

Re: Oak Resources & Climate Change

Honorable Officials:

The California Oak Foundation (COF) writes to inform local officials that in addition assessing oak woodland wildlife habitat impacts, California Environmental Quality Act (CEQA) reviews must also analyze carbon dioxide "biological emissions" due to the conversion of oak resources to non-forest use. Under CEQA the only feasible and proportional way to concurrently mitigate significant direct/cumulative wildlife habitat *and* CO2 emission effects is to preserve off-site a perpetual conservation easement equivalent in acreage and ecological function to the oak resources impacted.

COF is not alone in its perspective that California's passage of Assembly Bill 32 means that climate change is a potential environmental effect that needs to be addressed immediately in CEQA reviews. California Attorney General Edmund G. Brown Jr. has made it clear to cities and counties that discretionary approvals must provide: (1) an examination of a project's impact on climate change and the adoption of all feasible mitigation measures to reduce such impacts; (2) such analysis can - and must - be done today even absent established thresholds of significance or impending regulations under AB 32.

On February 19, 2008 Attorney General Brown sent a letter regarding climate change and CEQA to 534 local government officials, including the Calaveras County Board of Supervisors and Planning Department. This letter stated in part:

*"I write to you today about a myth, a challenge, and an opportunity. The myth is that there is no immediate need to address local contributions to global warming. Some continue to suggest that we can afford to wait to take action. That until all the prescriptive rules are in place at the state and federal level, we can proceed with business as usual. We do not have this luxury....Fortunately, local agencies have at their disposal an extremely powerful tool. CEQA requires public agencies to mitigate or avoid 'significant effects on the environment' when it is feasible to do so. As the Legislature recognized last year when it enacted Senate Bill No. 97, greenhouse gas emissions are the type of environmental effect that agencies must address under CEQA."*

On August 6, 2008 the Riverside County Superior Court invalidated an environmental impact report (EIR) for the 1,766-acre Palmwood project in the Coachella Valley. The Court cited the EIR's failure to analyze the project's greenhouse gas (GHG) emissions and other climate change impacts. Specifically, respondent City of Desert Hot Springs contended that a climate change analysis was not required because it would be entirely "speculative," given the absence of any formal regulatory guidance, framework, or the necessary analytic tools or methodology. Rejecting this argument, the Court held that the City should have at least made a "meaningful attempt" to analyze the Project's climate change impacts. By failing to do so, the City did not proceed as required by law. The Court further held that the City should have considered the cumulative impact of GHGs:

*"Respondent may well be correct about the absence of regulatory guidance ... and that if respondent had made a meaningful attempt to analyze the project's effects upon greenhouse gases or global warming that it would have concluded that such an analysis was entirely speculative. But respondent failed to make such a meaningful attempt and therefore did not proceed as required by law."* [Center for Biological Diversity, et al. v. City of Desert Hot Springs, et al. (Riverside County Superior Court - Case No. RIC 464585) (August 6, 2008)]

This case settles that, at minimum, lead agencies must make a *"meaningful attempt"* and *"use its best efforts to find out and disclose all that it reasonably can"* regarding a proposed action's climate change impacts. Moreover, this decision reinforces the fact that CEQA requires local jurisdictions to analyze CO<sub>2</sub> emissions from the conversion of oak woodlands to non-forest use. The analytic tools and specific methodology for measuring oak woodland carbon sequestration or release are described in the California Air Resources Board's Forest Protocol. There is nothing speculative about these scientific standards.

### Air Quality

The following information represents an example of COF's standard CEQA public comments regarding oak resources and carbon dioxide emissions:

Background: The current carbon dioxide contribution to global warming is in part a byproduct of mankind's conversion of the Earth's forest cover to non-forest land use: *"In the last 8,000 years about 45% of the Earth's original forest cover has disappeared, cleared mostly during the past century"* (Smithsonian 2003). Continuing *"deforestation accounts for about 20% of the carbon dioxide spewed into the atmosphere each year"* (Wall Street Journal 2008). According to the Intergovernmental Panel on Climate Change, *"Carbon dioxide is the most important anthropogenic greenhouse gas...The global increases in CO<sub>2</sub> concentration are due primarily to fossil fuel use and land-use change"* (2007).

Based on the latest University of California figures (2007), COF estimates that since 1990 California has converted 325,000 acres of oak woodlands to non-forest use. This means in California there are substantially less acres of oak forest to help reduce state CO<sub>2</sub> emissions by 2020 to 1990 levels as required by Assembly Bill 32. Additionally, the escalating deforestation of oak woodlands (25,000 acres annually) will make it that much more difficult and expensive to meet the AB 32 goal of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.

The California Climate Change Center has reported that *"There is substantial evidence that temperatures in California are projected to rise 4.7 to 10.5 degrees Fahrenheit by the end of the century [and] temperatures can increase air quality problems"* (2007). A University of California study examining the effects of California temperature increases on blue and valley oaks *"found that the areas of the state where the climate is suitable for these species to grow will shift northward and could shrink to nearly half their current size as a result of global warming"* (2005). Thus, the more that oak woodlands are converted to non-forest use, the greater the rise in California temperatures and the greater the temperature increases, the faster oaks are extrapolated from the California landscape.

The peer-reviewed publication "Oaks 2040: The Status and Future of Oaks in California" (2006) estimates that up to 750,000 acres of oak resources are at risk of conversion to non-forest use by 2040 and the companion study, "Carbon Resources in California Oak Woodlands" (2008), calculates that *"California oak woodlands and forests could sequester a billion tons of carbon [and] up to 33 million tons of sequestered carbon are at risk [by 2040] of entering the atmosphere should development processes eliminate these oak woodlands and forests, and their associated carbon pools."*

### CEQA, Carbon Dioxide and Climate Change

Carbon storage (sequestration) occurs in forests and soils primarily through the natural process of photosynthesis. Atmospheric CO<sub>2</sub> is taken up through leaves and becomes carbon in the woody biomass of trees and other vegetation. Approximately half of vegetation mass is sequestered carbon. In terms of its global warming impact, one unit of CO<sub>2</sub> released from burning oak biomass has the same ecological effect as one unit of CO<sub>2</sub> released from a car tailpipe.

CEQA requires that the Lead Agency evaluate potential environmental effects based to the fullest extent possible on scientific and factual data. In the absence of defined thresholds, significance conclusions must be based on substantial evidence, which includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts (CEQA Guidelines §15064).

CEQA review doesn't require specific CO<sub>2</sub> regulations by the California Air Resources Board (ARB) or any other state agency; CEQA review requires analysis and proportional mitigation for *"significant effects on the environment [including] a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including...air"* (CEQA Guidelines §15382).

The California Forest Protocol was initiated by Senate Bill 812 in 2002, adopted by the California Climate Action Registry in 2005, incorporated into Assembly Bill 32 in 2006, recognized by Senate Bill 97 in 2007 and approved by ARB on October 25, 2007. This Forest Protocol designates the conversion of oak woodlands to non-forest use to be CO<sub>2</sub> biological emissions due to lost oak woodland sequestration capacity and fuelwood combustion releases.

ARB CO<sub>2</sub> forest conservation is defined as those *"Specific actions that prevent the conversion of native forest to a non-forest use, i.e., residential or commercial development or agriculture."* Conversely, the conversion of oak woodlands to non-forest use represents a biological emission subject to CEQA analysis and mitigation. The Forest Protocol establishes the air quality criteria to be used to measure oak woodland biological emissions for CEQA review: Live tree biomass (including roots), standing dead tree biomass and wood lying on the ground.

CEQA CO<sub>2</sub> questions to be answered include: (1) how much potential CO<sub>2</sub> sequestration over the next 100 years will be lost due to impacts to live native trees three (3) inches or greater dbh; (2) how much sequestered CO<sub>2</sub> will be released if the live trees, standing dead trees or woody debris are burned? Notably, COF has the professional capacity to calculate for any oak woodlands conversion both the amount of carbon dioxide currently sequestered and the CO<sub>2</sub> biological emissions if those woodlands are impacted.

Tree planting offers negligible CO<sub>2</sub> mitigation value relative to the loss of the existing oak woodlands. In fact, planted oaks sequester little CO<sub>2</sub> until they are at least 20 years old (California Climate Action Team 2008). This point is particularly germane for slow-growing blue oak trees. In the parlance of climate change, it is infeasible for most projects to plant enough mitigation oaks to be anywhere near "carbon neutral" over a 100-year period.

Project design features that lessen CO<sub>2</sub> impacts from fossil fuel use do nothing to mitigate CO<sub>2</sub> biological emissions due to a land-use change that results in the loss of oak woodland sequestration capacity and CO<sub>2</sub> releases from the burning of oak fuelwood. At best, these measures *only moderate* the increase in new CO<sub>2</sub> emissions; existing oak woodlands *actually reduce* CO<sub>2</sub> in the atmosphere.

### Forest Protocol Key Terms

*Biological emissions:* For the purposes of the forest protocol, biological emissions are greenhouse gas emissions that are released directly from forest biomass, both live and dead, including forest soils.

*Biomass:* The total mass of living organisms in a given area or volume; recently dead plant material is often included as dead biomass.

*Bole:* A trunk or main stem of a tree. For the purposes of the Protocol, any tree bole with a minimum diameter of three inches should be included in the inventory to estimate carbon stocks.

*Carbon pool:* A reservoir that has the ability to accumulate and store carbon or release carbon. In the case of forests, a carbon pool is the forest biomass, which can be subdivided into smaller pools. These pools may include above-ground or below-ground biomass or roots, litter, soil, bole, branches and leaves, among others.

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