CALIFORNIA
NATIVE PLANT SOCIETY

November 23, 2020

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Subject: **DKY CNPS comments on the consistency of THP 1-20-00193-MEN ("Mitchell Creek"), including cumulative effects associated with adjacent timber harvest plans (THP 1-20-00006-MEN "Caspar 500" and the proposed submittal of "Railroad South THP", with the approved EIR for the Jackson Demonstration State Forest Management Plan**

Dear Ms. Rhoads:

The Dorothy King Young (DKY) Chapter of the California Native Plant Society (CNPS)[1] has recently received urgent requests for assistance from several community members expressing concerns about potential impacts from at least three Jackson Demonstration State Forest (JDSF) timber harvest plans in the Caspar vicinity. Members of our DKY Chapter are quite familiar with these areas of JDSF through various levels of education, research, and collaborative botanical surveys under the direction of the California Department of Fish and Wildlife (CDFW). From 2002 to 2006, board members of the DKY Chapter submitted lengthy comments to the California Department of Forestry and Fire Protection on the proposed Draft EIRs for the Jackson Demonstration State Forest Management Plan. Our comments on the EIR drafts focused on the need for comprehensive survey and documentation on the flora of JDSF, and the need to adhere to CDFW (formerly California Department of Fish and Game) protocols for conducting and reporting plant survey information, especially for sensitive species and plant communities. We have reviewed on-line documents associated with THPs 1-20-00193-MEN and 1-20-00006-MEN and have serious concerns regarding potential direct, indirect, and cumulative impacts to rare plants and sensitive natural communities, especially those that are unique to the Mendocino Coast. We also have concerns that the proposed timber harvest plans are not in compliance with the JDSF Management Plan as approved through the EIR process.

Areas proposed for timber harvest within the Caspar vicinity THPs are within or adjacent to vegetation types listed as sensitive natural communities by CDFW (https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background#sensitive%20natural%20communities), including Mendocino pygmy cypress woodland association (G1 S1), Grand fir forest association (G4 S2 and potentially rarer alliances with G2 S1 and G1 S1 rankings), Bishop pine – Monterey pine forest and woodland association (various alliances with G2 S2 rankings), and Redwood forest and woodland (G3 S3). Within these and even the more common vegetation types, numerous rare plant species also have the potential to occur, including but not limited to *Campanula californica* (swamp harebell, CRPR 1B.2), *Carex californica* (California sedge, CRPR 2B.2), *Pinus contorta* ssp. *bolanderi* (Bolander's beach pine, CRPR 1B.2), and *Hesperocyparis pygmaea* (pygmy cypress, CRPR 1B.2).

Our concerns are summarized as follows:

1. There appears to be no reference to, nor any statements on how the newly submitted and proposed THPs relate to the approved EIR for the JDSF Management Plan. Section 3 of THP 1-20-00193-MEN describes the purpose of the proposed timber harvest plan and cites several sections of the Public Resources Code that only discuss the management of state forests in a general sense, however it does not mention the Management Plan. On February 7, 2007, the California Department of Forestry and Fire Protection submitted a summary report to the Board of Forestry entitled: ***"Potential Harvest Limitations to be Applied during Initial Implementation of the Proposed Jackson Demonstration State Forest Management Plan."*** This report, which is part of the public record, was in response to the BOF's direction to CDF (now CalFire) staff to develop harvest limitation overlays based on the results of input from the Mendocino citizen's advisory group for JDSF. Section 3 of THP 1-20-0193-MEN also does not discuss potential harvest limitations based on these BOF directions. **DKY CNPS requests that CalFire provide an explanation as to how the proposed timber harvest plans will meet goals, objectives, conditions, or other agreements developed through the approved EIR process for the JDSF Management Plan, especially in regards to sensitive plants and vegetation types, and to the limited acreage of remaining old growth and second growth forests.**

2. Botanical surveys are only proposed after the timber harvest plans are approved, which prevents the disclosure of potential sensitive botanical areas and the development of meaningful avoidance and mitigations measures during the formal review process. In addition, an outdated plant survey protocol is proposed to be used for THP 1-20-00193-MEN. For surveys to be valid, they must follow the current *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (State of California Natural Resources Agency, March 20, 2018, and the CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form, June 5, 2019, with updated guidance available on-line). The current protocols also require sensitive vegetation types, not just rare plants, to be surveyed and reported to the California Natural Diversity Database (CNDDB). All areas of Mendocino Cypress Woodland have now been officially mapped and are available through BIOS within CNDDB.

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The DKY Chapter of CNPS concurs with CDFW's comments for first review for THP 1-20-00193 MEN, which state in part: *"The conservation of special status native plants and their habitats, as well as sensitive natural communities, is integral to maintaining biological diversity. Based on the potential habitat and CNDDB records, close proximity of the THP to the Mendocino pygmy cypress woodland sensitive natural community, the submission of the THP prior to completing botanical surveys, and reference to outdated survey protocol, the THP as proposed presents potentially significant adverse impacts to sensitive natural communities and special status plant species."* In addition, any mitigation measure proposed for avoidance and minimization of impacts to rare plants and sensitive natural communities must consider both direct and indirect effects (see attached "**Buffers as Mitigation Measures to Conserve Sensitive Botanical Resources"** California Department of Fish and Game, Submitted by Clare Golec as substantial evidence into the record for THP 1-06-039HUM, Sierra Pacific Industries "Shower Head", October, 2006).

We request that protocol-level botanical surveys be conducted and reported, as part of the public record disclosure and review process, prior to approval of THP 1-20-00193 MEN and prior to the submittal of all subsequent timber harvest plans being prepared. We request that all sensitive vegetation maps obtained through BIOS, particularly those of the Mendocino Cypress Woodland Alliance and Associations, be submitted as overlays on the THP boundary maps.

3. The three timber harvest plans (including the approved 1-20-00006-MEN, currently being reviewed 1-20-00196-MEN, and the proposed "Railroad South") appear to be adjacent to each other from the attached map that was sent to us by community members. From the map, it would appear that the total acreage of potential cumulative impacts is much greater than would be realized from simple review of any single plan. Similar sensitive vegetation types and habitats for rare plant species are found throughout all three existing and proposed plans. **Why are the plans being submitted separately, and are the full potential cumulative impacts on sensitive vegetation and rare plants being considered in the separate, apparent piecemeal review processes? How does the separate submittal of these plans comply with the approved EIR for the JDSF Management Plan?**

4. The proposed "Railroad South" THP that you described may be in the area that is commonly referred to as "mushroom corners" (acreage near the corner of Road 409 and Little Lake Roads). It is called that because of the abundance and variety of fungal species that are regularly found there, and it is also addressed within the JDSF Management Plan. This area is known worldwide by well- respected mycologists and other scholars. For decades, it has been visited by educators and students, as it serves as a perfect teaching location for the identification of many different fungal species. Any timber harvest there will directly impact the significant mycorrhizal associations that are critical for forest health, and which result in the abundance of mushrooms that are commonly found. **We request that, prior to completing any plans for harvest within the area commonly referred to as "mushroom corners" that you consult with Teresa Sholars, Professor Emeritus, College of the Redwoods and CNPS Rare Plant Coordinator and Vegetation Chair, and that you disclose how the area will be avoided.**

Please do not hesitate to contact us (conservation@dkycnps.org) if you have questions regarding our comments, or if we can be of assistance in developing recommendations for protecting rare plants and sensitive vegetation types prior to and during the timber harvest review processes.

Respectfully,

Renée Pasquinelli

Renée Pasquinelli, Conservation Co-Chair (North)

Peter R Baye

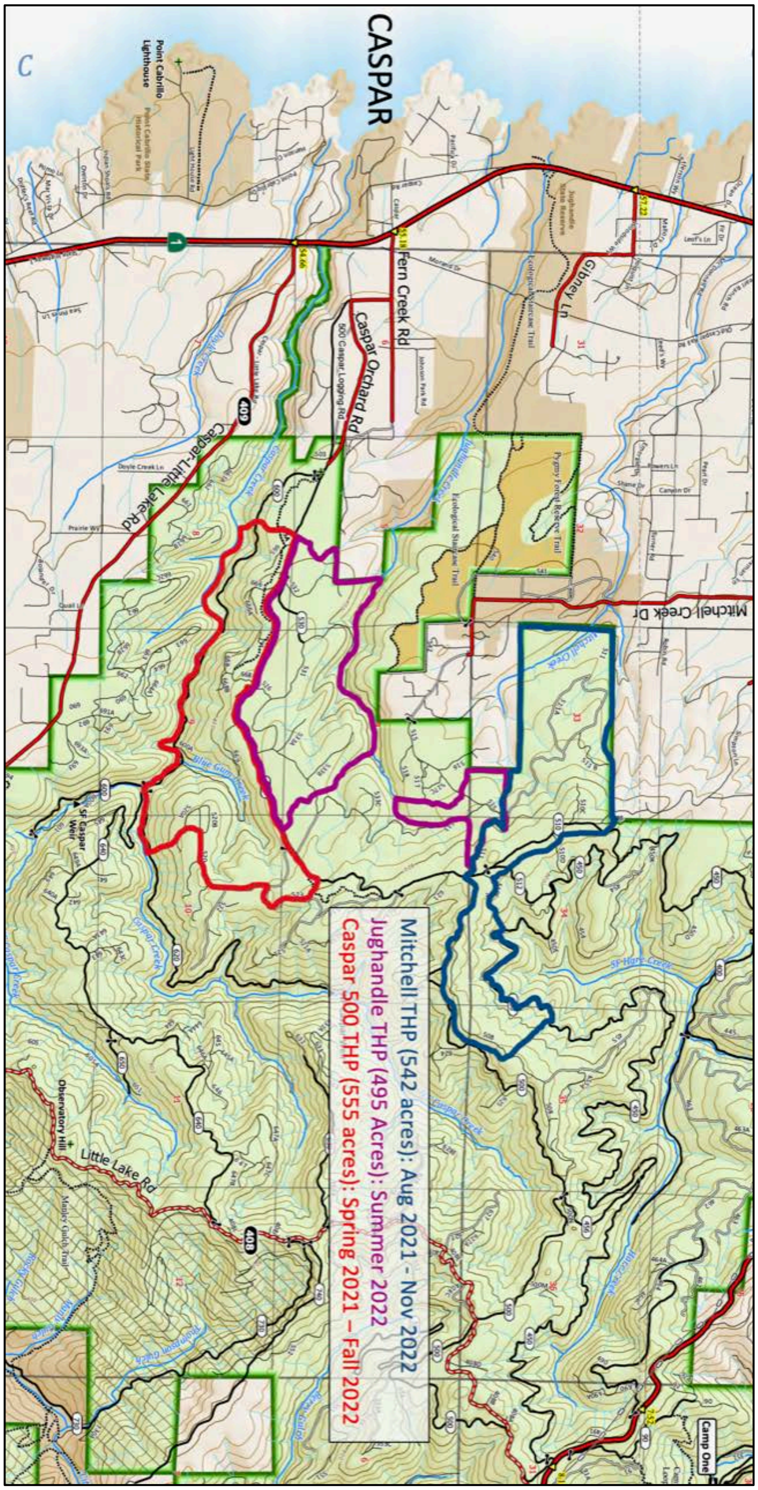
Dr. Peter Baye, Conservation Co-chair (South)

Teresa Sholars

Teresa Sholars, Rare Plant Coordinator and Vegetation Chair
Dorothy King Young Chapter, California Native Plant Society[1]

[1]The mission of the California Native Plant Society (CNPS) is to protect California's native plant heritage and preserve it for future generations through application of science, research, education, and conservation. CNPS works closely with decision-makers, scientists, and local planners to advocate for well-informed policies, regulations, and land management practices. A formal cooperative agreement between CNPS and the California Department of Fish and Wildlife (CDFW) is the backbone of California's rare plant and vegetation status review programs. The data compiled and shared by both organizations are used throughout the environmental review process. The Dorothy King Young (DKY) Chapter of CNPS focuses on protecting and providing education about the native plants and natural communities within coastal Mendocino County and we often work directly with local and Sacramento-based CDFW science staff.

cc: Jon Hendrix, Sr. Environmental Scientist, CDFW (Jon.Hendrix@wildlife.ca.gov)


CASPAR
Fern Creek Rd
Caspar Orchard Rd
Caspar-Little Lake Rd
Gibney Ln
Mitchell Creek Dr
Little Lake Rd
Mitchell THP (542 acres): Aug 2021 - Nov 2022
Jughandle THP (495 Acres): Summer 2022
Caspar 500 THP (555 acres): Spring 2021 – Fall 2022

Buffers as Mitigation Measures to Conserve Sensitive Botanical Resources
California Department of Fish and Game
Submitted by Clare Golec as substantial evidence into the record for
THP 1-06-039HUM, Sierra Pacific Industries "Shower Head"
October, 2006

Regulatory Requirements for Sensitive Plant Mitigations

The California Environmental Quality Act (CEQA), the CEQA Guidelines, and the California Forest Practice Rules (FPR), require that certain proposed projects, such as a timber harvesting plan (THP), disclose potential significant environmental impacts, and where possible, feasible mitigations to avoid or minimize these impacts. CEQA, Section 21002, states public agencies shall not approve projects as proposed if there are feasible alternatives or mitigations which would substantially lessen the significant environmental effects of the projects. Section 15065 of the CEQA Guidelines defines a substantial reduction in number of an endangered, rare, or threatened species as a potentially significant effect on the environment, triggering the disclosure of impacts and the incorporation of project alternatives or mitigation measures.

FPR Section 896(a) states, "It is the Board's intent that no THP shall be approved which fails to adopt feasible mitigation measures or alternatives…that would substantially lessen or avoid significant adverse impacts which the activity may have on the environment." Section 898.2(e) of the FPR allows for disapproval of a THP which does not conform to the rules of the Board of Forestry if implementation of the plan would irreparably damage plant species listed as rare or endangered by the Department of Fish and Game (DFG). Section 919.4 states, "where significant adverse impacts to non-listed species are identified, the Registered Professional Forester and Director of the California Department of Forestry and Fire Protections shall incorporate feasible practices to reduce impacts."

CEQA Section 15370(a-e) lists five types of mitigations. Of these types, buffers are primarily implemented to achieve (a) "Avoiding the impact altogether by not taking a certain action or parts of an action," and (b) "Minimizing impacts by limiting the degree or magnitude of the action and its implementation." This paper assesses the use of buffers to mitigate project impacts to sensitive plant[1] populations occurring in California timberlands. The Department of Fish and Game has recommended that an interim 50-foot buffer on newly discovered sensitive plant occurrences be included as a default protection measure in timber harvesting plans and non-industrial timber management plans. This interim measure is intended as a placeholder until site-specific protection measures are developed, typically through consultation with Department personnel.

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[1] 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.

Biological Justification for Sensitive Plant Buffers

The use of buffers to mitigate impacts to sensitive habitats and species has been widely used for many years as a principal tool to protect natural resources, as well as public health and safety. The rationale for using buffers (rather than protecting only the footprint of a sensitive habitat or population) is based upon sound ecological principles that habitats and populations: 1) are dynamic, 2) are not typically discrete entities with clearly defined boundaries, but rather a part of an ecological continuum, and 3) because of their ecological interconnectedness with adjacent habitats, they can be significantly impacted, indeed, even eliminated, by indirect effects of adjacent activities. These principles are well-established in the ecological literature.

For these reasons, local and state regulations typically do not allow construction activities directly adjacent to natural resources such as wetlands, watercourses and sensitive habitats or species; but rather require specific setbacks, or buffers. These types of buffers are typically up to 100 feet in width and in most cases not less than 50 feet in width. In California for instance, 300-foot-wide buffers are required for estuaries and 100-foot-wide buffers are required for wetland habitats in the coastal zone (14 CCR 13577), bald eagle and peregrine falcon nests receive a minimum 10-acre habitat buffer zone (372-foot-wide buffer) in forest lands (14 CCR 919.3), and aircraft are restricted from flying lower than 3,000 feet above the Sespe Condor Sanctuary (14 CCR 10501.5).

Additionally, timber harvesting activities can have direct impacts to sensitive plant occurrences. Flagging placement errors, misdirected tree falling, equipment operator error, broadcast burning and pile burning escape, and herbicide application error are examples of activities that may result in direct impact to unbuffered and buffered sensitive plan occurrences. Appropriately designed buffers can provide protection from these types of unintentional impacts.

Specific Indirect Threats to Sensitive Plant Populations

According to CEQA Guidelines Section 15064(d)(3), “An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.” Typical THP management activities such as timber harvesting (canopy removal) and road and landing construction have numerous biotic and abiotic effects. These activities have indirect effects on adjacent habitats which are reasonably foreseeable as well as well-documented in the forestry and ecological literature. Indirect impacts to sensitive plants can include canopy alteration (change in shade and light exposure); change of hydrology; disruption of symbiosis (such as mycotrophic or mycorrhizal relationships); disturbance of root systems; burial of seeds below germination depths; exposure of bare mineral soil; slash accumulation; changes in vegetation competition; and competition from invasive exotics (Sholars and Golec in press)

These effects are primarily the result of edge effects from habitat fragmentation. Edge effects are the physical and biological changes that occur in an insular habitat fragment, such as a sensitive animal, sensitive plant, or wetland protection area, related to its proximity and amount of edge or border with a different habitat type (Noss and Cooperrider 1994). Canopy retention areas used to protect sensitive plant populations leave small forest habitat patches, or fragments. These fragments are often surrounded by, or border on, forest openings created by clearcuts, selection, and other types of silvicultural prescriptions, as well as by roads, landings, and other facilities needed when harvesting timber.

Establishing a buffer as mitigation to minimize the impacts of a project creates a habitat fragment that is influenced by the activities and actions conducted adjacent to the fragment (Davies et al. 2001). The physical changes occurring outside the fragment affect the resident species. Fragments create new edges between forest and open habitat. Edges reduce the effective area of remnant patches (Kapos 1989; Saunders et al*.* 1991; Meffe and Carroll 1994).

Numerous studies on edge effects and fragmentation, including many clarifying the effects of forest harvesting on adjacent stands, have consistently documented significant indirect biotic and abiotic impacts on remnant habitats. These include:

- **Changes in microclimate**, including relative humidity, solar radiation, soil temperature, air temperature, and average high and low temperatures, wind velocity and other metrics, in forest fragments adjacent to forest openings have been documented. For example, edge effects were documented to extend from 50 feet to greater than 820 feet into remnant patches depending on microclimate and habitat type (Kapos 1989; Chen et al*.* 1993a; Matlack 1993; Young and Mitchell 1994; Chen 1995; Murcia 1995; Brosofske 1997; Renhorn et al. 1997; Doug 1998; Chen et al. 1999; Jules 1999; Gehlhausen et al. 2000; Zheng 2000; Silbernagel 2001; Davies et al. 2004; Concilio 2005; and others)

- **Changes in vegetation structure** adjacent to forest openings, including changes in species density, growth rate, volume, above- and below-ground biomass, and vegetation height have been documented by Williams-Linera 1990; Chen et al. 1992; Brothers 1993; Fraver 1994; Malcolm 1994; Young and Mitchell 1994; Lovejoy et al. 1996; Laurance et al. 1998; Stinton et al. 2000; Franklin et al. 2004; Harper et al. 2005; and others.

- **Changes in vegetation composition** in adjoining remnant patches, including species composition, species richness, and plant community have been documented in Harris 1984; Schonewald-Cox and Bayless 1986; Dzwenko and Loster 1989; Laurance and Yensen 1991; Duffy and Meier 1992; Tyser and Worley 1992; Aizen and Feinsinger 1994; Gilliam et al. 1995; Meier et al.1995; Sillett 1995; Frost 1997; Rambo and Muir

1998; Jules et al. 1999; Russell et al. 2000; Thysell and Carey 2000; Davies et al. 2001; Euskirchen et al. 2001; Harper and Macdonald 2001; Jalonen and Vanha-Majamaa 2001; Rees and Juday 2002; Russell and Jones 2002; Benito-Malvido and Martinez-Ramos 2003; Moen and Jonsson 2003; Watkins et al. 2003; Harper et al. 2005; Halpern et al. 2005; Nelson et al. 2005a; Nelson et al. 2005b; and others.

- **Changes to plant life history and plant/animal interactions** in forest fragments, including survival, growth, development, reproduction, pollination, seed set and dispersal are documented in Jennersten 1988; Aizen and Feinsinger 1994; Fahrig and Merriam 1994; Meier et al.1995; Buchmann and Nabhan 1996; Ozanne et al. 1997; Jules 1998; Intachat 1999; Jules and Rathcke 1999; Ozanne et al. 2000; Tallmon et al. 2003; Nelson and Halpern 2005a; and others.

Buffer and mitigation design

Management of sensitive plants is challenging because the effects of habitat modification through edge effects are landscape specific (Davies et al. 2001). Landscape alterations such as changes in average stand age and composition, soil structure, chemical and microbial ecology, pollinator communities, microclimate, and fire ecology, as well as the introduction of invasive non-native species are known to adversely affect sensitive plant species and ultimately their persistence on the landscape (Schemske et al. 1994, Halpern and Spies 1995). Application of buffers as a conservation management tool is widespread, but formally applied protocols for determining buffer sizes are not well documented. For example, a minimum buffer of 200 feet was proposed for the San Fernando Valley spineflower to minimize the impacts from the introduced Argentine ant (Conservation Biology Institute 2000). This distance could decrease to 80-100 feet with the application of a suite of additional management measures.

The effects of forest management on sensitive plant species can vary depending on many factors. Such factors include:

- Biological – Species attributes such as life history patterns, growth form, growth rate, reproduction, and dormancy, as well as demography, population structure, competition, pollination ecology, seed dispersal methods, seed bank attributes, the biological attributes of habitat, associated species and species interactions.

- Physical – Environmental factors such as exposure, slope, aspect, landscape position, canopy cover, habitat physiognomy, temperature, humidity, hydrology, soil types and soil characteristics, large woody material, and disturbance regime.

Methods used to determine buffer design vary from standard species-specific protection measures to the use of "precise conservation" (Berry et al. 2003), employing specific spatial information and procedures to a specific occurrence site (Dosskey et al. 2005).

- Investigators working in different forest ecosystems have found small patches (2-9 hectares) of intact forest may retain interior-forest vegetation characteristics (Ranney 1977, Levenson 1981, Kapos 1989, Matlack 1994). Nelson and Halpern (2005a) found forest patches of at least 1 hectare in size may play an important role in protecting sensitive late-seral plant species. Thorell and Gotmark (2005) found buffer zones of 200 meters increased conservation values of reserves.

- Ames (2002) created buffers for rare plants within timber harvesting areas in Manitoba. Retention areas varied from 1 to 80 hectares with mortality of rare species recorded at the edges of buffers.

- The size of the buffer zone retained around rare plant populations that rely exclusively on insect pollination depends on the distance the pollinator will travel to obtain their resources (Tepedino 2006).

- Buffer widths of 50 feet can be effective in reducing pesticide runoff by 50 percent (USDA 2000).

Few studies have assessed the impacts of management on abundance, biology, and ecology of sensitive plants in California forests and few data exist on the autoecology and long-term regional trends for the majority of sensitive species occurring in California forests, whether in managed timberlands or old growth stands (Golec et al. in press).

- National Forests in California emphasize maintaining habitat elements for two species of lady's slipper orchid (Kaye and Cramer 2005), including maintaining sufficient cover and decayed down logs, snags, and duff layer, avoiding activities that alter, remove, or compact the soil, duff, or organic matter in the habitat area, and:

  > *"…managing sites to include entire populations plus an area large enough to maintain current habitat and associated microclimate, primarily temperature and moisture. The size should be determined by a field visit and should consider factors such as canopy cover, slope, aspect, topographic position, vegetation structure (such as growth form, stratification, and coverage), and species composition. Because individual plants do not appear above ground every year, it is important to buffer species locations in order to capture dormant plants."*

- Specific management consideration for *Bensoniella oregana* within National Forests in California and Oregon (USDA 2005) include:

  > *"…establish an area large enough to maintain the habitat and associated microclimate of the population; this includes undisturbed forest structure, cool, moist shaded conditions, and undisturbed soil litter layer."*

- A Forest Service conservation assessment (USDA 2006) for the liverwort *Ptilidium californicum* recommends:

  > *"In situations in which the proposed stand management would result in a sharp edge between the no disturbance buffer and the managed unit, it may be advisable to provide a feathered buffer in a circular shape around the occupied substratum to reduce the effect of edge. In general maintaining structural components (e.g., multi-storied stand, legacy or refugia old-growth trees) to regulate heat, light and moisture conditions and to provide linkages between old and younger stands may reduce risks to* P. californicum."

- Plumas National Forest applies buffer distances for sensitive plants that range from at least one chain (66 feet) up to 150 feet depending upon the species and type of activity (Hansen 2006). For example a timber harvesting activity with tractor equipment would warrant a150-foot buffer versus a 66-foot buffer for an activity such as hand thinning of shrubs before a prescribed burn.

Conclusions

Edge effect and fragmentation impacts in forest habitats are incontrovertible, and it is clearly reasonably foreseeable that forest management and timber harvest activities can adversely affect adjacent sensitive plant populations. The results of many studies demonstrate the direct and indirect impacts that timber harvesting activities have on adjacent forest stands and the necessity for canopy retention and equipment exclusion buffers around sensitive plant populations. Sensitive plant populations on small fragments are at risk not only because their populations are inherently smaller and may become smaller with direct impacts, but because they are subjected to significant habitat modification (Davies et al. 2001). Habitat modification within a fragment can be influenced or moderated by reducing edge permeability and increasing the size of a buffer (Kelly and Rotenberry 1993). Changing the permeability of a buffer, through habitat management, and altering the types of activities permitted within the buffer zone is a potential method for mitigating identified impacts.

The function of a buffer is to mitigate direct and indirect impacts of management activities. The application of buffers as a conservation management tool is dependent on the specific sensitive plant species and its biology, occurrence and site specific characteristics, and the type, size, frequency and intensity of impacts. The Department of Fish and Game timberland planning program has determined that an interim 50-foot buffer on newly discovered sensitive plant occurrences in harvest plans is a prudent and reasonable measure until site-specific protection measures are developed by qualified personnel. The Department recognizes some sensitive plant occurrences may be impacted under this level of protection, but most occurrences will likely be adequately protected. In working with most industrial and non-industrial timberland owners in California, the Department has found that such a buffer minimizes operational constraints on the landowner until site-specific consultation is completed.

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