
COURTLAND CREEK COMMUNITY STEWARDSHIP GUIDE

PURPOSE OF GUIDE

This plan was created collaboratively by the City of Oakland and the Friends of Courtland Creek. The plan provides guidance and direction to the Friends of Courtland Creek and the broader community to carry out the shared vision of both short- and long-term restoration goals of Courtland Creek. This living document will guide the community's stewardship of riparian vegetation, park facilities, and overall stream health. Updates will be made as needed.

GENERAL PARK CARE

The City of Oakland is responsible for Park maintenance and for performance monitoring of the Courtland Creek Restoration Park. City staff typically visit the site weekly on Mondays and Fridays to remove litter and debris. Park staff are also responsible for removing materials from illegal dumping. Landscape maintenance is typically done once a month, and includes vegetation management, mowing, and irrigation maintenance. Alameda County Flood Control and Water Conservation District (ACFCWCD) is responsible for maintaining flood control infrastructure in the Project area. Friends of Courtland Creek, in collaboration with the City of Oakland, will assist with vegetation management, litter debris removal, and general site maintenance through volunteer effort as time allows.

TRASH, DUMPING, AND GRAFFITI REMOVAL

- Report any observed dumping to 311 within Oakland or 510-615-5566 outside Oakland.
- Bag and label used motor oil filters, paint cans, automotive batteries, or any other hazardous materials for the City to dispose of properly or recycle. Call 311 if needed.
- Do not pick up syringes, needles, or drug paraphernalia. Contact the City for proper disposal.
- Report damages caused by vandalism immediately to prevent possible injury.
- Check for and report graffiti on a weekly basis.

MAINTAINING BENCHES, AND PATHWAYS

- Log benches should be sanded as needed to remove roughness and prevent splintering.
- Sweep and clean pathways frequently. This is also done by City Park staff.

LONG TERM VISION

Community stewardship will help the restored riparian corridor grow into a vibrant habitat. The descriptions that follow offer a vision of Courtland Creek as the corridor matures in the decades ahead.

Year 10

Willows by Year 10 will be tall enough to allow subshrubs and lower layers of riparian vegetation to mature. Species such as dogwood, ninebark, and hazelnut will start to fill in the space between the ground and tree canopy. Some natural thinning of willow will occur as weak limbs break and fall, helping to create habitat and complex vertical biotic structures. As the riparian corridor matures, vegetation will enhance channel and bank stability as plant roots prevent soil erosion and create roughness during high flows.

Year 30

Maturation of coast live oak, California buckeye, and Box Elder will bring additional biodiversity to the riparian corridor. Amphibians and small mammals will be seen in the creek and songbird activity is heard from the pathways. Riparian trees will create a cathedral effect over the creek and visibility to the water will be dappled through clearings in upland vegetation.

Year 50

The riparian canopy will shade around 80% percent of the channel, allowing for low stream water temperatures that support fish, benthic macroinvertebrates, and amphibians. Steep banks will have been stabilized by native tree roots, subshrubs, and groundcovers. Coast live oak, California buckeye, box elder, and willow trees will provide shelter and homes for various nesting bird species. Sediment carried downstream will be trapped and stored by fallen trees and root wads, creating an ideal habitat for native trout. The creek channel and upland slopes will support native plant communities with ecological diversity and species richness. Invasive plants will have been largely eliminated mechanically, by natural recruitment of native species and by periodic supplementary planting of native species.

VEGETATION MANAGEMENT AND IRRIGATION

GENERAL MANAGEMENT

Regular maintenance activities will greatly improve the success of vegetation and overall health throughout the project.

- Hand pull invasive species in the riparian zone throughout the project reaches (see *Table 2* in the Appendix for species list and timing). **Complete on a quarterly basis at minimum with the goal of six times annually.**
- Check mulched areas at the base of upland trees and shrubs and re-apply if necessary. **Complete annually. FOCC will notify City staff if mulch is needed.**

PLANT COMMUNITIES AND DOMINANT SPECIES

A plant community is made up of several reoccurring species that share similar habitat needs and develop symbiotic relationships with each other. Four plant communities have been identified in the project reach to assist with measuring the success of native vegetation by the presence of dominant and successional species in each community. Plant communities include Upland, Woodland, Riparian Corridor, and Seasonal Wetland. Dominant tree species are expected to remain somewhat constant as smaller successional species might change over time as the creek matures and grows.

Annual or semi-annual maintenance activities will help native plants remain healthy and aesthetically pleasing. See **Table 1** in the Appendix for native plants included in each of the communities and their basic maintenance needs.

INVASIVE SPECIES MANAGEMENT

The importance of weed removal in the first few growing seasons and beyond cannot be overstated. Research indicates that exotic species have overrun California's native environments primarily due to increases in disturbance, reinforcing our understanding that most invasive exotics grow quicker above ground during the first five growing seasons and out-compete native species.

Weeds compete with landscape plants for water, nutrients, sunlight, and space, and they can also harbor pests and diseases. If exotic species are not actively removed, the establishment of native species will be poor. Left unchecked, weeds can reach overwhelming levels within the park, downstream, in surrounding gardens, or in other open spaces. Weed management will prove dramatically less costly and time-consuming if measures are taken to remove all roots and aerial parts of the weeds before they grow, set seed, or form colonies that crowd out desired plants. Hand removal is recommended. Refer to Table 2 in the appendix for weeding methods and timing of the most found weeds for this site.

BANK STABILITY AND WOODY DEBRIS MANAGEMENT

BANK STABILITY

Creeks are naturally dynamic and will shift over time. Sediment transport and some erosion throughout the channel are expected. Not every change should be cause for concern. Vegetation and rock on steep banks should act to protect the slope from hardening over time. If significant erosion does occur, a geomorphologist should review and make recommendations on a case-by-case basis. **Notify Oakland Watersheds if significant erosion is observed.**

CULVERTS

Perform regular visual inspection of the culverts at the upstream and downstream ends of the Brookdale, Congress, and Thompson reaches, especially after major storms with more than 1 inch of rainfall, to look for wrack or large woody debris that might be obstructing flow. **Notify Oakland Watersheds if debris is obstructing any culverts.**

WOODY DEBRIS

Large woody debris from fallen trees is generally considered beneficial to the creek. Beneficial sediment deposition behind the fallen wood creates a habitat for new riparian vegetation, fish, and benthic macroinvertebrates, and can also provide natural stabilizing and grade control within the channel. Most downed wood debris should be left in place unless it poses a risk to infrastructure or public safety such as wood or organic debris that is directing flow towards a bank or wall and causing erosion, clogging drain outlets, or blocking the upstream or downstream culvert openings.

MAINTENANCE PATHS

Two maintenance paths provide City staff and volunteers access to maintain vegetation planted in the creek area behind the split rail fencing in the Congress and Brookdale reaches. Durability of these access paths should be monitored to ensure minimal erosion occurs over time. Due to the steeper banks in many areas of the creek, access paths should not be encouraged in these areas.

All paths not shown in Figures 1 and 2 should be decommissioned and discouraged from park visitors. This can be done by placing a physical barrier at the top of the slope such as a boulder, fence, or log. In addition, vegetation could be planted along the path if proper fencing is in place to keep foot traffic out until the plants are established.

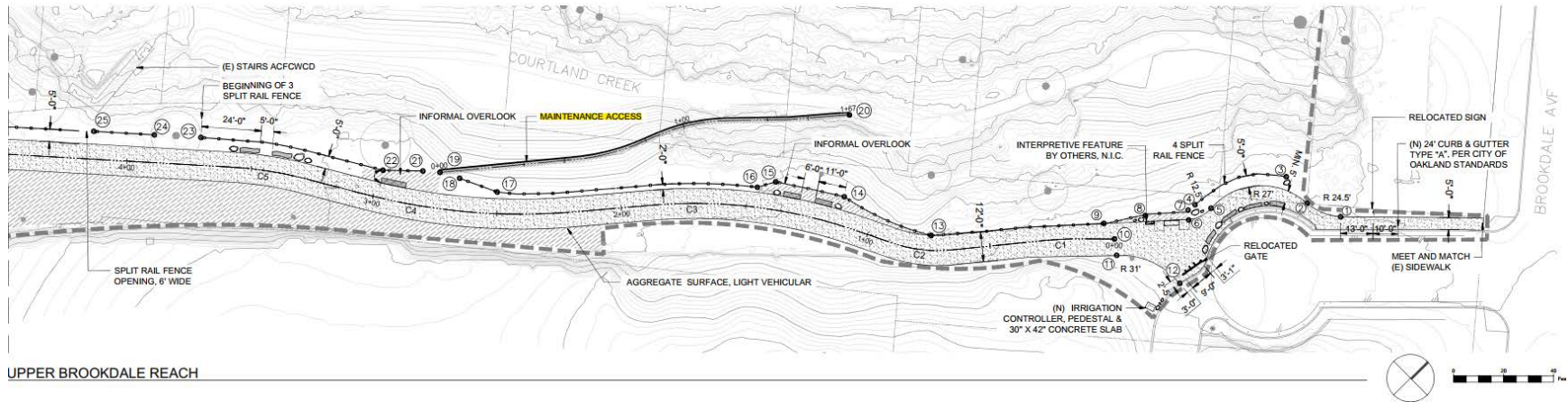


FIGURE 1: UPPER BROOKDALE REACH

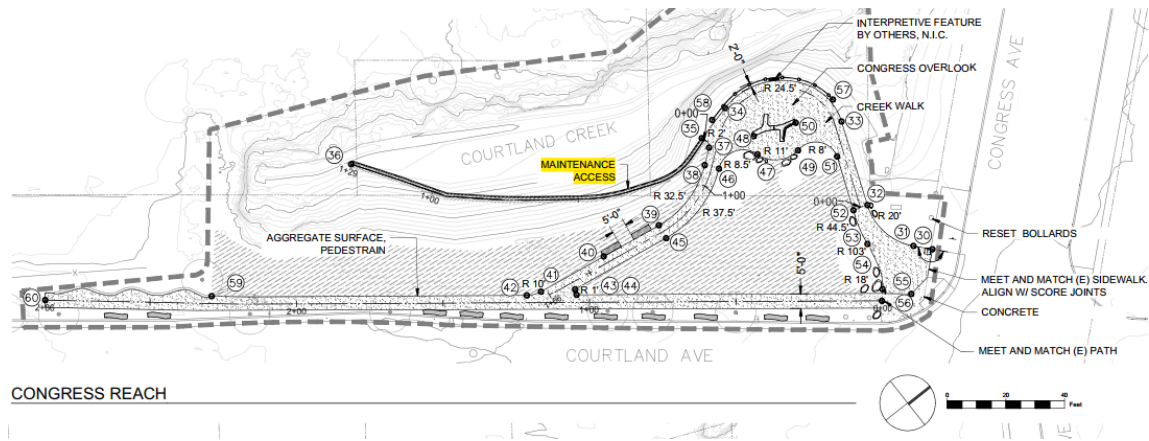


FIGURE 2: CONGRESS REACH

CONCLUSION AND CONTACT INFORMATION

A successful restoration of Courtland Creek will be largely dependent on the amount of regular maintenance the project receives. With consistent care and attention over time, we expect to see the restored project areas of Courtland Creek mature to serve as an important ecological site for urban wildlife and habitat.

Volunteers can contact Oakland Watersheds staff with questions at:

Jennifer Stern

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Watershed and Stormwater Management Division
Oakland Public Works
Telephone: 510 381-7515 or 510-238-6191
Email: jstern@oaklandca.gov

TABLE 1: NATIVE PLANT MAINTENANCE

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	MAINTENANCE
TREES			
<i>Acer negundo</i>	Box Elder	Green shoots with a whitish to pink or violet waxy coating when young. Branches are smooth, brittle, and retain a fresh green color. Bark on trunk is pale gray or light brown, deeply cleft into broad ridges, and scaly. Three to seven leaflets. Yellow-green flowers in early spring.	Prune to remove dead or damaged limbs, if necessary.
<i>Aesculus californica</i>	California Buckeye	Deciduous tree that grows to 20 feet tall with a spreading form. Bark is light gray. Leaves are compound with 5-7 leaflets. Leaflets are oblong in shape and slightly serrated. White flowers are arranged in 6–10-inch spikes during May-June. Trees lose their leaves in mid-summer. Seeds are large and encased in hard brown persistent husks.	Remove stakes when the tree is sturdy, after 1-2 years. Do not prune unless necessary for utility clearance.
<i>Cercis rhombifolia</i>	Western Red Bud	Small tree or shrub with thin, shiny brown branches and heart-shaped leaves.	Prune to remove dead or damaged limbs after 5 years, if necessary.
<i>Populus fremontii</i>	Fremont Cottonwood	Deciduous tree. Yellow-green, simple leaves are triangular in shape with toothed edges. Leaves turn yellow in the fall. Grows rapidly to 50 feet or more in height.	Requires moist/wet soil. Prune to improve form, and counteract weak branching structure. Never top cut. Prune suckers.
<i>Quercus agrifolia</i>	Live Oak	Evergreen tree 30-75 feet in height with a spreading form. Oval leaves have prickly edges. Acorns appear in the fall.	Remove stakes when the tree is sturdy, after 1-2 years. If necessary prune, do so in late summer or early fall. Pruning should be minimal. Whether removing dead material or damaged limbs, be sure only 15% of the tree’s mass is removed at one time. Never remove leaf litter from beneath the canopy.
<i>S. nigra v. caerulea</i>	Blue Elderberry	Large, deciduous shrub with pointed and sharp-toothed elliptical leaves 1-6 inches long.	Remove dead material if necessary.

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	MAINTENANCE
<i>Salix lasiolepis</i>	Arroyo Willow	Deciduous shrub/tree with silvery green leaves that yellow and shed in fall. Small wart-like growths visible along stem. Planted as pole cuttings. Pole cuttings will appear as sticks driven into the ground during the first years of growth.	Do not prune during first two years—this will top the trees and make them bushy.
SHRUBS			
<i>Arctostaphylos uva-ursi</i> 'Point Reyes'	Manzanita 'Point Reyes'	Low-growing shrub (1-foot tall) with mostly deep green shiny, leathery leaves mixed with some red or gray leaves. Pale pink flowers in early winter. Red berries.	Prune in the fall for rejuvenation or as needed to control spread if necessary or desired.
<i>Baccharis pilularis</i> 'Coyote Point'	Dwarf Coyote Brush	Evergreen shrub from 1-12 feet tall. Stems are dark brown and shiny. Leaves are hairless, 0.5-1.0 inch long, and oval or wedge shaped with 3 to 8 teeth on a side.	Remove weeds from around plant. Remove dead material if necessary.
<i>Ceanothus</i> 'Joyce Coulter'	Creeping Mountain Lilac	Evergreen shrub or groundcover. Leaves are small, bright green in color, and slightly serrated along the edges. Light blue flowers depending on species arranged to form cone shape.	Remove weeds from around plant. Remove dead material if necessary. Tolerates long periods of drought and is intolerant of wet summer environs.
<i>Cornus sericea</i>	Dogwood	6-9 feet tall shrub with dark green leaves 2-5 inches long that fade to red, orange, and purple in autumn. Reddish stems and tiny fragrant white flowers that become a cluster of white fruit in the summer.	Remove weeds from around plant. Remove dead material if necessary.
<i>Corylus cornuta</i>	California Hazelnut	Thicket-forming shrub with light brown stems and nearly round velvety/hairy leaves 1.5-4 inches long that have doubly toothed margins. 2-3 inch long catkins in clusters of 2 or 3 from fall to early spring. Acorn like nut concealed in a husk.	Remove weeds from around plant. Remove dead material if necessary.
<i>Frangula californica</i>	Coffeeberry	Dense, evergreen shrub growing 6-15 feet tall. Leaves are dark green with a reddish tint 1-3 inches long. Berries look like coffee beans,	Remove weeds from around plant. Remove dead material if necessary.
<i>Heteromeles arbutifolia</i>	Toyon	Shrub that grows to 8 feet tall. Evergreen leaves are sharply toothed and 2 inches long and 1 inch wide. Produces small white flowers	Remove weeds from around plant. Remove dead material if necessary.

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	MAINTENANCE
		in the summer. Fruit is small, bright red, and berry-like produced in large quantities.	
<i>Holodiiscus discolor</i>	Oceanspray	Oval or triangular leaves, green on the top, lighter and veiny on the bottom. Flowers are white and lilac-like in drooping clusters.	Remove weeds from around plant. Remove dead material if necessary.
<i>Lonicera involucrata</i>	Twinberry	Large shrub that can grow from 2-15 feet tall. Oval-shaped leaves that are hairy on the margins and underside. Reddish, tubular, hairy flowers less than an inch long.	Remove weeds from around plant. Remove dead material if necessary.
<i>Physocarpus capitatus</i>	Ninebark	Deciduous shrub/tree. Leaves have 3-5 lobes and toothed edges, similar to a maple leaf. Brown, shedding bark.	Remove weeds from around plant. Remove dead material if necessary.
<i>Ribes menziesii</i>	Canyon Gooseberry	Prickly branches, rounded, hairy green leaves. Showy purple or fuchsia hanging flowers with white petals. Fruit is purple.	Remove weeds from around plant. Remove dead material if necessary.
<i>Ribes sanguineum</i>	Pink Flowering Currant	Shrub 5-6 feet tall. Long, showy pink flower clusters from January to March. Dark purple oval berry. Loses 1-3 inch long broad lobed leaves in the summer.	Remove weeds from around plant. Remove dead material if necessary.
<i>Rosa californica</i>	California Rose	Thicket-forming shrub with prickly, curving stems. Flowers have five petals from pink to white to magenta.	Remove weeds from around plant. Remove dead material if necessary. Remove suckers.
<i>Rosa gymnocarpa</i>	Wild Rose	Shrub that grows up to 6 feet. Stem covered with long, straight spines. Fragrant pink flowers have five petals. Red rose hip fruit.	Remove weeds from around plant. Remove dead material if necessary. Remove suckers.
<i>Rubus parviflorus</i>	Thimbleberry	Dense shrub up to 8 feet tall. No prickles. Palmate leaves up to 8 inches across with five lobes. White five-petaled flowers 1-3 inches across. Bright red fruit that look like raspberries.	Remove weeds from around plant. Remove dead material if necessary. Remove suckers.
<i>Rubus ursinus</i>	Pacific Blackberry	Wide, mounding shrub or vine growing up to 5 feet tall and 6 feet wide. White flowers and edible, dark purple fruits.	Remove weeds from around plant. Remove dead material if necessary.

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	MAINTENANCE
<i>Symphoricarpos alba</i>	Snowberry	Oval leaves with smooth or wavy toothed margins and hairy undersides. Flowers are small and pink or white. White berry-like fruit in pairs.	Remove weeds from around plant. Remove dead material if necessary.
PERENNIALS & GRASSES			
<i>Achillea millefolium</i>	Yarrow	Woolly plant 2-3 feet tall with feather-like leaves. Stalks end in a tight cluster of white flowers.	Remove weeds from around plant.
<i>Artemisia douglasiana</i>	Mugwort	Dark green, deeply lobed, hairless leaves with silvery-white bottoms covered in downy hair. Purplish-red stems that end in red or yellow wooly flowers.	Remove weeds from around plant.
<i>Carex praegracillis</i>	California Field Sedge	Grass-like with sharply triangular stems 2-3 feet tall. Dense, cylindrical array of flower spikes up to 2 inches long.	Remove weeds from around plant.
<i>Carex barbarae</i>	Valley Sedge	Angled, smooth stems grow to a little over 3 feet tall. Leaves are narrow and long, and the flowers are clustered in a drooping spikes of up to 3 inches long. Flower colors are cream, purple, and red.	Remove weeds from around plant.
<i>Carex tumulicola</i>	Foothill Sedge	Grass-like tufted evergreen up to 12 inches tall with flat leaves that bear 3 to 10 spikes.	Remove weeds from around plant.
<i>Epilobium canum</i>	California Fuchsia	Slender and stemmed subshrub with toothed, green to white oval leaves. Scarlet to red-orange tubular flowers on short stems.	Remove weeds from around plant.
<i>Heracleum lanatum</i>	Cow Parsnip	Flowering plant up typically 2-4 feet in height with large (1-1.5 feet) palmate leaves. Creamy white flowerers with lacy, flat topped cluster up to a foot in diameter.	Remove weeds from around plant.
<i>Iris douglasiana</i>	Douglas Iris	Sword-shaped dark evergreen leaves. Showy blossoms emerge from leafy stalks. Flowers are typically blue but can range from pale cream to reddish purple.	Remove weeds from around plant.
<i>Juncus balticus</i>	Baltic Rush	Grasslike stalks that grow in clumps up to 3 feet tall. Clusters of greenish or reddish	Remove weeds from around plant.

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	MAINTENANCE
		flowers sprout from the sides of the grass stalks.	
<i>Juncus effusus</i>	Common Rush	Upright cylindrical stalks that are hollow with a white core that grow in dense clumps up to 4 feet tall. Olive green flowers sprout from the side of the stems.	Remove weeds from around plant.
<i>Juncus patens</i>	Grey Rush	Upright, leafless cluster of brooved, sharp-pointed, grey-green stems and small clusters of brown flowers in spring, summer, and autumn.	Remove weeds from around plant.
<i>Monardella villosa</i>	Coyote Mint	Small bush (up to 2 feet tall) or matted tangle of hairy mint-scented gray-green leaves. Small, bright lavender or pink flowers. Best identified by smell.	Cut back lightly in fall to promote brushy growth or control spread if desired.
<i>Mulenbergia rigens</i>	Deer Grass	Large bunchgrass (4-5 feet tall, 4 feet wide) with dense, tufted basal foliage and narrow pointed leaves that reach up to 3 feet long.	Remove dead material or cut back to control spread if necessary or desired.
<i>Salvia spathacea</i>	Hummingbird Sage	Herbaceous plant with upright flowering stems growing up to 3 feet tall. Highly aromatic (when crushed) bright green oblong leaves with rounded teeth. Bright rose-pink to marron flowers growing in whorls around stems.	Requires minimal maintenance if at all. Prune back to new growth in spring or summer to maintain shape if desired.
<i>Woodwardia fimbriata</i>	Giant Chain Fern	Upright or slightly bent fern with long, feather shaped fronds up to 8 feet in length with pointed teeth tipped with tiny spines.	Remove weeds from around plant.

TABLE 2: INVASIVE SPECIES MANAGEMENT

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	TREATMENT OPTIONS	FOLLOW - UP
<i>Acacia spp.</i>	Acacia	Grows into large evergreen tree. Dark green leaves are bi-pinnate and fern-looking when young and simple when developed. Both leaf types can appear on the same tree.	Pull sprouts and saplings by hand when soil is moist /loose. Cut larger trees and cover stump with black plastic to block-out light (stumps will sprout).	Return to the site to check for seedling growth and re-sprouts at least 2x year. Dig or cut out re-sprouts.
<i>Avena fatua</i>	Wild Oat	Plants grow to be 1-5 feet tall with a distinguishing inflorescence and long “hairy” leaves. May flower as early as January and will dry out and brown during the summer.	Remove by hand or with hand tools. Mowing is also effective and should be done as soon as flowering begins. Remove in winter (January-April) and re-check seasonally.	Check for new sprouts.
<i>Arundo donax</i>	Arundo	Tall-growing perennial cane with gray-green color. Flowers with feathery plumes in late summer. Spreads via underground rhizomes.	Cut with hand pruners or loppers, any resprouts. Cut debris should be appropriately disposed of to prevent re-rooting.	Check for new sprouts.
<i>Brassica nigra</i>	Black Mustard	Rigid stemmed weed, 2-6 feet in height. Green spade-like leaves which are slightly hairy. Yellow, 4-petal flowers March-June. Similar to field mustard.	Hand pull or use weed wrench to remove all parts, including tap root. (Mowing does NOT work.)	Hand pull new sprouts. Do not mow.
<i>Brassica rapa</i>	Field Mustard	Rigid stemmed weed, 2-6 feet in height. Green spade-like leaves which are slightly hairy. Yellow, 4-petal flowers March-June. Similar to black mustard.	Remove plant and taproot by hand or with a weed wrench before seeds develop. (Mowing does NOT work.)	Hand pull new sprouts. Do not mow.
<i>Cynodon dactylon</i>	Bermuda Grass	Gray-green grass that grows in dense mats with extremely deep roots. May grow to be 1.5 feet tall. Seed heads form at the ends of long spikes and are star-shaped in nature.	Hand-pull or dig out using a shovel, prior to plant establishment. Establishment of native vegetation will discourage Bermuda Grass	Check for new sprouts.

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	TREATMENT OPTIONS	FOLLOW - UP
<i>Eucalyptus globulus</i>	Blue Gum	The majority of Blue Gum will be removed entirely, including the root wad. Five Blue Gum trees are set to remain, with stumps ground down and plastic sheathing pinned over the stump to kill the rootwad. This will be used instead of herbicide. The five locations of stump-treated eucalyptus should be flagged for maintenance.	Plastic on stumps should be kept in place for one year.	Plastic should be removed after one year. If resprouts occur after one year, cut back regrowth when shoots reach 6 to 7 feet tall.
<i>Foeniculum vulgare</i>	Fennel	Jointed stalks with green feathery leaves. Fennel has yellow flowers in an umbrella shape while poison hemlock flowers are white in a similar shape. Fennel plants have a licorice odor.	Hand-pull or dig to remove all parts, including tap root while ground is soft/moist. Uproot seedlings with hand tools. Mow in beginning of April, then every 3 months except during seeding. (Do not mow during seed set-- this would encourage seed spread.	Remove ripe seeds from site by brushcutting and bagging flower heads. Revegetate with native shrubs immediately to prevent reestablishment. Check for resprouts/seedlings.
<i>Hedera canariensis / Hedera helix</i>	Algerian Ivy / English Ivy	Most leaves are juvenile—dull green, lobed, with distinct light veins—and reproduce by forming roots at stem nodes. Mature leaves are glossy green and unlobed, reproducing via umbrella-shaped clusters of greenish flowers followed by dark, berry-like fruits. Ground cover or climbing vine, can become woody.	Pull vines climbing into trees and along the ground by hand or with rakes and McLeods. Ivy can sometimes be rolled up like a carpet and piled or hauled off-site. Cut woody stems with pruners or loppers and dig up the roots with a shovel to prevent re-sprouting.	Check for re-sprouts and new seedlings 3-4 times per year
<i>Picris echioides</i>	Bristly Oxtongue	Leaves are ovate with raised blisters (hence the name Oxtongue). Stems and leaves are covered with coarse bristles. May grow to be 2-3 feet tall. Stems bear yellow flowers that resemble dandelions and disperse seeds via wind.	Hand pull wearing protective gloves prior to flowering to prevent seed dispersion (June).	Re-check seasonally. repeated mowing will be effective on larger stands.

SCIENTIFIC NAME	COMMON NAME	IDENTIFICATION	TREATMENT OPTIONS	FOLLOW - UP
<i>Raphanus sativus</i>	Wild Radish	Plants grow to be 2-3 feet tall and branch within the upper portion giving a bushy appearance. Leaves have a large terminal lobe with paired leaflets along the stem and often have coarse hairs. Lavender, pink, or white flowers with 4 distinct, rounded petals. Long, dark green seed pods form in late summer/fall.	Hand-pull or cut plants prior to the formation of seed pods if possible. Because plants have a heavy taproot (resembling a radish), removal is easier when the ground is soft and wet.	Check seasonally for regrowth.
<i>Rubus discolor</i>	Himalayan Blackberry	Shrubby vine with hooked/curving thorns, 3-5 leaflets and familiar berries. (Native blackberry is similar but only has 3 leaflets and fine prickles, not hooked thorns.)	Hand-pull or cut stems with loppers near ground; dig out roots with a Pulaski or shovel, and remove as much as possible, especially the main root ball and large lateral roots.	Revegetates immediately, return to site to remove seedlings or regrowth.