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April 27, 2023

Range Management Advisory Committee
California State Board of Forestry & Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460

RE: Range Management Advisory Committee review and recommended revisions of the Joint Policy on Hardwoods

Transmitted via e-mail to Kristina Wolf, PhD: Kristina.Wolf@bof.ca.gov

Dear Professor Horney and fellow members of the Range Management Advisory Committee:

The California Wildlife Foundation is committed to conserving, restoring, and maintaining habitats and corridor linkages throughout the state to ensure the biological diversity of species over time. California Wildlife Foundation's California Oaks program works to conserve and perpetuate oak ecosystems because of their critical role in providing plant and wildlife habitat, sequestering carbon, maintaining healthy watersheds, and sustaining cultural values.

This letter provides input for the upcoming Range Management Advisory Committee review and recommended revisions of the Joint Policy on Hardwoods regarding the policy's impacts on oak (*Quercus*) species. The 1994 policy states that California's Fish and Game Commission's and Board of Forestry and Fire Protection's (then State Board of Forestry) respective agencies should be guided by the position that hardwood harvesting and other land uses should be conducted in a sustainable manner that: "secures regeneration of all hardwood species, enhances the protection of fish, wildlife and plants of hardwood habitats, allows adequate recruitment of other native vegetation in hardwood habitats and meets state and federal water quality standards." California's stewardship of its native oaks is deficient in securing regeneration, sustaining biodiversity, and meeting water quality standards, as this letter will discuss.

The joint policy also identifies "the need for statewide legislation and…regulatory action, if necessary, to control harvesting and conversion of hardwood-rangelands …" if current measures, which rely on county-level protections, fail to adequately address hardwood management and conservation. California's reliance on county and local oak protections has failed. Threats to oaks from habitat conversion and fragmentation, changed rainfall patterns, diminishing groundwater supplies, greater climatic stresses, new pathogens, expansion of non-native annual grasses, browsing and grazing pressure, changed fire regimes, and wildfires of extreme severity have continued or escalated on rangelands and other landscapes since the joint policy was prepared.

Lastly, the joint policy calls for a number of periodic actions to assess hardwood conservation. It is unclear if many of these actions are underway and it is clear that at least one of these actions have not been undertaken.

1. The lack of state leadership in protecting oaks is undermining California's ability to meet its biodiversity and climate goals.

California's resource management practices shifted to value commercial timber over ecosystem and cultural values of oaks following European settlement of the state in the late 18th century and the removal of Indigenous peoples as stewards of the land. Our state will not be able to reach the biodiversity and climate resilience goals articulated in Governor Newsom's Executive Order N-82-20 without enacting protections for oaks. The executive order recognizes that stewardship of California's natural and cultural resources is essential to the well-being of our communities and economy, citing the need to address habitat loss and other threats to natural communities.

Oaks sustain California's biodiversity: California's oak woodlands and oak-forested lands provide food and vital habitat for California's native species, including 2,000 plants, 5,000 insects and arachnids, 80 amphibians and reptiles, 160 birds, and 80 mammals.[1]

California Wildlife Foundation's California Oaks program issued a 2021 *Oaks* report that demonstrates the importance of oaks for California's imperiled biodiversity, with a focus on species, subspecies, varieties, populations, distinct population segments, evolutionarily significant units, and clades that are federally and/or state designated as endangered or threatened (listed), or are candidates for listing at the time of the report's publication.

The report's vertebrate data were derived from the California Wildlife Habitat Relationship information system. Thirty-three listed, candidate, and/or state fully-protected terrestrial and amphibian vertebrate species, subspecies, distinct population segments, evolutionarily significant units, and clades were found to be dependent upon oak (*Quercus*) and tanoak (*Notholithocarpus densiflorus*) habitat. Subsequently, a 34th subspecies, Humboldt Marten (*Martes caurina humboldtensis*), was added to the list, after the authors learned of its oak-dependence.[2] It is listed by the state as endangered and its Coastal Distinct Population is a candidate for federal listing,

The plant and invertebrate tables were created utilizing California Natural Diversity Database (CNDDB) and oak woodlands data from the Areas of Conservation Emphasis (ACE) system. A threshold was established for average percentage overlap of all CNDDB occurrences with the oak woodlands layer in ACE. The query found 134 listed and/or candidate plants and 26 listed and/or candidate invertebrates associated with oak (*Quercus*).

Oaks and unprotected biodiversity importance: As reported in the Spring-Summer 2022 issue of *Oaks*, California ranks at the bottom of the United States in conserving lands characterized by NatureServe as "areas of unprotected biodiversity importance."[3] Many of these unprotected areas are oak woodlands. Please see the map from page three of the report, reproduced below, which overlays areas of unprotected biodiversity importance atop a map that shows oak woodlands and oak-forested lands. The overlap is even more striking if historic oak ranges, such as those in the

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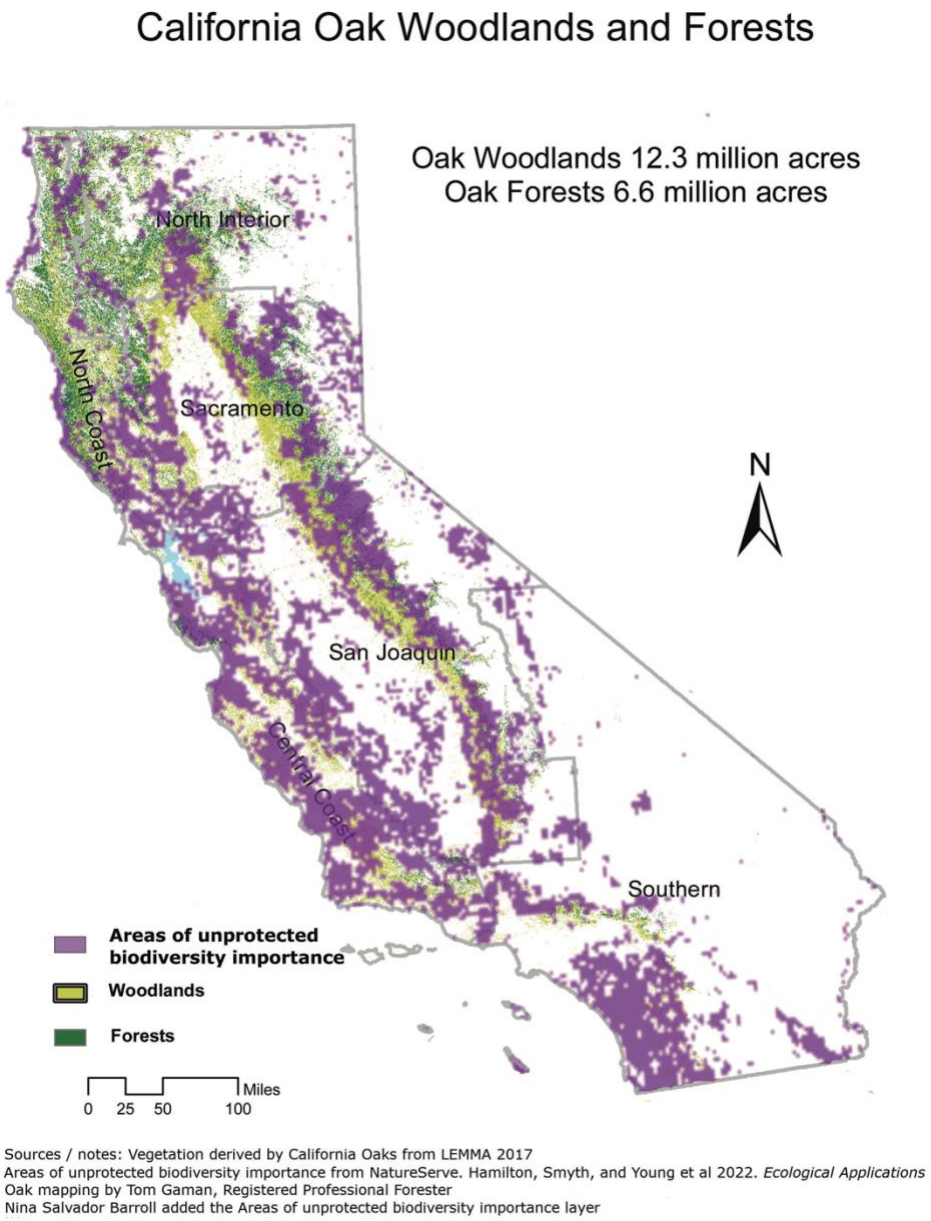
[1] Meadows, R. 2007. Oaks: Research and outreach to prevent oak woodland loss. *California Agriculture* 61(1): 7-10.

[2] "Slauson, KM, et al. 2019. *A conservation assessment and strategy for the Humboldt marten in California and Oregon.* Gen. Tech. Rep. PSW-GTR-260. U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. Arcata, CA. 121. (The publication reports: "Hardwoods, specifically tanoak and chinquapin, are important species for providing den and rest sites as well as mast for prey species. The reduction of hardwoods below their natural levels of abundance represents a degradation of habitat.")

[3] Hamilton, H, et al. 2022. Increasing taxonomic diversity and spatial resolution clarifies opportunities for protecting U.S. imperiled species. *Ecological Applications*. 2022;e2534. doi.org/10.1002/eap.2534

oak species maps presented in *Distribution of Forest Trees in California*, are consulted.[4] The loss of oaks contributes to the loss of biodiversity and to imperiled conservation status of oak-dependent and oak-associated species.



California's oaks in decline: California's oak ecosystems are not being managed "for long-term health and resiliency, including the perpetuation of their local and broader geographic representation and to continue to provide for their inherent natural and biological values and processes," as expressed in the goal statement of the Joint Policy on Hardwoods.

[4] Griffin, JR, et al. 1972. *The Distribution of Forest Trees in California*. USDA Forest Service Research Paper PSW-82. Berkeley, CA.

California is one of the states with the highest number of oak species described as "threatened" in *The Red List of US Oaks*.[5] The publication utilized International Union for Conservation of Nature standard methodology to assess the range, habitat, population size, population trends, and prevalent threats to each species, which were then assigned to one of eight Red List categories.[6] The Red List identifies five species of California oak that have been evaluated as threatened: Cedros Island oak (*Quercus cedrosensis*), coastal scrub oak (*Q. dumosa*), Engelmann oak (*Q. engelmannii*), island scrub oak (*Q. pacifica*), and island oak (*Q. tomentella*); and four as near-threatened: valley oak (*Q. lobata*), Palmer oak (*Q. palmeri*), Santa Cruz Island oak (*Q. parvula*), and Sadler's oak (*Q. sadleriana*).

Additionally, *Quercus douglasii* (blue oak) has been demonstrated to have reproductive challenges[7] and is considered vulnerable to climate stressors such as changed precipitation and fire patterns and increased heat.[8] All of California's native oak species are subject to threats from habitat conversion and fragmentation, disease, changed fire regimes, invasive species, and diminished rainfall and/or groundwater supplies.

Oaks and carbon: Keeping trees standing is essential for California to reach its climate goals. Researchers who authored an article published in *Nature Climate Change* observed: "Global CO_2 emissions from land-use change (primarily deforestation) represented around 12% of global emissions for 2007-2016, while the terrestrial carbon sink stored around 28% of emissions over the same time period."[9]

An Inventory of Carbon and California Resources estimated 675 million metric tons of carbon are stored in trees, soil, understory, and downed woody material in oak woodlands and in oak-forested lands.[10] The author of that report recently completed a hardwood biomass map of California forest and woodlands, which calculates 903.6 million metric tons of above ground CO_2, hardwood equivalents (mostly oak species) on 18.9 million acres of forest and woodland as of 2017.[11]

Oaks and watersheds: An estimated two thirds of California's drinking water supply flows through or is stored in California's oak woodlands.[12] Stronger protections of oaks would improve

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[5] Jerome, D, et al. 2017. *The Red List of US Oaks*. The Morton Arboretum, Botanic Gardens Conservation International, The Global Trees Campaign, The IUCN/SSC Global Tree Specialist Group, The USDA Forest Service.

[6] The IUCN threat categories are separate from and do not align with state or federal threat designations associated with the California or federal Endangered Species Act.

[7] Gordon, DR, et al. 2000. Competitive suppression of *Quercus Douglasii* (Fagaceae) seedling emergence and growth, *American Journal of Botany* 87(7): 986–994.

[8] Dwomoh FK, et al. 2021. Hotter Drought Escalates Tree Cover Declines in Blue Oak Woodlands of California. *Front. Clim.* 3:689945. doi: 10.3389/fclim.2021.689945

[9] Seddon N, et al., 2019. Grounding Nature Based Climate Solutions in Sound Biodiversity Science, *Nature Climate Change*, Volume 9.

[10] Gaman, T. 2008. *An Inventory of Carbon and California Oaks*. California Oak Foundation, Oakland, CA, https://californiaoaks.org/resources/

[11] Gaman, T, et al., California's Oaks in the 21st century: using Gradient Nearest Neighbor to map oak woodlands and forests. In review. 2022 California Oak Symposium Proceedings.

[12] O'geen AT, et al. 2010. Research connects soil hydrology and stream water chemistry in California oak woodlands. *California Agriculture* 64(2):78-84.

the conditions of waterways in these landscapes. Nonfederal timberlands, where conifers are dominant, are subject to California's Forest Practice Act whereas rangelands and other landscapes where hardwoods dominate are not protected by comprehensive state regulations. These divergent regulatory regimes produce different ecosystem outcomes. *California's Forests and Rangelands 2017 Assessment* summarized water quality conditions in non-federal timberland compared to rangelands, finding that 62% of forest streams in good condition compared to 34% for rangelands, with 21% of rangeland streams in poor and 21% in very poor condition."[13]

State leadership is needed to protect the ecosystem values of oaks: California needs to enact protections to achieve no-net loss of oaks. The state's oak woodlands are also in need of conservation investments and other incentives to conserve and perpetuate them. This is called for in section II of the joint policy, yet the need is not being met. A study of rangeland conversions on 13.5 million acres in California's Central Coast, Bay Area, and Central Valley found that 37% of blue oak woodlands on rangeland had no conservation designation, as well as 51% of montane hardwoods, 32% of coastal oak woodlands, 41% of blue oak-foothill pine, and 50 % of valley oak woodland.[14]

California's Forests and Rangelands 2017 Assessment reports that more than two-thirds of ranchers contacted are receptive to the possibility of financial incentives for improving environmental quality.[15] Conservation easement or tax credit funding should be binding in perpetuity with disallowances for extractive uses of the land. The contracts should also provide management funding and contain monitoring and reporting provisions for compliance to meet established conservation goals.

2. California's reliance on local oak protections has failed.

California's regulatory regime needs to uphold the ecosystem and cultural values of oaks. The suite of measures enacted in recent years to address the problem of conifer encroachment in oak woodlands are an important first step, yet they only address one threat to California's native oaks. Legislation passed in 2022 and state strategic planning initiatives reaffirmed the rights of Indigenous peoples to cultural burning practices, while recognizing beneficial fire as a valuable tool and seeking to streamline permitting for its use (see: https://wildfiretaskforce.org/wp-content/uploads/2022/05/californias-strategic-plan-for-expanding-the-use-of-beneficial-fire.pdf). This too is an important step, yet much more needs to be done to perpetuate native California oak ecosystems.

Public Resources Code Section 21083.4 brings some oak woodlands under the California Environmental Quality Act (CEQA). Impacts for projects that reach a threshold of significance are meant to be analyzed and mitigated, but CEQA does not prohibit many actions that result in habitat loss, degradation, and fragmentation. Further, this measure only applies to unincorporated areas of counties, and contains a number of exemptions, which include conversions of oaks on agricultural lands.

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[13] Ferkovich, RL et al. *California's Forests and Rangelands 2017 Assessment*. http://frap.fire.ca.gov/assessment2017.

[14] Cameron D, et al. 2014. Whither the Rangeland?: Protection and Conversion in California's Rangeland Ecosystems. *PLOS ONE* 2014:9(8).

[15] See *Supra* note 13.

Most county oak regulations are not protective: Local oak regulations—when they exist—are also often weak and inadequate in protecting wildlife species that are dependent on oaks. For example, El Dorado County relied on the development of an Integrated Natural Resources Management Plan during the update of its oak ordinance to "plan how best to maintain connectivity through the management of land use patterns and the protection of existing wildlife movement, making informed choices for changes in land use designations or improvements to compromised habitats in order to protect wildlife and plants." However, the requirement for the completion of the Integrated Natural Resources Management Plan was eliminated by the county before the oak ordinance was completed, thereby eliminating the primary analysis, which was meant to ensure that habitat connectivity would be maintained with the new regulations. This prompted a member of California Oaks Coalition to pursue legal action.

Very few counties—Santa Barbara and Los Angeles counties are two notable exceptions—have robust oak protections. Unfortunately, Los Angeles County has recently enacted measures to weaken some oak protections.

Oak woodland management plan language rarely aligns with oak protections: Goals articulated in oak woodland management plans of counties throughout California are rarely translated into regulations. Many of these plans, which qualify counties to receive Wildlife Conservation Board funding to protect oak landscapes, are collections of aspirational statements, voluntary measures, and goals that are not supported by county measures to realize them. For example, Butte County's Oak Woodland Assessment Report, which the county adopted as its oak woodland management plan, calls for maintaining a canopy of 30% when oaks are harvested (Policy 4.1.2. *When harvesting oaks for fuel or range improvement, encourage land owners to maintain an average leaf canopy of at least 30 percent…*). However, the county proposed an ordinance to streamline the process for mitigation of impacts to oaks, which used removal of 70% or greater as the threshold of significance for California Environmental Quality Act (CEQA) review. The ordinance, which was not enacted, had no mechanism to attain a site-specific goal of 30% or greater oak canopy cover on range or other lands, instead it exempted agricultural lands and was written to facilitate oak removal on other landscapes. (The 30% or greater canopy retention figure is highlighted not because it is sufficiently protective, but instead because its absence in other county planning efforts is illustrative of the disconnect between the county's oak management plan and proposed oak ordinance.)

Current protections for oaks are often not enforced. California law and state vegetation standards define oak woodlands as stands with greater than 10% canopy cover, or that formerly had such cover. This definition is frequently overlooked during environmental reviews. California Oaks has been in communication with California Native Plant Society (CNPS) and California Department of Fish and Wildlife since 2021 regarding this problem. In general, the 10% cover definition for oak woodlands is what *A Manual of California Vegetation* is using for categorizing oak woodland communities, and CNPS updated the Online version of the manual in 2021 for various oak woodland and forest types to reflect that specificity. Nonetheless the problem persists.

Further, California Oaks is only aware of one county, Santa Barbara, that monitors oak mitigation plantings that are undertaken pursuant to Public Resources Code Section 21083.4 to ensure that they meet the required thresholds for tree establishment.

Oaks in many incorporated areas are not subject to protections. As noted above, Public Resources Code Section 21083.4 does not cover impacts in incorporated areas. An oak (*Quercus palmeri*) growing in Jurupa Valley, which University of California researchers estimate to be 13,000 years old, lacks rigorous protections.[16] The oak is composed of 70 stem clusters and is believed to be a single asexually reproducing clone that dates to the Pleistocene. Thanks to Tribal advocacy, the land the oak is growing on is recognized by the Native American Heritage Commission as sacred. The oak is otherwise unprotected.

3. Joint Hardwood Policy assessment efforts appear to be weak.

The joint policy calls for an annual statement in the Director of California Department of Fish and Wildlife's (California Department of Fish and Game when the policy was enacted) report to the Fish and Game Commission that addresses the status of hardwood conservation. Are these annual statements being prepared, and if they are, how are they informing policy and how are they being shared with stakeholders?

The policy also calls for periodic reassessment by California Department of Fish and Wildlife of "the terms and conditions of existing regulations, permit processes and other administrative measures which affect conservation of hardwood resources, and, where feasible, seek corrective action when original terms and conditions have proven inadequate." Are these assessments being carried out?

The joint policy calls for California Department of Fish and Wildlife, contingent upon funding, to "conduct, contract and/or support studies that assess the effects of distribution and densities of blue oak and associated plant species in blue oak-dominated habitats, black oak and associated plant species in black-oak dominated habitats, valley oak and associated plant species in valley-oak dominated habitats, and Engelmann oak and associated plant species in Engelmann oak-dominated habitats on terrestrial and aquatic vertebrates. Have any of these investigations taken place and, if so, how have the results influenced oak management and/or policy?

California Wildlife Foundation/California Oaks presumes that the rangeland assessment reports are CAL FIRE's reports called for in section V E. These are valuable and should inform policy.

The joint policy also directs both departments, in collaboration with other partners, to monitor the status of hardwoods utilizing satellite imagery and ground checking (See section II E 3). The mapping reports issued by California Wildlife Foundation/California Oaks have been undertaken because the state has failed in this realm. Comprehensive, high-resolution, statewide digital oak mapping, created in compliance with Survey of California Vegetation standards, is needed to create a baseline to monitor trends in oaks and other hardwoods. These data should be updated at regular intervals. California's investment in comprehensive mapping in 2022 is a good first step. Additionally, historic oak mapping data should be available for use in identifying areas that may be suitable for oak restoration.

Inadequate mapping data impede local oak protection. The response to California Wildlife Foundation/California Oaks comments on oak provisions of Tuolumne County General Plan update noted (emphasis added): "The commenter's recommendations are not required to be in the Revised Draft Environmental Impact Report, and in fact some would be unenforceable, such

[16] May MR, et al. 2009. A Pleistocene Clone of Palmer's Oak Persisting in Southern California. *PLoS ONE* 4(12): e8346. https://doi.org/10.1371/journal.pone.0008346

as absolute limits on oak removals over time, *which would require mapping and historic information not available to County staff.*"[17]

The joint policy also states that "staff should report annually, in joint session, to the Commission and the Board" and that "The Board and Commission will meet periodically to review implementation of this policy and to clarify and resolve issues that arise from overlapping interests of their respective departments." Again, is this taking place and are stakeholders being informed?

The lack of accountability over the past 29-years is more evidence that the Joint Hardwood Policy is a failure.

Recommendations: California needs a no-net-loss standard for oaks that is enforceable and measurable. California Wildlife Foundation/California Oaks understands that the Range Management Committee does not promulgate regulations. That is work that the California Fish and Game Commission and Board of Forestry and Fire Protection need to undertake with their respective departments, with input from your committee, Tribal representatives, the legislature, and other stakeholders.

Lastly, this letter's focus is on *Quercus* species. However, as noted above, the aforementioned 2021 *Oaks* report included tanoak-dependent terrestrial and amphibian vertebrates, and oak carbon calculations presented above included tanoaks as well. Tanoak, which is also in the *Fagaceae* family, provides many ecosystem and cultural values. These trees face many of the same threats as *Quercus* species, with additional threats from forestry practices that target them.

Thank you for your consideration of our comments.

Sincerely,

Janet Cobb, Executive Officer
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cc: Members of California Fish and Game Commission, fgc@fgc.ca.gov

Members of State Board of Forestry and Fire Protection

Senator Nancy Skinner c/o Robert Gammon, Robert.Gammon@sen.ca.gov

[17] Final Environmental Impact Report for the Tuolumne County General Plan Update Project (State Clearinghouse No. 201082027, Prepared by Ascent Environmental) Tuolumne County Community Resource Agency. 2018. 3-73