

Biological Assessment Report

Assessor's Parcel Numbers (APNs):

209-351-022 & 209-291-001



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Section I Summary of Findings and Conclusions

The applicant seeks a Zoning Clearance Certificate under Humboldt County CCLUO 2599 for a Retirement, Remediation, and Relocation (RRR) receiving site to cultivate approximately 7.2 acres of cannabis in the place of an existing agricultural field. The project site is located 1.85 miles northwest of the town of Redcrest in Humboldt County California. This project occurs entirely within the boundaries of the preexisting non-native cultivated agricultural field and no vegetation, including trees, will be removed within the project site or in the adjacent area for this project. It is not anticipated that there will be any negative impacts to surrounding habitats. The project area is regularly disturbed by the cultivation process and has a history of cultivation for over 100 years. The ecological habitat and preexisting use of the site makes it unlikely that special status plant and animal species are present within the proposed site location, and/or would be negatively impacted by the project.

Section II Introduction, Background, and Project Understanding

A. Purpose and Need

This Biological Assessment Report has been prepared for Redcrest Organics, LLC in order to assess the site's existing habitats, determine the potential for presence of special status plant and animal species and determine the biological suitability as a RRR receiving site.

B. Biologist's Qualifications

The biological assessment for this report was conducted by Mason London. Mason holds a Master's of Science degree in Biology with a concentration in aquatic ecology from Humboldt State University. Mason also has 9 collective years of experience working professionally as a botanist, wildlife biologist, and aquatic ecological research scientist.

C. Parcel and Project Site Description

This Biological Assessment Report considers the potentially occurring species and communities that could be affected by the proposed project based on available spatial data, habitat requirements, and observations made during a site visit. The project site was evaluated for potential habitat value to protect endangered, threatened, rare, and sensitive species by walking around the project area to observe species, habitat types and quality (Appendix B: Map 1). Other project related aspects, such as water storage, site location and cultivation methods were assessed in terms of ecological and biological impact.

On September 13th, 2019 a biological resource and habitat survey, with regards to special status species, was conducted for the area of potential effects for the cultivation of approximately 7.2 acres of cannabis within an existing 15-acre agricultural cultivated field. The parcels which this agricultural field are located in have an Assessors' parcel Number (APN) of 209-351-022 (27 acres) and 209-291-001 (1.28 acres). This parcel is located approximately 1.85 miles northwest of the town of Redcrest within an unincorporated area of Humboldt County, California within the Redcrest 7.5 minute quadrangle (Quad code: 40123-D8) in the Lower Eel River watershed (CDFW Region: 1). The project site is located approximately 0.10 miles west of Holmes Flat Road, and approximately 0.15 miles north of State HWY 254 (Avenue of the Giants). The center location of these parcels is 40°25'04.8"N 123°57'54.0"W. The elevation of the center location

of the proposed project site is approximately 130 feet (~40 meters) above sea level (Google Earth Pro, 2019).

These parcels have a Current General Plan of Agriculture Exclusive (AE) which "...applies to bottomland farms and lands that can be irrigated; also used in upland areas to retain agricultural character. Typical uses include dairy, row crops, orchards, specialty agriculture, and horticulture" (2017 Humboldt County General Plan, 2017).

D. Cultivation

The project is proposed to occur entirely within a non-native cultivated agricultural field which has had an approximate 100-year history of cultivating alfalfa, corn, tomatoes and other crops (owner estimated that agricultural cultivation of this field started in about 1910 based on historic documentation). At the time of the site visit investigation, corn and tomatoes were being dry farmed in approximately 30% of the field and evidence of cow grazing occurring in the other portion. Farm equipment is used for planting, harvesting, and tilling of the field. The operation will consist of the use of farm equipment such as tractors, plows, discs, etc., to cultivate the 7.2 acres of outdoor cannabis. This cannabis will be grown using dry farming techniques with one crop per growing season. Because of the one crop per season, no artificial light and/or generators will be used for cultivation, which means that no noise or light pollution will impact the surrounding area. The cannabis will be planted directly in soil in rows around late May to early June, watered for 3 weeks, then dry farmed after that. No vegetation will be removed outside the project area. Access roads to the project site are existing and are used currently for site access by farm equipment.

E. Water Collection and Storage

The cannabis will be cultivated using dry farming techniques. Dry farming encompasses specific agricultural techniques for the non-irrigated cultivation of crops. However, after the initial planting, the cannabis will be irrigated for approximately 3 weeks to help establish the plants rootstock. For this initially 3 week irrigation, seven 4,250-gallon rain catchment tanks (equating to 29,750 gallons of water) will be utilized. This amount of water storage was determined to be sufficient to irrigate the 7.2 acres of cannabis for 3 weeks given the following equation:

$$43,560 \text{ ft}^2 \times 7.2 \text{ acres} \times 0.33 \text{ gallons per plant per day} \times 3 \text{ weeks} \times 7 \text{ days} \\ \times 0.33 \text{ watering per week} = 717,245 \text{ gallons of water}$$

Since each plant will be approximately spaced 5 feet apart, each plant will have an area of approximately 25 ft² to grow. Therefore, the total amount of gallons of water needed to cultivate the 7.2 acres of cannabis for three weeks would be 717,245 gallons/25 ft² = 28,690 gallons.

According to the National Weather Service, the annual average precipitation (averaged between 1961 and 1990), shows this region receiving, on average, between 75 and 100 inches of rain per year. Even on the lower end of the average, this amount of rain fall is adequate to fill the rain catchment/storage tanks during the wet season.

Section III Methods

A. Pre-Site Visit Data Complication and Preparation

A list of special-status plant and animal species to consider to be potentially present within the parcel was downloaded from the California Department of Fish and Wildlife's California Natural Diversity Database (CNDDDB, CDFW, 2019) BIOS, the United State Fish and Wildlife Service Information for Planning and Conservation (IPaC, USFWS 2019), Calflora Project (Calflora, 2019) for the Redcrest 9-quad area. Animals on the CNDDDB list were primarily included based on state or federal listing status or CDFW designation. Native pollinators found in the area were also included based on the state rarity and their potential to be affected by cannabis cultivation.

The special status species in the 7.5 minute USGS Redcrest quadrangle, and the 9 adjacent quadrangles, resulted in 44 special status animal species (5 amphibians, 13 birds, 6 fishes, 2 insects, 14 mammals, 3 mollusks, 1 reptile) (Appendix C: Table 1) and 36 special status plant (1 bryophyte, 1 lichen, 34 Vascular) (Appendix C: Table 2).

B. Biological Resources and Habitat Investigation

A biological resource and habitat investigation was conducted at the project site between 12:30 and 14:00 on September 13th, 2019 (Appendix B: Map 1). The weather was sunny with no cloud cover. The goal of the investigation was to determine suitable habitat for potential species within the project area. Habitat characteristic on the majority of the parcels (equating to 28.28 acres) was investigated. Dominate species in surrounded habitats, adjacent watercourse locations and project related features (such as water storage methods, and project site setbacks from streams, rivers and other watercourses) were also observed and recorded. A TruPulse 200X laser rangefinder was used to make all of the distance measurements and for determining adequate setbacks. The areas including the project site, as well as the surrounding field habitat, and the adjacent wooded and vegetated areas was more thoroughly surveyed for sensitive species and potential project related impacts.

Section IV Results and Discussion

A. Habitat Area and Existing Site Conditions

The dominate habitat within the parcels, and therefore the project area, consists of an agricultural field (Figure 1). Available imagery, acquired from Historic Aerials, shows agricultural evidence from 1947 (Figure 2), but there is recorded evidence of this parcel being cultivated for at least the last 100 years.

1. Terrestrial

Because of the history of cultivation, and therefore a regularly occurring disturbance regime to the parcel, the project site is dominated by many nonnative species. This habitat is unlikely to harbor any sensitive and/or rare plant or animal species due to the nature of disturbance. However, several vegetated communities exist surrounding the agricultural field beyond the project site that were also assessed for species occurrence potential. No vegetation or tree removal outside of the agricultural field is proposed and it is not anticipated that any vegetation communities outside of the field will be impacted by the project.

From approximately 250 feet north of the agricultural field a riparian corridor exists between the field and the Eel River. This riparian habitat is not on the applicants parcel and is on a steep, sandy and rocky slope, dominated by mixed riparian hardwoods. The dominate species in this habitat are black cottonwood (*Populus trichocarpa*), coyote brush (*Baccharis pilularis*) Pacific willow (*Salix lasiandra*), and arroyo willow (*Salix lasiolepis*).

West and south of the agricultural field, also outside of the applicant's parcel, is densely forested with a mixture of coast redwood (*Sequoia sempervirens*), Douglas fir (*Pseudotsuga menziesii*) and tanoak (*Notholithocarpus densiflorus*) (Figure 3). This habitat exists approximately 350 ft to the south and 130 ft to the west of the agricultural field.

Surrounding the perimeter of the agricultural field is dominated by fennel (*Foeniculum vulgare*) Himalayan blackberry (*Rubus armeniacus*), amaranth (*Amaranthus spp.*) and common teasel (*Dipsacus fullonum*) (Figure 4).

At the time of the site visit investigation, corn and tomatoes were being cultivated on the eastern side of the field, and there was visible evidence (cow dung) of recently grazing cattle on the middle and western side of the field. Where the targeted crop species weren't growing, observed vegetation included field bindweed (*Convolvulus arvensis*), lawn plantain (*Plantago major*), amaranth (*Amaranthus spp.*), curly dock (*Rumex crispus*), wild carrot (*Daucus carota*), bull thistle (*Cirsium vulgare*), mustard plant (*Brassica nigra*), daisy (*Bellis perennis*) and white clover (*Trifolium repens*).

2. Aquatic

To the north of the agricultural field is the Eel River, a Class III perennial watercourse. The nearest location of the field to the river is approximately 320 ft away. To the south of the field, and on the applicant's parcel, is Chadd Creek, also a Class III perennial watercourse. The nearest location of the field to this creek is approximately 200 ft away. Both of these distances are sufficient as determined by the California State Waterboard's regulations noted in Forest Practice Rules Water Course and Lake Protection Zone definitions, California Code of Regulations, title 14, Chapter 4.

3. Sensitive Species or Habitats

Each species derived from the previously mentioned databases were evaluated for their potential of occurrence within the project site by the following criteria:

1. **"None."** Species listed as having "none" potential of occurrence are those species for which there is no suitable habitat within the project area (elevation, hydrology, plant community, disturbance regime, etc.)
2. **"Low."** Species listed as having a "low" potential of occurrence are those species for which there is no known occurrence of the species within the project area and there is limited or marginal suitable habitat present at the project area.
3. **"Moderate."** Species listed as having "moderate" potential of occurrence within the project area are those species for which there is a known record of occurrence within or in

the vicinity of the project area and/or there is suitable habitat present within the project area.

4. **“High.”** Species listed as having “high” potential of occurrence within the project area are those species for which there is a known record of occurrence within or in the vicinity of the project area and/or there is highly suitable habitat present within the project area.

5. **“Present.”** Species listed as having “present” potential of occurrence within the project area are those species for which the species was observed during the field survey.

Species with a ‘low’ potential of occurrence were not further investigated for likelihood to exist within or utilize the project site habitat. A rank of low was given to species that most likely will not occur, or are highly unlikely for them to occur, based on their habitat requirements.

However, there are always exceptions to natural rules and so these species were not given the rank of ‘none’ because it is not entirely impossible for them to occur, just extremely unlikely.

Of the 44 special status animal species, 10 had a moderate or high potential of occurring at or within the project site with additional species having potential to occur adjacent to the project site (outside of the boundary of the cultivated field). Of the 36 special status plant species, 7 had a moderate potential of occurring at or within the project site with additional species having potential to occur adjacent to the project site.

B. Special Status Plant Species

Potential habitat for 7 special-status species exist within the project area. These species include Harlequin lotus (*Hosackia gracilis*), Kellogg’s lily (*Lilium kelloggii*), maple-leaved checkerbloom (*Sidalcea malachroides*), Siskiyou checkerbloom (*Sidalcea malviflora ssp. patula*), Howell’s montia (*Montia howellii*), nodding semaphore grass (*Pleuropogon refractus*), and Pacific gilia (*Gilia capitata ssp. pacifica*). Note that none of these species were observed during the site visit investigation.

Harlequin lotus (*Hosackia gracilis*) has a moderate potential of occurring at the project site. Its elevation range is between 0 and 700 meters and is known to occur in broadleaved upland forests, coastal bluff scrub, closed-cone coniferous forests, cismontane woodlands, coastal

prairies, coastal scrubs, North Coast coniferous forests and valleys and foothill grasslands. Specifically, *Hosackia gracilis* can be found in wetlands, roadsides, meadows, seeps, marshes and swamps. While habitat for this species does exist within the agricultural field at the project site, the history of disturbance and ongoing cultivation of the field for over a century makes it highly unlikely that this species would occur at the project site. The potential habitat areas surrounding the project site will not be disturbed by this proposed project. Also, this species was only recorded to occur within the Hydesville 7.5 USGS Quad.

Kellogg's lily (*Lilium kelloggii*) has a moderate potential of occurring at the project site. Its elevation range is between 3 and 1300 meters and is known to occur in lower montane coniferous forests and north coast coniferous forests. *Lilium kelloggii* can also be found in vegetated openings and along roadsides. Even though that *Lilium kelloggii* was found to be present in the Redcrest 7.5 USGS Quad, and the potential habitat may be present on the perimeter of the agricultural field, the history of disturbance and ongoing cultivation of the field, for over a century makes it highly unlikely that this species would occur at the project site. The potential habitat areas surrounding the project site will not be disturbed by this proposed project.

Maple-leaved checkerbloom (*Sidalcea malachroides*) has a moderate potential of occurring at the project site. Its elevation range is between 0 and 730 meters and is known to occur in broadleaved upland forests, coastal prairies, coastal scrubs, North Coast coniferous forests, and riparian woodlands and also is often found in disturbed areas. The CNDDB BIOS map shows a polygon of this species occurring over the entire area of the project site, parcel, and all surrounding parcels (Appendix B: Map 2). However, in the occurrence report for this sighting, it is stated that "directions on the collection label are not clear if plant is found all along the river between the South Fork Eel River and Scotia or only at the Holmes Flat between the South Fork and Scotia." It should also be noted that this sighting of *Sidalcea malachroides* was made in 1918 and has an accuracy ranking of "nonspecific area". Even though this species often resides in disturbed areas, the level and frequency of disturbance, due to the history of ongoing cultivation of the field for over a century makes it highly unlikely that this species would occur

at the project site. Also, *Sidalcea malachroides* is a perennial herb with distinct “maple like” leaves, making it easily identified even when not in bloom. No *Sidalcea malachroides* were observed during the site investigation and it is concluded that it is highly unlikely that this species occurs at the project site. Furthermore, in 2005 the property owner hired a botanist from the Natural Resources Management Corporation (NRM) to conduct a rare plant survey on the parcel. No maple-leaved checkerbloom plants were located during the survey and it was noted in the report that ...“no further actions should be needed to address this species” (Appendix D: Observation Report 1). The potential habitat areas surrounding the project site will not be disturbed by this proposed project.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*) has a moderate potential of occurring at the project site. Its elevation range is between 15 and 880 meters and is known to occur in coastal bluff scrub, coastal prairies, North Coast coniferous forests, and also found in roadcuts. While habitat for this species does exist within the agricultural field at the project site, the history of disturbance and ongoing cultivation of the field for over a century makes it highly unlikely that this species would occur at the project site. The potential habitat areas surrounding the project site will not be disturbed by this proposed project. Also, this species was only recorded to occur within the Hydesville, Myer Flat, Bridgeville, Yager Junction, Scotia, and Owl Creek 7.5 USGS Quads, and not in the Redcrest 7.5 USGS Quad.

Howell's montia (*Montia howellii*) has a moderate potential of occurring at the project site. Its elevation range is between 0 and 880 meters and is known to occur in North Coast coniferous forests, meadows, seeps, vernal pools, and vernal mesic areas. The CNDDDB BIOS map shows multiple polygon site locations of this species occurring approximately 1.3 miles (at its closest location) from the project site (Appendix B: Map 2). While habitat for this species does exist within the agricultural field at the project site, the history of disturbance and ongoing cultivation of the field for over half a century makes it highly unlikely that this species would occur at the project site. The potential habitat areas surrounding the project site will not be disturbed by this proposed project.

Nodding semaphore grass (*Pleuropogon refractus*) has a moderate potential of occurring at the project site. Its elevation range is between 0 and 1600 meters and is known to occur in lower montane coniferous forests, meadows and seeps, and North Coast coniferous forests. It is also found in mesic riparian forests. While habitat for this species does exist within the agricultural field at the project site, the history of disturbance and ongoing cultivation of the field for over a century makes it highly unlikely that this species would occur at the project site. The potential habitat areas surrounding the project site will not be disturbed by this proposed project.

Pacific gilia (*Gilia capitata ssp. pacifica*) has a moderate potential of occurring at the project site. Its elevation range is between 5 and 1665 meters and is known to occur in coastal bluff scrub, chaparral openings, coastal prairies and valley/foothill grasslands. While habitat for this species does exist within the agricultural field at the project site, the history of disturbance and ongoing cultivation of the field for over a century makes it highly unlikely that this species would occur at the project site. The potential habitat areas surrounding the project site will not be disturbed by this proposed project. Also, this species was only recorded to occur within the Hydesville, Myer Flat, Bridgeville, Bull Creek, Weott, Scotia, and Owl Creek 7.5 USGS Quads, and not in the Redcrest 7.5 USGS Quad

C. Special Status Animal Species

Moderate to high potential habitat for 10 special status animal species exists within the project location. Of these 10 species, 8 are either birds or bats and would only utilize the project site for hunting and would otherwise only fly over the site. None of these species would utilize the project site for nesting or shelter and since no noise or light pollution will be implanted into this cultivation operation, it is not expected that these 8 species will be impacted in anyway. The remaining 2 special-status species include the western bumble bee (*Bombus occidentalis*), and the North American porcupine (*Erethizon dorsatum*).

The **Western Bumblebee (*Bombus occidentalis*)** is widely distributed in California and is known to pollinate a wide variety of flowering plants. This species lives in abandoned burrows and

cavities and potential nesting locations may exist within the project area. Due to the project areas regular disturbance regime, it is unlikely that there would be a significant loss of nesting habitat as a result of the project. No new practices will impact this species any more than have by the previous history of cultivation done within this project area. Furthermore it is unlikely that the project would result in a significant decrease in forage material. It is not anticipated that the project will negatively impact this species.

The **North American Porcupine (*Erethizon dorsatum*)** can be found in forested habitats in broadleaf upland forest, cismontane woodland, and lower and upper montane conifer forest. The CNDDDB BIOS map shows a buffered occurrence location, from 2014, of this species occurring approximately 0.64 miles from the project site (Appendix B: Map 2). Even though this species may reside nearby and could pass through the project site while foraging, the lack of cover within the cultivated area make it unlikely that this species would be found in the project area. Also, the frequent human activity that occurs within the project area likely results in *Erethizon dorsatum* not utilizing the site. It is not anticipated that the project will negatively impact this species.

1. Other Special Status Animals Species

There are known **Northern Spotted Owl (*Strix occidentalis caurina*)** Activity Center approximately 0.92 miles (HUM1106), approximately 0.84 miles (HUM0942) and approximately 1 mile (HUM0610) from the project site (Appendix B: Map 3 & Appendix D: Observation Report 2). Northern spotted owls reside in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2300 meters. They usually nest in trees or snag cavities, or in broken tops of large trees (Polite C. 1990). Given the history of disturbance in the form of logging within the vicinity of the property, and the fact that the project site is a large open field, there was determined to be no suitable habitat for *Strix occidentalis caurina*, especially within the immediate vicinity of the project site (i.e. with a .25 mile buffer). The Northern Spotted Owl Database contains no known Activity Centers within 0.7 miles. There will be no expected negative impacts to the nearest known Activity Center since it occurs more than 0.7 miles away from the project site. No trees will be removed for this

project and therefore no habitat alterations will occur. Furthermore, it is noted that in general, noise levels of 70 dB or less, would not generate a significant disturbance unless within very close proximity (<.25 miles) to an active nest (USFWS 2006). Since the application will not be utilizing a generator, there are no anticipated noise disturbances that could impact owls. The only noise disturbance that could be noted is the use of farm equipment, but the utilization of this equipment is no different than what has currently been utilized for many decades. There is also no concern for light pollution since the cannabis will be cultivated out of doors with no supplemental artificial lighting.

The CNDDDB Bios map of this parcel shows an occurrence of **peregrine falcon (*Falco peregrinus anatum*)** to exist in the entire Miranda 7.5 USGS Quad (Appendix B: Map 2, & Appendix D: Observation Report 3). The occurrence details for this specific designation is purposefully vague in order to protect the species. Under the location description it states that the details are “*sensitive* location information suppressed.” The report goes on to describe the ecological comments regarding the species and states that the “nest was relatively low on a cliff and obscured by vegetative cover.” Since the applicant’s parcel has no such habitat (i.e. cliffs), it is determined that this species is not nesting in, around, or near the project site. Furthermore, like previously stated, if this species was to occur nearby, it would only be utilizing the project site location for hunting and no cultivation practices that the applicant is participating in will impact this species in anyway.

There is also known presence of other sensitive aquatic species, such as **Chinook salmon (*Oncorhynchus tshawytscha*)**, **Coho Salmon (*O. kisutch*)**, **Steelhead Trout (*O. mykiss*)**, **Coastal rainbow trout (*O. mykiss irideus*)**, and **Pacific Lamprey (*Entosphenus tridentatus*)** in the Eel River watershed. However, seeing as this project will not cause any disturbance to the terrestrial habitat surrounding the watercourse, and the Eel River is approximately 320 ft from the project sites, no disturbance to these species is expected to occur as a result of this project.

Section V Conclusion

1. Potential Direct Impacts

Direct impacts are considered to be effects that may occur to the environment from direct interface with the proposed action. The project site is considered to have no direct impacts to the environment or the surrounding habitat. Given the dominate non-native habitat of the project site, the history of disturbance (non-cannabis cultivation and cattle grazing), and no vegetation being removed (within and surrounding the project site), the cultivation plan renders no negative habitat alterations resulting in the only potential direct impacts as disturbance-based.

Other common disturbance-based impacts include noise and light pollution. The only noise disturbance that will occur is the use of farm equipment, but the utilization of this equipment is no different than what has currently been utilized for many decades. There is also no concern for light pollution since the cannabis will be cultivated out of doors with no supplemental artificial lighting.

2. Potential Indirect Impacts

Given the existing nature of the project sites, as well as the existing disturbance to the proposed cultivation site, the development that will occur should have no significant adverse indirect impacts to the surrounding environment and habitats.

Section VI References

- 2017 Humboldt County General Plan. Chapter 4 Land Use Element. Adopted October 23, 2017.
- 33 CFR Part 328: Definition of Waters of the United States. U.S. Army Corps of Engineers. Accessed September 2019.
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Appendix A:

Photos

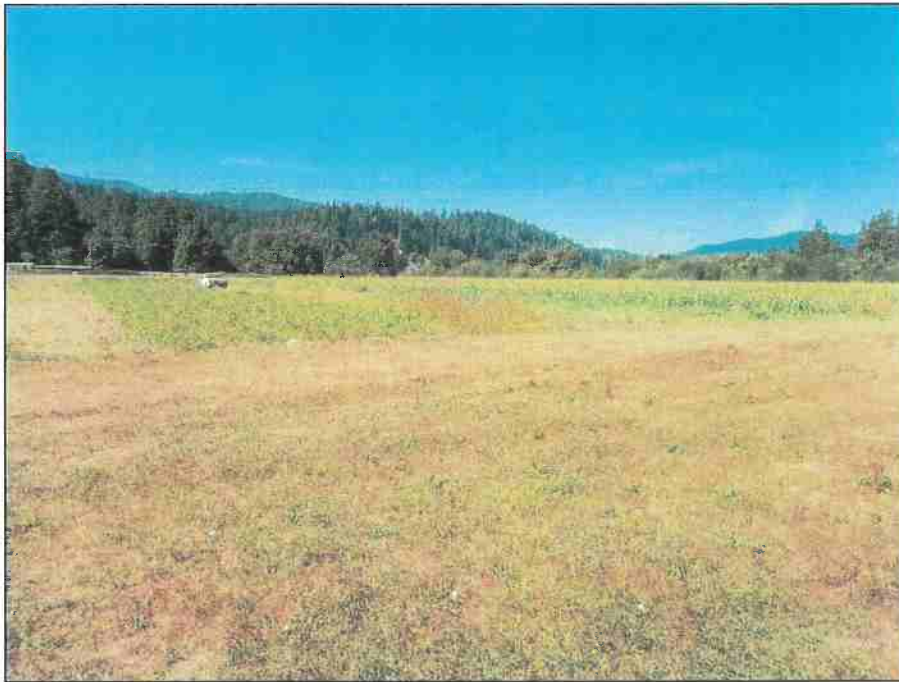


Figure 1. Photo taken in the south east corner of the parcels facing north west showing the dominate agricultural field habitat.



Figure 2. Aerial imagery of the parcel's APN 209-351-022 & 209-291-001 (outlined in red) where the proposed 7.2 acre cannabis cultivation will occur. This image was taken in 1947. This figure is showing the historic agricultural activity which has occurred on this parcel (www.historicaerials.com). (This is not a boundary survey, property lines shown here are approximated and taken from Humboldt County Web)



Figure 3. Photo taken in the middle of the parcel facing west showing the dominate field habitat and the forested habitat surrounding the parcel to the west and south.



Figure 4. Photo showing the vegetated habitat lining the perimeter of the agricultural field. This habitat is comprised of both native and many non-native species.

Appendix B: Maps

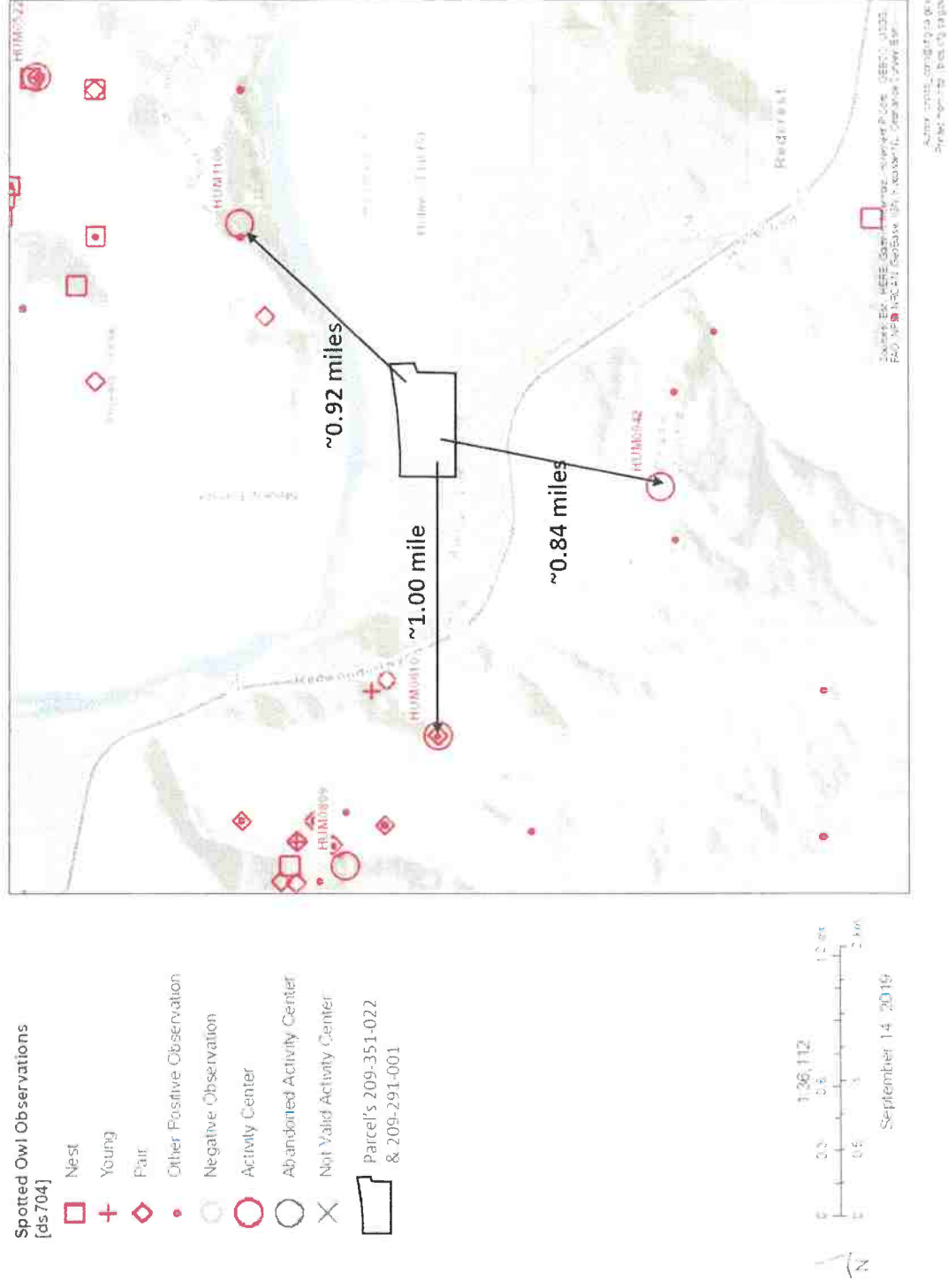


Map 1. The general path taken during the biological survey and site visit investigation on Sep. 13th 2019. (This is not a boundary survey, property lines shown here are approximated and taken from Humboldt County Web GIS)

Map of Parcel APN 209-351-022 & 209-291-001 Surrounding Sensitive Species Observations



Map of Nearest Spotted Owl Activity Center to Parcel APN 209-351-022 & 209-291-001 Project Site



Map 3. Distance from project site to the nearest Spotted Owl Activity Center.

Appendix C

Table 1 – Special Status Animal Species – September 2019 – APN 209-351-022 & 209-291-001– Redcrest and surrounding 7.5 min quadrangles

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	Quad Occurrence	Habitats	Potential of Occurrence
Amphibians							
<i>Ascaphus truei</i>	Pacific tailed frog	None	None	SSC	Weott, Redcrest, Bull Creek, Scotia	Inhabits cold, clear, permanent rocky streams in wet forests. They do not inhabit ponds or lakes. A rocky streambed is necessary for protective cover for adults, eggs, and larvae. After heavy rains, adults may be found in the woods away from the stream.	Low in project site. Moderate in adjacent area.
<i>Rana aurora</i>	northern red-legged frog	None	None	SSC	Scotia, Owl Creek, Hydesville, Redcrest, Weott, Myers Flat	Inhabits quiet pools of streams, marshes, and occasionally ponds. Occurs along the Coast Ranges from Del Norte County to Mendocino County, usually below 1200 m (3936 ft).	Low in project site. High in adjacent area.
<i>Rana boylei</i>	foothill yellow-legged frog	None	Candidate Threatened	SSC	Myers Flat, Weott, Bridgeville, Redcrest, Yager Junction, Hydesville, Owl Creek, Bull Creek, Scotia	Found in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types.	Low in project site. High in adjacent area.
<i>Rana draytonii</i>	California red-legged frog	Threatened	None	SSC	Bridgeville	Inhabits quiet pools of streams, marshes, and occasionally ponds. Occurs along the Coast Ranges from Del Norte County to Mendocino County, usually below 1200 m (3936 ft).	Low in project site. High in adjacent area.

<i>Rhyacotriton variegatus</i>	southern torrent salamander	None	None	SSC	Bridgeville, Weott, Myers Flat, Redcrest, Scotia, Bull Creek, Owl Creek	This species occurs in cold, well-shaded permanent streams and seepages in shady coastal forests.	None in project site. Moderate in adjacent area.
Birds							
<i>Accipiter cooperii</i>	Cooper's hawk	None	None	WL	Owl Creek, Bull Creek, Scotia, Hydesville, Redcrest, Myers Flat, Bridgeville	A breeding resident throughout most of the wooded portion of the state. Breeds in southern Sierra Nevada foothills, New York Mts., Owens Valley, and other local areas in southern California. Ranges from sea level to above 2700 m (0-9000 ft). Dense stands of live oak, riparian deciduous, or other forest habitats near water used most frequently.	Moderate project site (flyover). High adjacent area.
<i>Accipiter gentilis</i>	northern goshawk	None	None	SSC	Yager Junction	Prefers middle and higher elevations, and mature, dense conifer forests. Casual in winter along north coast, throughout foothills, and in northern deserts, where it may be found in piñon-juniper and low-elevation riparian habitats.	Low due to elevation
<i>Accipiter striatus</i>	sharp-shinned hawk	None	None	WL	Redcrest, Hydesville, Scotia	Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers, but not restricted to, riparian habitats. North facing slopes, with plucking perches are critical requirements. All habitats except alpine, open prairie, and bare desert used in winter.	Moderate project site (flyover). Moderate adjacent area.
<i>Aquila chrysaetos</i>	golden eagle	None	None	FP ; WL	Bull Creek, Bridgeville, Myers Flat	Ranges from sea level up to 3833 m (0-11,500 ft) (Grinnell and Miller 1944). Habitat typically rolling foothills, mountain areas, sage-juniper flats, desert.	Low project site (flyover). Low adjacent area.
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	Endangered	FP	Redcrest, Owl Creek, Hydesville	Permanent resident, and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and	Low project site

						Trinity cos. About half of the wintering population is in the Klamath Basin. More common at lower elevations	(flyover). Moderate adjacent area.
<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened	Endangered	-	Hydesville, Owl Creek, Scotia, Redcrest, Weott	Requires dense, mature forests of redwood and Douglas-fir for breeding (Cogswell 1977, Remsen 1978). In California, probably prefers to nest in tall trees; nest made of moss and lichen. In summer, individuals or pairs commonly seen 1-2 km (0.6 to 1.2 mi) off the coast, and typically 6-8 km (4-5 mi) inland in coniferous forests (Cogswell 1977).	Low project site (flyover). Moderate adjacent area.
<i>Ardea herodias</i>	great blue heron	None	None	-	Weott, Hydesville	The great blue heron is fairly common all year throughout most of California, in shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands, pastures, and in mountains above foothills.	Low project site (flyover). High adjacent area.
<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	Redcrest, Hydesville	Breeds near wetlands, lakes, rivers, or other water on high cliffs, banks, dunes, mounds. Nest is a scrape on a depression or ledge in an open site. Will nest on human-made structures, and occasionally uses tree or snag cavities or old nests of other raptors.	Low project site (flyover). High adjacent area.
<i>Riparia riparia</i>	bank swallow	None	Threatened	-	Redcrest, Hydesville, Scotia, Owl Creek	A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. A spring and fall migrant in the interior, less common on coast; an uncommon and very local summer resident. Casual in southern California in winter; a few winter records along central coast to San Mateo Co. (McCaskie et al. 1988). In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes.	Low project site (flyover). Low adjacent area.

<i>Oncorhynchus kisutch</i> pop. 2	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	-	Bull Creek, Myers Flat, Scotia, Hydesville, Weott, Redcrest	Aquatic, Klamath northcoast flowing waters Sacramento San Joaquin flowing waters swift current gravel bottom	None in project site. High in adjacent area.
<i>Oncorhynchus mykiss irideus</i> pop. 1	steelhead - Klamath Mountains Province DPS	None	None	SSC	Redcrest, Myers Flat, Bridgeville, Scotia	Aquatic, Klamath northcoast flowing waters Sacramento San Joaquin flowing waters swift current gravel bottom	None in project site. High in adjacent area.
<i>Oncorhynchus mykiss irideus</i> pop. 16	steelhead - northern California DPS	Threatened	Threatened	-	Scotia, Bull Creek, Owl Creek, Hydesville, Bridgeville, Redcrest, Weott, Yager Junction	Aquatic, Klamath northcoast flowing waters Sacramento San Joaquin flowing waters swift current gravel bottom	None in project site. High in adjacent area.
<i>Oncorhynchus mykiss irideus</i> pop. 36	summer-run steelhead trout	None	None	SSC	Yager Junction, Redcrest, Weott, Bridgeville, Hydesville	Aquatic, Klamath northcoast flowing waters Sacramento San Joaquin flowing waters swift current gravel bottom	None in project site. High in adjacent area.
<i>Oncorhynchus tshawytscha</i> pop. 17	chinook salmon - California coastal ESU	Threatened	Threatened	-	Hydesville, Bull Creek, Owl Creek, Scotia, Weott, Redcrest	Aquatic, Klamath northcoast flowing waters Sacramento San Joaquin flowing waters swift current gravel bottom	None in project site. High in adjacent area.
Insect							
<i>Bombus caliginosus</i>	obscure bumble bee	None	None	-	Redcrest, Myers Flat, Weott	Nests underground or above ground in abandoned bird nests. Food plants include <i>Baccharis</i> , <i>Cirsium</i> , <i>Lupinus</i> , <i>Lotus</i> , <i>Grindella</i> , <i>Phacelia</i>	Low in project site. High in

<i>Bombus occidentalis</i>	western bumble bee	None	None	-	Weott, Myers Flat, Bridgeville, Bull Creek, Scotia, Hydesville	Pollinates a wide variety of flowers, nests in cavities or abandoned burrows	High in project site. High in adjacent area.
Mammals							
<i>Aplodontia rufa humboldtiana</i>	Humboldt mountain beaver	None	None	-	Hydesville, Scotia	Mountain beaver burrows are often located on gentle slopes in moist forests, sometimes near surface water.	Low project site. Low adjacent area.
<i>Erethizon dorsatum</i>	North American porcupine	None	None	-	Bull Creek, Owl Creek, Hydesville, Scotia, Redcrest, Weott, Bridgeville	broadleaf upland forest, cismontane woodland, lower and upper montane conifer forest	Moderate in project site. High in adjacent area
<i>Arborimus pomio</i>	Sonoma tree vole	None	None	SSC	Weott, Redcrest, Yager Junction, Hydesville, Owl Creek, Bull Creek, Scotia	Occurs in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats.	Low in project site. Moderate in adjacent area.
<i>Martes caurina humboldtensis</i>	Humboldt marten	None	Candidate Endangered	SSC	Owl Creek Hydesville Yager Junction Weott	Old-growth coastal redwood forests of the U.S. states of California and Oregon. Less than 300 of them survive in both states combined, in three different populations of 100 each	Low in project site. Low in adjacent area.
<i>Pekania pennanti</i>	fisher - West Coast DPS	None	Threatened	SSC	Bridgeville Myers Flat	Occurs in intermediate to large-tree stages of coniferous forests and deciduous-riparian habitats	Low in project

					Yager Junction Hydesville	with a high percent canopy closure (Schempf and White 1977).	site. Moderate in adjacent area.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	Hydesville Scotia Redcrest	This species is found in all but subalpine and alpine habitats, and may be found at any season throughout its range.	None due to elevation range.
<i>Lasionycteris noctivagans</i>	silver-haired bat	None	None	-	Redcrest Weott Scotia Bull Creek	Coastal and montane forests from the Oregon border south along the coast to San Francisco Bay, and along the Sierra Nevada and Great Basin region to Inyo Co. It also occurs in southern California from Ventura and San Bernardino Cos. south to Mexico and on some of the Channel Islands.	High project site (flyover). High adjacent area.
<i>Lasiurus blossevillii</i>	western red bat	None	None	SSC	Bull Creek, Weott	Forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	Moderate project site (flyover). Moderate adjacent area.
<i>Lasiurus cinereus</i>	hoary bat	None	None	-	Weott, Bull Creek	The hoary bat is the most widespread North American bat. May be found at any location in California, although distribution patchy in southeastern deserts.	Moderate project site (flyover). Moderate adjacent area.
<i>Myotis evotis</i>	long-eared myotis	None	None	-	Bull Creek	This species has been found in nearly all brush, woodland, and forest habitats, from sea level to at least 2700 m (9000 ft), but coniferous woodlands and forests seem to be preferred	Moderate project site (flyover). Moderate adjacent area.

<i>Myotis lucifugus</i>	little brown bat	None	None	-	Bull Creek	Fairly common in sagebrush, bitterbrush, alkali desert scrub, wet meadow, and montane chaparral. Least common in valley foothill woodlands, redwood, mixed chaparral, low sagebrush, alpine dwarf-shrub, coastal scrub, and grasslands.	Moderate project site (flyover). Moderate adjacent area.
<i>Myotis thysanodes</i>	fringed myotis	None	None	-	Bull Creek	pinyon-juniper, valley foothill conifer and hardwood conifer	Low in project site (flyover). Low in adjacent area.
<i>Myotis volans</i>	long-legged myotis	None	None	-	Bull Creek Weott Redcrest	Common in woodland and forest habitats above 1200 m (4000 ft). Also forages in chaparral, coastal scrub, Great Basin shrub habitats, and in early successional stages of woodlands and forests.	None due to elevation range.
<i>Myotis yumanensis</i>	Yuma myotis	None	None	-	Redcrest, Weott, Scotia, Bull Creek	lower and upper montane conifer and riparian forest and woodland	Low in project site (flyover). Moderate in adjacent area.
Mollusks							
<i>Noyo intersessa</i>	Ten Mile shoulderband	None	None	-	Myers Flat	coastal dunes coastal scrub, riparian redwood forest habitats	Low in project site. Moderate in adjacent area.
<i>Anodonta californiensis</i>	California floater	None	None	-	Myers Flat Weott	freshwater lakes and slow moving streams and rivers	None in project site. Low

						Redcrest Scotia				in adjacent area.
<i>Gonidea angulata</i>	western ridged mussel	None	None	-		Redcrest, Weott, Scotia, Bull Creek			cold creeks and streams	None in project site. Moderate in adjacent area.
Reptiles										
<i>Emys marmorata</i>	western pond turtle	None	None	SSC		Weott Myers Flat Redcrest Hydesville Owl Creek			aquatic, flowing waters, standing waters, marsh, swamp, wetland	None in project site. Moderate in adjacent area.

Definitions of CDFW statuses:

FP

Fully Protected: This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts.

SS

Species of Special Concern: It is the goal and responsibility of the Department of Fish and Wildlife to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability.

WL

Watch List: The Department of Fish and Wildlife maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

Table 2 – Special Status Plant Species – September 2019 – APN 209-351-022 & 209-291-001– Redcrest and surrounding 7.5 min quadrangles

Scientific Name	Common Name	Family	California Rare Rank	Global Rank	State Rank	CESA	FESA	7.5 USGS Quad	Bloom Period	Habitat	Micro Habitat	Elevation (m)	Potential of Occurrence
Bryophytes													
<i>Meesia triquetra</i>	three-ranked hump moss	Meesiaceae	4.2	G5	S4	None	None	Bridgeville	Jul	Upper montane coniferous forest; Subalpine coniferous forest	Bogs and fens; Meadows and seeps; Mesic	1300 - 2953 meters	None due to elevation range.
Lichens													
<i>Usnea longissima</i>	Methuselah's beard lichen	Parmeliaceae	4.2	G4	S4	None	None	Bridgeville Yager Junction Redcrest Weott Myers Flat Owl Creek Bull Creek Hydesville Scotia	NA	Broadleafed upland forest; North Coast coniferous forest	On tree branches; usually on old growth hardwoods and conifers.	50 - 1460 meters	None in project site. Moderate in adjacent area.
Vascular													
<i>Erigeron biolettii</i>	streamside daisy	Asteraceae	3	G3?	S3?	None	None	Weott	Jun-Oct	Broadleafed upland forest; Cismontane woodland; North Coast coniferous forest	Rocky, mesic	30 - 1100 meters	Low in project site. Low in adjacent area.
<i>Erigeron robustior</i>	robust daisy	Asteraceae	4.3	G3	S3	None	None	Yager Junction	Jun-Jul	Lower montane coniferous forest	Meadows and seeps; sometimes serpentine	200 - 610 meters	None due to elevation range.
<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	Tracy's tarplant	Asteraceae	4.3	G5T4	S4	None	None	Yager Junction Redcrest Bridgeville Weott Scotia Hydesville	May-Oct	Coastal prairie; Lower montane coniferous forest; North Coast coniferous forest	Openings; sometimes serpentine.	120 - 1200 meters	None due to elevation range.

<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	Asteraceae	2B.2		G4T4	S2S3	None	None	Hydesville Creek Myers Flat Redcrest	May-Jul	Coastal scrub; North Coast coniferous forest	Sometimes roadsides.	30 - 650 meters	Low in project site. Low in adjacent area.
<i>Downingia willamettensis</i>	Cascade downingia	Campanulaceae	2B.2		G4	S2	None	None	Hydesville	Jun-Jul	Cismontane woodland (lake margins); Valley and foothill grassland (lake margins)	Vernal pools	15 - 1110 meters	None due to elevation range.
<i>Carex arcta</i>	northern clustered sedge	Cyperaceae	2B.2		G5	S1	None	None	Owl Creek, Redcrest	Jun-Sep	North Coast coniferous forest (mesic)	Bogs and fens	60 - 1400 meters	None due to elevation range.
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	Fabaceae	1B.1		G2	S2	None	None	Bridgeville, Myers Flat	Apr-Sep	Broadleafed upland forest; North Coast coniferous forest	Openings, disturbed areas, sometimes roadsides.	120 - 800 meters	None due to elevation range.
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	Fabaceae	4.3		G4T4	S4	None	None	Scotia	Apr-Jul	Chaparral; Cismontane woodland; Lower montane coniferous forest	Gravelly streambanks.	30 - 825 meters	Low in project site. Moderate in adjacent area.
<i>Hosackia gracilis</i>	harlequin lotus	Fabaceae	4.2		G3G4	S3	None	None	Hydesville	Mar-Jul	Broadleafed upland forest; Coastal bluff cone coniferous forest; Cismontane woodland; Coastal prairie; Coastal scrub; North Coast coniferous forest; Valley and foothill grassland	Wetlands; Roadsides; Meadows and seeps; Marshes and swamps;	0 - 700 meters	Moderate in project site. Moderate in adjacent area.
<i>Lathyrus glandulosus</i>	sticky pea	Fabaceae	4.3		G3	S3	None	None	Hydesville, Scotia, Owl Creek, Bull	Apr-Jun	Cismontane woodland	NA	300 - 800 meters	None due to

<i>Ribes roezlii</i> <i>var. amictum</i>	hoary gooseberry	Grossulariaceae	4.3				G5T4	S4	None	None	Creek, Myers Flat, Weott, Bridgeport, Redcrest	Mar- Apr	Broadleafed upland forest; Cismontane woodland; Lower montane coniferous forest; Upper montane coniferous forest	NA	120 - 2300 meters	None due to elevation range.
<i>Lycopus uniflorus</i>	northern bugleweed	Lamiaceae	4.3				G5	S4	None	None	Weott, Myers Flat, Redcrest	Jul- Sep	NA	Bogs and fens, Marshes and swamps	5 - 2000 meters	Low in project site. Low in adjacent area.
<i>Erythronium oregonum</i>	giant fawn lily	Liliaceae	2B.2				G4G5	S2	None	None	Yager Junction Myers Flat Scotia	Mar- Jun	Cismontane woodland	sometimes serpentine, rocky, openings; Meadows and seeps	100 - 1150 meters	None due to elevation range.
<i>Erythronium revolutum</i>	coast fawn lily	Liliaceae	2B.2				G4G5	S3	None	None	Scotia Bull Creek Owl Creek Myers Flat Yager Junction Bridgeville	Mar- Jul	Broadleafed upland forest; North Coast coniferous forest	Mesic, streambanks; Bogs and fens	0 - 1600 meters	None in project site. Moderate in adjacent area.
<i>Fritillaria purdyi</i>	Purdy's fritillary	Liliaceae	4.3				G4	S4	None	None	Bridgeville	Mar- Jun	Chaparral; Cismontane woodland; Lower montane coniferous forest	Usually serpentine.	175 - 2255 meters	None due to elevation range.
<i>Lilium kelloggii</i>	Kellogg's lily	Liliaceae	4.3				G3	S3	None	None	Redcrest Owl Creek Hydesville	May- Aug	Lower montane coniferous forest; North Coast	Openings, roadsides.	3 - 1300 meters	Moderate in project site

<i>Lilium rubescens</i>	redwood lily	Liliaceae	4.2		G3	S3	None	None	Hydesville Scotia Owl Creek Bull Creek Redcrest Bridgeville Myers Flat Weott	Apr- Aug	coniferous forest Broadleafed upland forest; Chaparral; Lower montane coniferous forest; North Coast coniferous forest; Upper montane coniferous forest	Sometimes serpentine, sometimes roadsides.	30 - 1910 meters	Low in project site. Low in adjacent area.
<i>Lycopodium clavatum</i>	running-pine	Lycopodiaceae	4.1		G5	S3	None	None	Weott Bridgeville Redcrest Owl Creek Scotia Hydesville	Jun- Aug	Lower montane coniferous forest (mesic); North Coast coniferous forest (mesic)	often edges, openings, and roadsides; Marshes and swamps	45 - 1225 meters	Low in project site. Low in adjacent area.
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	Malvaceae	4.2		G3	S3	None	None	Hydesville Scotia Owl Creek Redcrest Bridgeville Weott Myers Flat	Apr- Aug	Broadleafed upland forest; Coastal prairie; Coastal scrub; North Coast coniferous forest; Riparian woodland	Often in disturbed areas.	0 - 730 meters	Moderate in project site. High in adjacent area.
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	Malvaceae	1B.2		G5T2	S2	None	None	Myers Flat Bridgeville Yager Junction Owl Creek Scotia Hydesville	May- Aug	Coastal bluff scrub; Coastal prairie; North Coast coniferous forest	Often roadcuts.	15 - 880 meters	Moderate in project site. Moderate in adjacent area.
<i>Pityopus californicus</i>	California pinefoot	Monotropaceae	4.2		G4G5	S4	None	None	Scotia Owl Creek Bull Creek Redcrest Myers Flat Weott	May- Aug	Broadleafed upland forest; Lower montane coniferous forest; North Coast coniferous forest; Upper montane	Mesic.	15 - 2225 meters	Low in project site. Moderate in adjacent area.

<i>Montia howellii</i>	Howell's montia	Montiaceae	2B.2					G3G4	S2	None	None	Myers Flat Redcrest Yager Junction Bridgeville Bull Creek Owl Creek Scotia Hydenville	Mar-May	coniferous forest	Vernally mesic, sometimes roadsides; Meadows and seeps; Vernal pools	0 - 835 meters	Moderate in project site. Moderate in adjacent area.
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	Onagraceae	4.3					G4	S4	None	None	Redcrest, Myers Flat	Jul-Sep	Broadleafed upland forest; North Coast coniferous forest	Sandy or rocky.	45 - 1800 meters	Low in project site. Moderate in adjacent area.
<i>Listera cordata</i>	heart-leaved twayblade	Orchidaceae	4.2					G5	S4	None	None	Myers Flat Weott Redcrest Bridgeville Hydenville Scotia Owl Creek Bull Creek	Feb-Jul	Lower montane coniferous forest; North Coast coniferous forest	Bogs and fens	5 - 1370 meters	Low in project site. Low in adjacent area.
<i>Piperia candida</i>	white-flowered rein orchid	Orchidaceae	1B.2					G3	S3	None	None	Bull Creek Scotia Bridgeville Weott Myers Flat	May-Sep	Broadleafed upland forest; Lower montane coniferous forest; North Coast coniferous forest	sometimes serpentine	30 - 1310 meters	Low in project site. Low in adjacent area.
<i>Castilleja ambigua</i> var. <i>ambigua</i>	johnny-nip	Orobanchaceae	4.2					G4T4	S3S4	None	None	Redcrest	Mar-Aug	Coastal bluff scrub; Coastal prairie; Coastal scrub; Marshes and swamps; Valley and foothill grassland	Vernal pools margins	0 - 435 meters	Low in project site. Moderate in adjacent area.
<i>Calamagrostis foliosa</i>	leafy reed grass	Poaceae	4.2					G3	S3	Rare	None	Bull Creek	May-Sep	Coastal bluff scrub, North Coast coniferous forest	rocky	0 - 1220 meters	Low in project site. Moderate

<i>Pleurapogon refractus</i>	nodding senaphore grass	Poaceae	4.2		G4	S4	None	None	Bull Creek Owl Creek Scotia Hydesville Redcrest Bridgeville	Apr-Aug	Lower montane coniferous forest; Meadows and seeps; North Coast coniferous forest	mesic; riparian forest	0 - 1600 meters	Moderate in project site. Moderate in adjacent area.
<i>Collomia tracyi</i>	Tracy's collomia	Polemoniaceae	4.3		G4	S4	None	None	Hydesville	Jun-Jul	Broadleafed upland forest; Lower montane coniferous forest	Rocky, sometimes serpentine.	300 - 2100 meters	None due to elevation range.
<i>Gilia capitata</i> <i>ssp. pacifica</i>	Pacific gilia	Polemoniaceae	1B.2		G5T3	S2	None	None	Hydesville Scotia Owl Creek Bull Creek Bridgeville Myers Flat Weett	Apr-Aug	Coastal bluff scrub; Chaparral (openings); Coastal prairie; Valley and foothill grassland	NA	5 - 1665 meters	Moderate in project site. Moderate in adjacent area.
<i>Leptosiphon acicularis</i>	bristly leptosiphon	Polemoniaceae	4.2		G4	S4	None	None	Bridgeville	Apr-Jul	Chaparral; Cismontane woodland; Coastal prairie; Valley and foothill grassland	NA	55 - 1500 meters	None due to elevation range.
<i>Coptis laciniata</i>	Oregon goldthread	Ranunculaceae	4.2		G4?	S3?	None	None	Owl Creek	Mar-May	Meadows and seeps; North Coast coniferous forest (streambanks)	Riparian; mesic	0 - 1000 meters	Low in project site. Moderate in adjacent area.
<i>Mitellastr caulescens</i>	leafy-stemmed mitrewort	Saxifragaceae	4.2		G5	S4	None	None	Owl Creek Scotia Hydesville Bridgeville Redcrest Myers Flat	Apr-Oct	Broadleafed upland forest; Lower montane coniferous forest; Meadows and seeps; North Coast	Mesic, sometimes roadsides.	5 - 1700 meters	Low in project site. Moderate in adjacent area.

<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	trifoliolate laceflower	Plants - Vascular - Saxifragaceae - Tiarella trifoliata var. trifoliata	3.2		G5T5	S2S3	None	None	Scotia	Jun-Aug	coniferous forest Lower montane coniferous forest; North Coast coniferous forest	Edges, moist shady banks, streambanks.	170-1500 meters	None due to elevation range.
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Global Conservation Status Definition

Listed below are definitions for interpreting NatureServe global (range-wide) conservation status ranks. These ranks are assigned by NatureServe scientists or by a designated lead office in the NatureServe network.

- G1 Critically Imperiled** – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- G2 Imperiled** – At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.
- G3 Vulnerable** – At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.
- G4 Apparently Secure** – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5 Secure** – Common; widespread and abundant.
- G#G# Range Rank** – A numeric range rank (e.g. G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).

Intraspecific Taxon Conservation Status Ranks

- T# Intraspecific Taxon** (trimonial) – The status of infraspecific taxa (subspecies or varieties) are indicated by a “T-rank” following the

species global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species. For example, a G1T2 subrank should not occur. A vertebrate animal population, (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an infraspecific taxon and given a T-rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

Subnational (S) Conservation Status Ranks

- S1 Critically Imperiled** – Critically imperiled in the jurisdiction because of extreme rarity or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the jurisdiction.
- S2 Imperiled** – Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction.
- S3 Vulnerable** – Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure** – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 Secure** – Common, widespread, and abundant in the jurisdiction.
- S#S# Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).

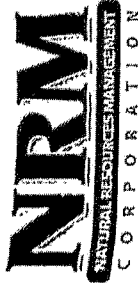
Rank Qualifiers

- ? Inexact Numeric Rank** – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status
- Q Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank. The “Q” modifier is only used at a global level and not at a national or subnational level.

Appendix D

Observation Report 1 -

Maple-leaved checkerbloom



1434 Third Street • Eureka, CA • 95501-0668
707 442-1735 • fax: 707 442-882
Email: nrm@nrmcorp.com
Web: www.nrmcorp.com

RECEIVED

APR 15 2005

April 14, 2005

Michael Richardson
Humboldt County Planning Division
3015 H Street
Eureka, CA 95501-4484

HUMBOLDT COUNTY
PLANNING COMMISSION

Re: Report discussing results of seasonally appropriate survey for maple-leaved checkerbloom (*Sidalcea malacchroides*) at the proposed site for an RV park near Avenue of the Giants, Humboldt County, California, prepared for project proponent Dean Lewis by request of the Humboldt County Planning Division.

Dear Mr. Richardson,

Attached is the botanical report regarding a rare plant survey that was conducted for Dean Lewis' proposed RV park. As you know, the survey was to be focused on the rare maple-leaved checkerbloom, but it was also floristic, meaning that I identified everything I encountered as I surveyed the project area and the streamside management area. No rare plant species were found during the survey. A map showing my approximate survey route is included in the appendix of the report, as is the floristic species list.

As mentioned in the March 21, 2005 memorandum sent to you, since no maple-leaved checkerbloom plants were located during the survey, no further actions should be needed to address this species. Any potential habitat that may be negatively affected by paving and/or other ground disturbing activities in the proposed project area will be mitigated with the enhancement of the already proposed streamside management area and mitigation area, both of which should provide essentially equivalent types and area of potential habitat (assessed visually by comparing the sizes of the streamside management and mitigation areas with the proposed project site). Additionally, potential habitat along the western boundary of the property will not be developed, so this area will remain as potential habitat.

Please feel free to contact me for any further information (shavler@nrmcorp.com, 707-269-1384). Thank you very much for your time.

Respectfully,

Kim Hayler
NRM Staff Botanist

KH/hs

Attachments

Cc: Dean Lewis

075

Observation Report 2 – For nearest Spotted Owl Activity Center

Data Version Date:
08/28/2019
Report Generation Date:
9/14/2019



Report #2 - Observations Reported
List of observations reported by site.

Meridian, Township, Range, Section (MTRS) searched:
H_01S_02E Sections(04,05).
H_01N_02E Sections(32,33).

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
Masterrow1: HUM0522 Subspecies: NORTHERN											
POS	1991-05-07		2	UMUF	Y			40.426369	-123.958184	H 01N 02E 33	Contributor
NEG	1992		0					40.427642	-123.957766	H 01N 02E 33	Half-section centroid
POS	1992		2	UMUF	Y	Y		40.435971	-123.956151	H 01N 02E 28	Contributor
POS	1992-05-20		2	UMUF	Y	Y	1	40.435016	-123.952848	H 01N 02E 28	Quarter-section centroid
POS	1994-05-17		2	AMAF	Y			40.442404	-123.952752	H 01N 02E 28	Quarter-section centroid
POS	1995-05-02		2	UMUF	Y		0	40.435042	-123.943109	H 01N 02E 27	Quarter-section centroid
POS	1995-07-05		1	AM				40.437977	-123.942266	H 01N 02E 27	Activity center
POS	1995-07-10		2	UMUF	Y			40.442404	-123.952752	H 01N 02E 28	Quarter-section centroid
POS	1996-06-10		1	UF				40.442404	-123.952752	H 01N 02E 28	Quarter-section centroid
POS	1997-04-13		2	UMUF	Y		2	40.442466	-123.943072	H 01N 02E 27	Quarter-section centroid
POS	1998-04-14		1	UF				40.442466	-123.943072	H 01N 02E 27	Quarter-section centroid
POS	1999		2	UMUF	Y			40.442466	-123.943072	H 01N 02E 27	Quarter-section centroid
NEG	1999-04-12	2000	0					40.423939	-123.957784	H 01N 02E 33	Section centroid
NEG	1999-06-15	2234	0					40.423939	-123.957784	H 01N 02E 33	Section centroid
NEG	1999-06-25	0252	0					40.423939	-123.957784	H 01N 02E 33	Section centroid
NEG	1999-07-15	2050	0					40.423939	-123.957784	H 01N 02E 33	Section centroid

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
POS	2000		2	UMUF	Y	Y	2	40.435042	-123.943109	H 01N 02E 27	Quarter-section centroid
POS	2000-03-19	2229	1	UM				40.427628	-123.952897	H 01N 02E 33	Quarter-section centroid
POS	2000-03-20	1059	1	JU				40.442536	-123.933274	H 01N 02E 27	Quarter-section centroid
POS	2000-03-21	0955	2	UMUF	Y			40.435146	-123.923516	H 01N 02E 26	Quarter-section centroid
NEG	2000-03-28	0830	0					40.438776	-123.938174	H 01N 02E 27	Section centroid
POS	2000-04-06	0839	1	JU				40.442466	-123.943072	H 01N 02E 27	Quarter-section centroid
NEG	2000-04-10	2136	0					40.423939	-123.957784	H 01N 02E 33	Section centroid
POS	2000-04-19	1320	2	UMUF	Y			40.442536	-123.933274	H 01N 02E 27	Quarter-section centroid
POS	2000-04-21	1230	1	UM				40.442466	-123.943072	H 01N 02E 27	Quarter-section centroid
POS	2000-05-01	0842	2	UMUF	Y			40.435146	-123.923516	H 01N 02E 26	Quarter-section centroid
POS	2000-05-12	0900	2	UMUF	Y	Y		40.435042	-123.943109	H 01N 02E 27	Quarter-section centroid
POS	2000-06-14	0955	2	UMUF	Y	Y	2	40.438283	-123.942306	H 01N 02E 27	Contributor
NEG	2000-06-23	2136	0					40.423939	-123.957784	H 01N 02E 33	Section centroid
AC	2001		2	UMUF	Y	Y	2	40.437977	-123.942266	H 01N 02E 27	Contributor
POS	2001		2	UMUF	Y			40.437977	-123.942266	H 01N 02E 27	Activity center
POS	2001-03-23		2	AMAF	Y			40.437977	-123.942266	H 01N 02E 27	Activity center
POS	2001-06-27		0				2	40.437977	-123.942266	H 01N 02E 27	Activity center

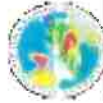
Page 3

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
POS	2002		2	UMUF	Y			40.435042	-123.943109	H 01N 02E 27	Quarter-section centroid
NEG	2003		0					40.439580	-123.941239	H 01N 02E 27	Contributor
POS	2003-07-22	2206	1	UF				40.438776	-123.938174	H 01N 02E 27	Section centroid
NEG	2005		0					40.437897	-123.941237	H 01N 02E 27	Contributor
NEG	2005-05-13	1045	0					40.437977	-123.942266	H 01N 02E 27	Activity center
NEG	2005-08-25	0640	0					40.437977	-123.942266	H 01N 02E 27	Activity center
NEG	2005-08-26	0715	0					40.437977	-123.942266	H 01N 02E 27	Activity center
Masterrow: HUM0810 Subspecies: NORTHERN											
POS	1994-05-23		2	SMAF	Y		1	40.420971	-123.983049	H 01N 02E 32	Contributor
POS	1994-06-27		2	SMSF				40.417612	-123.986065	H 01N 02E 32	Activity center
POS	1995-04-24		2	UMUF	Y		0	40.417612	-123.986065	H 01N 02E 32	Contributor
POS	1995-06-22		2	UMUF	Y		0	40.417612	-123.986065	H 01N 02E 32	Contributor
POS	1996-07-15		2	UMUF	Y			40.417612	-123.986065	H 01N 02E 32	Contributor
POS	1997-05-28		2	UMUF	Y	N		40.417612	-123.986065	H 01N 02E 32	Contributor
AC	1998-05-22		2	UMUF	Y	Y	1	40.417612	-123.986065	H 01N 02E 32	Contributor
POS	1999		2	UMUF	Y			40.420211	-123.982355	H 01N 02E 32	Quarter-section centroid
POS	2000		2	UMUF	Y			40.420211	-123.982355	H 01N 02E 32	Quarter-section centroid

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
POS	2001		2	UMJF	Y			40.420211	-123.992355	H 01N 02E 32	Quarter-section centroid
NEG	2002		0					40.420211	-123.992355	H 01N 02E 32	Quarter-section centroid
NEG	2003-03-26	1005	0					40.417612	-123.986085	H 01N 02E 32	Activity center
Masterrowt: HUM0942 Subspecies: NORTHERN											
POS	1999		1	UU				40.405606	-123.963169	H 01S 02E 04	Quarter-section centroid
POS	2000		1	UU				40.405541	-123.973102	H 01S 02E 05	Quarter-section centroid
NEG	2000		0					40.405606	-123.963169	H 01S 02E 04	Quarter-section centroid
AC	2001		1	UU				40.406310	-123.969519	H 01S 02E 05	Contributor
NEG	2002		0					40.405541	-123.973102	H 01S 02E 05	Quarter-section centroid
POS	2008		1	UU				40.406604	-123.959180	H 01S 02E 04	Contributor
Masterrowt: HUM1106 Subspecies: NORTHERN											
AC	2015-06-19	1106- 1330	1	UM				40.427656	-123.951987	H 01N 02E 33	Contributor
POS	2015-07-07	1558- 1742	1	UM				40.427633	-123.952892	H 01N 02E 33	Quarter-section centroid
POS	2016-07-18	1645- 1735	1	UU				40.427633	-123.952892	H 01N 02E 33	Quarter-section centroid
NEG	2016-08-03	1520- 1500	0					40.427656	-123.951987	H 01N 02E 33	Activity center
NEG	2016-08-16	1556- 1816	0					40.427656	-123.951987	H 01N 02E 33	Activity center
POS	2017-08-19	1740- 1835	1	UU				40.427626	-123.952897	H 01N 02E 33	Quarter-section centroid

Page 5.

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
NEG	2017-08-06	1630- 1730	0					40.427656	-123.951987	H 01N 02E 33	Activity center
NEG	2017-08-08	1630- 1840	0					40.427656	-123.951987	H 01N 02E 33	Activity center
NEG	2017-08-30	1545- 1745	0					40.427656	-123.951987	H 01N 02E 33	Activity center



Occurrence Report
California Department of Fish and Wildlife
California Natural Diversity Database

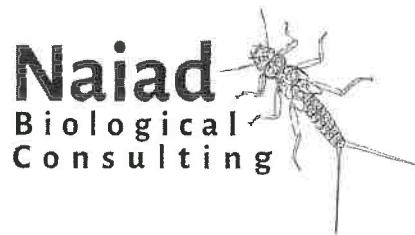
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Invasive Species Control Plan

Assessor's Parcel Numbers (APNs):
209-351-022 & 209-291-001



Prepared by:



Mason London MSc, Owner/Biologist

X 

Prepared for:

Redcrest Organics, LLC
PO Box 85
Garberville, CA
95542

Date Prepared:

September 15th, 2019

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Section I Introduction

1. Purpose and Need

Section 55.4.12.16 of the Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO), Ordinance 2599, states that “[i]t is the responsibility of a certificate or permit holder to work to eradicate invasive species. As part of any application, the existence of invasive species on the project parcel need to be identified, including the type(s) of invasive plant species, where they are located, and a plan to control their spread. All invasive plant species shall be removed from the cultivation site and associated infrastructure using measures appropriate to the species. Removal shall be confirmed during subsequent annual inspection. Corrective action may be required if invasive species are found to have returned.”

2. Biologist’s Qualifications

The Invasive Species Control Plan was prepared by Mason London. Mason holds an MSc in Biology with a concentration in aquatic ecology from Humboldt State University. Mason also has 9 collective years of experience working professionally as a botanist, wildlife biologist, and aquatic ecological research scientist. Mason has worked in both Northern California and Southern Oregon targeting and eradicating invasive species for nonprofit land stewardship councils and government agencies.

3. Invasive Species Information

Not all non-native species are necessarily invasive species. For a species to be considered non-native, it means it has been introduced with human help (intentionally or accidentally) to a new place or new type of habitat where it was not previously found. Whereas, according to the USDA National Invasive Species Information Center, Executive Order 13112 (February 1999), “[a]n invasive species is defined as a species that is 1) non-native (or alien) to an ecosystem under consideration **and** 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health.”

The invasive species list used for this Invasive Species Control Plan was derived from the California Invasive Plant Council (Cal-IPC), as required by the Humboldt County Board of Supervisors, in the Mitigation Monitoring and Reporting Program – Proposed Amendments to

Humboldt County Code Regulating Commercial Cannabis Activities (Mitigation 3.4-3b: Invasive plant species).

4. Assessment and Control Options

A physical survey of the parcel to determine the scope of the present invasive species will create a comprehensive starting point for management techniques. Several control options exist for eradicating invasive species; including biological, mechanical and chemical.

a. Biological Eradication

This option is generally used as a first line of defense for control of invasive species. The reintroduction of native species can, in some cases, create a host for insects and microorganisms which will feed on the invasive species and/or create an environment which will discourage new growth of the invasive plant. Because of this, competitive planting of non-invasive species can help to cultivate an environment which will discourage new growth of invasive plants.

Many invasive species become introduced to an area after a recent disturbance. By using native grasses or plants, in a restoration style planting or seeding, many invasive will become unable to establish and entrench the exposed soils.

b. Mechanical Eradication

This option is the most common short-term option for the eradication of invasive species. Hand pulling, or with use of tools such as a weed wrench, can be done easily during certain times of year when the soils are still moist, and roots are easily removed. Depending on the species, it can be important to remove the entire root because some species can regenerate from roots left in the soil. Other species need to be removed before their seeds fully mature in order to not promote aerial spreading of fertile seeds. In some of these cases, the removed plant matter will need to be removed from the property since some seeds are able to mature on a plant even when the plant has been removed from the ground. This method is ideal for populations of invasive plants that are smaller and can be easily managed with hands or hand tools.

For populations of invasive plants that cannot be easily or affectively managed by hand, use of weed whackers, tractors, or cutting tools may be required to eradicate or control the spread of certain species.

c. Chemical Eradication

This method is considered only as a last resort, if at all, since most commercial cannabis projects are operating under organic and/or natural growing techniques that never include the use of chemicals.

Section II Methods

1. Field Observations

On September 13th, 2019 the two parcels (APN 209-351-022 & 209-291-001), located outside of Redcrest, California, Humboldt County (40°25'04.8"N 123°57'54.0"W), was visited in order to observe the presence of invasive species. The project site (cultivation area) is to occur entirely within the area of a large (approximately 15 acre) field with a history of agricultural cultivation for over 100 years (Figure 1). The project site, as well as the surrounding area/habitat, was investigated and surveyed for invasive species presence during this visit (Appendix B: Map 1).

2. Invasive Species Assessment

The Cal-IPC Inventory was used to determine invasive species of concern for the site visit investigation. The *Weed Control in Natural Areas in the Western United States* (UC Davis Weed Research and information Center, 2013) was utilized to determine specific species information and adequate eradication and management methods, as recommended by Cal-IPC.

Section III Results

1. Parcel Habitat

The entire parcel is an agricultural field that has been cultivated for over 100 years. Because of the history of cultivation, and therefore a regularly occurring disturbance regime to the parcel, the project site is dominated by many nonnative species. There are a few other micro habitats on the edges of the field, but none of these habitats are considered native.

2. Observed Invasive Species

Many non-native species were observed during the site visit investigation throughout the project site and the surrounding area, however, only a few invasive species were observed.

The invasive species observed in the project area, listed on the CAL-IPC inventory, include: bull thistle (*Cirsium vulgare*), curly dock (*Rumex crispus*), fennel (*Foeniculum vulgare*), Himalayan blackberry (*Rubus armeniacus*), pennyroyal (*Mentha pulegium*) and common teasel (*Dipsacus fullonum*).

3. Invasive Species Information, Management and Removal Recommendations

a. Bull thistle (*Cirsium vulgare*)

Cirsium vulgare (Figure 2) was observed both inside the project area and surrounding the project site in isolated populations. *Cirsium vulgare* is found everywhere in the United States, favors disturbed areas including rangeland, pastures, forest clear-cuts, roadsides and waste areas, and can also be seen in foothills, dry meadows and riparian areas. This species was introduced from Europe. *Cirsium vulgare* is not palatable to livestock and reduces the forage potential of infested pasture. Once *Cirsium vulgare* becomes established it can easily outcompete native plants.

Cirsium vulgare is considered to have ranking of Moderate Invasiveness by the Cal-IPC Inventory. The most feasible method of eradication for this species is by mechanical methods. According to the Weed Report from the *Weed Control in Natural Areas in the Western United States*, *Cirsium vulgare* can be effectively removed by “[t]illage, hoeing, and hand pulling... as long as they are done before flowering to prevent seed production. Any mechanical or physical

control measure that severs the root below the soil surface is very effective...[however], the plant must be cut off below the soil surface and no leaves should remain attached, or the plant will recover.”

The removed plants should be bagged up and removed from the property to make sure plant material and fertile seeds do not promote repropagation.

b. Curly dock (*Rumex crispus*)

Rumex crispus (Figure 3) is found throughout the United States, including every western state. This species can be found in ditches, roadsides, wetlands, meadows, riparian areas, alfalfa and pasture fields, orchards and other disturbed moist areas. This species can be competitive and outcompete more desirable vegetation for water, nutrients and light. The Cal-IPC Inventory considers *Rumex crispus* to have ranking of Limited Invasiveness.

According to the the Weed Report, from the *Weed Control in Natural Areas in the Western United States*, “[c]urly dock are difficult to control by hand-pulling because of their deep taproot.” It is stated that “[c]ontinual mowing before seeding can be effective in reducing seed production.” The applicant is recommended to mow *Rumex crispus* early in the season in order to suppress the seeds reaching maturity.

c. Fennel (*Foeniculum vulgare*)

Foeniculum vulgare (Figure 4) is particularly a problem in California but can be found throughout many western states. This species prefers open disturbed areas and has invaded roadsides, slopes, fields, grasslands, coastal scrub, riparian and wetlands areas and other natural communities. *Foeniculum vulgare* is native to southern Europe and is easily spread by birds and rodents consuming the seeds.

Foeniculum vulgare are competitive and since they establish in disturbed soils, they exclude native vegetation. This species is considered to have ranking of High Invasiveness by the Cal-IPC Inventory. Mechanical eradication is recommended by the Weed Report from the *Weed Control in Natural Areas in the Western United States*, stating that one should “[h]and chop small infestations. Slashing just before flowering may kill the plants, or repeat slashing of regrowth

may be needed. Even if plants recover, slashing the stems at flowering will prevent seed set. The use of a mattock or remove the plant can also be successful.”

The report goes on to include that “deep cultivation will also kill the plants but is not practical in most situations.” Since this applicant is proposing to cultivate within an agricultural field, deep cultivation is a feasible approach and should be utilized if *Foeniculum vulgare* is spread into the project site.

d. Himalaya blackberry (*Rubus armeniacus*)

Rubus armeniacus (Figure 5) is common throughout the western United States and favors disturbed, open, moist sites. This species originally came from Eurasia and is a highly competitive plant with a growth form that allows it to quickly crowd out native species. Its thickets have dense canopies allowing little light penetration and reducing the growth of understory plants. This species is given the ranking of High Invasiveness by the Cal-PIC Inventory.

According to the Weed Report, from the *Weed Control in Natural Areas in the Western United States*, “[h]and pulling can be an effective control method for small populations. To successfully control populations with mechanical removal, it is important to remove the canes, roots and the root crowns to prevent resprouting. A Pulaski, mattock or similar device can be used to remove plants. Bulldozing may cause resprouting and can spread the weed by fragmenting roots and stems.”

Given the agricultural nature of the project site, it is not anticipated that *Rubus armeniacus* would infiltrate the area of proposed cultivation. However, if *Rubus armeniacus* are found within the site, it is important to remove the entire plant since, according to the Weed Report, “[c]utting and removing only the aboveground biomass will result in the stimulated growth of root sprout. The root sprouts must be controlled and repeated cutting of the above-ground biomass during flowering time will exhaust the root stores.”

e. Pennyroyal (*Mentha pulegium*)

Mentha pulegium (Figure 6) is common as an obligate wetland indicator species in seasonally inundated soils of valleys and bottomlands, usually below 1,640 feet elevation. Even though pennyroyal is considered uncommon in much of California, it occurs in the sierra foothills, Central Valley, and most coastal counties from the Mexican border to Oregon. Pennyroyal favors disturbed sites, seeps, streamsides, vernal pools, marches and ditches. This species is given the ranking of High Invasiveness by the Cal-PIC Moderate.

According to the Weed Report, from the *Weed Control in Natural Areas in the Western United States*, “[p]ennyroyal infestations can be suppressed by manual removal of individual plants and small patches before flowering... below-ground reproductive tissues should be severed approximately 3 inches below the soil surface when the plants are beginning to bolt.”

The report goes on to explain that “[t]illage can be an effective control strategy for rosettes and bolting plants.” This is the ideal form of eradication since *Mentha pulegium* occurs within the agricultural field where regular tilling currently occurs and is proposed to continue for the cannabis cultivation process.

f. Common teasel (*Dipsacus fullonum*)

Dipsacus fullonum (Figure 7) was only observed on the outskirts of the agricultural field and therefore outside of the proposed project site. *Dipsacus fullonum* is present in all western states and favors open, sunny sites that range from wet to dry. They are found in pastures, abandoned field, waste places and forests. *Dipsacus fullonum* is also capable for invading healthy perennial grass stands in moister areas. This species is given the ranking of Moderate Invasiveness by the Cal-PIC Inventory.

Mechanical eradication is recommended by the Weed Report from the *Weed Control in Natural Areas in the Western United States*, stating that “[w]ith small infestations, digging or hand-pulling before flowering are effective controls...” and if this approach is taken, one should “...sever the root below the soil surface” to avoid regrowth. It should be noted that tillage is not recommended because even though it can “effectively control emerged plants [it can also] stimulate new germination.”

Section IV Conclusion and Discussion

The applicant can control the spread of the invasive species previously listed if the recommended mitigation and control methods are followed. If the applicant follows the “early detection rapid response” approach before the plants can flower and seed, the current state of the cultivation area should be easily treatable. Due to the clustering of the invasive species observed within the agricultural field, and given that many of these species do not favor the surrounding forested habitat, the applicant can halt the invasion of these species spreading throughout the surrounding habitats if action is taken.

Section V References

California Invasive Plant Council (Cal-IPC) Inventory: <https://www.cal-ipc.org/plants/inventory/>. Accessed September 2019.

Ordinance No. 2599, amending sections 314-55.4, 314-55.3.11.7, 314-55.3.7 and 314-55.3.15 of Chapter 4 of Division 1 of Title III of the County Code (CCLUP for Areas Outside the Coastal Zone). Board of Supervisors, County of Humboldt, State of California, May 2018. Accessed June 2019.

Weed Control in Natural Areas in the Western United States. UC Davis Weed Research and Information Center, 2013. Accessed June 2019.

Appendix A: Photos



Figure 1. Proposed cultivation area (Project Site) to exist within this agricultural field. Photo taken facing north west from the southern middle of the parcel.



Figure 2. Dried up bull thistle (Cirsium vulgare)



Figure 3. Curly dock (*Rumex crispus*)



Figure 4. Dried up fennel (*Foeniculum vulgare*)



Figure 5. Himalaya blackberry (*Rubus armeniacus*) growing along the perimeter of the agricultural field.

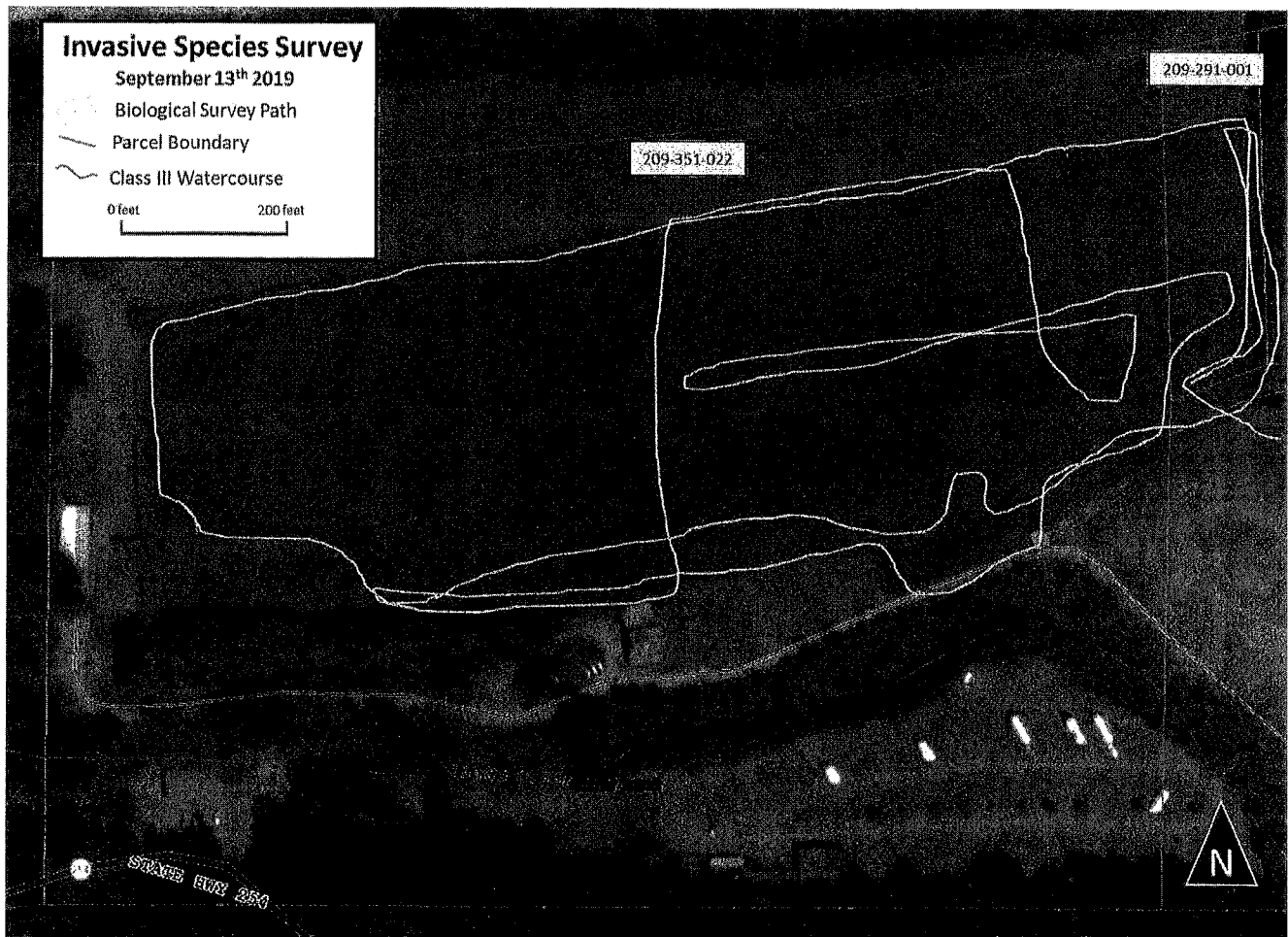


Figure 6. Pennyroyal (*Mentha pulegium*) growing along a row of corn within the agricultural field.



Figure 7. Dried Common teasel (*Dipsacus fullonum*) along the perimeter of the agricultural field.

Appendix B: Maps



Map 1. Invasive Species Survey Path conducted on September 13th, 2019 on parcels APN 209-351-022 and 209-291-001.