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STATE CLEARINGHOUSE

June 11, 2020
Sent via e-mail

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ADELANTO PROJECT FOR MEDICAL CANNABIS CULTIVATION DEVELOPMENT (PROJECT), INITIAL STUDY/MITIGATED NEGATIVE DECLARATION (IS/MND)
SCH# 2020050283

Dear Mr. Hirsch:

The California Department of Fish and Wildlife (CDFW) received a Notice of Intent to Adopt an MND from the City of Adelanto (City) for the Adelanto Project for Medical Cannabis Cultivation Development (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines, § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

CDFW is also submitting comments as a Responsible Agency under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

Proponent: City of Adelanto

Objective: The objective of the Project is to construct eight industrial buildings (each building 20,000 sq. ft. in area and 26 ft. high) for the cultivation and processing of cannabis on an approximately 8.3-acre, undeveloped parcel in the City of Adelanto. The Project will involve construction in four phases, with each phase involving construction of two industrial buildings and associated infrastructure. The Project will also involve construction of parking lots, paved roads, and concrete-block security fencing (8 ft. tall) around the perimeter of the site. Water will be provided by the City of Adelanto Water Department and requires extension of an existing water line and a sewer line, and the water supply will be solely from groundwater. A retention pond will be constructed on-site to capture runoff from the Project. Landscaping will be installed on approximately 20% of the site.

Location: The Project is located on a vacant, undeveloped parcel (APN 0459-053-53-0-000; 34°35'34.30" N, 117°24'22.82" W) in the City of Adelanto, San Bernardino County. The parcel is southwest of the intersection of Auburn Ave. and Pearmain St. The Project parcel is surrounded by undeveloped industrial parcels to the east and west, an undeveloped residential parcel to the south, and commercial parcels to the north. Highway 395 is west of the parcel, and George Air Force Base lies to east. The nearest major cities are Barstow to the northeast and Victorville to the south. The nearest conservation lands are San Bernardino National Forest and Angeles National Forest, south of Victorville. The Project parcel is within the Mojave watershed, and an unnamed tributary of Fremont Wash lies south of the parcel. The Project falls within the Mojave River Groundwater Basin.

Timeframe: Phase 1 construction is to start by the fourth quarter of 2020, with operation of the facility starting in the third quarter of 2021. Phase 2 construction is to start by 2022; phase 3 construction, by 2024; and phase 4 construction, by 2026.

COMMENTS AND RECOMMENDATIONS

CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (i.e., biological resources). The IS/MND has not adequately identified and disclosed the Project's impacts (i.e., direct, indirect, and cumulative) to biological resources and whether those impacts are less than significant. CDFW offers the following

comments and recommendations to assist the City in adequately identifying and mitigating the Project's potentially significant impacts to biological resources.

In addition to the sections below, CDFW has the following concerns:

- Incomplete description of Project activities: The IS/MND lacks structural specifications for determining whether the industrial buildings will be completely enclosed, so it is unclear if impacts to biological resources are less than significant. To be considered indoor cultivation, a structure should have a permanent roof and walls, as well as an impermeable floor. The IS/MND indicates that the industrial buildings will include "overhead doors" (p. 2) and that "areas for cannabis growth will have a polycarbonate rigid panel roof" (p. 3). Structures that can be opened to the atmosphere or that are translucent will have different impacts on biological resources than completely enclosed structures (e.g., pesticides and artificial light will have greater impacts if structures are not completely enclosed; see the "Cannabis-Specific Impacts to Biological Resources" section below). CDFW recommends the IS/MND include a complete description of the industrial buildings (including how the "overhead doors" and "polycarbonate rigid panel roof" are to be used) and fully analyze the impacts to biological resources.
- Management of the retention pond: CDFW is concerned there could be potential impacts to biological resources resulting from the retention pond. The IS/MND is unclear regarding the potential nutrient and/or pesticide content of the water discharged into the retention pond. The IS/MND should evaluate the potential for the discharge to affect fish and wildlife resources. Typically, retention basins have a spillway for high flow. The IS/MND does not indicate where any associated spillway would discharge and if it would have impacts on biological resources in the area. In addition, as retention ponds have the potential to create habitat that attracts wildlife, CDFW is concerned that such areas be managed properly. The retention pond will need maintenance, which poses concerns about work period/season, nesting birds, vegetation removal, and potential use by sensitive species. The IS/MND should analyze these issues.
- Landscaping 20% of the site: To alleviate the water demands of this Project, CDFW recommends incorporation of water-wise concepts in project landscape design plans. CDFW recommends xeriscaping with locally native California species and installing water-efficient and targeted irrigation systems (such as drip irrigation). Local water agencies/districts, and resource conservation districts in your area may be able to provide information on plant nurseries that carry locally native species, and some facilities display drought-tolerant locally native species demonstration gardens. Information on drought-tolerant landscaping and water-efficient irrigation systems is available on California's Save our Water website: <http://saveourwater.com/what-you-can-do/tips/landscaping/>.

Section 15074(b) of the CEQA Guidelines requires the City of Adelanto to consider comments received during the public review process, and CDFW has identified potentially significant environmental impacts. Incorporation of CDFW's comments and inclusion of appropriate mitigation measures or project revisions to reduce the impacts to a less than significant level in the final adopted document is expected to allow CDFW and other responsible agencies to rely on the CEQA document when issuing subsequent approvals for the proposed Project.

Assessment of Impacts on Biological Resources

The IS/MND bases its analysis of impacts on the “Biological Resource Assessment & Jurisdictional Delineation, Medical Cannabis Cultivation Project” (Appendix 2; hereafter called the biological resource assessment), which identifies 34 sensitive species in the 4 quads surrounding the Project area. The biological resource assessment indicates that the following species have moderate potential to occur on-site: white pygmy-poppy (*Canbya candida*; California Rare Plant Rank 4.2), Mojave monkeyflower (*Diplacus mohavensis*; California Rare Plant Rank 1B.2), Booth’s evening primrose (*Eremothera boothii* ssp. *boothii*; California Rare Plant Rank 2B.3), Beaver Dam breadroot (*Pediomelum castoreum*; California Rare Plant Rank 1B.2), burrowing owl (*Athene cunicularia*; CDFW Species of Special Concern [SSC]), prairie falcon (*Falco mexicanus*; CDFW Watch List), loggerhead shrike (*Lanius ludovicianus*; CDFW SSC), Le Conte’s thrasher (*Toxostoma lecontei*; CDFW SSC), hoary bat (*Lasiurus cinereus*), desert tortoise (*Gopherus agassizii*; state and federal threatened species), and coast horned lizard (*Phrynosoma blainvillii*; CDFW SSC). A habitat assessment was conducted on January 6, 2020, which concluded the Project site was approximately 40% covered in vegetation, primarily creosote bush and Joshua trees. Suitable habitat for burrowing owl, desert tortoise, and Mojave ground squirrel (*Xerospermophilus mohavensis*; state threatened species) was identified on-site.

Special Status Species

The California Natural Diversity Database (CNDDDB) is a positive-detection database only, meaning that the absence of species data reported by CNDDDB does not indicate absence of the species from a project site. The CNDDDB indicates the potential for special status species in or adjacent to the Project area. A query of CNDDDB for all species reported in the 4 USGS quads (Adelanto, Victorville NW, Helendale, and Victorville) surrounding the Project area returned 34 species (147 occurrences), including the 6 plants, 26 animals, and 2 invertebrates listed in the biological resources assessment (Appendix 2 of the IS/MND). A query of CNDDDB and BIOS (Biogeographic Information and Observation System) for species occurrences reported within a 3-mile buffer of the Project parcel returned 9 species: Le Conte’s thrasher, burrowing owl, Swainson’s hawk (*Buteo swainsoni*; state threatened species), Booth’s evening-primrose, San Emigdio blue butterfly (*Plebulina emigdionis*), Mohave ground squirrel, pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*; CDFW SSC), Townsend’s big-eared bat (*Corynorhinus townsendii*; CDFW SSC), and desert tortoise. A CNDDDB/BIOS query for species occurrences in a 2-mile buffer of the Project parcel returned 4 species: Le Conte’s thrasher, burrowing owl, Swainson’s hawk, and desert tortoise. In addition, U.S. Fish and Wildlife Service critical habitat for southwestern willow flycatcher (*Empidonax traillii extimus*; state and federal endangered species) is located approximately 3 miles east of the Project parcel, and critical habitat for desert tortoise is located approximately 6.5 miles north of the parcel. Given the potential for special status species to occur on the Project site, CDFW appreciates the City’s inclusion of mitigation measure BIO-1 to develop a Worker Environmental Awareness Program.

California Endangered Species Act (CESA)

The IS/MND appears to presume that CESA or federal Endangered Species Act (ESA) permitting will not be required for desert tortoise; however, the requisite species-focused protocol surveys to substantiate the absence of CESA/ESA-listed species have not been conducted. Where suitable habitat exists (identified on p. 22 of the IS/MND and p. 4 of the accompanying biological resource assessment), and absent focused, protocol-level surveys to demonstrate to the contrary (e.g., species specific surveys conducted in accordance with applicable protocols), CDFW assumes that species (e.g., desert tortoise, Mohave ground squirrel, and burrowing owl) are present. The IS/MND identifies suitable habitat (“creosote-brush scrub dominated community” (p. 22) for desert tortoise, Mohave ground squirrel, and burrowing owl within the Project site. The IS/MND also states that “for purposes of this analysis, it is assumed that temporary [permanent impacts are not differentiated] ground disturbance within the project site may have a potential to adversely impact Mohave ground squirrel (a State threatened species), BUOW (a State and federally-listed of special concern [SSC]), and desert tortoises (a State and federally-listed threatened species)” (p. 24). Mitigation measure BIO-4 (see below) requires the project applicant to obtain an Incidental Take Permit (ITP) for Mohave ground squirrel if the project cannot avoid take of the species. Furthermore, the IS/MND identifies the potential for take of CESA-listed and ESA-listed desert tortoise. Page 4 of the IS/MND does not identify the respective permitting CESA/ESA agencies (CDFW or the U.S. Fish and Wildlife Service) when identifying other agencies whose approval may be required.

CESA prohibits the take (Fish and G. Code § 86) of any endangered, threatened, or candidate species that results from a proposed project, except as authorized by state law (Fish & G. Code, §§ 2080, 2085). Consequently, if Project construction or any Project-related activity during the life of the proposed Project would result in take of a CESA-listed species, we recommend that the Project applicant seek appropriate take authorization under CESA prior to implementing the proposed Project. Appropriate authorization from CDFW may include an ITP, a consistency determination, or other permitting options (Fish and G. Code, §§ 2080.1, 2081, subds. (b), (c)). Early CESA consultation is encouraged, as significant modification to a project and mitigation measures may be required to obtain an ITP. Mitigation, monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

Burrowing Owl (*Athene cunicularia*)

Because the biological resource assessment (Appendix 2, IS/MND) determined that there is suitable habitat for burrowing owls on the Project site, CDFW recommends the City follow the recommendations and guidelines provided in the *Staff Report on Burrowing Owl Mitigation* (2012; <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline>). The *Staff Report on Burrowing Owl Mitigation* specifies that project impact evaluations address the following steps: (1) habitat assessment, (2) surveys, and (3) an impact assessment. As stated in the *Staff Report on Burrowing Owl Mitigation*, the three progressive steps are effective in evaluating whether a project will result in impacts to burrowing owls, and the information gained from the steps will inform any subsequent avoidance, minimization, and mitigation measures. Habitat assessments are conducted to evaluate the likelihood that a site supports burrowing owls. When warranted, burrowing owl surveys provide information

needed to determine the potential effects of proposed projects and activities on burrowing owls and to avoid take in accordance with Fish and Game Code sections 86, 3503, and 3503.5. Impact assessments evaluate the extent to which burrowing owls and their habitat may be impacted, directly or indirectly, in and within a reasonable distance of the Project area.

Due to the presence of suitable habitat on the Project site indicated in the MND, CDFW recommends that a habitat assessment be conducted prior to the start of Project activities as outlined in Appendix C of the *Staff Report on Burrowing Owl Mitigation*. Please note that habitat assessments dated more than one year prior to the construction date are considered outdated and should be updated. If the habitat assessment determines suitable habitat for burrowing owl as described in Appendix B of the *Staff Report on Burrowing Owl Mitigation*, then protocol breeding season surveys should be conducted prior to making the determination that burrowing owls are absent from the Project site and that no impacts to burrowing owls are anticipated. Breeding surveys include 3 or more visits, at least 3 weeks apart, between the peak breeding season (April 15 and July 15). CDFW recommends the City include the results of breeding season surveys in the revised MND.

If breeding season surveys conducted in accordance with CDFW's *Staff Report on Burrowing Owl Mitigation* detect burrowing owls on or adjacent to the Project site, an impact assessment as specified in the *Staff Report on Burrowing Owl Mitigation* should be incorporated in the MND. Regardless of the results from breeding season surveys, the City should still include a take avoidance (preconstruction) burrowing owl survey no less than 14 days prior to the start of Project-related activities and within 24 hours prior to ground disturbance because burrowing owls may occupy the site or adjacent areas at any time. As a result, CDFW recommends that mitigation measure BIO-2 in the IS/MND be revised as follows:

MM BIO-2: A burrowing owl habitat assessment shall be conducted prior to the start of Project activities as outlined in Appendix C of the *Staff Report on Burrowing Owl Mitigation* and shall be updated if needed to be no more than one year prior to the construction date. If the habitat assessment determines suitable habitat for burrowing owl as described in Appendix B of the *Staff Report on Burrowing Owl Mitigation*, then protocol breeding season surveys shall be conducted in accordance with the methods described by CDFW's *Staff Report on Burrowing Owl Mitigation* (2012 or most recent version). Survey results conducted in accordance with these methods will be considered valid by CDFW for 1-year period. Preconstruction burrowing owl surveys shall be conducted no less than 14 days prior to the start of Project-related activities and within 24 hours prior to ground disturbance, in accordance with the *Staff Report on Burrowing Owl Mitigation*. Preconstruction surveys should be performed by a qualified biologist following the recommendations and guidelines provided in the *Staff Report on Burrowing Owl Mitigation*. If the preconstruction surveys confirm occupied burrowing owl habitat, project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW to conduct an impact assessment to develop avoidance, minimization, and mitigation measures to be approved by CDFW prior to commencing Project activities.

Pursuant to the CEQA Guidelines, section 15097(f), CDFW has prepared a draft mitigation monitoring and reporting program (MMRP) for proposed MM BIO-2. The draft MMRP with MM BIO-2 through MM BIO-8 is enclosed as Attachment 1 at the end of this letter.

Desert Tortoise (*Gopherus agassizii*)

According to the IS/MND, desert tortoise was not detected during the field survey conducted on January 6, 2020. It should be noted that chapter 4 of the USFWS *Desert Tortoise (Mojave Population) Field Manual* indicates that “surveys should be conducted during the desert tortoise’s most active periods (April through May or September through October)” (USFWS 2009). Prior to commencing Project activities, a focused survey for desert tortoise following the *Desert Tortoise (Mojave Population) Field Manual*. (https://www.fws.gov/nevada/desert_tortoise/documents/field_manual/DesertTortoise-Field-Manual.pdf) should be conducted by a qualified biologist.

In addition, mitigation measure BIO-3 in the IS/MND references conducting desert tortoise preconstruction surveys in accordance with chapter 6 of the USFWS *Desert Tortoise (Mojave Population) Field Manual*. Chapter 6 of the field manual includes provisions for the handling and relocation of the species and their eggs. However, absent respective state and federal endangered species permitting, take of CESA- and ESA-listed species is prohibited as noted previously. CDFW recommends that the Project applicant seek appropriate take authorization under CESA prior to implementing the proposed Project. As a result, CDFW recommends that mitigation measure BIO-3 in the IS/MND be revised as follows:

MM BIO-3: Prior to commencing Project activities, a focused survey for desert tortoise shall be conducted by a qualified biologist, according to protocols in chapter 4 of the most recent USFWS *Desert Tortoise (Mojave Population) Field Manual*, during the species’ most active periods (April through May or September through October). To reduce the likelihood of nonconcurrence with proposed surveys, methodology, and qualifications of biologists, CDFW recommends working with USFWS and CDFW concurrently to ensure a consistent and adequate approach to planning survey work and that biologists retained to complete desert tortoise protocol level surveys submit their qualifications to CDFW and USFWS prior to initiation of surveys.

No more than 30 calendar days prior to start of Project activities, a qualified biologist shall conduct preconstruction surveys for desert tortoise as described in the most recent USFWS *Desert Tortoise (Mojave Population) Field Manual*. Preconstruction surveys shall be completed using perpendicular survey routes within the Project area and 50-foot buffer zone. Preconstruction surveys cannot be combined with other surveys conducted for other species while using the same personnel. Project activities cannot start until two negative results from consecutive surveys using perpendicular survey routes for desert tortoise are documented. Should desert tortoise presence be confirmed during the survey, the qualified biologist shall notify CDFW and the Project proponent shall obtain an ITP for desert tortoise prior to the start of Project activities.

Mohave Ground Squirrel (*Xerospermophilus mohavensis*)

The IS/MND indicates that suitable habitat for Mohave ground squirrel was found on the Project site. CDFW therefore recommends that the City require a focused species-specific survey, conducted by a qualified biologist, using the *Mohave Ground Squirrel Survey Guidelines* (<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83975&inline>), at the appropriate time of year and time of day when Mojave ground squirrel is active or otherwise identifiable.

In the IS/MND, mitigation measure BIO-4 states that the “Applicant shall perform a protocol MGS presence/absence survey consistent with CDFW Guidelines prior to initiating construction” (pp. 24–25). The measure also indicates that phase 1 construction is to start by the fourth quarter of 2020. CDFW’s *Mohave Ground Squirrel Survey Guidelines* indicate that if visual surveys do not establish the presence of the species, a 3-term trapping protocol shall be used to sample for the species presence between the months of March and July. CDFW recommends planning the timing of project development with these trapping timeframes in mind. As a result, CDFW recommends that mitigation measure BIO-4 in the IS/MND be revised as follows:

MM BIO-4: Prior to commencement of Project activities, focused surveys should be conducted by a qualified biologist, at the appropriate time of year and time of day when Mohave ground squirrel is active or otherwise identifiable, according to the protocols in the *Mohave Ground Squirrel Survey Guidelines* (CDFG, 2010 or most recent version). Should Mohave ground squirrel presence be confirmed during the survey, Project activities shall be immediately halted, and the qualified biologist shall notify CDFW.

Preconstruction surveys following the *Mohave Ground Squirrel Survey Guidelines* (CDFG, 2010 or most recent version) shall be performed by a qualified biologist authorized by a Memorandum of Understanding issued by CDFW. The preconstruction surveys shall cover the Project area and a 50-foot buffer zone. Should Mohave ground squirrel presence be confirmed during the survey, the qualified biologist shall notify CDFW and the Project proponent shall obtain an ITP for Mohave ground squirrel prior to the start of Project activities.

Joshua Tree (*Yucca brevifolia*)

The Center for Biological Diversity submitted a petition to the Fish and Game Commission (Commission) to list the western Joshua tree (*Yucca brevifolia*) as threatened under CESA, Fish and Game Code Section 2050 et seq. CDFW completed its petition evaluation and determined there is sufficient scientific information to indicate that the petitioned action may be warranted. CDFW recommended the Commission accept the petition for further consideration under CESA. In February 2020, the Commission received CDFW’s evaluation report. At its August 19–20, 2020 meeting, the Commission may take action on whether to accept the petition for consideration and designate the western Joshua tree as a candidate species. If the Commission accepts the petition for consideration and designates the Joshua tree as a candidate species, CDFW will initiate a one-year status

review of the species and prepare a status review report for the Joshua tree to inform the Commission's decision on whether listing is warranted.

During the candidacy period, no person shall import into California, export out of California, or take, possess, purchase, or sell within California, Joshua trees or any part or product thereof, or attempt any of those acts, except as authorized pursuant to CESA. Under Fish and Game Code section 86, "take" means to hunt, pursue, catch, capture, or kill, or to attempt to hunt, pursue, catch, capture, or kill. This comment is to notify you that, should the Commission approve candidacy, then upon publication of the Commission's acceptance of the petition for consideration and designation of the western Joshua tree as a candidate species, take of western Joshua trees will be prohibited without authorization pursuant to CESA. CDFW recognizes there may be circumstances in which take of the species during candidacy may be unavoidable for already permitted projects. CESA provides a mechanism for this in appropriate circumstances. Pursuant to section 2081, subdivision (b) of the Fish and Game Code, CDFW may issue an incidental take permit (ITP) authorizing the take of candidate species when it is incidental to an otherwise lawful activity, the impacts of the take are minimized and fully mitigated, the applicant ensures there is adequate funding to implement any required measures, and take is not likely to jeopardize the continued existence of the species.

Nesting Birds

It is the project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Fish and Game Code sections 3503, 3503.5, and 3513 afford protective measures as follows: section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by Fish and Game Code or any regulation made pursuant thereto. Fish and Game Code section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by Fish and Game Code or any regulation adopted pursuant thereto. Fish and Game Code section 3513 makes it unlawful to take or possess any migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. § 703 et seq.).

The IS/MND states that "vegetation suitable for nesting birds does exist within and adjacent to the project areas" (p. 23). CDFW recommends that the revised document include specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur. Project-specific avoidance and minimization measures may include, but are not limited to, project phasing and timing (avoiding the peak breeding season), monitoring of project-related noise (where applicable), sound walls, and buffers, where appropriate. The revised document should also include specific avoidance and minimization measures that will be implemented should a nest be located within the project site. CDFW recommends that preconstruction surveys be conducted as a mitigation measure and that they be completed no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted sooner. As a result, CDFW recommends that mitigation measure BIO-6 in the IS/MND be revised as follows:

MM BIO-5: Nesting bird surveys shall be conducted by a qualified biologist no more than three (3) days prior to vegetation clearing or ground disturbance activities. If active nests are found during the preconstruction nesting bird surveys, a Nesting Bird Plan (NBP) shall be prepared and implemented by the qualified biologist. At a minimum, the NBP shall include guidelines for addressing and documenting active nests, avoiding take of nest, eggs, or birds by establishing buffers, monitoring, and a reporting regimen. The size and location of all buffer zones, if required, shall be based on the nesting species, nesting stage, nest location, its sensitivity to disturbance, and intensity and duration of the disturbance activity. To avoid impacts to nesting birds, any grubbing or vegetation removal should occur outside peak breeding season, typically February 1 through September 1.

Groundwater-Dependent Ecosystems and Species

The IS/MND indicates that the municipal water source would be “solely from groundwater production from 15 potable wells” (p. 41). Groundwater-dependent species were among the 34 species reported in the 4 quads surrounding the Project area, including species that directly rely on groundwater, such as arroyo toad (*Anaxyrus californicus*; federal endangered species and CDFW SSC), California red-legged frog (*Rana draytonii*; federal threatened species and CDFW SSC), tricolored blackbird (*Agelaius tricolor*; state threatened species and CDFW SSC), Mohave tui chub (*Siphateles bicolor mohavensis*; state and federal endangered species and CDFW Fully Protected), and western pond turtle (*Emys marmorata*; CDFW SSC), and species that rely on groundwater-dependent vegetation, such as Swainson’s hawk, western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; federal threatened and state endangered species), southwestern willow flycatcher, least Bell’s vireo (*Vireo bellii pusillus*; federal and state endangered species), Mohave ground squirrel, and desert tortoise (Rohde et al. 2019). Whether or not these species occur on the parcel itself, they may be impacted by drawdown or pollution of groundwater within the groundwater basin resulting from Project activities. CDFW recommends the City include an analysis of impacts to groundwater-dependent ecosystems and species in the IS/MND.

Cannabis-Specific Impacts to Biological Resources

The City should be aware that there are many impacts to biological resources associated with cannabis cultivation, whether indoor or outdoor cultivation. CDFW recommends that the City consider the following cannabis-specific impacts to biological resources that may result from the Project activities, as well as those delineated in Attachment 2.

Pesticides, Including Fungicides, Herbicides, Insecticides, and Rodenticides

Cannabis cultivation sites (whether indoor or outdoor) often use substantial quantities of pesticides, including fungicides, herbicides, insecticides, and rodenticides. Wildlife, including beneficial arthropods, birds, mammals, amphibians, reptiles, and fish, can be poisoned by pesticides after exposure to a toxic dose through ingestion, inhalation, or dermal contact (Fleischli et al. 2004, Pimentel 2005, Berny 2007). They can also experience secondary poisoning through feeding on animals that have been directly exposed to the pesticides. (Even if used indoors, pesticides such as rodenticides may

result in secondary poisoning through ingestion of sickened animals that leave the premises or ingestion of lethally poisoned animals that are disposed of outside.) Even nonlethal doses of pesticides can negatively affect wildlife; pesticides can compromise immune systems, cause hormone imbalances, affect reproduction, and alter growth rates of many wildlife species (Pimentel 2005, Li and Kawada 2006, Relyea and Diecks 2008, Baldwin et al. 2009).

CDFW recommends minimizing use of synthetic pesticides, and, if they are used, to always use them as directed by the manufacturer, including proper storage and disposal. Toxic pesticides should not be used where they may pass into waters of the State, including ephemeral streams, in violation of Fish and Game Code section 5650(6). Anticoagulant rodenticides and rodenticides that incorporate “flavorizers” that make the pesticides appetizing to a variety of species should not be used at cultivation sites. Alternatives to toxic rodenticides may be used to control pest populations at and around cultivation sites, including sanitation (removing food sources such as pet food, cleaning up refuse, and securing garbage in sealed containers), physical barriers, and snap traps for indoor use only (when used outdoors, snap traps pose a hazard to wildlife).

In addition, the California Department of Pesticide Regulation (CDPR) stipulates that pesticides meeting the following criteria should not be used on cannabis: pesticides containing chemicals on the Groundwater Protection List (California Code of Regulations, § 6800; <https://www.cdpr.ca.gov/docs/legbills/calcode/040101.htm>), pesticides containing California Restricted Materials (California Code of Regulations, § 6400; <https://www.cdpr.ca.gov/docs/legbills/calcode/020401.htm>), and pesticides not registered for food use. For legal pest management practices for cannabis cultivators, visit: <https://www.cdpr.ca.gov/docs/county/cacltrs/penfltrs/penf2015/2015atch/attach1502.pdf>. For more information, visit: <https://www.cdpr.ca.gov/docs/cannabis/index.htm>.

Because of the potential for Project activities to involve the use of pesticides, and because the cultivation structures may not have a fully enclosed, permanent roof, CDFW recommends that the City of Adelanto include a mitigation measure conditioning the Project to development of a plan to avoid, minimize, and mitigate the impacts of pesticides used in cannabis cultivation.

MM BIO-6: Prior to construction and issuance of any grading permit, the City of Adelanto shall develop a plan with measures to avoid, minimize, or mitigate the impacts of pesticides used in cannabis cultivation, including fungicides, herbicides, insecticides, and rodenticides. The plan should include, but is not limited to, the following elements: (1) Proper use, storage, and disposal of pesticides, in accordance with manufacturers’ directions and warnings. (2) Avoidance of pesticide use where toxic runoff may pass into waters of the State, including ephemeral streams. (3) Avoidance of pesticides that cannot be used on cannabis in the state of California, as set forth by the Department of Pesticide Regulation, including the following: pesticides not registered for food use in California, pesticides containing chemicals on the California Restricted Materials list (California Code of Regulations, § 6400), and pesticides containing chemicals on the Groundwater Protection List (California Code of Regulations, § 6800). (4) Avoidance of anticoagulant rodenticides and rodenticides with “flavorizers.” (5)

Inclusion of alternatives to toxic rodenticides, such as sanitation (removing food sources such as pet food, cleaning up refuse, and securing garbage in sealed containers), physical barriers, and snap traps (indoor use only).

Artificial Light

Cannabis cultivation operations often use artificial lighting or “mixed-light” techniques in greenhouse structures and indoor operations to increase yields. If not disposed of properly, these lighting materials pose significant environmental risks because they contain mercury and other toxins (O’Hare et al. 2013). In addition to containing toxic substances, artificial lighting often results in light pollution, which has the potential to significantly and adversely affect fish and wildlife. Night lighting can disrupt the circadian rhythms of many wildlife species. Many species use photoperiod cues for communication (e.g., birdsong; Miller 2006), determining when to begin foraging (Stone et al. 2009), behavioral thermoregulation (Beiswenger 1977), and migration (Longcore and Rich 2004). Phototaxis, a phenomenon that results in attraction and movement toward light, can disorient, entrap, and temporarily blind wildlife species that experience it (Longcore and Rich 2004).

The Project activities include use of artificial lighting for cannabis cultivation (p. 29 of the IS/MND) in structures that may not be entirely enclosed and for nighttime security lighting (p. 9). Because of the potential for the use of artificial light to impact nocturnal wildlife species and migratory birds that fly at night, CDFW recommends the following mitigation measure:

MM BIO-7: Light should not be visible outside of any structure used for cannabis cultivation. Employ blackout curtains where artificial light is used to prevent light escapement. Eliminate all nonessential lighting from cannabis sites and avoid or limit the use of artificial light during the hours of dawn and dusk, as these windows of time are when many wildlife species are most active. Ensure that lighting for cultivation activities and security purposes is shielded, cast downward, and does not spill over onto other properties or upward into the night sky (see the International Dark-Sky Association standards at <http://darksky.org/>). Use LED lighting with a correlated color temperature of 3,000 Kelvins or less, properly dispose of hazardous waste, and recycle lighting that contains toxic compounds with a qualified recycler.

Role of Lake and Streambed Alteration (LSA) Program in Cannabis Licensing

Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may adversely impact any river, stream, or lake. The California Department of Food and Agriculture (CDFA) requires cannabis cultivators to demonstrate compliance with Fish and Game Code section 1602 prior to issuing a cultivation license (Business and Professions Code, § 26060.1). To qualify for an Annual License from CDFA, cultivators must have an LSA Agreement or written verification from CDFW that one is not needed. Cannabis cultivators may apply online for an LSA Agreement through the Environmental Permit Information Management System (EPIMS; <https://epims.wildlife.ca.gov/>). Cannabis cultivators may learn more about cannabis

cultivation permitting at <https://wildlife.ca.gov/Conservation/Cannabis/Permitting>. CDFW recommends the following mitigation measure:

MM BIO-8: Prior to construction and issuance of any grading permit, the Applicant shall obtain written correspondence from the California Department of Fish and Wildlife (CDFW) stating that notification under section 1602 of the Fish and Game Code is not required for the Project, or the Applicant should obtain a copy of a CDFW-executed Lake and Streambed Alteration Agreement, authorizing impacts to Fish and Game Code section 1602 resources associated with the Project.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database that may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special status species and natural communities detected during Project surveys to CNDDDB. The CNDDDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDDB at the following email address: CNDDDB@wildlife.ca.gov. The types of information reported to CNDDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required for the underlying project approval to be operative, vested, and final (Cal. Code Regs., title 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

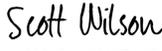
CDFW appreciates the opportunity to comment on the IS/MND to assist the City of Adelanto in identifying and mitigating Project impacts on biological resources. CDFW concludes that the IS/MND does not adequately identify the Project's significant, or potentially significant, impacts on biological resources. Deficiencies in the City of Adelanto's CEQA documentation can affect later project approval by CDFW in its role as a Responsible Agency. CDFW recommends that prior to adoption of the MND, the City of Adelanto revise the document to include a complete assessment of biological resources on the Project parcel and analysis of the Project's potential impacts on those resources, as well as appropriate avoidance, minimization, and mitigation measures.

CDFW has Cannabis Unit staff who are available to provide guidance on impacts to biological resources and CDFW permitting. If you have any questions or would like to set up a meeting with CDFW staff to discuss this letter, please contact Eric Weiss, Senior Environmental Scientist (Specialist), at (909) 948-9625 or Eric.Weiss@Wildlife.ca.gov; or

James Hirsch, Contract Planner
City of Adelanto
June 11, 2020
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Heather Brashear, Environmental Scientist, at (909) 948-9625 or
Heather.Brashear@Wildlife.ca.gov.

Sincerely,

DocuSigned by:

8091B1A9242F49C...

Scott Wilson
Environmental Program Manager

Attachment 1: Mitigation Monitoring and Reporting Program for CDFW-Proposed
Mitigation Measures

Attachment 2: Cannabis-Specifics Impacts to Biological Resources

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ATTACHMENT 1: MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

Mitigation Measures	Implementation Schedule	Responsible Party
<p>MM BIO-2: Burrowing owl assessment and surveys. A burrowing owl habitat assessment shall be conducted prior to the start of Project activities as outlined in Appendix C of the <i>Staff Report on Burrowing Owl Mitigation</i> and shall be updated if needed to be no more than one year prior to the construction date. If the habitat assessment determines suitable habitat for burrowing owl as described in Appendix B of the <i>Staff Report on Burrowing Owl Mitigation</i>, then protocol breeding season surveys shall be conducted in accordance with the methods described by CDFW's <i>Staff Report on Burrowing Owl Mitigation</i> (2012 or most recent version). Survey results conducted in accordance with these methods will be considered valid by CDFW for 1-year period. Preconstruction burrowing owl surveys shall be conducted no less than 14 days prior to the start of Project-related activities and within 24 hours prior to ground disturbance, in accordance with the <i>Staff Report on Burrowing Owl Mitigation</i>. Preconstruction surveys should be performed by a qualified biologist following the recommendations and guidelines provided in the <i>Staff Report on Burrowing Owl Mitigation</i>. If the preconstruction surveys confirm occupied burrowing owl habitat, project activities shall be immediately halted. The qualified biologist shall coordinate with CDFW to conduct an impact assessment to develop avoidance, minimization, and mitigation measures to be approved by CDFW prior to commencing Project activities.</p>	<p>Assessment and breeding season surveys: Prior to construction and issuance of any grading permit.</p> <p>Preconstruction surveys: No less than 14 days prior to start of Project-related activities and within 24 hours prior to ground disturbance.</p>	<p>City of Adelanto.</p>
<p>MM BIO-3: Desert tortoise surveys. Prior to commencing Project activities, a focused survey for desert tortoise shall be conducted by a qualified biologist, according to protocols in chapter 4 of the most recent USFWS <i>Desert Tortoise (Mojave Population) Field Manual</i>, during the species' most active periods (April through May or September through October). To reduce the likelihood of nonconcurrency with proposed surveys, methodology, and qualifications of biologists, CDFW recommends working with USFWS and CDFW concurrently to ensure a consistent and adequate approach to planning your work and that biologists retained to complete desert tortoise protocol level surveys submit their qualifications to CDFW and USFWS prior to initiation of surveys.</p> <p>No more than 30 calendar days prior to start of Project activities, a qualified biologist shall conduct preconstruction surveys for desert tortoise as described in the most recent USFWS <i>Desert Tortoise (Mojave Population) Field Manual</i>. Preconstruction surveys shall be completed using perpendicular survey routes within the Project area and 50-foot buffer zone. Preconstruction surveys cannot be combined with other surveys conducted for other species while using the same personnel. Project activities cannot start until two negative results from consecutive surveys using perpendicular survey routes for desert tortoise are documented. Should desert tortoise presence be confirmed during the survey, Project activities shall be immediately halted, and the qualified biologist shall notify CDFW. The Project proponent shall obtain an ITP for desert tortoise prior to the start of Project activities.</p>	<p>Focused survey: Prior to construction and issuance of any grading permit; and during the species' most active periods, either between April through May or September through October.</p> <p>Preconstruction surveys: No more than 30 calendar days prior to start of Project activities.</p>	<p>City of Adelanto.</p>
<p>MM BIO-4: Mohave ground squirrel surveys. Prior to commencement of Project activities, focused surveys should be conducted by a qualified biologist, at the appropriate time of year and time of day when Mohave ground squirrel is active or otherwise identifiable, according to the protocols in the <i>Mohave Ground Squirrel Survey Guidelines</i> (CDFG, 2010 or most recent version). Should Mohave ground squirrel presence be confirmed during the survey, Project activities shall be immediately halted, and the</p>	<p>Prior to construction and issuance of any grading permit.</p>	<p>City of Adelanto.</p>

<p>qualified biologist shall notify CDFW. Preconstruction surveys following the <i>Mohave Ground Squirrel Survey Guidelines</i> (CDFG, 2010 or most recent version) shall be performed by a qualified biologist authorized by a Memorandum of Understanding issued by CDFW. The preconstruction surveys shall cover the Project area and a 50-foot buffer zone. Should Mohave ground squirrel presence be confirmed during the survey, Project activities shall be immediately halted, and the qualified biologist shall notify CDFW. The Project proponent shall obtain an ITP for Mohave ground squirrel prior to the start of Project activities.</p>		
<p>MM BIO-5: Nesting bird surveys. Nesting bird surveys shall be conducted by a qualified biologist no more than three (3) days prior to vegetation clearing or ground disturbance activities. If active nests are found during the preconstruction nesting bird surveys, a Nesting Bird Plan (NBP) shall be prepared and implemented by the qualified biologist. At a minimum, the NBP shall include guidelines for addressing and documenting active nests, avoiding take of nest, eggs, or birds by establishing buffers, monitoring, and a reporting regimen. The size and location of all buffer zones, if required, shall be based on the nesting species, nesting stage, nest location, its sensitivity to disturbance, and intensity and duration of the disturbance activity. To avoid impacts to nesting birds, any grubbing or vegetation removal should occur outside peak breeding season, typically February 1 through September 1</p>	<p>No more than three (3) days prior to vegetation clearing or ground disturbance activities.</p>	<p>City of Adelanto.</p>
<p>MM BIO-6: Pesticide management plan. Prior to construction and issuance of any grading permit, the City of Adelanto shall develop a plan with measures to avoid, minimize, or mitigate the impacts of pesticides used in cannabis cultivation, including fungicides, herbicides, insecticides, and rodenticides. The plan should include, but is not limited to, the following elements: (1) Proper use, storage, and disposal of pesticides, in accordance with manufacturers' directions and warnings. (2) Avoidance of pesticide use where toxic runoff may pass into waters of the State, including ephemeral streams. (3) Avoidance of pesticides that cannot be used on cannabis in the state of California, as set forth by the Department of Pesticide Regulation, including the following: pesticides not registered for food use in California, pesticides containing chemicals on the California Restricted Materials list (California Code of Regulations, § 6400), and pesticides containing chemicals on the Groundwater Protection List (California Code of Regulations, § 6800). (4) Avoidance of anticoagulant rodenticides and rodenticides with "flavorizers." (5) Inclusion of alternatives to toxic rodenticides, such as sanitation (removing food sources such as pet food, cleaning up refuse, and securing garbage in sealed containers), physical barriers, and snap traps (indoor use only).</p>	<p>Prior to construction and issuance of any grading permit.</p>	<p>City of Adelanto.</p>
<p>MM BIO-7: Artificial light. Light should not be visible outside of any structure used for cannabis cultivation. Employ blackout curtains where artificial light is used to prevent light escapement. Eliminate all nonessential lighting from cannabis sites and avoid or limit the use of artificial light during the hours of dawn and dusk, as these windows of time are when many wildlife species are most active. Ensure that lighting for cultivation activities and security purposes is shielded, cast downward, and does not spill over onto other properties or upward into the night sky (see the International Dark-Sky Association standards at http://darksky.org/). Use LED lighting with a correlated color temperature of 3,000 Kelvins or less, properly dispose of hazardous waste, and recycle lighting that contains toxic compounds with a qualified recycler.</p>	<p>During Project activities.</p>	<p>City of Adelanto.</p>
<p>MM BIO-8: Compliance with CDFW LSA Program. Prior to construction and issuance of any grading permit, the Applicant shall obtain written correspondence from the California Department of Fish and Wildlife (CDFW)</p>	<p>Prior to construction and</p>	<p>City of Adelanto.</p>

stating that notification under section 1602 of the Fish and Game Code is not required for the Project, or the Applicant should obtain a copy of a CDFW-executed Lake and Streambed Alteration Agreement, authorizing impacts to Fish and Game Code section 1602 resources associated with the Project.	issuance of any grading permit.	
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ATTACHMENT 2: CANNABIS-SPECIFIC IMPACTS TO BIOLOGICAL RESOURCES

Cannabis-Specific Impacts	CDFW Recommendations
<p>Fertilizers/Imported Soils: Many cannabis cultivators use fertilizers and imported soils to increase the nitrogen content of the local soils. Nutrient enrichment can increase the abundance of pests and pathogens. Imported soils can contain invasive plant or animal species that harm native biodiversity. Excess nutrients from fertilizers that run off into watersheds can cause nutrient imbalances that impact fish and other wildlife and decrease aquatic species activity. Fertilizer runoff can cause algae outbreaks that deplete the water of oxygen.</p>	<p>CDFW recommends using organic fertilizers and avoiding synthetic fertilizers, as well as minimizing use of fertilizers in areas where it is likely that they could run off into watersheds.</p>
<p>Water Pollution: Cannabis cultivation and associated construction can result in the delivery of pollutants into nearby streams and waterways in violation of Fish and Game Code § 5650(6). Cultivation can result in delivery of sediment, fertilizers/nutrients, petroleum products, and pesticides into streams and other waters, degrading the water quality and increasing turbidity. Other toxic chemicals found on cultivation sites also pose a threat to water quality.</p>	<p>CDFW recommends using best management practices to ensure minimal runoff and sediment delivery into waters near cultivation sites and confirming that all Regional Water Quality Control Board requirements are met.</p>
<p>Groundwater Depletion/Groundwater-Dependent Ecosystems and Species: California has a Mediterranean climate in which most precipitation occurs during the winter months. During the growing season for cannabis (May–Sept), there is very little precipitation. Growers acquire water through alternate means, including the use of groundwater. In California, groundwater depletion is a statewide problem because of increased use combined with cycles of drought. Groundwater depletion may impact rivers, streams, lakes, and wetlands, as well as the wildlife and vegetation they support, by decreasing surface water flows to these ecosystems. The Sustainable Groundwater Management Act (SGMA), passed in California in 2014, provides the framework for managing connected groundwater and surface waters to avoid adverse impacts. Groundwater depletion may also have cumulative impacts on biological resources if multiple cannabis cultivation operations use groundwater for irrigation.</p>	<p>CDFW recommends a thorough analysis of potential impacts to groundwater-dependent ecosystems and species when considering proposed projects, including current and historic groundwater level data to demonstrate that the proposed usage would be sustainable.</p>
<p>Vegetation Clearing: Construction for cannabis operations can often include clearing of existing vegetation. Vegetation removal may result in the loss of special status plant species and the loss of habitat that supports wildlife species. Clearing may cause fragmentation and loss of sensitive habitats and create edge effects. Activities associated with clearing may disturb associated soil seed banks that sustain local plant populations. Removal of vegetation can make communities vulnerable to colonization by invasive plant species and spread pathogens (Mallery</p>	<p>CDFW recommends that before vegetation removal a qualified biologist survey for special status plants and habitat for special status wildlife species (at the appropriate time of year and weather conditions). Vegetation removal should be conducted outside of nesting season for bird species (Fish and Game Code 3503, 3511, 3513). If present, coordinate with CDFW to develop appropriate avoidance, minimization, and mitigation plans. Plan the site to minimize edge habitat and fragmentation.</p>

<p>2010). Additionally, the abundance of dried vegetation remaining after removals may increase risk for fires.</p>	
<p>Greenhouse/Infrastructure Construction and Other Development in Floodplains: Construction of greenhouses and other operation-related structures can result in degradation of habitat, habitat loss, and fragmentation. Floodplains are an important physical and biological part of riverine ecosystems. All rivers flood, and flooding is a natural and reoccurring event. Ecological services provided by riverine floodplains include trees and vegetation that anchor riverbanks, preventing bank erosion; sustaining commercial fisheries and listed anadromous salmonid populations by providing river habitat such as shade, overhanging banks, habitat complexity, large woody debris, insect and foliage drop contributing to the aquatic food chain, and high-flow refugia for fish during flood events; vitally important habitat to numerous riparian-dependent wildlife species, such as reptiles, amphibians, bats, and migratory songbirds; and natural filters, absorbing nutrients and other pollutants from water and making rivers healthier for drinking, swimming, and supporting fish and wildlife species. Development in floodplains can reduce the benefits of natural flooding regimes including deposition of river silt on valley floor soils and recharging of wetlands. Greenhouses and other operation-related structures may require fuel clearance; these areas often become degraded and are prone to establishment by invasive species. The response of local wildlife populations to development can last several decades after habitat alterations have occurred (Hansen et al. 2005). In addition, the effects of development can alter ecological processes and biodiversity in areas that are far removed from the construction area (Hansen et al. 2005, Johnson and Klemens 2005).</p>	<p>CDFW recommends that no greenhouses or any operation-related structures be constructed within floodplains. If construction cannot be prevented, CDFW recommends the following avoidance and minimization measures: Ensure that construction minimizes site degradation, and use mechanisms to prevent establishment of invasive species. Create a physical buffer between structures and natural waterbodies. Where project construction necessitates temporary ground disturbance and vegetation removal in the habitat buffer, the disturbed buffer area should be restored to enhance fish and wildlife habitats and water quality. This enhancement could include decompacting soil, site recontouring, and revegetation with native species.</p>
<p>Roads: Cannabis operations often require the construction of new roads or maintenance and increased use of existing ones to access cultivation areas. Roads can cause soil erosion and surface runoff that can transfer sediment into streams. Vehicle traffic on roads can have a number of environmental impacts such as soil compaction (Helvey and Kochenderfer 1990), dust mobilization that limits plants' ability to photosynthesize (Farmer 1993), disruption of surface water flow, and increased spread of invasive species. Road use can result in wildlife mortality, altered abundances and diversity of wildlife, and modification of animal behavior (Trombulak and Frissell 2000). Cumulatively, roads can have an even more significant impact as increased road density may compound the documented effects of roads.</p>	<p>CDFW recommends limiting the construction of new roads and properly using and maintaining existing roads when possible. Restore drainage areas connected to current roadways to limit environmental impacts like erosion and diversion of surface flow. When new roads must be constructed or reconstructed, use practices that minimize environmental impacts http://www.pacificwatershed.com/sites/default/files/roadsenglishbookapril2015b_0.pdf.</p>
<p>Fencing: Temporary and/or permanent fencing is often erected around cultivation sites or structures. Fencing can impede wildlife movement, resulting in habitat fragmentation or elimination of wildlife corridors. It can also be a hazard to wildlife causing</p>	<p>CDFW recommends using wildlife-friendly fencing at cultivation sites or structures.</p>

<p>entanglement and mortality (van der Ree 1999, Stuart et al. 2001, Harrington and Conover 2006).</p>	
<p>Noise: Construction for cannabis operations may result in a substantial amount of noise through road use, equipment, and other project-related activities. This may adversely affect wildlife species in several ways as wildlife responses to noise can occur at exposure levels of only 55 to 60 decibels (Barber et al. 2009). (For reference, normal conversation is approximately 60 decibels, and natural ambient noise levels [e.g., forest habitat] are generally measured at less than 50 decibels.) Anthropogenic noise can disrupt the communication of many wildlife species including frogs, birds, and bats (Sun and Narins 2005, Patricelli and Blickley 2006, Gillam and McCracken 2007, Slabbekoorn and Ripmeester 2008). Noise can also affect predator-prey relationships as many nocturnal animals such as bats and owls primarily use auditory cues (i.e., hearing) to hunt. Additionally, many prey species increase their vigilance behavior when exposed to noise because they need to rely more on visual detection of predators when auditory cues may be masked by noise (Rabin et al. 2006, Quinn et al. 2017). Noise has also been shown to reduce the density of nesting birds (Francis et al. 2009) and cause increased stress that results in decreased immune responses (Kight and Swaddle 2011).</p>	<p>CDFW recommends restricting the use of equipment to hours least likely to disrupt wildlife (e.g., not at night or in the early morning). Do not use generators except for temporary use in emergencies. (Generators may also involve the use of petroleum products in proximity to streams where they may contribute to toxic runoff.) Power to sites can be provided by solar PV (photovoltaic) systems, cogeneration systems (natural gas generator), small micro-hydroelectric systems, or small wind turbine systems. Consider use of noise suppression devices such as mufflers or enclosures for generators. Sounds generated from any means should be below the 55- to 60-decibel range within 50 feet from the source.</p>

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