

In total there are three existing sites, that are proposed to move to one central garden out of TPZ into AG, closer to water source, on the same APN#210-054-008.

Site one; The proposed move would be to an environmentally superior location, further away from the creek, although site one is not in a riparian zone. This site would benefit from having PG&E rather than small gas generators that produce higher greenhouse gas and noise pollution that disturbs wildlife. An Initial Study, botany, archeology, owl, raptor, wetland surveys have all been done and have no conflict. A remediation plan is in place.

Site two; The proposed move would be to an environmentally superior location out of the TPZ zone and into the prime ag zone where proposed relocation goes. The timber zone is known to host more wildlife and by moving this garden will take away traffic, litter, noise out of the suitable wildlife area. This site would benefit from having PG&E at the proposed site rather than small gas generators that produce higher greenhouse gas and noise pollution. Site two gardens road is to steep and bottle necks which is a safety concern. An Initial Study, botany, archeology, owl, raptor, wetland surveys have all been done and have no conflict. A remediation plan is in place.

Site three; Site three's move would be to an environmentally superior location as well. It's in a heavy timber zone. Fire danger is high in this area, as the trees are thick and overgrown. Once again this is where the wildlife lives. This move would take traffic out of the woods along with fire danger, gas generators, and noise pollution to name a few. Relocation would combine site one two and three to a central location on prime ag soil, next to PG&E, closer to the highway. An Initial Study, botany, archeology, owl, raptor, wetland surveys have all been done and have no conflict. A remediation plan is in place.

CDFW and the Waterboard came for an LSA inspection, and really appreciated the relocation site Proposal, instead of these three existing garden sites disturbing wildlife. This relocation will get the generators, be gas or diesel, turned off, being there is PG&E at the relocation area. PG&E will enable the farm to have security cameras, reduce carbon footprint, and centralize activities. The relocation site has been deemed prime ag soil as well. All existing sites are not in prime ag soil which isn't environmentally suited for any crop. The relocation site is in AG zoning, the existing sites are in TPZ zoning. With the new site closer to highway, it makes for less impact in our forest traffic, fire danger, litter, noise, public safety and carbon footprint to name a few reasonings the relocation site would be environmentally superior. It would also provide easier accessibility county/state inspections and oversight.

With this information I am asking for confirmation to move the three gardens to a far more environmentally superior single relocation site on the same APN# 210-054-008 GPS 40.44298, -123.68848.

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Sordal 4 Wheel Properties, LLC
Restoration, Invasive Plant Management,
and Monitoring Plan

APN 210-054-008.

Prepared by
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2/20/2020

For
Hohman and Associates
Hydesville, CA

Setting

The Sordal project (a.k.a. 4-Wheel Properties) is located in Sections 23, 26 and 27, Township 1 North, Range 4 East HB&M; Humboldt County, on the Larabee Valley USGS 7.5' quadrangle. The project area consists of three assessor's parcels (APNs: 210-071-001, 210-054-008), southeast of the town of Bridgeville, CA. The biogeographic region can be described using a three-tiered hierarchy of province, region and sub-region. This site lies within the California Floristic Province, Northwestern California region, and North Coast Range sub-region. Elevation ranges from approximately 2400 to 2900 feet. The area contains open grasslands and mixed coniferous forest dominated by Douglas fir (*Pseudotsuga menziesii*) and tanoak (*Notholithocarpus densiflorus*) with some oak woodland. Ponds, wetlands, and riparian areas occur on the property. Slopes on the property range from very gentle to steep, and the aspect is variable.

Project Summary

The properties owned by Erik Sordal with current cultivation (APNs 210-054-008). This report documents site conditions, restoration planting plans, scheduled implementation and maintenance, performance standards, and monitoring requirements. Please see the Botanical Survey Report for additional details on habitats and species occurring in the area. Restoration is recommended to minimize and mitigate impacts of the current operation on aquatic resources, protected species, and sensitive habitats. Monitoring over a five year period should inform adaptive management with continuous maintenance and replanting as needed. An annual report should be submitted showing progress toward objectives for all restoration areas by January 1 of each year.

Existing four greenhouses (Site E)

The pre-existing and cultivation site is located on 1% slope. This 130' x 170' site was converted for cannabis cultivation by 2012. The site is currently occupied by 4 greenhouses. Surrounding vegetation includes grassland and black oak, with a minor amount of other hardwoods. The proposed move would be to an environmentally superior location, further away from the creek, although site e is not in a riparian zone. This site would benefit from having PG&E rather than small gas generators that produce higher greenhouse gas and noise pollution that disturbs wildlife. Botany, archeology, owl, raptor, wetland surveys have all been done and have no conflict.

Recommended mitigation for Site I:

- a) Remove green houses and all cultivation related materials from the site.
- b) Maintain all existing vegetation in the surrounding area. No grading required.
Maintain outsloped log landing.
- c) Straw mulch all bare soil within 100 feet created from the removal process

Performance Measures:

1. All cultivation materials shall be removed.
2. Grass seed evenly.

Monitoring:

1. Photo-document the removal of the cultivation materials and the rocked emergency turnaround.
2. Photo-document the seeded area



Photo 1. (site E)

Existing pond (site k)

The on-stream pond near the residence is located in open grassland on an altered stream course. Cultivated Port Orford cedar and invasive black locust trees are planted around the pond. Some native willows are naturally recruiting to the edge of the pond, which was mostly bare, with patches of pasture grasses and pennyroyal. The culverts at the inlet and outlets on a class II watercourse are failing and must be replaced (Road Points 5 and 6). The culverts should be replaced according to specifications in the LSAA. The inlet and outlet should be rocked with 12" – 18" diameter rock. The pond shall not be stocked with fish. The pond was evaluated on 1/30/2020. The water clarity was low, but high numbers of invertebrates that indicate high water quality (caddisflies, water boatmen) were present along the edge of the pond. The pond is likely high quality habitat and potential breeding habitat for the western pond turtle and northern red legged frogs. The foothill yellow legged frog also has the potential to use this site. When

surveyed under winter conditions, the pond maintained relatively low temperatures. At 11am on 1/30/20, the stream running into the pond was 49 degrees F, the pond was 50 degrees F, and the shallow water coming out of the pond outlet was elevated to 51 degrees F. With low vegetation cover, the pond has the potential to increase water temperatures substantially during the summer, which may negatively impact habitat quality for native amphibians and sensitive aquatic invertebrates found in the area.

At least 5 native riparian shade trees such as white alder, California buckeye, bigleaf maple, Oregon ash, or black cottonwood should be planted around the pond edge where they may provide shaded native habitat. Native willows (such as arroyo willow, Sitka willow, or shining Pacific willow) should also be planted in saturated soil approximately every ~10-20 feet around the edge of the pond. Some willows appeared to be naturally recruiting to the pond edge, and these should be supplemented by planting where bare areas remain. Willow cuttings may be sourced onsite or from a local nursery. Areas for recreational access to the pond may be left clear of vegetation. Willows are expected to improve water quality and habitat quality for native amphibians, western pond turtles, songbirds, and waterfowl. Willows should also be planted between the outlet culvert and road along channel leading the away from the pond to improve the quality of water flowing back into the stream channel. Herbaceous native wetland plants such as small-fruited bulrush or spreading rush may also be planted as desired in lieu of willows. The area should be surveyed for invasive American bullfrogs annually according to CDFW guidelines. Amphibian surveys targeting the CESA Candidate foothill yellow-legged frog and other sensitive species are recommended prior to work on the inlet and outlet.

Mitigation Measures:

- a) Complete all recommended culvert replacements, earthwork, etc.
- b) Plant native willows along the saturated edge of the pond every ~10-20 feet.

Performance Measures:

1. All work on the pond inlet and outlet is completed.
2. Native willows take root and increase vegetative cover along the pond edge.
3. A total of at least twenty healthy native trees are shading the pond area at the end of the monitoring period (at least 60% survival).

Monitoring:

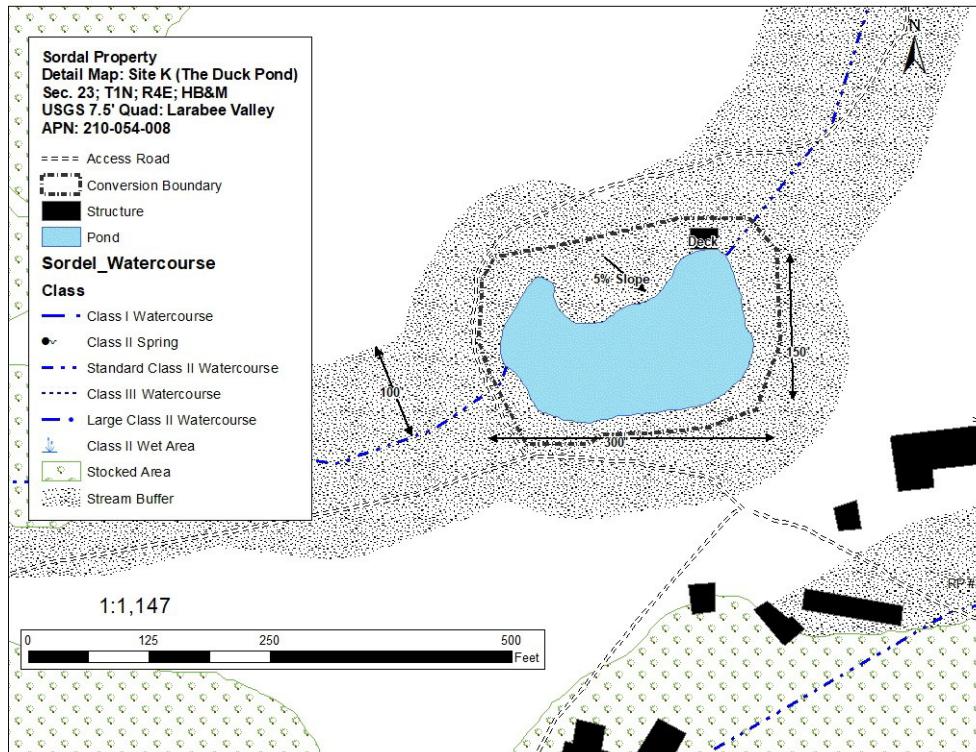
1. Photo-document work on the pond.
2. Document survival rate and estimate percent vegetative cover of willows along the pond edge..



Photo 2. The pond at Site K is on-stream, and native habitat enhancement is recommended.



Photo 3. The outlet channel of pond k, should be rocked and revegetated with native willows.



Map 1. The on-stream pond needs work on the inlet and outlet. Native habitat enhancement by planting native trees and willows is recommended.

Existing Site I (The Greenhouses)

The pre-existing and cultivation site is located on an upland slope within mixed coniferous forest. This 130' x 170' site was converted for cannabis cultivation by 2012. The site is currently occupied by 7 greenhouses and outdoor pots. Surrounding vegetation includes Douglas fir and black oak, with a minor amount of other hardwoods. It is recommended that the cultivation is relocated from the steep forested slope to the open flat grassland closer to Hwy 36. All cultivation materials should be removed. It is recommended that a portion of the site is rocked to be used as an emergency access vehicle turnaround.

Recommended mitigation for Site I:

- d) Remove green houses and all cultivation related materials from the site.
- e) Maintain all existing vegetation in the surrounding area. No grading required.
 Maintain outsloped log landing.
- f) Straw mulch all bare soil within 100 feet created from the removal process

Performance Measures:

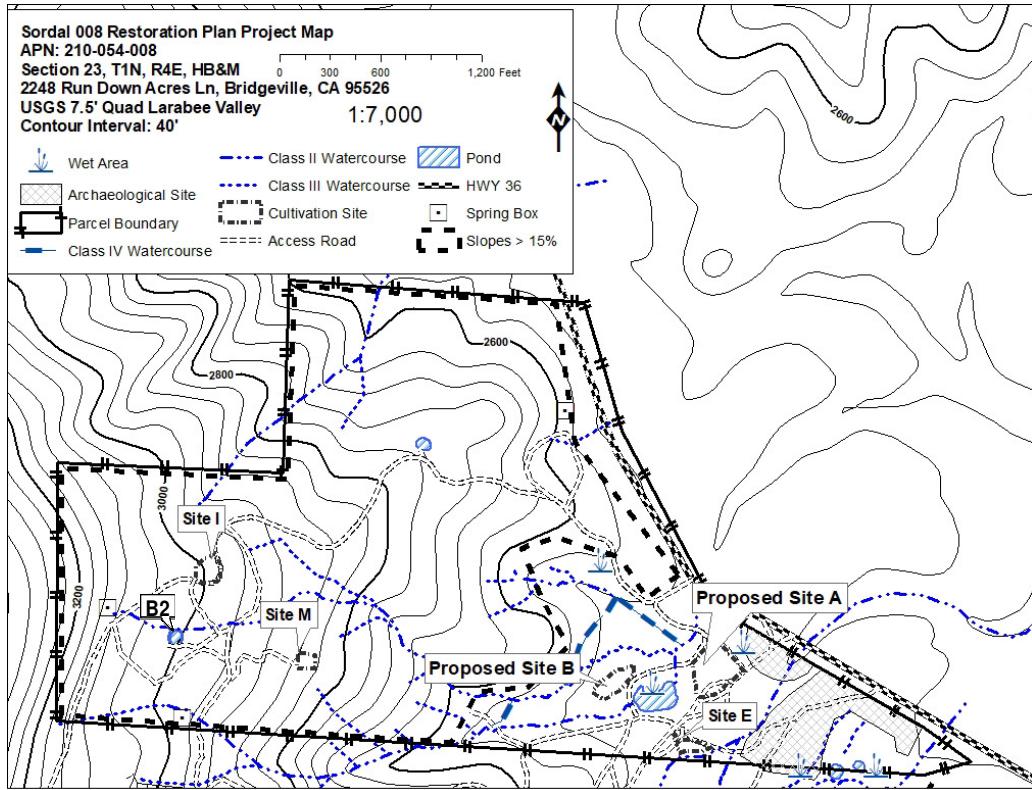
3. All cultivation materials shall be removed.
4. The area will have a rocked safety turnaround area.

Monitoring:

3. Photo-document the removal of the cultivation materials and the rocked emergency turnaround.
4. Photo- document the survival rate of vegetative cover at the site.



Photo 4. Site I includes greenhouses on the graded landing and outdoor cultivation on the surrounding slope. This shall be replaced with an emergency access turnaround and grass seeding sloped banks.



Map 2. The northeastern parcel contains current sites on >15% slopes to be relocated.

Existing Site M (The Mid-Slope Garden)

The mid-slope site is located on >15% slope with poor access via steep jeep trails. This 86' x 100' site was first converted for cannabis cultivation around 2012 when aerial imagery shows an outdoor garden was planted. Several greenhouses have occupied the site over the years, but currently no greenhouse is present. The site is located on the edge of oak woodland and a grassy meadow with some serpentine soils. Serpentine soils should be left undisturbed in the remediation process. Surrounding vegetation includes Douglas-fir, and mixed oak woodlands. The road system can only be used seasonally. It is recommended that the site be removed and the flat grass seeded. The road should be water barred, and all cultivation materials should be removed from the slope.

Recommended mitigation for Site M:

- Remove all cultivation related materials from the site.
- Maintain all existing vegetation. No grading required. Maintain outsloped flat.
- Straw mulch all disturbed bare soil within 100 feet and seed with a native grass seed mix such as Pacific Coast Seed Native Erosion Control Mix.

Performance Measures:

1. All cultivation materials will be removed.
2. Spread native grass seed.

Monitoring:

1. Photo-document removal of cultivation materials and revegetation area.



Photo 5. Site M cultivation site should be remediated and restored by planting grass. The nearby serpentine area is characterized by a blue-green tinge, and this area should be avoided.

Native grass seed to be used in erosion control should be locally common native species. The applicant should use the recommended Pacific Coast Seed Native Erosion Control Mix or other native grass and/or forbs mix sourced from a knowledgeable local native plant nursery. The recommended Pacific Coast Seed Native Erosion Control Mix (available to order online at <http://store.pcseed.com/>) contains the following quick-growing, locally common species:

California brome (*Bromus carinatus*)
Blue wildrye (*Elymus glaucus*)
Small fescue (*Festuca microstachys*)
Tomcat clover (*Trifolium willdenovii*)

Native grass seed should be applied to areas of bare dirt in remediation sites with a weed-free straw mulch prior to the November 15th winterization deadline. The recommended rate of application for the Pacific Coast Native Erosion Control Mix is 45lbs/acre, which is approximately 1 pound/1,000 square feet. The estimated total area of disturbance that should be seeded with native grass is approximately 1 acre, so it is recommended that 45lbs of the Pacific Coast Seed Native Erosion Control Mix is purchased for the project. Additional forbs have been included in the native plant restoration palette to fill in bare areas as needed. Seeding native grass and planting other native plants is expected to help prevent invasive plant species from becoming established in disturbed areas.

Invasive plants that should be targeted for management on the property include black locust, Scotch broom, Himalayan blackberry, yellow star thistle, and bull thistle (Table 3). These plants have the potential to aggressively spread and degrade native habitat. If these plants spread into project areas, they should be pulled immediately. Black locust trees shall be removed from the Site K Pond habitat enhancement area and be replaced with native trees. Bull thistle shall be removed from the uncovered soil pile and other project areas prior to going to seed in the spring. Other invasive species observed on the property were sparsely distributed on the property and not noted within project areas. These species should be targeted for early detection and removal from project areas along with other Cal-IPC *High*-rated invasive species that could occur in the area (Table 4). Please see attached Cal-IPC Weed Alert pamphlets for identification and management information.

Maintenance and monitoring of the restoration area is recommended over a five-year period. The restoration area should be photo-documented and maintained on a monthly basis during the dry season after planting, when young plants are most vulnerable to desiccation. Plants may need to be deeply watered, weeded, and mulched during this period to enhance survival. Each fall, the restoration areas should be monitored by photo-documenting the sites, recording the survival rate of restoration plantings, and by estimating percent vegetative cover of the restoration areas. Any bare areas should be reseeded with native grass and mulched prior to November 15. The goals of the restoration project are erosion control, improved water quality, and native habitat restoration. Restoration objectives established to meet these goals include

>60% survival rates for restoration planting, stabilizing eroding banks, and providing native riparian shade and habitat by the end of the five-year monitoring period. Adaptive management should be employed throughout the monitoring period. If initial plantings are not successful and the project is not meeting performance standards, purchasing additional nursery stock and replanting may be needed. Document any new replacement plantings. Annual monitoring reports with photo-documentation, monitoring data, and progress toward restoration objectives should be provided to CDFW and Humboldt County Planning Department for review by January 1 of each year. The final monitoring report in year five should include an analysis of how project goals and objectives were or were not met.

Reporting

Submit annual reports with photo-documentation to CDFW and Humboldt County Planning Department by January 1 of 2021-2026.

Agencies to Receive Copies of Monitoring Report:

California Department of Fish and Game
619 Second St.
Eureka, CA 95501
(707) 445-6493 | FAX: (707) 445-6664

Humboldt County Planning and Building Department
3015 H St.
Eureka, CA 95501
FAX (707) 268-3792

References

Cal IPC (California Invasive Plant Council). 2019. The Cal-IPC Inventory. (online edition). Berkeley, CA. <<https://www.cal-ipc.org>>.

Hoag, Chris. 2007. How to Plant Willows and Cottonwoods for Riparian Restoration. USDA-NRCS Plant Materials Center, Aberdeen, Idaho. Plant Materials no. 23.

Humboldt County Weed Management Area. 2010. Invasive Weeds of Humboldt County: A Guide for Concerned Citizens (2nd Edition). Arcata, California.

Table 1. Native Plant Restoration Palette. This plant list was compiled based on personal observation of plants on the property and in the surrounding area, and referring to CNPS CalScape and Native Plants PNW. Plants may be selected as available at native plant nurseries. Riparian species should be planted along watercourses, while upland plants may be planted in drier areas. Spacing provided is on-center.

Type	Common Name	Scientific Name	Spacing	Propagule Source	Habitat and Notes
Trees	Bigleaf maple	<i>Acer macrophyllum</i>	~16-20ft	nursery stock	Riparian to upland, moderate water requirement.
	California buckeye	<i>Aesculus californica</i>	~16-20ft	Nursery stock or Seed collection	Riparian to upland, low water requirement.
	Oregon ash	<i>Fraxinus latifolia</i>	~10-16ft	Nursery stock	Riparian, moderate water requirement.
	Oregon white oak	<i>Quercus garryana</i>	~16-20ft	Nursery stock	Upland slopes, growing in upland soils around riparian areas.
	Black cottonwood	<i>Populus trichocarpa</i>	~12-16ft	Cuttings, or nursery stock	Wetland riparian, moderate to high water requirement.
	Douglas fir	<i>Pseudotsuga menziesii</i>	~12-14ft	Nursery stock	Upland, low water requirement.
	Shining Pacific willow	<i>Salix lasiandra</i>	~12-14ft	Willow cuttings	Wetland riparian, moderate to high water requirement.
Shrubs	Coyotebrush	<i>Baccharis pilularis</i>	~6-12ft	Seed collection, nursery stock	Highly tolerant of difficult growing conditions.
	Deer brush	<i>Ceanothus integerrimus</i>	~6-12ft	Nursery stock	Upland slopes, valuable pollinator plant.
	Oceanspray	<i>Holodiscus discolor</i>	~8-16ft	Nursery stock	Upland slopes, riparian. Tolerant of a variety of conditions. Valuable to pollinators.
	Nootka rose	<i>Rosa nutkana</i>	~6-10ft	Nursery stock	Riparian. Valuable as bank stabilization and barrier thicket. Germination improved by stratification, scarifying.
	Thimbleberry	<i>Rubus parviflorus</i>	~6-10ft	Nursery stock	Riparian, upland slopes. Moderate to high water requirement. Disturbance tolerant, valuable food for wildlife.
	Arroyo willow	<i>Salix lasiolepis</i>	~4-8ft	Willow cuttings, nursery stock	Wetland riparian, tolerant of a wide variety of conditions.
	Sitka willow	<i>Salix sitchensis</i>	~4-8ft	Willow cuttings, nursery stock	Wetland riparian, moderate to high water requirement.
Herbaceous Plants	Common yarrow	<i>Achillea millefolium</i>	~2-4ft	Seed collection, division, or nursery	Valuable for erosion control, grows easily, tolerant of a variety of conditions.
	Spreading rush	<i>Juncus patens</i>	~3-6ft	Nursery stock	Wetland and seasonally dry areas. Moderate to high water requirement.
	Small-fruited bulrush	<i>Scirpus microcarpus</i>	~2-4ft	Nursery stock	Wetland areas. Fast growing, provides cover for aquatic and amphibious species.

Table 2. Schedule for Implementation, Inspection, and Maintenance for Pond and Channel

Stage	Timing	Details
1. In-Stream Work	Late Summer/Fall (August-October 2020)	Channel rocking, culvert replacements and pond drawdown should occur during the dry season, after the amphibian breeding season has passed.
2. Winterization	Fall, completed by November 15	All bare earth must be seeded and mulched after work on the pond and channel is completed, before winterization deadline. Ensure that all potting soil or other organic material is in the covered compost pile or covered storage.
3. Planting Trees	Winter-Early Spring	Trees should be planted during the rainy season to prevent desiccation.
4. Willow Cuttings and Plantings	Early Spring	Cutting and planting willows in the channel should occur during the willows' winter-early spring dormant stage and while the soil is wet.
5. Dry Season Watering and Maintenance	Summer-Fall (May-September)	The restoration area should be monitored and maintained on a monthly basis during the dry season after planting.
6. Invasive Plant Monitoring and Control	Spring-Summer	Pull bull thistle and any other invasive plants occurring in restoration and cultivation areas (see Table 3).
7. Annual Monitoring and Maintenance	Fall (September-November 15) for 5 years	Each fall, the restoration area should be monitored for planting success and percent vegetative cover. Photo-document each site. Remove any remaining invasive plants. Replant, reseed grass and re-mulch bare areas as needed.
8. Annual Monitoring Report Deadline	January 1 st 2021-2026	Monitoring reports should be turned in by the end of each year, including a final report in year five on goals and objectives met.

Table 3. Invasive species observed on the parcel. Please see attached Invasive Species Alert identification information from Cal-IPC and Checklist for Invasive Species Removal and Restoration Monitoring. Invasive plants prioritized for removal are in bold.

SPECIES	COMMON NAME	FAMILY	OPPORTUNITY	CAL-IPC RATING	STATUS ONSITE
<i>Robinia pseudoacacia</i>	black locust	Fabaceae	containment	Limited	Present
<i>Cytisus scoparius</i>	Scotch broom	Fabaceae	containment	High	Present
<i>Rubus armeniacus</i>	Himalayan blackberry	Rosaceae	containment	High	Present
<i>Anthoxanthum odoratum</i>	sweet vernal grass	Poaceae	containment	Moderate	Present
<i>Bromus diandrus</i>	ripgut brome	Poaceae	containment	Moderate	Limited Invasion
<i>Carduus pycnocephalus</i>	Italian thistle	Asteraceae	containment	Limited	Present
<i>Centaurea solstitialis</i>	yellow star thistle	Asteraceae	containment	High	Present
<i>Cirsium vulgare</i>	bull thistle	Asteraceae	containment	Moderate	Limited Invasion
<i>Cynodon dactylon</i>	Bermuda grass	Poaceae	containment	Moderate	Present
<i>Cynosurus echinatus</i>	hedgehog dogtail grass	Poaceae	containment	Moderate	Limited Invasion
<i>Dactylis glomerata</i>	orchard grass	Poaceae	containment	Limited	Limited Invasion
<i>Dipsacus fullonum</i>	teasel	Dipsacaceae	containment	Moderate	Present
<i>Festuca arundinacea</i>	reed fescue	Poaceae	containment	Moderate	Present
<i>Holcus lanatus</i>	purple velvetgrass	Poaceae	containment	Moderate	Present
<i>Hypericum perforatum</i>	Klamathweed	Hypericaceae	containment	Moderate	Present
<i>Hypochaeris radicata</i>	hairy cat's ear	Asteraceae	containment	Moderate	Present
<i>Mentha pulegium</i>	pennyroyal	Lamiaceae	containment	Moderate	Limited Invasion
<i>Plantago lanceolata</i>	English plantain	Plantaginaceae	containment	Limited	Limited Invasion
<i>Rumex acetosella</i>	sheep sorrel	Polygonaceae	containment	Moderate	Limited Invasion
<i>Rumex crispus</i>	curly dock	Polygonaceae	containment	Limited	Limited Invasion

Table 4. Highly invasive species that may occur in inland Humboldt County habitats to be targeted for early detection. Please see attached Invasive Species Alert identification information from Cal-IPC.

SPECIES	COMMON NAME	FAMILY	OPPORTUNITY	CALIPC RATING	STATUS
<i>Aegilops triuncialis</i>	barb goatgrass	Poaceae	surveillance	High	Potential
<i>Arundo donax</i>	giant reed	Poaceae	containment	High	Potential
<i>Bromus tectorum</i>	downy brome, cheatgrass	Poaceae	containment	High	Potential
<i>Centaurea stoebe</i> spp. <i>micranthos</i>	spotted knapweed	Asteraceae	containment	High	Potential
<i>Cortaderia jubata</i>	jubatagrass	Poaceae	containment	High	Potential
<i>Cortaderia selloana</i>	pampasgrass	Poaceae	containment	High	Potential
<i>Delairea odorata</i>	Cape-ivy	Asteraceae	containment	High	Potential
<i>Elymus caput-medusae</i>	medusahead	Poaceae	containment	High	Potential
<i>Euphorbia virgata</i>	leafy spurge	Euphorbiaceae	containment	High-Alert	Potential
<i>Foeniculum vulgare</i>	fennel	Apiaceae	containment	High	Potential
<i>Genista monspessulana</i>	French broom	Fabaceae	containment	High	Potential
<i>Hedera helix</i> and <i>H. canariensis</i>	English ivy, Algerian ivy	Araliaceae	containment	High	Potential
<i>Lepidium latifolium</i>	perennial pepperweed	Brassicaceae	containment	High	Potential
<i>Lythrum salicaria</i>	purple loosestrife	Lythraceae	containment	High	Potential
<i>Onopordum acanthium</i>	Scotch thistle	Asteraceae	eradication	High	Potential
<i>Spartium junceum</i>	Spanish broom	Fabaceae	containment	High	Potential
<i>Tamarix parviflora</i>	smallflower tamarisk	Tamaricaceae	eradication	High	Potential
<i>Tamarix ramosissima</i>	saltcedar, tamarisk	Tamaricaceae	containment	High	Potential
<i>Ulex europaeus</i>	gorse	Fabaceae	containment	High	Potential