California Department of Fish and Game Guidelines
for
Conservation of Sensitive Native Plant Resources
Within the Timber Harvest Review Process
and
During Timber Harvesting Operations

INTRODUCTION

The following information is provided by the California Department of Fish and Game (DFG) to inform timber harvesting plan[1] (THP) applicants, Registered Professional Foresters (RPFs), review agency staff, and the public of DFG's botanical review objectives for projects proposing timber harvesting activities. These guidelines are specific to potential impacts to sensitive native plant species[2]. Although these guidelines are not mandatory (outside of specific requirements of law), they are designed to avoid delays caused by inadequate biological information in the THP review process. Their use is anticipated to maximize the limited resources of the review agencies, to meet the California Environmental Quality Act (CEQA) requirements for adequate disclosure of potential impacts, and to conserve public trust resources.

DFG TRUSTEE AGENCY MISSION

The mission of DFG is to manage California's diverse wildlife and native plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. DFG has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Section 1802, Fish and Game Code). DFG, as trustee agency under CEQA (Section 14 CCR 15386, CEQA Guidelines), provides expertise to review and comment upon environmental documents and makes recommendations regarding potential negative impacts to those resources held in trust for the people of California. As a member of the Review Teams established pursuant to the California Forest Practice Rules (Section 1037.5), DFG reviews THPs and makes recommendations designed to avoid or mitigate potential project impacts to biological resources.

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[1] As used in this document, the terms "timber harvesting plan", "THP", and "plan" refer to Timber Harvesting Plans, Nonindustrial Timber Management Plans (NTMP), Program Timber Harvesting Plans, and Modified Timber Harvesting Plans as defined in the California Forest Practice Rules.

[2] Sensitive plants include those plants listed as endangered, threatened or rare (Section 670.2, Title 14, California Code of Regulations; Section 1900, Fish and Game Code; ESA Section 17.11, Title 50, Code of Federal Regulations) or those meeting the definitions of rare or endangered provided in Section 15380 of the CEQA Guidelines.

SENSITIVE PLANT RESOURCE GUIDELINES

PRE-CONSULTATION

Pre-consultation identifies potential botanical resource concerns early in plan development and fosters the collaborative development of management strategies that meet both project goals and resource needs. Registered Professional Foresters (RPFs) are encouraged to contact DFG's Timberland Planning Program staff during development of THPs when proposed operations may adversely impact sensitive plant species.

OWNERSHIP-WIDE RESOURCE INFORMATION

DFG encourages landowners to acquire adequate information on sensitive native plants and plant communities within their ownership, and to develop and implement effective ownership-wide conservation and management efforts for these plants. Pre-consultation with DFG timber planning staff can facilitate this process. DFG is interested in working with landowners to develop strategies that conserve and manage sensitive botanical resources while meeting timber management goals. Effective management of sensitive plants and adequate information at the ownership and/or landscape scale will enhance management options and flexibility for these plants within individual THP areas. This information will also provide a framework to assess potential direct, indirect, and cumulative impacts to sensitive native plants as required by CEQA and the Forest Practice Rules.

ASSESSMENT OF SENSITIVE PLANTS

Timber operations that have the potential to impact sensitive plants include but are not limited to harvesting, road and landing construction, watercourse crossings, and site preparation. DFG is also concerned about the potential effects of herbicide treatment on sensitive plants. Adequate information about the vegetation types present within the THP area, any sensitive plants that are known to or are likely to occupy those vegetation types, and the potential impacts to any such plants is necessary to properly assess potential impacts to sensitive plant resources. Where potential significant adverse impacts are identified, protection measures designed to avoid or mitigate the impacts should be included in the THP. Forest Practice Rules § 1034(w).

Scoping

The success of conserving native plants that could be adversely affected by timber harvesting operations begins with adequate scoping by the project proponent. Scoping entails the compilation of relevant botanical information in the general project area. Scoping includes, but is not limited to, full and complete disclosure of all native plants at risk from the proposed timber harvesting operations. Proper

scoping provides sufficient biological information on the presence and absence of these plants and their habitats to make informed decisions. DFG cannot over-emphasize the importance of proper and thorough scoping. Adequate scoping will:

- Facilitate timely review by identifying relevant sensitive native plant issues;
- Focus information-gathering efforts on site-specific botanical resources;
- Focus plant surveys to key locations and important habitats where sensitive native plants could occur; and
- Clearly demonstrate whether sensitive native plant resources are at risk.

Adequate scoping begins with identification of vegetation and habitat types on a regional scale using the USGS 7.5' quadrangle on which the project is located and the adjacent quadrangles. A list of sensitive plant species that have the potential to occur within identified vegetation types is then developed. Analysis is improved, and omissions largely avoided, when the assessment area is comprehensive and ecologically relevant.

At the project level, scoping identifies types of vegetation and habitat within the THP area, as well as sensitive plants that may be impacted by the project. The identification of habitat and vegetation types should utilize a recognized classification system (i.e., Sawyer and Keeler-Wolf (1995), Holland (1986), Cheatham and Haller (1975), Munz and Keck (1970), and Mayer and Laudenslayer (1988)). The most recent detailed list of vegetation types known from California is available from http://www.dfg.ca.gov/whdab/pdfs/natcomlist.pdf. Habitat features within the forest landscape (e.g., forest openings, rock outcrops, wetlands, vernal pools, and serpentine substrates), occurring within the project area should also be discussed or mapped.

Preliminary information about sensitive plants within a project area can be derived from DFG's Wildlife and Habitat Data Analysis Branch (WHDAB). The WHDAB maintains the California Natural Diversity Database (CNDDB), which tracks California's sensitive animals, plants, and habitats. The WHDAB also produces the *Special Vascular Plants, Bryophytes, and Lichens List* (Special Plants List) consisting of approximately 2,000 species, subspecies, or varieties of plants that are state and/or federally listed, proposed for listing, candidate species, and of concern due to rarity, threats, or close association with declining habitats, or species for which more information is needed. Status and threat rankings are assigned to plant taxa on the Special Plants List. To guide disclosure and assessment of potential impacts to plants, DFG has developed guidelines that may be used to assess the effects of proposed projects on rare and endangered plants and natural communities. These guidelines and Special Plants List can be found on WHDAB's web page: www.dfg.ca.gov/whdab/html/plants.html

Additional sources of information about sensitive plants potentially occurring within the project area are also available. These sources may include, but are not limited to, state and federal resource agency lists, *the California Native Plant Society*

(CNPS) Inventory of Rare and Endangered Plants of California, the CNPS Online *Inventory* (http://www.northcoast.com/~cnps/cgi-bin/cnps/sensinv.cgi), taxonomic references, agency contacts, environmental documents for other projects in the vicinity, the project proponent's knowledge of occurrences on the ownership, academics, and professional or scientific organizations.

List of Sensitive Plants

Proper scoping will result in the compilation of a comprehensive list of sensitive plants known to occur within the appropriate assessment area, as well as plants that are not known to occur within the assessment area, but for which the project area includes appropriate habitat and is within the species known range.

The THP should contain information about each sensitive plant with the potential to occur within the project area. This information may typically include:

- An informative discussion of the habitat characteristics and life history requirements of the species;
- An assessment of the quality, quantity, and location of potential habitat within the project area; and
- The current conservation status (i.e., Federal Endangered Species Act (ESA) and/or California Endangered Species Act (CESA) listing status, NDDB Rank, U.S. Forest Service and/or Bureau of Land Management status, CNPS status, or if the species meets the criteria of Section 15380 CEQA Guidelines).

When potential habitat exists, the document should include a discussion of the efforts made to determine the presence or absence of the species within and immediately adjacent to the project area. If potential habitat for sensitive plants occurs within the project area and the proposed project activities have potential to impact the habitat, a botanical survey is usually appropriate. Alternately, the applicant may discuss and explain why no survey was conducted when suitable sensitive plant habitat occurs within the project area (e.g., the suitable habitat will be completely avoided).

Surveys

If potential habitat for sensitive plants occurs within the project area and the proposed project activities have the potential to impact the habitat, a botanical survey should usually be conducted. Information obtained through botanical surveys is used to assess potential impacts and to develop appropriate protection and/or mitigation measures during THP preparation and review. Surveys may not be necessary if suitable protection measures are implemented (e.g., the plan identifies potential habitat and excludes it from timber operations). Surveys are best conducted during THP development and included in the plan when it is initially submitted. These surveys provide site-specific information that enables DFG and

the California Department of Forestry and Fire Protection (CDF) to better evaluate the project's potential impacts and, when necessary, to better develop recommendations to mitigate potential impacts. If a THP indicates surveys will be conducted prior to operations but after plan approval, the plan shall provide specific protection measures that will be implemented if the species is located during the subsequent surveys (CEQA Guidelines Section 15126.4(a)(1)(B)). Mitigation measures are discussed in a following section.

Sensitive plant surveys should be scientifically rigorous and sufficient to ensure that the presence or absence of the target species can be determined with confidence. Surveys should be conducted in a manner consistent with the methodology presented in the DFG's *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities.* These guidelines are available at www.dfg.ca.gov/whdab/html/plants.html. It is recommended that survey reports include a discussion of the survey methods, dates and duration, personnel involved and their qualifications, maps (habitat and survey route), reference sites and materials, and survey results including an overall species list of plants encountered in the field. Depending on the phenology (flowering period) of sensitive plants potentially occurring in the project area, it may be necessary to survey a plan area at more than one time of the year.

If sensitive plants occur within the project area, the following information should be included in the THP. This information will enable reviewing agencies and the public to effectively evaluate the plan and will guide the development of protection measures:

The locations and distribution of occurrences clearly marked on a topographic map. Global Positioning System (GPS) data (if taken) are also useful.

- A discussion of the significance of occurrence(s), which should include, but not be limited to, any important or unusual characteristics of the occurrence (e.g., unique morphology or habitat requirements), information about any other nearby occurrences including population sizes, and the geographic range of the species.
- Population size (a complete census for small occurrences or an estimate determined by sampling for large occurrences) and if applicable, information about the percentage of individuals in each life stage such as seedlings vs. reproductive individuals;

The specific site characteristics of occurrences, such as vegetation or habitat type, overstory canopy closure, shrub and herbaceous layer characteristics, associated species, topographic position, aspect, hydrological characteristics, soil type and texture, soil parent material, and land use/management history.

In addition, the plan should include completed CNDDB field forms with locations mapped on a portion of a USGS 7.5' topographic map. The CNDDB field form is available on DFG's web page (http://www.dfg.ca.gov/whdab/html/plants.html).

Copies should be sent to the CNDDB and the appropriate DFG Regional office. This information is important for future management decisions including the appropriate conservation status of the species.

When operations are proposed at a site within a long-term project area (e.g., NTMPs), surveys should normally be re-conducted if the site has not been surveyed within the past five years. Reliance upon dated surveys may not be effective because of fluctuations in species abundance and/or localized occurrence; colonization resulting from seed dispersal, seed bank exposure, habitat alteration, or vegetation maturation; and changes in the conservation status of individual taxa.

The occurrences of any sensitive plant should be brought to the attention of all personnel conducting timber operations, road maintenance activities, vegetation management (herbicides and mechanical means) and stand-tending operations (such as precommercial thinning). Field visits to sensitive plant locations should occur at the appropriate times of years so field personnel are aware of the appearance of the sensitive plants as well as the habitats and specific locations in which the plants occur. Specific ecological requirements of sensitive plants should be discussed while in the field.

IMPACT ANALYSIS

An assessment of all potential project-related impacts to the sensitive plant(s) should be presented. As stated above, of interest to DFG are all timber operations that will or may impact sensitive plants, including timber falling and yarding, road and landing construction, watercourse crossings, site preparation, and herbicide treatments. Cumulative impacts as a result of multiple projects within the range of the species should also be addressed, as required by CEQA and the Forest Practice Rules.

Development of Mitigation Measures

CEQA and the Forest Practice Rules require that if there is a potential to significantly impact sensitive plants, then measures to avoid or mitigate these impacts must be proposed. When developing plant protection measures, plan preparers should consider both the specific mechanisms by which the proposed operations could impact each plant species, and the best available information about its habitat needs and life requisites. Impacts to sensitive plants can often be avoided by careful planning and implementation of the project activities, by avoiding the habitat, or by protecting the population and associated habitat. Impacts may be reduced by partial avoidance of the population and associated habitat. DFG will recommend appropriate mitigation measures during THP review. Examples of such measures may include, but are not limited to:

- Modification of timber operations to better suit the habitat requirements and to ecologically benefit the plant in question.

Establishment of a large enough area around the population to clearly delineate the location of the occurrence area (a buffer zone) to protect the population from potential impacts. The buffer should be of adequate size to preserve connectivity between populations, pollinator ecology, and provide for natural expansion and contraction of the occurrence area due to natural perturbations at the site.

- Directional falling of timber away from the area.
- Designation of an equipment exclusion zone or equipment limitation zone around the occurrence, as appropriate.
- Retention of the overstory canopy in the buffer area (for shade and/or mesic dependent species).
- Maintenance of site hydrology.
- Exclude site preparation or herbicide application in or in close proximity to the occurrence area.
- Establishment of off-site mitigation for permanent protection.

Additional or alternative measures[3] may be needed depending on the species, the site, and the specific operations proposed.

Monitoring

Pursuant to CEQA Section 21081.6 and Guidelines Section 15097, when a lead agency adopts a mitigation for significant effects, the agency is required to adopt either a monitoring or reporting program for the mitigation measures in order to ensure compliance during project implementation. CEQA requires that the mitigation or avoidance measures be fully enforceable. Therefore, compliance monitoring and/or reporting is usually needed to ensure timber operations are carried out consistent with the protection measures specified in a THP.

DFG encourages landowners to conduct or otherwise participate in effectiveness monitoring to determine the adequacy of the implemented protection measures. DFG is interested in working with landowners to help design and conduct effectiveness monitoring whenever time and resources permit. Such monitoring will enable both landowners and reviewing agencies to learn from their actions, to increase the often limited ecological knowledge about sensitive plants, and to improve future management strategies and recommendations. DFG recommends the following be considered and/or included when designing monitoring projects:

- Consult with DFG regarding the study design before implementation.
- Determine the roles of the landowner, the forester, consultants, DFG, and CDF in the monitoring effort.

[3] DFG generally does not support mitigation strategies for sensitive plants that use transplantation, relocation, or reintroduction. A review of these strategies indicated a success rate of less than 15% (Fiedler 1991). Transplantation of populations (especially the seed bank) should be conducted only as a last resort or in conjunction with other mitigation strategies.

Involve an individual familiar with the species, associated plant species, vegetation and habitat types, and measuring and monitoring methods when designing data collection.

- Implement a field monitoring scheme to enable an assessment of the impacts and effectiveness of the protection/mitigation measures. This may include treatment and control plots.
  Monitor before and for at least three to five years after timber operations and/or vegetation management.
  Utilize a data sheet for the collection of standardized data, and establish repeatable photo points that depict both the habitat and the species.
  Apprise DFG of the monitoring program's progress and findings through interim and final reports.

SUMMARY

DFG, as a trustee agency, is responsible for conserving, protecting, and managing sensitive plants, and the habitats necessary to maintain biologically sustainable populations. This responsibility requires the review of CEQA documents and documents prepared for certified regulatory programs such as the timber harvest review process. DFG also makes recommendations to ensure the protection of sensitive botanical resources during project implementation. Providing the information necessary for DFG and CDF to assess the potential for timber operations to adversely affect plant resources usually requires the inclusion of adequate scoping information, vegetation and plant descriptions, surveys, and protection measures within a THP. Monitoring during and after a project can provide all involved parties additional information about the response of sensitive plants to specific timber operations and the effectiveness of specific protection measures.

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Date

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