

P.O. Box 944246
SACRAMENTO, CA 94244-2460
(916) 653-8007
(916) 653-0989 FAX
[BOF Website \(www.bof.fire.ca.gov\)](http://www.bof.fire.ca.gov)



Staff Report – Botanical Resources and Their Consideration in Timber Harvest Documents

August 18th, 2020

**New content begins on page 11

The treatment of botanical resources when preparing timber harvest documents has been a topic of discussion for several years, but was first formally prioritized by the Forest Practice Committee (FPC) for consideration in 2020. California Department of Fish and Wildlife's (CDFW's) Timber Botany Working Group discussed the issue of botanical resources on timberlands and their consideration in timber harvest documents in 2017. A letter on this subject was submitted to the Board in November, 2018 (appended to the 2019 letter submitted during the Annual Call for Regulatory Review; both can be found in your meeting materials). A CDFW representative also provided a presentation and engaged in discussions at the May 2019 FPC meeting in Chico. Currently, there are no provisions specifically directed toward botanical resources in the Forest Practice Rules (FPRs). Given that the Plan review process is a "functional equivalent" process, it is required that potential impacts to special status plants that are federally or state listed be analyzed pursuant to the California Environmental Quality Act (CEQA) and any identified impacts be reduced to less than significant.

CDFW has issued two guidance documents related to survey methods (2005 and 2018) and CAL FIRE has issued a guidance document related to the treatment of botanical resources during timber harvest (2009). However, the CDFW Timber Botany Working Group expressed concerns that these provisions are not necessarily implemented consistently, nor are they applied to ministerial documents.

Staff has engaged in conversations with several stakeholder groups to produce this staff report outlining some of the perceived problems surrounding the issue of botanical resource considerations in timber harvest documents. These stakeholder groups included: representatives of the California Native Plant Society (CNPS), CDFW, CAL FIRE, and the timber industry. The concerns and comments received are summarized below, with no order of priority provided.

1) Unclear Laws Result in Extended Harvest Document Approval Timelines

One issue that was raised from several interviewed stakeholders is that the process for approving timber harvest documents is often extended because the rules surrounding scoping, surveying, reporting, and mitigation for potential impacts to botanical resources are unclear and often open to interpretation. At times this results in differing expectations depending on the individual(s) associated with the review team agencies conducting Plan review, and localized interpretation of existing laws can result in delays. Inconsistent interpretations or views amongst individuals with differing experience and backgrounds can result in differing expectations for scoping, surveying, reporting, and mitigating measures for individual Plans.

For instance, the Native Plant Protection Act (Fish & G. Code, § 1900 et seq., (NPPA)) empowers the Fish and Game Commission to designate endangered and rare native plants using CDFW-established criteria and to adopt regulations governing the taking of endangered and rare plants. However, Fish and Game Code section 1913 provides a timber operation exemption that says “timber operations in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 ... shall not be restricted by [the NPPA] because of the presence of rare or endangered plants... .” The only exception is that if CDFW previously notified the owner about the presence of the endangered and rare plants, CDFW must be afforded 10 days after submission of the Plan to allow for salvage of the plants.

Thus, the NPPA suggests that timber harvest operations should not be impeded due to the presence of endangered and rare plants, except to allow CDFW time to salvage those plants in certain situations. However, the California Endangered Species Act (Fish & G. Code, § 2050 et seq. (CESA)) prohibits take of threatened, endangered, and candidate species and imposes misdemeanor penalties for violation. CESA does not exempt timber operations from its take prohibition, so timber harvest operations in the presence of endangered, threatened, or rare plants would need to comply with CESA by avoiding take or seeking incidental take authorization. There is also a longstanding practice under CEQA to impose scoping, surveying, reporting, and mitigation requirements for these very same plants.

It is understandable that regulators and members of the regulated community alike would have difficulty reconciling such an inconsistency and coming to consensus as to the proper scope of the NPPA exemption for timber operations. Further contributing to this confusion, some agency guidance documents include references to the NPPA and the plant species designated pursuant to it but do not mention or explain the exemption for timber operations under the Z'berg-Nejedly Forest Practice Act of 1973 (Forest Practice Act).

Additionally, varying interpretations of CEQA guidelines to determine which plants need to be surveyed for and mitigated for can be problematic due to the necessity to identify the threshold of “significance.” Significance can be determined, in part, based on the number of occurrences present, and an effective definition of an “occurrence” is at times not agreed upon by all parties. This is potentially problematic given that the number of occurrences of a specific plant is related to potential impacts upon a plant population. If certain interpretations result in either fewer or a greater number of “occurrences,” this can affect the “significance” of analyzed impacts and can change the necessity and scope of mitigation efforts to “avoid significant impacts” to the resource.

2) Ensuring that the appropriate plants are surveyed appropriately by a qualified individual

Which plant species should be considered during Plan preparation?

There are several categories of plant species that may be considered for scoping, and surveyeded for if necessary. These include formally listed plants under CESA or ESA, sensitive natural communities, and/or plants ranked on the CNPS Inventory of Rare Plants (IRP). There is some concern that 14 CCR § 15380 (CEQA Guideline) is often relied upon for plants species, but is not relied upon for animal species. Additional discussions and investigations are needed regarding the application of this provision as it relates to the minimization of impacts to plant species. For reference 14 CCR § 15380 can be found below:

§ 15380. Endangered, Rare or Threatened Species.

(a) “Species” as used in this section means a species or subspecies of animal or plant or a variety of plant.

(b) A species of animal or plant is:

(1) “Endangered” when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors; or

(2) “Rare” when either:

(A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

(B) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in the Federal Endangered Species Act.

(c) A species of animal or plant shall be presumed to be endangered, rare or threatened, as it is listed in:

(1) Sections 670.2 or 670.5, Title 14, California Code of Regulations; or

(2) Title 50, Code of Federal Regulations Sections 17.11 or 17.12 pursuant to the Federal Endangered Species Act as rare, threatened, or endangered.

(d) A species not included in any listing identified in subdivision (c) shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the criteria in subdivision (b).

(e) This definition shall not include any species of the Class Insecta which is a pest whose protection under the provisions of CEQA would present an overwhelming and overriding risk to man as determined by:

(1) The Director of Food and Agriculture with regard to economic pests; or

(2) The Director of Health Services with regard to health risks.

A collaborative relationship has existed between CNPS and CDFW since the 1980's particularly as it relates to information sharing ([Rare Plant Data in California](https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=175695&inline))(<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=175695&inline>) Please also find in the appendix a document detailing the history of the CNPS rare plant program, titled "CNPS Rare Plant Program: Past and Present." Several stakeholders reported that a Memorandum of Understanding (MOU) exists that memorializes the CNPS and CDFW relationship, which Board staff have located and included within the appendix of this staff report.

The IRP is frequently used in addition to the California Natural Diversity Database (CNDDB), CESA list, and ESA list determine what plants should be surveyed for and monitored prior to timber operations occurring under an approved Plan.

Considering the range of lists and databases of plant species that are candidates for surveys, a related concern is whether the scope of information that Plan submitters are required to provide is in line with the information needed to facilitate Plan review and approval under the Forest Practice Act and CEQA.

In 1996, the Attorney General issued an opinion concluding that there are limits on the scope of flora and fauna surveys that CAL FIRE can require as a condition of Plan approval under the Forest Practice Act and CEQA. (79 Ops.Cal.Atty.Gen. 169.) After considering the relevant statutes and regulations, the Attorney General observed that "the Legislature cannot have intended the department to have unfettered discretion in the type of information that it may require." Instead, the common purpose underlying an agency's authority to request information, such as a botanical survey, is the need to determine a project's significant effects on the environment. (See 14 CCR § 1034(w) [FPR]; Pub. Resources Code, §21160 [CEQA].) Accordingly, the Attorney General opined that CAL FIRE would not be authorized, as a condition for approving a Plan, "to require a comprehensive survey of all flora and fauna on the property, *without regard to whether such information would reveal any such significant effect.* (79 Ops.Cal.Atty.Gen. 169, emphasis added.)

Thus, it may be appropriate to evaluate existing guidelines (particularly those that have not been updated in several years) to ensure that required surveys have an appropriate connection to the obligation of CAL FIRE, CDFW, and other agencies to make informed determinations of significant environmental impact, consistent with the purposes and requirements of the Forest Practice Act and CEQA. It is also possible that some of the protocols and guidelines no longer reflect current statutory and regulatory language, thereby creating confusing inconsistencies that should be resolved.

CNPS Ranking Process

The IRP is developed using an established process. First, plants are proposed by an individual (no particular affiliation is needed for someone to do this) for a status change. A list of plants proposed for status changes is maintained and plants are chosen from this list periodically for review by status review teams that are established based on regional specialty. The status review teams consider all currently available science for each plant and determine ranking status based on the available information. This includes a possible ranking for plants about which additional information is needed (Table 1).

Table 1: California Native Plant Society Inventory of Rare Plants Rankings

RANK	DESCRIPTION
1A	Plants presumed extirpated in California and either rare or extinct elsewhere
1B.1	Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California (80% of occurrences threatened)
1B.2	Plants rare, threatened, or endangered in California and elsewhere; moderately threatened in California (20-80% of occurrences threatened)
1B.3	Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California (less than 20% of occurrences threatened)
2A	Plants presumed extirpated in California, but more common elsewhere

2B.1	Plants rare, threatened, or endangered in California but more common elsewhere; seriously threatened in California (80% of occurrences threatened)
2B.2	Plants rare, threatened, or endangered in California but more common elsewhere; moderately threatened in California (20-80% of occurrences threatened)
2B.3	Plants rare, threatened, or endangered in California but more common elsewhere; not very threatened in California (less than 20% of occurrences threatened)
3.1	Plants about which we need more information; seriously threatened in California (80% of occurrences threatened)
3.2	Plants about which we need more information; moderately threatened in California (20-80% of occurrences threatened)
3.3	Plants about which we need more information; not very threatened in California (less than 20% of occurrences threatened)
4.1	Plants of limited distribution; seriously threatened in California (80% of occurrences threatened)
4.2	Plants of limited distribution; moderately threatened in California (20-80% of occurrences threatened)
4.3	Plants of limited distribution; not very threatened in California (less than 20% of occurrences threatened)

Rankings are determined by numerical thresholds based on a number of categories including the number of occurrences, endemism, etc. This numerical threshold is based on the standard set forth by Nature Serve. Nature Serve is a non-profit organization that provides proprietary wildlife and plant conservation-related data, tools, and services to a variety of clients (additional information can be found on the [Nature Serve Webpage](https://www.natureserve.org/) - <https://www.natureserve.org/>). Nature Serve uses several factors and a calculator tool that they developed to determine the rarity rankings of a particular species. These factors each fall into a category and subcategory and include:

Table 2: Ranking Factors for the Nature Serve Conservation Status Assessments

FACTOR CATEGORY	FACTOR SUBCATEGORY	FACTOR
Rarity	Range/Distribution	Range Extent
Rarity	Range/Distribution	Area of Occupancy
Rarity	Abundance/Condition	Population Size
Rarity	Abundance/Condition	Number of Occurrences
Rarity	Abundance/Condition	Number of Occurrences or Percent Area with Good Viability/Ecological Integrity
Rarity	Abundance/Condition	Environmental Specificity
Threats	Threats	Overall Threat Impact
Threats	Threats	Intrinsic Vulnerability
Trends	Trends	Long-term Trends
Trends	Trends	Short-term Trends

Not all of these characteristics are always used during the ranking process. This is because their system uses several “core” factors as well as several “conditional” factors. The conditional factors are often used if inadequate information is available for the core factors. The two conditional factors are: Environmental Specificity and Intrinsic Vulnerability. Additional characteristics may be considered where appropriate, including the number of protected or managed occurrences, rescue effect, and comparisons to other global or national/subnational rankings. A minimum of one factor from each Rarity subcategory or one factor from the Rarity category and one factor from either the Threats or Trends category are required for a ranking to occur. Additional information can be found in their “[NatureServe Conservation Status Assessments: Methodology for Assigning Ranks](https://www.natureserve.org/sites/default/files/publications/files/natureserveconser)” document (<https://www.natureserve.org/sites/default/files/publications/files/natureserveconser>

vationstatusmethodology_jun12_0.pdf). California deviates slightly from their ranking process in that they use a shorter distance between individual occurrences (0.25 miles or greater rather than 0.6 miles), which can result in fewer ranked plants or varied ranking status. The number of occurrences considered under this process are obtained from CNDDDB and each occurrence is “graded” by CNDDDB based on how old the occurrence is, who submitted the occurrence, and what their credentials are. These grades are considered in the ranking process. If consensus cannot be reached by the regional status review team, the plant will be considered by a panel of experts.

There is some concern expressed with using the IRP for scoping plants because some plants may not have enough information to reflect their true status. This resulted in part in questions related to which ranks truly warrant surveys and mitigation measures, particularly for rank 3 plants which are lacking in population data. Because plants may need to be surveyed at particular times of the year in order to detect them and properly identify them (often coinciding with blooming periods), having to survey large numbers of plants can quickly result in a large time commitment and costs for landowners.

Appropriate Surveys

Several stakeholders were concerned about the timing of surveys and ensuring that they occur at appropriate times and under appropriate conditions. These stakeholders believe that the bulk of the Plan area should be surveyed using established protocols to maximize detections and adequately characterize the number of species and occurrences that are present. It was stated that such surveys may be necessary for impacts to be analyzed and for mitigations or avoidance to be implemented. Suggested survey protocols and procedures as they relate to botanical resources are established in two CDFW guidance documents, CDFW Botanical Resource Guidelines for Timber Harvest (Guidelines), 2005 and CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities, 2018 (Protocols). However, there is some concern that the Protocols may be viewed as requirements rather than guidance, even in circumstances where the methods used to identify and mitigate impacts to listed plant species appear to meet existing laws and regulations as well as the tenets of the CEQA guidelines. Based on research by Board staff it appears that some regions within CAL FIRE may be returning proposed Plans or surveys that are submitted as amendments to a Plan based on the perception that the Protocols are an enforceable standard.

Another related comment expressed concern over this issue of survey life, or how long should a survey be valid prior to engaging in additional survey efforts. One commenter indicated that in some cases, especially on industrial lands, or lands covered by an NTMP, that there have been upwards of 20 years of survey data collected, which could be relied upon to hone in the number of species surveyed for, or negate the need for ongoing survey efforts within these landscapes. It was

discussed that in certain instances, reliance upon existing survey data, if robust, may be appropriate for future management activities.

Qualified Surveyors

Comments were received that, at times, there have been questions about the quality of surveys and who is qualified to perform botanical surveys for the purposes of preparing a Plan. Based on information received, this appears to be a narrow problem, and many stakeholders indicated that survey quality was sufficient, and qualifications of surveyors did not appear to be a consistent problem.

3) Should the CNPS Process for Rankings Be More Public?

Some stakeholders expressed concern that the current process for CNPS ranking and ranking review is not as transparent as it could be. There were concerns expressed that engagement from the public throughout the ranking process is not made available and therefore public input is not considered during discussion of species rankings. One stakeholder suggested that the ranking process should include a white paper describing the precise methods and individual decision points for each ranking decision that is available to the public.

4) General review of past CNPS Rankings

Board staff did receive comments from certain stakeholders that many of the CNPS ranked species have been ranked for a significant amount of time without review of their ranking status. Some stakeholders commented that a general review of past rankings should occur to update the rankings. Concerns over the timeliness of review led to a discussion of a particular plant species called the Scott Mountain's Fawn Lily (*Erythronium citrinum* var. *roderickii*). Significant survey data was collected in order to support a revision in ranking status for this particular plant and the following are the timing and individual steps that occurred in the lifecycle of this particular ranking:

- 1994: *Erythronium citrinum* var. *roderickii* was added to rank 1B (rare, threatened, or endangered in California and elsewhere) of the 5th edition of the CNPS Inventory (printed volume)
- 10/4/2012: *Erythronium citrinum* var. *roderickii* was proposed for rank change from 1B to 4, but did not meet the requirements for downranking at the time. Its occurrences and status was periodically reviewed by CNPS rare plant staff to determine if/when downrank was warranted since this time.
- 1/11/2017: Internal review by CNPS rare plant staff determined it met the general criteria for downranking and drafted status review proposal with CNDDDB. Proposal to downrank to rank 4 was sent to Northwest Review Group and forum on January 11, 2017.

- 2/3/2017: Final call for information regarding rank change was sent, with notification of delay in decision to change based on disagreement. In-person meeting to discuss status set for 3/22/2017.
- 3/22/2017: In person meeting held in Redding to discuss status (15 people in attendance from Shasta-Trinity NF, SPI, CNPS, BLM, CDFW). Presentations provided by SPI and CDFW. Still no consensus reached. Additional research needed.
- 4/5/2017: In person meeting summary sent with proposal/request for development of monitoring plan based on no consensus.
- 11/3/2017: Notification from SPI regarding their development of a proposed general management strategy where plants are present on SPI lands.
- 2/5/2019: Draft SPI management plan sent to CNPS, scheduled in person meeting for 3/19 to discuss
- 3/19/2019: In person meeting with SPI, CDFW, CNPS to review draft management plan.
- 4/18/2019: Final SPI monitoring plan for *E. citrinum* var. *roderickii* submitted to CNPS.
- 4/22/2019: Changed status of *E. citrinum* var. *roderickii* from 1B.3 to 4.3 in CNPS Inventory and CNDDDB.
- 5/8/2019: CNPS field/site visits with SPI to view monitoring plots for *Erythronium*.

While this provided timeline may not be indicative of all plant rankings, this species of particular concern was associated with “timberland” within Northern California. Several other examples were provided by CDFW staff and can be found in the 9th document in the appendix to this report. These plants all are or have the potential to be included in the botanical scoping lists for Timber Harvesting Plans in Region 1 interior or coast.

5) Should Sensitive Natural Communities Be Considered?

Some stakeholders have expressed concerns about the use of Sensitive Natural Communities managed through the CDFW VegCAMP Program ([VEGCAMP Webpage](#)). While the program has been around since the mid 1990’s and the data is continuously being updated, a portion of the state is not mapped to current standards. Some stakeholders have shared experiences with this system where more common communities have been considered “rare”. One stakeholder expressed that the classification system for sensitive natural communities may not be well designed to crosswalk into a regulatory framework and that the process for utilizing this system to aid in plant conservation needs to be more clearly defined including evaluation methods and metrics for success.

6) Should Survey Requirements Apply to Ministerial Documents?

Several groups discussed the potential impacts of timber harvest on botanical resources and how they relate to ministerial timber harvest documents (Exemptions and Emergency Notices). Some stakeholders stated that ministerial documents should not have significant adverse environmental impacts and that if botanical resources are not considered during the plan preparation process, potentially significant impacts may be occurring that are generally unknown.

7) The Effectiveness of Current Management has not Been Assessed

Little work has been done to interpret whether the current measures taken to protect botanical resources are effective. Several parties commented that a “check-in” to analyze available data and the process of managing botanical resources that has matured over the last 20 years would be useful to facilitate active management, while still addressing conservation of plant species.

CNDDDB Reporting of Occurrences

Some stakeholders addressed the issue of plan submitters being required to submit their survey data to CNDDDB for future analysis and feedback for the CNPS ranking review process. As discussed previously, the number of occurrences and “grade” of those occurrences, which includes how recent they are, are important components when determining the ranking for a given species. As such, encouraging reporting of survey data to the CNDDDB may be useful in the review of past rankings as well as the initial consideration of new rankings. However, some concern was expressed by certain stakeholders that this database is a positive detection only database and that negative detections are also important and can play a critical role in ranking reviews.

Conclusion

This staff report is intended to provide information captured from various stakeholder groups that may be affected by Board action as it relates to management of botanical resources during the Plan preparation, approval, and implementation and timber operations. Appended to this staff report are several other documents that provided supporting data as it relates to botanical species and the Plan process. Board staff has not yet developed any current strategies or recommendations on actions that the Board may consider to address this specific issue, but would recommend that additional comments be solicited by stakeholders in future committee or workshops to allow the Board to identify a problem statement to support potential Board actions.

New Content as of 8/18/2020:

This section of the staff report is intended to provide additional information on several points of interest at the July 2020 Joint Committee Meeting. The first section

covers in more depth the various ranking and listing processes and applicable laws related to botanical resources and their treatment in timber harvest documents. The second section addresses relevant laws for ministerial permits. The third section covers key points in currently available guidance. The fourth section reiterates key points received during public comment at the July 2020 Joint Committee Meeting. The fifth and final section addresses the development of a problem statement.

I. Rankings and Listings for Botanical Resources

a. Sensitive Natural Communities

i. Natural Communities

Natural Communities have been part of the California Department of Fish and Wildlife's Natural Heritage program along with individual plants and animals since its inception in 1979. Since the mid-1990's these communities have been identified using the Survey of California Vegetation state standards (State Classification Standard) which comply with the National Vegetation Classification Standard (NVS Classification Standard).

1. NVS Classification Standard

The NVS Classification Standard was first adopted in 1997 by the Federal Geographic Data Committee, whose members are representatives from various federal bodies (e.g. Departments of Agriculture, Commerce, Defense, Education, etc.). A revised standard was released in 2008.

The 2008 version of the NVS Classification Standard primarily breaks vegetation into two groups: Natural and Cultural. For the purposes of this report, we will focus mainly on natural vegetation. Natural vegetation is then classified using eight hierarchies based on dominant growth forms (high percent cover), indicator growth forms (presence is indicative of a certain climate or site conditions), character species (has a distinct maximum concentration), differential species (more successful in a particular plant community), constant species (high percent cover in plots of a defined type), dominant species (highest percent cover), and indicator species (presence indicates certain site conditions). The eight levels and an example are:

Upper Levels

1 – Formation Class

Scientific Name: Mesomorphic Shrub and Herb Vegetation

Colloquial Name: Shrubland and Grassland

2 – Formation Subclass

Scientific Name: Temperate and Boreal Shrub and Herb Vegetation

- Colloquial Name: Temperate and Boreal Shrubland & Grassland
- 3 – Formation
 - Scientific Name: Temperate Shrub and Herb Vegetation
 - Colloquial Name: Temperate Shrubland & Grassland
- Mid Levels
- 4 – Division
 - Scientific Name: Andropogon – Stipa – Bouteloua Grassland & Shrubland Division
 - Colloquial Name: North American Great Plains Grassland & Shrubland
- 5 – Macrogroup
 - Scientific Name: Andropogon gerardii – Schizachyrium scoparium – Sorghastrum nutans Grassland & Shrubland Macrogroup
 - Colloquial Name: Great Plains Tall Grassland & Shrubland
- 6 – Group
 - Scientific Name: Andropogon gerardii – Sporobolus heterolepis Grassland Group
 - Colloquial Name: Great Plains Mesic Tallgrass Prairie
- Lower Levels
- 7 – Alliance
 - Scientific Name: Andropogon gerardii – (Calamagrostis canadensis – Panicum virgatum) Herbaceous Alliance
 - Colloquial Name: Wet-mesic Tallgrass Prairie
- 8 – Association
 - Scientific Name: Andropogon gerardii – Panicum virgatum – Helianthus grosseserratus Herbaceous Vegetation
 - Colloquial Name: Central Wet-mesic Tallgrass Prairie

Each classification does not necessarily include all eight levels, and may instead be a more generalized “upper level” classification.

The NVS Classification Standard uses two types of data: field plot data and scientific literature with plot data being preferred. Section 3.1.1 beginning on page 23 of the [National Vegetation Classification Standard \(2008\)](#) describes the methodology for field data collection. Section 3.1.2 beginning on page 33 describes how scientific literature sources are evaluated as sources for classification.

2. State Classification Standard

The State Classification Standard uses the same eight classification levels as the NVS Classification Standard. There is no standard for sample allocation, so sample sites may be identified using any chosen method. CDFW Staff indicated that “sample allocation is done for various reasons, each of which

determine the methods. For documenting the presence of an existing natural community type on a project site, for example, VegCAMP recommends submitting a Rapid Assessment form for each type (not each occurrence) on a project site using the [CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Releve Field Form](#). For undescribed types, the Relevé protocol is recommended. Sample allocation can also be done using GIS to direct sampling in a previously unclassified ecoregion such that unique combinations of environmental factors including geology, elevation, aspect, precipitation are sampled; in general at least 10 samples of each vegetation type should be sampled across the region. Sample allocation is also used in directing map accuracy assessment, wherein mapped polygons are chosen and then visited by vegetation ecologists with no knowledge of the map attributes. The accuracy assessment samples, which use a modified rapid assessment protocol, are then compared to the map and the map is scored for percent accuracy.” Generally, timing of samples should coincide with phenology appropriate for the type of vegetation being surveyed. Following surveys, all vegetation data is publicly available via CDFW’s Biogeographic Information and Observation System (BIOS). For more specific information regarding the analysis of data collected please see page 4 of the [Survey of California Vegetation Classification and Mapping Standards](#). Following the analysis and classification according to hierarchy of the NVS Classification Standard, VegCAMP and/or the California Native Plant Society (CNPS) review the classifications to ensure compliance with the Manual of California Vegetation and the NVS Classification Standard.

ii. Sensitive Natural Communities

Once the Natural Communities are identified, their data is assessed using the same [NatureServe methodology](#) used to assign global and national/subnational rarity ranks for individual plant and animal species, as described in the July Staff Report. VegCAMP has been performing these rankings since the inception of the program, but has transitioned to using the [rank calculator](#) developed by NatureServe in 2012, making the process more consistent and transparent. Rankings are then reviewed by VegCAMP as well as CNPS. According to the NatureServe methodology, species or communities can be ranked at the Global or National/Subnational scales. Additionally, each species or community is given a calculated score that equates to a status rank:

score ≤ 1.5 → G1 (N1, S1) → Critically imperiled

$1.5 < \text{score} \leq 2.5$ → G2 (N2, S2) → Imperiled

2.5 < score ≤ 3.5 → G3 (N3, S3) → Vulnerable

3.5 < score ≤ 4.5 → G4 (N4, S4) → Apparently secure

score > 4.5 → G5 (N5, S5) → Secure

Communities that rank as S1-S3 are considered to be Sensitive Natural Communities. About half of the state has been mapped and classified according to the state and national standard as of 2018. As a result, some of the current rankings may change as more data is collected and their distributions are refined. 2,500 occurrences of 96 Sensitive Natural Community types currently exist in CNDDDB that were classified using a different system prior to the mid-1990's. It is a priority for CDFW to reclassify these occurrences to be in conformance with the current standard, but they will remain in the system until the state-wide classification and re-classification can be completed.

b. Native Plant Protection Act

FGC § 1911: "All state departments and agencies shall, in consultation with the department, utilize their authority in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered or rare native plants. Such programs include, but are not limited to, the identification, delineation and protection of habitat critical to the continued survival of endangered or rare native plants."

FGC § 1913: "... (b) Notwithstanding the provisions of Section 1911, timber operations in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511 of the Public Resources Code), ... shall not be restricted by this chapter because of the presence of rare or endangered plants, except as provided in subdivision (c) of this section.

(c) Notwithstanding the provisions of subdivisions (a) and (b) of this section, where the owner of land has been notified by the department pursuant to Section 1903.5 that a rare or endangered native plant is growing on such land, the owner shall notify the department at least 10 days in advance of changing the land use to allow for salvage of such plant. The failure by the department to salvage such plant within 10 days of notification shall entitle the owner of the land to proceed without regard to this chapter. Submission of a timber harvesting plan pursuant to the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511 of the Public Resources Code) shall constitute notice under this section..."

II. Relevant Law for Ministerial Permits

By express statutory exemption, CEQA requirements do not apply to ministerial permits – i.e., where the issuing agency lacks discretion to condition or deny the

permit, so long as the statutory conditions are met. Ministerial permits may reflect a legislative determination that the contemplated activity typically has minimal adverse impacts or that CEQA compliance is unnecessary for other policy reasons. PRC § 4584 authorizes the Board to exempt certain forest management activities from the Forest Practice Act, thereby rendering permits for those activities ministerial for purposes of CEQA and the Board's certified regulatory program. Following that section, PRC § 4584.1 lists separate standards that govern activities performed under those ministerial permits, as determined appropriate and necessary by regulations adopted by the Board. One such standard that directly addresses botanical resources requires that "[n]o known sites of rare, threatened or endangered plants or animals will be disturbed, threatened or damaged." (PRC § 4584.1(e) [standard incorporated by a now outdated reference to 14 CCR § 1038].)

III. Key Points of Current Guidance

a. CDFW Guidelines for Conservation of Sensitive Native Plant Resources within the Timber Harvest Review Process and during Timber Harvesting Operations (2005)

- Acquire property-wide information on sensitive plant species and communities and develop and implement conservation and management efforts for these plants.
- If habitat is present for a sensitive plant species, a survey is usually appropriate. The applicant may also provide an explanation for why a survey was not conducted.
- Surveys should be re-conducted on long-term project areas (such as NTMPs) if there have not been surveys in the last five years.
- "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."
- "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 also requires that mitigation measures be enforceable, so compliance monitoring is also needed to ensure that the harvest is carried out consistent with the measures specified.
- CDFW is also interested in working with landowners to implement effectiveness monitoring.

b. CAL FIRE Environmental Review of Plans, Reports, and Permits Regarding Potential Adverse Impacts to Botanical Resources from Timber Operations (2009)

- For listed plants, only the distribution within the state will be considered when determining the significance of impacts or in developing avoidance strategies.

- For plants that are not listed under ESA, CESA, or the Native Plant Protection Act, their distribution throughout all of their range may be considered when determining whether or not there will be potential impacts under CEQA Guidelines § 15380.
 - “If timber operations are planned in a manner which clearly avoids potential impacts... then it is likely that surveys will not be needed.”
 - CAL FIRE may conclude that surveys are not necessary, but may require other measures such as on-site training for LTOs, walk through surveys, mitigation measures to be implemented should a plant be discovered, and effectiveness monitoring.
- c. CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (2018)**
- Special status plants are those that are listed under CESA or ESA, are considered rare under the California Native Plant Protection Act, under CEQA Guidelines § 15380, or are considered locally rare.
 - Surveys should be conducted when: 1) natural vegetation occurs in areas that may be affected by a project, 2) special status plants or sensitive natural communities have been historically identified in the project area, or 3) special status plants or sensitive natural communities occur in areas with similar physical and biological properties as the project area.
 - “Focused surveys’ that are limited to habitats known to support special status plants or that are restricted to lists of likely potential special status plants are not considered floristic in nature and are not adequate to identify all plants in a project area to the level necessary to determine if they are special status plants.”
 - “Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur...”
 - Additional surveys may need to occur if there are existing surveys but they: 1) are not current, 2) are in an area with frequent drought or flooding, 3) did not cover the entire project area, 4) did not occur at the appropriate time of year, 5) were not conducted for a sufficient number of years to detect plants that are not detectable every year, 6) did not identify all plants in the project area to the necessary taxonomic level, 7) have experienced changes in conditions, 8) have experienced changes in plant distribution, or 9) have experienced changes in the scientific information concerning the special status plants that potentially occur in the area.
 - “When a special status plant is located, data must be submitted to the CNDDDB.”

IV. Issues from Public Comment at the July Committee Meeting

- Historical differences exist between how botanical resources are handled in the interior and on the coast including differences in the amount and type of data requested, who is considered a credible surveyor, and how plan preparers are expected to respond to the presence of plants ranked by CNPS.
- Expectations for scoping and surveys are not consistent across reviewers and additional information outside of what is requested in the two guidance documents prepared by CDFW is at times requested, resulting in extended timelines and some confusion.
- Transparency in the CNPS ranking process is lacking and the use of a third party for creating standards for enforcement is problematic.
- Surveying the entirety of the landscape is expensive and time-consuming for landowners; focusing on unique habitats may be more productive and less burdensome. It is also important to note that there are areas within a plan that already have restrictions and are unlikely to experience significant impacts from harvesting. Excluding these areas from survey efforts may also help minimize costs.
- The life of a survey is an important point of discussion and utilizing previous botanical surveys for future plan preparations should be considered. Additionally, some landowners may only harvest every 15-20 years and requiring surveys more frequently than the harvest schedule may be overly burdensome.
- Additional requirements for landowners should be considered carefully and weighed against the goal of increasing the pace and scale of fuel treatments.

V. Problem Statement, Areas for Consideration

a. Background

The treatment of botanical resources when preparing timber harvest documents has been a topic of discussion for several years, but was first formally prioritized by the Forest Practice Committee (FPC) for consideration in 2020. California Department of Fish and Wildlife's (CDFW's) Timber Botany Working Group discussed the issue of botanical resources on timberlands and their consideration in timber harvest documents in 2017. A letter on this subject was submitted to the Board of Forestry and Fire Protection (Board) in November, 2018 (appended to the 2019 letter submitted during the Annual Call for Regulatory Review; both can be found in your meeting materials). A CDFW representative also provided a presentation and engaged in discussions at the May 2019 FPC meeting in Chico. Currently, there are three guidance documents, two produced by CDFW and one produced by CAL FIRE, but there are no provisions specifically directed toward botanical resources in the Forest Practice Rules (FPRs).

b. Public/Resource Problem to be Addressed

The regulation of timber harvesting operations by CAL FIRE and the Board are certified by the Secretary for Resources as a certified program

meeting the requirements of the CEQA process under Public Resources Code (PRC) section 21080.5. Timber harvesting plans are considered “functionally equivalent” to an environmental impact report (EIR) otherwise required under CEQA for projects that could potentially have significant effects on the environment. CEQA requires project proponents to disclose potential significant impacts and proposed mitigations to reviewing agencies and the public, and to provide mitigation measures to prevent significant, avoidable environmental damage.

In an attempt to prevent significant, avoidable environmental damage to botanical resources, several guidance documents have been released by CDFW and by CAL FIRE regarding scoping, surveying, and reporting of botanical information during the Plan preparation process. Review team members may also request information regarding botanical resources as a part of the Plan review process. The current process for consideration of botanical resources during the Plan review process has resulted in concerns both from CNPS and CDFW as well as Plan submitters because the expectations are often unclear and are implemented inconsistently across the different regions of the state. This has resulted in discrepancies in Plan preparation costs, timelines, and plant protections. Some issues for consideration by the Board have been identified in scoping meetings:

- 1) Who is qualified to perform surveys?
- 2) What plants should be considered for surveying? Should rare plants ranked by CNPS be included? Should Sensitive Natural Communities be included?
 - a. If it is used, should the CNPS ranking process and Sensitive Natural Community process be more public?
 - b. If it is used, should a general review of prior CNPS rankings be conducted?
- 3) Should survey requirements apply to ministerial documents?
- 4) If new guidance is developed, what form should it take? (e.g. Policy, Technical Rule Addendum, Additional guidance documents, Regulation).

c. Next Steps

- Establish a problem statement or problem statements to work from.
- Discuss the need for and options for effectiveness monitoring of treatment of botanical resources in timber harvest documents.

APPENDICES

1. Annual Call for Regulatory Review Comment by CDFW
2. CAL FIRE Botanical Resources Memo, 2009
3. Freemontia Article – “CNPS Rare Plant Program: Past and Present”
4. CDFW Botanical Resource Guidelines for Timber Harvest, 2005
5. CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities, 2018
6. CDFW-CNPS Memorandum of Understanding, 2000
7. Opinion of the California Attorney General No. 95-902 (Sept. 11, 1996). (79 Ops.Cal.Atty.Gen. 169.)
8. CDFW/CNPS, Rare Plant Data in California. (<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=175695&inline>)
9. CDFW Additional Examples of Rank Change Timelines



November 22, 2019

Mr. Matt Dias, Executive Officer
California Board of Forestry and Fire Protection
1416 Ninth Street
PO Box 944246
Sacramento, CA 94244-2460

Board of Forestry and Fire Protection 2019 Regulations and Priority Review

Dear Mr. Dias:

California Department of Fish and Wildlife (CDFW) staff has considered potential changes to the California Forest Practice Rules (Cal. Code Regs., tit. 14 § 895.1 et seq.) in response to the Board of Forestry and Fire Protection (Board) announcement, *Board of Forestry and Fire Protection 2019 Regulations and Priority Review*, dated September 30, 2019. As the Board discusses its priorities and potential regulatory changes, CDFW recommends (1) retaining northern spotted owl Forest Practice Rules review as a Priority 1 topic, (2) revisiting and formally prioritizing the inclusion of botany-specific language in the Forest Practice Rules, and (3) reviewing and revising Forest Practice Rules pertaining to Board Sensitive Species and associated buffer zones and critical periods.

(1) Northern Spotted Owl

CDFW requests that the Board's Forest Practice Committee retain "Review of Forest Practice Northern Spotted Owl Rules" as a Priority 1 topic for 2020. The Board initially prioritized this item after CDFW's first request in 2017. Since then, the Board has facilitated numerous discussions and heard testimony from stakeholders, as detailed in the Board's 2018 Annual Report. However, the Board's Forest Practice Committee has not identified a problem statement due, in part, to numerous parallel activities surrounding northern spotted owl management. CDFW believes that recent developments may inform the Board's approach to developing a problem statement and ultimately reviewing the northern spotted owl rules:

- CDFW facilitates an executive level group including the U.S. Fish and Wildlife Service (USFWS), California Department of Forestry and Fire Protection (CAL FIRE), and Board staff to enhance interagency coordination of northern spotted owl conservation and management topics.
- Landowner concerns have been heard, and are being examined and addressed at various levels: CDFW staff are available for consultations and

pre-consultations; the USFWS is revising its “no take” guidance documents (Attachments A and B) to specify flexibility under certain scenarios; CAL FIRE is leading an effort to develop a programmatic Spotted Owl Resource Plan for portions of northeastern California; and the USFWS has established a working group to produce a Programmatic Safe Harbor Agreement for northern spotted owl.

- CDFW released the Spotted Owl Observations Database Management Framework¹ to address recurring questions related to the Spotted Owl Observations Database processes. This public document increases transparency and provides clarity about CDFW’s spotted owl data, especially for abandonment and invalidation of northern spotted owl activity centers. Additionally, CDFW presented an overview of this framework to the Board in April 2019 and continues to make outreach efforts to stakeholders emphasizing the importance of providing high quality spotted owl data to the database manager and to CDFW review team staff during timber harvest plan review.
- The barred owl threat to northern spotted owls continues to be a top concern and priority. By facilitating the Barred Owl Science Team (BOST) CDFW and our partners support northern spotted owl conservation and recovery by providing scientific review and recommendations regarding the threat of barred owl to resource management agencies.

CDFW looks forward to working with the Board to construct a formal problem statement and begin to review and update the Forest Practice Rules for northern spotted owl.

(2) Botany Regulations

CDFW requests that the Board prioritize strengthening the Forest Practice Rules to include specific rules for botanical resources. CDFW initially made this request to the Board in November 2018 that was further supported by a related presentation at the May 2019 Board meeting in Chico.

The Forest Practice Rules contain no botany-specific regulations. Instead, the timber harvesting process relies on guidance documents written by CDFW and CAL FIRE to fill in the regulatory gaps. The omission of scoping, mitigation, and management practices for botanical resources creates regulatory uncertainty and results in avoidable impacts to these resources. Augmenting the Forest Practice Rules will provide clear direction to applicants prior to plan submittal, reduce plan review time, and lead to more flexible management strategies for these resources.

¹ Spotted Owl Observations Database Management Framework is posted online:
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=166159&inline>

CDFW is ready to collaborate with the Board and stakeholders to develop rules for the disclosure and protection of California's botanical resources.

(3) Buffer Zones for Sensitive Species

CDFW requests that the Board revisit the rules that protect the nests of sensitive species found in Forest Practice Rules Section 919.3 [939.3, 959.3]. This section contains rules governing nest buffers and critical periods for all Board of Forestry Sensitive Species found in Forest Practice Rules Section 895.1, except for California condor, great gray owl, northern spotted owl, and marbled murrelet. While northern spotted owl and marbled murrelet are addressed in their own Forest Practice Rule sections, great gray owl and California condor are only mentioned in Forest Practice Rules Section 895.1. Identifying nest buffers and critical periods for these Board of Forestry Sensitive Species in Forest Practice Rules Section 919.3 will not only improve consistency of the Forest Practice Rules, but will improve the timber harvesting process and allow for greater conservation of imperiled forest species.

Additionally, CDFW believes that the list of Board of Forestry Sensitive Species found in Forest Practice Rules Section 895.1 would benefit from several additions, including from guilds other than birds. Denning mammalian species, such as marten and fisher, would be a logical choice for inclusion, as buffers to mammalian den sites are largely analogous to buffers to avian nest sites. Many mammals have long periods of adherence to natal den sites and den sites may be reused in future years—similar to nesting bird behavior.

CDFW is interested in augmenting the list of Board of Forestry Sensitive Species and working with the Board and stakeholders to develop clear language that will benefit California's sensitive species and timberland owners.

Mr. Matt Dias, Executive Officer
California Board of Forestry and Fire Protection
November 22, 2019
Page 4

Conclusion

The topics outlined above will increase the efficiency, effectiveness, and transparency of the timber harvesting review process. CDFW seeks to work collaboratively with the Board, CAL FIRE, and stakeholders to promote regulatory changes and solutions that provide clarity to the Forest Practice Rules, increase resource protection, and improve regulatory certainty for project proponents. Thank you for considering CDFW's requests. If you have any questions about the topics included in this letter, please contact Isabel Baer at (916) 651-3110 or isabel.baer@wildlife.ca.gov. CDFW looks forward to working with the Board and its staff.

Sincerely,



Richard Macedo, Branch Chief
Habitat Conservation Planning Branch

Attachment

cc: J. Keith Gilliss, Ph.D, Chair
California Board of Forestry and Fire Protection
1416 Ninth Street
PO Box 944246
Sacramento, CA 94244-2460

ec: California Board of Forestry and Fire Protection
publiccomments@bof.ca.gov

California Department of Fish and Wildlife

Chad Dibble, Deputy Director
Ecosystem Conservation Division
chad.dibble@wildlife.ca.gov

Isabel Baer, Environmental Program Manager
Habitat Conservation Planning Branch
isabel.baer@wildlife.ca.gov



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Habitat Conservation Planning Branch
P.O. Box 944209
Sacramento, CA 94244-2090
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



November 15, 2018

Mr. Matt Dias, Executive Officer
California Board of Forestry and Fire Protection
PO Box 944246
Sacramento, CA 94244-2460

Dear ^{Matt} Mr. Dias:

2018 PRIORITIZATION OF FOREST PRACTICE RULE UPDATES FOR BOTANICAL RESOURCES

The California Department of Fish and Wildlife (CDFW) requests that the California Board of Forestry and Fire Protection (Board) consider reviewing the California Forest Practice Rules (Cal. Code Regs., tit. 14, § 895.1 et seq.) to augment the rules for evaluating impacts to botanical resources related to timber harvesting. In recognition of the botanical questions that routinely arise during the timber harvesting review process, CDFW convened an internal working group in early 2017 to review the Forest Practice Rules related to botanical resources and the management of botanical resources on private timberlands. The outcome of this working group is CDFW's recommendation to augment the Forest Practice Rules for botanical resources to make the timber harvesting review process more effective and efficient.

Clear direction in the Forest Practice Rules will increase the likelihood that potentially significant impacts to botanical resources will be addressed by applicants prior to timber harvesting plan (plan) submittal, and reduce the time and effort necessary to complete plan review. A significant proportion of CDFW's review effort is dedicated to identifying potential impacts to botanical resource issues, and comments often recommend routine scoping, surveying, or protection. Appendix 3 illustrates some of the potentially significant, adverse impacts that may occur during timber harvesting operations. Many of these impacts could be reduced to a level below significant through routine best management practices implemented during plan preparation and implementation. Augmenting the Forest Practice Rules specific to botanical resources would minimize impacts and increase efficiency for agency and stakeholder plan participants.

More thorough plan disclosure of botanical resources via the Forest Practice Rules has the added benefit of leading to more flexible, effective management strategies for these resources. Thorough documentation of botanical resources, including species' locations and monitoring of known populations, will contribute to a better understanding of how botanical resources respond to timber harvesting. Such information would allow CDFW and stakeholders to focus review and management efforts on a smaller subset of species needing specific protection, resulting in more defensible and effective

management practices over time.

Background and Need

California has more plant species than any other state in the nation (approximately 6,500 native species), and more than one-third of these are found nowhere else in the world (CNPS 2018). However, 284 species, subspecies, and varieties of native plants are designated as rare, candidate, threatened, or endangered by state or federal law (CDFW 2018a), and over 2,000 more plant taxa are considered to be of conservation concern (CDFW 2018b). According to California Natural Diversity Database (CNDDDB) spatial records, approximately 12,904 special-status plant occurrences have been documented in forested ecosystems (see Appendix 1). There is also a high diversity of plant communities in California, in which 53 percent are considered potentially sensitive (1,347 out of 2,555 plant associations are designated a State Rank of 1-3) (CDFW 2018c).

California law related to timber harvesting establishes the Legislature's intent in the Forest Practice Act that timber harvesting be conducted via "an effective and comprehensive system of regulation" while protecting natural resources (Pub. Resources Code, §§ 4512 & 4513). Likewise, the Forest Practice Rules state "the goal of forest management on a specific ownership shall be the production or maintenance of forests which are healthy and naturally diverse, with a mixture of trees and under-story plants..." (Cal. Code Regs., tit. 14, § 897, subd. (b)(1)). In 2012, Assembly Bill (AB) 1492 passed with direction from the California Legislature to identify areas to improve efficiencies and protect natural resources during the timber harvesting review process (Pub. Resources Code, § 4629.2).

Agencies and land managers have tried to address gaps in the current Forest Practice Rules related to botanical resources through development of guidance documents. In 2005 CDFW developed timber-specific botanical survey guidelines (CDFW 2005) to address many of the common botanical issues that arise during reviews and inspections. A 2009 memorandum issued by the California Department of Forestry and Fire Protection (CAL FIRE 2009), describes practices to address "special-status plants" (rare, threatened or endangered listed species, or species that meet the criteria of California Environmental Quality Act (CEQA) Guidelines §15380(d)) during the scoping process for timber harvesting plans. Landowners address botanical resources through various mechanisms, such as project-specific surveys and protection measures, and may also implement property-wide management plans or agreements.

Botanical scoping and survey processes, and the application of protection measures to avoid significant adverse impacts to botanical resources have been employed inconsistently in timber harvesting plans. In 2016, 44 percent and in 2017, 37 percent of first review comments from CDFW's Region 1 Interior Timberland Conservation Program, were specific to eliciting information about botanical resources missing from

applicants' plans. Commonly addressed topics are shown in Appendix 2.

It is unclear whether botanical resources are being adequately addressed during plan review process and if plan-specific protection measures are effective. Because the Forest Practice Rules do not contain disclosure and protection standards specific to botanical resources, protection measures have been applied inconsistently. Further, landscape-level data for plant populations and plants' responses to timber harvesting is either not collected or is inefficiently used to guide management recommendations. As submitted to CAL FIRE, plan-specific botanical protection measures often employ a one-size-fits-all approach, which may not reflect the diversity of California's native plants and plant communities and their varied responses to timber harvesting.

Healthy plant communities are heterogeneous and resilient environments, adapted to dynamic ecological conditions. In recognition of changing landscape conditions associated with timber harvesting, as well as with other factors such as climate change and severe fires, botanical best management practices need to evolve. While there will always be a need for botanical surveys (i.e. when new species are described, to determine if plants have colonized unoccupied habitat, or when projects are proposed in areas that have never been surveyed) many timberland owners have already expended considerable effort to locate botanical resources on their properties. Having years of botanical surveys on many areas of private timberlands available can allow for a shift in resources towards the active management of botanical resources. Active management practices, compared to common hands-off approaches will benefit the plants while also allowing flexibility in conducting timber operations. CDFW suggests the Board develop a framework for botanical surveys, and shift the focus of botanical resource protection from comprehensive inventorying and avoidance of species, to targeted studies and active management.

Conclusion

California has many unique and rare botanical resources that are in need of protection and management. However, the current Forest Practice Rules' omission of scoping, mitigation, and management practices for botanical resources creates uncertainty and results in avoidable impacts to these resources. Augmenting the Forest Practice Rules to recommend routine scoping, surveying, and protection of botanical resources will provide clear direction to applicants prior to plan submittal, reduce the time and effort necessary for CDFW and other review team agency staff to complete plan review, and lead to more flexible, effective management strategies for these resources.

CDFW asks that the Board consider this request to prioritize the evaluation of existing Forest Practice Rules pertaining to botanical resources during the 2019 rule-making session. CDFW has been working to evaluate botanical regulatory changes for several months and would welcome the opportunity to discuss our findings with the Board. CDFW is committed to working with the Board and stakeholders to develop efficient and

Mr. Matt Dias, Executive Officer
California Board of Forestry and Fire Protection
November 15, 2018
Page 4

effective botanical rules.

Please see the CDFW Native Plant Program website at:
<http://wildlife.ca.gov/Conservation/Plants> for more information on rare plant biology,
laws, and best management practices. Additional information specific to timber
harvesting review is provided at: <http://wildlife.ca.gov/conservation/timber>.

If you have questions about this letter or would like further information, please contact
Ms. Isabel Baer, Timberland Conservation and Native Plant Program Manager, at
(916) 651-3110 or isabel.baer@wildlife.ca.gov; or me, at (916) 653-3861 or
richard.macedo@wildlife.ca.gov.

Sincerely,



Richard Macedo, Branch Chief
Habitat Conservation Planning Branch

cc: J. Keith Gillless, Ph.D., Chair
California Board of Forestry and Fire Protection
PO Box 944246
Sacramento, CA 94244-2460

Dennis Hall, Assistant Deputy Director
California Department of Forestry and Fire Protection
PO Box 944246
Sacramento, CA 94244-2460

ec: California Board of Forestry and Fire Protection
publiccomments@bof.ca.gov

California Department of Fish and Wildlife

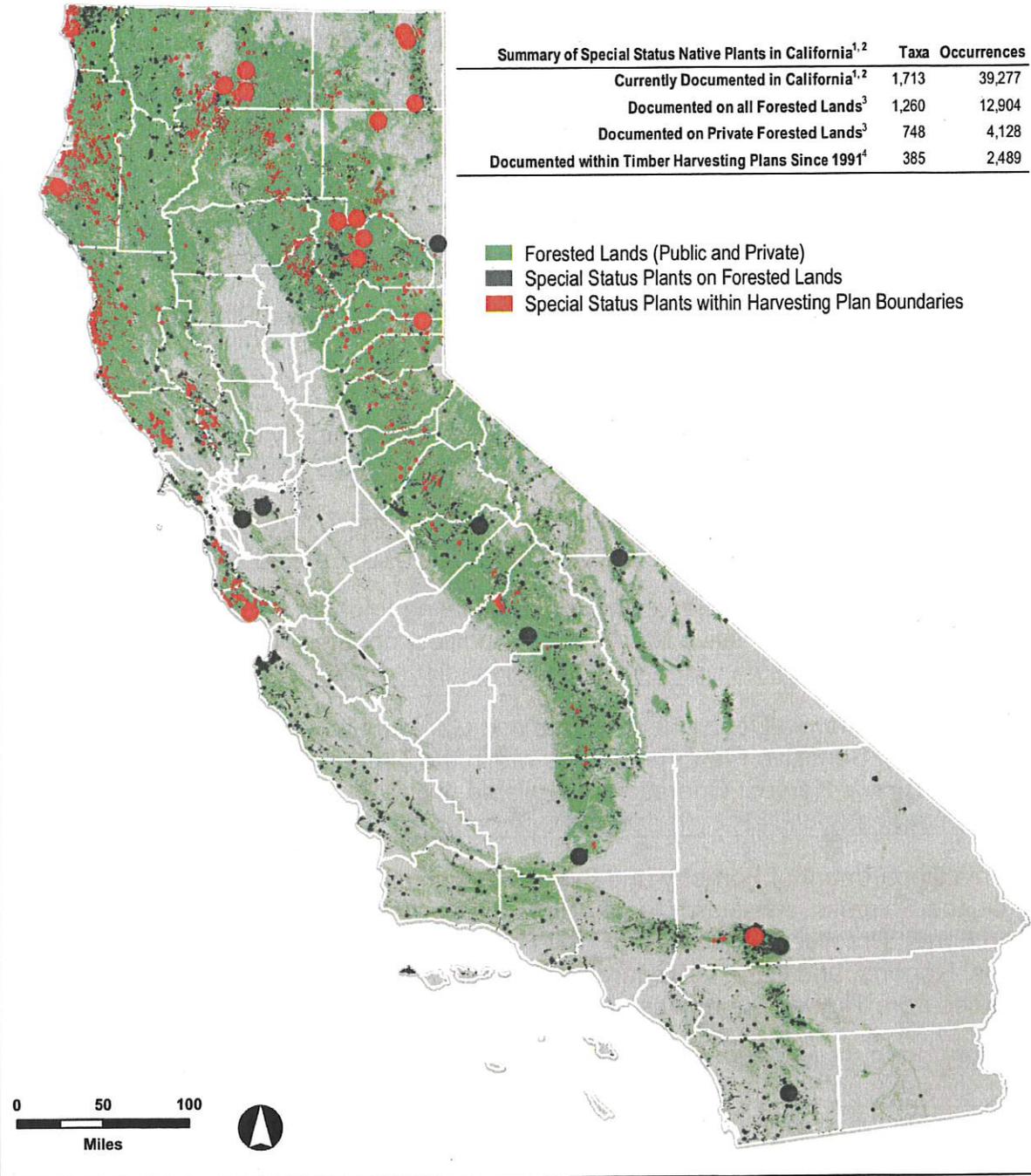
Chad Dibble, Deputy Director
Ecosystem Conservation Division
chad.dibble@wildlife.ca.gov

Isabel Baer
Environmental Program Manager
Habitat Conservation Planning Branch
isabel.baer@wildlife.ca.gov

References:

- Bittman, R., 2001. Fremontia, Volume 29: 3-4, pages 57-62. Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116400&inline>
- Bureau of Land Management, 2018. BLM CA Land Status - Surface Management Areas. Available online at: <https://navigator.blm.gov/data?keyword=land%20status%20California>
- California Department of Fish and Wildlife (CDFW), 2018a. California Natural Diversity Database (CNDDDB). Plants and Animals: Endangered, Threatened and Rare Plants List, Available online at: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>
- CDFW, 2018b. Information on Rare, Threatened and Endangered Plants and Natural Communities, Native Plant Program. Available online at: <http://wildlife.ca.gov/Conservation/Plants>
- CDFW, 2018c. Natural Communities List Arranged Alphabetically by Life Form. Available online at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities>
- CDFW, 2018d. CNDDDB. Spatial Data Download. Accessed 7/7/2018. Available online, with subscription: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>
- CDFW, 2018e. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities, updated March 20, 2018. Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>
- CDFW, 2005. California Department of Fish and Game [now "Wildlife"] Guidelines for Conservation of Sensitive Plant Resources within the Timber Harvest Review Process and During Timber Harvest Operations. Available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116396&inline>
- California Department of Forestry and Fire Protection (CAL FIRE), 2009. Memorandum from Duane Shintaku, Assistant Deputy Director of Forest Practice, to Sacramento and Region Forest Practice Managers and Unit Foresters regarding "Environmental Review of Plans, Reports, and Permits Regarding Potential Adverse Impacts to Botanical Resources from Timber Operations", dated August 9, 2009.
- CAL FIRE, 2018. Statewide THPS and NTMPS. Available online at: <https://caltreesv360.resources.ca.gov/> California Native Plant Society (CNPS), 2018. CNPS website: <https://www.cnps.org/>
- U.S. Geological Survey (USGS), 2016. Gap Analysis Program. GAP/LANDFIRE National Terrestrial Ecosystems 2011: U.S. Geological Survey. Available online: <https://doi.org/10.5066/F7ZS2TM0>.

Appendix 1. Special Status Native Plants Documented on Forested Lands in California 1, 2



- 1) Data derived from the California Natural Diversity Database (CNDDDB), accessed 6/29/2018 (CDFW, 2018d). The CNDDDB is a presence-only database, no inference can be made regarding lands that have never been surveyed. For more information regarding the CNDDDB see Bittman's article in Fremontia (2001).
- 2) Special Status Plants in this map include plants listed or proposed for listing under the Federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), the Native Plant Protection Act (NPPA) and/or California Rare Plant Rank (CRPR) Rank 1 and 2. See CDFW's 2018 protocols for more in-depth description of "Special Status Plants" (CDFW, 2018d).
- 3) Data are approximate, private forested lands derived from subtracting public lands (BLM, 2018) from forested lands (USGS, 2016).

Appendix 2. Topics Commonly Addressed by CDFW During Plan Review for Botanical Resources	
Botanical report general	<ul style="list-style-type: none"> • Missing prior consultation information or incorrect information provided • Report mistakenly truncated
Scoping	<ul style="list-style-type: none"> • Entirely missing from plan • Coverage inadequate and missing plants (a minimum 9-quad search is recommended; however, plants other than those captured in the 9-quad search may have potential to occur in the plan area) • Suitable habitat disclosure inadequate/rationale inaccurate • Sensitive natural communities not addressed • Includes incorrect species' names and/or rankings • Missing, or unclear • Not conducted to most current CDFW protocol level, or of equivalent quality • Spatial coverage omissions, e.g., proposed roads, harvest units, and or high potential habitat omitted, meadow restoration • Density too sparse throughout habitats • Timing inadequate • Sensitive natural communities likely present and need further assessment and disclosure • Resulting survey plant list includes incorrect species' names and/or rankings
Sensitive species	<ul style="list-style-type: none"> • CEQA Guidelines §15380 species inadequately addressed vs. Federal and State listed species • Disclosure of California Rare Plant Rank (CRPR) 3s and 4s lacking
Positive findings	<ul style="list-style-type: none"> • Disclosure details inadequate/missing - CNDDDB form (or equivalent population data) submission required to CDFW per CEQA (Pub. Resources Code § 21003 subd. (e)). • Mitigation measures inadequate/unclear, CDFW suggests consultation to help address this • Adequate defaults needed for future surveys or if additional rare plants found during future operations, until consultation with CDFW occurs • Sensitive natural communities mitigation measures inadequate, CDFW suggests consultation to help address this • Maps of positive findings inadequate or unclear • Maps with positive findings missing or not included in Section II

Noxious weeds	<ul style="list-style-type: none"> • Present and need to be addressed to assess potential significant adverse impacts
Plan other	<ul style="list-style-type: none"> • General disclosure inadequate, what operations will occur on non-timbered habitat, CDFW cannot assess risk to plants • General format issues, discrepancies between botany in different sections (I - V) of the plan
Cumulative impacts	<ul style="list-style-type: none"> • Herbicide cumulative impacts and/or other concerns • Revise plan to include impacts to botanical resources in Section IV
NTMP	<ul style="list-style-type: none"> • Section II need provision or clarification for subsequent NTMP scoping/survey updates in Section II
Reports not submitted with plan	<ul style="list-style-type: none"> • Missing specification that report will be amended into the plan appropriately • - Missing specification that botanical report will be submitted to CDFW, a sufficient number of days prior to operations to allow agency review of the botanical report or as soon as complete • Missing language specifying CNDDDB forms (or equivalent population data) will be submitted to CDFW per CEQA [Pub. Resources Code §21003 subd. (e)]. • NTMP missing provision for subsequent NTMP scoping/survey updates in Section II • Clarification needed that botanical reports are required for negative surveys

Appendix 3. Examples of Adverse Impacts of Timber Operations on Special-Status Plants	
<i>Timber Operation</i>	<i>Impact</i>
Road/ landing/ crossing construction	Crushing with equipment → direct mortality or injury Permanent or temporary loss of habitat
Timber felling	Crushing with equipment or felled trees, or trampling → direct mortality or injury
Tractor yarding	Crushing with equipment → direct mortality or injury Soil disturbance → creates conditions favorable to weeds Soil compaction → physiological stress ^a ; creates conditions favorable to weeds
Tree removal ^b	Reduced shade → physiological stress Vegetation community changes → loss of host species for special-status parasitic plants Vegetation structural changes → increased mammalian herbivory; modification of fire frequency and intensity Decreased relative humidity → physiological stress
Use of logging roads	Dust → reduced photosynthesis, reduced pollination
Water drafting	Reduced water availability → physiological stress
Herbicide application	Direct mortality or injury
Pile burning	Direct mortality or injury
Soil ripping	Direct mortality or injury
Replanting	Eventual excess shade if tree density increased → physiological stress
Construction spoils disposal	Plants buried → direct mortality or injury Introduction of weed seeds
Rock quarry	Permanent or temporary loss of habitat Dust → reduced photosynthesis, reduced pollination
Notes:	
a. Physiological stress can lead to plant mortality.	
b. Some environmental changes, such as tree canopy removal, may be beneficial to some species in some circumstances.	

Memorandum

To: Sacramento and Region Forest Practice Managers and Unit Foresters **Date:** August 6, 2009

Telephone: (530) 224-2461

Website: www.fire.ca.gov

From: Duane Shintaku
Assistant Deputy Director, Forest Practice
Department of Forestry and Fire Protection



Subject: Environmental Review of Plans, Reports, and Permits Regarding Potential Adverse Impacts to Botanical Resources from Timber Operations

An important part of the California Department of Forestry and Fire Protection's (CAL FIRE) Lead Agency role in the environmental review and approval of timber harvesting operations¹ is the consideration of potential significant adverse impacts to botanical resources. The Department of Fish and Game (DFG) provides comments to CAL FIRE in its role as a Review Team Member or as a Responsible Agency regarding "special plants"², including formally listed rare, threatened or endangered species³ and non-listed species which meet the criteria of California Environmental Quality Act (CEQA) guidelines 14 CCR § 15380(d)⁴. The guidance below and attached flowchart is directed toward review team staff and forest practice inspectors in their consideration of potential impacts to botanical resources arising from timber operations.

REVIEW TEAM CONSIDERATIONS FOR BOTANICAL RESOURCES

- Registered Professional Foresters (RPFs) are encouraged to follow the scoping disclosure and mitigation guidance described in the 1999 memo entitled: *CDF Guidelines for Species Surveys, Avoidance of Significant Impacts and Identified Mitigations*. RPFs need to conduct adequate scoping prior to plan submittal and provide sufficient disclosure of the presence of individuals or habitat of state or federally listed plants or California Native Plant Society listed species in categories 1a, 1b, or 2 that might be significantly impacted by the proposed operations.
- CAL FIRE will evaluate the sufficiency of information and the proposed protection measures specified in the plan. As necessary, CAL FIRE will require the RPF to provide available site specific information related to the species abundance, distribution, reproductive cycle, quality and quantity of habitat, and present/historic range, including any site specific observations and data collected by the landowner that may not be available to the review team.

- If CAL FIRE records, review team agency reports or public letters raise a fair argument supported by substantial evidence⁵ that a significant adverse impact or cumulative impact may occur from proposed timber operations, CAL FIRE will evaluate the issues raised in the fair argument and will ensure that those issues have been addressed, as appropriate based upon the listing status of the plant species in question.
- For those species which are listed as threatened, endangered (under the California Endangered Species Act (CESA) or the Endangered Species Act (ESA)) or rare under the Native Plant Protection Act (NPPA)⁶, CAL FIRE will limit its consideration of the species' population status to within California in its evaluation of significant adverse impacts and/or cumulative impacts. The frequency and distribution of a listed plant species beyond the California border will not be a factor when determining the significance of impacts or in the development of take avoidance strategies as consistent with ESA and CESA. Evaluation and application of ESA and CESA take prohibitions will only be applied to lands within the State⁷. Removal of plants listed as rare under NPPA may occur in accordance with Fish and Game Code §1913 where a significant effect will not occur.
- For those plant species which are not listed under ESA, CESA or NPPA their distribution throughout all or a significant portion of its range may be considered when determining whether or not potentially significant impacts will arise under CEQA Guidelines §15380 (d) (i.e. a plant is "considered" rare, threatened or endangered). Mitigation for unlisted plants shall be designed to prevent a significant reduction of the known distribution and range and should be directed at preventing extirpation of a plant population from a known location. This is particularly applicable in those instances where a plant is found to exist in very small numbers or in isolated groupings within California, but also known to exist outside of California.
- The requirement for botanical survey(s) should be based upon the lack of sufficient information and knowledge regarding the plant's location or habitat requirements, to allow the review team to make an informed decision on the potential for significant or cumulative impacts. If timber operations are planned in a manner which clearly avoids potential impacts (e.g. via altering the timing and location of operations), then it is likely that surveys will not be needed. The Plan record should include: specific information on plant biology and habitat requirements (soils, aspect, elevation, moisture, micro-climate, shade tolerance, sensitivity to site disturbance), the results of previous plant surveys, pertinent bibliographic citations, and descriptions of all individuals, organizations and plant records used in Plan preparation.

- CAL FIRE shall review all requests by DFG for surveys for the purpose of determining the presence or absence of sensitive botanical resources. CAL FIRE, as lead agency, may conclude that surveys are unnecessary to avoid/mitigate significant adverse impacts. In lieu of surveys, CAL FIRE may require other measures that ensure avoidance, subject to constraints of plant phenology including, but not limited to: (1) on-site training for the Licensed Timber Operator (LTO) and inclusion of photographs and plant habitat description(s) in the approved Plan; (2) "walk-through survey(s)" by the RPF or qualified botanist prior to commencement of operations; (3) project specific mitigation to avoid unnecessary damage if the plant is discovered in the area during timber operations; and (4) effectiveness monitoring.
- In making a decision to approve or disapprove timber operations CAL FIRE should examine the whole record (e.g. Timber Harvest Plan (THP) and supporting literature, agency reports, and public comment) in determining the sufficiency of disclosure and the effectiveness of the proposed protection measures to avoid significant impacts or take to comply with CEQA, NPPA, CESA and ESA.
- Where a THP implements, in part, a project approved by another lead agency (typically conversions to alternate or non-timber growing use), the THP should reference and rely upon the mitigation measures identified for reducing impacts to botanical resources found in the CEQA document adopted or certified by the lead agency (CCR §15096 (f)). If the CEQA document does not contain mitigations for botanical resources, or the mitigations are not sufficient in reducing impacts to a level of less than significant, CAL FIRE should: 1) request the submitter to provide additional information and require mitigation, as above (CCR §15096 (g)(2)); or, 2) where mitigations and/or avoidance measures required in the THP would result in changes to the project approved by the lead agency, request that the lead agency prepare a subsequent or supplemental CEQA document that addresses impacts that are new or not recognized, or mitigations that were found to be infeasible at the time of the lead agency's approval of the project (CCR §§ 15162 and 15163).
- Where the Director has certified a Program Timberland Environmental Impact Report (PTEIR) in conformance with CCR §1092.02, all Program Timber Harvesting Plan(s) (PTHP(s)) shall rely upon the measures found in the PTEIR for protecting botanical resources as referenced in the checklist that accompanies each PTHP (CCR §1092.01(c)). DFG shall review PTHPs in accordance with CCR §1092.18 and ensure its consistency with the PTEIR's provisions to mitigated impacts to botanical resources. Where the PTHP is found by the Director to be within the scope of the analysis in the certified PTEIR, the PTHP shall be approved. Where the PTHP is outside the scope of analysis in

- the PTEIR for protection of botanical resources the submitter may alternatively rely upon the guidance in CCR §1092.01(d).
- In addition to the CDF Guidelines for species surveys, RPFs are also encouraged to be familiar with the following information sources:

California Department of Fish and Game, Natural Diversity Database. July 2009. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 71 pp.

California Department of Fish and Game. 2005. Guidelines for conservation of sensitive native plant resources within the timber harvest review process and during timber harvest operations.

http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/THP_BotanicalGuidelines_July2005.pdf

Attachment: "Evaluation Process for Botanical Resources" (8-6-2009 Flowchart)

Footnotes:

¹ CAL FIRE reviews and approves timber harvesting operations proposed in Timber Harvesting Plans (THPs), Nonindustrial Timber Management Plans (NTMPs), Program THPs (PTHPs) tiering to certified Program Timberland Environmental Impact Reports (PTEIRs) and Timberland Conversion Permit applications.

² "Special Plants" refers to all plant taxa inventoried by DFG's Natural Diversity Database (CNDDDB), regardless of their legal or protection status, including: federally or state listed rare, threatened or endangered species or candidates for listing; those that fall under CEQA § 15380 (d); California Native Plant Society listed species, 1a, 1b, 2 and some 3; populations threatened with extirpation in California but present elsewhere; and, plants associated with habitats that are declining in California at a significant rate (e.g. wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrub land habitats, etc.).

³ Scientific and common names for State-listed plants are listed in Title 14, § 670.2. A federal listing of endangered and threatened animal and plant species is provided in the Code of Federal Regulations (see 50 C.F.R. §§ 17.11–.12).

⁴ CEQA Guidelines § 15380 (d) defines Endangered, Rare or Threatened Species to include "A species not included in any listing identified in subdivision (c) [state or federally listed] shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the criteria in subdivision (b) [criteria for rare and endangered]. The Department must evaluate potential significant impacts to plants meeting § 15380 (d) criteria.

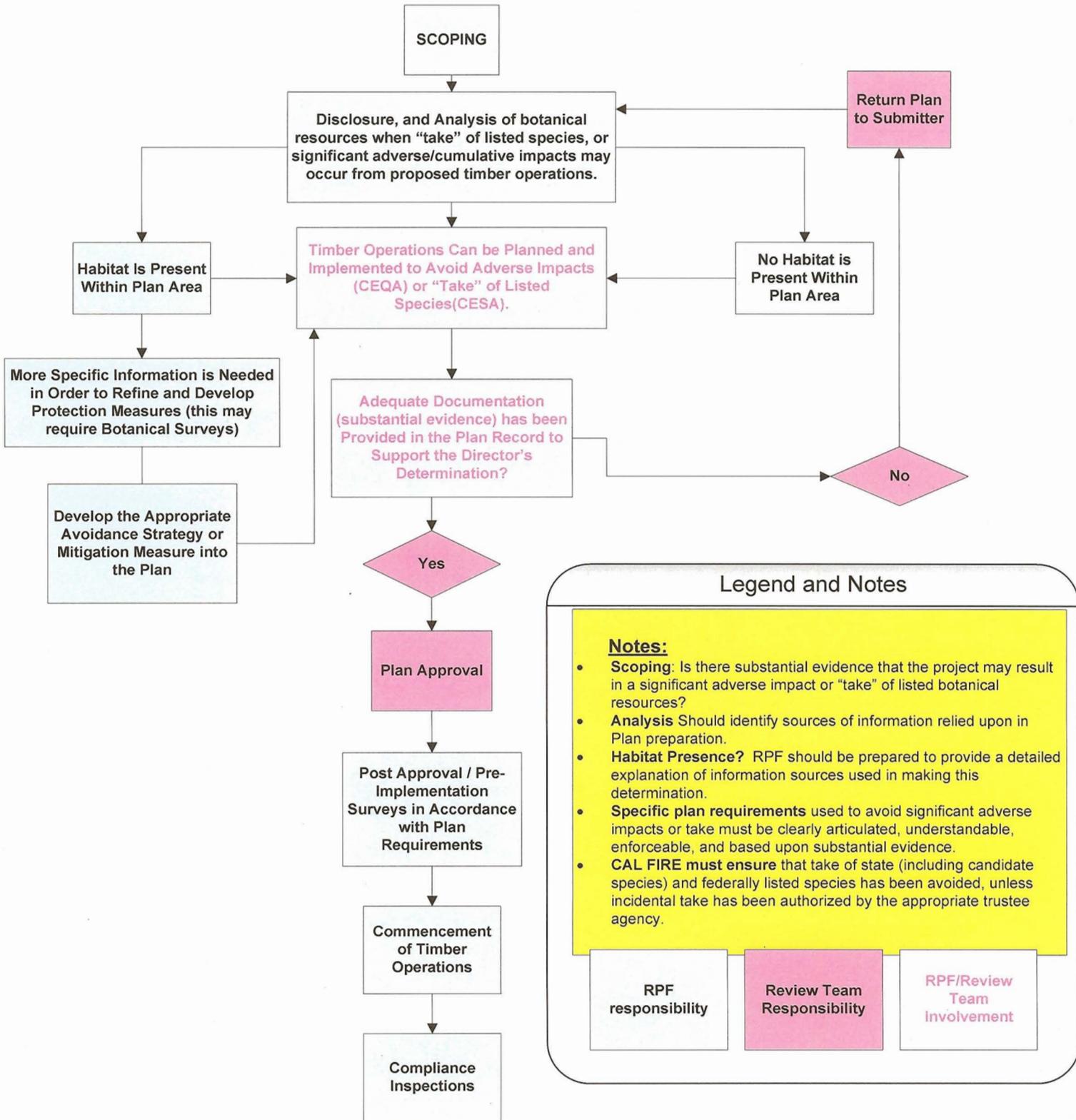
⁵ "Substantial evidence" shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts (CEQA Guidelines § 15184 (b)).

⁶ In 1984 the Legislature uplisted all plants identified as endangered under the Native Plant Protection Act (NPPA) (Fish and Game Code §§1900 – 1913) to endangered under the CESA. Only those plants listed as "rare" under NPPA are still subject to those code sections.

⁷ Under the provisions of the ESA, plants uncommon in one state but common in other states are not eligible for federal listing consideration. Until 1979, a similar policy was followed in California; however, after the passage of the Native Plant Protection Act, plants were considered for protection without regard to their distribution outside the State.

Evaluation Process for Botanical Resources

Thursday, August 06, 2009



CNPS RARE PLANT PROGRAM: PAST AND PRESENT

by Nick Jensen and Aaron E. Sims

The CNPS Rare Plant Program (RPP) got its start in 1968 when legendary botanist and geneticist Dr. G. Ledyard Stebbins began compiling a list of plants having a distribution of less than 100 miles, using the distributions in Dr. Philip Munz's *A California Flora*. This original and important attempt to document the state's rarity was recorded on a set of notecards, and served as the foundation for the first *CNPS Inventory of Rare and Endangered Plants* (the *CNPS Inventory*), published in December 1974.

At this time, the *CNPS Inventory* was the most detailed assemblage of rare plant data for any state in the nation, and it quickly became the most widely used reference on the subject in California (*Fremontia* October 1990). Over the past 40 years the *CNPS Inventory* and RPP have continued as a model of scientific accuracy and integrity, serving as a tool for education, research, conservation, and advocacy.

By 1980 CNPS hired its first full-time Rare Plant Botanist (RPB), Rick York, whose salary initially came from a one-year contract with The Nature Conservancy (TNC) in return for access to CNPS's rare plant information. At that time the Cali-

formia Natural Diversity Database (CNDDDB) was a cooperative effort of TNC and the California Department of Fish and Game (now known as the California Department of Fish and Wildlife, or CDFW). By combining staff time and data in a collaborative effort, the success of the effort exceeded all expectations. In late May of 1981, however, the CNDDDB became a part of the Planning Department of CDFW, no longer involving TNC. With this shift in management and end of the initial contract, a new agreement was

proposed. It maintained the same working relationship between CNPS and CNDDDB, but stipulated that CNPS would have to fund the RPB position. The benefits of this relationship were numerous so the motion passed unanimously, and the cooperative agreement between CNPS and CNDDDB continues to this day.

CNPS has now funded the RPB position for more than 33 years. This long-term commitment to the RPP provides continuity in the maintenance of the state's primary catalog

The recent addition of five newly described rare monkeyflowers to the *CNPS Inventory* exemplifies the Rare Plant Program's reliability in providing the state with the most up-to-date conservation status on the California flora. CLOCKWISE FROM TOP LEFT: Sierra Nevada monkeyflower (*Erythranthe sierrae*), limestone monkeyflower (*Erythranthe calcicola*), Carson Valley monkeyflower (*Erythranthe carsonensis*), Santa Lucia monkeyflower (*Erythranthe hardhamiae*), and Red Rock Canyon monkeyflower (*Erythranthe rhodopetra*). All were described in late 2012 and added to the *Inventory* in 2013. All photographs by Naomi Fraga.



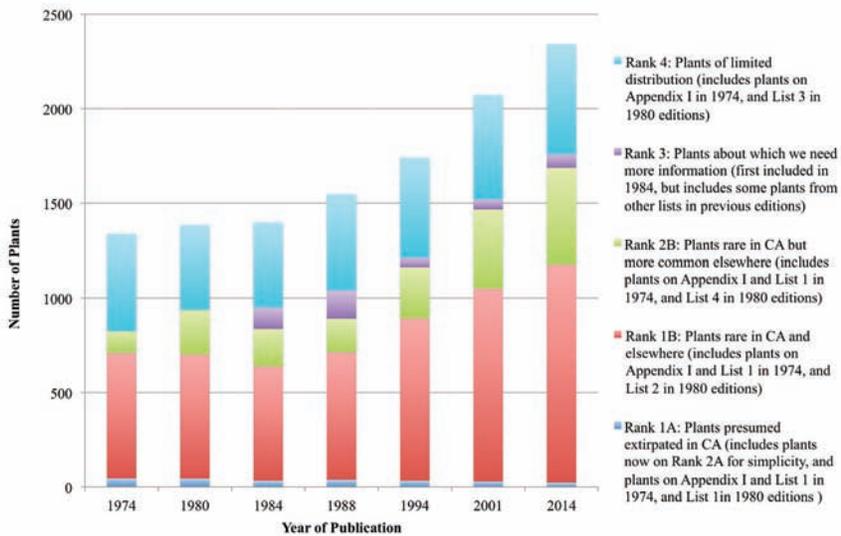
of rare plants. Although the content and composition of the *CNPS Inventory* has changed (see Figure 1, right), the RPB's primary role of maintaining the state's rare plant information has remained constant. These 33 years also serve as a landmark for celebrating CNPS's extensive commitment to collaboration with the state's natural heritage program, the CNDDDB. This close relationship, which includes data sharing and cooperation in the rare plant status review process, is a model of collaboration between a nonprofit organization and a government agency. For more information on the CNDDDB, see the July/October 2001 *Fremontia*, a special double issue on rare plants, and also the tribute on page 28 of this issue by Kristi Lazar on the tremendous long-term commitment of former CNDDDB lead botanist, Roxanne Bittman.

Since 2001 when the last rare plant issue of *Fremontia* was published, the RPP has undergone several major changes. In 2001 the last print edition of the *CNPS Inventory* was published. In the same year, the *Online CNPS Inventory, 7th Edition*, was developed (see sidebar, page 5). Since then, the Society has focused on maintaining the *CNPS Inventory* as a free, online, continuously updated and searchable database.

Another major change occurred in 2005 when the rare plant status review process—the procedure through which plants are added to, removed from, or re-ranked within the *CNPS Inventory*—transitioned from reviews during in-person meetings to an email group and online forum-based process. This reduced the cost associated with conducting status reviews, improved transparency, and fostered the involvement of hundreds of expert reviewers from various occupations throughout California and the world (see Figure 2).

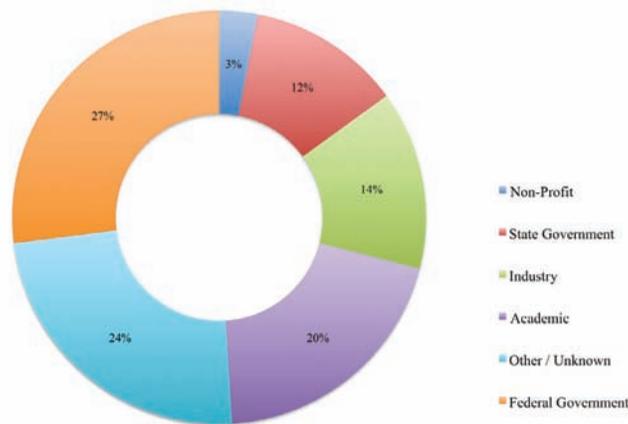
Also, the incorporation of now widely available online data into the status review process, such as

FIGURE 1: COMPOSITION OF THE CNPS RARE PLANT INVENTORY OVER THE PAST 40 YEARS.



Source: CNPS 2014.

FIGURE 2: CONTRIBUTORS TO THE STATUS REVIEW PROCESS.



Affiliations of the more than 400 CNPS rare plant status reviewers. The diversity of qualified reviewers ensures that the final determinations of California Rare Plant Ranks are strong and well vetted.
Source: CNPS 2014.

specimen data in the Consortium of California Herbaria (CCH), has made the ranking of the state's rare plants more efficient and accurate. (See Table 1, page 4, for a list of the California rare plant ranking system categories.) For example, Yolla Bolly Mountains bird's-foot trefoil (*Hosackia yollaboliensis*) was added to California Rare Plant Rank (CRPR) 4, plants of limited distribution, in the first edition of the *CNPS Inventory* based on reviewers' consensus of its rarity during an in-person meeting. Yet a 2013 review of the plant's rarity using CCH specimen data indicated that the trefoil is actually known from

fewer than ten occurrences. For that reason it was subsequently re-ranked to CRPR 1B, plants rare, threatened, or endangered in California and elsewhere.

Other changes to the *CNPS Inventory* in recent years include the addition of CRPRs 2A and 2B, in recognition that some plants on CRPR 1A, presumed extinct, are actually found outside of California and are not endangered. The creation of CRPR 2A as the list containing plants extirpated in California, but common outside of the state, calls attention to some of the threats to plants at the edge of their range.

Additionally, in 2013, in collabo-



TOP: The review of newly available online data revealed that Yolla Bolly Mountain bird's-foot trefoil (*Hosackia yollaboliensis*) was much rarer than originally thought, and it was subsequently reranked. Photograph by Kate Ludwig, Shasta-Trinity National Forest. • ABOVE LEFT: Green-flowered wintergreen (*Pyrola chlorantha*) is one of five species that were recently included in the novel Rank 2A—plants presumed extirpated in California, but common elsewhere. Photograph by Amadej Trnkoczy. • ABOVE RIGHT: Although some plants are found to be more rare after further investigation (as was seen with the Yolla Bolly Mtns. bird's-foot trefoil), Brandegee's clarkia (*Clarkia biloba* subsp. *brandegeae*) was found to be more common than previously thought, through the work of Rare Plant Treasure Hunt volunteers. Subsequently its status was changed from CRPR 1B to CRBR 4. Photograph by Keir Morse.

ration with the California Lichen Society, CNPS made the decision to include rare lichens in the *CNPS Inventory*. This addition and the associated survey protocols (in development) call attention to rare and important members of ecosystems

that are often ignored in biological survey work. Changes such as these are made possible through the guidance of the Rare Plant Program Committee. Created in 2009 and chaired by Jim André, the committee consists of 14 esteemed botanists from

different parts of the state and plays a central role in helping to set RPP priorities. Furthermore, the group is responsible for reviewing changes in rare plant occurrences and helping to achieve consensus when there is disagreement during the status review process.

In recent years collaboration has increased between the RPP, the CNPS Education Program, CNPS Chapters, and members of the public. The Rare Plant Treasure Hunt Project, initiated in 2010, provides

TABLE 1. THE CALIFORNIA RARE PLANT RANKING SYSTEM (CRPR).

- CRPR 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
- CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
- CRPR 2A: Plants Presumed Extirpated in California, But More Common Elsewhere
- CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
- CRPR 3: Plants About Which More Information is Needed—A Review List
- CRPR 4: Plants of Limited Distribution—A Watch List

THREAT RANKS

- 0.1: Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
- 0.2: Moderately threatened in California (20–80% occurrences threatened; moderate degree and immediacy of threat)
- 0.3: Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

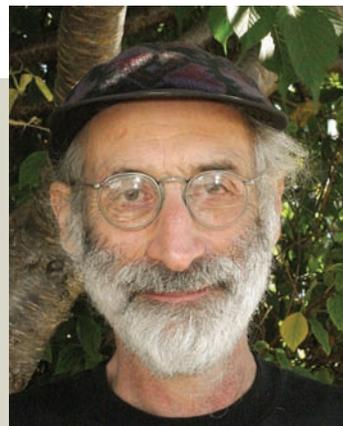
Source: California Native Plant Society, 2014, cnps.org/cnps/rareplants/ranking.php.

CNPS INVENTORY: FROM PRINT TO PIXEL

In 1983 Rick York, Rare Plant Program Botanist, began the task of computerizing more than 15 years of CNPS rare plant data on nearly 1,400 taxa. At the time, one of the claims for computerizing the data was that it would allow users to generate lists of plants by county and by quadrangle (*Fremontia* January 1982). Fewer than ten years later, CNPS released the *Electronic Inventory*, which was acclaimed by then CNPS Vice President for Rare Plants, Dr. Bruce Pavlik, as “one of the most sophisticated natural heritage and inventory software programs in the world.”

The *Electronic Inventory* continued for nearly a decade, alongside the publication of the *CNPS Inventory, 5th Edition*, in 1994, and *6th Edition* in 2001, which would be the last in print format. However, the need for it to be continuously updated and publicly available was becoming increasingly apparent, and North Coast Chapter Delegate, Larry Levine, took it upon himself to develop the *Online CNPS Inventory, 7th Edition*. With no formal training in programming, Larry developed the *7th Edition* using free academic software developed in Slovenia that he discovered through an Internet search.

The *7th Edition* is still in use today, but new programming tools and mapping software led to the need for a revised version in December of 2010, and the current *Online CNPS Inventory, 8th Edition*, was born. The *8th Edition* not only allows users to create lists of rare plants by selecting a location from a map (something past rare plant botanists could only have dreamed of), but allows one to perform a search based on nearly 60 different criteria, as well as by natural communities and key search terms.



Longtime member of CNPS North Coast Chapter and current Chapter Council Vice Chair, Larry Levine, independently developed the first *Online Inventory* in 2001 with no formal training. This was a momentous accomplishment that set the precedent for immediate public access to the most up-to-date information on California's imperiled flora. Photograph by Johanna Rubba.

citizen scientists with the training and background information necessary to search for and document his-

torical occurrences of rare plants throughout California. To date, the project has involved nearly 700

volunteers who have clocked over 12,000 hours while visiting more than 2,100 rare plant occurrences statewide. This is just one example of the tremendous amount of work that volunteers do for the RPP each year.

The value of the thousands of hours spent by CNPS members searching for, documenting, and monitoring rare plants cannot be understated. Yet, as discussed in Bartosh and André's article in this issue of *Fremontia*, protections for California's rare plants are still inadequate, and a lot more needs to be accomplished if we are to protect them. Nevertheless, we remain positive and confident that the RPP and all of its partners will continue to do their part to help preserve California's botanical legacy.

Nick Jensen, 1500 North College Avenue, Claremont, CA 91711, njensen@rsabg.org; Aaron E. Sims, 2707 K Street, Suite 1, Sacramento, CA 95816, asims@cnps.org



Whiteworm lichen (*Thamnolia vermicularis*) is one of fourteen rare lichens now included in the *CNPS Inventory* thanks to recent collaboration between CNPS and the California Lichen Society. It is growing with curled snow lichen (*Flavocetraria cucullata*), a greenish-yellow shrub-like lichen. Photograph by Stephen Sharnoff.

**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 plan¹ (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 species². 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.

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 (CNDDDB), 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, NDDDB 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 CNDDDB field forms with locations mapped on a portion of a USGS 7.5' topographic map. The CNDDDB field form is available on DFG's web page (<http://www.dfg.ca.gov/whdab/html/plants.html>).

Copies should be sent to the CNDDDB 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 measures³ 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.

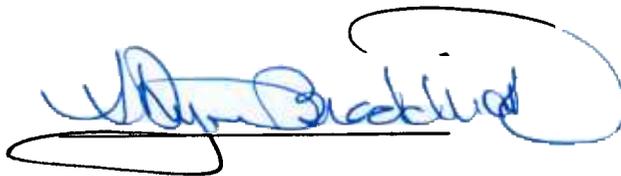
Monitor before and for at least three to five years after timber operations and/or vegetation management.

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.



07/25/05
Date

Approved

REFERENCES

- California Department of Fish and Game. 2002. *RareFind 2* personal computer program. Sacramento, CA.
- California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Vascular Plants of California*. California Native Plant Society Special Publication No. 1 (sixth edition). Sacramento, CA.
- Fiedler, P.L. 1991. *Mitigation Related Transplantation, Translocation, and Reintroduction Projects Involving Endangered, Threatened, and Rare Plant Species in California*. 82 pp. California Department of Fish and Game. Sacramento, CA.
- Cheatham, N.H. and J.R. Haller. 1975. *An Annotated List of California Habitat Types*. Unpublished Report. University of California, Berkeley, CA.
- Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game. Sacramento, CA.
- Mayer, K.E. and W.F. Laudenslayer. 1988. *A Guide to Wildlife Habitats of California. State of California*. Sacramento, CA.
- Munz P.A and D.D. Keck. 1970. *A California Flora*. University of California Press, Berkeley, CA.
- Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, CA.
- Tuttle, A.E. 1999. Memo to all Registered Professional Foresters, Licensed Timber Operators, and Other Interested Parties: *CFIP Program Return, Forest Practice Rule Amendments, CDF Guidelines for Species Surveys and Mitigations, 1600 Agreement Changes, THP and Plan Submitter Signature Requirement, Forest Practice Rules and Forms Online, THP Exemptions and Other Form Changes Coming, Hillslope Monitoring Program, New Forest Practice Rule Books for 1999*. pp. 3-6. California Department of Forestry and Fire Protection, Sacramento, CA.

Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF FISH AND WILDLIFE

DATE: March 20, 2018

TABLE OF CONTENTS

1. INTRODUCTION AND PURPOSE	1
2. BOTANICAL FIELD SURVEYS	4
3. REPORTING AND DATA COLLECTION	7
4. BOTANICAL FIELD SURVEYOR QUALIFICATIONS	11
5. SUGGESTED REFERENCES.....	11

1. INTRODUCTION AND PURPOSE

The conservation of special status native plants and their habitats, as well as sensitive natural communities, is integral to maintaining biological diversity. The purpose of these protocols is to facilitate a consistent and systematic approach to botanical field surveys and assessments of special status plants and sensitive natural communities so that reliable information is produced and the potential for locating special status plants and sensitive natural communities is maximized. These protocols may also help those who prepare and review environmental documents determine when botanical field surveys are needed, how botanical field surveys may be conducted, what information to include in a botanical survey report, and what qualifications to consider for botanical field surveyors. These protocols are meant to help people meet California Environmental Quality Act (CEQA)¹ requirements for adequate disclosure of potential impacts to plants and sensitive natural communities. These protocols may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands² or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants³.

¹ Available at: <http://resources.ca.gov/ceqa>

² Available at: <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/techbio.aspx>

³ U.S. Fish and Wildlife Service Survey Guidelines: <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/>

Department of Fish and Wildlife Trustee and Responsible Agency Mission

The mission of the California Department of Fish and Wildlife (CDFW) 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. CDFW has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish & G. Code, § 1802). CDFW, as trustee agency under CEQA Guidelines section 15386, provides expertise in reviewing and commenting on environmental documents and provides protocols regarding potential negative impacts to those resources held in trust for the people of California.

Certain species are in danger of extinction because their habitats have been severely reduced in acreage, are threatened with destruction or adverse modification, or because of a combination of these and other factors. The California Endangered Species Act (CESA) and Native Plant Protection Act (NPPA) provide additional protections for such species, including take prohibitions (Fish & G. Code, § 2050 *et seq.*; Fish & G. Code, § 1908). As a responsible agency, CDFW has the authority to issue permits for the take of species listed under CESA and NPPA if the take is incidental to an otherwise lawful activity; CDFW has determined that the impacts of the take have been minimized and fully mitigated; and the take would not jeopardize the continued existence of the species (Fish & G. Code, § 2081, subd. (b); Cal. Code Regs., tit. 14 § 786.9, subd. (b)). Botanical field surveys are one of the preliminary steps to detect special status plant species and sensitive natural communities that may be impacted by a project.

Definitions

Botanical field surveys provide information used to determine the potential environmental effects of proposed projects on special status plants and sensitive natural communities as required by law (e.g., CEQA, CESA, and federal Endangered Species Act (ESA)).

Special status plants, for the purposes of this document, include all plants that meet one or more of the following criteria:

- Listed or proposed for listing as threatened or endangered under the ESA or candidates for possible future listing as threatened or endangered under the ESA (50 C.F.R., § 17.12).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (Fish & G. Code, § 2050 *et seq.*)⁴. In CESA, “endangered species” means a native species or subspecies of plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (Fish & G. Code, § 2062). “Threatened species” means a native species or subspecies of plant that,

⁴ Refer to current online published lists available at:
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline>

although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by CESA (Fish & G. Code, § 2067). “Candidate species” means a native species or subspecies of plant that the California Fish and Game Commission has formally noticed as being under review by CDFW for addition to either the list of endangered species or the list of threatened species, or a species for which the California Fish and Game Commission has published a notice of proposed regulation to add the species to either list (Fish & G. Code, § 2068).

- Listed as rare under the California Native Plant Protection Act (Fish & G. Code, § 1900 et seq.). A plant is rare when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish & G. Code, § 1901).
- Meet the definition of rare or endangered under CEQA Guidelines section 15380, subdivisions (b) and (d), including:
 - Plants considered by CDFW to be “rare, threatened or endangered in California.” This includes plants tracked by the California Natural Diversity Database (CNDDDB) and the California Native Plant Society (CNPS) as California Rare Plant Rank (CRPR) 1 or 2⁵;
 - Plants that may warrant consideration on the basis of declining trends, recent taxonomic information, or other factors. This may include plants tracked by the CNDDDB and CNPS as CRPR 3 or 4⁶.
- Considered locally significant plants, that is, plants that are not rare from a statewide perspective but are rare or uncommon in a local context such as within a county or region (CEQA Guidelines, § 15125, subd. (c)), or as designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include plants that are at the outer limits of their known geographic range or plants occurring on an atypical soil type.

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status plants or their

⁵ See CNDDDB’s Special Vascular Plants, Bryophytes, and Lichens List for plant taxa with a CRPR of 1 or 2: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline>

⁶ CRPR 3 plants (plants about which more information is needed) and CRPR 4 plants (plants of limited distribution) may warrant consideration under CEQA Guidelines section 15380. Impacts to CRPR 3 plants may warrant consideration under CEQA if sufficient information is available to assess potential impacts to such plants. Impacts to CRPR 4 plants may warrant consideration under CEQA if cumulative impacts to such plants are significant enough to affect their overall rarity. Data on CRPR 3 and 4 plants should be submitted to CNDDDB. Such data aids in determining and revising the CRPR of plants. See CNDDDB’s Special Vascular Plants, Bryophytes, and Lichens List for plant taxa with a CRPR of 3 or 4: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline>

habitat. CDFW's *List of California Terrestrial Natural Communities*⁷ is based on the best available information, and indicates which natural communities are considered sensitive at the current stage of the California vegetation classification effort. See the Vegetation Classification and Mapping Program (VegCAMP) website for additional information on natural communities and vegetation classification⁸.

2. BOTANICAL FIELD SURVEYS

Evaluate the need for botanical field surveys prior to the commencement of any activities that may modify vegetation, such as clearing, mowing, or ground-breaking activities. It is appropriate to conduct a botanical field survey when:

- Natural (or naturalized) vegetation occurs in an area that may be directly or indirectly affected by a project (project area), and it is unknown whether or not special status plants or sensitive natural communities occur in the project area;
- Special status plants or sensitive natural communities have historically been identified in a project area; or
- Special status plants or sensitive natural communities occur in areas with similar physical and biological properties as a project area.

Survey Objectives

Conduct botanical field surveys in a manner which maximizes the likelihood of locating special status plants and sensitive natural communities that may be present. Botanical field surveys should be floristic in nature, meaning that every plant taxon that occurs in the project area is identified to the taxonomic level necessary to determine rarity and listing status. "Focused surveys" that are limited to habitats known to support special status plants or that are restricted to lists of likely potential special status plants are not considered floristic in nature and are not adequate to identify all plants in a project area to the level necessary to determine if they are special status plants.

For each botanical field survey conducted, include a list of all plants and natural communities detected in the project area. More than one field visit is usually necessary to adequately capture the floristic diversity of a project area. An indication of the prevalence (estimated total numbers, percent cover, density, etc.) of the special status plants and sensitive natural communities in the project area is also useful to assess the significance of a particular plant population or natural community.

Survey Preparation

Before botanical field surveys are conducted, the botanical field surveyors should compile relevant botanical information in the general project area to provide a regional

⁷ Available at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities#natural%20communities%20lists>

⁸ Available at: <https://www.wildlife.ca.gov/Data/VegCAMP>

context. Consult the CNDDDB⁹ and BIOS¹⁰ for known occurrences of special status plants and sensitive natural communities in the project area prior to botanical field surveys. Generally, identify vegetation and habitat types potentially occurring in the project area based on biological and physical properties (e.g. soils) of the project area and surrounding ecoregion¹¹. Then, develop a list of special status plants and sensitive natural communities with the potential to occur within the vegetation and habitat types identified. The list of special status plants with the potential to occur in the project area can be created with the help of the CNDDDB QuickView Tool¹² which allows the user to generate lists of CNDDDB-tracked elements that occur within a particular U.S. Geological Survey 7.5' topographic quad, surrounding quads, and counties within California. Resulting lists should only be used as a tool to facilitate the use of reference sites, with the understanding that special status plants and sensitive natural communities in a project area may not be limited to those on the list. Botanical field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on a list. Include in the botanical survey report the list of potential special status plants and sensitive natural communities that was created, and the list of references used to compile the background botanical information for the project area.

Survey Extent

Botanical field surveys should be comprehensive over the entire project area, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects could occur, such as those from fuel modification, herbicide application, invasive species, and altered hydrology. Surveys restricted to known locations of special status plants may not identify all special status plants and sensitive natural communities present, and therefore do not provide a sufficient level of information to determine potential impacts.

Field Survey Method

Conduct botanical field surveys using systematic field techniques in all habitats of the project area to ensure thorough coverage. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity, which determines the distance at which plants can be identified. Conduct botanical field surveys by traversing the entire project area to ensure thorough coverage, documenting all plant taxa observed. Parallel survey transects may be necessary to ensure thorough survey coverage in some habitats. The level of effort should be sufficient to provide comprehensive reporting. Additional time should be allocated for plant identification in the field.

⁹ Available at: <https://www.wildlife.ca.gov/Data/CNDDDB>

¹⁰ Available at: <https://www.wildlife.ca.gov/Data/BIOS>

¹¹ Ecological Subregions of the United States, available at: <http://www.fs.fed.us/land/pubs/ecoregions/toc.html>

¹² Available at: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. When creating a list of special status plants with the potential to occur in a project area, special care should be taken to search all quads with similar geology, habitats, and vegetation to those found in the project area.

Timing and Number of Visits

Conduct botanical field surveys in the field at the times of year when plants will be both evident and identifiable. Usually this is during flowering or fruiting. Space botanical field survey visits throughout the growing season to accurately determine what plants exist in the project area. This usually involves multiple visits to the project area (e.g. in early, mid, and late-season) to capture the floristic diversity at a level necessary to determine if special status plants are present¹³. The timing and number of visits necessary to determine if special status plants are present is determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which botanical field surveys are conducted.

Reference Sites

When special status plants are known to occur in the type(s) of habitat present in a project area, observe reference sites (nearby accessible occurrences of the plants) to determine whether those special status plants are identifiable at the times of year the botanical field surveys take place and to obtain a visual image of the special status plants, associated habitat, and associated natural communities.

Use of Existing Surveys

For some project areas, floristic inventories or botanical survey reports may already exist. Additional botanical field surveys may be necessary for one or more of the following reasons:

- Botanical field surveys are not current¹⁴;
- Botanical field surveys were conducted in natural systems that commonly experience year to year fluctuations such as periods of drought or flooding (e.g. vernal pool habitats or riverine systems);
- Botanical field surveys did not cover the entire project area;
- Botanical field surveys did not occur at the appropriate times of year;
- Botanical field surveys were not conducted for a sufficient number of years to detect plants that are not evident and identifiable every year (e.g. geophytes, annuals and some short-lived plants);

¹³ U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants available at: <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/>

¹⁴ Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components may require yearly surveys to accurately document baseline conditions for purposes of impact assessment. In forested areas, however, surveys at intervals of five years may adequately represent current conditions. For forested areas, refer to “Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations”, available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116396&inline>

- Botanical field surveys did not identify all plants in the project area to the taxonomic level necessary to determine rarity and listing status;
- Fire history, land use, or the physical or climatic conditions of the project area have changed since the last botanical field survey was conducted;
- Changes in vegetation or plant distribution have occurred since the last botanical field surveys were conducted, such as those related to habitat alteration, fluctuations in abundance, invasive species, seed bank dynamics, or other factors; or
- Recent taxonomic studies, status reviews or other scientific information has resulted in a revised understanding of the special status plants with potential to occur in the project area.

Negative Surveys

Adverse conditions from yearly weather patterns may prevent botanical field surveyor from determining the presence of, or accurately identifying, some special status plants in the project area. Disease, drought, predation, fire, herbivory or other disturbance may also preclude the presence or identification of special status plants in any given year. Discuss all adverse conditions in the botanical survey report¹⁵.

The failure to locate a known special status plant occurrence during one field season does not constitute evidence that the plant occurrence no longer exists at a location, particularly if adverse conditions are present. For example, botanical field surveys over a number of years may be necessary if the special status plant is an annual or short-lived plant having a persistent, long-lived seed bank and populations of the plant are known to not germinate every year. Visiting the project area in more than one year increases the likelihood of detecting special status plants, particularly if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may help ensure that the timing of botanical field surveys was appropriate.

3. REPORTING AND DATA COLLECTION

Adequate information about special status plants and sensitive natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants and sensitive natural communities and will guide the development of avoidance, minimization, and mitigation measures. The information necessary to assess impacts to special status plants and sensitive natural communities is described below. For comprehensive, systematic botanical field surveys where no special status plants or sensitive natural communities were found, reporting

and data collection responsibilities for botanical field surveyor remain as described

¹⁵ U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants available at: <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/>

below, excluding specific occurrence information.

Special Status Plant and Sensitive Natural Community Observations

Record the following information for locations of each special status plant and sensitive natural community detected during a botanical field survey of a project area.

- The specific geographic locations where the special status plants and sensitive natural communities were found. Preferably this will be done by use of global positioning system (GPS) and include the datum¹⁶ in which the spatial data was collected and any uncertainty or error associated with the data. If GPS is not available, a detailed map (1:24,000 or larger) showing locations and boundaries of each special status plant population and sensitive natural community in relation to the project area is acceptable. Mark occurrences and boundaries as accurately as possible;
- The site-specific characteristics of occurrences, such as associated species, habitat and microhabitat, structure of vegetation, topographic features, soil type, texture, and soil parent material. If a special status plant is associated with a wetland, provide a description of the direction of flow and integrity of surface or subsurface hydrology and adjacent off-site hydrological influences as appropriate;
- The number of individuals in each special status plant population as counted (if population is small) or estimated (if population is large);
- If applicable, information about the percentage of each special status plant in each life stage such as seedling, vegetative, flowering and fruiting;
- The density of special status plants, identifying areas of relatively high, medium and low density of each special status plant in the project area; and
- Digital images of special status plants and sensitive natural communities in the project area, with diagnostic features.

Special Status Plant and Sensitive Natural Community Documentation

When a special status plant is located, data must be submitted to the CNDDDB. Data may be submitted in a variety of formats depending on the amount and type of data that is collected¹⁷. The most common way to submit data is the Online CNDDDB Field Survey Form¹⁸, or equivalent written report, accompanied by geographic locality information (GPS coordinates, GIS shapefiles, KML files, topographic map, etc.). Data submitted in digital form must include the datum¹⁹ in which it was collected.

If a sensitive natural community is found in a project area, document it with a Combined

¹⁶ NAD83, NAD27 or WGS84

¹⁷ See <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data> for information on acceptable data submission formats.

¹⁸ Available at: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>

¹⁹ NAD83, NAD27 or WGS84

Vegetation Rapid Assessment and Relevé Field Form²⁰ and submit the form to VegCAMP²¹.

Voucher Collection

Voucher specimens provide verifiable documentation of special status plant presence and identification and a scientific record. This information is vital to conservation efforts and valuable for scientific research. Collection of voucher specimens should be conducted in a manner that is consistent with conservation ethics, and in accordance with applicable state and federal permit requirements (e.g. scientific, educational, or management permits pursuant to Fish & G. Code, § 2081, subd. (a)). Voucher collections of special status plants (or possible special status plants) should only be made when such actions would not jeopardize the continued existence of the population. A plant voucher collecting permit²² is required from CDFW prior to the take or possession of a state-listed plant for voucher collection purposes, and the permittee must comply with all permit conditions.

Voucher specimens should be deposited in herbaria that are members of the Consortium of California Herbaria²³ no later than 120 days after the collections have been made. Digital imagery can be used to supplement plant identification and document habitat. Record all relevant collector names and permit numbers on specimen labels (if applicable).

Botanical Survey Reports

Botanical survey reports provide an important record of botanical field survey results and project area conditions. Botanical survey reports containing the following information should be prepared whenever botanical field surveys take place, and should also be submitted with project environmental documents:

Project and location description

- A description of the proposed project;
- A detailed map of the project area that identifies topographic and landscape features and includes a north arrow and bar scale;
- A vegetation map of the project area using Survey of California Vegetation Classification and Mapping Standards²⁴ at a thematic and spatial scale that allows the display of all sensitive natural communities;
- A soil map of the project area; and

²⁰ Available at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Submit>

²¹ Combined Vegetation Rapid Assessment and Releve Field Forms can be emailed to VegCAMP staff. Contact information available at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Other-Info>

²² Applications available at: <https://www.wildlife.ca.gov/Conservation/Plants/Permits>

²³ A list of Consortium of California Herbaria participants is available at: <http://ucjeps.berkeley.edu/consortium/participants.html>

²⁴ Available at: <https://www.wildlife.ca.gov/data/vegcamp/publications-and-protocols>

- A written description of the biological setting, including all natural communities; geological and hydrological characteristics; and land use or management history.

Detailed description of survey methodology and results

- Names and qualifications of botanical field surveyor(s);
- Dates of botanical field surveys (indicating the botanical field surveyor(s) that surveyed each area on each survey date), and total person-hours spent;
- A discussion of the survey preparation methodology;
- A list of special status plants and sensitive natural communities with potential to occur in the region;
- Description(s) of reference site(s), if visited, and the phenological development of special status plant(s) at those reference sites;
- A description and map of the area surveyed relative to the project area;
- A list of all plant taxa occurring in the project area, with all taxa identified to the taxonomic level necessary to determine whether or not they are a special status plant;
- Detailed data and maps for all special status plants and sensitive natural communities detected. Information specified above under the headings “Special Status Plant and Sensitive Natural Community Observations,” and “Special Status Plant and Sensitive Natural Community Documentation,” should be provided for the locations of each special status plant and sensitive natural community detected. Copies of all California Native Species Field Survey Forms and Combined Vegetation Rapid Assessment and Relevé Field Forms should be sent to the CNDDDB and VegCAMP, respectively, and included in the project environmental document as an Appendix²⁵;
- A discussion of the potential for a false negative botanical field survey;
- A discussion of how climatic conditions may have affected the botanical field survey results;
- A discussion of how the timing of botanical field surveys may affect the comprehensiveness of botanical field surveys;
- Any use of existing botanical field surveys and a discussion of their applicability to the project;
- The deposition locations of voucher specimens, if collected; and
- A list of references used, including persons contacted and herbaria visited.

²⁵ It is not necessary to submit entire environmental documents to the CNDDDB

Assessment of potential project impacts

- A discussion of the significance of special status plant populations in the project area considering nearby populations and total range and distribution;
- A discussion of the significance of sensitive natural communities in the project area considering nearby occurrences and natural community distribution;
- A discussion of project related direct, indirect, and cumulative impacts to special status plants and sensitive natural communities;
- A discussion of the degree and immediacy of all threats to special status plants and sensitive natural communities, including those from invasive species;
- A discussion of the degree of impact, if any, of the project on unoccupied, potential habitat for special status plants; and
- Recommended measures to avoid, minimize, or mitigate impacts to special status plants and sensitive natural communities.

4. BOTANICAL FIELD SURVEYOR QUALIFICATIONS

Botanical field surveyors should possess the following qualifications:

- Knowledge of plant taxonomy and natural community ecology;
- Familiarity with plants of the region, including special status plants;
- Familiarity with natural communities of the region, including sensitive natural communities;
- Experience with the CNDDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards;
- Experience conducting floristic botanical field surveys as described in this document, or experience conducting such botanical field surveys under the direction of an experienced botanical field surveyor;
- Familiarity with federal, state, and local statutes and regulations related to plants and plant collecting; and
- Experience analyzing the impacts of projects on native plant species and sensitive natural communities.

5. SUGGESTED REFERENCES

Bonham, C.D. 1988. Measurements for terrestrial vegetation. John Wiley and Sons, Inc., New York, NY.

California Native Plant Society, Rare Plant Program. Most recent version. Inventory of rare and endangered plants (online edition). California Native Plant Society. Sacramento, CA. Available at: <http://www.rareplants.cnps.org/>.

- California Native Plant Society. Most recent version. A manual of California vegetation. California Native Plant Society. Sacramento, CA. Available at: <http://www.cnps.org/cnps/vegetation/manual.php>.
- California Department of Fish and Wildlife, California Natural Diversity Database. Most recent version. Special vascular plants, bryophytes and lichens list. Updated quarterly. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline>.
- Elzinga, C.L., D.W. Salzer, and J. Willoughby. 1998. Measuring and monitoring plant populations. BLM Technical Reference 1730-1. U.S. Dept. of the Interior, Bureau of Land Management. Denver, Colorado. Available at: <https://www.blm.gov/nstc/library/pdf/MeasAndMon.pdf>.
- Jepson Flora Project (eds.) Most recent version. Jepson eFlora. Available at: <http://ucjeps.berkeley.edu/eflora/>.
- Leppig, G. and J.W. White. 2006. Conservation of peripheral plant populations in California. *Madroño*. 53:264-274.
- Mueller-Dombois, D. and H. Ellenberg. 1974. Aims and methods of vegetation ecology. John Wiley and Sons, Inc. New York, NY.
- U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed plants on the Santa Rosa Plain. Sacramento, CA.
- U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Sacramento, CA.
- Van der Maarel, E. 2005. *Vegetation Ecology*. Blackwell Science Ltd. Malden, MA.

This document is available online at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>

**MEMORANDUM OF UNDERSTANDING
BY AND BETWEEN
THE CALIFORNIA NATIVE PLANT SOCIETY
AND
THE CALIFORNIA DEPARTMENT OF FISH AND GAME**

This Memorandum of Understanding (MOU) is made and entered into on October 17, 2000 by and between the California Department of Fish and Game (Department) and the California Native Plant Society (CNPS).

Whereas, CNPS is an essential source of rare plant information, natural community information, and conservation priorities, and is an important advocate of natural habitat, rare plant, and floristic protection, and

Whereas, the Department is charged with the inventory and protection of all of California's biotic diversity, and its California Natural Diversity Database (CNDDDB) botany staff has built upon a core set of data donated by CNPS in 1980 and

Whereas, both organizations benefit from cooperative ventures that minimize duplication of effort and resources and maximize collaborative conservation opportunities, we agree to the following:

1. CNPS and CNDDDB shall share all data (as mutually agreeable) in either's possession relating to the inventory and protection of California's flora, including:
 - (a) CNPS manual rare plant files and CNDDDB manual files for special plants and natural communities, currently housed at the Department's Wildlife and Habitat Data Analysis Branch (WHDAB).
 - (b) CNPS herbarium labels and species location data cards.
 - (c) CNDDDB *RareFind* and CNPS *Electronic Inventory* database applications and underlying databases.
 - (d) New rare species or natural community data gathered by either party from herbaria, libraries, personal communications, and other sources.
 - (e) Photographic or digital images of rare plants and their habitats, and illustrations of same (provided copyright provisions can be made satisfied).

MOU, California Native Plant Society
October 17, 2000

2. CNPS shall provide the Department with:
 - (a) Current copies of the *Electronic Inventory*, one copy each for use by the CNDDDB botany staff, the species conservation and recovery program, CNDDDB Natural Communities staff, and one copy for each regional plant ecologist or botanist, and the same number of free copies of each new edition of CNPS's *Inventory of Rare and Endangered Plants of California (Inventory)*.
 - (b) Rare plant data provided by CNPS chapters and their members.
 - (c) Botany staff at WHDAB's Sacramento office to cooperate and coordinate with Department staff on inventory and protection of flora, conduct rare plant and natural community research, and edit and develop CNPS and joint CNPS/Department publications. These staff shall be supervised and directed by CNPS.
 - (d) Training and technical assistance as the Department requires, provided in a timely fashion.
 - (e) Data sharing, as mutually agreed upon, from CNPS's *Inventory Database* in support of Department conservation activities.

3. The Department shall provide CNPS with:
 - (a) Office space, comparable to that of Department staff at WHDAB, to house a botanist and program assistant. If CNPS and the Department agree that additional CNPS staff should serve the purpose of this MOU through being housed by the Department, then this provision applies to these new personnel also.
 - (b) Phone and phone lines, fax and fax lines, regular mail, express mail service, printer access, and internet access to support CNPS data gathering efforts.
 - (c) In-house training and technical assistance as CNPS requires, up to one (1) week per year per CNPS employee housed by the Department, provided in a timely fashion. This includes Geographical

Information Systems training and assistance, and assistance with the internet and WHDAB network.

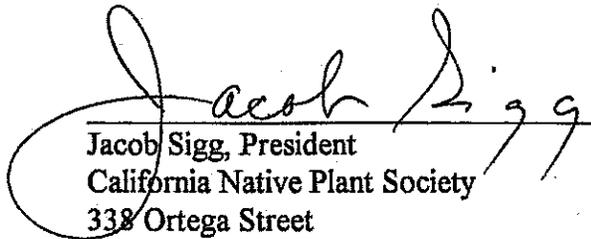
4. CNPS shall be considered a CNDDDB subscriber and shall have access to CNDDDB products via CNPS's botany staff. Products will be ordered through the WHDAB Information Services Unit, and approved by the CNPS Botanist. CNDDDB shall annually provide to CNPS's in-house botany staff and to chapters:
 - (a) A current version of *RareFind* for CNPS botany staff and any CNPS chapter that desires it. Alternatively, chapters may elect to receive paper reports covering the rare plants, animals, and natural communities of a chapter area.
 - (b) Map products, as reasonable, to support statewide and chapter-level conservation efforts. These may include 1:24,000, 1:100,000 or 1:250,000 scale map overlays, and custom GIS maps as requested.
5. CNPS and the Department agree to cooperate to further the cause of native plant and natural communities protection through collaborative field inventories, local and regional protection and management efforts, including species and ecosystem based planning, rare species and habitat protection and restoration.
6. CNPS and the Department agree to investigate additional cooperative efforts to further conservation goals, including the development of joint publications and computer applications.
7. CNPS and the Department agree to give mutual credit for significant assistance and information in the form of letters, memoranda, and acknowledgments in major publications.

MOU, California Native Plant Society
October 17, 2000

This Memorandum of Understanding shall take effect upon the date of signing by both parties and shall continue in effect thereafter, provided that either party may give notice to the other of not less than sixty (60) days of its intent to terminate or renegotiate this agreement. If such notice is given, this agreement shall terminate at the end of the sixty (60) day period, unless it is extended or continued by mutual agreement, or it is superseded by a new agreement mutually satisfactory to both parties.



Robert C. Hight, Director
California Department of Fish and Game
1416 Ninth Street
Sacramento, CA 95814



Jacob Sigg, President
California Native Plant Society
338 Ortega Street
San Francisco, CA 94122

Date: 11-3-00

Date: 5 Nov 2000

TO BE PUBLISHED IN THE OFFICIAL REPORTS

OFFICE OF THE ATTORNEY GENERAL
State of California

DANIEL E. LUNGREN
Attorney General

OPINION	:	
	:	No. 95-902
of	:	
	:	September 11, 1996
DANIEL E. LUNGREN	:	
Attorney General	:	
	:	
ANTHONY S. Da VIGO	:	
Deputy Attorney General	:	
	:	

THE HONORABLE DICK MONTEITH, MEMBER OF THE CALIFORNIA STATE SENATE, has requested an opinion on the following question:

As a condition for issuing a timber harvesting permit, may the Department of Forestry and Fire Protection require a property owner to submit a comprehensive flora and fauna survey of the property?

CONCLUSION

As a condition for issuing a timber harvesting permit, the Department of Forestry and Fire Protection may not require a property owner to submit a comprehensive flora and fauna survey of the property.

ANALYSIS

The Department of Forestry and Fire Protection ("Department") is part of the Resources Agency and is under the control of an executive officer known as the Director of Forestry and Fire Protection ("Director"). (Pub. Resources Code, § 701.)¹ Within the Department is the State Board of Forestry ("Board"), comprised "of nine members appointed by the Governor, subject to confirmation by the Senate." (§ 730.)

The question presented for resolution concerns the responsibilities of the Department, Director, and Board in issuing timber harvesting permits. Specifically, may a property owner be required to submit a comprehensive flora and fauna survey of his or her property in order to receive a permit to harvest the timber? We conclude that such a survey is not authorized under the two controlling statutory schemes or implementing administrative regulations.

1. The Z'berg-Nejedly Forest Practice Act of 1973

It must initially be determined whether a comprehensive flora and fauna survey may be required under the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (§§ 4511-4628; "Act"). The Legislature has expressed its purposes in enacting this legislation as follows:

"It is the intent of the Legislature to create and maintain an effective and comprehensive system of regulation and use of all timberlands so as to assure that:

"(a) Where feasible, the productivity of timberlands is restored, enhanced, and maintained.

"(b) The goal of maximum sustained production of high-quality timber products is achieved while giving consideration to values relating to recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment." (§ 4513.)

Section 4581 provides that "[n]o person shall conduct timber operations unless a timber harvesting plan prepared by a registered professional forester has been submitted for such operations to the department . . ." (Cf. *T.R.E.E.S. v. Dept. of Forestry & Fire Prot.* (1991) 233 Cal.App.3d 1175, 1180.) A timber harvesting plan ("THP") must include, among other things, a description of the land on which the work is proposed to be done, special provisions, if any, to protect any unique area within the area of timber operations, and "[a]ny other information the board provides by regulation to meet its rules and the standards of this chapter." (§ 4582.)

Section 4551 specifically authorizes the Board to adopt forest practice rules and regulations:

"The board shall adopt district forest practice rules and regulations for each district in accordance with the policies set forth in Article 1 (commencing with Section 4511) of this chapter . . . to assure the continuous growing and harvesting of commercial forest

¹All references hereafter to the Public Resources Code are by section number only.

tree species and to protect the soil, air, fish, and wildlife, and water resources, including, but not limited to streams, lakes, and estuaries."

The Board's rules and regulations "shall apply to the conduct of timber operations and shall include . . . measures for . . . the preparation of timber harvesting plans. . . ." (§ 4551.5.) Section 4552 states:

"The rules and regulations adopted by the board shall be based upon a study of the factors that significantly affect the present and future condition of timberlands and shall be used as standards by persons preparing timber harvesting plans. In those instances in which the board intends the director to exercise professional judgment in applying any rule, regulation, or provision of this chapter, the board shall include in its rules standards to guide the actions of the director, and the director shall conform to such standards, consistent with Section 710."

Section 710 provides: "The director shall have no power to amend or repeal any order, regulation, ruling, or directive of the board." Finally, section 4582.75 states: "The rules adopted by the board shall be the only criteria employed by the director when reviewing timber harvesting plans"

The Board has adopted detailed rules and regulations implementing the Act. (Cal. Code Regs., tit. 14, §§ 895-1110.)² Rule 1034 provides for the inclusion within a THP of specified data, including: "Information on the presence and protection of known habitat or individuals of any listed species and information on the presence and protection of non-listed species which may be significantly impacted by the timber operation" (subd. (w)); "A general description of physical conditions at the plan site, vegetation and stand conditions, and watershed and stream conditions" (subd. (jj)); and "Any other information required by the rules or the Act to be included in the plan. The district rules provide for exceptions and alternatives to standard requirements that require inclusion of information in the THP" (subd. (gg)).

We believe that the submission of information concerning "known habitat or individuals of any listed species" and information concerning "non-listed species which may be significantly impacted" required under Rule 1034 does not reasonably include a comprehensive survey of *all* flora and fauna on the property. The former is designedly specific, while the latter is general and universal.

The rules pertaining to each of California's forest districts, i.e., the Coast Forest District (Rules 911-929.7), the Northern Forest District (Rules 931-949.7), and the Southern Forest District (Rules 951-969.7), contain a "cumulative impacts assessment checklist" (Rules 912.9, 932.9, 952.9, respectively) to each of which is appended a Technical Rule Addendum No. 2, listing the factors to be considered in evaluating "cumulative impacts." (See Appen. A.)³

We believe that while the information in cases which require a cumulative impacts assessment may be extensive, in no event is a comprehensive survey of all flora and fauna on the

² All rule references hereafter are to title 14 of the California Code of Regulations.

³ A cumulative impacts assessment determines whether a proposed project, as presented, in combination with past, present, and reasonably foreseeable probable future projects has a reasonable potential to cause or add to significant cumulative impacts in watershed, soil, biological, recreational, or other resources. (See Rule 898.)

property required without regard to any perceived potential impact, such as "a substantial effect on [any known rare, threatened, or endangered species or species of special concern] or on the habitat of [such] species" or "a substantial reduction in required habitat [of any known wildlife or fisheries resource] . . . or substantial interference with the movement of resident or migratory species." (Appen. A, §§ 1, 2.) The assessment of cumulative impacts is guided by standards of practicality and reasonableness, and thus no particular mode of analysis is prescribed. (*East Bay Mun. Util. Dist. v. Dept. of Forestry & Fire Prot.* (1996) 43 Cal.App.4th 1113, 1127; *Laupheimer v. State of California* (1988) 200 Cal.App.3d 440, 465-466.)

Rule 1037 directs the return, prior to filing, of a THP found by the Director to be inaccurate, incomplete, or otherwise not in proper order. Rule 1037.5, subdivision (g)(3) authorizes requests for additional information during the review period:

"Requests, if any, for additional information, from the plan submitter during the review period shall be as prescribed by Section 1034 and other conditions in the rules. Such requests shall be supported by reasons for the request.

"During the review period, the Director shall be responsible for determining whether requests for information not contained in the plan as filed or developed in preharvest inspection by review team members, reviewing agencies and members of the public, are consistent with the Forest Practice Rules, are reasonably necessary and should be requested from plan submitters. The Director's determination of additional information to be provided by plan submitters shall be guided by standards of practicality and reasonableness, recognizing the statutory review period of the FPA, the requirements of 14 CCR 1034 and the availability of information from alternative sources."

In our view, neither Rule 1037 nor Rule 1037.5, providing for the determination of additional information to "be guided by standards of practicality and reasonableness" and "supported by reasons for the request," authorizes the demand of a comprehensive survey of flora and fauna on the property to be harvested.

No other provisions of the Act or the Board's implementing rules require a comprehensive flora and fauna survey to be submitted by a property owner in order to receive a timber harvesting permit.

2. The California Environmental Quality Act

We next consider the provisions of a different and distinct statutory scheme, the California Environmental Quality Act (§§ 21000-21178; "CEQA"). CEQA authorizes a public agency to require that applicants for use entitlements submit data and information necessary to enable the agency to determine whether the proposed project may have a significant effect on the environment. (§ 21160.) Hence, in approving a THP, the Department and Board must conform not only to the detailed and exhaustive provisions of the Act, but also to applicable provisions of CEQA from which they have not been specifically exempted by the Legislature. (*Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1228.)⁴ Accordingly, the Department is authorized to require the submission of

⁴ Section 4514 provides:

"No provision of this chapter or any ruling, requirement, or policy of the board is a limitation on any of the

information not expressly specified in its rules if the information requested is necessary to enable it to determine whether a THP will have a significant adverse impact on the environment. (*Id.*, at p. 1220.)⁵

Is a comprehensive flora and fauna survey, as a condition of approving a THP, authorized by CEQA? The answer is suggested in *Sierra Club v. State Bd. of Forestry*, *supra*, 7 Cal.4th at 1234:

"We recognize that the Legislature cannot have intended the department to have unfettered discretion in the type of information that it may require. Section 21160 limits the agency's power to compel information to that `data and information which may be necessary to enable the public agency to determine whether the proposed project may have a significant effect on the environment. . . .' To comply with the requirements of this section, the information sought by the department must be information that will reveal effects of timber harvesting that can be fairly described as `significant.' Section 21068 defines `significant effect on the environment' as `a substantial, or potentially substantial, adverse change in the environment.'"

In our view, section 21160 does not authorize the Department, in determining whether a proposed plan would have a significant adverse impact on the environment, to require a comprehensive survey of all flora and fauna on the property, without regard to whether such information would reveal any such significant effect.

No other provision of CEQA authorizes the Department, Director, or Board to require a property owner to submit a comprehensive flora and fauna survey of his or her property.

It is concluded that as a condition for the issuance of a timber harvesting permit, the Department may not require a property owner to submit a comprehensive flora and fauna survey of the property.⁶

following:

".

"(c) On the power of any state agency in the enforcement or administration of any provision of law which it is specifically authorized or required to enforce or administer."

⁵ The authority to require the submission of information not expressly specified in the Board's rules does not conflict with section 4582.75, providing that the rules adopted by the Board shall be the only criteria employed by the Director. As explained by the court in *Sierra Club v. State Bd. of Forestry*, *supra*, 7 Cal.4th at 1232-1233:

". . . [A] request for information is not a *criterion* for reviewing a timber harvesting plan, but is instead a prerequisite to application of the criteria established by the board, in particular, that rule requiring the director to disapprove those plans which do not incorporate procedures to substantially lessen significant adverse impacts on the environment. (Cal. Code Regs., tit. 14, § 898.1, subd. (c)(1).) The director of the department cannot discharge that obligation until the significant adverse impacts of the timber harvesting operation have been identified."

⁶ As distinguished from a THP, a sustained yield plan ("SYP") is a comprehensive plan of timber harvesting management that addresses long-term silvicultural considerations for a large area. (Rules 1091.1-1091.14.) A SYP is a voluntary plan which "may be submitted at the option of the landowner and is intended to supplement the THP process by providing a means

* * * * *

for addressing long-term issues of sustained timber production, and cumulative effects analysis which includes issues of fish and wildlife and watershed impacts on a large landscape basis." (Rule 1091.1.) Arguably, the information submitted in a SYP may be more extensive than that required in a THP. Nevertheless, Rule 1091.1 expressly provides that "It is the intent of this Article that the requirements for informational or analytical support for a SYP shall be guided by the principles of practicality and reasonableness; no information or analysis shall be required which in the light of all applicable factors is not feasible. However, it is the intent of this Article that all potential adverse economic impacts resulting from proposed harvesting be described, discussed and analyzed before such operations are allowed. . . ." Rule 1091.7 similarly provides in part: "The sufficiency of the information provided in a SYP to evaluate environmental effects shall be judged in the light of what is reasonably feasible and necessary." In any event, we are not asked to nor do we consider the appropriate scope of a SYP.

APPENDIX A

Technical Rule Addendum No. 2, Paragraph C

Biological Resources

Biological assessment areas will vary with the species being evaluated and its habitat. Factors to consider in the evaluation of cumulative biological impacts include:

1. Any known rare, threatened, or endangered species or species of special concern (as described in the Forest Practice Rules) that may be directly or indirectly affected by project activities.

Significant cumulative effects on listed species may be expected from the results of activities over time which combine to have a substantial effect on the species or on the habitat of the species.

2. Any significant, known wildlife or fisheries resource concerns within the immediate project area and the biological assessment area (e.g. loss of oaks creating forage problems for a local deer herd, species requiring special elements, species of special concern, and significant natural areas).

Significant cumulative effects may be expected where there is a substantial reduction in required habitat or the project will result in substantial interference with the movement of resident or migratory species.

The significance of cumulative impacts on non-listed species viability should be determined relative to the benefits to other non-listed species. For example, the manipulation of habitat results in conditions which discourage the presence of some species while encouraging the presence of others.

3. The aquatic and near-water habitat conditions on the THP and immediate surrounding area. Habitat conditions of major concern are:

- Pools and riffles.
- Large woody material in the stream.
- Near-water vegetation.

Much of the information needed to evaluate these factors is described in the preceding Watershed Resources section. A general discussion of their importance is given below:

- a. Pools and Riffles

Pools and riffles affect overall habitat quality and fish community structure. Streams with little structural complexity offer poor habitat for fish communities as a whole, even though the channel may be stable. Structural complexity is often lower in streams with low gradients, and filling of pools can reduce stream productivity.

b. Large Woody Material

Large woody debris in the stream plays an important role in creating and maintaining habitat through the formation of pools. These pools comprise important feeding locations that provide maximum exposure to drifting food organisms in relatively quiet water. Removal of woody debris can reduce frequency and quality of pools.

c. Near-Water Vegetation

Near-water vegetation provides many habitat benefits, including: shade, nutrients, vertical diversity, migration corridors, nesting, roosting, and escape. Recruitment of large woody material is also an important element in maintaining habitat quality.

4. The biological habitat condition of the THP and immediate surrounding area. Significant factors to consider are:

- Snags/den trees.
- Downed, large woody debris.
- Multistory canopy.
- Road density.
- Hardwood cover.
- Late seral (mature) forest characteristics.
- Late seral habitat continuity.

The following general guidelines may be used when evaluating biological habitat. The factors described are general and may not be appropriate for all situations. No actual measurement is intended. The THP preparer must also be alert to the need to consider factors which are not listed below. Each set of ground conditions are unique and the analysis conducted must reflect those conditions.

a. Snags/Den/Nest Trees

Snags, den trees, nest trees and their recruitment are required elements in the overall habitat needs of more than 160 wildlife species. Many of these species play a vital role in maintaining the overall health of timberlands. Snags of greatest value are > 16" DBH and 20 feet in height. The

degree of snag recruitment over time should be considered. Den trees are partially live trees with elements of decay which provide wildlife habitat. Nest trees have importance to birds classified as a species of special concern.

b. Downed large, woody debris

Large downed logs (particularly conifers) in the upland and near-water environment in all stages of decomposition provide an important habitat for many wildlife species. Large woody debris of greatest value consists of downed logs > 16" diameter at the large end and > 20 feet in length.

c. Multistory canopy

Upland multistoried canopies have a marked influence on the diversity and density of wildlife species utilizing the area. More productive timberland is generally of greater value and timber site capability should be considered as a factor in an assessment. The amount of upland multistoried canopy may be evaluated by estimating the percent of the stand composed of two or more tree layers on an average per acre basis.

Near-water multistoried canopies in riparian zones that include conifer and hardwood tree species provide an important element of structural diversity to the habitat requirements of wildlife. Near-water multistoried canopy may be evaluated by estimating the percentage of ground covered by one or more vegetative canopy strata, with more emphasis placed on shrub species along Class III and IV streams (14 CCR 916.5, 936.5, or 956.5).

d. Road density

Frequently traveled permanent and secondary roads have a significant influence on wildlife use of otherwise suitable habitat. Large declines in deer and bear use of areas adjacent to open roads are frequently noted. Road density influence on large mammal habitat may be evaluated by estimating the miles of open permanent and temporary roads, on a per-section basis, that receive some level of maintenance and are open to the public. This assessment should also account for the effects of vegetation screening and the relative importance of an area to wildlife on a seasonal basis (e.g. winter range).

e. Hardwood Cover

Hardwoods provide an important element of habitat diversity in the coniferous forest and are utilized as a source of food and/or cover by a large proportion of the state's bird and mammal species. Productivity of deer and other species has been directly related to mast crops. Hardwood cover can be estimated using the basal area per acre provided by hardwoods of all species.

f. Late Seral (Mature) Forest Characteristics

Determination of the presence or absence of mature and over-mature forest stands and their structural characteristics provides a basis from which to begin an assessment of the influence of

management on associated wildlife. These characteristics include large trees as part of a multilayered canopy and the presence of large numbers of snags and downed logs that contribute to an increased level of stand decadence. Late seral stage forest amount may be evaluated by estimating the percentage of the land base within the project and the biological assessment area occupied by areas conforming to the following definitions:

Forests not previously harvested should be at least 80 acres in size to maintain the effects of edge. This acreage is variable based on the degree of similarity in surrounding areas. The area should include a multi-layered canopy, two or more tree species with several large coniferous trees per acre (smaller subdominant trees may be either conifers or hardwoods), large conifer snags, and an abundance of large woody debris.

Previously harvested forests are in many possible stages of succession and may include remnant patches of late seral stage forest which generally conform to the definition of unharvested forests but do not meet the acreage criteria.

g. Late Seral Habitat Continuity

Projects containing areas meeting the definitions for late seral stage characteristics must be evaluated for late seral habitat continuity. The fragmentation and resultant isolation of late seral habitat types is one of the most significant factors influencing the sustainability of wildlife populations not adapted to edge environments.

This fragmentation may be evaluated by estimating the amount of the on-site project and the biological assessment area occupied by late seral stands greater than 80 acres in size (considering the mitigating influence of adjacent and similar habitat, if applicable) and less than one mile apart or connected by a corridor of similar habitat.

h. Special Habitat Elements

The loss of a key habitat element may have a profound effect on a species even though the habitat is otherwise suitable. Each species may have several key limiting factors to consider. For example, a special need for some large raptors is large decadent trees/snags with broken tops or other features. Deer may have habitat with adequate food and cover to support a healthy population size and composition but dependent on a few critical meadows suitable for fawning success. These and other key elements may need special protection.

Rare Plant Data in California: The Cooperative Relationship between the California Natural Diversity Database and the California Native Plant Society¹

History of the CNDDDB and CNPS Cooperative Agreement

The tracking of rare plant information² has a long and collaborative history in California. It all began with the California Native Plant Society (CNPS) which spawned a Rare Plant Program (RPP) in 1968. The CNPS RPP created a large card file of all plants known to botanists at the time with a distribution of less than 100 miles³. This early card file served as the foundation for the first *CNPS Inventory of Rare and Endangered Plants* (the *CNPS Inventory*), published in 1974.

In 1979, The Nature Conservancy (TNC) began its California version of a Natural Heritage Program, then housed on the campus of California State University Sacramento. Natural Heritage programs were designed to track all special status plants, animals, and natural communities in a state or province, with the objective of sharing those data with species conservationists, land managers, and planners. An agreement between TNC and CNPS was made so that all CNPS botanical data could be shared with the incipient Heritage

¹ Much of this paper was taken from Jensen, N. and A. Sims. 2015. CNPS Rare Plant Program: Past and Present. *Fremontia* 43(1). This paper was created by Roxanne Bittman with editing and review help from Kristi Lazar and Aaron Sims.

² “Rare plant information” as used here includes both data on taxonomy and data on occurrences.

³ Information in Philip Munz’s *A California Flora* was used to estimate distributions.

program. The concept was that a cooperative endeavor between CNPS and the Heritage Program would reduce duplication of effort, be more efficient, and be more cost effective for both parties. This philosophy was further emphasized in 1981 when the Heritage Program was turned over to State government within the then California Department of Fish and Game. The transfer of the Heritage Program to the State was done via Assembly Bill 1039, and the new state entity was renamed the California Natural Diversity Database (CNDDDB). With TNC now more of a legacy founder⁴, there were changes in both funding and management, and a new agreement between CNPS and CNDDDB was proposed. This new agreement maintained the same working relationship, and clarified that CNPS had to fund a full-time Rare Plant Botanist position, while CNDDDB had to provide work space and access to data. This unprecedented cooperative agreement was entered into in 1981 and the arrangement continues to the present, currently in the form of a Memorandum of Understanding between CDFW and CNPS (last renewed in 2000).

This type of cooperative agreement between a private and public entity, with the goal of maintaining and enhancing the knowledge of the plant biology of a state (or province) is uncommon. Though the data sharing piece has not changed, and still serves both parties extremely well, the process by which plants are reviewed and added or deleted from various lists has evolved over time.

⁴ The Nature Conservancy continued to sponsor various Heritage programs until the year 2000, when a new organization was formed, NatureServe. NatureServe continues to the present day in coordinating 80 Network programs throughout the Western Hemisphere.

Rare Plant Status Review Process

In the 1980's, 1990's, and early 2000's, review of potential changes to the *CNPS Inventory* and to the CNDDDB List of Special Plants (now the CNDDDB *Special Vascular Plants, Bryophytes and Lichens List*) was done by in-person meetings held all over the state and co-led by the CNPS Rare Plant Botanist and the CNDDDB Botanist. This method had advantages, but was exhausting and expensive, and since it was time-consuming, it resulted in long gaps between printed editions of the *CNPS Inventory*. It was replaced in 2005 by email groups and an online forum-based process. This new process was far less expensive and more efficient, it improved transparency and responsiveness, and allowed for the involvement of more experts from throughout California, as well as outside the state. Around this same time, there was also a proliferation of high quality online data, such as the Consortium of California Herbaria dataset⁵, which greatly improved the review of proposed changes to the lists.

The current CNPS Rare Plant Status Review process is very efficient and allows for the participation of botanical experts from all over the world. The resulting CNDDDB-generated Heritage Conservation Status Ranks⁶ and CNPS "California Rare Plant Ranks" (CRPR)⁷ are used widely by state agency biologists, consultants, local planners, and federal agencies such as the US Fish and Wildlife Service and US Forest Service. Both ranks serve to call attention to the numerous rare plants with no official state or federal

⁵ <http://ucjeps.berkeley.edu/consortium/about.html>

⁶ "Conservation Status Rank" refers to the Global (G) and State (S) ranks that are assigned using the NatureServe rank calculator (<http://www.natureserve.org/conservation-tools/conservation-rank-calculator>).

⁷ The CNPS CRPR ranks are explained here: <https://www.cnps.org/rare-plants/cnps-rare-plant-ranks>

designations under either the California Endangered Species Act (CESA) or the federal Endangered Species Act (ESA). It is important to note that there are over 1,900 rare plants in California with no federal or state endangered species status. Because of the efforts of CNDDDB and CNPS to bring attention to rare plants through these parallel ranking systems, these plants receive some attention via the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

How the current CNPS Rare Plant Status Review⁸ system works⁹:

- CNPS maintains a file of all proposed additions, deletions, and changes to the CNPS Inventory and CNDDDB Special Vascular Plants, Bryophytes, and Lichens List. Botanists from any agency, company, or entity can submit a proposal, but it must be supported by data¹⁰ to be considered (see Appendix A or visit the CNPS webpage for more details).
- The CNPS Rare Plant Botanist selects a plant for review, and CNPS and CNDDDB staff begin a detailed research effort to gather all available information on that taxon. This information is not restricted to field survey forms, office files, or other sources of data submitted to CNDDDB; it also includes numerous online data sources, scientific papers where available, and personal correspondence with experts.
- A draft Rare Plant Status Review document is prepared by CNPS staff and forwarded to CNDDDB for review and edit.

⁸ “Status Review” refers to the process where a change to the list of special status plants is proposed. This change could be an addition, deletion, or change in rank.

⁹ For a complete flowchart of the process, see Appendix A.

¹⁰ Only proposals backed up by credible data are considered.

- The final Rare Plant Status Review, displaying the authors as both the CNPS Botanist and the CNDDDB editor, is distributed digitally to experts who previously expressed interest in plants in a geographic region or in a particular group of species. The document is also sent to anyone who has conducted past or current research on the plant under review, including the treatment author(s) of *The Jepson Manual* and *Flora of North America North of Mexico*. Over a period of about a month, comments are received and collated by CNPS, and a final suggested rank is sent to CNDDDB for discussion or concurrence.
- Final decisions on all changes are generally made with a consensus of reasoning. If there is significant disagreement about a given decision, another round of comments is solicited. In some cases, the Rare Plant Program Committee¹¹ helps make a final decision where there is no consensus.
- The final decision is reflected in the CNPS *Online Inventory* and in the CNDDDB *Special Vascular Plants, Bryophytes, and Lichens List*.

Advantages of the CNDDDB and CNPS Cooperative Agreement

The advantages of a collaborative working relationship between a state agency program (CNDDDB) and a private non-profit organization (CNPS) to create an inventory of all the

¹¹ The Rare Plant Program Committee, formed in 2009, is a small CNPS committee of academic experts, state agency and private industry representatives. One of their functions is to help make decisions on the most difficult ranking cases. Representation on the Committee is dependent upon knowledge of California floristics, conservation issues, knowledge of the CNPS Rare Plant Program and of the Status Review Process, and knowledge of the CNPS Online Inventory of Rare and Endangered Plants.

rare plants in California are extensive. This relationship has endured for nearly half a century due to the innumerable benefits to both sides, which include:

1. California is a biodiversity hotspot and home to nearly 2,400 rare plants. Thus, the job of keeping their statuses current is infeasible for a single botanist, regardless of whom they work for. A collaborative relationship between CNDDDB and CNPS is essential to keeping rare plant data in California up to date and accurate;
2. Having a review process that is overseen and backed by two organizations ensures that any decisions made are strongly supported and stand up to scrutiny. Both the CNPS and CNDDDB botanists strive to ensure that all rare plant decisions made are based on science and hard data; having both a State program and a non-profit organization reviewing these decisions creates a system of checks and balances so that pressure from those within any one organization does not subvert the process;
3. Cooperation on status reviews is better facilitated by utilizing the networks, as well as paper and digital resources, within both organizations (CDFW and CNPS). CNDDDB encourages CDFW staff and other agency personnel to actively participate in the review process, while CNPS encourages its vast network of 35 chapters throughout the state to contribute knowledge of their local flora to the review process;
4. The agreement stipulates that CNPS has access to all of CNDDDB's rare plant data and CNDDDB has access to all of CNPS' rare plant data. This allows a complete set of rare plant data to be used during the status review process;
5. Data contributors only need to submit data to one place, and it is then shared among the primary organizations (CNPS and CNDDDB) who use the data.

Ultimately, the data are also available to NatureServe, which curates Natural Heritage data at the national level.

6. The agreement between CNPS and CNDDDB allows both parties to discuss and set boundaries on levels of data distribution. CNPS distributes rare plant data only to the USGS 7.5' quadrangle level, and their data is publicly available. This contrasts with the CNDDDB occurrence dataset, which includes precisely mapped plant and animal locations (where possible), and distribution is restricted to CDFW staff and paid subscribers in order to protect these sensitive resources.

The Future of the CNDDDB and CNPS Working Relationship

The cooperative agreement between the CNDDDB and CNPS is the backbone of the rare plant status review process and is an essential component in the identification and protection of rare plant species in California. The data compiled and shared by both organizations are used throughout the environmental review process, and to inform land management decisions, guide conservation planning, and in reviewing species for possible CESA or ESA listing. Despite changes in staff, management, resources, and technology that have occurred over the past decades, the benefits of this cooperative agreement remain relevant by allowing both organizations to more efficiently use the available resources, and to provide a single streamlined process for determining the status of rare plant species in California.

Appendix A

Flow chart for processing proposed additions or status changes to the CNPS Inventory and CNDDDB Special Vascular Plants, Bryophytes, and Lichens List

1. **Proposed Addition/Status Change Submitted to or Identified by CNPS.** Potential additions and changes to the CNPS Inventory are identified by, or proposed to, the CNPS Botanist, who initiates the review process prior to listing the proposal on the Rare Plant Status Review Forum (Status Review Forum) and sending the proposal out to Regional Plant Status Review Groups (Regional Review Groups).



2. **Information Query/Status Criteria Assessment.** The CNPS Rare Plant Program conducts a search of all pertinent information from relevant publications, available herbarium records, available CNDDDB reports, and information from experts who have direct knowledge of the distribution, taxonomy, and biology of the proposed taxon.



3. **Initial Status Review.** The CNPS Rare Plant Program and the CNDDDB Botanist, with assistance of knowledgeable experts, will initiate a status review, including a proposed ranking. The CNPS Botanist will send the status review documents to Regional Review Groups and other knowledgeable botanists by means of email, and post the proposed status review on the CNPS Status Review Forum for comment. **After 3 weeks**, the CNPS Botanist will send out a “Final Call” for information extending the Status Review Forum comment period **2 additional weeks**, notifying all involved groups and previously consulted experts, and request further clarification, comments, or additional expertise including the Rare Plant Program Committee (RPPC).

If a consensus of reasoning regarding status has been reached following the “Final Call”, the comment period will be closed. The CNPS Botanist will then make a final determination in consultation with the CNDDDB Botanist¹², and will post the change to the *CNPS Inventory*. If consensus has not been reached, proceed to step 3A.



3A. Second Status Review Period. If a consensus of reasoning is not reached during the initial review period, the CNPS Botanist shall consult with the RPPC, acquire additional supporting rationale and information, and initiate a second and final review period. **After 2 weeks**, if a consensus of reasoning regarding status has been reached, the comment period will be closed. The CNPS Botanist will make a final determination in consultation with the CNDDDB Botanist, and the change will be posted both to the *Inventory* and to CNDDDB. If consensus still has not been reached, proceed to step 3B



3B. In-Person Meeting or Postpone Decision. If a consensus of reasoning is not reached after a second review period, and no clear evidence for a logical determination has been acquired, then the CNPS Botanist shall: (1) convene an in-person meeting, including all interested parties with relevant botanical expertise, the CNDDDB Botanist, and at least one RPPC member, in order to make a collaborative status determination based on available information, and will post the change to the *Inventory*, or (2) postpone a determination until significant additional information has been acquired.

¹² If consultation between CNPS Botanist and CNDDDB Botanist leads to disagreement among the two parties in the determination, then Step 3B will be initiated.

Examples of Status Review Timelines for Plant Species that occur in Region 1 Interior. List compiled on 7/20/2020.

Date Status Review was Initiated	Date Status Review Closed and Decision was Posted to Forum	Species	Recommended Action	Number of Comments posted to the Review Forum	Result
3/2/2020	5/7/2020	<i>Penstemon filiformis</i> ^{1,2}	change from CRPR 1B.3 to 4.3	6	CRPR was changed from 1B.3 to 4.2
2/7/2020	5/7/2020	<i>Clarkia borealis</i> ssp. <i>borealis</i> ^{1,2}	change from CRPR 1B.3 to 4.3	8	CRPR was changed from 1B.3 to 4.3
1/10/2020	3/2/2020	<i>Penstemon sudans</i> ^{1,2}	change from CRPR 1B.2 to 4.3	9	CRPR was changed from 1B.2 to 4.3
1/10/2020	3/3/2020	<i>Claytonia obovata</i> ¹	add to CRPR 4.3	5	species added to CRPR 4.3
11/2/2018	12/12/2018	<i>Catabrosa aquatica</i>	add to CRPR 2B.1	5	species added to CRPR 2B.1
10/9/2018	12/10/2018	<i>Frasera albicaulis</i> var. <i>modocensis</i> ²	add to CRPR 2B.3	9 total for both <i>F. albicaulis</i> varieties	species added to CRPR 2B.3
10/9/2018	12/10/2018	<i>Frasera albicaulis</i> var. <i>cusickii</i>	add to considered but rejected		added to inventory as considered but rejected
8/30/2017	10/10/2017	<i>Lupinus latifolius</i> var. <i>barbatus</i>	change from CRPR 1B.2 to 3.2	1	CRPR was changed from 1B.2 to 3.2
<p>CRPR=California Rare Plant Rank</p> <p>¹These species were moved to a higher priority for initiating review through a challenge cost share agreement between the California Native Plant Society and the USDA Forest Service Southwest Region; however, the review process itself did not change.</p> <p>²These species are frequently addressed in Timber Harvesting Plans in R1 Interior</p>					

Examples of Status Review Timelines for Plant Species that occur in Region 1 Coast. List compiled on 7/2020.

Smilax jamesii – proposed on July 11, 2016 for review and downranked on August 26, 2016. This is just over a month. It went from CRPR 1B.3 to CRPR 4.2

Arctostaphylos canescens ssp. sonomensis – proposed on February 13, 2015 and deleted from the inventory on March 24, 2015. This is just over a month. It went from CRPR 1B.2 to deleted.

Coptis laciniata – proposed on August 19, 2014 for review and downranked on September 24, 2014. This is just over a month. It went from CRPR 2B.2 to CRPR 4.2.

*All three of these examples have been encountered on private timberlands.