions or fire use are proposed.

4.2 INCREASED VECTORS AS A RESULT OF PROJECT IMPLEMENTATION

No infestations are present within the project aera. The infestation adjacent to the APE will be avoided during project activities. Vegetation will be restored after construction activities are completed; therefore, vectors that can be expected as a result of the project are not likely to increase invasive plant establishment in the area.

There will be a short-term increase in traffic due to construction activities during implementation. Visitors using the trail once construction is complete will be on a paved surface, thereby preventing ongoing ground disturbance. Construction equipment will be used throughout implementation but will adhere to management measures to minimize impacts in the area. Grazing is not a component of the project. All materials imported to the site are required to be weed free as stated in the project specifications.

4.3 MANAGEMENT MEASURES

4.3.1 Standard management measures for invasive plants

The following measures are designed to minimize risk of new weed introductions, minimize the spread of weeds within units, and minimize the spread of weeds between units. These measures are consistent with Forest Service policy and manual direction and the LTBMU Land and Resource Management Plan as amended by the SNFPA.

1. Inventory-

- *a)* As part of site-specific planning, project areas and adjacent areas (particularly access roads) will be inventoried for invasive plants.
- *b)* Any additional infestation discovered prior to or during project implementation should be flagged and avoided, then reported to the Forest Botanist or their designated appointee for prioritization and assessment for treatment.

2. Equipment Cleaning-

- a) All equipment and vehicles (Forest Service and contracted) used for project implementation must be free of invasive plant material before moving into the project area. Equipment will be considered clean when visual inspection does not reveal soil, seeds, plant material, or other such debris. Cleaning shall occur at a vehicle washing station or steam-cleaning facility before the equipment and vehicles enter the project area.
- b) When working in known invasive plant infestations or designated weed units, equipment shall be cleaned before moving to other National Forest Service system lands. These areas will be identified on project maps.
- 3. Staging areas— Do not stage equipment, materials, or crews in invasive plant-infested areas.

- 4. **Control Areas**—Where feasible, invasive plant infestations will be designated as Control Areas areas where equipment traffic and soil-disturbing project activities would be excluded. If Control Areas are designated, they will be identified on project maps and delineated in the field with flagging.
- 5. **Project-related disturbance**—Minimize the amount of ground and vegetation disturbance in staging and construction areas. Where feasible, reestablish vegetation on disturbed bare ground to reduce invasive species establishment; revegetation is especially important in staging areas.
- 6. **Early Detection** Any additional infestation discovered prior to or during project implementation should be reported to the Forest Botanist or their designated appointee for prioritization and assessment for treatment.
- 7. **Post Project Monitoring** After the project is completed the Forest Botanist should be notified so that (as funding allows) the project area can be monitored for invasive plants subsequent to project implementation.
- 8. **Gravel, fill, and other materials** All gravel, fill, or other materials are required to be weed-free. Use onsite sand, gravel, rock, or organic matter when possible. Otherwise, obtain weed-free materials from sources that have been certified as weed-free. If an LTBMU inspector is not available to inspect material source, then the project proponent will provide a weed-free certificate for its material source.
- 9. **Mulch and topsoil** Use weed-free mulches and topsoil. Salvage topsoil from project area for use in onsite revegetation, unless contaminated with invasive species. Do not use material (or soil) from areas contaminated by cheatgrass.
- 10. *Livestock* If supplemental fodder (e.g hay, silage) is required for livestock, including horses and other pack animals, it will be certified weed-free.

11. Revegetation-

- a) Seed and plant mixes must be approved the Forest Botanist or their designated appointee who has knowledge of local flora.
- b) Invasive species will not be intentionally used in revegetation. Seed lots will be tested for weed seed and test results will be provided to Forest Botanist or their designated appointee.
- c) Persistent non-natives, such as such as timothy (Phleum pretense), orchardgrass (Dactylis glomerata), ryegrass (Lolium spp.), or crested wheatgrass (Agropyron cristatum) will not be used in revegetation.
- d) Seed and plant material will be from native, high-elevation sources as much as possible. Plant and seed material should be collected from as close to the project area as possible, from within the same watershed, and at a similar elevation whenever possible.

4.3.2 *Project-specific management measures*

| Species | Common Name | USFS LTBMU Occurrence # | Management Action | | |
|-----------------|-------------|----------------------------------|---|--|--|
| Bromus tectorum | cheatgrass | n/a | Manual removal of infestation in the event of project activities occurring in infested area | | |

Table 3. Management Measures

4.3.3 Assessment summary

No populations of invasive plants are located within the APE where project activities are to take place. There is an infested area of cheatgrass south of the APE which is outside of the area where project activities will take place. If project activities are changed in a way that results in impacts to the infested area, cheatgrass will be removed prior to or during project construction or at any time when ground disturbing activities are taking place. By removing infestation prior to construction and revegetating the areas with native species after construction, the risk of spreading invasive plants as a result of the project will be minimized.

5 ANTICIPATED WEED RESPONSE TO PROPOSED ACTION

There is a Moderate overall risk of invasive plant establishment as a result of the project. This determination is based on the following:

- 1. No invasive weed species identified within the APE. The surveys were conducted during an appropriate identification period in August 2019, July 2020, and October 2020.
- 2. There are established roads and trails in the APE with foot and animal traffic.
- 3. Most of the construction activity will take place in previously undisturbed areas.
- 4. Construction will result in a short-term increase in traffic in the area. Use of the finished trail system will occur on paved surfaces.
- 5. Standard management measures for invasive plants will be adopted as a part of the proposed action (Section 4.3) which will be incorporated into the contract specifications. These management measures will decrease habitat vulnerability to or below pre-construction levels.

| | Factor | Risk | Assessment summary | | |
|---------------------------|-------------------------|--------------|---|--|--|
| NON- | Inventory | N/A | Adequate | | |
| PROJECT | Known invasive plants | Low | There are zero known infestations of LTBMU listed | | |
| DEPENDENT | | | high management priority species present in the APE | | |
| FACTORS | Habitat vulnerability | Moderate | Moderate level of historic and recent disturbance. | | |
| | | | Variable plant cover. | | |
| | Non-project | Moderate | Infestations are present along existing trail access | | |
| | dependent vectors | | points. Overall, moderate level of non-project vectors. | | |
| PROJECT- | Habitat alteration | Moderate | Moderate ground disturbance due to new trail | | |
| DEPENDENT | expected as a result of | | construction activities | | |
| FACTORS | project | | | | |
| | Increased vectors as a | Moderate | Construction of recreational trail system, soil | | |
| | result of project | | disturbance | | |
| | implementation | | | | |
| | Management | Greatly | Standard management measures implemented | | |
| | measures | reduced risk | | | |
| ANTICIPATED WEED RESPONSE | | Moderate | Low risk of new introduction; moderate risk of spread | | |
| | | | as a result of the project. | | |

Table 3. Summary of Risk Factors

6 **REFERENCES**

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APPENDIX A. Invasive Species of Management Concern on the Lake Tahoe Basin Management Unit

USDA FOREST SERVICE LAKE TAHOE BASIN MANAGEMENT UNIT

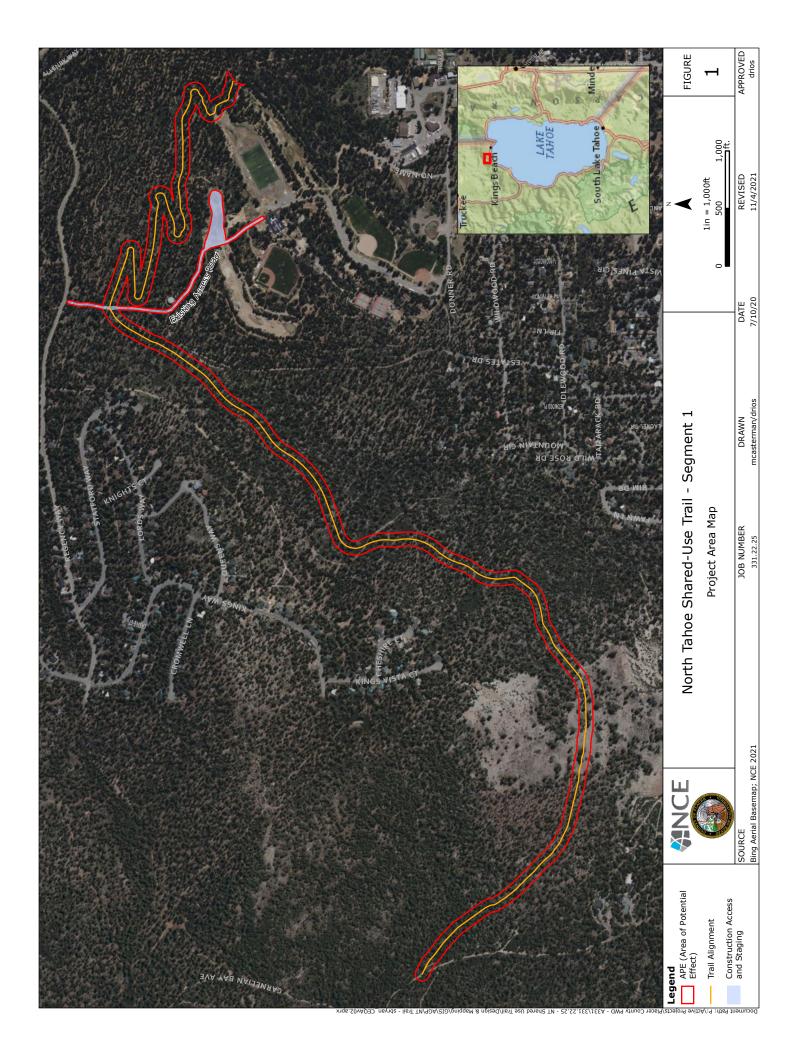
| Scientific Name | 5 FOR INVASIVE PLANTS O | 2015 LTBMU Priority | Known on LTBMU? | Мар | Treat |
|--|--|---------------------------|-----------------------|-----|---------------|
| | reported, mapped and treated or | | LIDNIC. | map | IIcut |
| Acroptilon repens | Russian knapweed | Medium | Yes | X | X |
| Carduus nutans | musk thistle | High | Yes | X | X |
| Centaurea diffusa | diffuse knapweed | High | Yes | X | X |
| Centaurea maculosa | spotted knapweed | High | Yes | X | X |
| Centaurea solstitialis | yellow starthistle | Medium | Yes | X | X |
| Centaurea virgata ssp. squarrosa | squarrose knapweed | High | Yes | X | X |
| Chondrilla juncea | rush skeletonweed | High | Yes | X | X |
| Cirsium arvense | Canada thistle | High | Yes | X | X |
| Conium maculatum | poison hemlock | Low | Yes | X | X |
| Cytisus scoparius | Scotch broom | Medium | Yes | X | X |
| Hypericum perforatum | St. Johnswort; Klamathweed | Medium | Yes | X | <u>л</u> 0 |
| Isatis tinctoria | Dyer's woad | | | | |
| Lepidium appelianum | globe-podded hoary cress; | High | Yes | X | X |
| | hairy whitetop | Medium | Yes | X | X |
| Lepidium draba | heart-podded hoary cress; whitetop | Medium | Yes | Х | X |
| Lepidium latifolium | tall whitetop; perennial pepperweed | High | Yes | X | Х |
| Leucanthemum vulgare | oxeye daisy | Low | Yes | X | 0 |
| Linaria genistifolia spp. dalmatica | Dalmatian toadflax | High | Yes | X | X |
| Linaria vulgaris | yellow toadflax; butter & eggs | High | Yes | X | X |
| Onorpordum acanthium ssp. acanthium | Scotch thistle | High | Yes | X | X |
| Potentilla recta | sulfur cinquefoil | Medium | Yes | X | X |
| Rubus armeniacus | Himalaya blackberry | Medium | Yes | X | X |
| | ies managed on LTBMU but not | always treat | ted | 21 | |
| Cirsium vulgare | d, mapped or treated unless they occ bull thistle | Low | Yes | 0 | 0 |
| Bromus tectorum | cheat grass | | | - | - |
| Myriophyllum spicatum | Eurasian watermilfoil | Low N/A | Yes Yes | 0 | 0 |
| Species If any of the following species are found, im | Not Currently Known on LTBM | U | | | - |
| Ailanthus altissima | tree of heaven | Medium | No | Х | Х |
| Centaurea calcitrapa | purple starthistle; red starthistle | Low | No | Х | Х |
| Dittrichia graveolens | stinkwort | Low | No | Х | Х |
| Dipsacus fullonum | teasel; Fuller's teasel | Low | Yes | X | X |
| Elymus caput-medusae | medusahead | High | No | X | X |
| Elymus repense | quackgrass | N/A | No | X | X |
| Hydrilla verticillata | hydrilla; waterthyme | N/A | No | X | X |
| Lythrum salicaria | purple loosestrife | High | No | X | X |
| Potamogeton crispus | curlyleaf pondweed | N/A | No | X | X |
| Tamarix chinensis, T. ramosissima, & T. parvifolia | tamarisk; saltcedar | High | No | X | X |

MANAGEMENT REQUIREMENTS FOR INVASIVE PLANTS OF MANAGEMENT CONCERN

 High
 No
 X
 X

 X=Required, O=Required in project areas and sensitive habitats
 It IBMU: High—Species that have a large ecological impact or invasive potential; species that are easily controlled. Medium—Species that have a moderate ecological impact or invasive potential; species that may be difficult to control. Low—Species that have a low ecological impact or invasive potential; species that require substantial effort to control. N/A—species not evaluated.

APPENDIX B. Project Overview Map



APPENDIX C: Invasive Plant Occurrences Within APE

