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July 13, 2010

Rob Thompson
President, Monterey Fire Safe Council
2221 Garden Rd
Monterey, CA 93940

Re: The Monterey Fire Safe Council's proposed Monterey County Community Wildfire Protection Plan

Dear Mr. Thompson:

This office represents the Ventana Chapter of the Sierra Club ("Sierra Club") with respect to the draft Monterey County Community Wildfire Protection Plan proposed by the Monterey Fire Safe Council ("MFSC"). The Sierra Club recently received a copy of the April 29, 2010 letter and proposed Resolution from MFSC President Rob Thompson requesting "that the Board of Supervisors consider the enclosed Resolution and authorize the Chair to sign the Monterey County Community Wildfire Protection Plan for Monterey County."

The Sierra Club strongly supports efforts to develop and adopt a reasonable Community Wildfire Protection Plan that reflects sound science and responsible environmental policy. Unfortunately, the MFSC proposal in its current form does not meet either standard. Therefore, the Sierra Club strongly opposes County adoption of the current MFSC proposal. The Sierra Club looks forward to working with the MFSC to develop a CWPP that the entire community can support.

1. The MFSC proposal improperly designates Wildland Urban Interface ("WUI") lands.

Under the federal Healthy Forest Restoration Act ("HFRA"), County adoption of a CWPP is a prerequisite to it being "legally effective." A "legally effective " CWPP has three primary legal effects:

- A CWPP allows federal agencies to use funds allocated by Congress for fire risk reduction projects in the Wildland Urban Interface ("WUI") zones established near federal lands by the CWPP. Thus, once a CWPP is adopted, the Fire Safe Council and other agencies may apply for federal funds to implement specific fire risk reduction measures in the WUI zones.

- The CWPP establishes the WUI zones in which these federal funds may be spent on fire risk reduction projects. (The MFSC proposal designates approximately 1,266,110 acres within the County (i.e., 59.8% of the County) as WUI lands.)

- Federal agency actions to fund or carry out fire risk reduction projects under the HFRA enjoy restricted environmental review under the National Environmental Policy Act.

Therefore, the designation of WUI lands is critical function of any CWPP.

For purposes of analyzing the MFSC proposal's designation of WUI lands, we retained Adelia Barber, a GIS specialist at UC Santa Cruz. Her analysis and results are attached hereto as Exhibit 1 (Barber). As noted above, the MFSC proposal designates approximately 1,266,110 acres within the County (i.e., 59.8% of the County) as WUI lands. These are lands that the MFSC proposal considers of sufficiently high fire risk in close enough proximity to human development to warrant fuel reduction treatment by vegetation removal as described in the proposed CWPP. However, the MFSC proposal does not disclose the criteria and methodology used to designate land as WUI .

In contrast, a peer-reviewed, nation-wide WUI designation by Radelhoff et. al. at the University of Wisconsin-Madison found that only 153,786 acres in Monterey County meet he definitions provided under federal law for designating land as WUI.[1] This acreage represents only 7.6% of the County. The Radelhoff analysis fully discloses its methodology and the fact that it faithfully applied the criteria for WUI lands specified in federal law. See Exhibit 1 (Barber).

In short, the CWPP grossly overreaches in its attempt to subject most of Monterey County to the provisions of the federal Healthy Forest Restoration Act.

2. The MFSC proposal's analysis of the causes of and remedies for increased fire risk in Monterey County contradicts well-accepted science.

For purposes of analyzing the MFSC proposal's analysis of the causes of and remedies for increased fire risk in Monterey County, we retained Dr. Scott Stephens, a fire ecologist at UC Berkeley. His analysis and results are attached hereto as Exhibit 2 (Stephens).

For fire risk assessment purposes, Dr. Stephens observed that the MFSC proposal describes Monterey County's wildlands as principally consisting of three broad primary vegetation communities, which occupy the following portions of the County's land area: shrublands (including chaparral): 24%; grasslands: 31%; and woodlands 28%. A fourth vegetation community, forests, occupies between 2% and 2.8% of the County's land area. See MFSC proposal, pp. 9-10, Table 5; see also Exhibit 2 (Stephens), p. 1. Dr. Stephens verified the reliability of these figures by reference to the California Department of Forestry and Fire Protection "FRAP" database, available at

[1]Radeloff, V. C., R. B. Hammer, S. I Stewart, J. S. Fried, S. S. Holcomb, and J. F. McKeefry. 2005. The Wildland Urban Interface in the United States. Ecological Applications 15:799-805.

http://frap.cdf.ca.gov/data/frapgisdata/download.asp?rec=fveg02_2.[2] The County's woodlands may be further subdivided into grassland-dominated woodlands and shrub-dominated woodlands. Exhibit 2 (Stephens), pp. 1-3.

The most striking features of this CWPP is that it defines the fire risk "problem" in terms of fuel loading in the WUI zones with overmature and older vegetation and the fire risk reduction "solution" as removal of this vegetation. See e.g., MFSC proposal, pp. 2, 10, 11, 51. But as Dr. Stephens discusses, this diagnosis of the causes of increased fire risk is inapplicable to the County's shrublands because in this community vegetation age is only a "minor factor" and weather is a far more important variable determining the intensity and extent of wildfires. Exhibit 2 (Stephens), pp. 2-3. Thus, removing "overmature" or older vegetation in this vegetation community will be ineffective in reducing fire risk.

Similarly, the MFSC proposal also does not address the causes and remedies of fire risk in the County's grasslands and grassland-dominated woodlands. Exhibit 2 (Stephens), p.3.

As a result, the technical and scientific basis for the MFSC proposal's prescriptions for reducing fire risk are inapplicable to somewhere between 55% and 83% of the County, depending on how much woodland is grassland-dominated rather than shrub-dominated. Since 17% of the County is agricultural or urban land (15% agricultural and 2% urban), which would never be considered WUI land under any scenario, the MFSC proposal's prescriptions for reducing fire risk are inapplicable to somewhere between 72% and 100% of the County's wildlands, depending on how much woodland is grassland-dominated rather than shrub-dominated.

3. The MFSC's proposed CWPP compares unfavorably to other adopted CWPPs in California.

We retained Ms. Jodi Frediani to compare the MFSC's proposed CWPP with other adopted CWPPs in California. Her report is attached hereto as Exhibit 3 (Frediani). Ms. Frediani found that the MFSC proposal differs significantly from other CWPPs in several important respects.

For example, the MFSC proposal fails, in comparison to other CWPPs, to emphasize several modalities of fire risk reduction other than removal of older vegetation, including reduction of ignitability of structures, and enhancement of opportunities for escape and avoidance in the event of fire. Exhibit 3 (Frediani), p. 6-12.) In another example, the MFSC proposal appears to be unique, or at least unusual, in its recommendations for the wholesale exemption of fire risk reduction projects from environmental protection laws. Indeed, other CWPPs specifically recognize the

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[2]Ms. Barber also verified the reliability of these figures by reference to the database used by the County to produce Exhibit 4.9-1 of its General Plan update Draft EIR, though the General Plan EIR's breakdown of vegetation communities in the County is at a much finer scale and uses many more subcategories than either the MFSC proposal's or the FRAP database.

importance of complying with existing environmental laws when implementing fire risk reduction projects. Exhibit 3 (Frediani), p. 3-6.)

4. County adoption or "signing" of the MFSC proposal is a "Project" under CEQA requiring environmental review under CEQA.

The MFSC proposal asserts that the County's signing of the MFSC proposed CWPP is not a "project subject to CEQA," stating:

> "This MCCWPP is a voluntary guideline and comprises recommendations by the community to various governmental agencies. The MCCWPP does not legally commit any agency to a specific course of action, including by the act of signing the MCCWPP. The MCCWPP is not a project subject to CEQA or NEPA."

First, the fact that the MFSC proposal asserts that the County's signing of the proposal is not a "project subject to CEQA" is not relevant to, much less dispositive of, the question. As the California Supreme Court noted: "This is an issue of law which can be decided on undisputed data in the record [without] deference to agency discretion or review of substantiality of evidence." *Fullerton Joint Union High School Dist. v. State Bd. of Education* (1982) 32 Cal. 3d 779, 795 (*Fullerton*), cited with approval in *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal. 4th 372, 382 (*Muzzy Ranch*).

CEQA defines "project" as "an activity that may cause either a direct physical change or a reasonably foreseeable indirect physical change in the environment." Pub. Res. Code § 21065. The CEQA Guidelines further define "project" as "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." Guidelines § 15378(a). CEQA applies at the time a public agency proposes to "approve" a project. Guidelines, §15352, Discussion. "Approval" is defined as: "... the decision by a public agency which commits the agency to a definite course of action in regard to a project intended to be carried out by a person." Guidelines, § 15352(a) (emphasis added).

Applying these rules to the MFSC proposal is straightforward. Clearly, the MFSC proposal's designation of WUI lands is likely to lead to changes in the physical environment, because (1) fire risk reduction projects in WUI-designated areas are eligible for federal funding, and therefore, are more likely to occur with County adoption of the CWPP than without; and (2) if fire risk reduction projects in WUI designated areas are located on federal land, they will be entitled to restricted environmental review under NEPA. Thus, the designation of WUI lands commits the county to a "definite course of action."

Also, the CWPP's mistaken attribution of the causes of increased fire risk (i.e., the presence of older vegetation in shrublands, including chaparral, grasslands, and grassland-dominated woodlands,) is likely to lead to changes in the physical environment, because fire risk reduction projects will be more likely to focus on removing older vegetation, rather than other, actually

effective measures, such as hardening of structures.

Further, as a matter of policy, it makes sense to do environmental review now, at the CWPP level, because many future specific fire risk reduction projects will not require a discretionary County permit (e.g., projects on federal land or within cities) and, therefore, may never be subjected to environmental review under CEQA. (See discussion below.)

The MFSC has argued that its CWPP proposal is not a CEQA project because it does not authorize any change to the environment. This argument has been repeatedly rejected by the courts of this state. For example, in *Fullerton Joint Union High School Dist.*, the California Supreme Court held that the State Board of Education violated CEQA in approving a county committee's plan to form a new school district by dividing an existing one even though the new plan would have to be approved by the voters and it did not approve construction of any specific school in any specific location. In its recent *Muzzy Ranch* decision, the California Supreme Court summarized its previous decision in *Fullerton* as follows:

> We concluded that the Board of Education should have undertaken at least an initial environmental study of the secession plan's likely environmental impacts before approving it. (*Fullerton*, at p. 798.) In so doing, we expressly rejected the board's argument that its approval was not a CEQA project "merely because further decisions must be made before schools are actually constructed, bus routes changed, and pupils reassigned." (*Fullerton*, at p. 795.) That the board's approval of the plan was an essential step leading to potential environmental impacts, including construction of a new high school, was sufficient. (*Fullerton*, at p. 797.) Nor was the board's approval exempt from CEQA merely because it had to be ratified by the voters. (*Fullerton*, at p. 796.)

Muzzy Ranch Co. v. Solano County Airport Land Use Com., supra, 41 Cal. 4th at p. 383.

Similarly, in *Muzzy Ranch* the Supreme Court held that an airport land use commission decision to limit development near an airport was a CEQA project because it might cause development that would otherwise occur near the airport to be displaced to other locations. The Court rejected the commission's argument that its decision was not a CEQA project because it did not actually authorize any development.

The MFSC has also argued that its CWPP proposal is not a CEQA project because it contains merely "recommendations." In *Muzzy Ranch* the Supreme Court rejected a similar argument, stating:
"The Commission repeatedly characterizes the TALUP as containing merely "recommendations," "requests" or "advice" to the affected jurisdictions. In so doing, the Commission errs.... Pursuant to the statutory scheme authorizing it, the TALUP carries significant, binding regulatory consequences for local government in Solano County. *Muzzy Ranch*, 41 Cal. 4th at p. 384. Similarly, as noted above, the MFSC proposal's designation of WUI lands "carries significant,

binding regulatory consequences" under federal law that are likely to lead to changes in the physical environment.[3]

The California Supreme Court recently had occasion to decide when an activity is a "project" under CEQA, holding that before conducting CEQA review, agencies must not "'take any action' that significantly furthers a project 'in a manner that forecloses alternatives or mitigation measures that would ordinarily be part of CEQA review of that public project.'" *Save Tara v. City of West Hollywood* (2008) 45 Cal. 4th 116, 138.) Here, designation of WUI lands would foreclose alternatives or mitigation measures consisting of alternative criteria for and designations of WUI lands on which fuel reduction projects could receive federal funding and that would "ordinarily be part of CEQA review of that public project."

Finally, a recent Court of Appeal decision applying the above authorities to a conditional development agreement held that "the contract's conditioning of final approval on CEQA compliance is relevant but not determinative" of the question whether a conditional development agreement is a CEQA project. *City of Santee v. County of San Diego*, 2010 Cal. App. LEXIS 994 (Cal. App. 4th Dist. June 7, 2010) Here, there are many scenarios in which future fuel reduction projects will not be subject to any environmental review under CEQA.

For example, removal of vegetation from land that does not qualify as "timberland" under the state Forest Practice Act does not require a Timber Harvest Plan permit and, therefore, will not undergo CEQA review by CalFire. Non-timberland generally includes all the County's shrublands, including chaparral, all the County's grasslands, and most of the County's woodlands, i.e., the vast majority of the County's wildlands.[4]

There are circumstances where vegetation removal projects as prescribed in the MFSC proposal will require a discretionary permit from the County. These circumstances include land clearing subject to regulation under the following ordinances:

- Coastal Land Use Plans (Big Sur, Carmel, Del Monte Forest, North County)
- Coastal Implementation Plans (Big Sur, Carmel, Del Monte Forest, North County)
- County Code, Chapter 20.66.020 (Environmentally Sensitive Habitats, coastal)
- County Code, Chapter 21.64.260 MCC (Oaks Preservation, inland)
- County Code, Chapter 21.66.020 (Environmentally Sensitive Habitats, inland)
- County Code, Chapter 16.60 MCC (Oak Trees, county-wide)

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[3]With respect to whether, assuming CEQA applies, the County can rely, for purposes of its own compliance with CEQA, on CALFIRE's application of a CEQA exemption to its adoption of defensive space regulations implementing Public Resources Code § 4291, please see Gary Patton's August 31, 2009 letter on behalf of the Sierra Club.

[4]Se Public Respurces Code §§ 4526, 4527. California Code of Regulations, Title14, section 895.1, Definition of "commercial species."

However, unless the vegetation removal project meets one of the threshold legal requirements for one of these permits to apply, then the removal of vegetation will not undergo CEQA review. For example, while a permit is required under County ordinance to remove or substantially prune certain oak and other tree species in various unincorporated areas of the County (see County Code Chapter 16.60), these requirements do not and will not apply to many fuel reduction projects in shrublands, grasslands and woodlands that do not contain trees meeting the species and size criteria specified in the ordinance, and therefore, will not undergo CEQA. In another example, while a permit is required under County ordinance to conduct "land clearing" in excess of specified acreage criteria (see County Code Chapter 16.12, section 16.12.080), these requirements do not and will not apply to fuel reduction projects that do not meet the definition of "clearing" or the size criteria of this ordinance and, therefore, will not undergo CEQA review by the County.

In sum, adoption of the MFSC proposal will set the County on a definite course of action insofar as it will enable private landowners to apply for and obtain federal funding for fuel reduction projects in the County, many of which may not undergo CEQA review.

5. The MFSC proposal ignores "good planning" approaches to fire risk reduction.

The MFSC proposal entirely ignores the planning issues raised by local government permitting of development of homes and other structures in fire prone areas. The MFSC proposal simply assumes, without discussion, that structures built in the WUI zones are worthy of fire suppression efforts and the fire risk reduction measures outlined in the Plan. This bias leads to an extremely narrow definition of fire risk reduction measures, namely fuel reduction by vegetation management and fire break construction and maintenance. It entirely ignores the possibility of encouraging and assisting local governments to limit or condition permitting of new development in fire prone areas to reduce massive public expenditures on fire suppression and fire risk reduction efforts. The MFSC proposal's bias thus ignores the massive public subsidy, by way of CALFIRE fire suppression efforts and federal funding of fire risk reduction measures, of private development in California's wildlands.

6. Section 8 of the MFSC proposal should be deleted.

Section 8 of the MFSC proposal takes aim at just about every environmental law that requires public agencies to consider and avoid adverse environmental effects of fire risk reduction projects. As to each of these laws the MFSC proposal recommends to the legislative bodies that enacted the law and the executive agencies charged with their enforcement that they either amend the law or interpret it in a manner consistent with the CWPP's priority to protect "life, property and the environment" in that order, and in a manner that will not interfere with implementation of its recommended fire risk reduction strategies. As a result, the MFSC proposal represents an affirmative commitment by the County (and all other signatory agencies) to a specific, and one-sided, interpretation of all of these laws. As matter of sound public policy, the Sierra Club requests that the County not add its voice to this aspect of this proposal.

It is noteworthy that some of the MFSC proposal's statements regarding the laws it discusses are demonstrably false. For example, with respect to timber harvesting on private lands, the MFSC proposal states:

> "In 1976, the process established by the [Forest Practice] Rules was certified by the Secretary of Resources as being the functional equivalent of preparing an EIR pursuant to CEQA. *Since that time, activities conforming with the Rules require no CEQA analysis.* In some cases, landowners may choose to conform with the Rules to avoid the need for CEQA review for a fuel reduction project. See Appendix F for the checklist and more details"

(P. 47 [emphasis added].) The emphasized text is incorrect. Since 1976, over eight published Court of Appeal and Supreme Court decisions have held that timber harvesting plans approved by the Department of Forestry and Fire Protection must be analyzed pursuant to CEQA. *See* e.g., *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936; *Sierra Club v. State Board of Forestry* (1994) 7 Cal.4th 1215; *Ebbets Pass Forest Watch v. Dept. of Forestry and Fire Protection* (2004) 123 Cal.App.4th 1331; *Friends of the Old Trees v. Dept. of Forestry and Fire Protection* (1997) 52 Cal.App.4th 1383; *Californians for Native Salmon and Steelhead v. Department of Forestry* (1990) 221 Cal.App.3d 1419; *EPIC v. Johnson* (1985) 70 Cal.App.3d 604; *Gallegos v. State Board of Forestry* (1978) 76 Cal.App.3d 945; *Natural Resources Defense Council v. Arcata Nat. Corp.* (1976) 59 Cal.App.3d 959.

In conclusion, the Sierra Club requests that the Board of Supervisors decline to sign the MFSC CWPP proposal until it reflects better science and better wildland policy and until the County has completed environmental review of the project under CEQA.

Thank you for your attention to this matter.

Very Truly Yours,

Tom Lippe

Thomas N. Lippe

List of Exhibits

Exhibit 1: Letter dated July 9, 2010 Tom Lippe from Ms. Adelia Barber

Exhibit 2: Memorandum dated July 4, 2010 from Dr. Scott Stephens.

Exhibit 3: Letter dated July 1, 2010 to Tom Lippe from Ms. Jodi Frediani.

cc w/ enclosures:

Chairman Simon Salinas, County of Monterey, Board of Supervisors, P.O. Box 1728, Salinas, CA 93902

Charles McKee, County of Monterey, Office of the County Counsel, 168 West Alisal Street, 3rd Floor, Salinas, CA 93901

Carl Holm, Resource Management Agency, Planning Department, 168 W. Alisal Street, 2nd Floor, Salinas, CA 93901

Client

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EXHIBIT 1

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

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SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF ECOLOGY & EVOLUTIONARY BIOLOGY
UNIVERSITY OF CALIFORNIA
1156 HIGH STREET
SANTA CRUZ, CALIFORNIA 95064

July 12, 2010

Direct Contact: Adelia L. Barber
adelia@biology.ucsc.edu

Tom Lippe
Lippe Gaffney Wagner LLP
329 Bryant Street, Suite 3D
San Francisco, CA 94107

Dear Mr. Lippe:

At your request, I have performed a review and analysis of several methods used to map Wildland-Urban Interface (WUI) in the County of Monterey.

I have compared the extent of mapped WUI as presented in the Monterey County Community Wildfire Protection Plan, Appendix B-7, to the extent of mapped WUI presented by a wildfire research group at the University of Wisconsin-Madison ("The Wildland-Urban Interface in the United States", V.C. Radeloff, et al, published in *Ecological Applications* 15(3) pp 799-805, 2005). These two maps are subsequently referred to as "CWPP" and "Radeloff", respectively.

Background on CWPP map:

This map is presented as Appendix B-7 in the Monterey County Community Wildfire Protection Plan as created by the Monterey Firesafe Council, January 2010. There is no stated methodology for the creation of this map, thus I have no basis for assessing whether this map adheres to any specific definition of WUI.

Background on Radeloff map:

A group of researchers specializing in wildfire research at the Univ. of Wisconsin Madison published the Radeloff study in 2005. The authors created their map with the expressed purpose of mapping wildland urban interface in the United States using the definition outlined by the Healthy Forest Restoration Act (HFRA) and the corresponding Federal Register notice (66 Fed. Reg. 753, January 4, 2001). Their goals were to make this data available to policy-makers who needed to understand

the extent of WUI in United States. The methodology used to create the map is detailed in a peer-reviewed publication in Ecological Applications and the data is available in several different formats online.

In the Federal Register, wildland-urban interface or wildland-urban intermix communities are defined using both specific housing density requirements and a requirement detailing the general characteristics of wildland fuel in the area. For clarification, both interface and intermix communities count as "WUI" for the purposes of comparing to the CWPP mapping. Wildland-urban interface communities must contain greater than 3 structures per acre and there must be a clear line of demarcation between developed areas and wildland fuels. Wildland-urban intermix communities must contain at least .025 housing units per acre (or 1 house/40 acres) and should be predominately wildland areas with scattered structures.

The authors of the Radeloff study attempted to differentiate between "interface WUI" and "intermix WUI" communities per the Federal Register. Intermix WUI was mapped as any census block (from the year 2000 census) that had both greater than 1 unit per 40 acres and greater than 50% wildland vegetation. Interface WUI was mapped as any census block that met the following 3 criteria: first, the census block had equal to or greater than 1 unit per 40 acres, second, the block had less than 50% wildland vegetation, and third, the block was within 1.5 miles of a heavily vegetated area (>75% wildland vegetation over a 2 sq. mile area). For greater accuracy, census blocks that were only partially within the 1.5 mile threshold were split so that some part of the block could count towards WUI and the rest towards other categories.

GIS Analysis Methods:

I obtained the CWPP map in .kml (Google Earth) format from the Monterey Firesafe Council Website (http://firesafemonterey.org/mccwpp.html). The kml file was converted to shapefile format using the program KMLer and imported into ArcView using the NAD 27 Albers projected coordinate system. Unfortunately, no information exists as to the coordinate system (projection and/or datum) used to build the CWPP map, leading to a slight displacement of county boundaries when compared to other data layers that I used for analysis. These alignment issues create a small discrepancy when the total county acreage is calculated from different layers (e.g., approximately a 1% difference in total acreage when calculated from the CWPP layer vs. the Radeloff layer). In the interest of accuracy, it would be best if the architects of the CWPP map could clarify their methods (including a description of the coordinate system) or provide the original shapefiles for analysis.

The Radeloff Wildland-Urban Interface map of California was downloaded from the Silvis Lab website (http://silvis.forest.wisc.edu/Library/WUILibrary.asp). This raster data layer was converted from the NAD 1983 Albers coordinate system to the

NAD 27 Albers coordinate system and clipped to the boundaries of Monterey County.

Vegetation data was obtained from both Monterey County GIS staff and the ecological consulting firm Rana Creek. This data was converted from the NAD 1983 State Plane California IV 0404 (Feet) coordinate system to the NAD 27 Albers system.

All calculations and conversions were performed using standard ArcGIS tools for shapefiles, Arc's Spatial Analyst toolbox for raster layers, and the Geospatial Modeling Environment toolbox for complex calculations. In the case of the CWPP map, all polygon boundaries were dissolved and integrated into a single polygon to eliminate problems with overlapping boundaries.

Results:

The Monterey County CWPP map defines 1,266,110 acres as WUI (59.8% of Monterey County). The Radeloff group defines 153,786 acres as WUI (7.6% of Monterey County-- of which, 1.8% of the County is "interface" and 5.5% is "intermix"). See Figure 1 for a map comparing the extent of the two layers.

The large discrepancy between the total area defined as WUI in these two maps can be attributed to the fact that the Radeloff group held strictly to the housing density requirements outlined in the Federal Register while the CWPP map includes large areas that are either completely undeveloped or sparsely developed. In total, 88.1% of the area mapped in the CWPP as "wildland urban interface" falls below the threshold population density of 1 unit per 40 acres (36.6% covering completely undeveloped census blocks and 52% covering census blocks with less than 1 unit per 40 acres). Therefore, only 12% of the area mapped in the CWPP (150915 acres) covers census blocks that meet the Federal Register WUI definition. See Figure 2 for a map of the CWPP WUI boundaries overlaid on housing densities from the 2000 census.

For further clarification, Figure 3 shows the CWPP WUI boundaries overlaid on the vegetation types of Monterey County. This figure demonstrates that the CWPP WUI boundaries overlap a significant portion of the agricultural area of the Salinas Valley, cover many lakes and riparian zones in the county, and extend into heavily vegetated zones many miles from urban or developed areas.

The Radeloff group defined WUI by census block using year 2000 data, which is currently the highest resolution housing density data available in a single layer. However, this mapping by census block leads to a certain coarseness of data quality. The HFRA defines WUI as an area extending .5 miles from the boundary of an at-risk community (1.5 miles in some special cases). In some census blocks, it is likely that the "at-risk community" is located somewhere within the interior of the census block, for other more densely developed blocks, the boundary of WUI perhaps should extend .5 miles from the exterior boundary of the census block. In an effort to simplify these issues, the Radeloff group simply mapped entire blocks as either

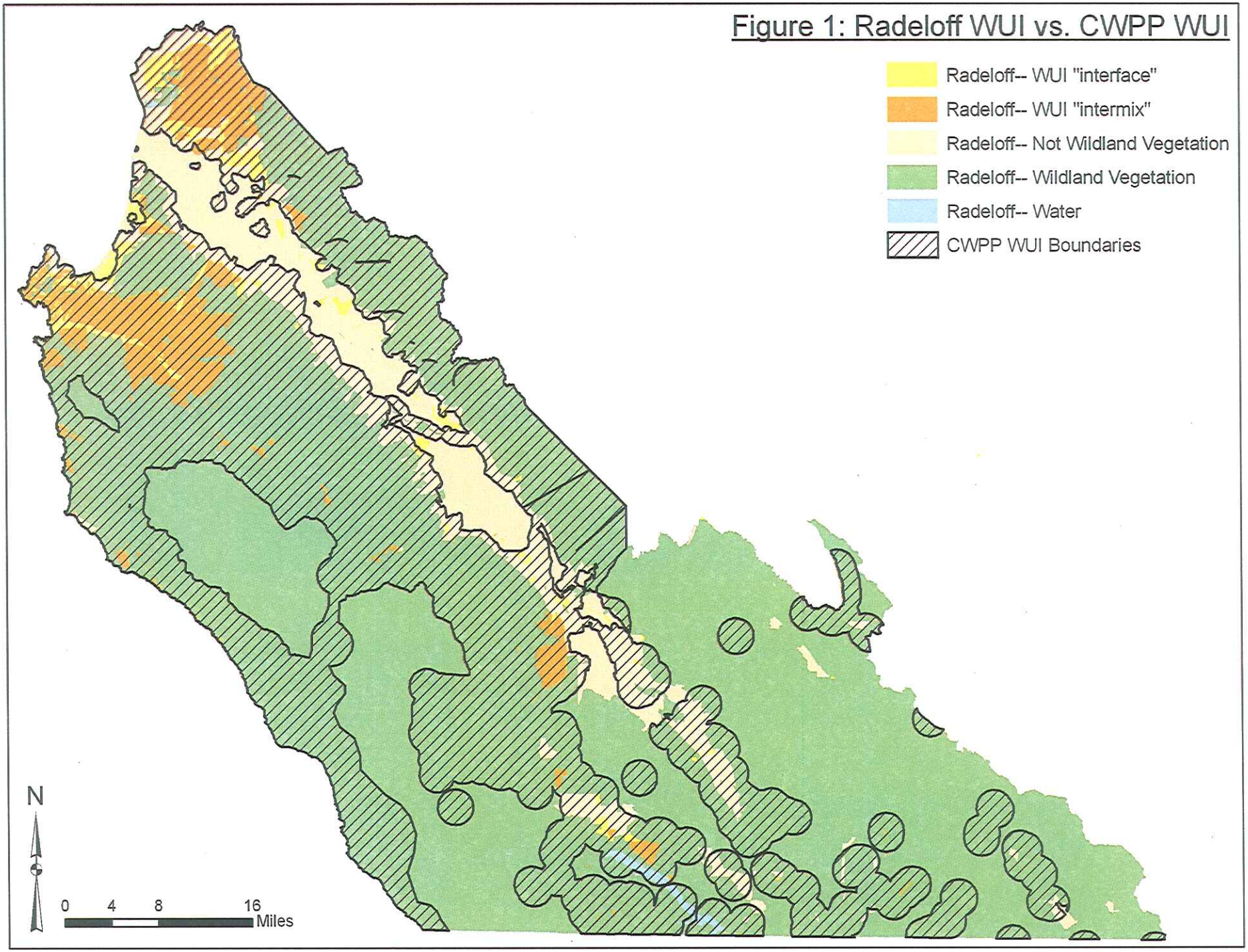
WUI or not WUI. As a result, some census blocks are probably "over-mapped" while others are "under-mapped" with respect to WUI. Therefore, in order to arrive at the least conservative estimate of WUI (e.g., greatest WUI acreage possible) while still somewhat abiding by the housing density and wildland fuel requirements in the Federal Register, I performed the exercise of expanding each census block mapped by Radeloff by .5 miles in each direction to create a "buffer" around each WUI interface or intermix census block. While this is likely an overestimate of WUI given the Federal Register definition, the resulting boundaries of WUI would cover 14% (301604 acres) of the County. These totals are still far below the area mapped in the CWPP as WUI, which covers 59.8% of Monterey County. As a result of this exercise, I have determined that the differences in total acreage between the two maps cannot be solely attributed to differences in the methods used to draw "buffers" around communities at risk.

In summary, the discrepancies in these two maps are largely due to differing definitions of "wildland-urban interface". The Radeloff group adhered closely to the definition outlined in the Federal Register while the methods used to create the CWPP map are unknown. If the methods used to create the WUI boundaries as drawn in the CWPP can be clarified, I will be able to compare the two methodologies directly and the differences between the two maps can be understood more fully. Please do not hesitate to contact me with questions; my academic CV is attached with a description of my GIS mapping qualifications and a list of recent projects.

Sincerely,

Adelia L. Barber
PhD. Candidate
University of California, Santa Cruz
Department of Ecology and Evolutionary Biology

Figure 1: Radeloff WUI vs. CWPP WUI



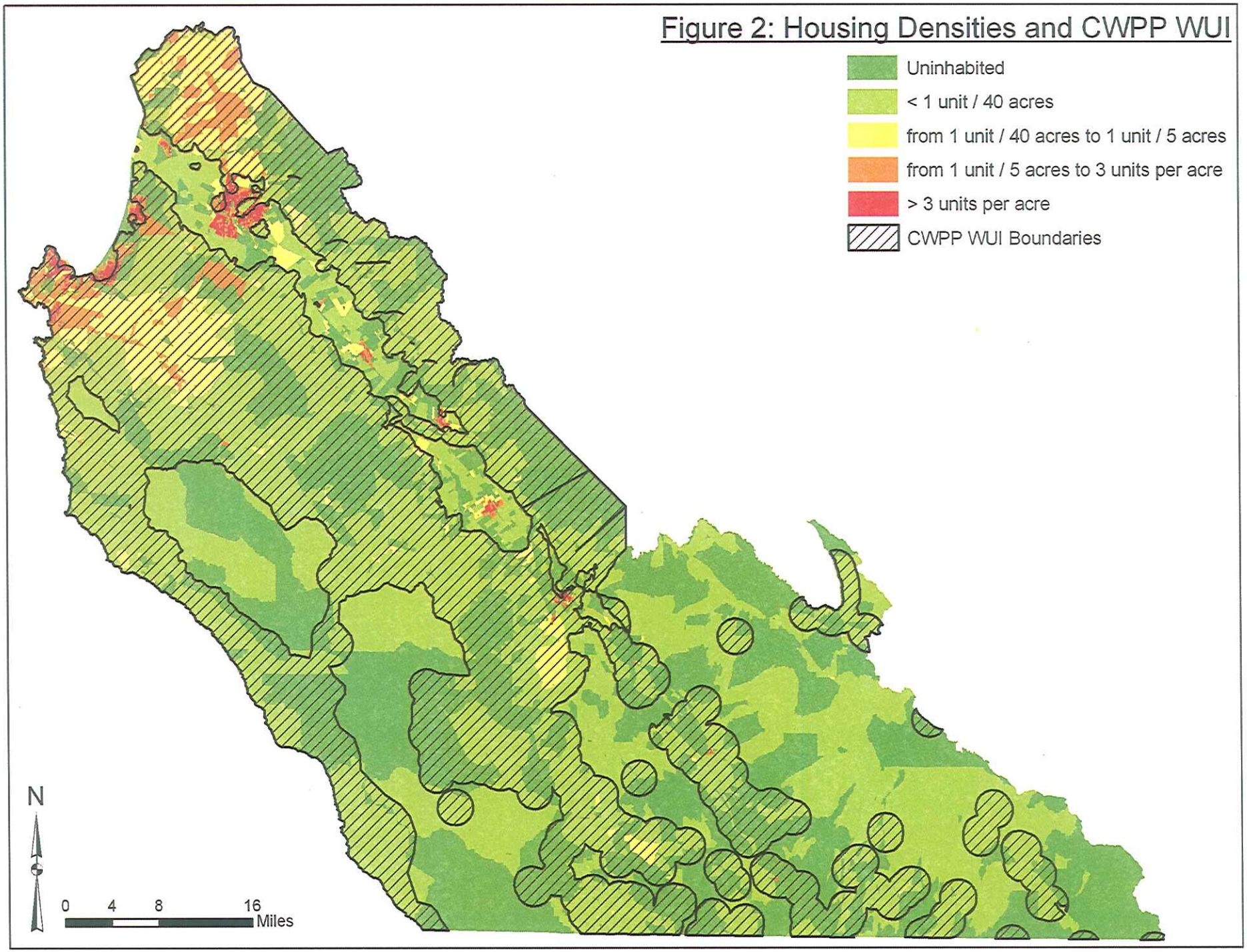
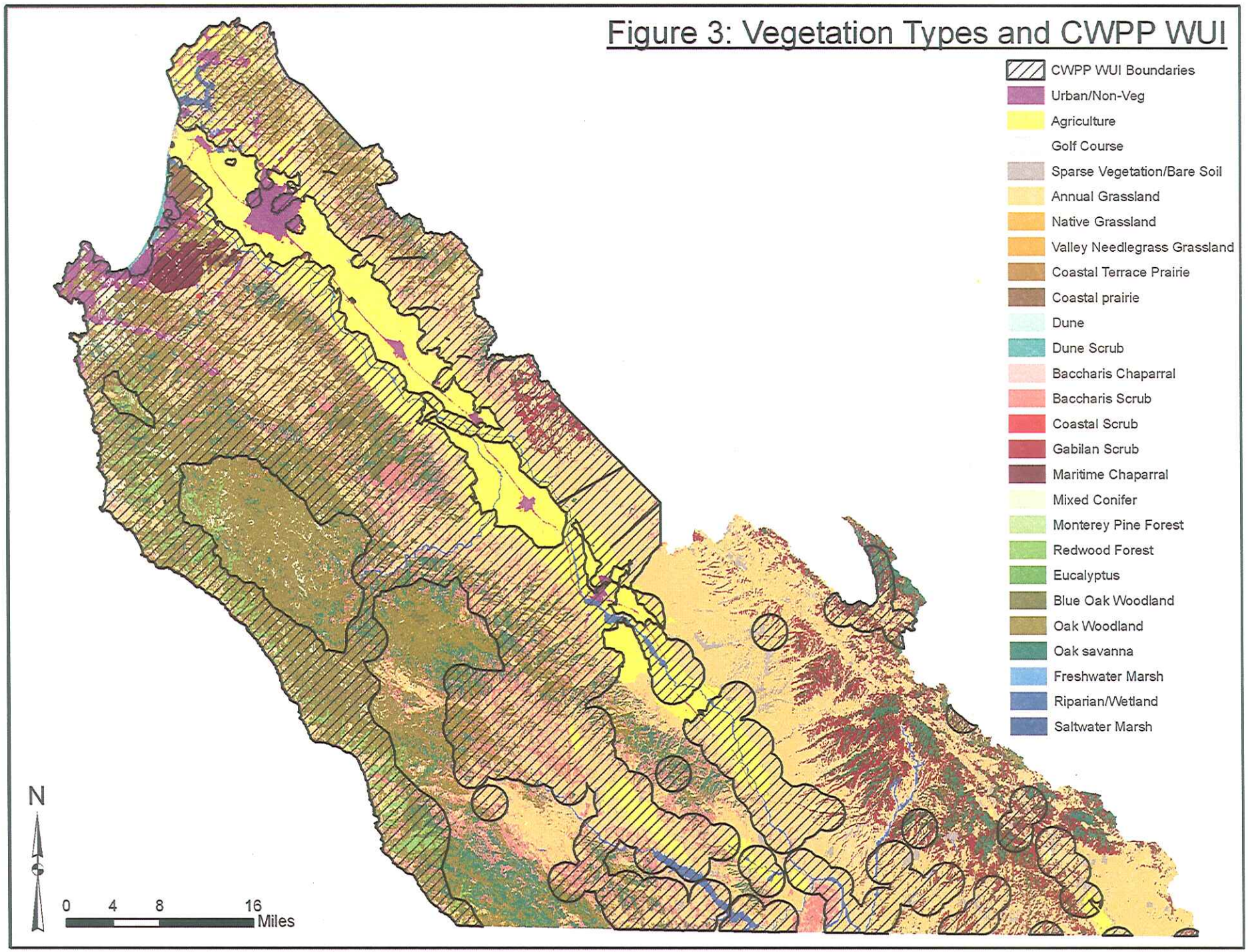


Figure 2: Housing Densities and CWPP WUI
Uninhabited
< 1 unit / 40 acres
from 1 unit / 40 acres to 1 unit / 5 acres
from 1 unit / 5 acres to 3 units per acre
> 3 units per acre
CWPP WUI Boundaries
N
0 4 8 16
Miles

Figure 3: Vegetation Types and CWPP WUI



CURRICULUM VITAE

ADELIA L. BARBER

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ACADEMIC HISTORY

PhD. Candidate in Ecology and Evolutionary Biology, University of California, Santa Cruz
Advisor: Dan Doak (2004 - current) *Advanced to Candidacy April 2007*

Brown University: Providence, RI (1997 - 2002)
4.0 GPA B.S. in Environmental Science
Magna cum laude with Honors

School for International Training, Arusha, Tanzania (2000)
Certificate in Wildlife Ecology

RESEARCH INTERESTS

Population dynamics and modeling of long-lived tree species, theory and empirical studies of plant life-histories, ecology of the genus *Pinus*, taxonomy of the genus *Trifolium*, dendrochronology, matrix modeling theory, conifer leaf physiology, spatial modeling using GIS

PROFESSIONAL AND TEACHING EXPERIENCE

- California State Coordinator of GLORIA - Global Observation Research Initiative in Alpine Environments, operated by the US Forest Service the University of CA (2009 – current)
- Co-Instructor for Biology 20B, Structure and Function of Organisms (305 students, 2007)
- Teaching Assistant for Plant Ecology, UC Santa Cruz, Professor Ingrid Parker (Fall 2006)
- Teaching Assistant for Quantitative Conservation Biology, UCSC, Prof. Doak (Winter 2005)
- Assistant Agricultural Researcher, UC Cooperative Extension Monterey (2003- 2004)
- Teaching Assistant for Conservation Biology, Brown University, Prof. Hughes (Fall 2001)
- Mentor and Trip Leader, Providence Outdoor Leadership Project (Fall, 1999- Fall 2001)
- Teaching Assistant for Applied Plant Ecology, Brown University, Prof. Schmitt (Spring 2001)
- Teaching Assistant for Environmental Science, Brown University, Prof. Hamburg (2001)
- Teaching Assistant for Plant Systematics, Brown University, Prof. Schmitt (Fall 2000 & 2001)
- Vegetation Researcher, Ndarakwai Wildlife Reserve, Tanzania (Fall 1999- Summer 2000)
- Laboratory and Field Technician, United States Geological Survey (Summer 1999)

- Seminar Coordinator for the Center for Environmental Studies, Brown Univ. (1998-1999)
- Intern for California State Assemblyman Fred Keeley, Santa Cruz, CA (Summer 1998)

GRANTS AND AWARDS

2010 UC Santa Cruz GAANN Fellowship
2009 ARCS Foundation Scholarship
2009 California Desert Research Fund Grant
2009 Elvander Scholarhip from the California Native Plant Society
2008 NSF Doctoral Dissertation Improvement Grant
2008, 2007, & 2006 White Mountain Research Station Graduate Student Grant
2004 STEPS Fellow in Interdisciplinary Environmental Research, MRC Greenwood Fellowship
2004 National Science Foundation Graduate Research Fellow
2004 UCSC President's Cota-Robles Scholarship
2001 Brown University Royce Fellowship Continuation Grant
2000 Brown University Royce Fellowship Grant (for work on the Santa Cruz Tarplant)

GUEST LECTURES & PRESENTATIONS

Invited Presentations:

Barber, A.L. "A Natural History of *Pinus longaeva*." Santa Cruz Chapter of the California Native Plant Society. Santa Cruz, CA (January 2010)

Barber, A.L. "Seven Millennia of Population Dynamics in a High-Altitude Population of Bristlecone Pine." California Native Plant Society Conservation Conference. Sacramento, CA (January 2009)

Barber, A.L. "Population Ecology of Long-Lived and Long-Dead Charismatic Megaflora." Climate, Ecosystems and Resources in Eastern California (CEREC) Symposium. Bishop, CA (November 2008)

Barber, A.L. "The Bristlecone Pine Ecosystem." White Mountain Research Station Open House, Barcroft Station. (August 2008)

Barber, A.L. "The Bristlecone Pine Ecosystem." Clark County Ecosystem Health Workshop, Desert Research Institute. Las Vegas, NV (January 2008)

Contributed Presentations and Guest Lectures:

Maher, C. and Barber, A.L. "The Effects of Herbivory and Habitat Amelioration on bristlecone pine (*Pinus longaeva*) Seedlings" Poster, STEPS Institute Annual SLGS Meeting. Santa Cruz, CA. (Febuary 2009) also displayed at Climate, Ecosystems and Resources in Eastern California (CEREC) Symposium. Bishop CA (November 2008)

Barber, A.L. "Modeling The Early Life-Stages of *Pinus longaeva*." UC Santa Cruz Plant Symposium. Santa Cruz, CA (January 2009)

Garcia, J. and Barber, A.L. "The Effect of mammalian and avian seed caching on bristlecone pine populations." Climate, Ecosystems and Resources in Eastern California (CEREC) Symposium. Bishop CA (November 2008)

Barber, A.L. "Population Ecology of Long-Lived and Long-Dead Charismatic Megaflora." Ecological Society of America Annual Meeting. San Jose, CA (July 2007) (also given to UC Davis Ecology Odyssey Field Course, White Mountain Research Station. September 2007 AND an ecology field course from Victor Valley College, White Mountain Research Station. August 2007)

Barber, A.L. "The Basics of Dendrochronology for Paleoclimate Reconstruction." The Fossil Record. UC Santa Cruz. Winter 2007

Barber, A.L. "Matrix Modeling for Plant Populations and Metapopulation Analysis." Plant Ecology, UC Santa Cruz. Fall 2006

Barber, A.L. "Environmental and demographic stochasticity in matrix modeling." Quantitative Conservation Biology, UC Santa Cruz. Winter 2006

Barber, A.L. "Long Term Population Dynamics: Competition and Facilitation in Bristlecone and Limber Pines." Stanford – UCSC Species Interaction Workshop. Santa Cruz, CA (December 2006)

Barber, A.L. "Mustard Cover Crops for Weed Control." Western Grower's Association Meeting. Salinas, CA. December 2003.

Barber, A.L. "Population Trends for the Santa Cruz Tarplant." The Coastal Training Program's Santa Cruz Tarplant Recovery Workshop, Monterey, CA. August 2003

Barber, A.L. "A Grower's Guide to Grass Identification." Salinas Valley Grower's Meeting. July 2003.

PUBLICATIONS & REPORTS

Barber, A.L. *IN PREP* "Five decades of recruitment in a high-altitude population of Bristlecone Pine". Will be submitted to Ecology in July 2010

Barber, A.L. and M.E. Barber. *Requested, In PREP* "A novel borer extraction device for field use." Will be submitted to Tree-Ring Research, July 2010

Morgan, R., Barber, A.L., and Velzy, J. *IN PREP* "*Trifolium piokowskii* (Leguminosae, Papilionoideae): A new species of clover from Northern California." Will be submitted to *Novon* in July 2010

Sattherthwaite, W. H., K. D. Holl, G. F. Hayes, and A. L. Barber. 2007. Seed Banks in Plant Conservation: Case Study of the Santa Cruz Tarplant Restoration. Biological Conservation 135:57-66.

Hane, E. N., S. P. Hamburg, A. L. Barber, and J. A. Plaut. 2003. Phytotoxicity of American beech leaf leachate to sugar maple seedlings in a greenhouse experiment. Canadian Journal of Forest Research 33: 814-821

A. L. Barber. 2001. Conservation of a Rare California Wildflower: A Case Study of the Santa Cruz Tarplant. Senior Thesis, Brown University Center for Environmental Studies.

A. L. Barber. 2000. The land-use and land-cover of Ndarakwai Wildlife Reserve: Vegetation change over ten years. Report Submitted to Ndarakwai Private Wildlife Reserve, Northern Tanzania

PUBLIC SERVICE, OUTREACH, SKILLS

- Google Earth Case Study: Ecological Research on the Ancient Pines (this case study is displayed on the Google Earth webpage and included in the downloadable program). http://earth.google.com/outreach/case_studies.html
- Graduate Student Member on the faculty search committee for the Dept. of Ecology and Evolutionary Biology, UC Santa Cruz (2009)
- Graduate Student Representative for the Dept. of Ecology of Evolutionary Biology, UC Santa Cruz (2007-2008)
- Volunteer Consultant for The Mountain Resources Group, Save the Bohemian Grove, and Neighbors Against Irresponsible Logging (2005-2009)
- Volunteer, Annual GLORIA Plant Surveys in Tahoe and the White Mountains (Global Observation Research Initiative in Alpine Environments) 2005-2008
- Proficient in Kiswahili and Spanish
- Reviewer for Acta Oecologia
- Alumni Interviewer for Brown University (2000 – 2009)
- Professional Societies: Ecological Society of America, California Native Plant Society

MENTORING EXPERIENCE (STUDENTS AND VOLUNTEERS)

Supervisor of Senior Theses 2008-2010

- Scott Jorgensen: "Abiotic limitations of the distributions of *Pinus flexilis* and *Pinus longaeva* in the White Mountains, California." Advised by Adelia Barber and Ingrid Parker 2010
- Meagan Oldfather: "Elevation-dependent Population Growth Rates of bristlecone pines (*Pinus longaeva*) as an indicator of a Changing Treeline in the White Mountains, California" Advised by Adelia Barber and Ingrid Parker 2010
- Rebecca Byrnes: "Making a usable data base for Trifolium fucatum." Advised by Adelia Barber 2010

- Colin Maher: "The Effects of Herbivory and Habitat Amelioration on bristlecone pine (Pinus longaeva) Seedlings." Advised by Adelia Barber and Prof. Ingrid Parker 2009
- Jeffrey Garcia: "The Effect of mammalian and avian seed caching on bristlecone pine populations." Advised by Adelia Barber and Prof. Daniel Doak 2009
- Marcos Grabiel: "Somatic Mutations in Bristlecone Pines: A Unique, Precise Approach." Advised by Adelia Barber and Prof. Kathleen Kay 2008
- Elizabeth Hoosiar: "A Shadow in Time: Using fallen cones to assess the long-term fecundity of Pinus longaeva." Advised by Adelia Barber and Prof. Mark Carr 2008

3 Non-Thesis Independent Study Students (2007 – 2009)
10 Elderly and Citizen Science Volunteers (2006 – 2009)
7 Other Student Volunteers (2007 – 2009)

MEDIA COMMENTARIES

- The Good Times Weekly, Santa Cruz. September 17, 2008. "Pining for the Bristlecone" http://www.gtweekly.com/20080917249727/good-times/covers/pining-for-the-bristlecone
- Los Angeles Times. September 25, 2006 "A Top Spot for Higher Education"
- San Francisco Chronicle. August 2, 2006 "Performing High-Altitude Research on Global Warming"

EXHIBIT 2

7/4/2010

From: Scott Stephens
Associate Professor of Fire Science
Department of Environmental Science, Policy, and Management
130 Mulford Hall
University of California, Berkeley
Berkeley, CA. 94720-3114 sstephens@berkeley.edu

Subject: Review of 'Monterey County Community Wildfire Protection Plan (CWPP)' written in January, 2010.

The goal this plan is to serve as a strategic framework to guide fire safe activities and policies throughout Monterey County. The plan includes information and ideas regarding the management of wildlands and the urban-wildland interface (UWI).

Monterey county encompasses over 2.1 million acres and over 70% of the land in county is privately owned. The area covered by specific fuel types is included in the plan and is summarized below (Pg 9-10):

Grasslands, 31% of county
Shrublands, 24% of county (includes chaparral and coastal sage scrub)
Woodlands, 28% of county (includes hardwood litter, light grass/woodland)
Forests, 2% of county (the hardwood litter category could include some conifer forests); however an analysis of a Monterey county vegetation map (FRAP 2002) resulted in 2.8% of the county in redwood, montane hardwood-conifer, closed cone pine-cypress, ponderosa pine, and Douglas-fir forests which is similar to the 2% value reported above.

The rest of the county is agricultural with 2% classified as urban. This data clearly demonstrate that forests are rare in Monterey county, most vegetative areas are grasslands, shrublands, or woodlands.

The CWPP would be improved if specific vegetation management proposals were tied to specific vegetation types (i.e. forests, shrublands, woodlands, grasslands). In the present form there is little distinction in the proposals for these diverse vegetation types. For example, an understory thinning followed by prescribed fire could be an effective method to reduce fire hazards in ponderosa pine forests but this would not be appropriate for shrublands.

The US federal government has enacted several fire policies since the mid 1990's including the Federal Fire Policy of 1995, National Fire Plan of 2000, Collaborative Approach for Reducing Wildfire Risks to Communities and the Environment: Ten-Year

Comprehensive Strategy in 2001, and the Healthy Forest Restoration Act of 2003 (Stephens and Ruth 2005). All of these acts seek to reduce fire hazards but are primarily targeted at forests.

Fire Hazards and Management in Forests

A scientific body of literature has been created regarding the reduction of fire hazards in forests that once burned frequently but have been under a policy of fire suppression for approximately 100 years and have been repeatedly harvested (Stephens 1998, Fule et al. 2001, Pollet and Omi 2002, Fiedler et al. 2004, Agee and Skinner 2005, Stephens and Moghaddas 2005, Agee and Lolley 2006, Schmidt et al. 2008, Youngblood et al. 2008, Stephens et al. 2009) (this literature is not included in the CWPP). There is scientific consensus that to reduce fire hazards in forests that once burned frequently fuels treatments should focus on surface, ladder, and then crown fuels. However with little forests in Monterey county much of this literature this inappropriate except for local forested areas with high fire hazards. In these relatively small forested areas in Monterey county the work cited in this paragraph is appropriate and the strategy of reducing surface, ladder, and crown fuels (in that order of priority) would reduce fire hazards.

Fire Hazards and Management in Shrublands

The CWPP states that much of the county is in a very hazardous fuel condition from overgrown and over-mature vegetation (Pg 10, 11, 51). However high fire hazards are common in areas dominated by shrublands in coastal California which can burn at high intensity when severe fire weather occurs (Moritz 1997, Keeley and Fotheringham 2001, Keeley et al. 2004) which is not in agreement with text in this plan (Pg 11). Chaparral re-grows relatively quickly after high intensity fire and can burn again in less than 5 years with moderate intensity.

Several papers have been written on chaparral fire regimes that include the federal lands in Monterey county, two of the most important papers are Moritz et al. 2004 and Moritz 2003. These papers worked to determine if wildfires in coastal shrublands are strongly influenced by the age of the shrubs (or time since last stand replacing fire) or if weather was the most important factor. Analysis presented in these papers concludes that shrubland fuel age is a relatively minor factor in fires in US Forest Service lands in Monterey county. This result is very important regarding what techniques could be implemented to reduce unwanted fire effects. In areas dominated by shrublands the best strategy would be to work in areas in close proximity to the UWI instead of creating a mosaic (patches of chaparral with different ages) of vegetation patches or fuel breaks. The UWI has enormous assets at risk and fuels treatments can be used to reduce the vulnerability to catastrophic losses. However I must point out that the risk will never be reduced to zero, it can be reduced but treatments must be maintained to remain effective. The CWPP correctly states that fire behavior under severe fire weather constitutes the greatest threat of destructive wildland fires and these are historically immune to planned

tactical responses (Pg 13). Reducing fuel loads along access roads to provide safe access for fire equipment and resident evacuation is a priority that the CWPP identifies (Pg 35) and I agree with this proposal.

Prescription parameters are included in the CWPP regarding chaparral prescribed fires (Appendix G). I recommend consulting two recent publications (Potts and Stephens 2009, Potts et al. 2010) regarding the trade offs of using prescribed fire and mechanical treatments (mastication) in different seasons to manage chaparral. These publications focus on the ecological effects of the most common fuel treatments used to manage chaparral and may be useful to this plan. Information in Appendix G is very general, the information from these two publications can allow managers to predict what could occur when burning in spring, fall, or winter or what would be expected after mastication alone.

Fire Hazards in Grasslands and Woodlands

The county has a large area of grasslands and woodlands. Most of these areas are dominated by exotic annual grasses that naturalized in California after European settlement. Since these plants grow and die annually the use of livestock grazing could be an effective method to reduce fuel loads. Years with higher rainfall (such as 2009-2010) would be periods where reduction of annual grass fuels near the UWI would be particularly important. The CWPP mentions grasslands very little but they are an important vegetation type in Monterey county.

Fire hazards in woodlands are also be connected to annual grasslands since they normally dominate the undestory of these ecosystems. Many woodlands also have shrubs that will be of varying cover and height. If woodlands have extensive shrub cover these could act as ladder fuels to the overstory, particularly when the overstory is coniferous (such as gray pine). In these areas, particularly near the UWI, removal of some of the larger shrubs (ladder fuels) might be appropriate. However if shrub cover in woodlands is clumpy or low it would not increase fire hazards significantly.

Fire in the Urban-Wildland Interface

To reduce losses in the UWI private land-owners will have to reduce the vulnerability of their assets (Stephens and Ruth 2005). The CWPP does a good job in this area, it includes quite a bit of language that clearly states that people need to reduce the chances of their homes or yards being ignited by flying embers (which is the primary ignition method in the UWI)(Pg 17, 50, 52, 59). The CWPP states it is possible that some communities may become trapped without the option to evacuate, forcing them to shelter in place and defend themselves (Pg 17). Discussing this possibility with residents in the UWI is important including what actions they need to do before and during such an event to reduces losses of life and property.

However the CWPP references CAL FIRE's policy of 'Ready, Set, Go' (pg 17, 83) and a document with this title is included at the end of the report (no sequential page numbers provided). While some of the basic principals outlined in this document are sound (working to reduce risks of home ignition, early evacuations) it does a poor job of citing the scientific literature in this area. It references one scientist, Jack Cohen (Pg 4 of the Ready, Set, Go document), but gives no citations. While Jack Cohen's work is good work done in Australia should be included in this report. The Australian's began working on this issue in the 1970's, well before anybody was doing similar work in the US. The document would be substantially improved if it connected to this literature. A couple of papers that can assist in this area are Stephens et al. 2009 and Gill and Stephens 2009. There are many others but this could provide a starting point for literature in the UWI. This document (Ready, Set, Go) has almost no scientific references which makes it of moderate usefulness. The 'Contingency Planning (how to survive, if trapped)' section on page 6 is inadequate. During severe fire weather it is likely that many people living in the UWI will be impacted by fire with little of no warning (as occurred in the 1991 Oakland Hills Fire) (Pg 17 in the CWPP states this as well). What should a home-owner do if suddenly impacted by a fire in the UWI? What can be done to reduce the chances for losses or injury during such an event? More information is needed in this critical area, the 'Ready, Set, Go' document does not cover this area well.

The CWPP discusses the use of fuel breaks, fire breaks, and strategically place landscape area treatments (SPLATs) (pg 50). The CWPP specifies where existing fire and fuel breaks are located throughout the county (Pg 72, 73, 74). Since these are already installed maintaining them into the future makes sense. They can act as anchor points for fire suppression operations and safety areas for fire fighters. How wide such fire breaks should be is an issue that is debated. Jack Cohen (2000) has written that the vegetation immediately near the homes (within 100-150 feet) is the critical area regarding safety in the UWI. I agree with this but embers can also be produced from areas further away and they can impact structures. However to reduce losses in the UWI it is more efficient to invest in measures to reduce the probability of home and urban-garden ignition from embers than to decrease vegetation fire hazards at long distance from the UWI.

Vegetation Management and Monitoring Proposals in the CWPP

The CWPP recommends an annual goal of 65,000 acres of fuel reduction work on private land in Monterey county (Pg 79). The rational for this number is there are 1.3 million acres of private land that is rated by the CAL FIRE FRAP program as high, very-high, or extreme threat from wildfire. Assuming that vegetation regrows to a mature condition within 20 years after fuel reduction work is performed, fuel reduction work needs to be performed on about 65,000 acres per year to perform such work on 1.3 million acres in a 20-year rotation. While the arithmetic of this approach is good I cannot support this goal in shrubland dominated ecosystems. Research has determined that some fuel treatments in chaparral can increase non-native species (Keeley et al. 2005, Potts and Stephens 2005, Keeley 2006) and this has the potential to change species composition and can substantially modify wildlife habitat. Type conversions (changes from chaparral to

grasslands) are possible because non-native grasses can increase fire frequency to the point where chaparral species cannot regenerate. Most fuels treatments in shrublands should target the UWI, not remote shrublands in this county. In the relatively rare forested areas with high fire hazards in Monterey county the general approach of treating a percentage of the landscape annually is an effective fire reduction technique (I recommend using a strategically placed landscape area treatments approach in forests which is discussed in Pg 72, 73, 74)). In grassland areas the use of livestock grazing may be an effect tool to reduce fuel loads.

I would not recommend creating a new set of fire breaks in chaparral shrublands that are not next to the UWI, as suggested in the plan (Pg 63). When shrublands burn under severe weather such fire breaks will not be effective in mitigating fire behavior. Most fire breaks are narrow and spotting embers will fly right over them, especially during severe weather. Unfortunately for many managers coastal shrublands burn at high intensity when we have strong, dry winds. In other areas steep topography alone can produce extreme fire behavior. A system of fire breaks or a mosaic of different aged chaparral will not be very effective in reducing landscape fire behavior. It is better to invest resources in areas adjacent to the UWI and to get private land owners to reduce the vulnerability of their structures and yards to ember ignition.

The CWPP mentions that annual monitoring of treated areas is recommended but gives no specifics (Pg 70). What species will be monitored? What methods? Will the methods used be reviewed by appropriate scientists and managers? Effective monitoring and adaptive management should be a central theme of this plan. In an era of changing climates adaptive management and monitoring will be a critical component of this CWPP (Miller et al. 2007). More effort is needed to develop this critical section and a funding source will be needed to do this critical work.

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Cohen, J. D. 2000. Preventing disaster: home ignitability in the wildland-urban interface. Journal of Forestry 98: 15–21.

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California Department of Forestry and Fire Protection, Sacramento, CA.

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Keeley, J.E. and C.J. Fotheringham. 2001. The historical role of fire in California shrublands. Conservation Biology 1536-1548.

Keeley, J.E. 2006. Fire management impacts on invasive plant species in the western United States. Conservation Biology: 375-384.

Keeley, J.E., C.J. Fotheringham, and M.A. Moritz. 2004. Lessons from the October 2003 wildfires in southern California. Journal of Forestry 102: 26-31.

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Millar, C.I., N.L. Stephenson, and S.L. Stephens. 2007. Climate change and forests of the future: managing in the face of uncertainty. Ecological Applications 17: 2145-2151.

Moritz, M.A. 1997. Analyzing extreme disturbance events: Fire in Los Padres National Forest. Ecological Applications 7:1252-1262.

Moritz, M.A. 2003. Spatio-temporal analysis of controls of shrubland fire regimes: Age dependency and fire hazard. Ecology 84:351-361.

Moritz, M.A., J.E. Keeley, E.A. Johnson, and A.A. Schaffner. 2004. Testing a basic assumption of shrubland fire management: How important is fuel age? Frontiers in Ecology and the Environment 2:67-72.

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Schmidt, D.A., A.H. Taylor, and C.N. Skinner. 2008. The influence of fuels treatment and landscape arrangement on simulated fire behavior, Southern Cascade range, California. Forest Ecology and Management 255:3170–3184.

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Stephens, S.L. and J.J. Moghaddas. 2005. Experimental fuel treatment impacts on forest structure, potential fire behavior, and predicted tree mortality in a mixed conifer forest. Forest Ecology and Management 215:21-36.

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EXHIBIT 3

Jodi Frediani ◈ Environmental Forestry Consulting

July 1, 2010

Tom Lippe
Lippe Gaffney Wagner LLP
329 Bryant Street, Suite 3D
San Francisco, CA 94107

Re: Comparison of MCCWPP with other CWPPs re Environmental Regulation, Deficiencies, and Treatment of Structural Ignitability

Dear Tom,

As preparation for developing the following comments and recommendations I have reviewed the following Community Wildfire Protection Plans and other documents: Monterey County CWPP, January 2010; MCCWPP Dudek Draft; Preparing a Community Wildfire Protection Plan, A Handbook for Wildland-Urban Interface Communities; Tahoe Basin CWPP (Tahoe CWPP); Keswick CWPP; Fallen Leaf, Portion of Lake Tahoe Basin, California Portion CWPP and The Community Protection Zone: Defending Houses and Communities from the Threat of Forest Fire (Nowicki)[1].

I have also relied on knowledge gained from previous review of the Draft Santa Cruz-San Mateo CWPP for Central Coast Forest Watch and the Santa Cruz Group of the Sierra Club, Ventana Chapter and my participation in development of the Lexington Hills CWPP on behalf of Neighbors Against Irresponsible Logging. I have also reviewed several articles on chaparral and fire in preparation of the following comments. I chose the Keswick and Tahoe CWPPs because they were developed in communities adjacent to federal lands, had high fire incidences and similar considerations to Monterey County. The Lexington Hills area and Santa Cruz County have also experienced significant fires in recent years.

In this report, I will focus on two distinct areas: 1) significant differences between the MCCWPP and others relating to environmental regulations (Section A) and recommendations for hazardous fuel reduction projects, and 2) what is lacking in the

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[1] Nowicki, Intro: *"This paper includes an extensive review of all the available scientific literature in an effort to determine what is actually necessary and effective at protecting houses and communities from the threat of forest fire. WUI treatments that provide effective protection from forest fires can be implemented relatively quickly in and around the homesite (the house and its immediate surroundings), and with a minimum of impact on the wildland forest."*

MCCWPP, focusing on treatment of structural ignitability and site-specific documentation and recommendations (Sections B-E).

I am sure you are aware that the CWPP arose out of the Healthy Forest Restoration Act (HFRA) "*which builds on existing efforts to restore healthy forest conditions near communities and essential community infrastructure by authorizing expedited environmental assessment, administrative appeals, and legal review for hazardous fuels projects on federal land.*"[2] As such it tends to focus on forests, rather than chaparral, and as noted in the above quote, encourages 'expedited environmental assessment' on federal lands.

While the CWPP process is fairly broad and flexible and " *may address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection—or all of the above*"[3], it must include:

MINIMUM REQUIREMENTS

The *minimum requirements* for a CWPP as described in the HFRA are:
(1) Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.
(2) Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
(3) Treatment of Structural Ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.[4]

The MCCWPP apparently conducted minimal collaboration with 'other interested parties' (personal conversation with Rita Dalessio) [5], used an exceptionally broad brush on prioritizing fuel reduction projects (and defining it's WUI)[6], and minimized focus on reducing ignitability of structures.

The MCCWPP is so poorly organized that it fails to follow the three outlined minimum requirements as a foundation. Structural Ignitability is lumped under Fuel Hazard Reduction in one brief section (6.1, pg 59). The bulk of the document is essentially off topic, referencing other fire and planning documents and devising ways to get around environmental regulations.

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[2] Preparing a Community Wildfire Protection Plan, A Handbook for Wildland-Urban Interface Communities
[3] *ibid*
[4] *ibid*
[5] Rita indicated that the various stakeholder groups were not notified per the timeline in the CWPP and in some cases were not notified at all.
[6] *ibid*, pg 4, HRFA offers benefits: "the opportunity to establish a localized definition and boundary for the wildland-urban interface"

The MCCWPP also contains elements painted in broad strokes that would allow actions with the potential to create significant environmental harm while not accomplishing the stated goal of protection of life and property. For instance, the MCCWPP defines a huge swath of the County as WUI Defense and WUI Threat zone (Appendix B, Map B-7). Pg 26, 3.3.1.3 "*Fuelbreak construction and maintenance... usually would occur outside the Defense zones, in both the WUI Threat zone and in the WUI environment (a distance of* ***up to 7.5 miles from developments****, or the distance that fires may burn in a 24-hour period during normal summer conditions).*"

This statement is ambiguous at best, but at worst allows for actions that would provide a false sense of security to the community, while having the potential to create undue environmental harm. It appears to imply that creating fuelbreaks 'up to 7.5 miles from developments' is an appropriate action to be taken for protecting such developments from advancing fire. First, there is no definition of 'developments' in Appendix A, so there is no agreed upon way of determining just how many homes or buildings constitute a 'development'. Is one home a development that could trigger construction of a fuelbreak 7.5 miles away? Neither does the statement take into account how such a fuelbreak would protect the development from any fire starting inside the 7.5-mile zone. But of even greater import is the implication that construction of a fuelbreak at the distance 'that fires may burn in a 24-hour period' would protect life and property. This is inconsistent with the available science on the topic.

Nowicki says, " *The protection of the house depends entirely on treatment of the home ignition zone—the house itself and the area within 60 meters (200 feet) of the house. This is necessary to protect the house from the various forms of ignition present during forest fires, regardless of what treatments are implemented in the adjacent forest.*" and, " *The largest community protection zone required under maximal conditions is less than 500 meters (1640 feet) wide. However, most communities require treatment extending less than 400 meters (1312 feet) from the house.*"[7]

A. ENVIRONMENTAL REVIEW

The MCCWPP makes repeated statements about the need to prioritize protection of *'life, property and the environment in that order'*, and recommends an end run around environmental regulation at every pass.

Example: pg 20 3.3 "*To the extent that favorable interpretation of regulations is not adequate to avoid regulatory hindrances, this MCCWPP recommends changes to law to allow and facilitate reduction of hazardous fuel loads in Monterey County.*"

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[7] Nowicki, B., *The Community Protection Zone: Defending Houses and Communities from the Threat of Forest Fire*, 2002

"The goal is to enable and encourage landowners to perform the essential task of managing vegetation, to advance and foster much needed wildfire fuel reduction work as expeditiously as possible."

The MCCWPP recommends an MOU that would lead to *'as little regulatory hindrance as possible'*. (pg 28, 3.3.2.5) Additional similar comments can be found: pg 29, 37, 38, 39, 46. Pg 61 seems to have been written by a different author and states: *"...this MCCWPP recommends that responsible parties who reduce fuel for defensible space comply with all applicable federal, state or local environmental protection laws and other laws, and obtain permits when required. Such laws include, but are not limited to, those that protect threatened and endangered species, water quality, air quality, and cultural/archeological resources."*

1) TAHOE CWPP - ENVIRONMENTAL REVIEW

The Tahoe CWPP includes this strong statement in its Introduction:

"This document is intended to provide district wide planning level information for identification of wildfire hazards and proposed fuel mitigation projects to address those hazards. It is not intended to circumvent the public review process for vegetation management treatments or address the environmental compliance measures necessary for each project. NEPA and CEQA compliance for fuel mitigation projects will be addressed with detailed project planning to be completed prior to implementation of each project."

"This plan is advisory and will not result in changes in the human environment without appropriate environmental planning, therefore is not subject to NEPA or CEQA."
(emphasis added)

Pg 39, *6. Environmental Compliance*

"All individual projects designed to reduce fuel hazards that are proposed by public agencies, funded by public agencies, or that require federal, state, local, or local discretionary approval will be subject to federal, state, or regional environmental regulations. This plan is advisory and will not result in changes in the human environment without appropriate environmental planning, therefore is not subject to NEPA or CEQA."

Pg 39, 6.1 *National Environmental Policy Act*

"All fuel reduction projects funded by the federal government, that occur on federal land (e.g. LTBMU), or require a federal agency to issue a permit must comply with NEPA."

"The Healthy Forest Restoration Act only requires agencies to simplify the process by only

evaluating two alternative projects in a NEPA document. In some cases, federal agencies have determined that some projects are categorically exempt from NEPA. The Forest Service has recently determined that several types of fuel reduction projects are categorically exempt (Federal Register 68:33814 and 68:44598). Projects that meet these requirements only need to demonstrate that there are no extraordinary circumstances affected by the project, these include threatened or endangered species, cultural resources, wetlands, wilderness, or roadless areas."

6.2 CEQA *" Fuel reduction projects on private lands and some state lands that require approval by a local or state agency must comply with CEQA or a functionally equivalent program (e.g. the California Forest Practice Rules)"*

2) KESWICK CWPP - ENVIRONMENTAL REVIEW

Pg 59, Fish and Wildlife (discussion on listed species)

VI. FUEL TREATMENTS
The ability to implement fuel reduction projects typically comes down to the source of funds available, the cost of labor, ***the permitting process*** *to implement the project, and landowner cooperation.*

3) FALLEN LEAF (Portion of Lake Tahoe Basin, CA Portion CWPP) - ENVIRONMENTAL REVIEW

The following recommendations come from the Risk/Hazard Identification and Mitigation Project Worksheet for the Eastside Community. Similar language was found for other communities in the assessment area. Prior to conducting fuel reduction projects:

Identification of Protected Species or Other Critical Resources: *Describe any measures that must be taken to protect critical wildlife habitat, historic or culturally sensitive sites, artifacts or other resources, and plant and animal species protected by statute. The project contains sensitive areas, including a SEZ and Bailey Land Classifications 1A and 3. The current proposed prescription of mechanical treatment is in conflict with the operational constraints within Bailey Landuse Classifications and SEZ's. The SEZ and Bailey Land Class should be ground verified to ensure they apply to the project area.*

The mechanical treatments can be accomplished by avoiding the sensitive areas in the project.

TRPA and Lahontan require buffers for forestry activities near SEZs. Tree removal may be allowed within stream corridors and other SEZs under certain conditions if it is demonstrated that removal of the vegetation will benefit the SEZ vegetative community. Lodgepole removal generally falls into this category. Contact these agencies to discuss treatment options within SEZs.

Other wildlife habitat, critical species, and cultural resources may be present in the project area and require mitigation measures. Current wildlife habitat noise abatement measures may limit operations to a small window in the late summer and early fall. Project planning should include implementation of surveys and mitigation measures as dictated by regulatory statutes.

With all environmentally sensitive areas, identification and mitigation of potentially negative impacts is required. (pg 68-69)

Other Considerations: *Describe any other consideration that must be taken into account to successfully complete this project such as permits, clearances, approvals, etc.*

All proposed projects must comply with federal, state, and regional environmental regulations. Projects on federal land or on other lands with federal funding must comply with the National Environmental Policy Act. The Healthy Forest Restoration Act provides for a focused analysis of environmental impacts. Projects on private land and most state lands must comply with the California Environmental Quality Act or a functional equivalent (e.g. Forest Practice Act). All projects will require compliance with the TRPA's requirements and a waste discharge waiver from the Lahontan Regional Water Quality Control Board. (pg 70)

4) SANTA CRUZ CWPP - ENVIRONMENTAL REVIEW

The Santa Cruz San Mateo CWPP has 11 pages on Sensitive Habitats and Permitting (pgs 35-45).

SENSITIVE HABITATS AND PERMITTING
It's widely recognized that wildfires are a natural and vital force in maintaining biological diversity, including species, habitats, watersheds, nutrient cycles, and landscape patterns. However, high severity wildfires, like those experienced recently on the Central Coast, can result in loss of habitat and cause significant direct wildlife mortality. Thus, the state mandated defensible space guidelines have become increasingly important to implement not only for public safety, but for environmental protection as well. However, it is important to recognize that balance between habitat protection and degradation. This chapter aims to provide guidance on natural resource protection in conjunction with fuel load management.

B. TREATMENT OF STRUCTURAL IGNITABILITY (and other citizen actions)

1) TAHOE CWPP - TREATMENT OF STRUCTURAL IGNITABILITY

PG 24, 3, *Roles and Responsibilities*
"According to the Living with Fire in the Tahoe Basin publication, defensible space and use of the appropriate building materials are the most important defenses against loss of structures during a wildfire event. *As such, private homeowners and*

landowners constitute the most important group for limiting losses from a wildfire. Each homeowner has a responsibility, re-enforced by state and local codes, to create and maintain defensible space and use non-flammable building construction around their homes." (emphasis added)

2) KESWICK CWPP - TREATMENT OF STRUCTURAL IGNITABILITY

Pg 28, *2. STRUCTURAL IGNITABILITY*
Step 6b – Recommendations to Reduce Structural Ignitability:
Individuals and community members can reduce structural ignitability throughout the Keswick Basin planning area by implementing defensible space/Firewise Programs to include the following.

- *Assess risk/structure ignitability.*
- *Upgrade existing structures to fire safe building codes.*
- *Replace wood roofs with approved fire safe roofing.*
- *Consider fire resistant exterior siding.*
- *Maintain a minimum 100-foot defensible space around structures.*
- *Clean roofs and gutters annually.*
- *Develop a community phone tree in case of a fire emergency.*
- *Develop agreements with the County to use the reverse 911 system.*
- *Remove ladder fuels.*
- *Clean and screen chimney.*
- *Maintain green grass and fire resistant plants within 30 feet of house.*
- *Move all flammable material at least 30 feet from house.*
- *Remove dead, dying, or diseased shrubs trees, dried grass, fallen branches and dried leaves 100 feet around house.*
- *Attach a hose that can reach to all parts of the house.*

Pg 29 (includes # dwellings, $$ needs, time, priority rec. – high/medium/low)

- *Seek funding to identify absentee landowners and work with them to reduce fuels on undeveloped parcels.*
- *Develop a Wildland Fire Evacuation Plan for that portion of the Keswick Basin planning area outside of the current City of Shasta Lake Wildland Fire Evacuation Plan.*
- *Encourage and participate in the formation of defensible space/Firewise Program neighborhoods throughout the planning area.*

3) LEXINGTON HILLS CWPP - TREATMENT OF STRUCTURAL IGNITABILITY

ii "The report's main recommendations are organized to address five broad categories of fire mitigation: public education, structural ignitability/defensible space, water supply, access/evacuation, and street and home addressing. There are three landscape fuel breaks, ten major roadside thinning projects, and five evacuation route roadside thinning

projects recommended for the Lexington Hills study area."

Education includes such items as fire danger signs to be posted in various parks, riding stables, guidelines on proper burn pile technique, and use of the FireSafe Council website. (pg 13)

Structural Ignitability discussion covers seven pages (14-20) and includes roofing and siding materials, landscaping with native plants (websites listed for more info), creation of defensible space - detailed discussion with special consideration for redwood landscapes, address signage, hydrant signage and testing, PGE maintaining fuel clearances along power lines, cisterns with unobstructed access, access/evacuation routes.

Under Other Recommendations (pg 25), the LexHills CWPP includes this reference to future development:
1) Ensure a reliable source of water for fire suppression (meeting acceptable standards for minimum volume and duration of flow) for existing and new development.

4) FALLEN LEAF (Portion of Lake Tahoe Basin, CA Portion CWPP) - TREATMENT OF STRUCTURAL IGNITABILITY

This document is for a localized area in the southwestern portion of the Lake Tahoe Basin. It serves an area with 50 year round residents and up to 2,000 during peak summer recreational periods.

"*El Dorado County has adopted building ordinances requiring non-flammable roofing materials be used on new construction. Wood shake roofs, even treated with retardant are not allowed.*" (pg 49)

Structural Ignitibility
FLFD fire protection district personnel conducted an assessment of building materials and defensible space within the communities. Using sampling sheets provided by the consulting team, fire personnel reviewed (from the street) all of the lots in the FLFD communities, noting flammability of siding, roofing, and unenclosed features. They also assessed the effectiveness of defensible space around the homes.

The results indicate that many structures have appropriate roofing materials, but a significant number of structures lack non-flammable siding materials. Decks and overhanging unenclosed structures, where embers could be trapped and ignite a home, are also prevalent. Any of these building materials and construction issues could result in the loss of a home during a fire event. For a structure defense to be effective, all building materials must be non-flammable and openings that trap embers must be closed.

Defensible space is generally inadequate around structures with 71% of the structures lacking defensible space. (pg 49-50)

1.5 Mitigation Measures

Residents and Landowners

Residents and private landowners are the most effective group in mitigating wildfire hazards. Defensible space, building materials, and home construction guidelines are designed to reduce the risk of structure loss during a wildfire to less than 1%, according to Living with Fire in the Tahoe Basin publication (Smith 2004). If completed implemented, almost all structures within a community will survive a wildfire even if no community mitigation projects have been implemented. Landowners must take an active role in addressing these hazards on their property.

The **Sierra Forest Legacy** website (www.sierraforestlegacy.org) has a section on Protecting Communities in the Wildland-Urban Interface. The following is from that site:

Use Fire Resistant Building Material - "The Best Thing That You Can Do"

The roof and exterior structure of your dwelling should be constructed of non-combustible or fire resistant materials such as fire resistant roofing materials, tile, slate, sheet iron, aluminum, brick, or stone. Wood siding, cedar shakes, exterior wood paneling, and other highly combustible materials should be treated with fire retardant chemicals.

Maintain a Survivable Space - "Things you can do today"

Clean roof surfaces and gutters of pine needs, leaves, branches, etc., regularly to avoid accumulation of flammable materials.

Remove portions of any tree extending within 10 feet of the flue opening of any stove or chimney.

Maintain a screen constructed of non-flammable material over the flue opening of every chimney or stovepipe. Mesh openings of the screen should not exceed 1/2 inch.

Landscape vegetation should be spaced so that fire can not be carried to the structure or surrounding vegetation.

Remove branches from trees to height of 15 feet.

A fuel break should be maintained around all structures.

Dispose of stove or fireplace ashes and charcoal briquettes only after soaking them in a metal pail of water.

Store gasoline in an approved safety can away from occupied buildings.

Propane tanks should be far enough away from buildings for valves to be shut off in

case of fire. Keep area clear of flammable vegetation.

All combustibles such as firewood, picnic tables, boats, etc., should be kept away from structures.

Garden hose should be connected to outlet.

Addressing should be indicated at all intersections and on structures.

All roads and driveways should be at least 16 feet in width.

Have fire tools handy such as: ladder long enough to reach the roof, shovel, rake and bucket for water.

Each home should have at least two different entrance and exit routes.

C. FIRE ACCESS AND ESCAPE ROUTES

In addition to ignitability, other CWPPs put a lot of emphasis on escape routes. Most fuel hazard reduction is to create fuel breaks in strategic locations and along escape routes. Defensible space is created around individual homes and 'facilities' to be protected.

1) KESWICK CWPP - FIRE ACCESS AND ESCAPE ROUTES

Appendix A
VIII. FIRE ACCESS AND ESCAPE ROUTES (MAPS 8-8c)
Roads are an essential part of any fire and fuels management plan, providing the principal access to the communities, homes and wild places in the watershed. Additionally, roads may offer a defensible space from which firefighters can conduct direct attack on wildfires and also provide strategic locations for roadside shaded fuel breaks. Roadside shaded fuel breaks provide not only defensible space for firefighters, but also a safe escape route for residents in the event of a wildfire.

2) LEXINGTON HILLS CWPP - FIRE ACCESS AND ESCAPE ROUTES

Pg 21 Access/Evacuation Routes
"*All evacuation routes and dead-end roads should be marked with highly visible, non-flammable, reflective signage. Individuals should be made aware of the evacuation routes before an emergency occurs, but additional signage should be installed to help people get out safely. The importance of good signage should not be underestimated: the enormous stress and fear associated with an oncoming wildfire, not to mention the reduced visibility, can hinder residents' ability to escape in a timely manner. Early evacuation is critical because of the complexity and narrow nature of nature of many of the roads. While some roads have been recommended for improvement to be used as evacuation routes, it is recommended that the county and/or fire departments plan these routes officially. Communities should be in contact with these entities to resolve any confusion as*

to where their evacuation routes exist.

"Specific access route improvement recommendations can be found below, and in the individual community analyses."

Pg 25 Other Recommendations
3) Develop a defensible space vegetation program that includes the clearing or thinning of (a) non-fire resistive vegetation within 30 feet of access and evacuation roads and routes to critical facilities, or (b) all non-native species (such as eucalyptus and pine, but not necessarily oaks) within 30 feet of access and evacuation roads and routes to critical facilities.

3) FALLEN LEAF - FIRE ACCESS AND ESCAPE ROUTES

The following recommendation seems to be pretty standard in most of the CWPPs I have read, though I would consider it excessive in many areas, particularly where redwoods are the dominant tree species.

Roadside protection
Roadside protection would occur within a corridor that extends up to 100 feet out from either side of the road. This treatment is designed to protect evacuation routes for community residents and provide safety for firefighters entering a community to provide protection in the event of a wildfire. Brush and shrubs would have a spacing of 3 times the height of the residual plants and be removed immediately adjacent to the road to keep flames from directly impinging the roadway. Spacing between trees would be at least 20 feet between crowns of residual trees, with an average crown base height (distance from the ground to the base of the leaf [needle] crown) of at least 20 feet Trees immediately adjacent to the road would be few. Flame lengths would be less than 2 feet, with enough clearance to keep flames from traveling directly across the roadway. (pg 56)

This CWPP then presents the usual veg removal techniques, but identifies mastication as the preferred method as it leaves the treated material on site, to cover bare soil to prevent soil erosion. However, I was speaking to a DFG staffer last week who indicated that leaving the material on site does not slow fire. There is some very valuable info on this in the report on Fire Severity in Fuel Treatments, American River Complex fire, Tahoe National Forest, Calif., June 21 - August 1, 2008, where several different fuel treatments had occurred prior to a large wildfire. Here is one quote from the Executive Summary, "*Mastication is a cheaper alternative than complete removal of shrub and surface fuels from a site, but although it reduces available surface area and vertical extent of these fuels, it does not reduce local fuel loadings. In a number of cases, the presence of dry surface fuels in the masticated units appears to have abetted rather than resisted fire. Under wildfire conditions, fire modeling studies reported in the scientific literature predict high flame lengths and fireline intensities and high tree mortality in masticated stands.*"

D. GOALS

1) KESWICK CWPP - GOALS

A5-6, *The goals and objectives of this plan are to:*
- *Provide for personal safety and minimize property loss.*
- *Create fire safe corridors along Iron Mountain Road, Keswick Dam Road, Lake Boulevard, Highway 151, Quartz Hill Road, and several one-way escape routes on the eastside of the Sacramento River.*
- *Partner with the BLM and private landowners on strategic fuels reduction projects.*
- *Develop neighborhood fuel reduction projects.*
- *Protect ecological and landscape values through reduced ladder fuels so that large trees or other valued landscape vegetation can survive a low intensity fire.*
- *Minimize the risk of wildfire starts.*
- *Encourage safe burning practices for the reduction of fuels.*
- *Identify agency and landowner fire prevention responsibilities.*
- *Encourage and maintain multi-agency and landowner responsibilities in the implementation and maintenance of this plan.*

E. DOCUMENTATION

All the CWPPs I have reviewed include photographs of fuel types, problem areas, access issues, roads needing shaded fuel breaks, roads with shaded fuel breaks, site-specific maps (not simply county-wide maps), and graphs appropriately located within the body of the document, not isolated in appendices.

All in all, the MCCWPP diverges from the minimum requirements established by the HFRA and appears to substitute discussions on avoidance of environmental regulatory processes, for substantive actions to reduce structural ignitability, while focusing on scientifically indefensible fuel management recommendations.

Sincerely,

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