

July 18, 2022

## **Biological Assessment for Peach Tree Farms Cannabis Cultivation Project**

### **1. INTRODUCTION**

The Peach Tree Farms, LLC Cannabis Cultivation Project (APPS No: 12355), or Peach Tree Farms (PTF) is a pre-existing cultivation involving 13,600 square feet (sq. ft.) of commercial cultivation in eastern Humboldt County. Located on a 40-acre parcel (APN 208-251-008) zoned as Residential Agriculture (RA), about nine and a half miles east northeast of Bridgeville, this project is about  $\frac{3}{4}$  miles south of the Mad River, in the western part of Section 33, Township 2 North, Range 5 East, HBM.

Operated under a provisional permit by applicant Gean Afanasieff since 2016; however, Humboldt County Planning and Building Department's (HCPBD) Cannabis Service Division has required additional environmental documentation to finalize the application process. As such, Mr. Afanasieff has asked me to assess potential impacts according to due process. Having consulted on northern California forest-wildlife matters since 1990, I specialize in biological analysis for protected and sensitive species in compliance with State and federal law. A qualifying "Spotted Owl Expert" (SOE), my attached resume also demonstrates extensive knowledge of environmental regulations and policy.

Consequently, this report focuses on potential impacts of previously permitted commercial agricultural activities pursuant to California Environmental Quality Act (CEQA) statute (Public Resources Code Section 21000 and following), the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 and following), published court decisions interpreting CEQA, and locally adopted CEQA procedures. Streamlining investigation of potential significant environmental impacts, this report also incorporates (tiers) documentation previously submitted to the HCPBD.

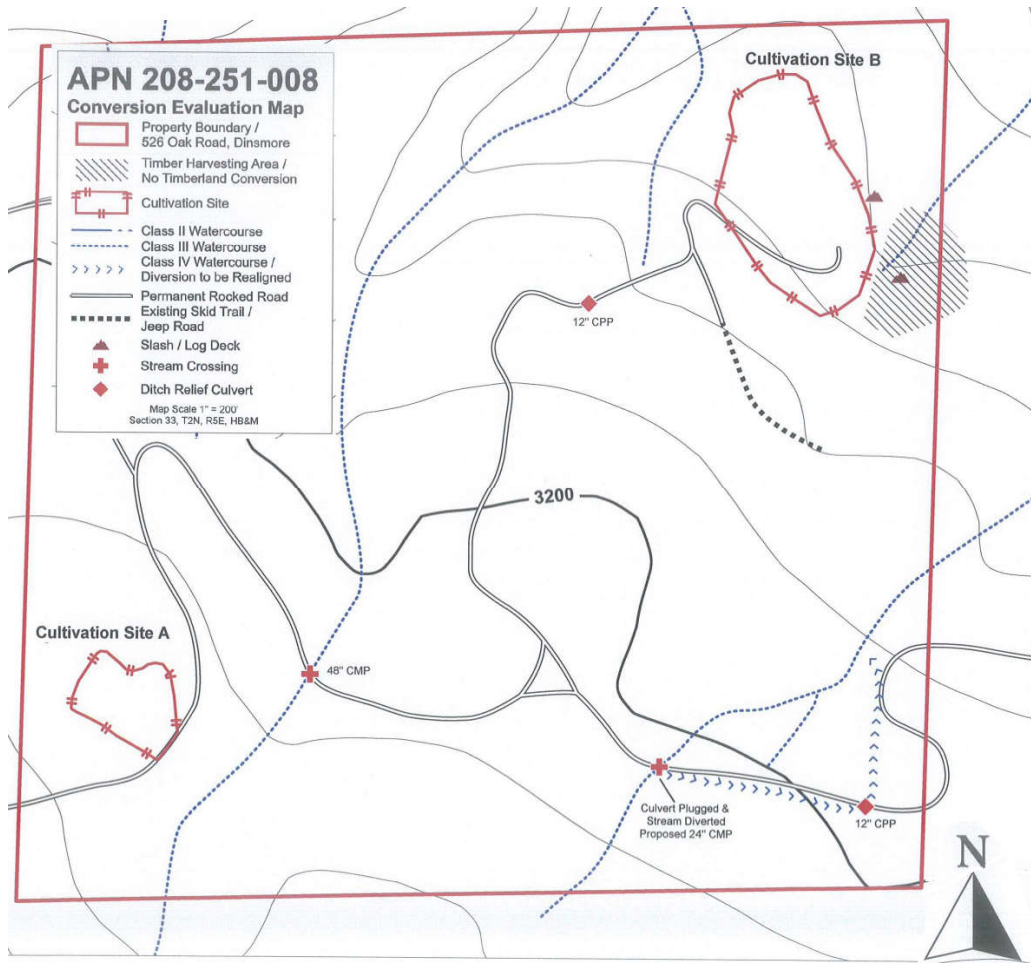
Specifically, in addition the Watershed Resources Protection Plan (WRPP) prepared for this project by Natural Resources Management Corporation (NRM) in 2017, and Lake or Streambed Alteration Agreement (LSAA) with California Department of Fish and Wildlife (CDFW), this biological assessment (BA) also considers final site inspection report by OurRevolution Engineering, and Timberland Conversion Evaluation (TCE) for APN 208-251-008 prepared by Timberland Resources Associates (TRC) Registered Professional Forester (RPF) Chris Carroll.

### **2. PROJECT DESCRIPTION**

Permitted in 2016, this project originally included two cultivation areas, an 0.39 acre upper flat near the west of the property line, and a 1.35-acre lower flat area near its northern boundary. Addressed as Site A and Site B in the TCE, in 2017 the upper site was decommissioned and all cultivation consolidated to the lower site. Initially proposed as the location for a pond, Site A has subsequently been abandoned.

Although cannabis cultivation at Site B appears to have been first conducted in 2005, as shown in Picture 1 (APN 208-251-008 Cannabis Project Unauthorized Timber Harvesting), an additional 0.51 acres of non-commercial timber harvesting occurred in the northeastern portion of the project area between 2020 and 2021.

Picture 1: APN 208-251-008 Cannabis Project Unauthorized Timber Harvesting



As such, this project now involves two greenhouses at Site B, each 34' x 200', utilizing mixed light and outdoor (light depredation), respectively, as well as an adjacent 20' x 68' plant nursery. There is also a 20' x 34' two-story storage structure about 600' to the south. A groundwater well will be supplying irrigation water until a rainwater catchment system is completed, including twenty 500-gallon HDPE Self-Caught Rainwater Catchment Tanks. However, there is currently 51,000 gallons water storage for use during the forbearance period.

Furthermore, the LSAA includes substantial watershed improvements, such as upgrading dirt roads and stream crossings. Having been inspected by OurRevolution Engineering in April of 2022, and found in compliance; according the TCR, unsanctioned timber harvest has been successfully mitigated with the application of wood chips, and appears to be regenerating naturally.

### 3. ENVIRONMENTAL SETTING

The existing cannabis cultivation I inspected at 526 Oak Road on June 7, 2022 is located at the terminus of an existing private dirt road, about two miles northwest of the small rural community of Dinsmore. Although mostly cleared of vegetation before 2005, according to "A GUIDE TO WILDLIFE HABITATS OF CALIFORNIA" (Mayer and Laudenslayer 1988), the associated habitat can best be classified as Montane Harwood-Conifer.

Whereas one third of Humboldt County is composed of land under public and Native American management, this ownership has a long history of human disturbance. Dating back about 150 years much of this region was grazed by sheep. Previously logged under THP 1-97-408 HUM, as shown on the Blake Mountain USGS 7.5' Quadrangle, this cultivation site was mapped as non-forest. Described in the TCE:

*“The property consists of Douglas-fir encroached woodlands intermixed with second growth Douglas-fir located primarily along the stream drainages. Review of historic aerial imagery .... from 1947 reveals that the majority of the property consisted of pure oak woodlands with patches of old growth Douglas-fir or mature Douglas-fir intermixed with the true oaks. Subsequent imagery from 1972 reveals that all of the Douglas-fir had been clearcut.”*

Though within the range of the northern spotted owl (NSO) (*Strix occidentalis caurina*), there are no known owls within 1.3 miles of this project. More than 36 miles from the Pacific Ocean, and at an elevation of about 3,100 feet, it is not suitable for marbled murrelets (*Brachyramphus marmoratus*). Previously field inspected by environmental specialists and consultants; my site visit did not observe wetlands and/or other sensitive habitats potentially impacted by the existing cannabis cultivation.

#### 4. REGULATORY SETTING

Proposition 64 (the California Marijuana Legalization Initiative) gives each municipality the right to make their own rules. As such, the HCPBD began accepting applications for projects in the Inland Zone after the CMMLUO was adopted by the Board of Supervisors on February 26, 2016. Accordingly:

*“It is intended to address the County of Humboldt’s prerogative to license, permit, and control commercial cultivation, processing, manufacturing and distribution of cannabis for medical marijuana as set forth in the MMRSA, including, but not limited to the provisions of Business and Professions Code Sections 19315, 19316, 19320, 19322, 19332, and 19360 and Health and Safety Code Section 11362.777, in conjunction with state licensing requirements, in order to protect the public health, safety, and welfare of the residents of the County of Humboldt, and to reduce or eliminate any adverse environmental effects of existing commercial cannabis cultivation operations in the County of Humboldt, and to prevent adverse environmental effects of any new commercial cannabis activities which may be permitted in the future in accordance with this Section and state law.”*

The Commercial Cannabis Land Use Ordinance (CCLUO), as revised on January 11, 2018, limits the maximum allowable cultivation area for outdoor and/or mixed light cultivation to the size of the existing cultivation area prior to January 1, 2016. As per Section 314-55.4.9, Table of Humboldt County Commercial Cannabis Cultivation Permit Types – Inland Zone, the maximum area for an existing cultivation project, on a single parcel ten acres or larger, is 22,000 sq. ft. for mixed-light, and 43,560 sq. ft. for outdoor cultivation.

Although 55.4.6.5 provides accommodations for pre-existing cultivation sites that exempts them from performance standards required of new developments, general provisions applicable to all commercial cannabis land use activities intended to alleviate adverse environmental impacts include addressing potential disturbance of federally listed species in accordance to the Endangered Species Act (ESA), the CCLUO specify:

*“The noise produced by a generator used for cannabis cultivation shall not be audible by humans from neighboring residences. The combined decibel level for all noise sources, including generators, measured at the property line shall be no more than 60 decibels. Where applicable, sound levels must also show that they will not result in the harassment of Marbled Murrelet or Spotted Owl species. Conformance will be evaluated using current auditory disturbance guidance prepared by the United State Fish and Wildlife Service, and further consultation where necessary.”*

Cannabis cultivators applying for an Annual License from the California Department of Food and Agriculture must also address potentially significant adverse environmental effect in accordance to CEQA. Although CEQA does not directly regulate land use, also it provides a blueprint for determining detrimental significant environmental impacts by requiring State and local agencies to follow a protocol of analysis and public disclosure.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have authority over federally listed species, and the USFWS has statutory authority to enforce the Migratory Bird Treaty Act (MBTA). Incidentally prevented from commenting on cannabis cultivation because of its prohibited federal status; nevertheless, other relevant laws include the Clean Water Act (CWA), the Bald and Golden Eagle Protection Act. However, in the end, permitting commercial environmental projects falls on the States.

As such, water quality in California is governed by the Porter-Cologne Water Quality Control Act. Administered by the Regional Water Quality Control Board (RWQCB), the Section 401 water quality certification program allows the State to ensure that activities requiring a federal permit or license comply with State water quality standards. A water quality certification must be based on a finding that the proposed discharge will comply with water quality standards which are in the regional board’s basin plans.

In addition to enforcing the California’s Endangered Species Act (CESA) and the Fish and Game Code (FGC), the California Department of Fish and Wildlife (CDFW) is also authorized to comment and make recommendations on CEQA projects. However, permitting legal cannabis cultivation in a manner consistent with State and federal laws is ultimately a Humboldt County responsibility.

Lastly, because cannabis cultivation is often conducted on timberlands, this assessment considers thresholds of significance for sensitive biological resources adopted under the 1973 Z’berg-Nejedly Forest Practice Act (Public Resources Code Section 4551 et seq.). Hereto referred to as the California Forest Practice Rules (FPRs), these regulations provide established environmental mitigations measures for small clearings that are functionally equivalent to CEQA.

Considered an intrinsic landowner right, three-acre conversions are exempt from preparing a Timber Harvest Plan (THP). Under the FPRs, such limited habitat modifications can typically be accomplished as a ministerial action, as long as they comply with other federal, State and County ordinances. As such, a TCE was prepared to address environmental issues linked to unpermitted

minor clearings associated with this project in accordance to Humboldt County Code, Ordinance No. 2559 (Commercial Medical Marijuana Land Use), Section 55.4.10(j).

## 5. BIOLOGICAL COMMUNITIES

In addition to a literature review of floral and faunal communities likely impacted by this cannabis cultivation using CDFW's List of Special Animals (2022), preliminary environmental scoping also included a query of the California Natural Diversity Data Base (CNDDDB) for special status species within 1.3 miles of the project.

Compatible with the assessment area for evaluating impacts on NSOs; although there are no NSOs within 1.3 miles, the CNDDDB does document three special status plant species; Tracy's sanicle (*Sanicula tracyi*), Oregon goldthread (*Coptis laciniata*), and Bolander's catchfly (*Silene bolanderi*). Although historical land-use practices appear to have significantly altered natural communities associated with this project to the point that pristine ecological values were diminished long ago, the permittee's LSAA with CDFW states:

*“Existing fish or wildlife resources the project could substantially adversely affect include Southern Torrent Salamander (*Rhyacotriton variegatus*), Pacific Giant Salamander (*Dicampton tenebrosus*), Foothills Yellow-legged Frog (*Rana boylei*), Coastal Tailed Frog (*Ascaphus truei*), Western Pond Turtle (*Actinemys marmorata marmorata*) amphibians, reptiles, aquatic invertebrates, mammals, birds, and other aquatic and riparian species.”*

Whereas “*substantially adversely affect*” is not a legal standard, the implementation of the LSAA mitigates potentially significant detrimental watershed effects. Consolidated to within the perimeter of previously developed cultivation footprint at Site B; although this project does not involve a meaningful reduction of natural habitat, a more complete assessment of special-status species reasonably impacted has been conducted in terms of ecological guilds.

Potential impacts have been discussed for Northern Spotted Owl and Late Mature Forest Species, Bald Eagle, Osprey and Forest Raptors, Aquatic/Wet Site Species, Forest Mustelids and Other Small Mammals and Special Status Plants. Parameters used to appraise potential CEQA significance included (1) the species occurrence and distribution in relation to the project area, (2) its sensitivity to disturbance, (3) environmental baseline conditions and population size, and (4) its legal status. However, a species would be dropped from further consideration if the project area was found to occur outside its range, or vital habitat requirements were absent.

## 6. DISCUSSION OF ENVIRONMENTAL IMPACTS

Article 5 of the CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Sections 15000-15387) provide rules for “Preliminary Review of Project and Conduct of Initial Study”. Concerned with present plant or animal communities threatened by local elimination, in jeopardy of substantial habitat reduction, or dropping below self-sustaining levels as a result of proposed project [§15065(a)(1)], CEQA requires substantial evidence of significant environmental effects before empowering lead agency to authorize additional mitigations or alternatives [§15126.4 (a)(3)].

To the best extent possible, such arguments should contain an element of Forecasting (§15144), as well as a degree of Specificity (§15146) and Technical Detail (§15147). Limited to activities which are within the agency's area of expertise [§15096 (d)], comments need to be written in a manner that is meaningful and useful to the decision-making body and the public [§21003(b)].

*“Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence” [14 CCR §21080(e)(2)].”*

Discussed according to statutory guardrails intended to assure due process and conservation value, a more detailed analysis of potential disturbance, or loss of special-status plant or wildlife species, or their habitats has been conducted with emphasis on CEQA significance. Starting with flora and fauna listed under the ESA, followed by CESA listed species, and lastly, non-listed sensitive species. Although animals with large territories were considered inside 1.3 miles, impacts to species with smaller ranges and/or specific habitat requirements were evaluated within the project's disturbance footprint.

#### Northern Spotted Owl and Late Mature Forest Guild Species

The CNDDDB records no NSOs inside the 1.3 miles assessment area, and as mature forest habitat does not occur in association with this project, consideration of this species has been dropped. Requiring mature forest patches with permanent water and suitable nesting trees and snags (Zeiner et al. 1990), they share affinity for mature forest with other sensitive species dependent on large more decadent trees, downed woody debris, or require lower ambient temperatures associated with interior stand conditions. However, impacts to these guild species are unlikely; but assessed according to the 50 decibel (dB) threshold, at 100 feet, or the edge of habitat, as required for cannabis cultivation in Humboldt County, impacts to these guild species can also be dismissed.

#### Bald Eagle, Osprey and Forest Raptor Guild

Bald eagles (*Haliaeetus leucocephalus*) and osprey (*Pandion haliaetus*) typically prefer nesting close to streams and rivers. Occupying the same niche as great blue herons; however, golden eagles (*Aquila chrysaetos*) favor large trees and rock faces on prominent ridges associated with grassy meadows. Fully protected, as are all nesting raptors, although the CNDDDB does not record rookeries or other nesting birds of prey within 1.3 miles of this project, regularly observed in the Mad River watershed, the populations of these large birds are generally increasing. However, no active raptor nests or rookeries have been observed in association with this project. Given existing baseline conditions, and that substantial habitat removal has not occurred, it is reasonable to conclude that this project will not significantly impact these guild species.

#### Aquatic/Wet Site Guild

Lumped together based on their affinity for water, wet areas and riparian habitat; there are no records of sensitive aquatic/wet site guild species on this ownership. Although there is habitat for foothills yellow-legged frogs within 1.3 miles, and habitat for pacific giant salamander, Southern torrent salamanders, rough-skinned newt (*Taricha granulosa*) and northern red-legged frog (*Rana aurora*) may also occur on the property, coastal tailed frog and western pond turtle are less likely because of the lack of ponds and higher gradient streams.

In accordance to Project Inspection Report for 1600-2017-0693-R1, conducted on April 28, 2022, this project is compliant with the LSAA, and does not involve drawing water from streams or ponds in a way that would impact guild species. As per the TCR, unauthorized non-commercial timber harvesting that occurred inside the Water Lake Protection Zone (WLPZ) has been successfully mitigated. As such, this project will not impact habitat for these guild species and further consideration for these species has been dropped.

#### Forest Mustelids and Other Small Mammals

The CNDDDB has no records of sensitive mammals within 1.3 miles. Although the surrounding mixed hardwood-conifer forest is likely to contain suitable habitat for Sonoma tree vole (*Arborimus pomo*) and Fishers (*Pekania pennantiare*), North American porcupines (*Erethizon dorsatum*) are less common. Nevertheless, grasslands or open meadows potentially suitable for American badgers (*Taxidea taxus*) do not occur in association with this project, and outside the geographic range of the Humboldt marten (*Martes americana humboldtensis*), suitable habitat for Townsend's big-eared bats (*Corynorhinus townsendii*) was not observed.

Prohibited from using rodenticides and monofilament netting, as to reduce the risk of ensnaring wildlife; given that this cannabis cultivation did not involve substantial additional habitat removal, potential significant impacts to forest mammals can reasonably be dismissed. Further consideration of these guild species has been dropped.

#### Protected Plant Guild

The CNDDDB records three special status plats inside this project's biological assessment area. The closest, Oregon goldthread is a California Native Plant Society (CNPS) species with a Ranking of 4. Lowest on the CNPS watchlist, but noticed because of their limited California distribution; this "non-specific area" occurrence from 1976 is section-wide. Sharing the abovementioned 4 Ranking, Tracy's sanicle's is reported about a ½ mile to the east. However, Bolander's catchfly, a 1B Ranked species was recorded in the section to the north in 2018. Incidentally, the CNPS considers all California Rare Plant Rank 1B and 2B species meet the definitions of the California Endangered Species Act of the California Fish and Game Code, and are eligible for state listing:

*"Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125; (c) and/or §15380."*

Nevertheless, located on a previously developed site, potential impacts to sensitive botanical communities can reasonably be dismissed because situated in a locality that does not contain formally listed, State or federally protected plants. And recent unsanctioned half-acre clearing is unlikely to have affected sensitive plant communities in ways that could be CEQA significant. Indeed, such small clearings may benefit rare, early-seral plants favoring highly disturbed and open habitat conditions. However, given that the cultivation site is developed with a rocked surface; no rare plant habitat exists and botanical surveys are not required.

## 7. DISCUSSION OF SIGNIFICANT ENVIRONMENTAL IMPACTS

A determination of potential significant environmental effects calls for careful judgment on the part of the public agencies involved. However, not only does CEQA require that a project's potentially harmful impacts be discussed with an emphasis in proportion to their severity and probability of occurrence (§15143), those impacts must also be judged against existing baseline conditions. According to the CCLUO, Exhibit A – FINDINGS AND STATEMENT OF OVERIDING CONSIDERATIONS:

*“The EIR adopts as its baseline for analysis of impacts the existing environmental conditions that include the legacy of a half century of unregulated cannabis cultivation in remote and environmentally sensitive areas ...that unquestionable caused harmful environmental impacts that are documented in the EIR...”*

Although the ESA prohibits the incidental taking of an individual without an explicit permit, it is important to consider that CESA differs from the ESA in ways often not acknowledged by State agencies and stakeholders in that its definition of “take” is far more limited than that of the ESA (Dwyer and Murphy 1995). Restricted to “*Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill*”, the CESA has no equivalent to “harm” or “harass”.

Moreover, CDFW has explicit authority to approve incidental take. Under Article 3.5 of FGC, “Incidental Take Associated with Routine and Ongoing Activities”, the taking of special-status species incidental to routine agricultural activities occurring during permitted management practices are not prohibited. According to §2087(a);

*“An accidental take of a candidate, threatened, or endangered species resulting from an act by a person acting as a farmer or rancher, a bona fide employee of a farmer or rancher, or an individual otherwise contracted by a farmer or rancher that occurs on a farm or a ranch in the course of otherwise lawful routine and ongoing agricultural activities is not prohibited by this chapter.”*

In other words, incidental take of a State listed species is more permissive, providing that it involves an otherwise lawful and fully mitigated activity (Kern 1999). And although the FGC gives agricultural activities explicit leeway, the reason why cannabis cultivation is held to higher environmental standard than other legally permitted land uses is not exactly clear. Unfortunately, misapplying the ESA's severe take prohibition on non-federally listed species is a very common mistake that can serve to exaggerate a projects potential significance.

Which is why it is important that the potential impacts to special-status species be assessed in accordance to the best science, established thresholds of significance, and reasonable assumptions. Consequently, although this project is not subject to the FPRs, the potential impacts of 0.51-acre unsanctioned clearing have been addressed according to CEQA equivalent thresholds of significance presented in State regulations for clearings smaller than three acres.

In conclusion, this BA found no plant or animal community potentially impacted by cannabis cultivation activities in manner that would be CEQA significant. Mitigated by extraordinary environmental protection measures adopted by the CCLUO, this project is unlikely to result in a disturbance and/or loss of special-status species, or their habitat.




Furthermore, potentially non-significant impacts resulting from unsanctioned habitat encroachment are also moderated by the relocation of cultivation at Site A. Consolidating cultivation activities to Site B represent a net cultivation area reduction of nearly a half-acre. An existing log landing used most recently in 1997, and proposed to be used again for oak restoration in the near future, Site A is poorly drained and receives uncontrolled stormwater runoff from the developed parcel immediately west.

Consequently, Site A contains indicators suggesting seasonal surface water at or near the surface of the soil. Not a “wetland” per the U.S. Army Corps of Engineers because its man-made; nonetheless, it may provide habitat for rare facultative upland plants such as Tracy’s sanicle, Oregon goldthread, and Bolander's catchfly. Currently covered with native forbes, grasses, and herbaceous plants, it should be left “as-is” with no grading or disturbance to the existing vegetation and is considered “restored” until needed for future timber operations.

Moreover, substantially reducing the harmful effects of illegal growing, compelling growers to address unrelated watershed issues, permitted cannabis cultivation contributed considerable long term and lasting conservation value. As such, the operational noise levels should be limited to 50 decibels (dB) at 100 feet, or the edge of habitat. Greenhouse structures utilizing artificial light should be regularly monitored for adherence to Dark Sky Association guidelines for both Lighting Zone 0 and Lighting Zone 1.

Notably, as other States legalize cannabis, and wholesale prices will continue to fall, I predict a gradual reduction in cultivation in Humboldt County, further alleviating potential harmful cumulative environmental impacts.

Troy Leopardo  


Leopardo Wildlife Associates  
145 Liscom Hill Road  
McKinlyville, CA 95519  
(707) 502-9357  
[leowild@prodigy.net](mailto:leowild@prodigy.net)

Attach: Troy Leopardo Resume

## 8. SOURCES AND LITERATURE CITED

Association for Environmental Professionals (AEP). 2022. California Environmental Quality Act (CEQA) Statute and Guidelines, [califaep.org](http://califaep.org)

California Department of Fish and Wildlife. 2022. Natural Diversity Data Base Viewer. July 6, 2022 Report

Dwyer, L.E., D.D. Murphy. (1995) Fulfilling the Promise: Reconsidering and Reforming the California Endangered Species Act. *Natural Resources Journal* Vol. 35 Fall 1995

Kern, B.D. 1999. Permitting the Take: An Analysis of Section 2081 of the California Endangered Species Act. *8 New York University Environmental Law Journal* 74 (1999 2000)

Mayer, K.E and William F. Laudenslayer (1988). *A Guide to Wildlife Habitats of California*. California Dep. Of Forestry and Fire Protection, Pacific Southwest Forest and Range Experiment Station (Berkeley, Calif.)

Zeiner et al. 1990. *California's Wildlife, Volume II Birds*. Editors. David C. Zeiner. William F. Laudenslayer, Jr. Kenneth E. Mayer. Marshall White.



## RESUME

**Troy Leopardo**

### WILDLIFE BIOLOGIST

McKinleyville, California 95519

[leowild@prodigy.net](mailto:leowild@prodigy.net) 707 502 9357

A northern California private consulting biologist with thirty years of experience, Troy has particular expertise with design and implementation of surveys for threatened and endangered species, as well as environmental regulations, policy and law

### EDUCATION

Bachelor of Science in Wildlife Management from Humboldt State University, with a Range Management emphasis and upper division courses in Waterfowl and Wildlife Diseases (1988)

### PROFESSIONAL EXPERIENCE

**Leopardo Wildlife Associates (LWA), McKinleyville, California (Since 1997)**

Senior biologist and owner of small consulting firm providing biological services for private and public landowners throughout northern California. Focused on biological field investigations and analysis pursuant to the California Environmental Quality Act (CEQA) and Forest Practice Regulations (FPRs), I conduct surveys for State and federally listed species. Predominantly northern spotted owls, but also seasonally appropriate surveys for migratory nesting birds, as well as sensitive amphibians and mammals. Other duties include Environmental Monitoring and Storm Water Pollution Prevention Planning (SWPPP). Supervising as many as 10 biologists and technicians on a project-to-project basis, prominent **clients include:**

- **Soper Company:** Consulting biologist responsible for company holdings in Northwestern California. Provide scientific review and legal analysis in support of Timber Harvest Plans (THPs) in accordance with CEQA and the FPRs. Implement wildlife surveys, evaluate and map habitat, assess biological impacts, and design mitigations for federally endangered species such as the northern spotted owl (NSO) and California Red-legged Frog (1998 to 2020)
- **Barnum Lumber Company:** Supervised NSO surveys on 25,000-acre ownership in Humboldt Mendocino Counties; designed and implemented surveys for other sensitive and protected species such as Bald Eagle and Northern Goshawk. Conduct scientific review and legal analysis in support of THPs. Designed forest habitat classification system for company GIS (1997 to present)
- **Green Diamond Resource Company:** contract NSO surveys on 15,800-acre tract (2019-2022)
- **Timberland Resources Consultants:** Prepared CEQA documentation for commercial cannabis projects according to Humboldt County Commercial Cannabis Land Use Ordinance (2019- 2022)
- **Sequoia Ecological Consulting:** Planned and implemented surveys for Northern Goshawk, California Spotted Owl, and Great Gray Owl as sub-contractor for Pacific Gas & Electric (PG&E) at Lyons Reservoir, Sand Bar Dam, and Philadelphia Weir (2012 to 2014), Migratory Bird Treaty Act (MBTA) surveys and environmental monitoring for gas line replacement and vegetation removal (2016 and 2018)
- **Humboldt County Public Works:** Biological Assessment (BA) for the Honeydew Bridge Replacement Project, McKay Community Forest NSO Monitoring, and MBTA Surveys for County road construction (2013 - 2016)
- **Hambro Forest Products:** Prepared BA for contested THP involving sensitive vegetation communities and special status species in the California Coastal Zone (2017)
- **Redwood National and State Park:** Awarded Marbled Murrelet and NSO survey contract in Redwood National Park; successfully implemented and administrated field surveys in the Lost Man Creek study area involving 2,500 acres located near Orick, California (2006 and 2007)
- **Gualala Redwoods, Inc.:** Carried out THP related wildlife surveys and documentation associated with this 28,000-acre timber company located in coastal Mendocino and Sonoma Counties; implemented field investigations for spotted owl and marbled murrelet. Conducted agency consultation according to CESA and ESA (1999 to 2006) ...

**PROFESSIONAL EXPERIENCE, LWA Clients...Continued**

● **MHA Environmental Consulting, Inc.:** Environmental consultant for PG&E as a MHA sub-contractor; planned and implemented pre-construction surveys for sensitive wildlife, designed mitigation measures and directed environmental monitoring for the Fairhaven-Arcata Tower Replacement Project involving the airlifting of equipment into sensitive beach dune habitat containing Endangered Plants on the Samoa Peninsula in Humboldt County. Acting SWPPP Project Leader and Hazardous Materials and Water Pollution Control Manager for the Humboldt-Arcata 60 kV Reconstruction Project (2003 to 2006)

**Natural Resources Management Corporation (NRM)**

**(1990 – 1997)**

NRM lead biologist, and instrumental in establishing environmental consulting branch of this northern California forestry-consulting firm. Directed a staff of natural resource professionals; trained and supervised up to 12 seasonal employees in a wide variety of environmental tasks, emphasizing surveys for threatened and endangered species. Conducted aerial photograph interpretation and habitat mapping; performed National Environmental Policy Act (NEPA) documentation, as well as ESA and CEQA analysis. Developed a method of assessing biological impacts and cumulative effects for THPs that later became industry standard. Successfully planned and implemented the completed the following projects:

- Biological Analysis (BA) and Wildlife portion of Environmental Assessment for the Robinson project; conducted field investigations for this 500-acre USFS Timber Sale on Plumas NF
- Designed Old-Growth Habitat Model for Pacific Lumber Company's MSHCP
- Directed biological surveys and documentation according to the California THP process; analyzed biological impacts, designed mitigations, and mapped habitats for over 40 THPs
- Private Consulting Biologist (PCB) authorized by the California Department of Fish and Game to issue "No Take" determinations for NSOs; analyzed over 50 THPs for potential owl impacts in accordance with CEQA and ESA
- Conducted surveys and prepared consultations for state and federally listed wildlife species, such as the Marbled Murrelet, the Bald Eagle, the Peregrine Falcon, and the California Red-legged Frog
- Planned and implemented field investigations for non-listed species of concern, such as the Northern Goshawk, the Pacific Fisher, Del Norte Salamander, Southern Torrent Salamanders and Northern Red-legged Frogs
- Wrote Biological Resources section for the Humboldt County Dump Siting Study, analyzed potential biological impacts of five proposed dump sites in Humboldt County
- Directed implementation of Marbled Murrelet surveys in Timber Sale areas on the Mad River and Gasquet Ranger Districts in Six Rivers National Forest

**Mt. Hood National Forest, Estacata, Oregon**

**(1990)**

Directed NSO inventory program on the Estacata RD, fought wildfires in eastern Oregon.

**Rouge River-Siskiyou National Forest, Gold Beach Oregon**

**(1988-1990)**

Supervised NSO inventory program on the Gold Beach Ranger District; classified late seral habitat using aerial photo interpretation; planned and implemented habitat improvements for Wild Turkey, Peregrine Falcon and Roosevelt Elk. Participated in fisheries projects, such as stream surveys, construction of in-stream fish habitat structures, salmonid brood stock collection, egg hatch-box maintenance, and spawning surveys.

**RELEVANT TRAINING AND WORKSHOPS**

CEQA for RPFs: A California Licensed Foresters Association Workshop **(2009)**  
Caltrans Certified Storm Water Pollution Prevention Plan (SWPPP) Training **(2007)**  
California Department of Fish and Game Forest Amphibian Identification Training **(1994)**

**PROFESSIONAL AFFILIATIONS**

The Wildlife Society: California North Coast Chapter Programs Committee Chairman (1997-2000)

