

**Mad River Properties, Inc.**  
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## **Biological Scoping Report**

**Journey Aquarian  
"Thunder Parcel"  
APN 216-135-015**



Prepared by  
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For  
**Hohman and Associates**  
Hydesville, CA  
And  
**Mad River Properties**

Signature: Kelsey McDonald

Date: 10/18/19

## Setting and Project Description

The “Thunder Parcel” (APN 216-135-015) of the Journey Aquarian Cannabis Cultivation Project is located in Section 19, Township 4 South, Range 5 East HB&M; Humboldt County, on the Harris USGS 7.5’ quadrangle. The project area is 5 miles east of the town of Garberville, CA, off of Harris Road. 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 sub-region. Perington Creek runs through the property, and the parcel lies ~4 miles upstream from the Eel River. The elevation ranges from approximately 1400 to 2600 feet. Slopes on the property are moderate, and the aspect is primarily southeast facing. The vegetation is mapped by USFS CalVeg as primarily grasslands, with Oregon oak woodlands (*Quercus garryana*). The “Thunder Parcel” is seeking cannabis cultivation permits under the 1.0 Cannabis General Order. Relocation of two outdoor cultivation areas within SMA buffers to open areas away from watercourses is proposed. Construction of a water storage pond is also proposed in open grassland on the parcel.

## Methods

The initial scoping for this project was prepared by Kelsey McDonald and Monique Silva-Crossman. Kelsey is a CNPS Certified Consulting Botanist with a M.S. in Natural Resources with a concentration in Environmental Science from Humboldt State University. Kelsey has taken relevant courses including conservation biology, ornithology, ecology, plant taxonomy, field botany, and plant biology. She has over 5 years of botany and wildlife experience in Northern California. Monique holds a M.S. in Natural Resources with a concentration in Environmental Science from Humboldt State University. She has taken relevant courses including biology, ecology, plant taxonomy, botany, aquatic ecology, and agricultural ecology. She has 3 years of botany and wildlife experience in Northern California.

The Biological Scoping report considers the potentially occurring species and communities that could be affected by the project based on available spatial data and habitat requirements. A site visit should be conducted to further evaluate potential habitat value to protected, endangered, threatened, rare, and sensitive species, and to finalize survey recommendations. A list of special-status animal species to consider was downloaded from CNDDDB BIOS for the Harris 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 state rarity and their potential to be affected by cannabis cultivation. Additional species were added to the CNDDDB list for consideration based on potential habitat or high levels of conservation concern. Habitats within the 1.3-mile Biological Assessment Area (BAA) for potentially occurring species were evaluated based on CALVEG vegetation mapping, aerial photos, and onsite habitat evaluation. Floristic surveys and habitat evaluation were conducted in 2019 (**BIO-1**).

A table of recommended surveys and mitigation measures can be found at the end of the document (**Table 6**). Attachment A shows the vegetation map of showing the CALVEG (Classification and Assessment with LANDSAT of Visible Ecological Groupings) dominant vegetation alliances for the parcel and surrounding area (U.S. Forest Service 2000). Attachment B shows nearby occurrences of special status taxa as mapped in CNDDDB. Rank Definitions are provided in Attachment C. Habitat and cultivation site photos can be found in Attachment D. A summary of the first year of NSO surveys with maps and data can be found in Attachment E.

## Results: Potentially Occurring Special-Status Animal Species for Harris 9-Quad Area

**Table 1. Birds**

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
<i>Accipiter cooperii</i>	Cooper's hawk	None	None	WL	G5	S4	Yes
<i>Ammodramus savannarum</i>	grasshopper sparrow	None	None	SSC	G5	S3	Yes-added from eBird
<i>Aquila chrysaetos</i>	golden eagle	None	None	FP ; WL	G5	S3	Yes
<i>Empidonax traillii brewsteri</i>	little willow flycatcher	None	Endangered	-	G5T3T4	S1S2	Yes
<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	G4T4	S3S4	Yes
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	Endangered	FP	G5	S3	Yes
<i>Pandion haliaetus</i>	osprey	None	None	WL	G5	S4	Yes
<i>Strix occidentalis caurina</i>	northern spotted owl	Threatened	Threatened	SSC	G3T3	S2S3	Yes

**Table 2. Mammals**

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential in BAA
<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	G5	S3	Yes
<i>Arborimus pomo</i>	Sonoma tree vole	None	None	SSC	G3	S3	Yes
<i>Pekania pennanti</i>	fisher - West Coast DPS	Proposed Threatened	Threatened	SSC	G5T2T3Q	S2S3	Yes

**Table 3. Amphibians and Reptiles**

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential
<i>Emys marmorata</i>	Western pond turtle	None	None	SSC	G3G4	S3	Yes
<i>Rana aurora</i>	northern red-legged frog	None	None	SSC	G4	S3	Yes
<i>Rana boylei</i>	foothill yellow-legged frog	None	Candidate Threatened	SSC	G3	S3	Yes

**Table 4. Fish**

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential
<i>Entosphenus tridentatus</i>	Pacific lamprey	None	None	SSC	G4	S4	Yes
<i>Oncorhynchus kisutch</i>	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	-	G4T2Q	S2?	Yes
<i>Oncorhynchus mykiss irideus</i>	steelhead - Klamath Mountains Province DPS	None	None	SSC	G5T3Q	S2	No-range to north
<i>Oncorhynchus mykiss irideus</i>	steelhead - northern California DPS	Threatened	None	-	G5T2T3Q	S2S3	Yes
<i>Oncorhynchus mykiss irideus</i>	summer-run steelhead trout	None	Candidate Endangered	SSC	G5T4Q	S2	Yes
<i>Oncorhynchus tshawytscha</i>	chinook salmon - California coastal ESU	Threatened	None	-	G5	S1	Yes

**Table 5. Invertebrates**

Scientific Name	Common Name	FESA	CESA	CDFW	GRank	SRank	Potential
<i>Bombus caliginosus</i>	obscure bumble bee	None	None	-	G4?	S1S2	Yes
<i>Bombus occidentalis</i>	western bumble bee	None	None	-	G2G3	S1	Yes



## Potential Special-Status Animal Species Details

### Birds

#### 1. Cooper's hawk (*Accipiter cooperii*)

**Special Status:** CDFW Watch List; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S4

**Family:** Accipitridae

**Habitat/Life-history Requirements:** Cooper's hawks are common year-round residents in wooded areas of California, and they can be found in urban and suburban areas as well (Cornell Lab). The raptor commonly nests in riparian and lowland habitats throughout much of Humboldt County (Hunter et al. 2005). The medium-sized hawk builds nests made of piles of sticks over two feet wide in tall trees, typically 25-50 feet off the ground (Cornell Lab). Nesting trees include pines, oaks and Douglas firs (Cornell Lab). Dense stands are typically used for nesting and patchy open areas are commonly used for hunting (Zeiner et al. 1988).

**Potential Impact:** The area could provide habitat for the Cooper's hawk. The raptor is on the CDFW Watch List and protected under the Migratory Bird Treaty Act (MBTA). No tree removal or removal of riparian brush is proposed on the parcel, which limits the potential impact to many nesting birds. However, the surrounding area provides high quality nesting habitat for raptors and other birds that may be sensitive to disturbance. Pre-construction raptor scan surveys are recommended prior to any construction or ground disturbance during the breeding season (Feb 1 - Aug 31) (**BIO-2**). The project should also incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife.

#### 2. Grasshopper sparrow (*Ammodramus savannarum*)

**Special Status:** CDFW Species of Special Concern; NatureServe Ranks: G5, S3

**Family:** Passerellidae

**Habitat/Life-history Requirements:** Although widely distributed, grasshopper sparrow populations have steeply declined with the loss and degradation of grassland habitat. Typically beginning in May, the ground-nesting sparrow builds a domed nest with a side entrance in tall overhanging grasses (Vickery 1996). Disturbance to grassland habitat during the breeding season, such as mowing, intensive grazing, or development, poses a major threat to grasshopper sparrow populations (Vickery 1996).

**Potential Impact:** The grasshopper sparrow was added to the CNDDDB species list based on potential habitat in the area of impact and records of sightings nearby along Alderpoint Road in eBird. No tree removal or removal of riparian brush is proposed on the parcel, which limits the potential impact to many nesting birds. However, the ground-disturbance from relocating greenhouses and constructing a pond in open grasslands has the potential to impact ground-nesting species like the grasshopper sparrow. A pre-construction nesting bird survey is

recommended prior to any disturbance during the breeding season (Feb 1 - Aug 31), with special focus on the grasshopper sparrow and other ground-nesting birds (**BIO-3**).

3. **Golden eagle (*Aquila chrysaetos*)**

**Special Status:** CDFW Fully Protected and Watch List; Protected under Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act; NatureServe Ranks: G5, S3

**Family:** Accipitridae

**Habitat/Life-history Requirements:** The golden eagle is an uncommon migrant and year-round resident (Zeiner et al. 1988). The golden eagle typically utilizes open habitats away from human environments (Sibley 2003). Small mammals are the primary prey for the golden eagle (Sibley 2003). One of the largest raptors in North America, the golden eagle builds massive nests, about 6 feet across (Cornell Lab). Nests are typically located on cliffs, but may also be found on trees, man-made structures, or on the ground (Cornell Lab).

**Potential Impact:** Steep outcrops and large trees that could provide nesting habitat and large open areas for foraging occur in the area. The nearest occurrence mapped in CNDDDB is ~5 miles from the project. No tree removal or removal of riparian brush is proposed on the parcel, which limits the potential impact to many nesting birds. However, the surrounding area provides high quality nesting habitat for raptors and other birds that may be sensitive to disturbance. Pre-construction raptor scan surveys are recommended prior to any construction or ground disturbance during the breeding season (Feb 1 - Aug 31) (**BIO-2**). The project should also incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife.

4. **Little willow flycatcher (*Empidonax traillii brewsteri*)**

**Special Status:** California Endangered, Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5T3T4, S1S2

**Family:** Tyrannidae

**Habitat/Life-history Requirements:** The little willow flycatcher is a rare to locally uncommon summer resident that breeds in the Cascades and the Sierra Nevada (Craig and Williams 1998). The little willow flycatcher breeds in wet meadows and montane riparian habitats at 2,000-8,000 feet elevation (Craig and Williams 1998). The riparian songbird requires dense willow thickets for nesting and roosting (Bombay et al. 2003, Zeiner et al. 1988). Destruction of riparian vegetation, modification of hydrology, and nest parasitism by brown headed cowbirds are the main threats to this species (Bombay et al. 2003).

**Potential Impact:** Habitat may occur in the area, primarily within SMAs. No tree removal or removal of riparian brush is proposed on the parcel, which limits the potential impact to many nesting birds. Current cultivation areas on the parcel are located within SMAs and are to be relocated. The affected SMAs are primarily open oak woodland, and are not considered prime habitat for the little willow flycatcher, but they provide important habitat value for many species. The footprints of the sites within the riparian woodlands should be revegetated

with site-appropriate native species to restore habitat and prevent erosion into the watercourse (**BIO-5**). Surveys for nesting birds are recommended prior to any construction or ground disturbance during the breeding season (Feb 1 - Aug 31) (**BIO-3**). The project should also incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife.

**5. American peregrine falcon (*Falco peregrinus anatum*)**

**Special Status:** Federally Delisted, State Delisted, CDFW Fully Protected; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G4T4, S3S4

**Family:** Falconidae

**Habitat/Life-history Requirements:** The formerly federally endangered American peregrine falcon was delisted in 1999 due to recovery (USFWS ECOS). The American peregrine falcon is an uncommon year-round resident and migrant in California (Zeiner et al. 1988). Peregrine falcons typically use cliffs and ledges near bodies of water for cover and nesting areas, but they may also nest on buildings or bridges in the city (Sibley 2003, Cornell Lab). Peregrine falcons may breed in woodland, forest, or coastal habitat (Zeiner et al. 1988). Riparian and wetland areas are important habitat yearlong (Zeiner et al. 1988).

**Potential Impact:** Peregrine falcons may breed in a wide variety of habitats, and they have the potential to nest on suitable ledges and outcrops that occur in the vicinity. The nearest occurrence is in the Miranda quad. No tree removal or removal of riparian brush is proposed on the parcel, which limits the potential impact to many nesting birds. However, the surrounding area provides high quality nesting habitat for raptors like the peregrine falcon that may be sensitive to disturbance. Pre-construction raptor scan surveys are recommended prior to any construction or ground disturbance during the breeding season (Feb 1 - Aug 31) (**BIO-2**). The project should also incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife.

**6. Bald eagle (*Haliaeetus leucocephalus*)**

**Special Status:** Federally Delisted, California Endangered, CDFW Fully Protected; Protected under Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act; NatureServe Ranks: G5, S3

**Family:** Accipitridae

**Habitat/Life-history Requirements:** Federally delisted, but still considered Endangered in California, bald eagles occur along rivers, large creeks, and coastlines throughout Northwestern California (Harris 2005). Fish are a primary source of prey, and bald eagles are typically found in forested areas near large fish-bearing waters (Cornell Lab). Bald eagles build large nests about 6 feet wide. Nests are typically found in large trees, but may be built on other available vegetation or structures (Cornell Lab).

**Potential Impact:** The bald eagle may occur in the BAA. The project area is ~5 miles from the Eel River, but suitable habitat may occur in the vicinity of Frenchman Creek and Jewett



Creek. The project should incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife. Pre-construction raptor scan surveys are recommended prior to any construction or ground disturbance during the breeding season (Feb 1 - Aug 31) (BIO-2).

7. **Osprey (*Pandion haliaetus*)**

**Special Status:** CDFW Watch List; Protected under Migratory Bird Treaty Act; NatureServe Ranks: G5, S4

**Family:** Accipitridae

**Habitat/Life-history Requirements:** Ospreys primarily prey on fish and they require large fish-bearing waters for hunting (Zeiner et al. 1988). Ospreys are widespread along the Trinity, Klamath, Van Duzen, Eel, and South Fork Eel Rivers in Humboldt County (Harris 2005). Ospreys typically make large nests in tall snags or trees high off the ground in open forest habitats (Zeiner et al.).

**Potential Impact/Mitigation:** Osprey may occur in the BAA. The project area is ~5 miles from the Eel River, but suitable habitat may occur in the vicinity of Frenchman Creek and Jewett Creek. The project should incorporate measures to reduce disturbance from noise and lights to birds and other sensitive wildlife. Pre-construction raptor scan surveys are recommended prior to any construction or ground disturbance during the breeding season (Feb 1 - Aug 31) (BIO-2).

8. **Northern spotted owl (*Strix occidentalis caurina*)**

**Special Status:** Federally Threatened, California Threatened, CDFW Species of Special Concern, Protected under Migratory Bird Treaty Act; NatureServe Ranks: G3T3, S2S3.

**Family:** Strigidae

**Habitat/Life-history Requirements:** Northern spotted owls typically nest or roost in multi-layered, mature coniferous forest with high canopy closure, large overstory trees, and broken-topped trees or other nesting platforms (USFWS 2012). Confirmed breeding areas are widespread throughout Humboldt County (Hunter et al. 2005). Northern spotted owls may use a broad range of habitats for foraging. Their favored prey, the dusky-footed woodrat (*Neotoma fuscipes*), typically inhabits the forest edge (Harris 2005).

**Potential Impact:** USFWS protocol surveys are needed for any activity that may modify nesting, roosting, or foraging habitats for northern spotted owls (USFWS 2012). The parcel is primarily oak woodlands and open grassland, but northern spotted owl habitat exists in the BAA. The nearest Activity Center is 2 miles away. An initial year of surveys for northern spotted owls has been completed. A male was detected north of the property on 5/9/19, but was not detected again during the follow-up survey or subsequent night-time surveys. No tree removal is proposed on the Thunder Parcel, and the proposed plan will not convert habitat. An NSO Habitat Assessment has been completed, and the Thunder Parcel cultivation plans are not expected to modify NSO habitat or disturb potential nesting/roosting habitat.



Northern spotted owls might use the property for foraging or dispersal, so noise restrictions have been recommended to minimize disturbance (**BIO-4, BIO-6**).

## **Mammals**

### **1. Pallid bat (*Antrozous pallidus*)**

**Special Status:** CDFW Species of Special Concern, NatureServe Ranks: G5 S3

**Family:** Vespertilionidae

**Habitat/Life-history Requirements:** The pallid bat may occupy a wide range of low-elevation habitats, and roost in a wide variety of structures (Zeiner et al. 1988). The bat prefers to roost in outcrops, cliffs, and crevices with access to open areas for foraging (Zeiner et al. 1988).

**Potential Impact:** The pallid bat has the potential to occur in the area. The project should incorporate measures to reduce disturbance from noise and lights to bats and other sensitive wildlife (**BIO-6**).

### **2. Sonoma tree vole (*Arborimus pomo*)**

**Special Status:** CDFW Species of Special Concern, NatureServe Ranks: G3, S3

**Family:** Muridae

**Habitat/Life-history Requirements:** The Sonoma tree vole occurs along the North Coast in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats (Zeiner et al. 1988). The small rodent specializes in feeding on Douglas-fir and grand fir needles, and typically constructs nests in Douglas-fir trees (Zeiner et al. 1988).

**Potential Impact:** The arboreal rodent could occur in the area. The nearest occurrence mapped in CNDDDB is ~7 miles from the project. The project is not likely to affect the Sonoma tree vole.

### **3. Fisher - West Coast DPS (*Pekania pennanti*)**

**Special Status:** Federally Proposed as Threatened, State Threatened, Species of Special Concern; NatureServe Ranks: G5T2T3Q, S2S3

**Family:** Mustelidae

**Habitat/Life-history Requirements:** The fisher uses large expanses of forest with moderate to high canopy closure, and will avoid open forest, grasslands, and wetlands (USFWS 2014). Fishers use cavities in live trees, snags and down logs for reproductive dens (USFWS 2014). Structural complexity is a critical element of fisher habitat, necessary to provide cover for resting and denning, and habitat for prey (USFWS 2014).

**Potential Impact:** The area is composed of open woodlands and grasslands, and it is not likely habitat for the fisher. The project is not likely to affect the fisher.

## Amphibians and Reptiles

### 1. Northern red-legged frog (*Rana aurora*)

**Special Status:** CDFW Species of Special Concern; NatureServe Ranks: G4, S3

**Family:** Ranidae

**Habitat/Life-history Requirements:** The northern red-legged frog inhabits low-elevation wetlands of the North Coast Ranges from Del Norte to Mendocino Counties (Zeiner et al. 1988). The northern red-legged frog requires permanent, or near-permanent pools in streams, marshes, or ponds (Zeiner et al. 1988). Eggs are laid in vegetated shallows of permanent or temporary pools during the winter or early spring, and tadpoles metamorphose in three to five months (Nafis, 2000-2019).

**Potential Impact:** The streams on the parcel may provide habitat for the northern red-legged frog. The project should avoid impacts to sensitive amphibians by setting cultivation sites back from SMA buffers and restoring the footprint of remediation areas within the SMAs by planting native vegetation (**BIO-5**). Invasive American bullfrogs may be a threat to populations, and drawing down the pond during the dry season is also recommended to prevent the proliferation of the predatory invasive American bullfrog (**BIO-8**).

### 2. Foothill yellow-legged frog (*Rana boylei*)

**Special Status:** State Candidate for listing as Threatened; CDFW Species of Special Concern; NatureServe Ranks: G3, S3

**Family:** Ranidae

**Habitat/Life-history Requirements:** The foothill yellow legged frog primarily inhabits rocky streams or rivers with permanent water. The frog may be found in many habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows (Zeiner et al. 1988). Breeding primarily occurs in low-velocity, shallow stream habitats with high habitat heterogeneity (Yarnell 2013). Foothill yellow-legged frogs may also travel substantial distances overland and use seasonally wet areas (Bourque 2008). The invasive American bullfrog and introduced fish species contribute to the reduction of foothill yellow legged frog populations (Zeiner et al. 1988).

**Potential Impact:** Foothill yellow legged frogs have been mapped in CNDDDB ~0.5 miles away on a neighboring parcel of the Journey Aquarian parcel. Surveys are recommended prior to any road work on stream crossings (**BIO-7**). The project should avoid impacts to sensitive amphibians by setting cultivation sites back from SMA areas and restoring the footprint of remediation areas within the SMAs by planting native vegetation (**BIO-5**). Invasive American bullfrogs may be a threat to populations, and drawing down the pond during the dry season is also recommended to prevent the proliferation of the predatory invasive American bullfrog (**BIO-8**).

3. **Western pond turtle (*Emys marmorata*)**

**Special Status:** CDFW Species of Special Concern; NatureServe Ranks: G3G4, S3

**Family:** Emydidae

**Habitat/Life-history Requirements:** The western pond turtle is associated with permanent or nearly permanent water in ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams (Ziener et al. 1988). Invasive American bullfrogs prey upon hatchlings and juveniles (Zeiner et al. 1988).

**Potential Impact:** The streams on the parcel may provide habitat for the western pond turtle. The project should avoid impacts to the western pond turtle by minimizing runoff and observing SMA buffers. The project should avoid impacts to sensitive amphibians by setting cultivation sites back from SMA areas and restoring the footprint of remediation areas within the SMAs by planting native vegetation (**BIO-5**). Invasive American bullfrogs may be a threat to populations, and drawing down the pond during the dry season is also recommended to prevent the proliferation of the predatory invasive American bullfrog (**BIO-8**).

## **Fish**

1. **Coho salmon - southern Oregon / northern California ESU (*Oncorhynchus kisutch*)**

**Special Status:** Federally Threatened, State Threatened; NatureServe Ranks: G4T2Q, S2?

**Family:** Salmonidae

**Habitat/Life-history Requirements:** Coho salmon are a federally and state-listed anadromous fish that occupy low gradient rivers and coastal streams (CDFW). The anadromous salmonids return to these watersheds in the fall and early winter to spawn in gravel substrate, after the first major rains (Moyle et al. 2008). Coho require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment (Moyle et al. 2008). Juveniles are most abundant in well-shaded, deep pools with many structural elements that provide cover (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages. The southern Oregon/northern California ESU range includes watersheds from Cape Blanco in Oregon south to the Mattole River (Moyle et al. 2008).

**Potential Impact:** The Eel River and its tributaries provide habitat for the anadromous salmonid. The project should minimize impacts to fish and other aquatic species downstream by setting cultivation sites back from SMA buffers and restoring the footprint of remediation areas within the SMAs by planting native vegetation (**BIO-5**).

2. **Steelhead - northern California DPS (*Oncorhynchus mykiss irideus*)**

**Special Status:** Federally Threatened; NatureServe Ranks: G5T2T3Q, S2S3

**Family:** Salmonidae

**Habitat/Life-history Requirements:** Steelhead are anadromous rainbow trout that migrate to the ocean as juveniles and return to freshwater habitats to spawn. The Northern California



Distinct Population Segment (DPS) ranges from Redwood Creek to just south of the Gualala River, and includes the Eel River watershed (Moyle et al. 2008). Salmonids, including steelhead, require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment. Steelhead may swim upstream in during the winter to spawn in stream segments that are not accessible to other salmonids during low flows (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.

**Potential Impact:** The Eel River and its tributaries provide habitat for the anadromous salmonid. The project should minimize impacts to fish and other aquatic species downstream by setting cultivation sites back from SMA buffers and restoring the footprint of remediation areas within the SMAs by planting native vegetation (**BIO-5**).

3. **Summer-run steelhead trout (*Oncorhynchus mykiss irideus*)**

**Special Status:** CESA Candidate Endangered, CDFW Species of Special Concern; NatureServe Ranks: G5T4Q, S2

**Family:** Salmonidae

**Habitat/Life-history Requirements:** Summer-run steelhead trout remain in freshwater habitats until they reach maturity (Moyle et al. 2008). These steelhead have similar requirements during their juvenile stages, with an additional need for freshwater habitats to remain suitable throughout the summer (Moyle et al. 2008). Summer steelhead are sensitive to human disturbance and typically are only found in the most remote areas of the watersheds (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.

**Potential Impact:** The Eel River and its tributaries provide habitat for the anadromous salmonid. The project should minimize impacts to fish and other aquatic species downstream by setting cultivation sites back from SMA buffers and restoring the footprint of remediation areas within the SMAs by planting native vegetation (**BIO-5**).

4. **Chinook salmon - California coastal ESU (*Oncorhynchus tshawytscha*)**

**Special Status:** Federally Threatened; NatureServe Ranks: G5, S1

**Family:** Salmonidae

**Habitat/Life-history Requirements:** The Federally Threatened Chinook salmon is the largest Pacific salmonid (Moyle et al. 2008). The California Coast Evolutionary Significant Unit (ESU) is composed of Chinook spawning in watersheds ranging from Redwood Creek south to the Russian River (Moyle et al. 2008). The anadromous salmonids return to these watersheds in the fall to spawn, after the first major rains (Moyle et al. 2008). Chinook, like other salmonids, require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment (Moyle et al. 2008). Juvenile chinook may inhabit estuaries for an extended period (Moyle et al. 2008). Chinook are particularly sensitive to temperature and water quality, and require larger cobble and coarse gravel substrate for spawning compared to other salmonids (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.



**Potential Impact:** The Eel River and its tributaries provide habitat for the anadromous salmonid. The project should minimize impacts to fish and other aquatic species downstream by setting cultivation sites back from SMA buffers and restoring the footprint of remediation areas within the SMAs by planting native vegetation (**BIO-5**).

## **Invertebrates**

### **1. Obscure bumble bee (*Bombus caliginosus*)**

**Special Status:** CDFW Special Animals List (2017); NatureServe Ranks: G4?, S1S2

**Family:** Apidae

**Habitat/Life-history Requirements:** The obscure bumble bee occupies open grassy coastal prairies and Coast Range meadows (Hatfield et al. 2014). This long-tongued species may pollinate flowers with elongated corollas, such as *Keckiella* spp. (Hatfield et al. 2014). The obscure bumblebee does not fare well in agricultural or urban/suburban environments, where it is often outcompeted by more common bumblebees (NatureServe 2017). The obscure bumblebee has declined in the San Francisco Bay area, and may be threatened by habitat loss from development (NatureServe 2017).

**Potential Impact:** An occurrence mapped in CNDDDB ~7 miles away. The property has the potential to support many native pollinators. Adhering to restrictions and regulations of pesticide use in cannabis cultivation areas and preventing drift to native vegetation is expected to minimize the potential impact of agricultural activities (**BIO-9**).

### **2. Western bumble bee (*Bombus occidentalis*)**

**Special Status:** CDFW Special Animals List (2017); NatureServe Ranks: G2G3, S1

**Family:** Apidae

**Habitat/Life-history Requirements:** The western bumble bee is a generalist short-tongued forager that may be found in open habitats such as grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows (Hatfield et al. 2015). Like many bumble bees, the western bumble bee nests underground in abandoned rodent holes (Hatfield et al. 2015). The western bumble bee is threatened by disease, habitat loss and degradation, and insecticides.

**Potential Impact:** An occurrence mapped in CNDDDB ~6 miles away. The property has the potential to support many native pollinators. Adhering to restrictions and regulations of pesticide use in cannabis cultivation areas and preventing drift to native vegetation is expected to minimize the potential impact of agricultural activities (**BIO-9**).

## **Conclusion**

The “Thunder Parcel” of the Aquarian Cannabis Cultivation Project is set in an open mosaic of grassland and oak woodlands with some areas of Douglas fir and tanoak dominance. Relocation of two

greenhouse cultivation areas within SMA buffers to open areas away from watercourses is proposed. Construction of a water storage pond is also proposed on the parcel. Floristic surveys for protected plant species were conducted in 2019, and no rare or special-status plants were detected in the area of disturbance (**BIO-1**). The parcel and surrounding area has high-quality habitat that could support sensitive and protected nesting raptors and other birds. A red-tailed hawk was observed on the parcel near the proposed relocation area, and a pair of circling red-tailed hawks was observed nearby on another occasion. Grading of natural areas dominated by grasslands is proposed, and pre-construction surveys for raptors and nesting birds are recommended prior to vegetation clearing, construction, grading, or other potentially disruptive activities within the breeding season (**BIO-2, BIO-3**). A Northern Spotted Owl (NSO) Habitat Assessment has been completed. Although the project will not modify NSO habitat and it is not likely to disturb breeding NSO, noise should be restricted between dusk and dawn to minimize nighttime disturbance to high-quality foraging habitat (<60dB at woodland/forest edge) (**BIO-4**). It is recommended that cultivation areas within SMAs are restored by removing all cultivation materials, planting site-suitable native vegetation, and implementing erosion control BMPs (**BIO-5**). Greenhouses proposed will have no supplemental lighting, so light pollution is expected to be minimal. However, the property is not currently grid-connected and depends on generator use, which may be a source of substantial noise pollution. Minimizing noise pollution from generators is important for sensitive birds, bats, and other wildlife. The applicant intends to connect to PG&E in the future, and it is recommended that a timeline is established for shifting power sources to the grid or onsite renewable energy by 2023. In the meantime, all generators should be contained in a structure to muffle sound, and operation-related noise should not exceed 75dB at the edge of woodland or forest habitats during the breeding season (**BIO-6**). Habitat for the foothill yellow-legged frog occurs on the property, and an occurrence of the CESA Candidate Threatened species has been documented on a nearby parcel. Foothill yellow legged frog surveys are recommended for any road work or restoration work in a wetted channel (**BIO-7**). Bullfrogs were observed on a neighboring parcel of the Journey Aquarian property, and they pose a major threat to native amphibians in the area. The ponds must be drawn down annually to prevent the American bullfrog from successfully breeding (**BIO-8**). Because the applicant proposes cultivation in a rural area that is likely to support native pollinators, it is particularly important that they adhere to guidelines for pesticide use and do not allow drift to native vegetation in the surrounding area (**BIO-9**). Removing cultivation operations from the SMA buffers and observing all other State Waterboard waste discharge requirements are expected to minimize other potential impacts to fish, amphibians, and aquatic resources.

**Table 6. Recommended Biological Surveys and Mitigation Measures**

Measure	Survey/Mitigation	Description	Timing
BIO-1	Floristic Survey	Complete floristic surveys based on the Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018).	Seasonally appropriate surveys were completed in 2019, and a survey report has been prepared. No rare or special-status plants occurred near areas of disturbance.
BIO-2	Pre-Construction Raptor Scans	The area will be surveyed for nesting/roosting raptors by scanning the property and surrounding area from a prominent location.	Two three-hour surveys will occur during the early/peak breeding season, March-June. Surveys will occur prior to any additional construction or clearing native vegetation between Feb. 1 and Aug. 31.
BIO-3	Pre-Construction Bird Surveys	Pre-construction surveys for nesting birds are recommended covering areas within at least 50ft of the planned footprint. Pre-construction nesting bird surveys would be needed prior to any vegetation removal or construction during the breeding season. Surveys for nesting birds are also recommended prior to any activities that may increase disturbance to potential nesting areas during the breeding season by more than 25dB (to ~75dB).	Surveys will occur prior to any additional construction or clearing native vegetation during the breeding season Feb. 1 – Aug. 31. Construction may also occur during dry conditions outside of the breeding season without nesting bird surveys (Sept. 1-Jan. 31).
BIO-4	Northern Spotted Owl (NSO) Habitat Assessment and Noise Attenuation Plan	An NSO Habitat Assessment was completed to determine whether the project has the potential to modify NSO habitat, disturb breeding NSO, or otherwise result in “take” of NSO. No habitat modification is expected. Noise attenuation is recommended to minimize disturbance to high-quality foraging habitat in the area.	Noise levels at the edge of woodland and forest habitat shall be kept in the Natural Ambient (<50dB) to Very Low (50-60dB) range between dusk and dawn year-round. See BIO-6 for additional noise restrictions.
BIO-5	Restoration of Cultivation Areas within SMAs	The footprints of the sites within riparian woodlands should be revegetated with site-appropriate native species to restore habitat and prevent erosion into the watercourse. An oak woodland restoration plan has been created for the larger outdoor cultivation site.	Acorns, bay nuts, big leaf maple samaras, and other native seeds may be collected onsite and sown in bare areas in the fall. Bare areas should also be covered with native grass seed and straw for erosion control by Nov. 15 each year.

BIO-6	Minimize Noise Disturbance	Noise levels at the woodland or forest edge shall not exceed 75dB during the bird breeding season (Feb. 1-Aug 31) without first completing nesting bird surveys (BIO-3), and shall not exceed 60dB between dusk and dawn year-round (BIO-4). The project currently depends on generators for electricity. It is recommended that a timeline is established for shifting power sources to the grid or onsite renewable energy. Generators should be contained in a structure to muffle sound, and they should adhere to Humboldt County Performance Standards.	Generator containment and testing decibel levels at the woodland/forest edge should occur immediately. Grid connection or incorporating renewable energy to phase out generator use should be accomplished by 2023.
BIO-7	Foothill Yellow-Legged Frog Surveys	An individual qualified to identify FYLF adults, tadpoles, and eggs shall walk at least 100 feet upstream and downstream while visually scanning for FYLF and other amphibians. Any amphibians encountered shall be identified to species level and documented. CDFW will be contacted if FYLF are encountered.	Foothill yellow-legged frog surveys should occur prior to any work in a wetted channel, such as culvert replacements in perennial streams.
BIO-8	American Bullfrog Management	Artificial ponds will be drawn down completely by the end of the dry season to interrupt the breeding season of the American bullfrog.	Drawdown should be completed and documented by the end of the dry season (Aug.-Oct. 15).
BIO-9	Minimize Pesticide Drift to Natural Areas	Pesticides that may be used for marijuana cultivation are limited to low-risk exempt substances and those that are broadly labeled by the Department of Pesticide Regulation. The potential impact of insecticide use on pollinators shall be reduced by not spraying in the presence of pollinators, and not allowing drift to flowering plants in the surrounding area.	The applicant should take precautions with pesticides and other chemicals at all times.



## References

- Bombay, H.L., Benson, T.M., Valentine, B.E. and Stefani, R.A., 2003. A willow flycatcher survey protocol for California. U.S. Forest Service, Pacific Southwest Region, Vallejo, California.
- Bourque, R. 2008. Spatial ecology of an inland population of the foothill yellow-legged frog (*Rana boylei*) in Tehama County, California. Arcata, CA: Humboldt State University. 93 p. M.S. thesis.
- CABI, 2019. *Rana catesbeiana* (American bullfrog). In: Invasive Species Compendium. Wallingford, UK: CAB International. <[www.cabi.org/isc](http://www.cabi.org/isc)>.
- CalFish: A California Cooperative Anadromous Fish and Habitat Data Program. Species Pages. <http://www.calfish.org/FisheriesManagement/SpeciesPages/PacificLamprey.aspx>.
- California Department of Fish and Wildlife, Natural Diversity Database, BIOS. 2019. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA.
- California Department of Fish and Wildlife (CDFW), California Natural Diversity Database, Special Animals List. 2018. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA. <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline>>.
- Cook, D. G. 2012. *Rana boylei* (Foothill yellow-legged frog). Upland Movement. Herpetological Review 43(2): 325.
- Cornell Lab of Ornithology, "All About Birds: Bird Guide." <<https://www.allaboutbirds.org/guide/search.aspx>>.
- Craig, D. and P. L. Williams. 1998. Willow Flycatcher (*Empidonax traillii*). In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. [http://www.prbo.org/calpif/htmldocs/riparian\\_v-2.html](http://www.prbo.org/calpif/htmldocs/riparian_v-2.html).
- Harris, S.W. 2005. Northwestern California birds. 3rd Ed. Humboldt State Univ., Arcata, CA.
- Hunter, J.E., Fix, D., Schmidt, G.A., and Power, J.C. 2005. Atlas of the breeding birds of Humboldt County, California. Redwood Region Audubon Society.
- Moyle, P.B., J.A. Israel, and S.E. Purdy. 2008. Salmon, Steelhead, and Trout in California: Status of an Emblematic Fauna. U.C. Davis Center for Watershed Sciences.
- Nafis, G. 2000-2017. California Herps - A Guide to the Amphibians and Reptiles of California. <<http://www.californiaherps.com/>>
- NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://explorer.natureserve.org>.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento. <<https://www.wildlife.ca.gov/Conservation/SSC/Birds>>.

Sibley, D.A., 2003. The Sibley field guide to birds of Western North America. Alfred A. Knopf, New York.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a citizen-based bird observation network in the biological sciences. *Biological Conservation* 142: 2282-2292.

U.S. Fish and Wildlife Service (USFWS ECOS). ECOS Environmental Conservation Online System. <<https://ecos.fws.gov/ecp/>>. Accessed November 2017.

U.S. Fish and Wildlife Service (USFWS). 2006. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California. Arcata, CA.

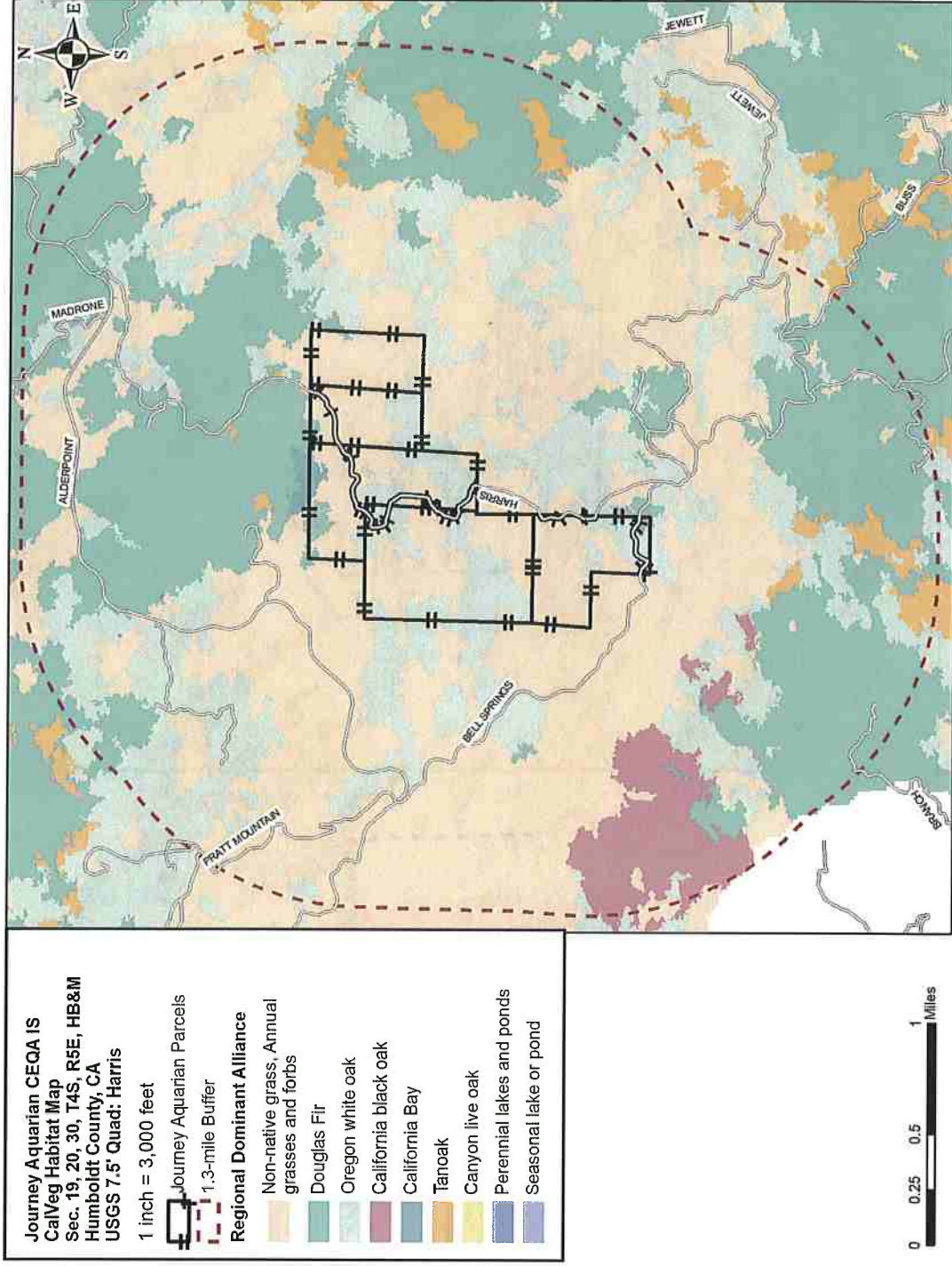
U.S. Fish and Wildlife Service (USFWS). 2014. Draft Species Report: Fisher (*Pekania pennanti*), West Coast Population. [https://www.fws.gov/yreka/20140911\\_WCF SR\\_finaldraft.pdf](https://www.fws.gov/yreka/20140911_WCF SR_finaldraft.pdf).

Xerces Society for Invertebrate Conservation. Bumble bee conservation. Portland, OR. <<http://xerces.org/bumblebees/>>.

Yarnell, S. 2013. 'Stream Habitat Associations of the Foothill Yellow-Legged Frog (*Rana boylei*): The Importance of Habitat Heterogeneity,' in Maddock, I., Harby, A., Kemp, P., and Wood, P., *Ecohydraulics: An Integrated Approach*, First Edition. JohnWiley & Sons, Ltd., p. 93.

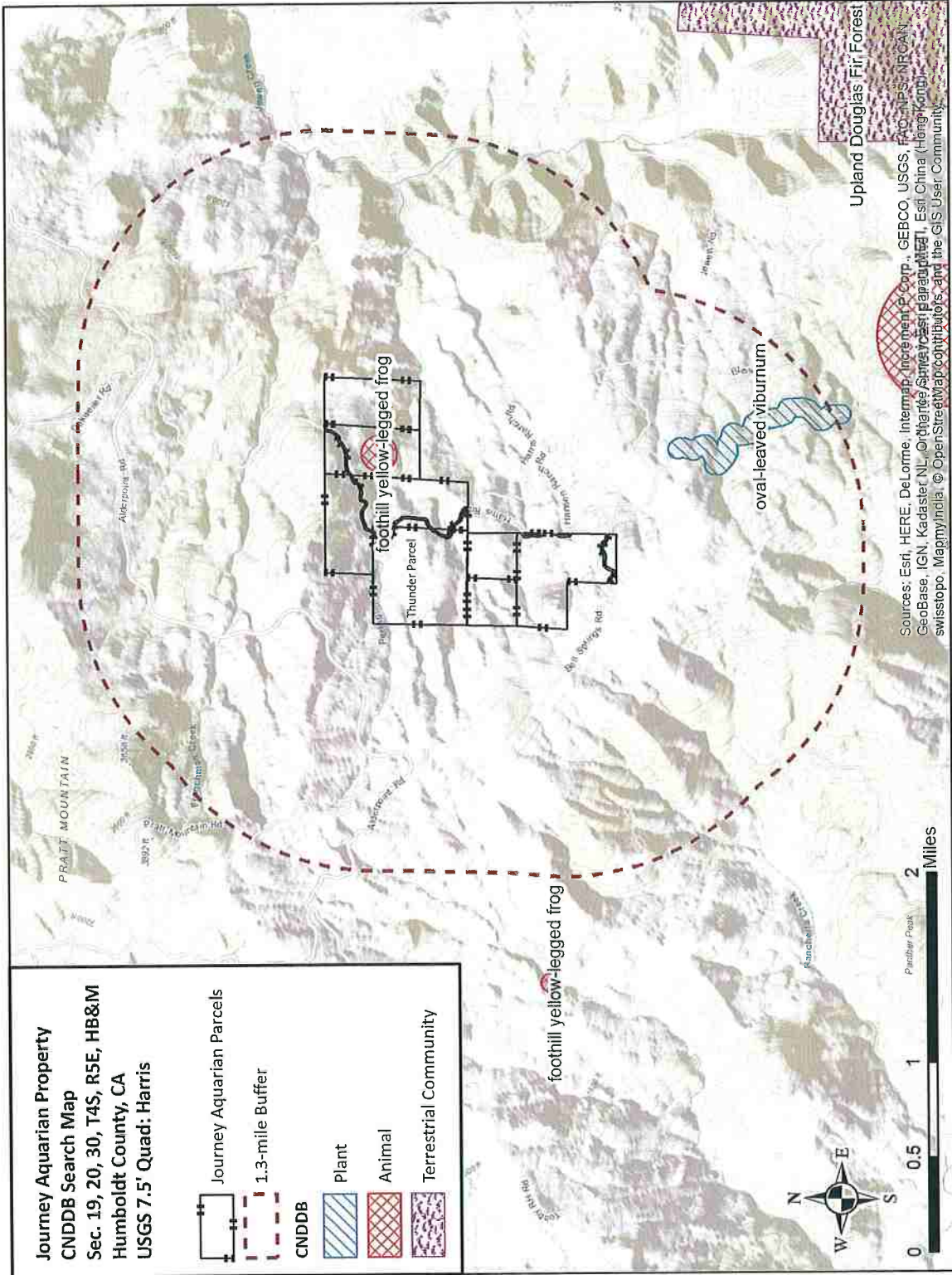
Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California. Updated by CWHR Program Staff, February 2005. <<https://www.wildlife.ca.gov/data/cwhr/life-history-and-range>>.

# Attachment A. CALVEG Vegetation Alliance Map of Surrounding Area





# Attachment B. CNDDDB Special-Status Species Search Map





## Attachment C. Rank Definitions

### 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 range (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** (trinominal) – The status of intraspecific 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 intraspecific 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.

## Attachment D. Habitat Photos

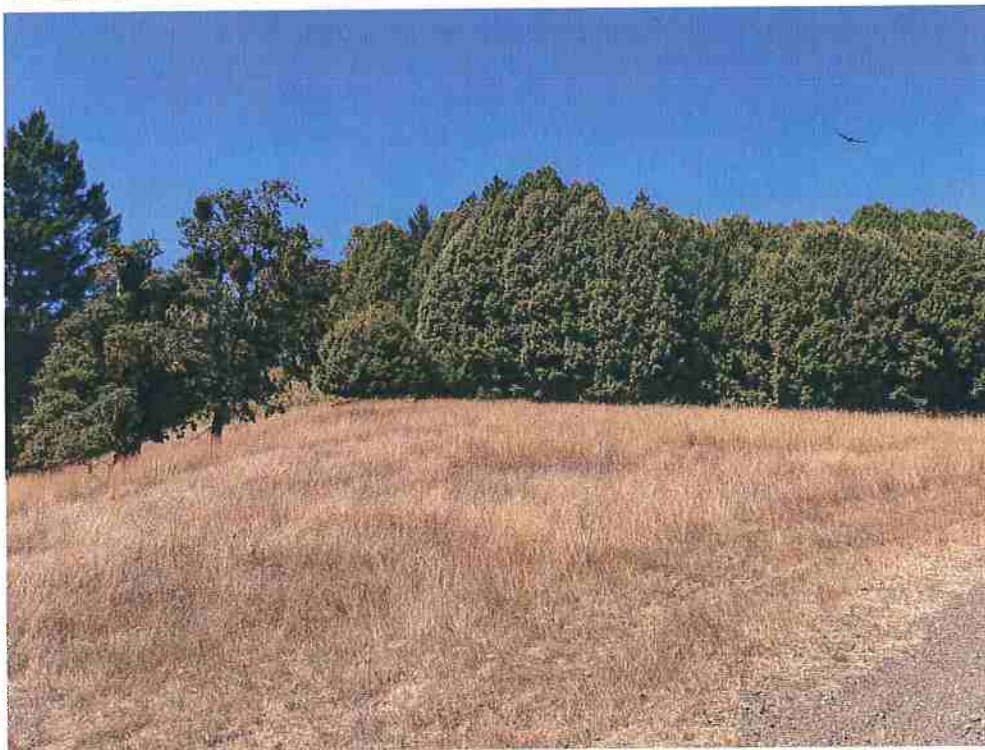


Photo 1. The proposed pond site is located in non-native grassland adjacent to an area of tanoak dominance with scattered Oregon white oak and Kellogg's black oak. The grasslands were dominated by invasive harding grass (*Phalaris aquatica*).

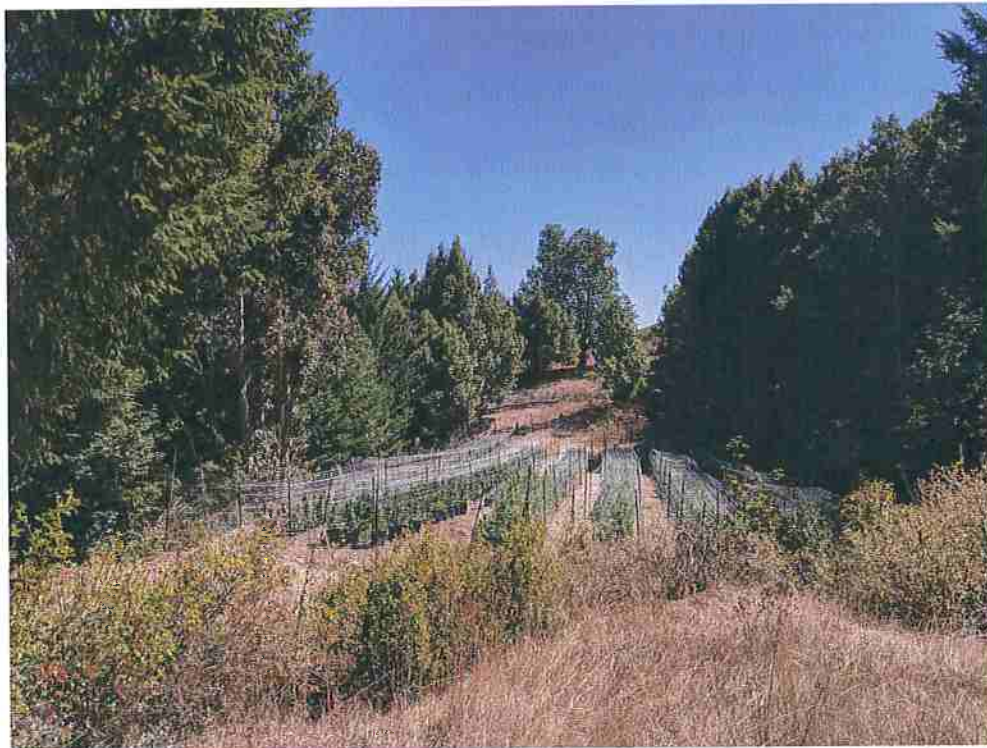


Photo 2. The northern outdoor cultivation area is adjacent to a seasonal watercourse. Remediation is recommended to restore habitat, minimize erosion, and prevent the site from being overrun by invasive species.





Photo 3. Oregon white oak (*Quercus garryana*) developing acorns 9/4/19.



Photo 4. California bay laurel (*Umbellularia californica*) fruits developing near the northern remediation site 9/4/19.

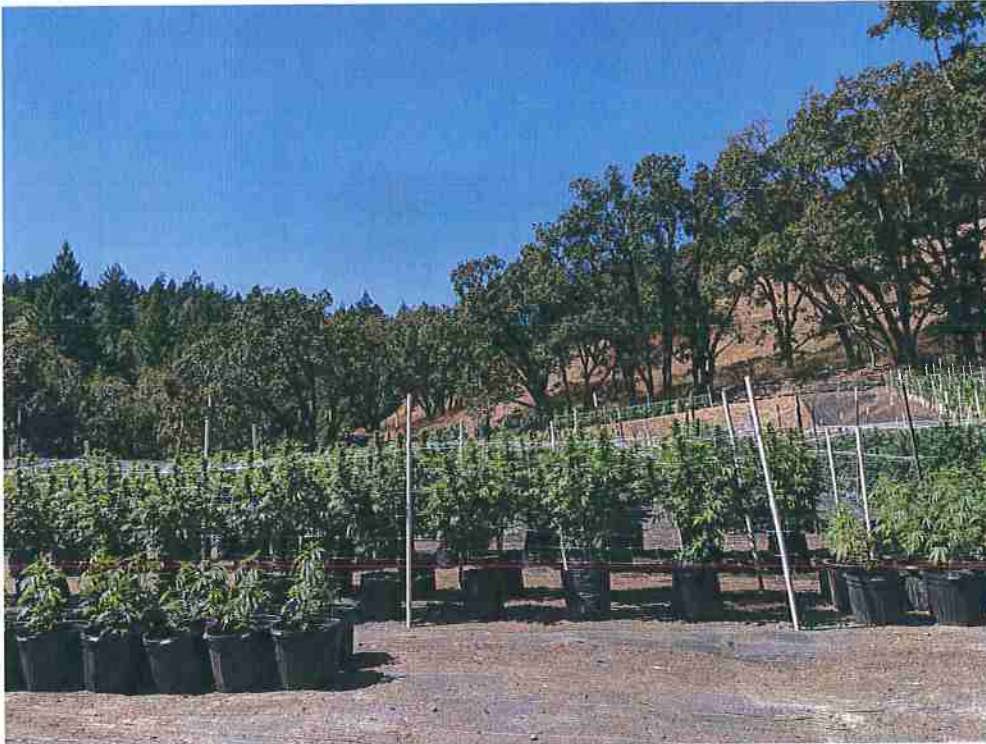


Photo 5. The outdoor cultivation area in an Oregon oak (*Quercus garryana*) woodland.

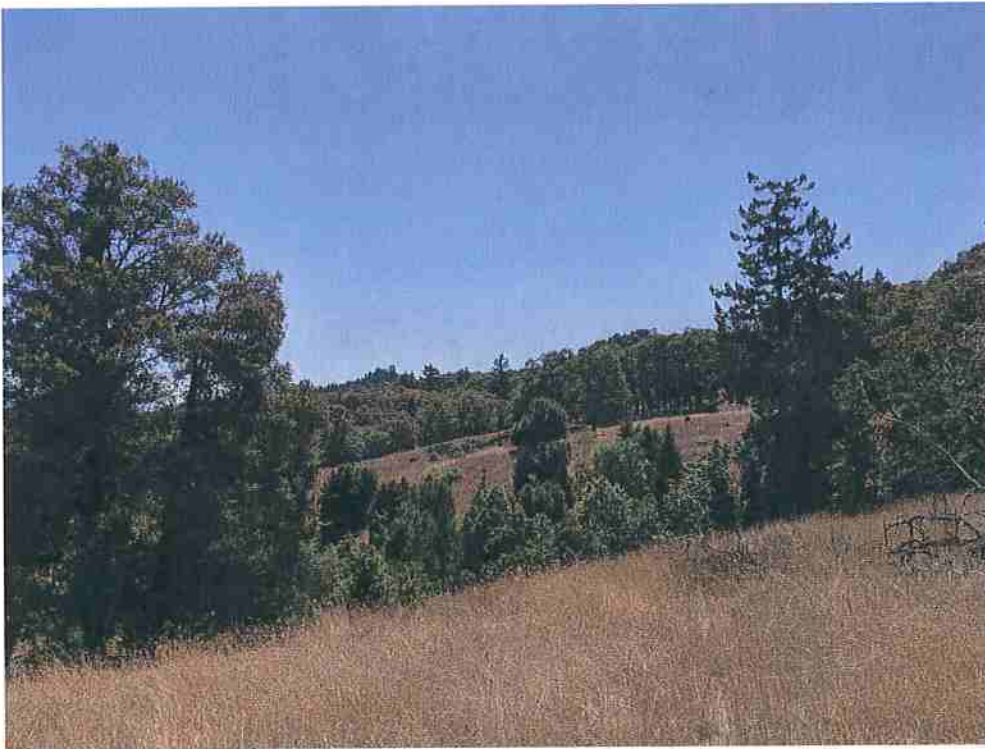


Photo 6. The area is a mosaic of grasslands and oak woodlands, with patches of tanoak and Douglas fir dominance.





Photo 7. An artificial stock pond is 60+ feet from the currently planned footprint of development. This is potential breeding habitat for the invasive American bullfrog, and should be drawn down annually to interrupt the breeding cycle.