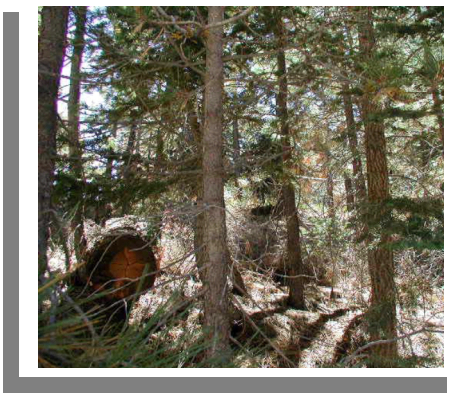
Table 5.0 – Big Bear Valley (WUI) Fire History from 1900 to 2004

Decade	Number of Fires	Total Acres	Mean Acres/Fire
1900-1919	13	1,586	122
1920-1939	2	1,463	732
1940-1959	13	18,181	1,399
1960-1979	21	60,105	2862
1980-1999	23	78,625	3,418
2000-	1	16	16

Section 5.1 What is the fire and fuels problem?

Recent history has seen an increasing trend of record breaking wildfires on public forests and grasslands nationwide. In 2002, wildfires on our nation s forest burned 7.2 million acres in seven western states.

Locally in 2003, the Old Fire and the Grand Prix fire combined to create a conflagration of approximately 150,729 acres. It is estimated that only 3-4% of the Old Fire burned in timber stand concentration. Although this can be seen as positive, it can and does mean that within the Big Bear Valley Wildland Urban Interface, fire, a natural occurrence as a result of lightening strikes in past generations and used by Native Americans, has been significantly inhibited from naturally burning away fuels such as pine needles, twigs, brush, saplings, branches, snags, and down dead trees that accumulate on the forest floor. These burnable fuels have not been removed in decades. This inhibition is most likely a result of aggressive fire suppression efforts.



Just as important in any discussion concerning accumulation of fuels is the prohibition to harvest live, over-dense tree stands in the forest. An example of this is indicated in the South Big Bear Fuels Reduction Reports Environmental Assessment that indicates Many of the low-departure stands that are on dry, low productivity sites were heavily logged in the 1960s. Prohibiting consumptive use of a renewable natural resource can/does contribute to the changes in the historic vegetation structure. The build-up and accumulation of unnatural historical vegetation structure ultimately has an accumulated effect on the forest health causing existing live vegetation to compete for the same nutrients and water. An over-dense vegetation structure reduces the vegetation s ability to resist disease and insects like the bark beetle. Thus, an increase in the forests vegetation mortality rate can be predicted as well as an increase in insects and bark beetles.

Over-densification of the vegetation effectuates an increase in the populations of insects including bark beetles and other disease agents beyond historic levels. Thus unnatural accumulation of dead fuels over time has occurred to the point that the condition class within the WUI is significantly modified. It is estimated that in some areas, 50 to 120 tons of burnable fuel per acre has been left to accumulate. In accordance with the United States Forest Service, the forest within the Big Bear Valley Wildland Urban Interface has been "significantly altered from the normal range" (see Table 5.1). The Big Bear Valley communities are now listed in the Federal Register as communities at "high risk".

The most extensive and serious problem related to health of the national forests in the interior west is the over-accumulation of vegetation, which has caused an increasing number of large, intense, and many times uncontrollable and catastrophically destructive fires. All vegetation, whether live or dead, serve as fuel for fires. In a natural state, a Jeffery/ponderosa pine tree forest consists of open stands of large diameter older trees with very little undergrowth. The burnable fuel in this type of forest is minimal. In contrast, the forest within the Big Bear Valley Wildland Urban Interface today consists of burnable fuels that are four times the historic levels.

There is new tree mortality in multiple areas, but for the most part, it is within affected areas observed in 2004. Many of the older standing dead trees (3 months or more) are losing needles. Trees that have recently died are still holding onto their needles, and some green trees that appear to be alive are, in fact, dead. You can see this across much of the forest. North facing slopes where we normally find higher live fuel moistures are experiencing high mortality. It would be best to describe the timber mortality as standing heavy slash or a "Vertical Fuel Model 13". The Fuel Model Matrix identifies per management unit the amount in acres of the various fuel models within the Big Bear Wildland Urban Interface. Combined, the standing and down dead fuel loadings could equate to several hundred tons of fuel per acre.

TABLE 5.1 BIG BEAR VALLEY WILDLAND URBAN INTERFACE FIRE REGIME AND CONDITION CLASS PERCENTAGE BY MANAGEMENT UNIT*

Management Units	Fire Regime**	Condition Class 1 %	Condition Class 2 %	Condition Class 3 %	Condition Class 9 %
Baldwin Lake/ Erwin Lake	I/III	4	50	27	19%
Lone Valley	I/III/IV	6	82	12	0
Sugarloaf	I/III	15	41	29	15
Moonridge	I/III	12	8	42	38
Big Bear City	I/III	12	34	10	44
Big Bear Lake	I/III	6	7	60	27
Fawnskin	I/III	10	54	31	5
Gray's Peak	I/III	13	11	72	4
Mill Creek	I/III	19	24	55	2
Holcomb	I/III	12	56	30	2
Santa Ana	I/II/III	18	44	37	1

***Fire Regime and Condition Class information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP)**

****The Fire Regime in Table 5.1 is identifies the primary class in forested areas.**

SECTION 5.2 AIR QUALITY

The South Coast Air Quality Management District (SCAQMD) is the regulatory agency that monitors air quality within the BBVWUI. Any and all approvals on prescriptive burns would require approval from the SCAQMD.

SECTION 5.3 NATURAL RESOURCE MANAGEMENT

The use of forest products has seen a decline. The last large scale local mill closed in the early 1980s after environmental constraints reduced the supply of timber to the point that it was no longer economically viable to continue the milling operation. The harvesting of the wood/timber from private property was the only remaining option. Small boutique businesses use wood for woodcarvings and firewood, but for the most part, up until 2000, the use of wood /timber was limited. Issuance of a permit for harvesting Christmas trees is not allowed in spite of an overly dense forest of small trees.

In the San Bernardino National Forest, the drought and bark beetle infestation left an estimated 13 million trees across the forest dead - trees of all sizes and age. There were insufficient harvesting companies to remove the trees. Local governments were limited and perplexed on what to do with the trees. Many trees were not useful due to type, size, and condition after they died. Burying or leaving them in their natural felled position to litter the forest floor was and remains a vital economic solution to some, but it does little to reduce the

burnable fuels in our forest. Local governments purchased incinerators, chippers, and initially helped fund small sawmills. Private companies looked into biomass electric generation but were frustrated by federal & state bureaucracy, regulations, and/or red tape. To operate such a process would require a guarantee from public land managers to provide a sustainable supply of wood biomass from public lands. San Bernardino National Forest representatives met with several biomass co-generation firms early in the tree mortality event. One failed to produce a business plan as was needed to evaluate their proposal; another indicated that they needed a guaranteed biomass stream of such quantity and duration that extensive and costly environmental analysis would be required, and they appear to have lost interest in committing the level of investment necessary to pursue the matter further.

Meanwhile, the wood has been backing up in firewood businesses in and around Big Bear. Some businesses have been offering free wood and chips just to get rid of them. Small milling operations have begun to operate. The Inland Empire Council for Boy Scouts operates a small mill at Camp Emerson in Idyllwild. Milling operations for wood pallets and crates have used some portions of the forest products. Some trees are shipped to Terra Bella in central California for milling. Some material is shipped to a co-generation facility in Thermal, California as long as shipping is provided.

Privately in and around Big Bear, tree trimmings and slash are part of the solid waste stream. Little is done to separate this biomass from the rest of the trash and use it in a beneficial manner. Biomass continues to be a key community issue to overcome. There is a need for both public land stewards and private landowners to work together with business interests to seek viable and sustainable solutions for the reuse of biomass material. Help is on the horizon with the completion of the "Southern California Biomass Disposal and Utilization Assessment" conducted by TSS Consultants. This report can assist Southern California agencies in developing plans to market and utilize biomass materials at a local, state, and regional level.

6.0 What is Fire Safety?

How to be ready when fire comes.

6.1 Before Fire

6.1.1 Defensible Space

Creating defensible space is one of the two most important actions that a homeowner can create before a fire occurs in order to decrease the likelihood of an ignition around their home. Developing a WUI standard for defensible space that works for Big Bear Valley which meets state and local statutes as well as the vegetation landscape of the Bear

Valley intermix and is clearly enforceable remains a high priority of the Big Bear Valley Wildland Urban Interface.

6.1.1.1 Legal Requirements

Legal requirements vary within the communities of the Big Bear Valley. The use of Public Resources Code, Section 4291, applies to private lands in unincorporated areas of the Valley. Furthermore, the County of San Bernardino enforces a vegetation ordinance for use in the City of Big Bear Lake, the Big Bear City Community Services District, and in the unincorporated area of the Valley. In addition, agencies have adopted the California Fire Code, which contains Appendix II-A. Appendix II-A contains various requirements for the suppression and control of fires in a hazardous fire area. The City of Big Bear Lake has adopted a separate fire hazard abatement ordinance similar to the County ordinance in addition to the adoption of Appendix II-A.

The City of Big Bear Lake has a tree conservation ordinance that establishes certain criteria for the conservation of trees, and the Development Code grants the authority to provide thinning of overly dense trees on private properties at the time of construction.

Another consideration for Valley fire agencies is to adopt the Wildland Urban Interface Code published by the International Code Council or adopt National Fire Protection Association Standards.

The County of San Bernardino Fire Department has adopted the 1991 edition of the Uniform Fire Code as compared to the Big Bear City CSD Fire Department and the City of Big Bear Lake Fire Department that have adopted the 2001 edition of the Uniform Fire Code as amended by the State of California. When assessing the significance of San Bernardino County not adopting the most current code, one can easily see that the layering of other County or State adopted laws and regulations fill the gap created by their political bodies' denial of the adoption of the 1994, 1997, and 2000 editions of the Uniform Fire Code, yet it complicates the process at the enforcement level. Thus it slows down the approval processes for new and existing construction, fosters obsolescence, and creates difficulty approving technological advancements.

In 1995, the enactment of certain state laws required the California Department of Forestry to identify lands that are considered as a "Very High Fire Hazard Severity Zone". The Big Bear City CSD Fire Department adopted by ordinance the "Very High Fire Hazard Severity Zone" criteria. This is in contrast to the Big Bear Lake Fire Department, which did not adopt the criteria.

Furthermore, the Pubic Resources Code was recently modified to require 100 feet clearances around structures.

The California Office of the State Fire Marshal has developed a series of guidelines for agencies to use within a hazardous fire area.

In August 2001, the Federal Register listed only the communities of Big Bear City, an unincorporated area and the incorporated community of the City of Big Bear Lake in its list of communities at "high risk". Communities such as Baldwin Lake, Fawnskin, and Erwin Lake were not specifically identified, yet meet the criteria for inclusion as a community at risk.

This emphasizes the layering of laws and regulations that frustrate agencies and departments when talking to the public about creating defensible space. The challenge for the BBVWUI is to identify differences in various regulations and implement practical solutions.

6.1.1.2 Fire Resistant Landscaping

The Big Bear Valley fire agencies have begun aggressively communicating the need for private property owners to reduce the overgrown vegetation maintained on properties within the Big Bear Valley. Mass media campaigns with Valley fire agencies and the Big Bear Valley Fire Safe Council have begun informing property owners what they need to do to create defensible space. Fire resistant landscaping starts with the elimination of pine needles, leaves, and dead vegetation. Limbing up trees and bushes as well as removing over-dense trees is all part of creating a fire resistant landscape.

With the high density of structures, small lot sizes, and properties with side yard setbacks being a minimum of three feet for older subdivided properties, utilizing standard printed materials that show houses with clearances around them up to 100 feet, creates unique challenges when communicating "how to create fire resistant landscaping" and defensible space guidelines. The primary reason is that intermix landscape preprinted universally used brochures do not fit the communities of the Big Bear Valley.

Valley officials and community stakeholders are working on developing materials that explain "how to create fire resistant landscaping" and defensible space that meets an acceptable standard. Since all live or dead vegetation will burn, officials are guarded to use plants that may be the "lesser of two evils" when recommending plants in and around structures.

6.1.1.3 Separation Requirements vs. Vegetation

Currently, the fire agencies of the Big Bear Valley utilize the requirements within the California Fire Code and/or the Public Resources Code 4291 to assure proper vegetation clearance from structures or hazardous materials. The following requirements in Table 6.1 are some of the spacing requirements required by law.

The County of San Bernardino and the Big Bear City Community Services District have adopted standards on distances from structures for firewood. The County's Fire Safety Overlay requirements establish a 30 feet minimum separation from structures while the CSD requires 20 feet separation. Yet neither of these requirements is strictly enforced. The City of Big Bear Lake has no specific requirement for firewood separation from structures.

Table 6.1 List of Separation Requirements from Vegetation

Reference Section	Clearance by Type	Separation Distance
Section 7904.2.5.4.1 CFC	Class I Class II Liquids	50 ft. min.
Section 16 CFC Clearance of Brush CFC	Flammable vegetation Combustible vegetation	30 ft. to 100 ft.
Section 16 II A CFC	Remove Limbs	10 ft. from chimney outlet
Section 17 II A CFC	Brush clearance from roadways	10 ft. min.
Section 15 II A CFC	Clearance around electrical lines	10 ft. min.
Section 8209 CFC - LPG	Clearance from LPG tank/ containers from combustibles	10 ft. min.
Section 8003.1.12 CFC Hazardous Materials	Clearance of vegetation from hazardous materials outdoor storage area or tanks.	30 ft. min.
Section 3008.4 CFC Storage of Wood Products	Clearance of vegetation	As determined by the Chief
Unincorporated Areas Fire Safety Overlay Section 85.020220	Minimum setback requirement from property line. Minimum distance between buildings. Minimum setback from National Forest boundaries.	Minimum 5 ft. Minimum 10 ft. Minimum 30 ft.

6.1.1.4 Recommended Building Materials/Fire Wise Construction

The current building material used to construct the majority of the buildings within the Big Bear Valley Wildland Urban Interface is wood frame construction with exterior surfaces being of T-111, masonite, exterior wood facade, vertical wood shake, shingle, etc. The building requirements are different in the City versus the County unincorporated area. The Uniform Building Code currently used is the 2001 California Building Code. It is adopted Statewide. The County has enacted a more restrictive development code for areas in a high fire hazard area. These high fire hazard requirements have been utilized since 1989 and are applicable throughout the unincorporated areas, including the CSD. These requirements include the installation of Class A roof coverings, the elimination of eave vents, multi-pane windows, and upgraded roofing requirements to meet current standards when replacing

existing roofing material and/or constructing a new addition. The City of Big Bear Lake has similar standards in place as well.

Yet, none of the agencies have adopted a "future effect" clause that would mandate the replacement of organic shake shingle roof coverings to be replaced by an established future date. Rather they have opted to allow a natural attrition process and/or encouragement from the insurance industry to be the motivational factors behind removing the organic or shake shingle roof material.

The two most important pre-disaster mitigation actions that can be accomplished that have the greatest ability to reduce structural ignitability is (1) the removal of existing shake shingle roofs; and (2) the creation of defensible space. Dwellings within communities at very high risk to a wildfire that have organic or shake shingle roofs subject the whole community to a continual threat.

The most compelling evidence documented on the effectiveness of non-combustible roofing versus shake shingle roofs is explained in an article titled, "Preventing Disaster" by Jack Cohen, published in the Journal of Forestry. Cohen states that effectiveness of a non-flammable roof versus shake shingle is approximately 3.68 times more effective at preventing structural ignition. In other words, 368% less likely that damage, losses, and casualties will occur in dwellings without shake shingle roofs.

6.1.2 Water Sources

The available types of water sources are lakes, streams, ponds, public water distribution systems, private wells, storage tanks, and water tenders. Generally, these sources are all utilized during a wildland fire. Non-hydrant areas in the San Bernardino County area are allowed to install a 3,000 gallons water tank or an FX type fire sprinkler system. These systems will suppress fire in an interior origin; however, long-range consideration should be given to providing water storage capacity and installation of water mains and fire hydrants in existing subdivisions for wildland fire scenarios.

6.1.3 Community Emergency Response Teams (CERT)

See Page 23.

6.1.4 Personal Tools, Equipment, and Fire Protection Clothing

Fire protection clothing is generally available only to fire department personnel. A small cache of old fire protection clothing is maintained. Setting aside a significant cache for appropriately trained volunteers is recommended. Until this is accomplished, alternative equipment may be purchased at local hardware stores.

A preliminary equipment list may include rakes, shovels, power tools, gloves, hardhats, and breathing masks. Clothing that will provide some semblance of protection is long sleeved cotton shirts, cotton pants, boots, gloves, etc., all of which would most likely be brought from home by individuals.

A list should be developed as part of the emergency preparedness plan for implementation during emergencies.

Section 6.2 Emergency Communication

Currently, the alarm dispatch system to each station is the only available method of receiving alarm notification for both the Big Bear Lake and the Big Bear City Fire Departments. The alarm notification is 100% reliant on a proper working telephone system. At this time, the activation of the alarm is sent from dispatch (approximately 80 miles away) via telephone lines due to lack of a repeater system in place to a local alarm activation point which then is broadcast through the airwaves to a tone activated fire station.

There is need to have two alarm dispatch circuits to each fire station. For many years, the Insurance Services Office statements have identified a need to add a second circuit. Furthermore, NFPA 1221 states that any jurisdiction that receives more than 730 alarms per year shall provide two separate and dedicated dispatch circuits where the failure of one circuit does not affect the operation of the other. The upgrade to the current dispatch/communication system is underway.

Section 6.3 Evacuation / reentry Plans

A critical component of an emergency fire scenario is evacuation. The legal authority for evacuations is the San Bernardino County Sheriff's Department. A practice instituted by policy for any fire response is the active deployment of law enforcement personnel during any fire scenario within the mountain communities of the San Bernardino National Forest. The latest edition of the evacuation/reentry plan is dated June 2005.

Section 6.4 Mitigation Strategy Action Plan

The Big Bear Valley Wildland Urban Interface is comprised of eleven management units. Within each management unit and across the WUI, various priorities have been identified that require implementation to mitigate or prescribe the particular remedy that is most appropriate for the specific condition that one is trying to achieve.

Priorities in each management unit are as identified in the Plan's Purpose & Statement and herein reiterated.

General Purpose

- Ensure the long-term economic stability of the communities by reducing the fire threat risk from very high to moderate/low.
- Identify lands private, public, forested, urbanized or otherwise that, if treated, would reduce the potential fire impact to communities and structures in and around the Big Bear Valley. This is commonly referred to as the Wildland Urban Interface (WUI) zone.
- Implement fuel reduction measures to assure continuing and ongoing safety of the Big Bear Valley watershed and recharge aquifers.
- Identify high valued areas that, if absent from trees, would have a detrimental effect on the appearance and ambiance of the communities of Big Bear Valley. Propose and implement measures to assure the long-term survivability of these areas.
- Identify and support new markets that collectively, with public and private partnerships, assure that the forest vegetation and trees that are removed go to sources that have a beneficial use, i.e., lumber, biomass chips for landscaping and erosion control, and/or energy.

Buildings

- Review, evaluate, and modify fire wise building codes and fire protection laws for private landowners/builders to reduce home ignitions.
- Review, evaluate, and make recommendation for a fuel reduction and vegetation management/landscape ordinance.
- Design and develop a list of building standards that existing homeowners can voluntarily install to reduce the vulnerability of their homes.

Healthy Forest needs

- Develop and prioritize fuel treatment programs on National Forest lands using Forest Service practices within the Big Bear Valley Wildland Urban Interface. For fuel treatment prescriptions on private lands, individuals are required to follow Title 14, State Forest Practice Act.
- Implement treatments within the Big Bear Valley WUI to revitalize forest health on both public and private lands. Treatments should promote a mixed age class stand with healthy stocking levels that supports multiple forest resource values such as forest products, esthetics, water, wildlife, recreation, etc.
- Support the reintroduction of prescriptive and controlled fire into the ecosystem of the Big Bear Valley Wildland Urban Interface on both public and private lands.
- Incorporate as much as possible a “do more with less” concept by privatizing “off budget” management and treatment prescriptions of the forest.

Section 6.5 Mitigation Goal

The implementation of the Plan's goals and objectives may in fact take a village to implement. It will be incumbent on all of us to do our share. Cooperation of governmental agencies, fire safe councils, watershed councils, public/private partnerships, the Big Bear Valley Mountain Mutual Aid Association, National Resource Conservation Service, non-governmental organizations, homeowners' associations, and general citizenry will be necessary in order to reduce the threat of a wildfire. The following are some of the ongoing projects that various organizations have done or are doing to make the BBBWUI a more fire wise WUI.

Table 6.5 CWPP PROJECTS MATRIX
March 2006

Project Description	Responsible Party	Acres Under Analysis	Thinning	Brushing	Agency Involvement	Proposed Timelines*	Estimated Cost	Management Unit Name	Projects Status
		ACRES							
Barton Flats	USFS	3947				2005	TBD		
BB Healthy Forest Treatment #1	USFS	492				2005	TBD		
BB Healthy Forest Treatment #2	USFS	670				2005	TBD		
BB Healthy Forest Treatment #3	USFS	3037				2005	TBD		
BB Interface	USFS	780				2005	TBD		
BB Skyline 1	USFS	534				2005	TBD		
BB Skyline 2	USFS	86				2005	TBD		
BB Tract South	USFS	66				2005	TBD		
BB Tract Center	USFS	104				2005	TBD		
BB Tract North	USFS	91				2005	TBD		
Bear Mountain	USFS	917				2005	TBD		
Fawnskin NW	USFS	927				2006	TBD		
Glory Ridge Fuels Reduction	USFS	998				2005	TBD		
Lakeview West	USFS	122				2005	TBD		
Lakeview East	USFS	50				2005	TBD		
Metcalf	USFS	183				2005	TBD		
Pine Knot	USFS	34				2005	TBD		
Snow Summit	USFS	611				2005	TBD		
Willow Glen	USFS	16				2006	TBD		
Bertha Ridge	USFS	3333				2006	TBD		
Childrens Forest	USFS	197				2006	TBD		

Table 6.5 CWPP PROJECTS MATRIX
March 2006

	Responsible Party	Acres Under Analysis	Thinning	Brushing	Agency Involvement	Proposed Timelines*	Estimated Cost	Management Unit Name	Projects Status
Lake Erwin & Lake Williams	USFS	2764				2006	TBD		
Nelson Ridge & Baldwin Lake	USFS	1430				2006	TBD		
Pinyon Ironwood Fuelwood Sale	USFS	539				2006	TBD		
Santa Ana / Clarks Grade Fuel Modification	USFS	1500				2006	TBD		
Sawmill	USFS	293				2006	TBD		
Section 17	USFS	522				2007	TBD		
Bluff Lake	USFS	1272				2007	TBD		
Grays Peak	USFS	2801				2007	TBD		
Holcomb West	USFS	2407				2007	TBD		
Poligue Canyon	USFS	39				2008	TBD		
Heart Bar	USFS	4214				2008	TBD		
Snowslide	USFS	7243				2009	TBD		
Delmar Mountain	USFS	2839				2009	TBD		
Holcomb Valley	USFS	3472				2009	TBD		
Onyx Peak	USFS	975				2009	TBD		
Wildhorse	USFS	5099				2010	TBD		
Arrasre Flat	USFS	7722				2010	TBD		
Santa Ana River	USFS	4186				2008	TBD		
Public Education									
Valley-wide Public Education Progran	BBLFD					2005			
Big Bear City Fire Departmnet						2005			
Fire Safe Council						2005			

Table 6.5 CWPP PROJECTS MATRIX
March 2006

	Responsible Party	Acres Under Analysis	Thinning	Brushing	Agency Involvement	Proposed Timelines*	Estimated Cost	Management Unit Name	Projects Status
Thinning Projects									
Bear Valley School District	BLFD, BBC, CD					2005			
Valley-wide Vegetation Abatement	BLFD, BBC, SBC					2005			
Shore/Big Bear Blvd.	BBC	Yes/ 15	BBC,BBL SCFD			C	14,000		C
Shore/Big Bear Blvd.	BBC	/15	BBC,BBL SCFD			6/7/2007	Unknown		Marked
Shay Road	BBC	/ 5	Yes	BC,BBL SCFD		C	9,000		C
Peery Reservoir	BBC/BBL	Yes/1	Yes	BC,BBL SCFD		C	6,000		C
Structure Ignitability Projects									
Structural Ignitibility Demonstration	BBLFD					2005			
Apply for grant to replace shake shingle/orgainic material on roofs	VFSC, BBC, BBL								Ongoing
Fuel Modification Projects									
Condition of Approval - all new developments will be required to submit a fuel modification plan	BC,SBCFD,BB	Yes	Yes	N/A	Ongoing				
Infrastructure Improvement Projects									
Valley-wide siren system that is intended to notify the public to tune into local radio or TV stations in order to receive information of public concerns including fires, earthquakes, or other emergency situations	BBLFD/BBCFD								
Fiber optic installed which increases reliablity of the communications link with the Valley's dispatch center in Victorville	BBLFD								

Table 6.5 CWPP PROJECTS MATRIX
March 2006

	Responsible Party	Acres Under Analysis	Thinning	Brushing	Agency Involvement	Proposed Timelines*	Estimated Cost	Management Unit Name	Projects Status
A portion of th Valley's radio communications are currently via telephone lines. For added reliability, BBLFD received a grant to install a redundant radio repeater system which would operate independent of the fiber optic system.	BBLFD								
Industrial Resource Management									
Forest Products Utilization									
Valley-wide Chipper Days	FSC					2004/06			
Property owners list for chipped material									

Table 6.5 CWPP PROJECTS MATRIX
March 2006

	Responsible Party	Acres Under Analysis	Thinning	Brushing	Agency Involvement	Proposed Timelines*	Estimated Cost	Management Unit Name	Projects Status
Slash/Biomass Disposal									
Apply for grant assistance homeowners' vegetation removal	BBL	Yes	Yes		BBLFD				
High Value Area Projected									
Spray protection for 1,000 trees	USFS								C
Seek funding for spraying high valued areas	BBLFD, BBCFD, BBVFSC								
Fire Safety Inspection Program									
A time of a new construction - an inspection is conducted, trees marked, and direction is given to limb up trees and bushes by final	BBLFD	Yes	Yes			2005			
All new construction must comply with requirements in Fire Safety Overlay #1 San Bernardino County Development Code	BBCFD, SBCFD								

Table 6.5 CWPP PROJECTS MATRIX
March 2006

	Responsible Party	Acres Under Analysis	Thinning	Brushing	Agency Involvement	Proposed Timelines*	Estimated Cost	Management Unit Name	Projects Status
All new construction must comply with BBCCSD Ordinance 212 - directs the Fire Chief to require fire sprinklers to mitigate lack of fire flow	BBC				BBC				

***The proposed timelines herein are subject to change based upon compliance with the National Environmental Policy Act and/or available funding.**

Section 6.6 Current Projects Prioritization Process

Projects within all management units should follow the goals and objectives of the Big Bear Valley Community Wildfire Protection Plan. Funding, responsible legal authority, complexity of the projects, and proposed length of projects will arguably be the more determining factor in developing and implementing projects on an ongoing basis.

Generally, agencies, organizations, and individuals should meet quarterly to discuss the projects that are planned or being implemented to reduce overlap and foster an environment of cooperation.

If a proposed project/plan is within a political subdivision or is to be utilized within a political subdivision, rather than going through a prioritization process, approval from only that specific governing board would be required for the project or plan to move forward.

Proposed fuel treatment projects on federal lands must follow National Environmental Policy Act (NEPA) guidelines. Each agency/individual will have their own ability to comment pro or con on various upcoming projects as they are proposed.

Fuel reduction projects on private properties should follow vegetation reduction practices established by law within that particular political subdivision and the California State Forest Practices Law. An environmental review may or may not be required.

Those projects that could be utilized within all or some management units would require approval from the organization's board that supports the project and concurrence by possible affected political subdivisions, if any exist.

Big Bear Valley agencies within the Big Bear Valley Wildland Urban Interface shall collaborate on planning and operations of prescriptive burning within the BBVWUI. This is for both private and public land prescription. Campfires, stoves, barbecues or permitted fires are excluded from this requirement.

Section 7.0
Big Bear Valley Fire Protection Plan Recommendations

Section 7.1 Mitigation measure 1

Big Bear Valley Fire Protection Plan

- Continue to refine, update, and circulate the Big Bear Valley Community Wildfire Protection Plan on an annual basis between the Sheriff's Department, fire departments, Fire Safe Council, governmental agencies, and other appropriate public stakeholders. As a common resource, the Community Wildfire Protection Plan will help local and federal government agencies:

- Prioritize and coordinate mitigation treatments on private/public lands to reduce fire risks and promote biodiversity.
- Provide decision-making data for the stakeholders.
- Identify resource gaps.
- Protect and manage community "values at risk" such as residences, watersheds, archeological or historic sites, view corridors, recreation resources, and wildlife habitat.
- Provide common reference and direction for fire suppression effort between fire districts and federal fire management officers.

Section 7.2 Mitigation measure 2

Develop and Sustain a General Public Education Campaign and Concentrate Special Efforts in Areas Identified as High Threat

Expanding the use of public education tools already in place is an immediate action step that can be taken. Publications and videos are available and can be found via the Internet.

Additional steps may include:

- Development of an educational presentation booth to be used at various public events. Such a display may include photo documentation of good mitigation work examples and graphic illustrations of "fire wise" homes.
- Place feature articles in local newspapers dealing with wildfire preparedness to maintain a high level of fire awareness at the community level on a regular basis.
- Provide information to property owners about the need for fire wise construction standards, laws, and codes.
- Through public education and enforcement efforts, maintain ongoing practices of assuring the removal of overgrown vegetation and fuel loading on private lands. Emphasize defensible space clearing on private lands within the Big Bear Valley.
- Monitor, report, and educate citizenry on changes in the biodiversity evidenced within the Big Bear Valley Wildland Urban Interface.
- Seek as needed assistance from the Natural Resource Conservation Service on monitoring and implementing ways to educate citizenry on methods and techniques to help reduce soil erosion.
- Informational briefs and videos can be broadcast over the community closed circuit television station.
- Integrate "fire wise" education into school curriculum. Involve local clubs such as Boy Scouts, Girl Scouts, school based clubs, etc.
- Work with homeowner associations, builders, realtors, and a door-to-door outreach program to individual landowners in an effort to jumpstart word-of-mouth community networking.
- Develop highly visible ongoing demonstration projects.

Section 7.3 Mitigation measure 3

Develop measures to reduce fire hazards in future developments

- Review, evaluate, and modify fire wise building codes and fire protection laws unilaterally for private landowners/builders to reduce home ignitions.
- Review, evaluate, and make recommendation for a fuel reduction and vegetation management/landscape ordinance.
- Design and develop a list of building standards that existing homeowners can voluntarily install to reduce the vulnerability of their homes.
- Adopt a future effect clause for the replacement of organic or shake shingle roofs. Seek funding sources to help mitigate cost.
- Adopt an ordinance that mandates the development of a landscape plan on all new dwellings.
- Implement a Wildfire Hazard Rating Assessment for each proposed management unit of the WUI outlining mitigation measures to be undertaken across the entire subdivision.
- Work with fire departments, plan checkers, and building inspectors to ensure driveway requirements are being met.
- A standardized "Defensible Space Assessment" outlining mitigation measures should be required for individual subdivision lots.
- Adopt a standard to create a minimum setback of five feet and/or ten feet separation between dwellings or provide other alternative mitigation measures.
- Work with water purveyors to assure that the required fire flow of 1,500 gpm is provided to all single and two family dwellings.

Section 7.4 Mitigation measure 4

Create a Mechanism for the Oversight and Management of the Big Bear Valley Wildfire Protection Plan

Some possibilities for accomplishing this duty may include: continued oversight through the Fire Safe Council, fire departments, and City/County Planning Commissions.

Some of the oversight functions may include, but not be limited to:

- Administering a sustained public education strategy.
- Administration and follow-up on grant applications.
- Coordination between City/County/fire departments.
- A contact point for coordination with federal agencies.
- Tracking of equipment and training needs.
- Administering/coordinating post fire rehabilitation efforts such as damage assessment, erosion control, reseeding, weed control, etc.

Section 7.5 Mitigation measure 5

- Ensure the long-term economic stability of the communities by reducing the fire threat from very high to moderate/low.

Section 7.6 Mitigation measure 6

- Identify forestlands, private and public, developed and otherwise that, if treated, would reduce the potential impact to existing communities and structures in and around the Big Bear Valley. This is commonly referred to as the Wildland Urban Interface Zone.

Section 7.7 Mitigation measure 7

Continue Long-Range Strategic Planning to Anticipate and Prepare for Future Emergency Preparedness Needs

- Seek out and plan for funding the construction of a dedicated emergency operations center for use in emergencies.
- Seek out and plan funding for an emergency operations center manager/coordinator with job duties to promote and train Certified Emergency Response Teams (CERT) volunteers.
- A part of preparing for an emergency is to ensure that equipment is reliable. In accordance with NFPA 1901, replace all first run equipment that was manufactured prior to 1979.
- Work with local public works departments to identify roads that are deficient. Adopt a plan to modify and upgrade roads where practical.
- As part of the fire safety inspector program, identify propane tanks that do not have hold-downs. Enforce existing standards on all propane tanks in the WUI.
- When funding is available, provide a least two separate and dedicated dispatch circuits in compliance with NFPA 1221.

Section 7.8 Mitigation measure 8

- Continue the annual fuel reduction measures on private properties within the Big Bear Valley.
- Implement fuel reduction measures to assure continuing and ongoing safety of the Big Bear Valley watershed and recharge aquifers. Monitor the progress of watershed change over a period of time.
- Seek sources to assist in funding a fire safety inspector program to conduct ongoing implementation of the Public Resource Code, NFPA 1144, street and address standards and defensible space guidelines.

Section 7.9 Mitigation measure 9

- Identify high valued areas that, if absent from trees, would have a detrimental effect on the appearance and ambiance of the communities of the Big Bear Valley WUI. Propose and implement measures to assure the long-term survivability of these areas.

Section 7.10 Mitigation measure 10

- Work with timber harvesters and environmental groups to identify and support new markets that collectively, with public and private partnerships, assure that the forest vegetation and trees that are removed go to sources that have a beneficial use, i.e., lumber, biomass chips for landscaping & erosion control, and/or energy.

Section 7.11 Mitigation measure 11

- Work with the United States Forest Service annually to seek appropriate funding to complete fuel treatment programs on public lands.
- Incorporate as much as possible a "do more with less" concept by privatizing "off budget" management and treatment prescriptions of the forest.

Section 7.12 Mitigation measure 12

- Implement measures within Big Bear Valley Wildland Urban Interface restoring the forest to a condition resembling historic levels of fire regimes, species composition, and insects & disease agents while at the same time assure the removal of dead, dying or diseased trees. Reduce the tree density by removing over-dense trees of any size and the vegetation undergrowth that is necessary to achieve and maintain fire intensity at moderate to low levels.
- Collaborate with the United States Forest Service to ensure the development of the shaded fuel breaks are completed around all the communities of the Big Bear Valley.

Section 7.13 Mitigation measure 13

- Support the reintroduction of prescriptive and controlled fire into the ecosystem of the BBVWUI on both public and private lands.

SECTION 8.0 MANAGEMENT UNIT IDENTIFICATION

See Map 2.2.2 Management Unit Map.

MANAGEMENT UNIT 1 (BALDWIN LAKE AREA, INCLUDES LAKE WILLIAMS AND ERWIN LAKE)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Extreme		
2882.81	3814.08	806.16			I/III**	3/50/26/19

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

**** Less than 2% of the acreage in this management unit consists of barren, water or urban lands.**

- **Fuel Type** – Juniper and pinion woodland with sagebrush, rabbit brush, and cheat grass understory.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department, San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Management Unit 2 (Lone Valley)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Extreme to Very High		
3289.99	15565.34	2383.58			I/III/IV**	12/34/10/44

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 1.0% of the acreage in this management unit consists of water, urban or barren lands.**

- **Fuel Type** –Predominate pinion woodland with sagebrush, rabbit brush, and cheat grass understory.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Management Unit 3 (Sugarloaf)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Extreme to Very High		
88.85	228.54	7979.10			I/III**	15/41/29/15

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 5.0 % of the acreage in this management unit consists of water or barren lands; 14.8% is urbanized.**

- **Fuel Type** – Pinion, Jeffery pine, manzanita, cheat grass understory.
- **Treatment** - On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** - Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Management Unit 4 (Moonridge)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Extreme to Very High		
166.94	215.67	5928.09			I/III**	12/8/42/38

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 2.0 % of the acreage in this management unit consists of barren or water lands; 35% is urbanized.**

- **Fuel Type** – Dense mixed conifer dominated by white fir, Jeffrey pine, and oak with a build up of ground litter and an array of various shrubs. Significant mortality of white fir and lesser mortality of Jeffrey pine.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Management Unit 5 (Big Bear City Highway 18 to WUI boundary)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Extreme to Very High		
322.18	0.00	1641.95			I/III**	12/34/10/44

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 3.8% of the acreage in this management unit consists of barren and water lands; 41% is considered urban.**

- **Fuel Type** – western juniper, Jeffery Pine, hardwood, woodland with sagebrush, manzanita, rabbit brush, and cheat grass understory.
- **Treatment** - On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** - Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department,

homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Management Unit 6 (Big Bear Lake)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Moderate to Extreme		
51.10	346.11	2733.05			I/III**	6/7/60/27

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 2.4% of the acreage in this management unit is water; 24% is considered urban.**

- **Fuel Type** – Moderate mixed conifer and hardwood (Jeffrey pine, white fir, and oak) with a moderate array of various shrubs. Areas with heavy surface litter
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Management Unit 7 (North Boundary South to Fawnskin)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Very High to Extreme		
108.15	401.00	5649.90			I/III**	11/54/31/5

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 5.0 % of the acreage in this management unit consists of barren urban or water lands.**

- **Fuel Type** – moderate mixed conifer and hardwood (Jeffrey pine, western juniper, and oak) with a moderate array of various shrubs. Areas with heavy surface litter.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Management Unit 8 (USFS Lease Land) Gray's Peak (Fawnskin to Dam)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Extreme		
24.00	917.50	3623.22			I/III**	13/11/72/4

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 3.3 % of the acreage in this management unit consists of barren urban or water lands.**

- **Fuel Type** – moderate mixed conifer and hardwood (Jeffrey pine, white fir and oak) with a heavy array of various shrubs. Areas with moderate surface litter.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objectives of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

MANAGEMENT UNIT 9 (MILL CREEK)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Extreme		
76.66	2275.55	5776.88			I/III**	19/24/55/2

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 3.0 % of the acreage in this management unit consists of barren urban or water lands.**

- **Fuel Type** – moderate mixed conifer and hardwood (Jeffrey pine, sugar pine, lodgepole pine, white fir, and oak) with a moderate array of various shrubs. Areas with heavy surface litter.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will assure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

MANAGEMENT UNIT 10 (HOLCOMB)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Very High to Extreme		
20,694	8,370	5,777			I/III**	12/56/30/2

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 1.8 % of the acreage in this management unit consists of water, barren or urban lands.**

- **Fuel Type** – moderate mixed conifer and hardwood (Jeffrey pine, western juniper, pinion, and oak) with a moderate array of various shrubs. Areas with moderate surface litter.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

MANAGEMENT UNIT 11 (SANTA ANA/SOUTHSIDE)*

Fuel Type in Acres				Threat Level	Fire Regime I,III,IV	Condition Class 1/2/3/9 % by Acres
Grass Types 1-3	Chaparral Types 4-7	Timber Types 8-10	Slash Types 11-13	Very High to Extreme		
2015.75	12763.11	25908.52			I/III**	18/44/37/1

***Fire Regime Condition Class and Threat Level, information provided by the California Department of Forestry, Fire Resource and Assistance Program (FRAP). The threat level was determined from the "Threat to People" 2003 Map. Discussions of the appropriate use of this map were inconclusive and therefore its use was included.**

****Less than 3.0 % of the acreage in this management unit consists of water, agriculture, barren or urban lands.**

- **Fuel Type** – moderate mixed conifer and hardwood (Jeffrey pine, white fir, and cedar hardwood) with a moderate array of various shrubs, manzanita, and willow bushes. Areas with heavy surface litter.
- **Treatment** – On public lands, the USFS will identify appropriate prescription to be conducted and collaborate with local government and the public to ensure the ongoing objects of this Plan and healthy forest initiative are met. Prescribed fire possible. On private properties, owners and the agency having jurisdiction will ensure the ongoing implementation of fuel reduction meets appropriate state, county, and local requirements.
- **Who will accomplish work?** – Natural Resource Conservation Service, San Bernardino County Code Enforcement (Weed Abatement), San Bernardino County Fire Department and San Bernardino County Public Works Department, homeowners, Big Bear Lake Fire Department, Big Bear City Fire Department, and USFS.

Appendixes

Appendix A
Big Bear Valley Wildland Urban Interface - Fuel Types Acreage

		Fuel Type 1	Fuel Type 2	Fuel Type 4	Fuel Type 5	Fuel Type 6	Fuel Type 8	Fuel Type 9	Fuel Type 10	Fuel Type 15	Fuel Type 97	Fuel Type 98	Fuel Type 99	
Mgmt. Unit No.	Big Bear Valley Wildland Urban Interface Mgmt. Units	Grass Group	Grass Under Story Open Pine	Shrub Group	Medium Brush	Pinion Juniper Sage	Timber Medium Conifer	Long Needle Conifer Hard Wood	Timber Heavy Dead Forest Litter	Desert	Agri-culture	Water	Barren	Total Acreage Per Manage-ment Unit
1	Baldwin Lk/ Erwin Lk	236.88	2645.93	392.56	3421.53	0.00	3.68	802.49	0.00	0.00	140.83	1023.52	204.58	**8872.00**
2	Lone Valley	0.00	3289.99	2174.44	13378.45	12.45	4.39	2379.19	0.00	5910.80	0.00	4.91	61.33	**27215.95**
3	Sugarloaf	43.33	45.52	219.70	1.06	7.78	18.10	7960.99	0.00	0.00	37.61	11.51	150.44	**8496.04**
4	Moonridge	108.00	0.00	210.38	30.67	20.40	0.00	5928.09	0.00	0.00	744.32	50.14	125.92	**7217.92**
5	Big Bear City	78.22	243.96	696.95	0.00	0.00	0.00	1641.94	0.00	0.00	194.88	31.81	100.77	**2988.53**
6	Big Bear Lake	42.21	8.89	246.70	46.97	52.44	0.00	2733.06	0.00	0.00	81.61	47.13	39.75	**3298.76**
7	Fawnskin	0.00	108.15	388.55	0.00	12.45	44.24	5605.67	0.00	0.00	37.91	6.15	49.81	**6252.93**
8	Gray's Peak	11.55	12.45	181.97	303.53	432.00	3.06	3620.17	0.00	0.00	23.33	10.61	29.38	**4628.05**
9	Millcreek	50.00	26.66	365.14	1865.31	45.10	33.82	5681.04	62.02	0.00	0.00	29.11	174.88	**8333.08**
10	Holcomb	1357.27	19336.96	5963.05	2146.22	260.48	8.23	17879.15	0.00	4036.37	0.00	20.45	800.01	**51808.19**
11	Santa Ana	236.22	1779.53	10639.78	1926.76	196.56	393.02	24318.49	1197.01	154.56	0.00	39.40	454.56	**41335.89**
	Total Acres	**2163.68**	**27498.04**	**21479.22**	**23120.50**	**1039.66**	**508.54**	**78550.28**	**1259.03**	**10101.73**	**1260.49**	**1274.74**	**2191.43**	**170447.34**

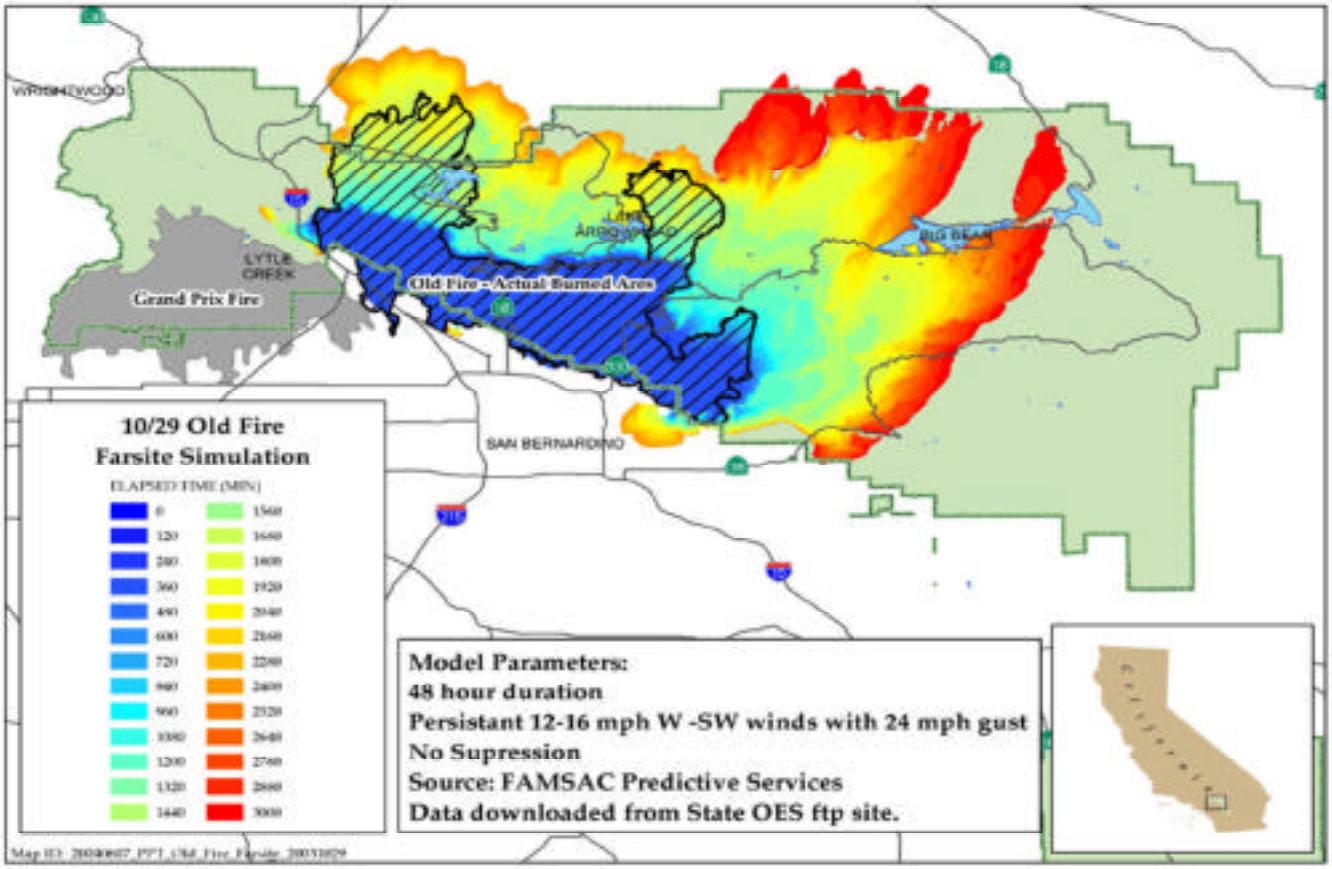
Appendix B
Big Bear Valley Wildland Urban Interface - Fuel Types Acreage by Private and Forest Lands

		Fuel Type 1	Fuel Type 2	Fuel Type 4	Fuel Type 5	Fuel Type 6	Fuel Type 8	Fuel Type 9	Fuel Type 10	Fuel Type 15	Fuel Type 97	Fuel Type 98	Fuel Type 99	
Manage-ment Unit No.	Big Bear Valley Wildland Urban Interface Management Units	Grass Group	Grass Under Story Open Pine	Shrub Group	Medium Brush	Pinion Juniper Sage	Timber Medium Conifer	Long Needle Conifer Hardwood	Timber Heavy Dead Forest Litter	Desert	Agri-culture	Water	Barren	Total Acreage Per Manage-ment Unit
1	Baldwin Lake / Erwin Lake	236.88	2645.93	392.56	3421.53	0.00	3.68	802.49	0.00	0.00	140.83	1023.52	204.58	8872.00
	Forest Land	17.92	826.01	133.53	2783.23		3.15	323.23			1.02	641.11	6.48	
	Private Land	218.96	1819.92	259.02	638.30		0.52	479.26			139.81	382.41	198.10	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		2882.81			3814.08			806.16						
2	Lone Valley	0.00	3289.99	2174.44	13378.45	12.45	4.39	2379.19	0.00	5910.80	0.00	4.91	61.33	27215.95
	Forest Land		3161.40	1747.61	12694.80	0.67	3.13	1336.43		4851.57		4.91	52.89	
	Private Land		128.59	426.83	683.65	11.78	1.26	1042.76		1059.23		0.00	8.43	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		3289.99			15565.34			2383.58						
3	Sugarloaf	43.33	45.52	219.70	1.06	7.78	18.10	7960.99	0.00	0.00	37.61	11.51	150.44	8496.04
	Forest Land	8.89	9.85	133.20	1.06	0.11	14.70	5549.20			37.61	7.03	93.33	
	Private Land	34.44	35.67	86.50	0.00	7.67	3.41	2411.79			0.00	4.48	57.12	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		88.85			228.54			7979.10						
4	Moonridge	108.00	0.00	210.38	30.67	20.40	0.00	5928.09	0.00	0.00	744.32	50.14	125.92	7217.92
	Forest Land	0.00		151.44	30.67	7.24	0.00	3727.34			276.02	0.46	20.75	
	Private Land	108.00	58.94	0.00	13.16	13.16		2200.75			468.29	49.68	105.17	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		166.94			215.67			5928.09						
5	Big Bear City	78.22	243.96	696.95	0.00	0.00	0.00	1641.94	0.00	0.00	194.88	31.81	100.77	2988.53
	Forest Land	0.00	110.80	643.23	0.00			519.93			0.00	3.31	24.71	
	Private Land	78.22	133.16	53.72				1122.02			194.88	28.50	76.05	
		Grass Types 1- 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		322.18			0.00			1641.95						
6	Big Bear Lake	42.21	8.89	246.70	46.97	52.44	0.00	2733.06	0.00	0.00	81.61	47.13	39.75	3298.76
	Forest Land	0.96	8.89	246.70	46.97	39.50		1639.63			0.17	0.00	0.00	
	Private Land	41.25	0.00	0.00	0.00	12.94		1093.42			81.44	47.13	39.75	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		51.10			346.11			2733.05						

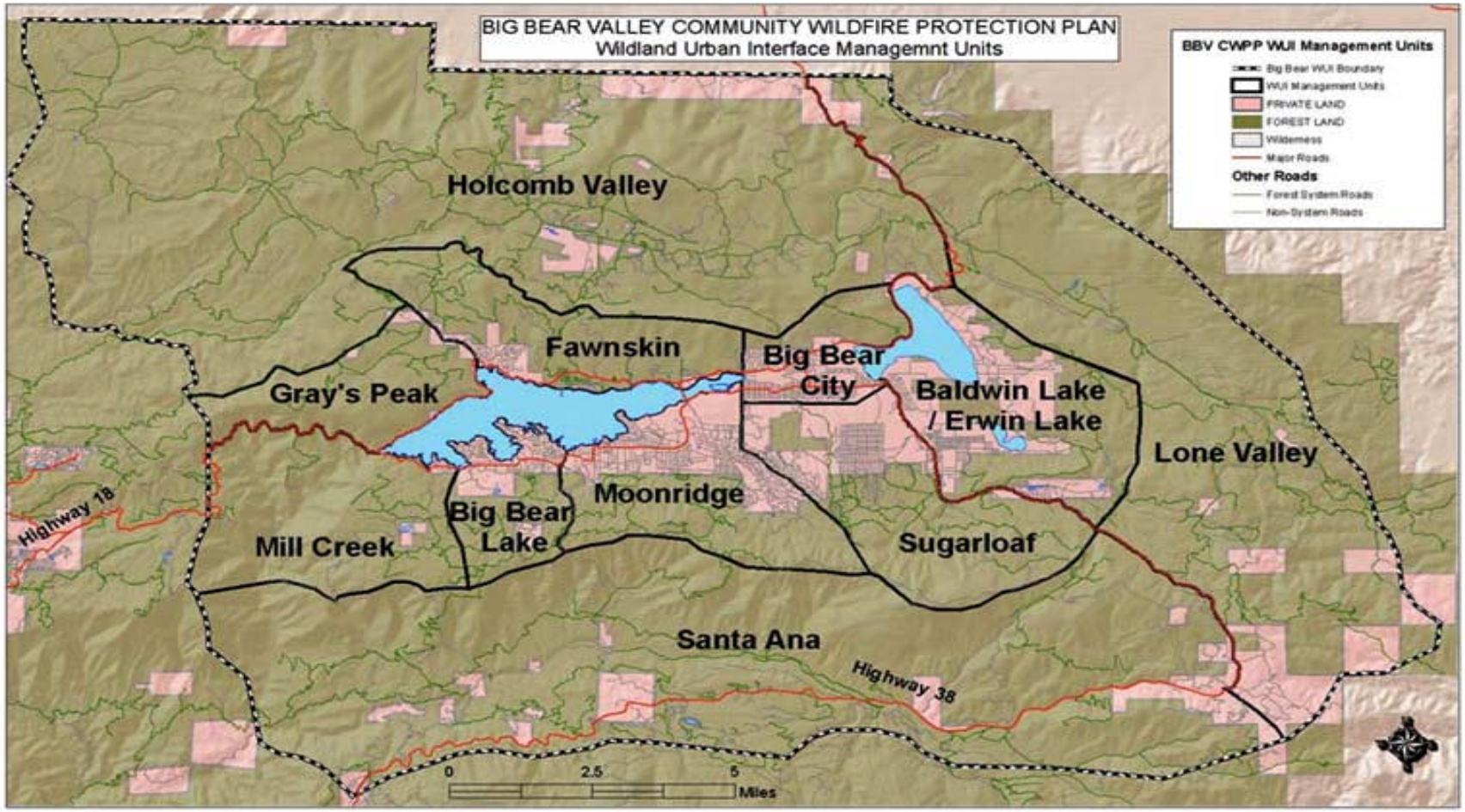
Appendix B
Big Bear Valley Wildland Urban Interface - Fuel Types Acreage by Private and Forest Lands

		Fuel Type 1	Fuel Type 2	Fuel Type 4	Fuel Type 5	Fuel Type 6	Fuel Type 8	Fuel Type 9	Fuel Type 10	Fuel Type 15	Fuel Type 97	Fuel Type 98	Fuel Type 99	
Manage-ment Unit No.	Big Bear Valley Wildland Urban Interface Management Units	Grass Group	Grass Under Story Open Pine	Shrub Group	Medium Brush	Pinion Juniper Sage	Timber Medium Conifer	Long Needle Conifer Hardwood	Timber Heavy Dead Forest Litter	Desert	Agri-culture	Water	Barren	Total Acreage Per Manage-ment Unit
7	Fawnskin	0.00	108.15	388.55	0.00	12.45	44.24	5605.67	0.00	0.00	37.91	6.15	49.81	6252.93
	Forest Land		76.78	388.18		12.45	28.64	4978.55			11.82	3.03	38.11	
	Private Land		31.37	0.37		0.00	15.60	627.11			26.09	3.13	11.70	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		108.15			401.00			5649.90						
8	Gray's Peak	11.55	12.45	181.97	303.53	432.00	3.06	3620.17	0.00	0.00	23.33	10.61	29.38	4628.05
	Forest Land	2.22	12.45	180.23	303.53	427.48	1.28	3397.56			3.78	8.15	17.42	
	Private Land	9.33	0.00	1.74	0.00	4.52	1.77	222.61			19.55	2.47	11.97	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		24.00			917.50			3623.22						
9	Millcreek	50.00	26.66	365.14	1865.31	45.10	33.82	5681.04	62.02	0.00	0.00	29.11	174.88	8333.08
	Forest Land	25.32	26.66	365.14	1865.31	45.10	33.82	5537.11	62.02			15.82	161.73	
	Private Land	24.68	0.00	0.00	0.00	0.00	0.00	143.93	0.00			13.29	13.15	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		76.66			2275.55			5776.88						
10	Holcomb	1357.27	19336.96	5963.05	2146.22	260.48	8.23	17879.15	0.00	4036.37	0.00	20.45	800.01	51808.19
	Forest Land													
	Private Lane													
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
11	Santa Ana	236.22	1779.53	10639.78	1926.76	196.56	393.02	24318.49	1197.01	154.56	0.00	39.40	454.56	41335.89
	Forest Land	192.22	1733.07	10374.31	1838.45	175.51	325.10	21908.50	1153.36	148.03	0.00	36.06	429.91	
	Private Land	44.00	46.46	265.48	88.31	21.05	67.91	2409.99	43.66	6.53	0.00	98.34	24.66	
		Grass Types 1 - 3			Chaparral Types 4 - 7			Timber Types 8 - 10						
		2015.75			12763.11			25908.52						
	Total Acres													170447.34

Appendix C
Big Bear Valley Wildland Urban Interface Boundary



Appendix D
Wildland Urban Interface Management Units



Bibliography

A.
Agee, James K, Skinner, Carl N, "Basic Principles of Forest Fuel Reduction Treatments", *Forest Ecology and Management 211* (2005) 83-96

B.
Barley, Dunn, "Managing for Forest Health and Sustainability", unpublished

Big Bear City Community Services District, Ordinance No. 212, October 2002

C.
California Department of Finance, "City Population and Housing Estimates", January 1, 2004

California Department of Forestry FRAP, "Characterizing the Fire Threat to Wildland-Urban Interface Areas in California"

California Fire Alliance and Fire Safe Council, "Abridged Community Fire Plan Template Outline", August 2004 Edition

California, State of, "Public Resources Code", 1987 Edition

City of Big Bear Lake, "Residential Development Standards, Setback Standards", September 2003

City of Big Bear Lake, "Tree Conservation Ordinance", Adopted October 2002

Cohen, Jake D. "Preventing Disaster", Journal of Forestry, unknown date of publication

County of San Bernardino, Auditor- Controller Property Tax Division, July 2005

County of San Bernardino, "Fire Safety Overlay District", Ordinance 3341, amended June 2004

County of San Bernardino "Operational Area Multi-Jurisdictional Hazard Mitigation Plan", March 2005

D.
Defensible Space Landscaping in the Urban/Wildland Interface, www.ucfpl.edc/I-Zone

E.
Economics & Politics, Inc., "Big Bear Area's Economic Performance", February 2002

Environmental Data Service, 1968 "Climatic Atlas of the United States", USDC, Environmental Service Administration

Ernst, W.G., 1981 edition, "The Geotectonic Development of California", Prentice-Hall, Englewood Cliffs, N.J.

F.
Fenneman, N.M., (with collaboration of D.W. Johnson), 1946, "Physiographic Divisions of the United States", Washington, DC, U.S. Department of Interior, Geological Survey, (map), scale 1: 7,000,000 colored

G.
Glossary of Soil Science Terms, 1987, "Soil Science Society of America", Madison, Wisconsin

Goodridge, J.D., 1981, "California Rainfall Summary - Monthly Precipitation", 1849-1980, California Department of Water Resources, Sacramento

Goudey, C.B. and D. W. Smith, 1994 edition, "Ecological Units of California Subsections" (map) San Francisco, CA. U.S. Department of Agriculture, Forest Service, scale: 1,000,000, colored

H.
Haskins, D.M., and J.M. Chatoian, 1993, "Geology Data Standards for Ecological Unit Inventories for the Pacific Southwest Region", San Francisco, CA. U.S. Department of Agriculture, Forest Service, R5 Tech. Paper 05-008

"Hierarchy of Ecoregions at a Range of Scales" (map), Robert G. Bailey, cartog, 1994, Washington, DC. U.S. Department of Agriculture, Forest Service. 7 x 7.5 inches

Holdridge, L.R., 1967, "Life Zone Ecology", San Jose, Costa Rica, Tropical Science Center, 206 p.

I.
Insurance Services Office 2005, "Guide for Determining Fire Flow"

Insurance Services Office, Inc. Public Protection Classifications Improvement Statements for Big Bear Lake Fire Department, San Bernardino County, CA, November 2000

J.
Jennings, C.W., 1994, "Fault Activity Map of California and Adjacent Areas", Geologic Data Map No. 6, scale1: 750,000. California Division of Mines & Geology, Sacramento. CA

K.
Küchler, A.W., 1970, "Potential Natural Vegetation" (map). Repr. in the National Atlas of the United States, Washington, DC, U.S. Department of Interior, Geological Survey, scale 1:7,500,000; colored

Küchler, A.W., 1977, "Natural Vegetation of California" (map), Department of Geography, University of Kansas, scale 1:1,000,000; colored

M.
McNab, W.H., and P.E. Avers, editors, 1994, "Ecological Sub-Regions of the United States: Section Descriptions", Washington, DC, U.S. Department of Agriculture, Forest Service, Publication WO-WSA-5

Mountain Area Safety Taskforce, "Fire Safety & Prevention Guide", 2004

Mountain Area Safety Taskforce, "Mast Area of Infestation Statistics", revised July 2003

N.
National Fire Protection Association, Standard 1141, "Fire Protection of Planned Building Groups", 2003 Edition

National Fire Protection Association, Standard 1142, "Water Supplies for Suburban and Rural Fire Fighting", 2001 Edition

National Fire Protection Association, Standard 1144, "Protection of Life and Property from Wildfire", 2002 Edition

National Fire Protection Association, Standard 1221, "Installation, Maintenance, and Use of Emergency Services Communications Systems", 2002 Edition

P.
Prescott Area Wildland / Urban Interface Commission, "Wildfire Protection Plan", March 2005
FAMSAC Predictive Services, Old Fire Farsite, Projected Fire Simulation, October 29, 2003

R.
Radbruch, D.H., and K.C. Crowther, 1973, "Map Showing Areas of Estimated Relative Amounts of Landslides in California", U.S. Department of Interior, Geological Survey, Miscellaneous Geological Investigations Map I-747

Rantz, S.E., 1972, "Runoff Characteristics of California Streams", U.S. Department of Interior, Geological Survey, Water Supply Paper 2009-A, 37 pages, map

Regelbrugge, John C., "Written Comments of the BBVCWPP, April 20, 2006"

S.
San Bernardino National Forest, "Campground Statistics", July 2001 Edition

Sawyer, J.O., and T. Keeler-Wolf, 1995, "A Manual of California Vegetation", Sacramento, CA, California Native Plant Society, 471 p.

Soil Survey Staff, 1992, "Keys to Soil Taxonomy", fifth edition, SMSS Technical Monograph No. 19, Blacksburg, VA, Pocahantas Press, Inc., 556 p.

Soil Survey Staff, 1994 and 1996, "Keys to Soil Taxonomy", Washington, DC, U.S. Department of Agriculture, Natural Resources Conservation Service, Seventh. Edition, 644 p.

State of California, Department of Fish and Game, January 2005, "State and Federally Listed Endangered and Threatened Animals of California"

T.
T.E.A.M.S. Enterprise Unit, "South Big Bear Fuels Reduction and Forest Health Report", January 15, 2005

T.E.A.M.S. Enterprise Unit, "Amended Treatment Level Guidelines ", October 12, 2005

TSS Consultants, "Southern California Biomass Disposal and Utilization Assessment", May 2005

U.
Unknown Author, "Fire and Fuels Buildup", date unknown

United States Department of Agriculture, White, Weise & Frommer, "Preliminary Evaluation of Flammability of Native and Ornamental Plants with the Cone Calorimeter"

United States Department of Agriculture, Forest Service, 1994, "Draft Forest Service Manual 2060, Ecosystem Classification, Interpretation, and Application", Pacific Southwest Region, San Francisco, CA

United States Department of Agriculture, Forest Service, 1994, "Draft Region 5 Ecosystem Management Guidebook", Pacific Southwest Region, San Francisco, CA., 3 volumes

United States Department of Agriculture, Forest Service, 1995, "Sustaining Ecosystems, A Conceptual Framework", Pacific Southwest Region, San Francisco. CA R5-EM-TP-001, April 1995

United States Department of Agriculture, "Aids to Determining Fuels Models for Estimating Fire Behavior", April 1982

United States Department of Agriculture, Forest Service and Soil Conservation Service, numerous published soil survey reports of national forests and counties in California

United States Department of Agriculture, Natural Resources Conservation Service (formally Soil Conservation Service), 1994, STATSGO, (maps) 1:250,000, (statewide maps and legends indicating predominate soils series in polygons)

United States Department of Agriculture, Natural Resources Conservation Service (formally Soil Conservation Service), 1995, "Classification of Soil Series" (family listing)

United States Department of Agriculture, Natural Resources Conservation Service (formally Soil Conservation Service), 1981, "Land Resource Regions and Major Land Resource Areas of the United States", *Agriculture Handbook* 296, scale 1:7,500,000; colored, 156 p.

United States Department of Agriculture, Natural Resources Conservation Service (formally Soil Conservation Service), 1981, "Land Resource Regions and Major Land Resource Areas of the United States", *Agriculture Handbook* 296, scale 1:1,000,000; colored, 156 p.

United States Department of Agriculture, *Federal Register,* August 17, 2004

United States Government Accountability Office, "Protecting Structures and Improving Communication During Wildland Fires", April 2005

United States Department of Agriculture, "Managing the Impact of Wildfires on Communities and the Environment", September 2000

United States Department of Agriculture, "America's Forests", 2003 *Health Update*

United States Department of Agriculture, "Environmental Assessment", *South Big Bear Fuels Reduction and Forest Health Project,* May 2005

United States Department of Agriculture, "Fire History of the San Bernardino National Forest for 104 years", August 2005

United States Department of Agriculture, "Soils Report" Peter Fahnestock, *Resource Soils Scientist*, Natural Resources Conservation Service

W.

Water Resources Division, 1969, "Mean Annual Precipitation in California", Menlo Park, CA, U.S. Department of Interior, Geological Survey

Western Fire Chiefs Association, International Conference of Building Officials, 2000 Edition amending the Uniform Fire Code

Wieslander, A.E., 1961, "California's Vegetation Maps in Recent Advances in Botany", *University Toronto Press*

Y.

Yegge David A, Interview with Battalion Chief George Corley, San Bernardino County Fire Department, September 2005

Yegge David A., Interview with Fire Chief Dana Van Leuven, Big Bear City Fire Department, September 20, 2005

Yegge David A., Interview with Fire Chief John D. Morley, Big Bear Lake Fire Department, August 2005

Yegge David A., Interview with Division Chief Jeff Willis, Big Bear City Fire Department, September 20, 2005 and November 2005

Z.

Zimmerman, Gene, Forest Supervisor, U.S. Forest Service, "Cost of 2003 Wildfires", *The Sun* Newspaper, August 5, 2005

Definitions

A.

accumulation - Any and all limbs, branches, prunings, trimmings, stumps, and parts of domestic, natural or cultivated organic material which has been cut, looped-off, separated or removed or fallen from such trees and have not been destroyed by burning or removal.

adaptive management - A type of natural resource management that implies making decisions as part of an ongoing process. Monitoring the results of actions will provide a flow of information that may indicate the need to change a course of action. Scientific findings and the needs of society may also indicate the need to adapt resource management to new information.

affected environment - The natural environment that exists at the present time in an area being analyzed.

age class - An age grouping of trees according to an interval of years, usually 20 years. A single age class would have trees that are within 20 years of the same age such as 1-20 years or 21-40 years.

aspect - The direction a slope faces. A hillside facing east has an eastern aspect.

aquifer - A body of rock that is saturated with water or transmits water. When people drill wells, they tap water contained within an aquifer.

B.

bark beetle - An insect that bores through the bark of forest trees to eat the inner bark and lay its eggs. Bark beetles are important killers of forest trees.

basal area - The area of the cross section of a tree trunk near its base, usually 4 and 1/2 feet above the ground. Basal area is a way to measure how much a site is occupied by trees. The term basal area is often used to describe the collective basal area of trees per acre.

Best Management Practices (BMP) - Practices designed to prevent or reduce water pollution.

big game - Large mammals such as deer, bear, elk, and antelope that are hunted for sport.

biological control - The use of natural means to control unwanted pests. Examples include introduced or naturally occurring predators such as wasps or hormones that inhibit the reproduction of pests. Biological controls can sometimes be alternatives to mechanical or chemical means.

biological diversity - The number and abundance of species found within a common environment. This includes the variety of genes, species, ecosystems, and the ecological processes that connect everything in a common environment.

biomass - The total weight of all living organisms in a biological community.

board foot - A measurement term for lumber or timber. The amount of wood contained in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.

broadcast burn - A prescribed fire that burns a designated area. These controlled fires can reduce wildfire hazards, improve forage for wildlife and livestock, or encourage successful regeneration of trees.

browse - Twigs, leaves, and young shoots of trees and shrubs that animals eat. Browse is often used to refer to the shrubs eaten by big game such as elk and deer.

buffer - A land area that is designated to block or absorb unwanted impacts to the area beyond the buffer. Buffer strips along a trail could block views that may be undesirable. Buffers may be set aside next to wildlife habitat to reduce abrupt change to the habitat.

C.

canopy - The part of any stand of trees represented by the tree crowns. It usually refers to the uppermost layer of foliage, but it can be used to describe lower layers in a multi-storied forest.

cavity - A hole in a tree often used by wildlife species, usually birds for nesting, roosting, and reproduction.

chemical control - The use of pesticides and herbicides to control pests and undesirable plant species.

clear cut - A harvest in which all or almost all of the trees are removed in one cutting.

climax - The culminating stage in plant succession for a given site. Climax vegetation is stable, self-maintaining, and self-reproducing.

composition - What an ecosystem is composed of.. Composition could include water, minerals, trees, snags, wildlife, soil, microorganisms, and certain plant species.

condition class – refers to the general deviation of ecosystems from their pre-settlement natural fire regime.

Class 1 – Fire regime within or near historical ranges. Risk of key ecosystem component loss low.

Class 2 – Fire regime moderately altered from historical range. Risk of key ecosystem component loss moderate.
Class 3 – Fire regime significantly altered from historical range. Risk of key ecosystem component loss high.
Class 9 – Fire regime within modified urban forested landscape.

conifer – A tree that produces cones such as a pine, spruce, or fir.

connectivity (of habitats) - The linkage of similar but separated vegetation stands by patches, corridors, or "stepping stones" of like vegetation. This term can also refer to the degree to which similar habitats are linked.

consumptive use - Use of resources that reduces the supply such as logging and mining.

contour - A line drawn on a map connecting points of the same elevation.

cover - Any feature that conceals wildlife or fish. Cover may be dead or live vegetation, boulders, or undercut streambanks. Animals use cover to escape from predators, rest, or feed.

cover type (forest cover type) - Stands of a particular vegetation type that are composed of similar species. The aspen cover type contains plants distinct from the pinion/juniper cover type.

created opening - An opening in the forest cover created by the application of even-aged silvicultural practices.

critical habitat - Areas designated for the survival and recovery of federally listed threatened or endangered species.

crown height - The distance from the ground to the base of the crown of a tree.

cultural resource - The remains of sites, structures, or objects used by people in the past. This can be historical or pre-historic.

cumulative effects - Effects on the environment that result from separate, individual actions that collectively become significant over time.

D.

dbh (diameter at breast height) - The diameter of a tree 4 and 1/2 feet above the ground on the uphill side of the tree.

decision criteria - The rules and standards used to evaluate alternatives to a proposed action on national forest land. Decision criteria are designed to help a decision maker identify a preferred choice from the array of alternatives.

desired future condition - Land or resource conditions that are expected to result if goals and objectives are fully achieved.

developed recreation - Recreation that requires facilities that in turn result in concentrated use of the area. For example, skiing requires ski lifts, parking lots, buildings, and roads. Campgrounds require roads, picnic tables, and toilet facilities.

dispersed recreation - Recreation that does not occur in a developed recreation site such as hunting, backpacking, and scenic driving.

disturbance - Any event, such as forest fire or insect infestations, that alter the structure, composition, or functions of an ecosystem.

Draft Environmental Impact Statement (DEIS) - The draft version of the Environmental Impact Statement that is released to the public and other agencies for review and comment.

E.

early forest succession - The biotic (or life) community that develops immediately following the removal or destruction of vegetation in an area. For instance, grasses may be the first plants to grow in an area that was burned.

ecological approach - An approach to natural resource management that considers the relationships among all organisms including humans and their environment.

ecology - The interrelationships of living things to one another and to their environment or the study of these interrelationships.

ecosystem - An arrangement of living and non-living things and the forces that move among them. Living things include plants and animals. Non-living parts of ecosystems may be rocks and minerals. Weather and wildfire are two of the forces that act within ecosystems.

ecosystem management - An ecological approach to natural resource management to assure productive, healthy ecosystems by blending social, economic, physical, and biological needs and values

ecotype - A population of a species in a given ecosystem that is adapted to a particular set of environmental conditions.

edge - The margin where two or more vegetation patches meet, such as a meadow opening next to a mature forest stand or a ponderosa pine stand next to an aspen stand.

endangered species - A plant or animal that is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the Endangered Species Act of 1973.

environmental analysis - An analysis of alternative actions and their predictable long and short-term environmental effects. Environmental analyses include physical, biological, social, and economic factors.

environmental assessment - A brief version of an Environmental Impact Statement (see Environmental Impact Statement).

Environmental Impact Statement (EIS) - A statement of environmental effects of a proposed action and alternatives to it. The EIS is released to other agencies and the public for comment and review.

ephemeral streams - Streams that flow only as the direct result of rainfall or snowmelt. They have no permanent flow.

erosion - The wearing away of the land surface by wind or water.

escape cover - Vegetation of sufficient size and density to hide an animal or an area used by animals to escape from predators.

even aged management - Timber management actions that result in the creation of stands of trees in which the trees are essentially the same age.

F.

fire cycle - The average time between fires in a given area.

fire flow – The amount of water needed in gallons per minute to fight a sustained fire attack in an individual, non-sprinklered building.

fire regime - The characteristics of fire in a given ecosystem such as the frequency, predictability, intensity, and seasonality of fire.

flood plain - A lowland adjoining a watercourse. At a minimum, the area is subject to a 1% or greater chance of flooding in a given year.

forage - All browse and non-woody plants that are eaten by wildlife and livestock.

forest cover type - See cover type.

forest health - A measure of the robustness of forest ecosystems. Aspects of forest health include biological diversity; soil, air, water productivity; natural disturbances, and the capacity of the forest to provide a sustaining flow of goods and services for people.

fuels - Plants and woody vegetation, both living and dead, that are capable of burning.

fuels management - The treatment of fuels that would otherwise interfere with effective fire management or control. For instance, prescribed fire can reduce the amount of fuels that accumulate on the forest floor before the fuels become so heavy that a natural wildfire in the area would be explosive and impossible to control.

function - All the processes within an ecosystem through which the elements interact such as succession, food chain, fire, weather, and the hydrologic cycle.

G.

Geographic Information Systems (GIS) - GIS is both a database designed to handle geographic data as well as a set of computer operations that can be used to analyze the data. In a sense, GIS can be thought of as a higher order map.

ground fire - A fire that burns along the forest floor and does nor affect trees with thick bark or high crowns.

ground water - The supply of fresh water under the earth's surface in an aquifer or in the soil.

group selection - A method of tree harvest in which trees are removed periodically in small groups. This silvicultural treatment results in small openings that form mosaics of age class groups in the forest.

H.

habitat - The area where a plant or animal lives and grows under natural conditions.

habitat diversity - A number of different types of wildlife habitat within a given area.

horizontal diversity - The distribution and abundance of different plant and animal communities or different stages of plant succession across an area of land. The greater the number of communities in a given area, the higher the degree of horizontal diversity.

hydrology - The science dealing with the study of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere.

I.

indicator species - A plant or animal species related to a particular kind of environment. Its presence indicates that specific habitat conditions are also present.

individual tree selection - The removal of individual trees from certain size and age classes over an entire stand area. Regeneration is mainly natural, and an uneven aged stand is maintained.

instream flow - The quantity of water necessary to meet seasonal stream flow requirements to accomplish the purposes of the national forests, including but not limited to, fisheries, visual quality, and recreational opportunities.

integrated pest management (IPM) - IPM evaluates alternatives for managing forest pest populations based on consideration of pest-host relationships.

interdisciplinary team - A team of individuals with skills from different disciplines that focuses on the same task or project.

intermediate cut - The removal of trees from a stand sometime between the beginning or formation of the stand and the regeneration cut. Types of intermediate cuts include thinning, release, and improvement cuttings.

intermittent stream - A stream that flows only at certain times of the year when it receives water from streams or from some surface source such as melting snow.

irreversible - A category of impacts mentioned in statements of environmental impacts that applies to non-renewable resources, such as minerals and archaeological sites. Irreversible effects can also refer to effects of actions that can be renewed only after a very long period of time such as the loss of soil productivity.

L.

ladder fuels - Vegetation located below the crown level of forest trees which can carry fire from the forest floor to tree crowns. Ladder fuels may be low-growing tree branches, shrubs, or smaller trees.

land class - The topographic relief of a unit of land. Land classes are separated by slope; this coincides with the timber inventory process. The three land classes used in the Forest Plan are defined by the following slope ranges: 0 to 35 percent; 36 to 55 percent; and greater than 55 percent.

land use planning - The process of organizing the use of lands and their resources to best meet people's needs over time according to the land's capabilities.

landline - The boundary lines for national forest land.

landscape - A large land area composed of interacting ecosystems that are repeated due to factors such as geology, soils, climate, and human impacts. Landscapes are often used for coarse grain analysis.

late forest succession - The stage of forest succession in which most of the trees are mature or over-mature.

litter (forest litter) - The freshly fallen or only slightly decomposed plant material on the forest floor. This layer includes foliage, bark fragments, twigs, flowers, and fruit.

logging residue (slash) - The residue left on the ground after timber cutting. It includes unutilized logs, uprooted stumps, broken branches, bark, and leaves. Certain amounts of slash provide important ecosystem roles such as soil protection, nutrient cycling, and wildlife habitat.

M.

M - Thousand. Example: Five thousand board feet of timber can be expressed as 5M board feet.

MBF - Thousand board feet (see board feet).

MIS (management indicator species) - A wildlife species whose population will indicate the health of the ecosystem in which it lives, and consequently, the effects of forest management activities to that ecosystem. MIS species are selected by land management agencies. (See "indicator species")

MM – Million.

MMBF - Million board feet. (See board feet)

macro climate - The general large scale climate of a large area as distinguished from the smaller scale micro climates within it.

management action - Any activity undertaken as part of the administration of the national forest.

mass movement/wasting - The down-slope movement of large masses of earth material by the force of gravity. Also called a landslide.

matrix - The least fragmented, most continuous pattern element of a landscape; the vegetation type that is most continuous over a landscape.

mature timber - Trees that have attained full development, especially height and are in full seed production.

micro climate - The climate of a small site. It may differ from the climate at large of the area due to aspect, tree cover (or the absence of tree cover), or exposure to winds.

mineral soil - Soil that consists mainly of inorganic material such as weathered rock rather than organic matter.

mitigation - Actions taken to avoid, minimize, or rectify the impact of a land management practice.

mixed stand - A stand consisting of two or more tree species.

monitoring and evaluation - The periodic evaluation of forest management activities to determine how well objectives were met and how management practices should be adjusted. (See "adaptive management")

mortality - Trees that were merchantable and have died within a specified period of time. The term mortality can also refer to the rate of death of a species in a given population or community.

mosaic - Areas with a variety of plant communities over a landscape such as areas with trees and areas without trees occurring over a landscape.

mountain pine beetle - A tiny black insect, ranging from 1/8 to 3/4 inch in size, that bores through a pine tree's bark. It stops the tree's intake and transport of the food and nutrients it must have to stay alive, thus killing the tree.

multiple use management - The management of all the various renewable surface resources of national forest lands for a variety of purposes such as recreation, range, timber, wildlife and fish habitat, and watershed.

N.

National Environmental Policy Act (NEPA) - Congress passed the NEPA in 1969 to encourage productive and enjoyable harmony between people and their environment. One of the major tenets of the NEPA is its emphasis on public disclosure of possible environmental effects of any major action on public lands. Section 102 of the NEPA requires a statement of possible environmental effects to be released to the public and other agencies for review and comment.

National Forest Land and Resource Management Plan (NFLRMP) - Also called the Forest Plan or the Plan. This document guides the management of a particular national forest and establishes management standards and guidelines for all lands of that national forest.

National Forest Management Act (NFMA) - This law was passed in 1976 and requires the preparation of regional guides and forest plans.

National Forest Recreation Sites (NFRS) - National forest recreation sites that have been inventoried.

natural barrier - A natural feature, such as a dense stand of trees or downfall, that will restrict animal travel.

natural resource - A feature of the natural environment that is of value in serving human needs.

no action alternative - The most likely condition expected to exist in the future if management practices continue unchanged.

non-commercial vegetative treatment - The removal of trees for reasons other than timber production.

non-consumptive use - The use of a resource that does not reduce the supply. For instance, bird watching is a non-consumptive use of wildlife. Boating and fishing are non-consumptive uses of water.

non-renewable resource - A resource whose total quantity does not increase measurably over time so that each use of the resource diminishes the supply.

nutrient cycle - The circulation of chemical elements and compounds, such as carbon and nitrogen, in specific pathways from the non-living parts of ecosystems into the organic substances of the living parts of ecosystems and then back again to the non-living parts of the ecosystem. For instance, nitrogen in wood is returned to the soil as the dead tree decays; the nitrogen again becomes available to living organisms in the soil, and upon their death, the nitrogen is available to plants growing in that soil.

O.

old growth - Old forests often containing several canopy layers, variety in tree sizes and species, decadent old trees, and standing and dead woody material.

organic soil - Soil at least partly derived from living matter such as decayed plant material.

over-mature timber - Trees that have attained full development, particularly in height, and are declining in vigor, health, and soundness.

overstory - The upper canopy layer; the plants below comprise the understory.

P.

park-like structure - Stands with large scattered trees and open growing conditions, usually maintained by ground fires.

partial retention - A visual quality objective that generally means man's activities may be evident but must remain subordinate to the characteristic landscape.

patch - An area of homogeneous vegetation in structure and composition.

percolation - Downward flow or infiltration of water through the pores or spaces of rock or soil.

perennial stream - A stream that flows throughout the year and from source to mouth.

permitted grazing - Grazing on a national forest range allotment under the terms of a grazing permit.

personal use - The use of a forest product, such as firewood, for home use and not for commercial use.

pole/sapling - The stage of forest succession in which trees are between 3 and 7 inches in diameter and are the dominant vegetation.

pole timber - Trees at least 5 inches in diameter but smaller than the minimum size for saw timber.

pre-existing use - Land use that may not conform to a zoning ordinance but existed prior to the enactment of the ordinance.

prescribed fire - Fire set intentionally in wildland fuels under prescribed conditions and circumstances. Prescribed fire can rejuvenate forage for livestock and wildlife or prepare sites for natural regeneration of trees.

prescription - Management practices selected to accomplish specific land and resource management objectives.

pre-suppression - Activities carried out in advance of fire occurrence to ensure effective suppression when the need arises.

productive - The ability of an area to provide goods and services and to sustain ecological values.

prognosis - A computer model for timber growth and yield. It projects per-acre growth and volume yield for commercial timber stands.

public land - Land for which title and control rests with a government---Federal, state, regional, county, or municipal.

R.

range - Land on which the principle natural plant cover is composed of native grasses, forbs, and shrubs that are valuable as forage for livestock and big game.

range of variability (also called the historic range of variability or natural range of variation) - The components of healthy ecosystems fluctuate over time. The range of sustainable conditions in an ecosystem is determined by time, processes (such as fire), native species, and the land itself. For instance, ecosystems that have a 10 year fire cycle have a narrower range of variation than ecosystems with 200-300 year fire cycle. Past management has placed some ecosystems outside their range of variability. Future management should move such ecosystems back toward their natural, sustainable range of variation.

recharge - The addition of water to ground water by natural or artificial processes.

reforestation - The restocking of an area with forest trees by either natural or artificial means such as planting.

regeneration - The renewal of a tree crop by either natural or artificial means. The term is also used to refer to the young crop itself.

release cutting - Removal of competing vegetation to allow desired tree species to grow.

removal cut - The removal of the last seed bearers or shelter trees after regeneration is established.

resilience - The ability of an ecosystem to maintain diversity, integrity, and ecological processes following a disturbance.

restoration (of ecosystems) - Actions taken to modify an ecosystem to achieve a desired, healthy, and functioning condition.

revegetation - The re-establishment and development of a plant cover by either natural or artificial means such as re-seeding.

riparian area - The area along a watercourse or around a lake or pond.

riparian ecosystem - The ecosystems around or next to water areas that support unique vegetation and animal communities as a result of the influence of water.

roundwood - Timber and fuel wood prepared in the round state such as house logs and telephone poles.

run-off - The portion of precipitation that flows over the land surface or in open channels.

S.

sanitation salvage - The removal of dead, damaged or susceptible trees primarily to prevent the spread of pests or disease and promote forest health.

Sapling - A loose term for a young tree more than a few feet tall and an inch or so in diameter that is typically growing vigorously.

sawtimber - Trees that are 9 inches in diameter at breast height or larger that can be made into lumber.

second growth - Forest growth that was established after some kind of interference with the previous forest crop such as cutting, fire, or insect attack.

sensitive species - Plant or animal species which are susceptible to habitat changes or impacts from activities. The official designation is made by the USDA Forest Service at the regional level and is not part of the designation of Threatened or Endangered Species made by the U.S. Fish and Wildlife Service.

single tree selection - See individual tree selection.

size class - One of the three intervals of tree stem diameters used to classify timber in the Forest Plan data base. The size classes are: Seedling/Sapling (less than 5 inches in diameter); Pole Timber (5 to 7 inches in diameter); Sawtimber (greater than 7 inches in diameter)

slash - The residue left on the ground after timber cutting or left after a storm, fire, or other event. Slash includes unused logs, uprooted stumps, broken or uprooted stems, branches, bark, etc.

snag - A standing dead tree. Snags are important as habitat for a variety of wildlife species and their prey.

stand - A group of trees that occupies a specific area and is similar in species, age, and condition.

standards and guidelines - Requirements found in a Forest Plan which impose limits on natural resource management activities, generally for environmental protection.

stewardship - Caring for the land and its resources to pass healthy ecosystems to future generations.

structure - How the parts of ecosystems are arranged, both horizontally and vertically. Structure might reveal a pattern, mosaic, or total randomness of vegetation.

succession - The natural replacement in time of one plant community with another. Conditions of the prior plant community (or successional stage) create conditions that are favorable for the establishment of the next stage.

successional stage - A stage of development of a plant community as it moves from bare ground to climax. The grass-forb stage of succession precedes the woody shrub stage.

suitability - The appropriateness of certain resource management to an area of land. Suitability can be determined by environmental and economic analysis of management practices.

sustainability - The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

sustainable - The yield of a natural resource that can be produced continually at a given intensity of management is said to be sustainable.

sustained yield - The yield that a renewable resource can produce continuously at a given intensity of management.

T.

thinning - A cutting made in an immature stand of trees to accelerate growth of the remaining trees or to improve the form of the remaining trees.

threatened species - Those plant or animal species likely to become endangered throughout all or a specific portion of their range within the foreseeable future as designated by the U.S. Fish and Wildlife Service under the Endangered Species Act of 1973.

Timber Stand Improvement (TSI) - Actions to improve growing conditions for trees in a stand, such as thinning, pruning, prescribed fire, or release cutting.

type conversion - The conversion of the dominant vegetation in an area from forested to non-forested or from one species to another.

U.

underburn - A burn by a surface fire that can consume ground vegetation and "ladder" fuels.

understory - The trees and woody shrubs growing beneath the overstory in a stand of trees.

uneven-aged management - Actions that maintain a forest or stand of trees composed of intermingling trees that differ markedly in age. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection.

unsuitable lands - Forest land that is not managed for timber production. Reasons may be matters of policy, ecology, technology, silviculture, or economics

V.

variety class - A way to classify landscapes according to their visual features. This system is based on the premise that landscapes with the greatest variety or diversity has the greatest potential for scenic value.

vegetation management - Activities designed primarily to promote the health of forest vegetation for multiple-use purposes.

vegetation type - A plant community with distinguishable characteristics.

vertical diversity - The diversity in a stand that results from the different layers or tiers of vegetation.

viable population - The number of individuals of a species sufficient to ensure the long-term existence of the species in natural, self-sustaining populations that are adequately distributed throughout their range.

visual resource - A part of the landscape important for its scenic quality. It may include a composite of terrain, geologic features, or vegetation

W.

water table - The upper surface of groundwater. Below it, the soil is saturated with water.

water yield - The runoff from a watershed, including groundwater outflow.

watershed - The entire region drained by a waterway (or into a lake or reservoir). More specifically, a watershed is an area of land above a given point on a stream that contributes water to the stream flow at that point.

wildfire - Any wildland fire that is not a prescribed fire.

wildlife habitat diversity - The distribution and abundance of different plant and animal communities and species within a specific area.

woodland products - Harvestable items from pinion-juniper woodlands. These include fuel wood, posts, pine nuts, and Christmas trees.

Z.

Zone of Influence (ZOI) - The area influenced by Forest Service management activities.