APPENDIX C

INVASIVE PLANT RISK ASSESSMENT

INVASIVE PLANT RISK ASSESSMENT

SAN BERNARDINO CLASS 1 BIKE PATH PROJECT
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 invasive plant introduction and spread as a result of the proposed 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*

Forest Service Manual 2080 (USDA Forest Service 1995)—Was replaced by FSM 2900 in 2011. FSM 2080 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.

Forest Service Manual 2900 (USDA Forest Service 2011)—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.

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.

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.

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 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*

LTBMU Land and Resource Plan (USDA Forest Service 1988)—Does not specifically address invasive plants (except the removal of noxious plants in grazing allotments), though it does provide for the protection and enhancement of threatened and sensitive plant habitat. It is amended by the 2004 Sierra Nevada Forest Plan Amendment (SNFPA) to address invasive plant management.

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

Located in eastern El Dorado County, within unincorporated El Dorado County in the Lake Tahoe Basin, the project aims to construct a bike path along West and East San Bernardino Avenues from North Upper Truckee Road to Apache Avenue. The bike path will cross the Upper Truckee River and provide connections to Washoe Meadows State Park, Tahoe Paradise Park, and the Lake Tahoe Environmental Science Magnet School. The project builds upon the Meyers Bikeway and provides a critical link to the bicycle network between the residential areas off of North Upper Truckee Rd and the surrounding Meyers community.

The overall goal of the project is to improve recreational corridors and alternative transportation routes in the Meyers area by providing connectivity between neighborhoods with a multi-use path. This project also serves to implement the Meyers Area Plan which aims to “reduce reliance on the private automobile, improve circulation and provide opportunities to experience Meyers as a pedestrian or cyclist” (Meyers Area Plan, 2018).

Land use in the project survey area is characterized as Conservation and Recreation and is primarily characterized as single family residential mixed with recreational open space. This project survey area is located within the Upper Truckee River Corridor Zone (Meyers Area Plan, 2018).

2.2 LOCATION AND EXTENT

The project survey area is located in the County of El Dorado, California. The Project can be found within Section 27, Township 13 North, Range 18 East of the Mount Diablo Meridian of the U.S. Geological Survey, Echo Lake quadrangle. It is within the TRPA designated Priority 2 Watersheds 44 (Upper Truckee River).

3 NON-PROJECT DEPENDENT FACTORS

3.1 INVENTORY

3.1.1 *Surveys and existing data*

A literature and database review were conducted to identify documented noxious weed species within and adjacent to the project survey area (**Table 1**). All of the references utilized for this Assessment are listed in Section 6.0. The most relevant searches, reviews, and requests are listed below.

Table 1. Database and Literature Review Summary

Agency/Entity	Date	Information Received
USDA	Accessed 6/5/2019	• SNFPA Table 1: Invasive non-native plant species occurrence in Sierra Nevada National Forest (D'Antonio 2004)
CDFA	Accessed 6/5/2019	• Noxious Weed Species List (CDFA 2016)
LTBWCG	Accessed 6/5/2019	• Priority Invasive Weeds of the Lake Tahoe Basin (LTBWCG 2011)

A field investigation was conducted to identify the presence of noxious weeds on Forest Service (FS) and non-Forest Service land (Non-FS) by NCE biologists on July 10, 2019. The focus of this investigation was to document all noxious weeds occurring within county rights of way and areas immediately adjacent to the right of way, as well as parcels of interest within the project survey area where improvements are to be installed **Figure 1**. NCE's biologists conducted a walking transect survey of the project survey area to identify invasive plants to the extent necessary to determine listing status. Infestations were mapped in the field using an iPad equipped with a recreation-grade GPS unit.

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. This survey, 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 field survey resulted in the positive identification of three non-native/invasive plant species in the project survey area: curly dock (*Rumex crispus),* sulphur cinquefoil (*Potentilla recta*), and wooly mullein (*Verbascum Thapsus*). Weed species identified during the July 2019 field survey and their locations are presented on **Figure 2** and in **Table 2** below.

Table 2. Invasive plant species within the project survey area

Species	Common Name	CDFA rating[1]	Cal-IPC rating[2]	Forest Service Parcels in Project survey area (FS)	Mapped square footage for entire Project survey area (FS + Non-FS)
Potentilla recta	sulphur cinquefoil	A	n/a	1	5,990
Rumex crispus	curly dock	n/a	Limited	1	0.25
Verbascum thapsus	wooly mullein	n/a	Limited	1	0.5
TOTAL				**n/a**	**5,991**

[1] CDFA ratings - A-listed weeds: eradication or containment is required at the state or county level; B-listed weeds: eradication or containment is at the discretion of the County Agricultural Commissioner; C-listed weeds: eradication or containment required only when found in a nursery or at the discretion of the County Agricultural Commissioner. (California Department of Food and Agriculture 2009)

[2] 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)

3.2.1.1 Infestations in the Project Survey Area

There were multiple infestations found within project survey area. Seven infestations of Sulphur cinquefoil were identified in the project survey area for a total of 5,991 square feet of infested area; all infestations occur on USFS parcel APN 034-020-03. One occurrence of mullein was found in the project survey area for a total of 0.5 square feet of infested area. One occurrence of curly dock was found in the project area for a total of .25 feet of infested area. NCE believes these are new detections, not associated with USFS occurrence numbers.

3.2.1.2 Management Actions

Management outside of project survey area focuses on avoidance and prevention. When this species intersects with proposed project activities, it is 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.

3.2.2 Curly dock (*Rumex crispus)*

3.2.2.1 Species description and summary of management options

Curly dock, a perennial broadleaf plant, usually grows in wet areas and is frequently associated with overwatering or standing water in low areas. It is found throughout California up to an elevation of 8200 feet. Curly dock inhabits agricultural land and other disturbed areas. Plants may be poisonous to livestock when ingested in quantity. Curly dock stands erect and grows 2 to 5 feet tall. Leaves are hairless. Stems are often unbranched below the flower head. Leaves are alternate to one another along the stem. The fruiting stem dies back in mid to late summer, and the fruits and stems turn a distinctive rusty brown. Seeds can be dispersed with water or wind. Flowers can be seen for most of the year. Deep taproots make this plant difficult to control if hand pulling. If the roots breaks near the surface plants can re-sprout from fragmented root. Mowing before seeds mature can be effective limiting dispersal. Tilling can also be helpful if possible. Livestock generally do not prefer this plant for grazing which can be toxic in large amounts (Tomaso, 2013).

3.2.2.2 Infestations in the Project Survey Area

Only one individual plant was found in this project area by an NCE biologist.

3.2.2.3 Management Actions

Curly dock is best controlled through chemical means or by cutting the root two inched below soil level to disrupt growth. Mechanical removal of this individual is recommended to assure its spread is stopped.

3.2.3 Wooly mullein *(Verbascum thapsus)*

3.2.3.1 Species description and summary of management options

Wooly mullein, also called common mullein is a densely wooly, sturdy biennial that may reach more than seven feet tall in its flowering year. Wooly mullein occurs throughout most of North America. A basal rosette of large furry leaves and a substantial crown are produced in the first year with a single, stout, erect flowering stem developing in the second year. Basal leaves are simple, measure three to 20 inches long and may be persistent. Stem leaves are alternate, and their size is reduced toward the inflorescence. Yellow flowers are short lived and develop on a spike-like terminal inflorescence from May through September. Wooly mullein develops a thick, deep taproot with fibrous lateral roots (Gucker, 2008). Wooly mullein seeds can survive over 100 years in the soil, and seedling establishment is dependent on periodic disturbance. Wooly mullein establishment is greatly enhanced in bare ground areas (DiTomaso, 2013).

Wooly mullein is not a ranked species on the CDFA list. It has a limited rating on the Cal-IPC list, which implies that the species is “invasive but [its] ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. [The species’] reproductive biology and other

attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic" (Cal-IPC 2018). Wooly mullein is not listed on the LTBMU list. It is not listed on the LTBWCG list.

3.2.3.2 Infestations in the Project Survey Area

There was a wooly mullein plant discovered and mapped within the project survey area. The plant was discovered by an NCE biologist and was not assigned USFS occurrence numbers **Figure 1.**

3.2.3.3 Management Actions

Established wooly mullein stands are extremely difficult to control due to their abundant, long-lived seed bank; however, in small populations, hand-pulling before seed set is an effective control method for mullein plants growing on loose soils. When digging, sever the root below the soil surface. Soil disturbance stimulates recruitment (DiTomaso 2013). Manual treatment is preferred for this small infestation. Hand pull, bag and dispose properly.

3.2.4 Sulphur cinquefoil *(Potentilla recta)*

3.2.4.1 Species description and summary of management options

Sulfur cinquefoil is an herbaceous perennial with one to several slender, erect, hairy stems that grow to 2 ft tall. The stems have perpendicular hairs, which differentiate this from most native *Potentilla* species. Sulfur cinquefoil grows as a loosely tufted rosette before flowering stems develop. The leaves are palmate compound with 5-7 leaflets. Leaflets are oblanceolate, the margins coarsely narrow-toothed halfway or slightly less to the midvein, covered with stiff hairs. The lower leaves have long petioles and upper leaves have shorter or no petioles and fewer leaflets. The foliage is sparsely glandular. Sulfur cinquefoil can resemble some native Potentilla species, so identification should be accurate before initiating a control program. Plants develop a woody taproot that eventually rots at the core as it enlarges. New shoots grow from the root perimeter. Plants do not have rhizomes. Sulfur cinquefoil bears many pale to sulfur-yellow flowers in open branched, flat-topped inflorescences. Flowers are about an inch in diameter with five petals. Plants may produce over 1,500 seeds. Most mature seed is dispersed near the parent plant. In a lab experiment, seeds remained viable after 28 months of burial at three inches deep in the soil. Other reports suggest seed longevity may exceed three to four years (DiTomaso, 2013).

It has no rating on the Cal-IPC list, but is included as a noxious weed on the CDFA list. Sulphur cinquefoil's reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic" (Cal-IPC 2018). Sulphur cinquefoil is listed on the LTBMU list and considered a medium priority. It is not listed on the list.

3.2.4.2 Infestations in the Project Survey Area

There were seven occurrences of sulphur cinquefoil discovered. They all were discovered along the existing dirt trail where part of the proposed bikeway will be constructed on USFS property west of the Upper Truckee River (**Figure 1**).

3.2.4.3 Management Actions

Small infestations of Sulphur cinquefoil can be removed by manual methods such as hand-pulling and digging. Remove the entire root crown to prevent re-sprouting. Plants regrow after mowing. Mowing is not recommended as it can stimulate lateral branching and root growth. Plowing and deep disking can

control emerged plants but can stimulate recruitment. These types of tillage are not typically practical in most natural areas. Reseeding with other species following tillage resulted in complete control in one study. Sulfur cinquefoil is intolerant of shade, thus land management strategies should promote competitive vegetation and shading (DiTomaso, 2013).

3.3 Habitat vulnerability

The project survey area is characterized by predominantly urban development intermixed with fragmented Jeffrey Pine and Lodgepole pine forest. No fires, cultivation, or grazing practices are in the recent history of this area.

3.3.1 *Assessment summary*

Overall habitat vulnerability is considered medium because: a) invasive plants were identified in the project survey area; b) there are established roads, foot and animal traffic, and large areas of cultivated landscape and/or turf in the area; 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 project survey area. The analysis area is predominantly single-family residential, conservation, and public land. Traffic and visitor use is high as the area borders a well-used open space comprised of Tahoe Paradise Park, Lake Baron, and a social trail on USFS land. Livestock is not grazed in this area, but wildlife could pass through the neighborhood to gain access to the natural surrounding area.

3.4.1 *Assessment summary*

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 disturbed areas. Revegetation of disturbed areas with native species will limit the potential for invasive plant species to re-colonize in the project survey area; however, road shoulder revegetation may not be included as part of the project design. No fuels reductions or fire use are proposed.

4.2 Increased Vectors as a Result of Project Implementation

Infestations will be removed prior to construction, and 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.

4.3 Non-Project Dependent Vectors

Residential roads and informal trails exist in the project survey area. The analysis area is predominantly single-family residential, conservation and public land. Traffic and visitor use is high as the area borders a well-used open space comprised of a Paradise State Park and Lake Baron, and a social trail on USFS land. Livestock is not grazed in this area, but wildlife could pass through the neighborhood to gain access to the natural surrounding area.

4.4 Non-Project Dependent Vectors

Residential roads and informal trails exist in the project survey area. The analysis area is predominantly single-family residential, conservation and public land. Traffic and visitor use is high as the area borders a well-used open space comprised of a Paradise State Park and Lake Baron, and a social trail on USFS land. Livestock is not grazed in this area, but wildlife could pass through the neighborhood to gain access to the natural surrounding area.

4.4.1 *Assessment summary*

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.

There will be an increase in traffic due to construction activities during implementation and this project is expected to increase traffic and visitor use in the area. Construction equipment will be used throughout implementation but will adhere to mitigation measures to minimize impacts in the area. Grazing is not a component of the project. If the project includes the use of mulches, compost, wood chips, soil, and road base, all materials imported to the site are required to weed free as stated in the project specifications.

4.5 Management Measures

4.5.1 *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 survey 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 survey 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 survey 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 survey 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 survey 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**), orchard grass (**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 survey area as possible, from within the same watershed, and at a similar elevation whenever possible.

4.5.2 *Project-specific management measures*

Table 3. Management Measures

Species	Common Name	Management Action
Rumex crispus	Curly dock	Manual removal of infestation
Potentilla recta	Suphur cinquefoil	Manual removal of infestation
Verbascum thapsis	Wooly mullein	Manual removal of infestation

4.5.3 *Assessment summary*

The populations of invasive plants, located within parcels of interest in the project survey area where the path is being constructed, 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.

6 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. A total of two noxious weed species and eight infested locations were identified in the project survey area. The surveys were conducted during an appropriate identification period in July 2019.
2. There are established roads in the project survey area, foot and animal traffic, and large areas of cultivated landscape and/or turf.
3. The majority of construction activity will take place in previously disturbed areas.
4. A mitigation plan will be adopted as a part of the proposed action (Section 4.3) which will be incorporated into the contract specifications. The mitigation plan will decrease habitat vulnerability to or below pre-construction levels. The mitigation plan includes elements to address noxious weeds before, during, and after construction.

Table 3. Summary of Risk Factors

	Factor	Risk	Assessment summary
NON-PROJECT DEPENDENT FACTORS	Inventory	N/A	Adequate
	Known invasive plants	Moderate	There are seven known infestations of LTBMU-listed medium management priority species (*Potentilla recta*) present in the project survey area
	Habitat vulnerability	Moderate	Moderate level of historic and recent disturbance. Variable plant cover.
	Non-project dependent vectors	Moderate	Infestations are present along existing disturbed trail. Overall, moderate level of non-project vectors.

PROJECT-DEPENDENT FACTORS	Habitat alteration expected as a result of project	Moderate	Moderate ground disturbance due to drainage improvements and associated construction activities
	Increased vectors as a result of project implementation	Moderate	Construction of drainage and erosion control improvements, soil disturbance.
	Management measures	Greatly reduced risk	Standard management measures implemented
ANTICIPATED WEED RESPONSE		Moderate	Low risk of new introduction; low risk of spread as a result of the project if infestation areas are treated; moderate risk of spread as a result of the project if infestation areas are untreated.

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FIGURES



Legend

Project Survey Area

San Bernardino Class 1 Bike Path Project

Project Survey Area

N

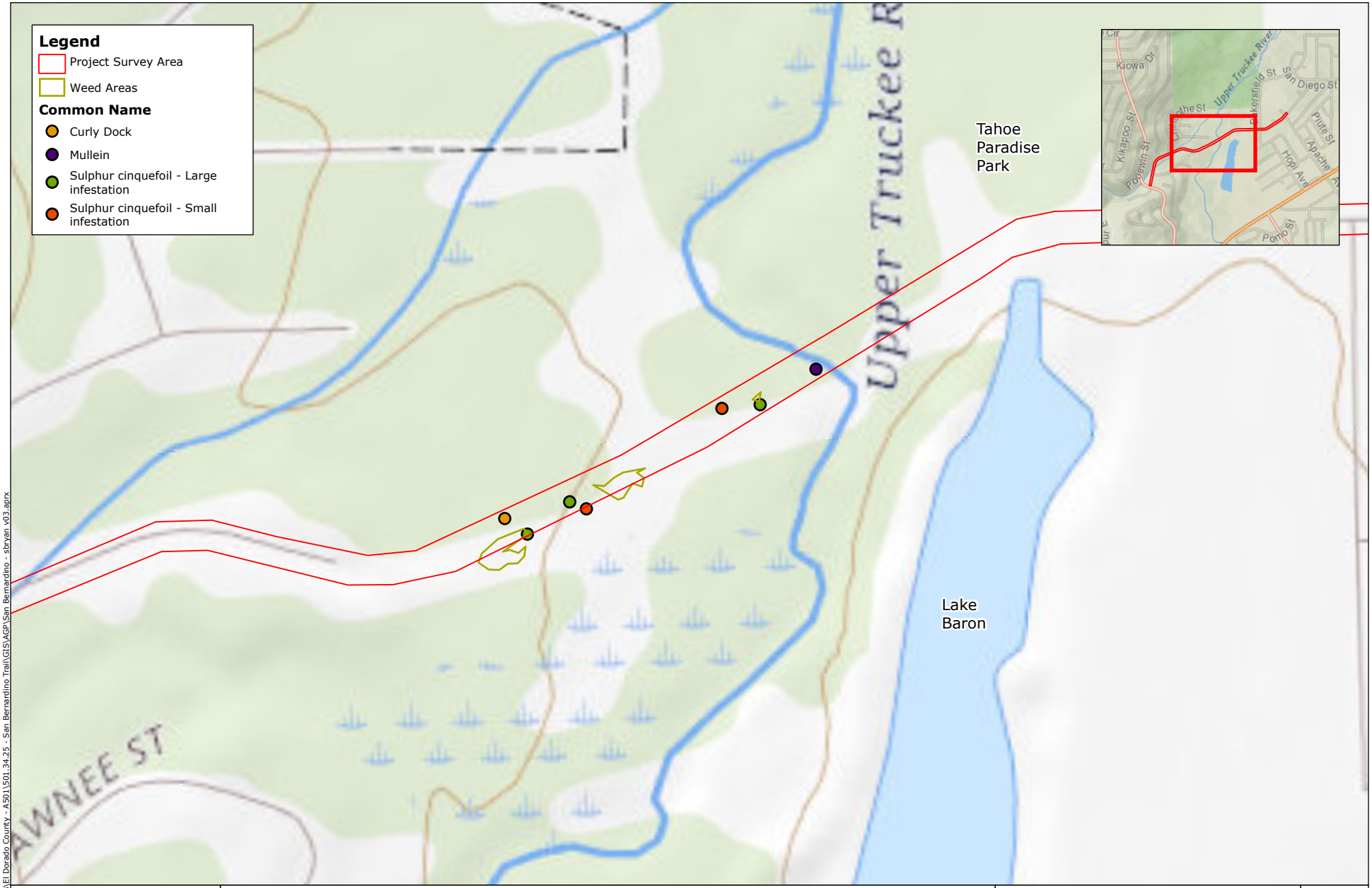
1 in. = 500 ft.

0 250 500 ft.

FIGURE 1

SOURCE	JOB NUMBER	DRAWN	DATE	REVISED	APPROVED
Bing Aerial Basemap; NCE 2019	501.34.25	sbryan	8/26/2019	9/6/2019	drios

Document Path: P:\Active Projects\El Dorado County - A501\501.34.25 - San Bernardino Trail\GIS\AGP\San Bernardino - sbryan v03.aprx


Legend
Project Survey Area
Weed Areas
Common Name
Curly Dock
Mullein
Sulphur cinquefoil - Large infestation
Sulphur cinquefoil - Small infestation
Upper Truckee R
Tahoe Paradise Park
Lake Baron
AWNEE ST
Kiowa Dr
Upper Truckee River
San Diego St
Kiowa St
Kiowa Ct
Kiowa Cir
Kiowa Ln
Kiowa Pl
Kiowa Way
Kiowa Trl
Kiowa Rd
Kiowa Blvd
Kiowa Ave
Kiowa Dr

Priority Invasive Weeds of the Lake Tahoe Basin
Lake Tahoe Basin Weeds Coordinating Group
Revised April 2011

This list is prepared by the Lake Tahoe Basin Weeds Coordinating Group and reviewed and updated annually. It is utilized by the group and stakeholders as a guide in evaluating annual action plans, treatment protocols and new project proposals.

Group 1 Species: Watch For, Report, and Eradicate Immediately:
These species are:

a) Not currently present in the Lake Tahoe Basin and are documented in areas adjacent to the basin where potential for introduction is high OR
b) Present only as small, eradicable populations.

The letter following each species in Group 1 denotes the infestation type as detailed above. Aggressive treatment will be pursued when these species are found. Educational programs will target early detection and reporting of these species.

1. Musk thistle (*Carduus nutans)* - a
2. Scotch thistle (*Onopordum acanthium*) – a
3. Tamarisk/saltcedar (*Tamarix spp.)* - a
4. Medusahead (*Taeniatherum caput-medusae*) - a
5. Stinkwort (*Dittrichia graveolens*) – a
6. Reed canarygrass (*Phalaris arundinacea*) – a
7. Dyer's woad (*Isatis tinctoria*) – a
8. Purple starthistle (*Centaurea calcitrapa*) – a
9. Canada thistle (*Cirsium arvense*) – b
10. Diffuse knapweed (*Centaurea diffusa*) - b
11. Hoary cress (*Cardaria species*) – b
12. Rush skeletonweed (*Chondrilla juncea*) - b
13. Russian knapweed (*Centaurea repens*) – b
14. Sulfur cinquefoil (*Potentilla recta*) - b
15. Teasel (*Dipsacus fullonum*) - b
16. Yellow starthistle (*Centaurea solstitialis*) – b
17. Tree of Heaven (*Ailanthus altissima*) – b
18. Purple loosestrife (*Lythrum salicaria*) - b

Group 2 Species: Manage Infestations With a Goal of Eradication
Encourage the management/control of populations of these species to prevent further spread in the Lake Tahoe Basin. Isolated populations will be targeted for eradication.

19. Bull thistle (*Cirsium vulgare*)
20. Dalmatian toadflax (*Linaria dalmatica*)
21. Klamathweed (*Hypericum perforatum*)
22. Oxeye daisy (*Chrysanthemum leucanthemum*)
23. Perennial pepperweed (*Lepidium latifolium*)
24. Scotch broom (*Cytisus scoparius*)
25. Spotted knapweed (*Centaurea biebersteinii*)
26. Yellow toadflax (*Linaria vulgaris*)