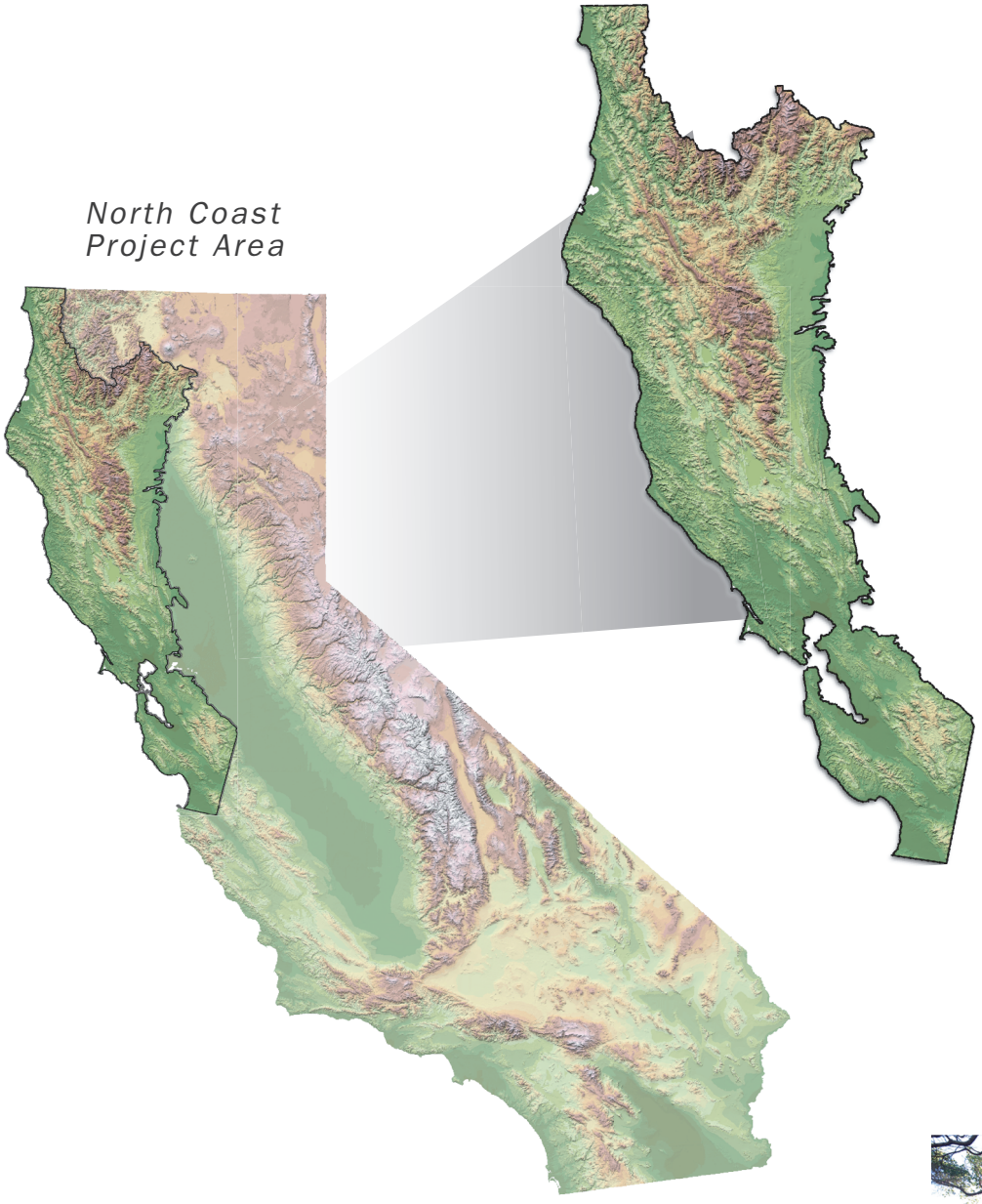
Monitoring Land Cover Changes in California

A USDA Forest Service and
California Department of Forestry and Fire Protection
Cooperative Monitoring Program

January 2003



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California Land Cover Mapping and Monitoring Program

North Coast Project Area

January 2003

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ABSTRACT

The California Land Cover Mapping and Monitoring Program (LCMMP) uses Landsat Thematic Mapper (TM) satellite imagery to map vegetation and derive land cover change (losses and gains) within five-year periods (approximate timeframes). This report summarizes vegetation change between 1994 and 1998 for the North Coast project area, one of five project areas under the LCMMP. Monitoring data created by the LCMMP quantify changes in California's landscape and provide necessary information for regional assessment across jurisdictional boundaries. These data, developed at a low cost of approximately 2 cents per acre, provide consistent, high quality information to manage, assess and protect California's diverse vegetation resources.

The North Coast project area covers all or most of Alameda, Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Sonoma and Trinity counties, and covers portions of twelve other counties. It also completely encompasses the Mendocino and Six Rivers National Forests, partially covers the Shasta-Trinity National Forest and covers a small portion of the Siskiyou National Forest. Changes in vegetation cover are assigned to categorical increase and decrease classes while the causes of cover changes are determined by GIS analysis, resource professionals, aerial photography and ancillary data layers. Summary tables and maps provide numerical and graphical estimates of land cover change by lifeform type, Wildlife Habitat Relationships System (WHR) type, CALVEG type (Forest Service lands only), ownership and cause.

For more information about the LCMMP, or to download data and maps, visit our web page at http://frap.cdf.ca.gov/projects/land_cover/index.html

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SUMMARY & HIGHLIGHTS

The California Land Cover Mapping and Monitoring Program (LCMMP) uses Landsat Thematic Mapper (TM) satellite imagery to map vegetation and derive land cover change (losses and gains) within five-year periods. TM imagery has a spatial resolution of 900 square meters (each pixel within a TM image is 30 meters on each side), or about 1/5 of an acre. This report focuses on land cover changes between 1994 and 1998 in the North Coast project area, which is one of the five project areas in the state.

The North Coast project area covers 16.5 million acres, including all or most of Alameda, Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Sonoma and Trinity counties, while partially covering twelve other counties. It also completely encompasses the Mendocino and Six Rivers National Forests, partially covers the Shasta-Trinity National Forest and covers a small portion of the Siskiyou National Forest, and other federal, state, county and privately owned lands. This report assesses vegetation cover changes on 14.1 million acres within hardwood, conifer, shrub/chaparral and grass/forb vegetation types. Although the total project area spans 16.5 million acres, 2.4 million acres are not forest, shrub/chaparral or grass/forb (e.g., urban, agriculture, barren and water) and were not assessed in this report.

For hardwood and conifer canopy cover (CC) loss, change classes are broken down into three categories: -71 to -100 % CC (71 to 100% decrease in canopy cover), -41 to -70% CC and -16 to -40% CC. For hardwood and conifer canopy cover gain, change classes are broken down into two categories: +16 to +40% CC and +41 to +100 % CC. In the shrub, chaparral, grass and forb vegetation types, the change classes are quantified as a decrease or increase in vegetation cover of 16% or greater. In all vegetation types, -15 to +15% CC is no change or non-detectable change. The cause of change is also determined when possible. These monitoring data for this project area have an overall accuracy of 89.8%.

All Vegetation

- Results show that 97.8% of the land area in the assessed 14.1 million acres does not have a detectable vegetation change between 1994 and 1998.
- Decreases across vegetation types occur on approximately 197,500 acres or 1.4% of the project area, and increases on about 109,500 acres or 0.8%.
- Harvest, regrowth and fire are the largest identified causes of change, verified on about 72,000, 68,000 and 53,000 acres, respectively.
- Privately owned lands show a decrease in vegetation on almost 134,000 acres, which equates to 1.5% of privately owned lands (about 73,000 acres or 0.6% show and increase).

County Highlights

- Humboldt County shows a vegetation cover decrease on over 47,000 acres (2.2%) and an increase in cover on over 46,000 acres (2.1%).
- Lake County displays the largest decrease in vegetation cover caused by fire with over 47,000 acres affected (6.3%).
- Mendocino County exhibits a decrease on over 42,000 acres (2.0%) and an increase on approximately 12,000 acres (0.5%).

National Forest Highlights

- The Mendocino National Forest (NF) has the largest area of decrease caused by fire, with over 36,000 acres affected (4.1%).
- Almost 17,000 acres (9%) on the Shasta-Trinity NF exhibit a vegetation increase, with over 13,000 of those acres verified to be regrowth.

Hardwoods

- The largest hardwood canopy cover decrease and increase occurs in the montane hardwood type (31,888 acres; 1.3% decrease and 8,752 acres; 0.4% increase).

County Highlights

- Lake County displays the greatest decrease in hardwood canopy cover due to fire (15,734 acres; 8.1%).
- Del Norte County shows a hardwood canopy cover increase on 2,810 acres (2.6%), mostly caused by regrowth.
- Sonoma County has the largest area of canopy cover decrease with a verified cause of development (189 acres).

National Forest Highlights

- The Mendocino NF shows a decrease on 10,213 acres (6.8% of its area) mostly caused by fire (4 acres; 0% show an increase).

Conifers

- The redwood type exhibits the largest area of canopy cover decrease, affecting 54,466 acres (5.1%), with over 34,000 of those acres verified to be harvest. The redwood type also shows an increase on 20,365 acres (1.9%), about half of which is verified regrowth.
- The closed cone pine-cypress type exhibits a decrease on 11,553 acres (11.0%), which is mostly the result of fire and an increase on 81 acres (0.1%).
- Private lands show a conifer canopy cover decrease on 100,934 acres (3.6%) and show an increase on 34,743 acres (1.2%). Harvest and regrowth, respectively, are the primary verified causal agents for conifer change on private lands.

County Highlights

- Humboldt County displays a canopy cover decrease on 40,486 acres (3.0%) and an increase on 30,047 acres (2.2%). Harvest and regrowth are the primary causes of conifer change.
- Mendocino County shows a decrease in conifer canopy cover on 35,718 acres (3.5%), with harvest as the most frequent cause (3,404 acres).
- Lake County shows a decrease in conifer canopy cover on 30,700 acres (14.4% of its area), with fire as the primary cause.

National Forest Highlights

- The Mendocino NF shows a decrease in conifer canopy cover on 26,121 acres (5.4%), most of which is due to fire (1,135 acres; 0.2% show an increase).
- The Six Rivers NF exhibits an increase in canopy cover on 10,547 acres (1.4%), most of which is verified to be regrowth (3,331 acres; 0.4% show a decrease).

Shrub/Chaparral

- Coastal scrub shows a cover increase on 9,108 acres (12.3%) and montane chaparral shows a cover increase on 9,051 acres (3.0%). The primary cause for each type is regrowth.

- Private land shows an increase in shrub/chaparral cover on 14,755 acres, or 1.7%, over 10,000 acres of which is regrowth (3,026 acres; 0.4% show an increase).

  County Highlights

  - Mendocino County exhibits a shrub/chaparral cover increase on 6,459 acres (4.2%) and a cover increase on 343 acres (0.2%).
  - Humboldt County shows an increase in shrub/chaparral cover on 4,058 acres (9.3%) and a cover decrease on 125 (0.3%).
  - The shrub/chaparral cover on private land increases on 14,755 acres, or 1.7% and decrease on 3,026 acres, or 0.4%.

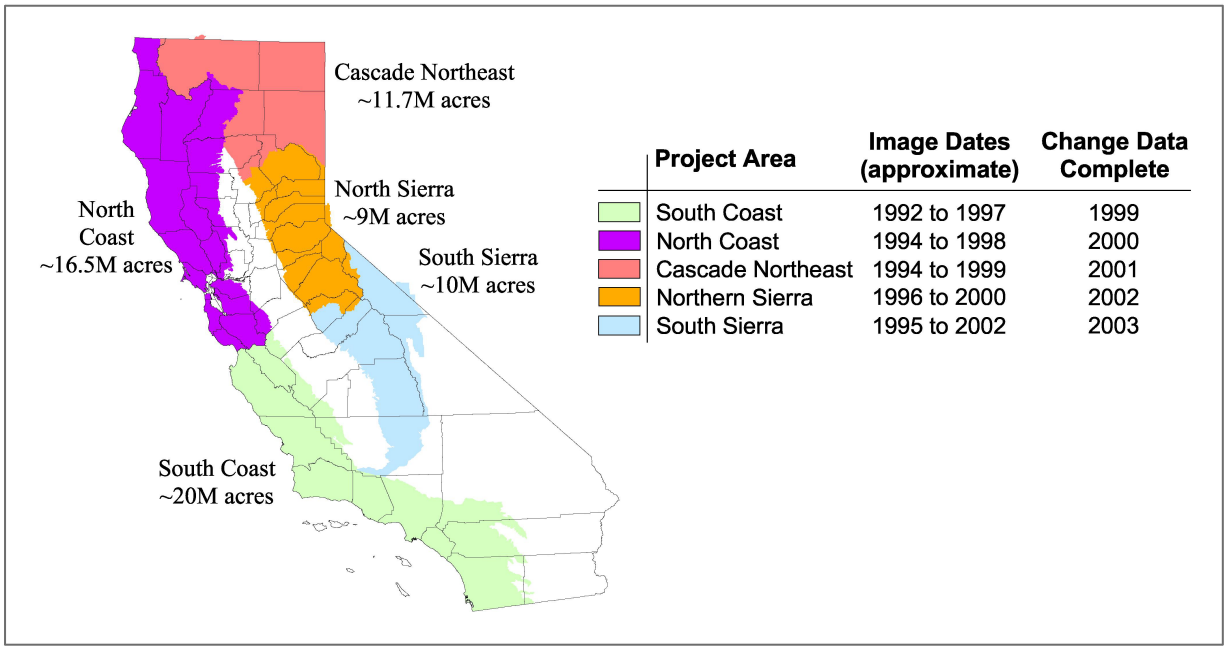
  National Forest Highlights

  - The Shasta-Trinity NF displays a shrub/chaparral cover increase on 3,846 acres (3.0%) and a cover increase on 997 acres (1%).

INTRODUCTION

The California Land Cover Mapping and Monitoring Program (LCMMP*) is a collaboration between the USDA Forest Service (FS) and the California Department of Forestry and Fire Protection (CDF) to create seamless vegetation and monitoring data across most ownerships and vegetation types within the state. This program uses Landsat Thematic Mapper (TM) satellite imagery to derive land cover change (vegetation decreases and increases) within five-year periods. It also determines the cause of change through fieldwork, aerial photo interpretation and GIS analysis. Monitoring data created by the LCMMP quantify changes in California's landscape and provide necessary information for regional assessment across jurisdictional boundaries. These data provide consistent, high quality information to manage, assess and protect California's diverse vegetation resources at a low per acre cost (approximately 2 cents per acre).

Monitoring land cover change occurs in one of five distinct project areas per year (Figure 1). Analysis is complete for all project areas in the first statewide cycle. Each project will be revisited during the next statewide cycle. Land cover monitoring maps can be downloaded from http://frap.cdf.ca.gov/data/frapgismaps/select.asp. Reporting is complete or in progress for all areas. Completed reports can be downloaded from http://frap.cdf.ca.gov/titles/publications.asp. Additionally, an interactive mapping application is available for some project areas on the CDF internet map sever (IMS) at http://frap.cdf.ca.gov/projects/land_cover/monitoring/index.html.



Project Area	Image Dates (approximate)	Change Data Complete
South Coast	1992 to 1997	1999
North Coast	1994 to 1998	2000
Cascade Northeast	1994 to 1999	2001
Northern Sierra	1996 to 2000	2002
South Sierra	1995 to 2002	2003

Figure 1. Location and extent of project areas with monitoring schedule.

The FS and CDF have mapping, resource management and resource protection responsibilities across much of the non-irrigated and non-urban land in the North Coast region. The FS manages most resource activities within the national forests, such as timber management, recreation, forest health programs, fire protection and grazing allotments. CDF is responsible for providing

*For additional information visit our web pages at http://frap.cdf.ca.gov/projects/land_cover/index.html

fire protection on most private and state lands, regulating timber harvests on private lands and monitoring resource conditions across all wildlands in the area. The LCMMP monitoring information provide a single consistent source of current landscape level and site-specific change to the FS and CDF as well as other interested federal agencies (e.g., Fish and Wildlife Service, National Park Service, Bureau of Land Management), state agencies (Fish and Game, Parks and Recreation, State Water Resources Control Board), county governments, city governments and other interested parties.

The project area covers all or most of Alameda, Del Norte, Humboldt, Lake, Marin, Mendocino, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Sonoma and Trinity counties, while partially covering twelve other counties, as indicated in Table 1. It also completely encompasses the Mendocino and Six Rivers National Forests, partially covers the Shasta-Trinity National Forest and covers a small portion of the Siskiyou National Forest, and other federal, state, county and privately owned lands (Figures 2 and 3). This report assesses land cover changes on 14.1 million acres within conifer, hardwood, shrub/chaparral and grass/forb vegetation types. Although the total project area spans 16.5 million acres of land, 2.4 million acres are not forest, shrub, chaparral or grass lands (e.g., urban, agriculture, barren and water) and are not included in this analysis.

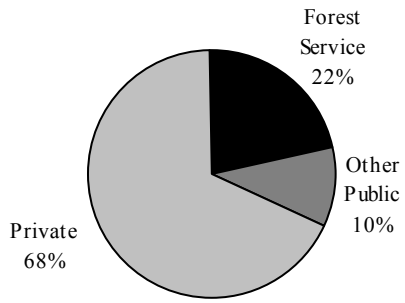


Figure 2. Land ownership distribution.

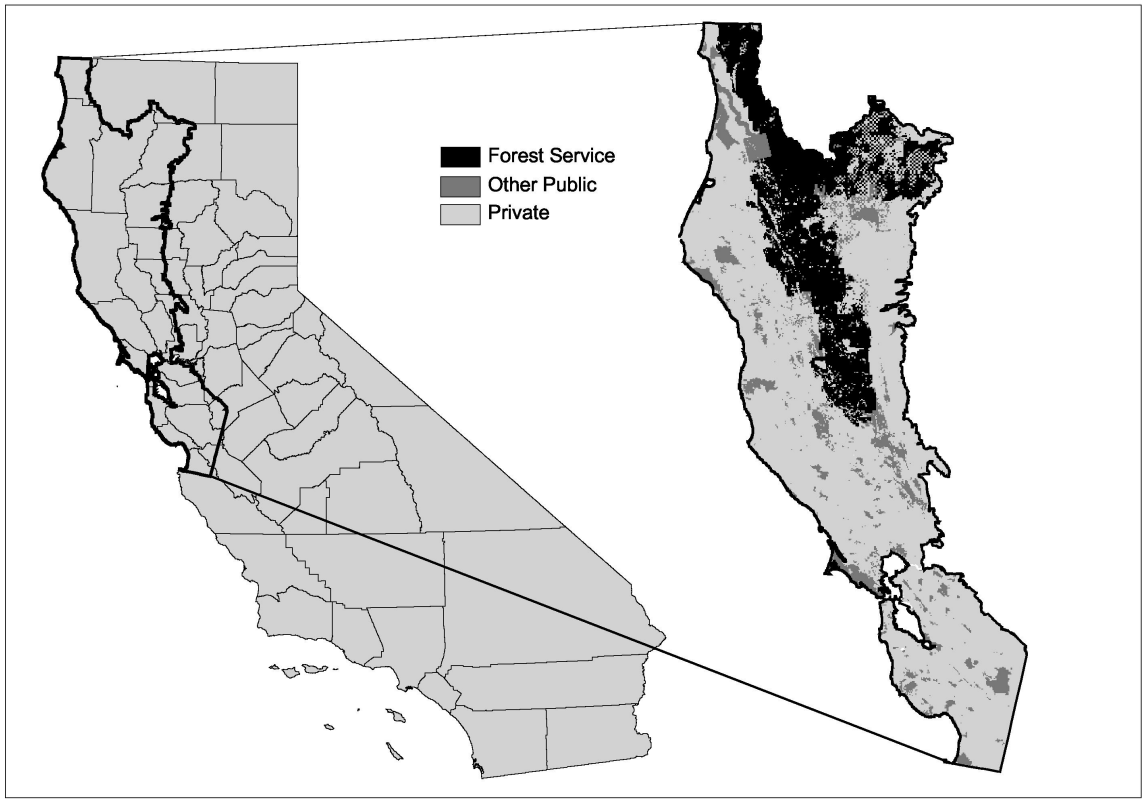


Figure 3. Location of North Coast Project Area and corresponding land ownership.

Table 1 shows the proportion of each county covered by the project area. In this report, some counties are only partially analyzed, as the boundary of the North Coast project area does not overlap completely with these counties. This is because project area boundaries are defined predominantly by ecological zones. Other factors are also taken into account when defining project area boundaries, such as national forest and TM scene boundaries. Additionally, islands, deserts and agriculturally dominant areas are excluded from the project area.

Table 1. Acres of County Analyzed by Private and Public Ownership

COUNTY	Private	Public	Total Acres in County	% of County Analyzed
	Acres	Acres	Acres	%
Alameda	431,907	31,508	476,621	97
Colusa	275,842	100,716	739,933	51
Contra Costa	319,065	41,451	475,058	76
Del Norte	176,189	446,830	650,061	96
Glenn	327,474	203,344	849,213	63
Humboldt	1,600,216	689,410	2,289,626	100
Lake	458,329	393,583	851,912	100
Marin	203,043	131,586	336,663	99
Mendocino	1,842,896	397,929	2,240,825	100
Monterey	220,828	28,638	2,120,174	12
Napa	426,580	78,889	505,469	100
San Benito	134,707	3,114	889,395	15
San Francisco	24,451	4,906	30,357	97
San Joaquin	55,138	92	911,706	6
San Mateo	256,361	34,693	291,054	100
Santa Clara	730,792	79,641	832,804	97
Santa Cruz	243,183	42,028	285,211	100
Shasta	730,360	547,046	2,461,989	52
Siskiyou	65,722	91,110	4,065,035	4
Solano	148,104	16,619	539,323	31
Sonoma	954,028	59,360	1,013,388	100
Stanislaus	182,741	28,819	969,608	22
Tehama	728,056	227,212	1,894,836	50
Trinity	493,271	1,557,840	2,051,111	100
Yolo	180,580	28,576	653,883	32

CHANGE DETECTION MONITORING PROCEDURES

Images and Maps

The LCMMP uses two dates of TM imagery to detect land cover change. Change detection techniques interpret differences in spectral reflectance between image dates to produce a map depicting various levels of vegetation change. A difference in spectral reflectance (the amount of sunlight reflected from surface features to the satellite in space) between image dates indicates where change probably occurred (for further details, see Appendix B). For hardwood and conifer canopy cover loss, change classes are broken down into three categories: -71 to -100% CC (71 to 100% decrease in canopy cover), -41 to -70% CC and -16 to -40% CC. For hardwood and conifer canopy cover gain, change classes are broken down into two categories: +16 to +40% CC and +41 to +100% CC. In the shrub, chaparral, grass and forb vegetation types, the change classes are quantified as a decrease or increase in vegetation cover of 16% or greater (Figure 5; Table 2).

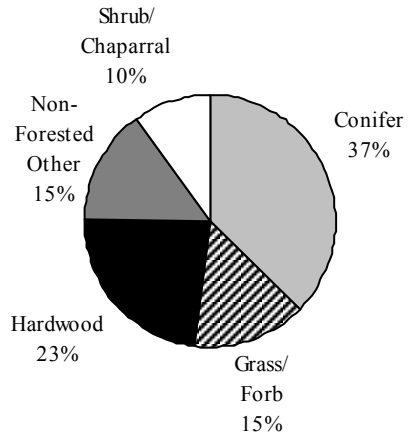


Figure 4. Proportion of each lifeform in project area.

The overall accuracy of the North Coast change map is 89.8%. A total of 382 randomly selected change areas with known reference information were evaluated to assess the accuracy of the change map. Out of the 382 sample sites, 343 were correctly classified (see Appendix C for details on the accuracy assessment).

Vegetation data are used to determine which lifeforms, WHR types, and CALVEG types are experiencing various magnitudes of change. "Lifeforms" are general land cover categories, such as conifer and hardwood (Figure 4). WHR stands for Wildlife Habitat Relationships System, and is a habitat classification system (e.g., Blue Oak Woodland, Klamath mixed conifer, and Coastal Scrub). CALVEG types are more specific vegetation types (e.g., coast live oak and red fir) and are only used to summarize change on Forest Service land in this report (see Appendix A for more details on vegetation data). Every WHR and CALVEG type is represented by a lifeform (Appendix E and F).

Because many vegetation layers exist for different parts of the project area, the best available vegetation data are collected and combined into one seamless data layer. Vegetation layers not containing a WHR classification (Mayer and Laudenslayer, 1988) are given a WHR classification based on the information in that layer. LCMMP vegetation data are used for most of the project area, which contain lifeform, WHR and CALVEG type. LCMMP vegetation data do not exist in and around the Bay Area, so the CDF Hardwood Rangelands map and GAP vegetation data are used to fill in these vegetation gaps. See Appendix A for vegetation data sources.

Causes of Change

Once the final change map is complete, an attempt is made to verify cause on all change areas. Causes of change are verified through GIS overlay analysis, fieldwork, photo interpretation and interpretation by land managers, landowners and other stakeholders. The GIS overlay analysis uses the CDF forest practices database, FS stand record system and statewide fire history layer to attribute changes caused by harvests, regeneration and wildfires. FS resource managers interpret change maps by applying local knowledge and fieldwork to identify sources of change on Forest Service lands. Similarly, University of California (UC) Integrated Hardwood Rangeland Management Program (IHRMP) personnel consult private landowners to verify causes of change in hardwood rangelands. Despite all these efforts, complete cause verification is not always possible due to the large number of change areas, insufficient information and inaccessible lands. See Appendix B for more information on cause verification.

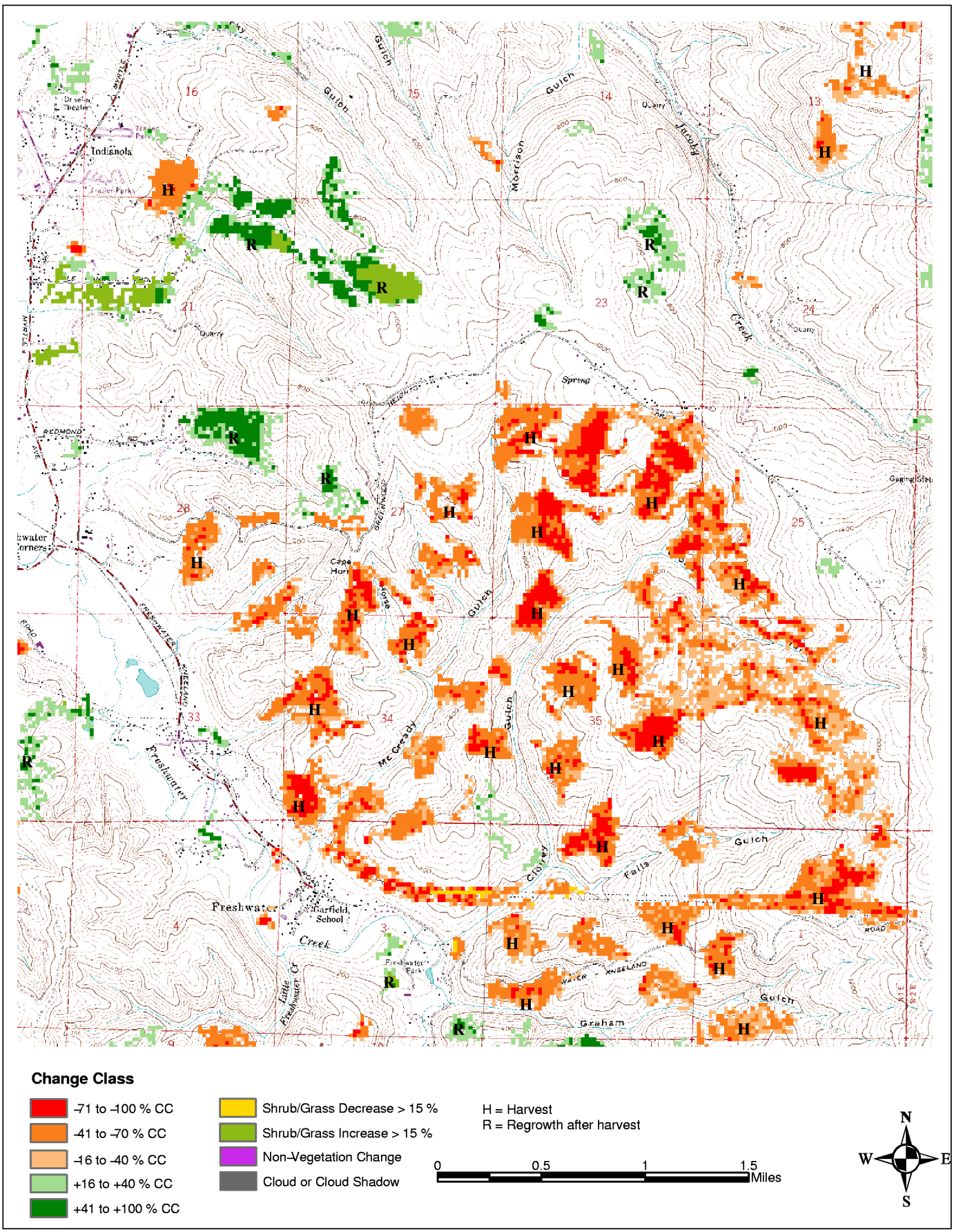


Figure 5. Portion of change map with identified cause in the Arcada South quadrangle, Humboldt County

INTERPRETING RESULTS

Interpreting Change

Mapped vegetation change indicates areas that have undergone some form of vegetation decrease or increase between image dates (refer to Figure 1a in Appendix A for exact dates). For hardwood and conifer canopy cover loss, change classes are broken down into three categories: -71 to -100% CC (71 to 100% decrease in canopy cover), -41 to -70% CC and -16 to -40% CC. For hardwood and conifer canopy cover gain, change classes are broken down into two categories: +16 to +40% CC and +41 to +100% CC. In the shrub, chaparral, grass and forb vegetation types, the change classes are quantified as a decrease or increase in vegetation cover of 16% or greater. The little to no change class indicates that change within the existing vegetation is either nonexistent or too subtle to detect. Table 2 describes the different change classes.

Multiple change classes are created to represent different levels of canopy cover change (Table 2). In the text and tables of the main report, however, changes are generalized and denoted simply as an "increase" or "decrease" in canopy cover. To see details on each change class, see the tables in Appendix G.

Table 2. Change Classes and Corresponding Description

CHANGE CLASS	DESCRIPTION
-71 to -100% CC	71 to 100% decrease in canopy cover
-41 to -70% CC	41 to 70% decrease in canopy cover
-16 to -40% CC	16 to 40% decrease in canopy cover
+15 to -15% CC (Little or No Change)	Little or no change in canopy, shrub/chaparral, or grass cover
+16 to +40% CC	16 to 40% increase in canopy cover
+41 to +100% CC	41 to 100% increase in canopy cover
Shrub/Grass Decrease > 15%	16 to 100% decrease in shrub/grass
Shrub/Grass Increase > 15%	16 to 100% increase in shrub/grass
Non-vegetation Change (Includes Change Within Existing Developed Area)	Change not related to a vegetation change including change within urban area
Cloud or Cloud Shadow	Cloud or cloud shadow (prevents change assessment)

Change values are reported in two ways: by area, or acres of change, and proportion. A particular value in acres, such as 15,000 acres, implies that 15,000 acres have undergone a vegetation change of 16% or more. Proportion refers to the amount of land undergoing a change relative to the total area of that particular vegetation type. As an example, if 1.3% of montane hardwood experiences a decrease in canopy cover, then 1.3% of the montane hardwood analyzed in the project area experiences a canopy cover change of 16% or more. This does not mean that 1.3% of montane hardwood is gone, that the canopy cover of montane hardwood has decreased by 1.3%, nor does it mean that the volume of montane hardwood decreased by 1.3%.

Keep in mind that a detected vegetation cover increase, particularly a small increase, does not necessarily represent a gain in canopy or extent of a specific vegetation type. In some cases it represents understory regrowth or seasonal variation. The hardwood and shrub/chaparral types with low canopy cover are particularly sensitive to this phenomenon due to the presence of understory grasses and forbs within these types. Conversely, once vegetation fully covers a site, a change may not be detected even though biomass is increasing or stand structure is changing.

Results are particularly difficult to interpret for brushland types. Land uses that cause type conversion from brushlands (e.g., development) are most likely to result in detectable levels of vegetation change. Disturbances that do not result in type conversion (e.g., changes in grazing or low intensity fires) may escape detection. For example, Figure 6 shows two fires that burned chaparral dominated areas in 1990. The monitoring process detected regrowth in the northernmost fire, but not in the southernmost, possibly because the area in the southernmost fire had burned and regrown prior to the second image date, causing the monitoring process to effectively "miss it" due to timing. Complex interactions between factors such as site quality, vegetation composition and structure, and fire intensity determine conditions at the two monitoring dates, and thus whether or not a change can be detected. Additional research is needed to explore potential improvements in the methodology for monitoring brushlands.

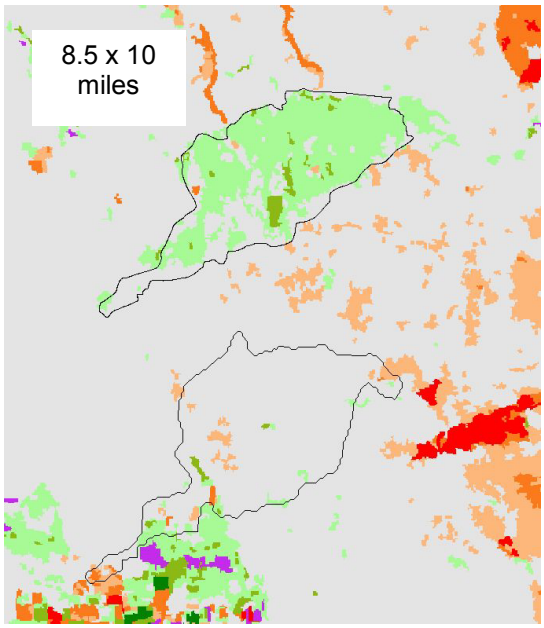


Figure 6. Comparison of two fires that burned in chaparral dominated areas.

Interpreting Cause

When interpreting results by cause, it is important to note that some ancillary data sources are more complete than others. Change caused by wildfire is easily verified because the FS and CDF maintain a comprehensive fire perimeter data layer. Other sources of change are often more difficult to verify as data is unavailable and exhaustive fieldwork to identify all changes is impractical.

Cause is usually identified in one of three ways. First, ancillary data layers (e.g., FS plantation database, state fire history database, etc.) are used to identify cause. Second, regional experts familiar with a particular area are asked to identify causes of change. And lastly, photo interpretation is used to identify causes of vegetation change. Some error in the cause attribution is expected since ground experts can make errors, ancillary data layers may not be perfect and photo interpreters may not be 100% correct.

Vegetation mapping errors may also contribute to change/cause combinations that seem unrealistic or inconsistent. For instance, Table 16 shows that 368 acres of shrub/chaparral change are caused by harvest. This could be due to the attribution errors mentioned in the previous paragraph, or this could be due to errors in the input vegetation data. In this case, it is likely that harvest is the identified cause according to data layers or ground experts, but because the input vegetation shows the area as shrub/chaparral, the area is classified as a shrub/chaparral decrease due to harvest.

Many causes are extremely difficult to verify, particularly causes that affect only small areas, such as development. Because a particular cause may have little or no affected area, it does not necessarily follow that this cause was not important. The unverified cause acreage could belong to any of the categories mentioned in this report, such as fire or development. But the unverified cause could also be due to other cause agents, such as a landslide or management activity; therefore, acres listed for the various causal agents represent a minimum acreage of cause.

Calculating a "net" change by simply comparing decrease and increase acres does not necessarily provide a full and accurate portrait of change. Vegetation decreases are usually quick and dramatic, such as fire, harvest, and development, while increases in vegetation are often more gradual (particularly for hardwood and conifer), and may not increase at the minimum change class of at least 16%. A decrease in large trees or other mature vegetation types will take decades to regrow, but many of the increases are in younger vegetation types and represent less than a single decade of growth. Some decreases in vegetation, such as development and conversion to vineyard, are permanent losses to that particular vegetation. Comparing vegetation that is permanently lost or removed to vegetation that has temporarily increased mixes two different processes.

DISCUSSION OF RESULTS: ENTIRE PROJECT AREA

Of the 16.5 million acres in the project area, about 2.4 million acres are barren, agriculture, water, or urban. The remaining 14.1 million acres are composed of the conifer, hardwood, grass/forb and shrub/chaparral lifeforms, each covering about 6.1, 3.8, 2.4 and 1.7 million acres, respectively.

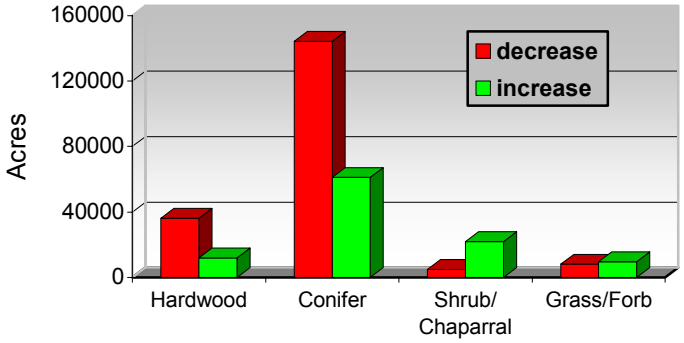


Figure 7. Acres of vegetation change by lifeform.

Approximately 97.8% of the vegetation in the project area does not exhibit a detectable change between 1994 and 1998. Decreases in vegetation cover occur on approximately 1.4% (~197,500 acres) of the analyzed 14.1 million acres in the project area and increases total about 0.8% (~109,500 acres). Most of this change occurs in the conifer lifeform (Figure 7). The hardwood and conifer lifeforms show a larger area affected by a decrease in vegetation than an increase, while the shrub/chaparral and grass/forb lifeforms show a larger area affected by an increase in vegetation. See Appendix G for more detailed change tables.

Cause of change is verified on 203,498 acres (68% of the vegetation change in the project area). Harvest, regrowth and fire are the dominant causes of change, verified on about 72,000, 68,000 and 53,000 acres, respectively. The cause of vegetation change could not be verified on 94,850 acres.

Hardwoods

Within the project area, hardwood vegetation types total approximately 3.8 million acres. The majority of the hardwood lifeform is composed of montane hardwood, blue oak woodland, blue oak foothill pine and coastal oak woodland, covering 64%, 16.5%, 8.2% and 7.2%, respectively. The remainder of the hardwood lifeform is composed of montane riparian (2.5%), valley oak woodland (1.0%), eucalyptus (0.3%) and valley foothill riparian (< 0.1%).

Between 1994 and 1998, the hardwoods in the project area experience a canopy cover change on about 1.3% of their area (48,086 acres; Table 3). A canopy cover decrease of at least 16% is detected on 1.0 % (36,205 acres) and an increase is detected on 0.3% (11,881 acres). The cause of change is verified on 36,637 acres, which is about 76% of the change in the hardwood lifeform. Fire, harvest and regrowth are the major verified causes of change, affecting 15,954 acres, 8,738 acres and 7,442 acres, respectively (Table 4). Cause is unverified on 13,449 acres (9,050 acres are a decrease in canopy cover), and could belong to any of the cause categories (fire, harvest, development, etc.).

Within the hardwoods in the project area, the montane hardwood experiences the largest decrease in canopy cover. This decrease affects 1.3%, or 31,888 acres of the montane hardwood. The montane hardwood type also shows the largest acres of increased canopy cover, affecting 0.4% (8,7532 acres). Proportionally, the montane riparian hardwood type displays the

largest detected increase, affecting 2.7% of its area (2,446 acres). Table 3 shows canopy cover change by hardwood type.

Table 3. Acres of Hardwood Canopy Cover Change by WHR Type

WHR Type	Decrease in CC	% Decrease	Increase in CC	% increase	Total Change	Total % Change
Blue Oak Foothill Pine	2,038	0.6	111	< 0.1	2,149	0.7
Blue Oak Woodland	617	0.1	98	< 0.1	715	0.1
Coastal Oak Woodland	621	0.2	419	0.2	1,040	0.4
Eucalyptus	1	< 0.1	6	0.1	7	0.1
Montane Hardwood	31,888	1.3	8,752	0.4	40,640	1.7
Montane Riparian	1,006	1.1	2,446	2.7	3,451	3.8
Valley Oak Woodland	34	0.1	47	0.1	81	0.2
Valley Foothill Riparian	0	0	2	0.2	2	0.2
Total	**36,205**	**1.0**	**11,881**	**0.3**	**48,086**	**1.3**

Within the montane hardwood type, the major verified causes are fire (14,458 acres), harvest (8,134 acres) and regrowth (5,989 acres). Fire is also verified on 1,271 acres of blue oak foothill pine. Development is verified on 201 acres of montane hardwood and 60 acres of coastal oak woodland.

Table 4. Acres of Hardwood Change by Cause and WHR Type

WHR Type	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Blue Oak Foothill Pine	1,271	10	0	94	167	0	607	2,149
Blue Oak Woodland	185	0	0	26	66	0	439	715
Coastal Oak Woodland	40	229	60	328	17	3	363	1,040
Eucalyptus	0	0	0	0	1	0	6	7
Montane Hardwood	14,458	8,134	201	5,989	1,910	26	9,923	40,640
Montane Riparian	0	366	2	1,005	50	0	2,028	3,451
Valley Oak Woodland	0	0	0	0	0	0	81	81
Valley Foothill Riparian	0	0	0	0	0	0	2	2
Total	**15,954**	**8,738**	**263**	**7,442**	**2,211**	**28**	**13,449**	**48,086**

When looking at the hardwood lifeform at the county level, the largest area of decreased canopy cover occurs in Lake (15,734 acres; 8.1%), Humboldt (6,843 acres; 1.2%) and Mendocino (5,780 acres; 0.9%) counties. The largest increase in canopy cover affects Humboldt County, with 5,782 acres (1.0%) showing an increase (Table 5). Proportionally, Del Norte County shows the largest increase, with an increase on 2.6% (2,810 acres). All counties in the project area display a larger decrease in hardwood canopy cover than increase, with the exceptions of Del Norte, Marin, Siskiyou, Stanislaus and Yolo counties.

Table 5. Acres of Hardwood Canopy Cover Change by County

County	Decrease in CC	% Decrease	Increase in CC	% Increase	Total Change	Total % Change
Alameda	88	0.1	0	0	88	0.1
Colusa	340	0.3	42	< 0.1	383	0.3
Contra Costa	34	0.1	5	< 0.1	39	0.1
Del Norte	1,718	1.6	2,810	2.6	4,528	4.2
Glenn	155	0.1	8	< 0.1	163	0.1
Humboldt	6,843	1.2	5,782	1.0	12,625	2.3
Lake	15,734	8.1	20	< 0.1	15,754	8.1
Marin	16	< 0.1	118	0.2	134	0.2
Mendocino	5,780	0.9	1,237	0.2	7,017	1.1
Monterey	11	< 0.1	0	0	11	< 0.1
Napa	851	0.5	41	< 0.1	891	0.5
San Benito	23	0.1	0	0	23	0.1
San Joaquin	0	0	0	0	0	0
San Mateo	6	0.1	2	< 0.1	8	0.1
Santa Clara	55	< 0.1	3	< 0.1	58	< 0.1
Santa Cruz	29	0.2	0	0	29	0.2
Shasta	868	0.2	654	0.1	1,521	0.3
Siskiyou	1	< 0.1	53	0.5	54	0.5
Solano	11	< 0.1	0	0	11	0.0
Sonoma	1,801	0.6	133	< 0.1	1,934	0.7
Stanislaus	1	< 0.1	12	< 0.1	12	< 0.1
Tehama	744	0.2	145	< 0.1	889	0.3
Trinity	1,083	0.4	800	0.3	1,883	0.7
Yolo	12	< 0.1	18	< 0.1	30	< 0.1
Total	**36,205**	**1.0**	**11,881**	**0.3**	**48,086**	**1.3**

Most of the change in the hardwood canopy cover of Lake County is caused by fire. In Del Norte County, regrowth is verified on 2,311 acres and harvest is verified on 1,232 acres. Harvest and regrowth are also major causes of vegetation change in Humboldt and Mendocino counties (Table 6). Development is a verified cause of decreased canopy cover on 189 acres in Sonoma County. Cause is unverified on 5,196 acres in Humboldt County and 3,252 acres in Mendocino County.

Table 6. Acres of Hardwood Change by Cause and County

County	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Alameda	0	0	35	0	1	0	53	88
Colusa	39	0	0	0	0	0	344	383
Contra Costa	0	0	20	0	0	0	20	39
Del Norte	0	1,232	0	2,311	95	2	888	4,528
Glenn	0	62	0	0	2	0	100	163
Humboldt	52	3,805	0	3,362	187	22	5,196	12,625
Lake	14,940	36	0	0	288	0	491	15,754
Marin	0	0	0	0	0	0	134	134
Mendocino	362	2,523	0	868	12	0	3,252	7,017
Monterey	0	0	0	0	0	0	11	11
Napa	15	0	11	0	645	0	220	891
San Benito	0	0	0	0	18	0	5	23
San Mateo	0	0	0	0	0	0	8	8
Santa Clara	27	0	7	0	0	0	24	58
Santa Cruz	0	0	0	0	0	0	29	29
Shasta	78	10	0	356	85	0	993	1,521
Siskiyou	0	0	0	3	10	0	41	54
Solano	0	0	0	0	0	0	11	11
Sonoma	192	285	189	15	860	4	388	1,934
Stanislaus	0	0	0	12	0	0	1	12
Tehama	226	155	0	124	3	0	382	889
Trinity	23	631	0	391	6	0	832	1,883
Yolo	0	0	0	0	0	0	30	30
Total	**15,954**	**8,738**	**263**	**7,442**	**2,211**	**28**	**13,449**	**48,086**

When analyzed by ownership, private land shows the largest acreage affected by a decrease (22,010 acres; 0.7%) and increase (9,648 acres; 0.3%) in hardwood canopy cover (Table 7). Proportionally, Forest Service land displays the largest decrease in canopy cover (2.2%; 11,117 acres).

Table 7. Acres of Hardwood Canopy Cover Change by Owner

Owner	Decrease in CC	% Decrease	Increase in CC	% Increase	Total Change	Total % Change
Forest Service	11,117	2.2	838	0.2	11,955	2.3
Other Public	3,079	0.9	1,394	0.4	4,473	1.3
Private	22,010	0.7	9,648	0.3	31,658	1.1
Total	**36,205**	**1.0**	**11,881**	**0.3**	**48,086**	**1.3**

On Forest Service land, fire is the primary cause of change, affecting 10,595 acres. Harvest (7,676 acres), regrowth (6,026 acres) and fire (4,059 acres) are major verified causes on private land. However, cause of canopy cover change is unverified on 11,472 acres of private land. Development is verified on 262 acres, all of which are on private land (Table 8).

Table 8. Acres of Hardwood Change by Cause and Owner

Owner	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Forest Service	10,595	118	0	479	50	0	713	11,955
Other Public	1,301	944	0	937	26	1	1,264	4,473
Private	4,059	7,676	262	6,026	2,135	27	11,472	31,658
Total	**15,954**	**8,738**	**263**	**7,442**	**2,211**	**28**	**13,449**	**48,086**

Conifers

The conifer lifeform encompasses about 6.1 million acres in the North Coast Project Area. The dominant conifer types are Douglas fir, redwood, Klamath mixed conifer and montane hardwood-conifer, together comprising about 85% of the conifer area. Douglas fir covers about 41% of the conifer area, redwood covers about 19%, Klamath mixed conifer covers 15% and montane hardwood-conifer covers 11%. The remaining 15% of the conifer area is covered by undetermined conifer (4.4%), white fir (4.0%), closed cone pine-cypress (2.0%), ponderosa pine (2.0%), red fir (1.4%), subalpine conifer (0.6%), Jeffrey pine (0.2%), Sierran mixed conifer (0.1%), juniper (< 0.1%), eastside pine (< 0.1%) and lodgepole pine (< 0.1%).

Conifers exhibit a canopy cover change on 205,502 acres within the project area, which equates to 3.4% of their area (Table 9). A decrease occurs on 144,313 acres (2.4%) and an increase occurs on 61,189 acres (1.0%). Cause is verified on 141,392 acres, or 69%, of the conifer change. Harvest (63,093 acres), regrowth (42,340 acres) and fire (32,800 acres) are the major verified causes of conifer change.

Of the conifer types in the project area, redwood displays the largest area affected by a decrease in canopy cover, with 54,466 acres of decrease (5.1%). Douglas fir also has a large area of decreased canopy cover (47,980 acres; 1.9%). Proportionally, the closed cone pine-cypress conifer type shows the largest decrease at 11% (11,553 acres). The conifer types experiencing the largest increases in canopy cover are Douglas fir (24,428 acres; 1.0%) and redwood (20,365 acres; 1.9%). Table 9 shows the canopy cover change by conifer type.

Table 9. Acres of Conifer Canopy Cover Change by WHR Type

WHR Type	Decrease in CC	% Decrease	Increase in CC	% Increase	Total Change	Total % Change
Closed Cone Pine-Cypress	11,553	11.0	81	0.1	11,634	11.1
Douglas Fir	47,980	1.9	24,428	1.0	72,408	2.9
Eastside Pine	0	0	0	0	0	0.0
Jeffrey Pine	59	0.6	41	0.4	100	1.1
Klamath Mixed Conifer	10,969	1.2	5,982	0.7	16,951	1.9
Lodgepole Pine	0	0	0	0	0	0
Montane hardwood-conifer	10,295	1.5	6,496	1.0	16,791	2.5
Ponderosa Pine	3,847	3.1	762	0.6	4,609	3.7
Redwood	54,466	5.1	20,365	1.9	74,831	7.0
Red Fir	699	0.8	731	0.9	1,431	1.7
Subalpine Conifer	199	0.6	100	0.3	299	0.8
Sierran Mixed Conifer	174	2.0	190	2.1	364	4.1
White Fir	3,522	1.4	2,007	0.8	5,529	2.3
Undetermined Conifer	548	0.2	5	< 0.1	553	0.2
Total	**144,313**	**2.4**	**61,189**	**1.0**	**205,502**	**3.4**

Most of the change in the closed cone conifer-cypress type is caused by fire (9,808 acres), and slightly over half of the change (2,420 acres) in the ponderosa pine type is attributed to fire (Table 10). Fire also affects 13,969 acres of Douglas fir. Harvest is a verified cause of conifer change on 34,428 acres of redwood and 17,856 acres of Douglas fir. Regrowth is a verified cause on 19,903 acres of Douglas fir and 10,248 acres of redwood. Almost half of the unverified cause (29,678 acres) is concentrated in the redwood conifer type. The cause of change in Douglas fir is unverified on 19,035 acres.

Table 10. Acres of Conifer Change by Cause and WHR Type

WHR Type	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Closed Cone Pine-Cypress	9,808	305	0	11	66	0	1,444	11,634
Douglas Fir	13,969	17,856	78	19,903	1,534	34	19,035	72,408
Jeffrey Pine	9	36	0	34	0	0	21	100
Klamath Mixed Conifer	1,900	4,924	0	5,346	515	0	4,265	16,951
Montane hardwood-conifer	4,330	3,422	11	3,952	295	20	4,762	16,791
Ponderosa Pine	2,420	248	0	644	44	0	1,252	4,609
Redwood	10	34,438	17	10,248	438	2	29,678	74,831
Red Fir	0	363	0	392	5	0	671	1,431
Subalpine Conifer	0	0	0	24	0	0	276	299
Sierran Mixed Conifer	0	0	0	190	0	0	174	364
White Fir	311	1,500	0	1,596	96	0	2,026	5,529
Undetermined Conifer	44	0	0	0	2	0	507	553
Total	**32,800**	**63,093**	**106**	**42,340**	**2,996**	**56**	**64,110**	**205,502**

At the county level, Humboldt County exhibits the largest area of canopy cover decrease, with 40,486 acres of decrease (3.0%). Proportionally, Lake County shows the largest decrease in conifer canopy cover, at 14.4% (30,700 acres). Large areas of decreased canopy cover also occur in Mendocino (35,718 acres; 3.5%) and Trinity (16,486; 1.1%) counties. The largest increase in conifer canopy cover in both area and proportion occurs in Humboldt County, showing an increase on 30,047 acres and 2.2% (Table 11). Del Norte County also exhibits a large proportion of increased canopy cover, at 2.1% (8,917 acres).

Table 11. Acres of Conifer Canopy Cover Change by County

County	Decrease in CC	% Decrease	Increase in CC	% Increase	Total Change	Total % Change
Alameda	42	0.7	0	0	42	0.7
Colusa	814	2.3	0	0	814	2.3
Contra Costa	0	0	0	0	0	0
Del Norte	4,582	1.1	8,917	2.1	13,499	3.1
Glenn	1,876	2.0	105	0.1	1,981	2.1
Humboldt	40,486	3.0	30,047	2.2	70,533	5.2
Lake	30,700	14.4	24	< 0.1	30,724	14.4
Marin	49	0.2	24	0.1	73	0.3
Mendocino	35,718	3.5	3,404	0.3	39,122	3.9
Monterey	1	< 0.1	0	0	1	0.0
Napa	263	1.3	21	0.1	284	1.4
San Benito	3	0.1	0	0	3	0.1
San Francisco	0	0	0	0	0	0
San Mateo	22	< 0.1	4	< 0.1	26	< 0.1
Santa Clara	13	< 0.1	1	< 0.1	14	< 0.1
Santa Cruz	479	0.3	0	0	479	0.3
Shasta	6,512	1.3	3,222	0.6	9,735	1.9
Siskiyou	655	0.5	1,326	1.0	1,981	1.5
Solano	0	0.2	0	0	0	0.2
Sonoma	2,004	1.5	94	0.1	2,098	1.6
Stanislaus	0	0	0	0	0	0
Tehama	3,608	1.9	1,218	0.6	4,826	2.5
Trinity	16,486	1.1	12,779	0.8	29,266	1.9
Yolo	0	0	1	0.2	1	0.2
Total	**144,313**	**2.4**	**61,189**	**1.0**	**205,502**	**3.4**

Most of the change in Lake County is due to the 1996 Forks Fire, which burned 28,764 acres in the conifer cover type. Harvest is the verified cause of change on 25,746 acres in Mendocino County, 19,176 acres in Humboldt County and 9,924 acres in Trinity County. In Humboldt, Trinity and Del Norte counties, regrowth is verified on 15,857 acres, 11,005 acres and 8,091 acres, respectively. Cause is unverified on about half of the change in Humboldt County (34,834 acres) and on 10,843 acres in Mendocino County (Table 12).

Table 12. Acres of Conifer Change by Cause and County

County	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Alameda	0	0	0	0	0	0	42	42
Colusa	198	0	0	0	0	0	617	814
Del Norte	505	3,027	0	8,091	579	5	1,292	13,499
Glenn	0	376	0	75	92	0	1,438	1,981
Humboldt	15	19,176	12	15,857	589	49	34,834	70,533
Lake	28,764	363	0	23	327	0	1,247	30,724
Marin	0	0	0	0	0	0	73	73
Mendocino	0	25,746	0	2,452	82	0	10,843	39,122
Monterey	0	0	0	0	0	0	1	1
Napa	8	0	6	0	133	0	138	284
San Benito	0	0	0	0	2	0	1	3
San Mateo	0	0	0	0	0	0	26	26
Santa Clara	0	0	0	0	0	0	14	14
Santa Cruz	47	0	0	0	0	0	432	479
Shasta	1,350	722	0	2,659	306	0	4,697	9,735
Siskiyou	0	460	0	1,150	28	0	343	1,981
Sonoma	208	1,018	35	2	299	2	534	2,098
Tehama	374	2,281	0	1,026	362	0	784	4,826
Trinity	1,333	9,924	52	11,005	197	0	6,754	29,266
Yolo	0	0	0	0	0	0	1	1
Total	**32,800**	**63,093**	**106**	**42,340**	**2,996**	**56**	**64,110**	**205,502**

When analyzing conifer canopy cover change by ownership, private land shows the largest decrease by both area and proportion (Table 13). This decrease affects 100,934 acres of privately owned land, which is 3.6% of the conifer area on private land. Private land also shows the largest increase by both area and proportion, increasing on 34,743 acres and 1.2%.

Table 13. Acres of Conifer Canopy Cover Change by Owner

Owner	Decrease in CC	% Decrease	Increase in CC	% Increase	Total Change	Total % Change
Forest Service	35,240	1.4	24,004	0.9	59,244	2.3
Other Public	8,139	1.4	2,442	0.4	10,581	1.8
Private	100,934	3.6	34,743	1.2	135,676	4.8
Total	**144,313**	**2.4**	**61,189**	**1.0**	**205,502**	**3.4**

On Forest Service land, fire and regrowth are the main verified causes of change, verified on 24,436 acres and 21,754 acres, respectively. On private land, harvest is verified on 55,478 acres and regrowth is verified on 18,892 acres (Table 14). The cause is unverified on 53,260 acres of privately owned land.

Table 14. Acres of Conifer Change by Cause and Owner

Owner	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Forest Service	24,436	3,884	3	21,754	1,427	0	7,740	59,244
Other Public	1,993	3,731	10	1,694	39	4	3,110	10,581
Private	6,371	55,478	92	18,892	1,530	52	53,260	135,676
Total	**32,800**	**63,093**	**106**	**42,340**	**2,996**	**56**	**64,110**	**205,502**

Shrub/Chaparral

The shrub/chaparral lifeform encompasses 1.7 million acres within the North Coast project area. The major shrub/chaparral types in the project area are mixed chaparral (50%), montane chaparral (18%), chamise-redshank chaparral (17%) undetermined shrub/chaparral (7.6%), and coastal scrub (6.9%), together covering over 99.9% of the shrub/chaparral in the project area. The remaining shrub/chaparral types are bitterbrush, desert scrub, low sagebrush and sagebrush, which together comprise about 0.05% of the shrub/chaparral.

The shrub/chaparral in the project area displays a decrease on 4,955 acres (0.3% of its area) and an increase on 22,002 acres, or 1.4% (Table 15). The most prominent verified cause of change is regrowth, which affects 14,343 acres, or about half of the shrub/chaparral change. The cause is undetermined on 10,087 acres (Table 16).

Among the different WHR types, mixed chaparral and montane chaparral show the largest area experiencing a decrease in cover, with 2,670 and 1,545 acres of decrease, respectively. Montane chaparral also shows a large acreage of increased cover, with 10,596 acres (Table 15). Coastal scrub exhibits the largest proportion of increased cover, with 12.3% (9,331 acres) showing an increase in cover of at least 16%.

Table 15. Acres of Shrub/Chaparral Change by WHR Type

WHR Type	Decrease in Cover	% Decrease	Increase in Cover	% Increase	Total Change	Total % Change
Chamise-Redshank Chaparral	289	0.1	428	0.2	717	0.3
Coastal Scrub	224	0.3	9,108	12.3	9,331	12.6
Low Sagebrush	5	8.0	0	0	5	8.0
Mixed Chaparral	2,670	0.3	3,088	0.4	5,758	0.7
Montane Chaparral	1,545	0.5	9,051	3.0	10,596	3.5
Sagebrush	0	0	3	0.4	3	0.4
Undetermined Shrub/Chaparral	222	0.2	324	0.3	546	0.5
Total	**4,955**	**0.3**	**22,002**	**1.4**	**26,957**	**1.7**

Over half of the shrub/chaparral cover change in the coastal scrub and montane chaparral types is due to regrowth. Fire is a verified cause on 1,156 acres of the change in montane chaparral. The cause is undetermined on at least 33% of the change in chamise-redshank chaparral, coastal scrub, mixed chaparral, montane chaparral, sagebrush and the undetermined shrub/chaparral types.

Table 16. Acres of Shrub/Chaparral Change by Cause and WHR Type

WHR Type	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Chamise-Redshank Chap.*	32	1	0	252	18	0	414	717
Coastal Scrub	0	105	0	6,061	0	22	3,143	9,331
Low Sagebrush	5	0	0	0	0	0	0	5
Mixed Chaparral	1,156	48	19	1,578	314	0	2,644	5,758
Montane Chaparral	552	213	0	6,324	24	4	3,479	10,596
Sagebrush	0	0	0	0	0	0	3	3
Undetermined Shrub/Chap.*	4	0	9	128	2	0	404	546
Total	**1,748**	**368**	**29**	**14,343**	**357**	**26**	**10,087**	**26,957**

* Chaparral

Shasta County and Lake County show the largest decreases in shrub/chaparral cover, with a decrease on 1,387 acres (1.1%) and 1,010 acres (0.4%), respectively. Proportionally, the largest decrease occurs in Sonoma County, which shows a decrease on 1.3% (589 acres) of the shrub/chaparral. With the exception of six counties (Alameda, Lake, Napa, Solano, Sonoma and Yolo), all counties exhibit a larger increase in shrub/chaparral than decrease. The largest increase in shrub/chaparral occurs in Mendocino County, with an increase on 6,459 acres (4.2%). Humboldt County shows the largest proportion of increase, with an increase on 9.3% (4,058 acres) of its shrub/chaparral. The shrub/chaparral of Trinity County also shows a large area of increase, increasing on 4,950 acres, or 3.0%.

Table 17. Acres of Shrub/Chaparral Change by County

County	Decrease in Cover	% Decrease	Increase in Cover	% Increase	Total Change	Total % Change
Alameda	123	1.0	28	0.2	151	1.2
Colusa	19	< 0.1	90	0.1	109	0.1
Contra Costa	48	0.3	106	0.8	154	1.1
Del Norte	144	0.3	1,968	4.0	2,112	4.3
Glenn	25	< 0.1	213	0.2	238	0.2
Humboldt	125	0.3	4,058	9.3	4,183	9.6
Lake	1,010	0.4	536	0.2	1,546	0.5
Marin	6	0.1	190	1.9	196	2.0
Mendocino	343	0.2	6,459	4.2	6,802	4.4
Monterey	0	0	0	0	0	0
Napa	265	0.2	12	< 0.1	276	0.2
San Benito	0	0	5	< 0.1	5	< 0.1
San Francisco	0	0	0	0	0	0
San Joaquin	0	0	0	0	0	0
San Mateo	28	0.1	40	0.2	67	0.3
Santa Clara	50	0.1	96	0.1	147	0.2
Santa Cruz	5	< 0.1	0	0	5	< 0.1
Shasta	1,387	1.1	2,543	2.0	3,930	3.0
Siskiyou	6	0.1	70	0.6	76	0.6
Solano	27	0.2	0	0	28	0.2
Sonoma	589	1.3	38	0.1	626	1.4
Stanislaus	0	0	61	0.5	61	0.5
Tehama	67	< 0.1	537	0.4	604	0.4
Trinity	669	0.4	4,950	3.0	5,619	3.4
Yolo	20	< 0.1	3	< 0.1	23	< 0.1
Total	**4,955**	**0.3**	**22,002**	**1.4**	**26,957**	**1.7**

Over half of the shrub/chaparral change is attributed to regrowth in Colusa, Del Norte, Humboldt, Mendocino, Santa Clara, Stanislaus and Trinity counties (Table 18). Fire is verified on 662 acres in Lake County, 477 acres in Sonoma County and 451 acres in Shasta County. The cause is unverified on over 1,000 acres in Humboldt, Mendocino and Shasta counties.

Table 18. Acres of Shrub/Chaparral Change by Cause and County

County	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Alameda	0	0	2	0	2	0	148	151
Colusa	12	0	0	90	0	0	7	109
Contra Costa	0	0	7	0	0	0	147	154
Del Norte	21	93	0	1,661	3	22	311	2,112
Glenn	0	6	0	80	0	0	153	238
Humboldt	0	49	0	2,920	0	0	1,214	4,183
Lake	662	1	0	391	113	0	379	1,546
Marin	0	0	0	0	0	0	196	196
Mendocino	15	44	0	4,224	1	0	2,519	6,802
Napa	27	0	0	0	141	0	108	276
San Benito	0	0	0	0	0	0	5	5
San Mateo	0	0	0	0	0	0	67	67
Santa Clara	4	0	1	81	0	0	61	147
Santa Cruz	0	0	0	0	0	0	5	5
Shasta	451	22	0	1,521	16	0	1,921	3,930
Siskiyou	0	1	0	26	6	0	44	76
Solano	0	0	0	0	0	0	28	28
Sonoma	477	0	19	33	68	0	29	626
Stanislaus	0	0	0	61	0	0	0	61
Tehama	22	6	0	140	5	0	429	604
Trinity	56	145	0	3,116	3	4	2,294	5,619
Yolo	0	0	0	0	0	0	23	23
Total	**1,748**	**368**	**29**	**14,343**	**357**	**26**	**10,087**	**26,957**

The largest decrease in shrub/chaparral cover by both area and proportion occurs on privately owned lands (Table 19). This decrease affects 3,026 acres, or 0.4%. Private land also exhibits the largest increase by area and proportion of shrub/chaparral cover, affecting 14,755 acres, or 1.7%.

Table 19. Acres of Shrub/Chaparral Change by Owner

Owner	Decrease in Cover	% Decrease	Increase in Cover	% Increase	Total Change	Total % Change
Forest Service	1,452	0.3	5,451	1.2	6,903	1.6
Other Public	478	0.2	1,796	0.6	2,274	0.7
Private	3,026	0.4	14,755	1.7	17,780	2.1
Total	**4,955**	**0.3**	**22,002**	**1.4**	**26,957**	**1.7**

Fire is a verified cause on over 800 acres of Forest Service and private land (Table 20). Regrowth on private land is verified on 10,060 acres and is verified on 3,255 acres of Forest Service land. The 29 acres of verified development is limited to private land.

Table 20. Acres of Shrub/Chaparral Change by Cause and Owner

Owner	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Forest Service	836	39	0	3,255	13	4	2,756	6,903
Other Public	14	42	0	1,027	0	12	1,179	2,274
Private	898	287	29	10,060	345	10	6,152	17,780
Total	**1,748**	**368**	**29**	**14,343**	**357**	**26**	**10,087**	**26,957**

Grass/Forb and Non-Forested Other

The "Non-Forested Other"(NFO) category contains land classified as water, urban, agriculture and barren. In some instances, land classified as "barren" is actually sparsely vegetated grasslands, and hence is able to undergo vegetation change. This confusion between NFO and grass/forb lifeform is largely concentrated in the southern portion of the project area (around the Bay Area) where non-LCMMP vegetation data are used. Additionally, there are a few instances where recent clearcuts were classified as NFO (barren). Most of these areas have a vegetation increase after the clearcut. It is necessary to report these changes, as much of the change is due to development around the Bay Area. Because of the confusion between these two lifeforms, they have been combined. But because the NFO lifeform contains urban, water, agriculture and legitimately barren lands, no percentages of change are given due to the complexities of the calculation. See Appendix G for more details on the change in the grass/forb and NFO lifeform.

In the grass/forb and NFO lifeforms, regrowth is verified on 6,821 acres and development is verified on 5,190 acres (Table 21). Fire is verified cause on 2,716 acres of change within these lifeforms. The cause is unverified on 9,457 acres of the change.

At the county level, regrowth is verified on 4,250 acres in Humboldt County, 1,081 acres in Del Norte County and 755 acres in Mendocino County (Table 21). Development is verified as the cause of change on 2,281 acres in Alameda County, 1,400 acres in Contra Costa County and 1,009 acres in Santa Clara County. The grass/forb and NFO lifeforms are affected by fire on 1,576 verified acres in Contra Costa County and 875 verified acres in San Joaquin County.

Table 21. Acres of Grass/Forb and NFO Change by Cause and County

County	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Alameda	18	0	2,281	0	58	0	192	2,549
Colusa	0	0	0	0	0	0	141	141
Contra Costa	1,576	0	1,400	70	1,141	26	291	4,504
Del Norte	0	11	0	1,081	0	83	326	1,501
Glenn	0	0	0	0	0	0	21	21
Humboldt	1	121	0	4,250	1	81	6,153	10,607
Lake	1	0	0	0	34	0	319	355
Marin	0	0	0	0	0	0	80	80
Mendocino	0	101	0	755	9	0	502	1,368
Monterey	0	0	0	0	0	0	8	8
Napa	0	0	0	0	105	0	28	132
San Benito	0	0	239	0	38	0	7	283
San Joaquin	875	0	0	0	0	0	0	875
San Mateo	0	0	0	0	0	0	17	17
Santa Clara	241	0	1,009	87	0	0	22	1,360
Santa Cruz	0	0	38	0	0	0	7	46
Shasta	0	0	0	1	0	0	126	127
Siskiyou	0	0	0	0	0	0	45	45
Solano	0	0	94	0	0	0	73	167
Sonoma	3	2	128	0	548	109	31	821
Stanislaus	0	0	0	556	0	0	346	902
Tehama	1	0	0	0	0	0	364	365
Trinity	0	8	0	20	0	0	343	371
Yolo	0	0	0	0	0	0	17	17
Total	**2,716**	**243**	**5,190**	**6,821**	**1,934**	**298**	**9,457**	**26,661**

Over 94% (25,120 acres) of the change in the grass/forb and NFO lifeforms occurs on private land (Table 22). On private land, regrowth is verified on 6,439 acres, development on 5,086 acres and fire on 2,713 acres. The cause of change is unverified on 9,457 acres, 8,445 of which are on private land.

Table 22. Acres of Grass/Forb and NFO Change by Cause and Owner

Owner	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Forest Service	2	3	0	74	0	0	196	275
Other Public	1	5	104	308	0	31	817	1,266
Private	2,713	236	5,086	6,439	1,934	268	8,445	25,120
Total	**2,716**	**243**	**5,190**	**6,821**	**1,934**	**298**	**9,457**	**26,661**

All Vegetation

In order to better understand all causes across the North Coast Project Area, Table 23 shows all causes by county, independent of lifeform and including the NFO lifeform. This includes the hardwood, conifer, shrub/chaparral, grass/forb and NFO lifeforms. This gives an understanding of each contributing cause and its magnitude compared to other causes.

Throughout the project area, harvest, regrowth and fire are the most prevalent causes, verified on 72,443, 70,946 and 53,218 acres, respectively. Development is verified on 5,588 acres and the cause is unverified on 97,103 acres.

Lake County is hardest hit by fire, with 44,367 acres of change due to fire. Harvest mostly affects Mendocino and Humboldt counties, verified on 28,414 and 23,152 acres, respectively. Development is verified on 2,317 acres in Alameda County, 1,427 acres in Contra Costa County and 1,018 acres in Santa Clara County. Regrowth is verified on 26,390 acres in Humboldt County, 14,532 acres in Trinity County and 13,144 acres in Del Norte County. Humboldt County shows 47,396 acres of unverified cause.

Table 23. Acres of All Lifeform Change by Cause and County

County	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Alameda	18	0	2,317	0	60	0	434	2,830
Colusa	249	0	0	91	0	0	1,108	1,447
Contra Costa	1,576	0	1,427	70	1,141	26	457	4,697
Del Norte	526	4,363	0	13,144	677	112	2,817	21,639
Glenn	0	443	0	155	93	0	1,711	2,402
Humboldt	68	23,152	12	26,390	777	152	47,396	97,948
Lake	44,367	400	0	414	763	0	2,436	48,380
Marin	0	0	0	0	0	0	483	483
Mendocino	377	28,414	0	8,299	104	0	17,116	54,310
Monterey	0	0	0	0	0	0	20	20
Napa	50	0	17	0	1,023	0	493	1,584
San Benito	0	0	239	0	58	0	17	313
San Joaquin	875	0	0	0	0	0	0	875
San Mateo	0	0	0	0	0	0	118	118
Santa Clara	272	0	1,018	168	0	0	121	1,579
Santa Cruz	47	0	38	0	0	0	472	558
Shasta	1,878	755	0	4,537	406	0	7,737	15,314
Siskiyou	0	461	0	1,179	44	0	472	2,156
Solano	0	0	94	0	0	0	112	207
Sonoma	880	1,305	372	50	1,775	116	982	5,479
Stanislaus	0	0	0	628	0	0	347	975
Tehama	622	2,442	0	1,290	370	0	1,959	6,683
Trinity	1,413	10,708	53	14,532	206	4	10,222	37,138
Yolo	0	0	0	0	0	0	72	72
Total	**53,218**	**72,443**	**5,588**	**70,946**	**7,499**	**409**	**97,103**	**307,205**

DISCUSSION OF RESULTS: FOREST SERVICE LAND

In this portion of the report, in which Forest Service land is analyzed, CALVEG vegetation types are used instead of WHR vegetation types. This is done because Forest Service managers and personnel use the more detailed CALVEG classification and this classification is consistent across national forest lands. As CALVEG and WHR are different classification systems, it is not appropriate to compare the two. See Appendix A for more details on the WHR and CALVEG classification systems.

All Vegetation

Within the 16.5 million acres North Coast project area, Forest Service land covers about 3.6 million acres. The Shasta-Trinity National Forest (NF) covers approximately 1.76 million acres, the Six-Rivers NF about 961,000 acres and the Mendocino NF about 891,000 acres. Very small portions of the Klamath NF and the Siskiyou NF are included in the project area. These forests are not analyzed separately in this project area, as they are covered in another area, but the acres of change (603 acres in the Klamath and 6,981 acres in the Siskiyou) are included in the totals for National Forest lands.

All together, Forest Service land displays a decrease on 47,834 acres (1.4%) and an increase on 30,533 acres (0.9%; Table 24). Cause has been verified on about 85% of the change on Forest Service land. On Forest Service land, fire is verified on 35,869 acres, regrowth on 25,562 acres and harvest on 4,043 acres (Table 25). The cause is unverified on 11,397 acres.

Among the national forests, the Mendocino NF exhibits both the largest area and highest proportion of vegetation decrease, affecting 36,735 acres, or 4.1% (Table 24). The Shasta-Trinity NF shows the largest area of vegetation increase at 16,820 acres (1.0%), while the Six Rivers NF displays the largest proportion of vegetation increase at 1.3% (12,013 acres).

Table 24. Acres of Change of All Vegetation by National Forest

Forest	Decrease in Veg.	% Decrease	Increase in Veg.	% Increase	Total Change	Total % Change
Mendocino	36,735	4.1	1,580	0.2	38,316	4.3
Shasta-Trinity	7,404	0.4	16,820	1.0	24,224	1.4
Six Rivers	3,687	0.4	12,013	1.3	15,701	1.6
Total*	**47,834**	**1.4**	**30,533**	**0.9**	**78,368**	**2.2**

* Includes acres from small portions of Klamath and Siskiyou National Forests.

Further examination of the causes of vegetation change on Forest Service land indicates that the majority of decrease due to fire in the project area is concentrated in the Mendocino National Forest, which is verified on 33,901 acres (Table 25). About half (13,409 acres) of the change on the Shasta-Trinity NF is verified to be regrowth, and about two-thirds of the change on the Six Rivers NF is regrowth. The cause is unverified on 6,825 acres of the Shasta-Trinity NF.

Table 25. Acres of All Vegetation Change by Cause and National Forest

Owner	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Mendocino	33,901	327	0	1,337	518	0	2,232	38,316
Shasta-Trinity	1,423	2,328	3	13,409	236	0	6,825	24,224
Six Rivers	545	1,389	0	10,700	735	4	2,328	15,701
Total*	**35,869**	**4,043**	**3**	**25,562**	**1,490**	**4**	**11,397**	**78,368**

* Includes acres from small portions of Klamath and Siskiyou National Forests.

Hardwoods

All of the Forest Service land within the project area shows a hardwood canopy cover decrease on 10,657 acres (2.1%) and an increase on 838 acres (0.2%). Over 95% of the hardwood canopy cover decrease on Forest Service land occurs in the Mendocino National Forest, which displays 10,213 acres of decrease, or 6.8% (Table 26). Most of the cause for this decrease in canopy cover is verified to be fire (Table 27). Increases in canopy cover total 541 acres (0.2%) in the Shasta-Trinity NF and 282 acres (0.2%) in the Six Rivers NF.

Among the hardwood CALVEG types within the national forests, canyon live oak in the Mendocino NF has the largest decrease in canopy cover (5,691 acres, or 8.0% of the canyon live oak in the Mendocino). The Mendocino NF also shows a large area of hardwood canopy cover decrease in California black oak (2,838 acres; 7.7%) and Oregon white oak (1,589 acres; 4.7%). All of the CALVEG types in the Shasta-Trinity NF display a canopy cover decrease on 0.1% of the area or less (Table 26). In regard to canopy cover increase, California black oak in the Shasta-Trinity NF increases on 180 acres (0.2%) and willow-alder increases in the Shasta-Trinity NF on 4.8% of its area (130 acres). All of the CALVEG types in the Mendocino NF show less than 0.1% canopy cover increase.

Table 26. Acres of Hardwood Canopy Cover Change by National Forest and CALVEG Type

Forest	CALVEG*	Decrease in CC	% Decrease	Increase in CC	% Increase	Total Change	Total % Change
Mendocino	QC	5,691	8.0	1	< 0.1	5,692	8.0
	QD	96	1.2	0	0	96	1.2
	QG	1,589	4.7	3	< 0.1	1,592	4.7
	QK	2,838	7.7	0	0	2,838	7.7
	QW	0	0	0	0	0	0
	Total	**10,213**	**6.8**	**4**	**< 0.1**	**10,217**	**6.8**
Shasta-Trinity	QC	82	0.1	120	0.1	202	0.2
	QG	12	0.1	27	0.3	39	0.4
	QK	67	0.1	180	0.2	247	0.2
	QM	0	0	9	0.7	9	0.7
	QT	3	< 0.1	64	0.6	67	0.6
	QY	3	0.1	130	4.8	132	4.9
	Other**	0	0	11	0.9	11	0.9
	Total	**167**	**0.1**	**541**	**0.2**	**708**	**0.3**
Six Rivers	QC	34	0.2	34	0.2	68	0.4
	QD	0	0	0	0	0	0
	QG	82	0.3	36	0.1	119	0.5
	QK	40	0.2	56	0.3	97	0.5
	QO	17	0.7	0	0	17	0.7
	QR	6	0.1	13	0.2	18	0.3
	QT	97	0.2	143	0.3	240	0.5
	Total	**277**	**0.2**	**282**	**0.2**	**559**	**0.4**
All Forests* **		**10,657**	**2.1**	**838**	**0.2**	**11,494**	**2.3**

* See Appendix F for CALVEG code descriptions.
** CALVEG types composing less than 1% of the Hardwood lifeform in the particular forest are combined into this category.
*** Includes acres from small portions of Klamath and Siskiyou National Forests.

In the Mendocino NF, at least 97% of the change in all the hardwood CALVEG types is caused by fire. Harvest, regrowth and other causes affect a relatively small number of acres (Table 27).

Table 27. Acres of Hardwood Change by Cause, National Forest and CALVEG Type

Forest	CALVEG*	Fire	Harvest	Regrowth	Other	Unverified Cause	All Causes
Mendocino	QC	5,653	0	1	4	33	5,692
	QD	96	0	0	0	0	96
	QG	1,569	1	3	0	19	1,592
	QK	2,772	4	0	3	58	2,838
	Total	**10,090**	**4**	**4**	**8**	**111**	**10,217**
Shasta-Trinity	QC	36	8	60	0	98	202
	QG	0	3	14	3	20	39
	QK	6	16	103	2	120	247
	QM	0	0	8	0	2	9
	QT	0	0	44	3	20	67
	QY	0	0	26	0	106	132
	Other**	0	0	9	0	2	11
	Total	**42**	**27**	**265**	**8**	**366**	**708**
Six Rivers	QC	7	19	20	3	20	68
	QG	0	52	30	0	37	119
	QK	0	14	39	2	41	97
	QO	0	0	0	0	17	17
	QR	0	0	4	2	12	18
	QT	0	2	107	27	103	240
	Total	**7**	**87**	**200**	**34**	**231**	**559**
All Forests* **		**10,140**	**118**	**479**	**50**	**708**	**11,494**

* See Appendix F for CALVEG code descriptions.
** CALVEG types composing less than 1% of the Hardwood lifeform in the particular forest are combined into this category.
*** Includes acres from small portions of Klamath and Siskiyou National Forests.

Conifers

All Forest Service land in the project area displays a decrease in conifer canopy cover on 35,700 acres (1.4%) and an increase on 24,005 acres (0.9%). Among the national forests, the Mendocino NF shows the largest area and highest proportion of area exhibiting a conifer canopy cover decrease, with 26,121 acres and 5.4% affected (Table 28). The Shasta-Trinity NF shows a canopy cover decrease on 6,241 acres (0.5%) and the Six Rivers NF shows a decrease on 3,331 acres (0.4%). In regard to increases in conifer canopy cover, the Shasta-Trinity shows the largest area of canopy cover increase (12,302 acres; 0.9%), and the Six Rivers shows the highest proportion experiencing an increase (1.4%; 10,547 acres).

Of the conifer CALVEG types within the national forests, Douglas fir-pine in the Mendocino NF shows the largest area affected by a decrease in canopy cover, with a decrease on 11,275 acres (5.4%; Table 28). The knobcone pine of Mendocino NF shows the highest proportion affected, decreasing on 26.1% (9,166 acres). Other CALVEG types in the Mendocino NF also display large proportions of decrease, including Douglas fir (10.6%; 927 acres) and Gray Pine (7.2%; 584 acres). The largest increases in canopy cover occur in Douglas fir on the Six Rivers NF, increasing on 7,968 acres (1.6%), and in mixed conifer-pine on the Shasta Trinity NF, increasing on 4,676 acres (1.3%). The largest proportion of conifer canopy cover increase occurs in Douglas fir-white fir of the Six Rivers NF, with an increase on 3.9% (604 acres).

Table 28. Acres of Conifer Canopy Cover Change by National Forest and CALVEG Type

Forest	CALVEG*	Decrease in CC	% Decrease	Increase in CC	% Increase	Total Change	Total % Change
Mendocino	DF	927	10.6	0	0	927	10.6
	DP	11,275	5.4	485	0.2	11,760	5.7
	KP	9,166	26.1	0	0	9,166	26.1
	MF	96	0.3	54	0.2	150	0.5
	MP	963	1.3	366	0.5	1,329	1.8
	PD	584	7.2	0	0	584	7.2
	PP	2,141	3.9	60	0.1	2,201	4.0
	RF	42	0.8	0	0	42	0.8
	WF	623	1.1	170	0.3	793	1.4
	Other**	305	7.5	0	0	305	7.5
	Total	**26,121**	**5.4**	**1,135**	**0.2**	**27,256**	**5.6**
Shasta-Trinity	DF	718	0.2	2,992	0.8	3,710	1.0
	DP	685	0.5	782	0.5	1,468	1.0
	DW	611	0.4	1,771	1.3	2,382	1.7
	MF	469	1.0	169	0.4	638	1.4
	MP	1,770	0.5	4,676	1.3	6,446	1.8
	MU	507	0.9	111	0.2	618	1.2
	PP	157	0.7	62	0.3	219	1.0
	RF	199	0.3	503	0.8	702	1.2
	SA	130	0.5	81	0.3	211	0.7
	WF	857	0.9	1,101	1.1	1,958	2.0
	Other**	137	0.6	54	0.2	191	0.8
	Total	**6,241**	**0.5**	**12,302**	**0.9**	**18,543**	**1.4**
Six Rivers	DF	1,607	0.3	7,968	1.6	9,575	2.0
	DP	469	0.8	1,004	1.7	1,473	2.4
	DW	58	0.4	604	3.9	662	4.3
	MP	11	0.1	36	0.3	47	0.5
	MU	550	0.6	13	< 0.1	563	0.6
	RF	208	2.2	190	2.0	398	4.3
	WF	267	0.5	564	1.0	831	1.5
	Other**	162	1.0	168	1.0	330	2.0
	Total	**3,331**	**0.4**	**10,547**	**1.4**	**13,878**	**1.9**
All Forests* **		**35,700**	**1.4**	**24,005**	**0.9**	**59,704**	**2.3**

* See Appendix F for CALVEG code descriptions.
** CALVEG types composing less than 1% of the Conifer lifeform in the particular forest are combined into this category.
*** Includes acres from small portions of Klamath and Siskiyou National Forests.

On the Mendocino National Forest, fire is the verified cause of most conifer canopy cover change (23,469 acres; 86% of the change). On the Shasta-Trinity NF and the Six Rivers NF, regrowth is verified on over half of the change, occurring on 10,865 acres and 9,817 acres, respectively (Table 29). Harvest is verified on 2,277 acres of the Shasta-Trinity NF and 1,289 acres of the Six Rivers NF. The cause is unverified on 4,267 acres of the Shasta-Trinity NF.

Much of the verified fire in the Mendocino NF occurs in the Douglas fir-pine (10,577 acres) and knobcone pine (8,492 acres) CALVEG types (Table 29). In the Six Rivers NF, regrowth occurs in the Douglas fir CALVEG type, verified on 7,433 acres. Regrowth is also verified on 4,384 acres in the mixed conifer-pine and 2,732 acres of Douglas fir in the Shasta-Trinity NF. Harvest is verified on 574 acres of Douglas fir on the Six Rivers NF and 545 acres of mixed conifer-pine

on the Shasta-Trinity NF. The cause is unverified on 932 acres of mixed conifer-pine on the Shasta-Trinity NF and 897 acres of Douglas fir on the Six Rivers NF.

Table 29. Acres of Conifer Change by Cause, National Forest and CALVEG Type

Forest	CALVEG*	Fire	Harvest	Develop-ment	Regrowth	Other	Unverified Cause	All Causes
	DF	923	0	0	0	2	2	927
	DP	10,577	182	0	461	264	276	11,760
	KP	8,492	0	0	0	60	614	9,166
	MF	1	0	0	54	52	43	150
	MP	432	69	0	340	61	426	1,329
Mendocino	PD	576	0	0	0	0	8	584
	PP	2,001	24	0	29	4	143	2,201
	RF	0	11	0	0	0	32	42
	WF	173	31	0	169	57	362	793
	Other**	294	0	0	0	5	5	305
	Total	**23,469**	**317**	**0**	**1,054**	**505**	**1,911**	**27,256**
	DF	0	262	3	2,732	42	670	3,710
	DP	45	213	0	652	29	529	1,468
	DW	0	319	0	1,669	2	392	2,382
	MF	53	259	0	122	5	200	638
	MP	450	545	0	4,384	136	932	6,446
Shasta-	MU	116	263	0	93	0	146	618
Trinity	PP	61	0	0	33	4	121	219
	RF	0	47	0	232	5	418	702
	SA	0	0	0	16	0	195	211
	WF	123	368	0	893	0	574	1,958
	Other**	59	2	0	39	0	91	191
	Total	**906**	**2,277**	**3**	**10,865**	**223**	**4,267**	**18,543**
	DF	1	574	0	7,433	670	897	9,575
	DP	11	322	0	955	4	181	1,473
	DW	0	55	0	603	0	3	662
	MP	0	0	0	33	0	13	47
Six Rivers	MU	503	4	0	11	12	32	563
	RF	0	167	0	157	0	75	398
	WF	0	52	0	476	12	291	831
	Other**	0	115	0	150	0	65	330
	Total	**516**	**1,289**	**0**	**9,817**	**698**	**1,558**	**13,878**
All Forests* **		**24,891**	**3,884**	**3**	**21,755**	**1,427**	**7,745**	**59,704**

* See Appendix F for CALVEG code descriptions.
** CALVEG types composing less than 1% of the Conifer lifeform in the particular forest are combined into this category.
*** Includes acres from small portions of Klamath and Siskiyou National Forests.

Shrub/Chaparral

Together, the national forests show a 1,452 acre decrease in shrub/chaparral cover, which equates to 0.3% of Forest Service land (Table 30). Increases in shrub/chaparral cover on Forest Service land occur on 5,451 acres, or 1.2%. The Shasta-Trinity NF shows the largest shrub/chaparral cover decrease in both area and proportion, with a decrease on 997 acres and 0.8%. The Shasta-Trinity NF also shows the largest increase in shrub/chaparral cover by both area and proportion. This increase affects 3,846 acres and 3.0% of the Shasta-Trinity NF. All forests in the project area show a larger increase in shrub/chaparral cover than decrease.

Among the CALVEG types in the national forests, lower montane mixed chaparral in the Shasta-Trinity NF experiences the largest area of decrease (399 acres; 1.9%). Montane mixed chaparral of the Mendocino NF shows a decrease on 260 acres (0.4%). The Shasta-Trinity NF experiences a shrub/chaparral cover increase on 1,498 acres (4.5%) of montane mixed chaparral and 1,435 acres (3.2%) of upper montane mixed shrub (Table 30).

Table 30. Acres of Shrub/Chaparral Change by National Forest and CALVEG Type

Forest	CALVEG*	Decrease in Cover	% Decrease	Increase in Cover	% Increase	Total Change	Total % Change
Mendocino	CA	23	0.1	28	0.1	51	0.1
	CH	0	0	43	0.4	43	0.4
	CJ	2	< 0.1	23	0.4	25	0.4
	CQ	97	0.1	73	0.1	170	0.2
	CX	260	0.4	273	0.5	533	0.9
	Other**	0	0	0	0	0	0
	Total	**382**	**0.2**	**440**	**0.2**	**822**	**0.4**
Shasta-Trinity	CG	10	0.5	0	0	10	0.5
	CH	120	1.5	350	4.4	469	5.9
	CM	220	0.5	1,435	3.2	1,655	3.7
	CN	13	0.2	80	1.2	93	1.4
	CQ	399	1.9	317	1.5	717	3.4
	CS	32	0.6	141	2.7	173	3.3
	CW	67	2.0	0	0	67	2.0
	CX	93	0.3	1,498	4.5	1,591	4.7
	Other**	42	1.1	25	0.7	68	1.8
	Total	**997**	**0.8**	**3,846**	**3.0**	**4,842**	**3.8**
Six Rivers	C1	30	0.1	18	0.1	49	0.2
	CA	1	< 0.1	6	0.2	7	0.3
	CH	10	0.1	344	3.2	354	3.3
	CQ	4	< 0.1	77	0.5	81	0.5
	CX	29	0.1	625	3.1	654	3.3
	Other**	0	0	6	0.4	6	0.4
	Total	**74**	**0.1**	**1,075**	**1.4**	**1,149**	**1.5**
All Forests* **		**1,452**	**0.3**	**5,451**	**1.2**	**6,903**	**1.6**

* See Appendix F for CALVEG code descriptions.
** CALVEG types composing less than 1% of the Shrub/Chaparral lifeform in the particular forest are combined into this category.
*** Includes acres from small portions of Klamath and Siskiyou National Forests.

On Forest Service land within the project area, regrowth is the largest verified cause, affecting 3,255 acres (47% of the change). Fire is verified on 836 acres, while the cause remains unverified on 2,756 acres (Table 31). On the Mendocino NF, fire is verified on 340 acres and regrowth is verified on 279 acres. On the Shasta-Trinity NF, regrowth is verified on 2,277 acres and the cause is unverified on 2,063 acres. Regrowth is verified on 612 acres and the cause is unverified on 489 acres of the Six Rivers NF.

Regrowth is verified on 1,168 acres of montane mixed chaparral and 594 acres of upper montane mixed shrub in the Shasta-Trinity NF (Table 31). Regrowth is also verified on 482 acres of montane mixed chaparral in the Six Rivers NF. Fire affects 354 acres of lower montane mixed chaparral in the Shasta-Trinity NF. The cause is unverified on 1,016 acres of upper montane mixed shrub on the Shasta-Trinity NF.

Table 31. Acres of Shrub/Chaparral Change by Cause, National Forest and CALVEG Type

Owner	CALVEG*	Fire	Harvest	Regrowth	Other	Seasonal	Unverified Cause	All Causes
Mendocino	CA	16	0	0	0	0	35	51
	CH	0	0	40	0	0	3	43
	CJ	1	0	4	0	0	20	25
	CQ	90	0	7	0	0	74	170
	CX	233	5	228	5	0	61	533
	Total	**340**	**5**	**279**	**5**	**0**	**193**	**822**
Shasta-Trinity	CG	0	0	0	0	0	10	10
	CH	0	0	304	0	0	165	469
	CM	34	9	594	2	0	1,016	1,655
	CN	0	0	16	0	0	76	93
	CQ	354	1	180	0	0	181	717
	CS	0	0	12	0	0	161	173
	CW	59	0	0	0	0	8	67
	CX	11	13	1,168	2	0	397	1,591
	Other**	16	0	3	0	0	48	68
	Total	**475**	**23**	**2,277**	**4**	**0**	**2,063**	**4,842**
Six Rivers	C1	21	0	7	0	0	20	49
	CA	0	1	2	0	0	4	7
	CH	0	6	61	0	0	287	354
	CQ	0	2	58	0	0	21	81
	CX	0	1	482	2	4	164	654
	Other**	0	0	4	0	0	2	6
	Total	**21**	**10**	**612**	**3**	**4**	**498**	**1,149**
All Forests* **		**836**	**39**	**3,255**	**13**	**4**	**2,756**	**6,903**

* See Appendix F for CALVEG code descriptions.
** CALVEG types composing less than 1% of the Shrub/Chaparral lifeform in the particular forest are combined into this category.
*** Includes acres from small portions of Klamath and Siskiyou National Forests.

DATA AVAILABILITY

The land cover monitoring data are available in Arc/Info GRID format and the cause data are available in Arc/Info polygon format. These data are available in UTM zone 10 and Albers projections using the North American datum of 1927 (NAD27). To obtain these data, visit the CDF-FRAP website at http://frap.cdf.ca.gov, or contact the USDA Forest Service at (916) 454-0803 or CDF-FRAP at (916) 227-2651.

TERMINOLOGY

CALVEG – A vegetation classification scheme based on the Classification and Assessment with Landsat of Visible Ecological Groupings system. This classification system, developed by the USDA Forest Service, describes existing vegetation communities. It is appropriate for mapping vegetation using Landsat TM imagery and recognizes eight regions within California.

Change Classes – Classes of vegetation change for this program. These levels are relative amounts of change in vegetation cover (a -16 to -40% CC has less vegetation change than a -41 to -70% CC). The Cloud/Shadow class includes areas covered by clouds, cloud shadows and terrain shadows. The non-vegetation change class accounts for changes in lake water levels and snow in higher elevations.

Co-registration – The process of aligning pixels in one date of imagery to the corresponding pixels in another date of imagery that are in the same path and row.

Landsat TM Imagery – Thematic Mapper image data from the Landsat satellite. Each image covers approximately 13,225 square miles, has a pixel resolution of 900 square meters (30 m on a side) and contains seven bands of data. Six of the bands contain information on the amount of reflected sunlight from ground features within specific wavelengths. The seventh band is a thermal band and is not used in the change detection process.

Lifeform – A plant community aggregation into the broad land cover classes of hardwood, conifer, shrub and grass.

Minimum Mapping Unit – The minimum size or dimensions for features to be mapped as lines or areas.

Mosaic – The process of piecing together several images into one larger image.

Nearest Neighbor Resampling – A resampling method where the output pixel value is the same as the input pixel value, but whose coordinates are closest to the resampled coordinates of the output pixel.

Pixel – The smallest unit of information in an image or raster map. Also referred to as a cell in an image.

Radiometric Correction – The process of correcting variations in atmospheric conditions and sun angles in multiple dates of imagery.

Supervised Classification – A process aggregating pixels into classes based on training data (known areas representing the different classes) and multivariate statistics.

Unsupervised Classification – Classification algorithms that examine the unknown pixels in an image and aggregate them into a number of classes based on the natural groupings or clusters present in the image values.

WHR – A vegetation classification scheme based on the California Wildlife Habitat Relationships System. This classification system describes wildlife habitats of vertebrate animals and tends to have broad vegetation classes.

LITERATURE CITED

Congalton, R.G. and K. Green. 1999. Assessing the accuracy of remotely sensed data: principles and practices. Lewis Publishers, New York.

Crist , E.P. and R.C. Cicone. 1984. Application of the Tasseled Cap concept to simulated Thematic Mapper data. Photogrammetric Engineering and Remote Sensing, 50(3): 343-52.

Kauth, R.J. and G.S. Thomas. 1976. The Tasseled Cap - a geographic description of the spectral-temporal development of agricultural crops as seen by Landsat. Proceedings of the Symposium on Machine Processing of Remotely Sensed Data, Purdue University, West Lafayette, IN, 4b: 41-51.

Levien, L., P. Roffers, B. Maurizi, J. Suero, C. Fischer, and X. Huang. 1999. A Machine Learning Approach to Change Detection Using Multi-Scale Imagery (Presented at American Society of Photogrammetry & Remote Sensing 1999 Annual Conference, Portland, OR). USDA Forest Service, Pacific Meridian Resources, CA Dept of Forestry & Fire Protection, and ACS Government Solutions Group, Inc.

Mayer, K.E. and W.F. Laudenslayer, eds. 1988. A guide to wildlife habitats of California. State of California, Resources Agency, Department of Fish and Game, Sacramento, CA.

Ryherd, S.L. and C.E. Woodcock. 1990. The use of texture in image segmentation for the definition of forest stand boundaries. Presented at the Twenty-Third International Symposium on Remote Sensing of Environment, Bangkok, Thailand, April 18-25.

Schott, J.B., C. Salvaggio, and W.J. Volchok. 1988. Radiometric scene normalization using pseudoinvariant features. Remote Sensing of Environment, 26:1-16.

United States Department of Agriculture, Forest Service Regional Ecology Group. 1981. CALVEG - a classification of California vegetation. USDA Forest Service Region 5, San Francisco, CA

APPENDIX A – DATA SOURCES

Image Data

TM imagery provides the base data for deriving changes in vegetation cover. The North Coast project area requires seven TM images from each date (14 total TM images). Images for each year are selected as close to the anniversary date as possible to minimize differences in vegetation moisture content and shadow effects. Images are also selected for minimal cloud coverage and overall image quality. TM imagery consists of thousands of pixels, each having a spatial resolution of 900 m^2 (30 m on each side) or approximately 1/5 of an acre. Figure 1a shows the image boundaries, path, row and date for the imagery used in North Coast project area.

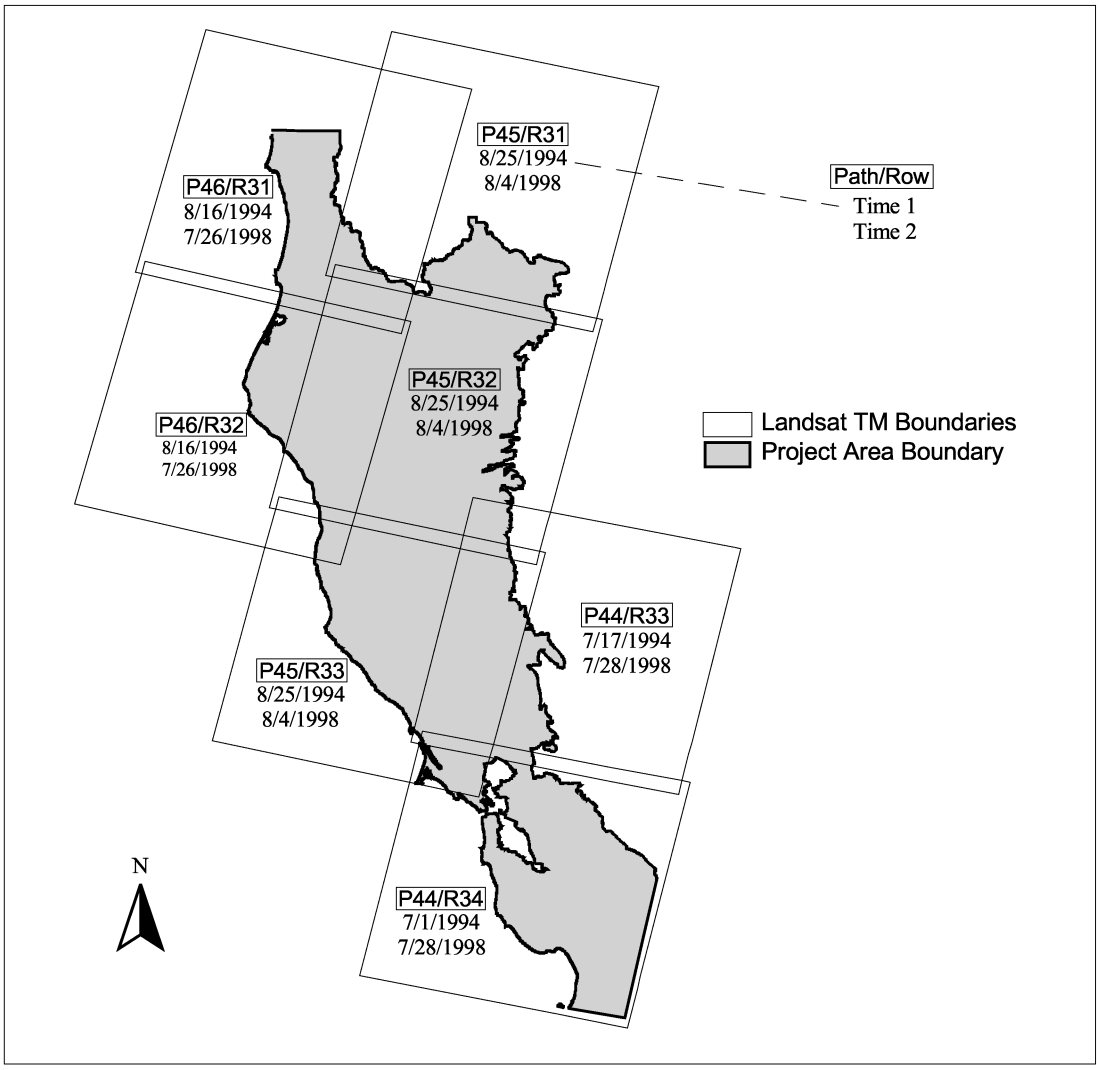


Figure 1a. TM imagery for the North Coast project area.

Vegetation Data

Vegetation data are used to determine which lifeforms, WHR types and CALVEG types are experiencing various magnitudes of change. "Lifeforms" are general land cover categories, such as conifer and hardwood (Figure 2a). WHR stands for Wildlife Habitat Relationships System, and is a habitat classification system (e.g., Blue Oak Woodland, Ponderosa Pine, and Coastal Scrub). Every WHR type is represented by a lifeform (See Appendix E for WHR types and corresponding lifeforms). The more specific CALVEG types approximate alliance level and usually correspond to the primary overstory species. CALVEG is the principal label mapped and used by the LCMMP, so only LCMMP vegetation data carries the CALVEG label. Because the CALVEG label is more specific, it is not possible to extrapolate, or crosswalk, CALVEG types from WHR types or other vegetation labels from non-LCMMP vegetation layers. However, WHR types can be ascertained, or crosswalked, from CALVEG labels, which is the current method for obtaining WHR types in areas mapped by LCMMP.

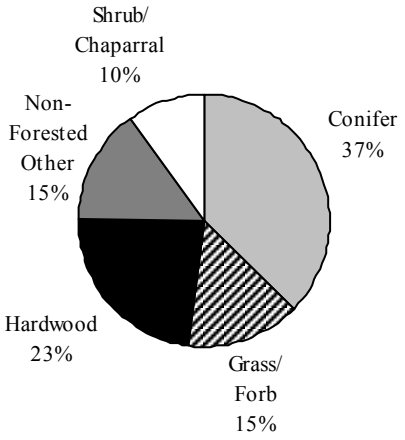


Figure 2a. Proportion of each lifeform in project area.

For the analysis of the North Coast Project Area, CALVEG types are analyzed only on Forest Service land, because Forest Service managers and personnel prefer the detailed CALVEG label. For analysis that is not limited to Forest Service land, analysis is performed and summarized using the WHR type. See Appendix E and F for WHR and CALVEG code descriptions.

LCMMP vegetation data are not available for the entire project area, so the best available vegetation data are collected and combined into one seamless layer (Table 1a). Vegetation layers in vector format are converted to raster format. In areas that overlap, the most current and accurate vegetation data are used. Vegetation layers not containing a WHR classification (Mayer and Laudenslayer, 1988) are given a WHR classification based on the information in that layer. LCMMP vegetation data are used for most of the project area. Areas in and around the Bay Area are not currently mapped by the LCMMP. The CDF Hardwood Rangelands map is then used where LCMMP vegetation data does not exist. The GAP vegetation data is used where LCMMP and CDF data does not exist.

As mentioned previously, LCMMP vegetation data are mapped to the CALVEG type. The WHR type and lifeform are extrapolated/crosswalked from the CALVEG label. In areas where two vegetation types exist (for example, conifers and hardwoods coexisting), there is a primary CALVEG label and a secondary CALVEG label. The primary CALVEG label does not necessarily represent a more prominent vegetation type, as the secondary CALVEG type can represent larger trees and a higher density. In areas where both a primary and secondary CALVEG label exists, the lifeform is labeled as "mixed." Since reporting on a mixed lifeform is somewhat confusing and less than optimal, a lifeform labeled as "mixed" is changed to hardwood, conifer or shrub/chaparral depending on what WHR type is assigned to the area. As an example, many areas have hardwood and conifer both present, and hence have a primary and secondary CALVEG label and are assigned a mixed lifeform. Depending on the size and density of the hardwoods and conifers present, the WHR type can be either montane hardwood or

montane hardwood-conifer. Those areas assigned a WHR type of montane hardwood are given a lifeform of hardwood, and those areas assigned a WHR type of montane hardwood-conifer are given a lifeform of conifer.

In areas where there exists a primary and secondary CALVEG label, the WHR type also drives what CALVEG type is to be used in the analysis. Using the example from the previous paragraph, if the primary CALVEG label is Sitka spruce and the secondary CALVEG label is red alder, then, depending on the size and density of each CALVEG type, some of the areas would be assigned a WHR type of montane hardwood and some areas would be assigned a WHR type of montane hardwood-conifer. In those areas assigned a WHR type of montane hardwood, red alder would be the CALVEG type that is reported on and analyzed. Conversely, in those areas assigned a WHR type of montane hardwood-conifer, Sitka spruce would be the CALVEG type that is reported on and analyzed.

Table 1a. Vegetation Data for the North Coast Project Area

Name	Classification	Source	Scale	Extent	% Of Project Area
CA Mapping & Monitoring Program Vegetation Data	CALVEG / WHR	1994 TM imagery	2.5 acre mmu*	All of project area excluding in and around the Bay Area	80
Hardwood Rangelands	WHR	CDF, updated 1990	Pixel size of 625 m^2 (25 meters on each side; 0.15 acres)	Hardwood rangelands below 5000 ft. elevation	19
GAP Analysis 1990	WHR used	Varies; TM imagery, Field data	100 hectares (~250 acres)	Statewide	1

*mmu - minimum mapping unit.

Other Data

Table 2a describes data layers that supplement our monitoring program. These layers are used to stratify change areas, verify causes and correlate change to mortality levels.

Table 2a. Supplemental Data for North Coast Project Area

Name	Description	Data Type	Scale	Source	Extent
Ownership	Local, state federal, private	Polygon	1:100,000	CaSIL Data Center	Statewide
County	County boundaries	Polygon	1:24,000	CaSIL Data Center	Statewide
Fire Perimeters	Recent and past fires	Regions (polygon)	Varies; 1:24,000 to 1:100,000	Maintained by CDF and FS	Statewide
Harvest / Plantation	Silvicultural practices	Polygon	1:24,000	FS	Forest Service lands
THP Database	Harvest practices on private land	Polygon	1:24,000	CDF	Selected watersheds
NHFEU* Boundaries	Ecological subsection boundaries	Polygon	1:7,500,000	FS	Statewide
SPOT	1993-1994 and 1998-2000 satellite image composite	Image	400 m^2 pixel (20 m on each side)	SPOT	Statewide
Aerial Photos	9" x 9"	Print photograph	1:15,840 nominal	FS	Forest Service lands
Field Plots	Transects	Ground measures	NA	CA Mapping & Monitoring Program	Selected sites within project area

*National Hierarchical Framework of Ecological Units.

APPENDIX B – Methodology

Database Building

Database building includes the preparation of Thematic Mapper (TM) imagery for processing and the creation of a seamless vegetation layer. The early date TM image (time 1) is registered to the later date TM image (time 2). Registration creates overlapping images (from time 1 and time 2) and is accomplished by placing control points that identify identical features throughout both images (e.g., road intersections). These features are used in a nearest neighbor resampling technique to assign the early date pixel values to the later date pixel locations. These new pixel locations must be within ½ pixel of the later date pixels to help reduce false change. The images are then radiometrically corrected to account for differences in atmospheric conditions (e.g., haze and water vapor). This process involves the selection of dark and light groups of pixels in each image date and the application of a regression-based correction to the pixel brightness values of the early date image to effectively remove differences in atmospheric conditions (Schott et al., 1988).

A seamless vegetation layer is mosiacked together using the best available vegetation data (Table 1a in Appendix A). This produces the best possible vegetation layer spanning the entire project area. Layers that are in vector format are converted to raster format. In the mosaic process, precedence is given first to the LCMMP vegetation layers, then to the CDF hardwood layer and finally to the GAP data, which fills in any remaining areas. Vegetation layers not containing WHR information are given WHR information by extrapolating from data in that vegetation layer, which creates a WHR vegetation map for the entire project area. See Appendix A for more details on the vegetation layer.

Change Processing

Co-registered and radiometrically corrected TM imagery are analyzed for change by applying a Kauth-Thomas transformation to both dates of imagery (Kauth and Thomas, 1976). A TM image contains spectral (or reflectance) information for 7 bands of data, each representing a different range of the electromagnetic spectrum. For instance, band 1 of the Landsat TM measures the reflectance of wavelengths from 0.45µm to 0.52µm, which corresponds to the color blue. The thermal-IR band is not used because its pixel size is 120 meters on each side (all other bands are 30 meters on each side). For each TM image, the Kauth-Thomas transformation uses the spectral information from six bands with model coefficients to produce new images depicting values of brightness, greenness and wetness (Crist and Cicone, 1984). Brightness identifies variation in reflectance, greenness is related to the amount of green vegetation present in the scene and wetness correlates to canopy and soil moisture. The brightness, greenness and wetness values from the first image (time 1) are subtracted from the brightness, greenness and wetness values of the second image (time 2; time2 – time 1) to produce a new image depicting changes in those components on a pixel-by-pixel basis.

Change Labeling

Change labeling is a multi-step process that converts the change image into a change map that depicts decreases and increases in canopy cover or changes in shrub/grass (Figure 5 of main report). The change image is divided into multiple parts, with each part (or map subset) corresponding to a different lifeform type (e.g., conifer, hardwood, shrub/chaparral). This is accomplished by overlaying the vegetation layer and selecting those areas in the change image that have the same lifeform. The result is multiple change images, with each one corresponding

to a different lifeform and spatial extent. An unsupervised classification is performed on each individual lifeform change image to create 50 distinct classes, each class containing pixels that have similar levels of brightness, greenness and wetness. The pixels are temporarily labeled according to their level of change based on a qualitative gradient from large decreases in vegetation to large increases in vegetation. Image appearance, photo interpretation, bispectral plots (e.g., greenness vs. wetness), and vegetation and topographic maps are used to aid in assigning the final quantitative change classes. Each individual lifeform change image is then mosaicked (pieced back together) into one project area change map.

Table 1b. Change Classes and Corresponding Description

CHANGE CLASS	DESCRIPTION
-71 to -100% CC	71 to 100% decrease in canopy cover
-41 to -70% CC	41 to 70% decrease in canopy cover
-16 to -40% CC	16 to 40% decrease in canopy cover
+15 to -15% CC (Little or No Change)	Little or no change in canopy, shrub/chaparral, or grass cover
+16 to +40% CC	16 to 40% increase in canopy cover
+41 to +100% CC	41 to 100% increase in canopy cover
Shrub/Grass Decrease > 15%	16 to 100% decrease in shrub/grass
Shrub/Grass Increase > 15%	16 to 100% increase in shrub/grass
Non-vegetation Change (Includes Change Within Existing Developed Area)	Change not related to a vegetation change including change within urban area
Cloud or Cloud Shadow	Cloud or cloud shadow (prevents change assessment)

Once the change image is mosaicked, pixels of similar change classes that are adjacent to each other are temporarily grouped together. All increases in canopy cover and shrub/grass are grouped together, all decreases in canopy cover and shrub/grass are grouped together, and non-vegetation change pixels are grouped together. These groups are then checked to see if they meet the minimum mapping unit (mmu), which is 2.5 acres, or 11 pixels. All groups that do not meet the mmu are removed from the change map and assigned a change class of little or no change. The temporary groupings are then removed, giving the pixels their original value (change class).

The classification system is designed to discriminate between different levels of canopy cover changes (i.e., 16 to 40% CC decrease vs. 71 to 100% CC decrease). The +15 to -15% CC (little or no change) indicates that change did not occur, the change area falls below the mmu or that the change was too subtle to be detected. The non-vegetation change class accounts for variations in lake or reservoir water levels, snow pack in the higher elevations and change within an existing urban area. The cloud or cloud shadow class accounts for clouds, cloud shadows and shadows in mountainous areas that obscure ground cover and make it impossible to determine whether the vegetation had changed or remained stable in these areas.

Cause Verification

Once the final change map is complete, an attempt is made to verify cause on all change areas. GIS overlay analysis, fieldwork and photo interpretation are used to determine the causes of change areas. The statewide fire history database is overlaid onto the change map to attribute changes caused by wildfires (Figure 5 of main report). A series of cause identification workshops are conducted and include FS resource managers, CDF personnel and other

stakeholders in the project area. FS, CDF and other land managers interpret change maps by applying local knowledge and fieldwork to identify sources of change on public lands. Similarly, UC IHRMP personnel consult private landowners to identify sources of change in hardwood rangelands. Areas without a causal agent identified through the above processes become the focus of further field efforts and aerial photo interpretation. Despite all these efforts, full coverage of cause verification is not always possible due to the large number of change areas, insufficient information and inaccessible lands.

APPENDIX C - DATA ACCURACY

To assess the accuracy of the change map, 10 to 30 acre polygons for use as reference data were randomly selected from all of the change classes (see Table 1c for change class descriptions). The number of reference sites per change class was based upon the acreage amount of change (e.g., the little or no change class has the largest acreage thus the most sites), with a goal of 50 reference sites per change class.

Reference sites were interpreted for canopy cover and shrub/chaparral change using color aerial photography at a scale of 1:15,840, digital camera images at a scale of 1:3000, digital orthophoto quadrangles with a 1-meter cell size and field collected data. A number of the reference sites had to be discarded from the accuracy assessment because the data used to determine vegetation cover change for each of them was either absent or of poor quality. The final result was 382 reference sites. These 382 sites with known vegetation change were then compared to the classified change map to create an error matrix.

Table 1c. Change Code and Corresponding Change Class

Change Code	CHANGE CLASS
1	-71 to -100% CC
2	-41 to -70% CC
3	-16 to -40% CC
4	+15 to -15% CC (Little or No Change)
5	+16 to +40% CC
6	+41 to +100% CC
7	Shrub/Grass Decrease > 15%
8	Shrub/Grass Increase > 15%
9	Change Within Existing Developed Area
15	Cloud or Cloud Shadow

Table 2c displays the error matrix for the North Coast project area. (See Table 1c for change code descriptions). The overall accuracy of the change map is 89.8%. This means that of the 382 sample sites, 343 were correctly classified (the reference and classified classes are the same; Congalton and Green, 1999). Errors of commission (reference class included in the wrong classified class) and omission (reference class excluded from the correct classified class) are also evident. For example, Table 2c shows that one site was classified as +16 to +40% CC when the reference class shows it was actually little or no change. Therefore, one area was omitted from the correct little or no change class

Table 2c. Change Map Accuracy Assessment for the North Coast Project Area

Reference Class

Classified As: Change Code	1	2	3	4	5	6	7	8	9	Total
1	14									**14**
2	3	10	1							**14**
3	1	2	21	2						**26**
4			2	218	4		5		6	**235**
5				1	18	1				**20**
6				1	3	12				**116**
7				1			10			**11**
8				4				23		**27**
9				2					17	**19**
Total	**18**	**12**	**24**	**229**	**25**	**13**	**15**	**23**	**23**	**382**

and committed to the incorrect +16 to +40% CC class. The producer's accuracy of each change class ranged from 67% to 100% and the user's accuracy ranged from 71% to 100% (Table 3c). Producer's accuracy represents how well a particular class is classified. Or, in other words, of all the referenced sites that have a particular change class, how many times (or what proportion) did

those sites get classified as such? For instance, of the 24 reference sites with a –16 to –40% CC, 21 of those sites were classified correctly. The user's accuracy looks at the matrix from a different approach. Instead of looking at known reference data and calculating how many are correct (producer's accuracy), the user's accuracy looks at the number correctly classified and compares that to the number of sites in that classification. As an example, 26 sites are classified into the –16 to –40% CC class, but 21 of those sites are actually referenced to be in that class. User's accuracy indicates the probability that a given change class actually represents that same change on the ground.

Table 3c. Producer's and User's Accuracy of Each Class

Producer's Accuracy			User's Accuracy		
1	14/18	78%	1	14/14	100%
2	10/12	83%	2	10/14	71%
3	21/24	88%	3	21/26	81%
4	218/229	95%	4	218/235	93%
5	18/25	72%	5	18/20	90%
6	12/13	92%	6	12/16	75%
7	10/15	67%	7	10/11	91%
8	23/23	100%	8	23/27	85%
10	17/23	74%	10	17/19	89%

The accuracy assessment also shows that general vegetation cover decreases and increases were mapped well. No classified decrease corresponded to a vegetation increase in any of the accuracy assessment sites, although a few sites were referenced as little or no change. The same is also true for the areas classified as an increase. Additionally, a referenced decrease site was never classified as an increase and a referenced increase site was never classified as a decrease.

APPENDIX D – WHR TYPE DESCRIPTIONS

Species Compositions for major Hardwood, Conifer and Shrub/Chaparral WHR Types; Species in bold are dominant and species in non-bold are associates.

MONTANE HARDWOOD	BLUE OAK WOODLAND	BLUE OAK/ FOOTHILL PINE	COASTAL OAK WOODLAND
CA black oak **pacific madrone** **tanoak** **alder** **interior live oak** **canyon live oak**	**blue oak**	**blue oak** **foothill pine**	**coast live oak**
Oregon white oak coast live oak California laurel valley oak blue oak foothill pine ponderosa pine	interior live oak coast live oak buckeye juniper canyon live oak valley oak ponderosa pine	coast live oak interior live oak canyon live oak	California bay madrone tanbark oak canyon live oak

DOUGLAS FIR	REDWOOD	KLAMATH MIXED CONIFER	MONTANE HARDWOOD-CONIFER
Douglas fir **port orford cedar** **Jeffrey pine** **sugar pine** **western hemlock**	**redwood** **Douglas fir** **red alder** **grand fir** **tanoak**	**Douglas fir** **white fir** **ponderosa pine** **incense cedar** **sugar pine**	
tanoak Ca. huckleberry poison oak	western redcedar western hemlock Bishop pine Monterey pine sugar pine Jeffrey pine	lodgepole pine Jeffrey pine knobcone pine port orford cedar canyon live oak Ca. black oak	Ponderosa pine incense cedar Douglas fir tanoak madrone canyon live oak coast live oak

MIXED CHAPARRAL	MONTANE CHAPARRAL	CHAMISE-REDSHANK
oaks **ceanothus manzanita**	**ceanothus** **manzanita** **bitter cherry**	**chamise** **redshank**
chamise mountain mahogany buckeye sumac buckthorn California fremontia		toyon sumac buckthorn ceanothus manzanita scrub oak

Source: Mayer and Laudenslayer, 1988.

APPENDIX E – WHR VEGETATION HIERARCHY

Lifeform	WHR Code	WHR Type
Hardwood	BOP	Blue Oak- Foothill Pine
	BOW	Blue Oak Woodland
	COW	Coastal Oak Woodland
	EUC	Eucalyptus
	MHW	Montane Hardwood
	MRI	Montane Riparian
	VOW	Valley Oak Woodland
	VRI	Valley Foothill Riparian
Conifer	JUN	Juniper
	CPC	Closed Cone Pine-Cypress
	DFR	Douglas Fir
	EPN	Eastside Pine
	JPN	Jeffrey Pine
	KMC	Klamath Mixed Conifer
	LPN	Lodgepole Pine
	MHC	Montane Hardwood-Conifer
	PPN	Ponderosa Pine
	RDW	Redwood
	SCN	Subalpine Conifer
	SMC	Sierran Mixed Conifer
	UCN	Undetermined Conifer
	WFR	White Fir
Shrub/ Chaparral	BBR	Bitterbrush
	CRC	Chamise-Redshank Chaparral
	CSC	Coastal Scrub
	DSC	Desert Scrub
	LSG	Low Sagebrush
	MCH	Mixed Chaparral
	MCP	Montane Chaparral
	SGB	Sagebrush
	UND	Undetermined Shrub/Chaparral Type

Source: Mayer and Laudenslayer, 1988.

APPENDIX F – CALVEG CODES

Lifeform	CALVEG Code	CALVEG Description
Hardwood	QC	Canyon Live Oak
	QD	Blue Oak
	QG	Oregon White Oak
	QJ	Cottonwood/Alder
	QK	California Black Oak
	QM	Bigleaf Maple (Dogwood)
	QO	Willow
	QR	Red Alder
	QT	Tanoak (Madrone)
	QY	Willow-Alder
	TA	Mountain Alder
	TC	Tree Chinquapin
Conifer	DF	Pacific Douglas-Fir
	DP	Douglas Fir-Pine
	DT	Douglas Fir-Tanoak
	DW	Douglas Fir-White Fir
	EP	Eastside Pine
	JP	Jeffrey Pine
	KP	Knobcone Pine
	LP	Lodgepole Pine
	MF	Mixed Conifer-Fir
	MP	Mixed Conifer-Pine
	MU	Ultramafic Mixed Conifer
	PD	Gray Pine
	PO	Port Oreford Cedar
	PP	Ponderosa Pine
	PW	Ponderosa Pine-White Fir
	RD	Redwood-Douglas Fir
	RF	Red Fir
	RW	Redwood
	SA	Subalpine Conifers
	WB	Whitebark Pine
	WF	White Fir
	WW	Western White Pine
Shrub/Chaparral	BM	Curleaf Mountain Mahogany
	C1	Ultramafic Mixed Shrub
	CA	Chamise
	CB	Salal-California Huckleberry Shrub
	CG	Greenleaf Manzanita
	CH	Huckleberry Oak
	CJ	Brewer Oak
	CL	Wedgeleaf Ceanothus
	CM	Upper Montane Mixed Shrub
	CN	Pinemat Manzanita
	CQ	Lower Montane Mixed Chaparral
	CS	Scrub Oak
	CW	Whiteleaf Manzanita
	CX	Montane Mixed Chaparral

Source: USDA Forest Service Regional Ecology Group, 1981.

APPENDIX G – DETAILED MAPS AND TABLES

Project Area Maps and Tables

1. Project Area Change Map
2. Acres of Classified Change by Lifeform Type
3. Acres of Classified Change by Hardwood Cover Type
4. Acres of Classified Change by Conifer Cover Type
5. Acres of Classified Change by Shrub/Chaparral Types
6. Acres of Verified Change by Cause for All Lifeform Cover Types and Owner Classes
7. Acres of Classified Change by Lifeform Type and Owner Class
8. Acres of Classified Change by Hardwood Cover Type and Owner Class
9. Acres of Classified Change by Conifer Type and Owner Class
10. Acres of Classified Change by Shrub/Chaparral Types and Owner Class
11. Acres of Verified Change in all Hardwood Cover Types by Cause and Owner Class
12. Acres of Verified Change in all Conifer Cover Types by Cause and Owner Class
13. Acres of Verified Change in the Shrub/Chaparral Cover Types by Cause and Owner Class

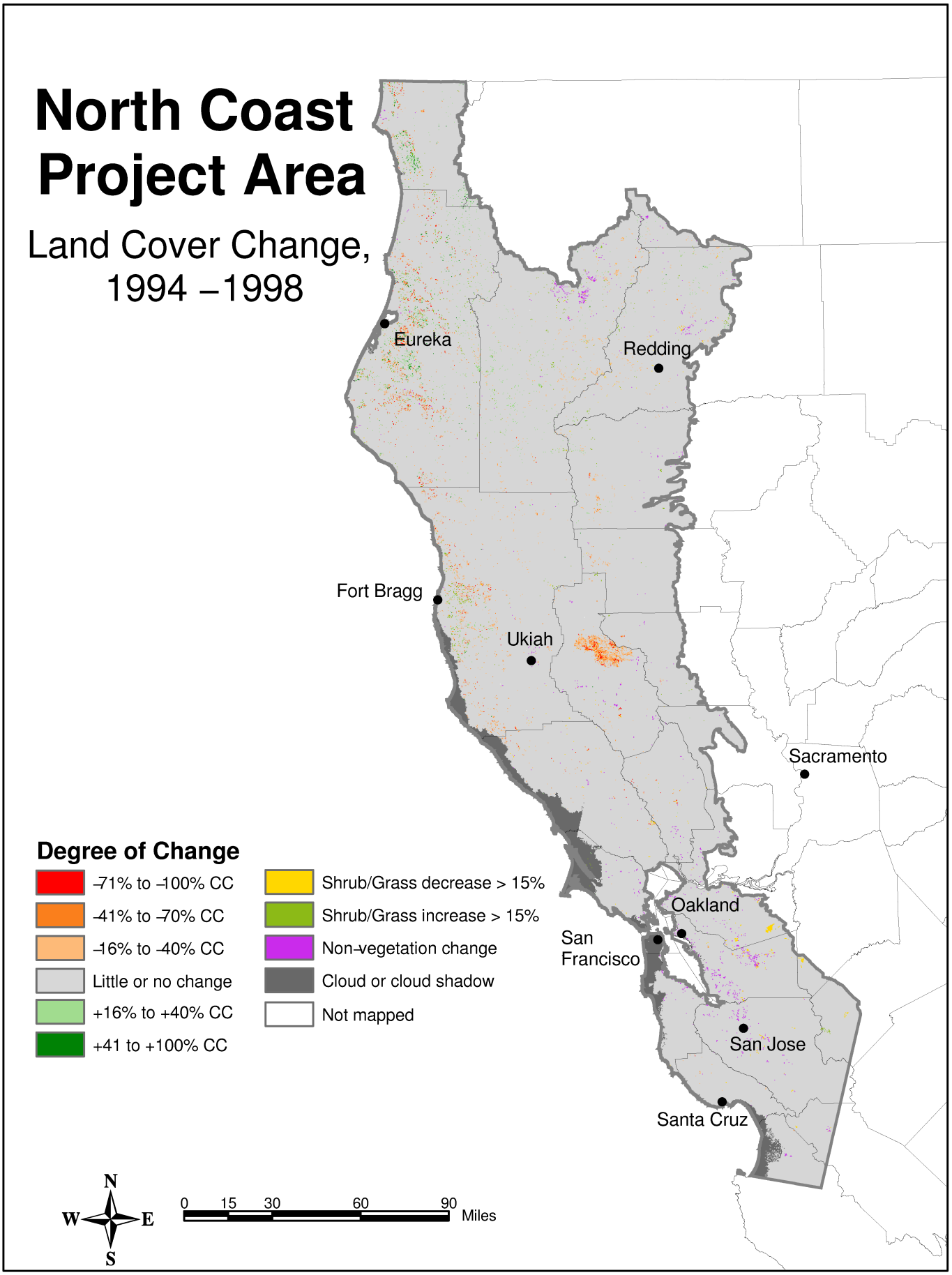

North Coast Project Area
Land Cover Change, 1994 –1998
Eureka
Redding
Fort Bragg
Ukiah
Sacramento
Oakland
San Francisco
San Jose
Santa Cruz
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
N
W
E
S
0 15 30 60 90
Miles

Table P-1 Acres of Classified Change by Lifeform Type

	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		All Lifeforms	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	14,623	0	5,031	0					236	0	19,889	0
-41 to -70% CC	41,083	1	9,579	0					67	0	50,730	0
-16 to -40% CC	88,606	1	21,595	1					109	0	110,311	1
+15 to -15% CC (Little or No Change)	5,785,474	95	3,757,765	98	2,281,295	93	1,585,963	95	2,240,283	93	15,650,780	95
+16 to +40% CC	51,516	1	9,481	0					3,848	0	64,845	0
+41 to +100% CC	9,673	0	2,400	0					328	0	12,402	0
Shrub/Grass Decrease > 15%					8,151	0	4,955	0	3,521	0	16,627	0
Shrub/Grass Increase > 15%					9,652	0	22,002	1	748	0	32,402	0
Non-Vegetation Change	7,177	0	2,033	0	10,118	0	2,848	0	22,589	1	44,765	0
Cloud or Cloud Shadow	122,622	2	31,344	1	140,120	6	45,903	3	130,875	5	470,865	3
Total	6,120,775	100	3,839,228	100	2,449,337	100	1,661,671	100	2,402,604	100	16,473,616	100

Table P-2 Acres of Classified Change by Conifer Cover Type

	Juniper		Closed Cone Pine-Cypress		Douglas Fir		Eastside Pine		Jeffrey Pine		Klamath Mixed Conifer		Lodgepole Pine		Montane hardwood-conifer	
	Acres	%	Acres	%	Acre's	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC			303	0	5,678	0			4	0	218	0			1,176	0
-41 to -70% CC			2,512	2	13,267	1			20	0	1,161	0			2,629	0
-16 to -40% CC			8,738	7	29,035	1			35	0	9,591	1			6,490	1
+15 to -15% CC (Little or No Change)	4	15	93,528	75	2,403,366	96	1,326	100	9,223	99	885,610	98	96	100	662,134	97
+16 to +40% CC			73	0	21,316	1			41	0	5,911	1			5,271	1
+41 to +100% CC			8	0	3,112	0					72	0			1,225	0
Non-Vegetation Change	22	85	34	0	321	0			1	0	265	0			228	0
Cloud or Cloud Shadow			19,233	15	17,973	1					16	0			2,534	0
Total	26	100	124,429	100	2,494,069	100	1,326	100	9,323	100	902,841	100	96	100	681,687	100

	Ponderosa Pine		Redwood		Red Fir		Subalpine Conifer		Sierra Mixed Conifer		White Fir		Unknown Conifer		All Conifer	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	180	0	6,967	1	1	0					89	0	7	0	14,623	0
-41 to -70% CC	647	1	20,288	2	34	0	5	0			476	0	45	0	41,083	1
-16 to -40% CC	3,019	2	27,212	2	665	1	194	1	174	2	2,957	1	496	0	88,606	1
+15 to -15% CC (Little or No Change)	118,891	96	988,045	86	80,939	97	30,451	85	8,436	96	238,324	98	265,103	99	5,785,474	95
+16 to +40% CC	761	1	15,169	1	730	1	100	0	190	2	1,950	1	4	0	51,516	1
+41 to +100% CC	1	0	5,197	0	1	0		0			58	0	1	0	9,673	0
Non-Vegetation Change	91	0	68	0	906	1	5,027	14	23	0	163	0	27	0	7,177	0
Cloud or Cloud Shadow	1	0	80,436	7									2,431	1	122,622	2
Total	123,591	100	1,143,380	100	83,276	100	35,778	100	8,823	100	244,016	100	268,114	100	6,120,775	100

Table P-3 Acres of Classified Change by Hardwood Cover Type

	Blue Oak/ Foothill Pine		Blue Oak Woodland		Coastal Oak Woodland		Eucalyptus		Montane Hardwood	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	30	0	28	0	212	0	1	0	4,391	0
-41 to -70% CC	407	0	106	0	84	0			8,792	0
-16 to -40% CC	1,601	1	482	0	325	0			18,704	1
+15 to -15% CC (Little or No Change)	313,435	99	631,148	100	266,558	96	10,162	92	2,408,240	98
+16 to +40% CC	54	0	81	0	365	0	5	0	7,023	0
+41 to +100% CC	57	0	17	0	54	0	1	0	1,729	0
Non-Vegetation Change	2	0	81	0	9,288	3	882	8	15,885	1
Cloud or Cloud Shadow	111	0	317	0	214	0			1,110	0
Total	315,697	100	632,260	100	277,099	100	11,051	100	2,465,874	100

	Montane Riparian		Valley Oak Woodland		Valley Foothill Riparian		All Hardwoods	
	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	368	0					5,031	0
-41 to -70% CC	184	0	5	0			9,579	0
-16 to -40% CC	453	0	29	0			21,595	1
+15 to -15% CC (Little or No Change)	88,183	91	39,324	100	716	79	3,757,765	98
+16 to +40% CC	1,914	2	37	0	1	0	9,481	0
+41 to +100% CC	531	1	10	0	1	0	2,400	0
Non-Vegetation Change	5,013	5			194	21	31,344	1
Cloud or Cloud Shadow	254	0	28	0			2,033	0
Total	96,901	100	39,432	100	912	100	3,839,228	100

Table P-4 Acres of Classified Change by Shrub/Chaparral Type

	Bitterbrush		Chamise - Redshank Chaparral		Coastal Shrub		Desert Scrub		Low Sagebrush	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Shrub/Grass Decrease > 15%			289	0	224	0			5	8
+15 to -15% CC (Little or No Change)	33	100	280,975	100	64,186	56			54	92
Shrub/Grass Increase > 15%			428	0	9,108	8				
Non-Vegetation Change			60	0	316	0				
Cloud or Cloud Shadow			32	0	40,036	35	3	100		
Total	33	100	281,784	100	113,870	100	3	100	58	100

	Mixed Chaparral		Montane Chaparral		Sagebrush		Unknown Shrub/ Chaparral		All Shrub/ Chaparral	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Shrub/Grass Decrease > 15%	2,670	0	1,545	1			222	0	4,955	0
+15 to -15% CC (Little or No Change)	830,992	99	288,242	96	787	99	120,693	95	1,585,963	95
Shrub/Grass Increase > 15%	3,088	0	9,051	3	3	0	324	0	22,002	1
Non-Vegetation Change	509	0	1,854	1	2	0	107	0	2,848	0
Cloud or Cloud Shadow	541	0	2	0			5,290	4	45,903	3
Total	837,800	100	300,694	100	792	100	126,637	100	1,661,671	100

Table P-5 Acres of Verified Change by Cause for All Lifeforms and Owner Classes

	Fire	Harvest	Develop-ment	Regrowth	Other	Seasonal	Unverified Cause	All Causes
-71 to -100% CC	3,332	9,561	39		888		6,069	19,889
-41 to -70% CC	13,384	19,573	86		1,760	1	15,926	50,730
-16 to -40% CC	32,039	42,724	295		2,536	6	32,710	110,311
+16 to +40 % CC				44,170	52	83	20,539	64,845
+41 to +100% CC				8,146	6	10	4,240	12,402
Shrub/Grass Decrease > 15%	4,463	585	5,167		2,247	135	4,030	16,627
Shrub/Grass Increase > 15%				18,630	9	174	13,589	32,402
Non-Vegetation Change							44,765	44,765
Total	53,218	72,443	5,588	70,946	7,499	409	141,868	351,970

Table P-6 Acres of Classified Change by Lifeform and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	1,763	0	349	0							2,113	0
-41 to -70% CC	7,686	0	3,624	1					1	0	11,311	0
-16 to -40% CC	25,791	1	7,143	1							32,934	1
+15 to -15% CC (Little or No Change)	2,501,437	97	499,023	98	26,133	98	427,781	98	73,953	97	3,528,328	98
+16 to +40% CC	22,805	1	673	0					7	0	23,485	1
+41 to +100% CC	1,199	0	165	0							1,364	0
Shrub/Grass Decrease > 15%					26	0	1,452	0			1,478	0
Shrub/Grass Increase > 15%					240	1	5,451	1			5,691	0
Non-Vegetation Change	6,430	0	508	0	226	1	2,070	0	1,957	3	11,191	0
Cloud or Cloud Shadow	16	0					2	0			17	0
Total	2,567,127	100	511,486	100	26,625	100	436,756	100	75,919	100	3,617,913	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	512	0	392	0							905	0
-41 to -70% CC	1,695	0	514	0					12	0	2,221	0
-16 to -40% CC	5,932	1	2,172	1					6	0	8,110	0
+15 to -15% CC (Little or No Change)	577,359	95	339,865	97	95,534	75	313,650	92	192,941	88	1,519,349	92
+16 to +40% CC	1,910	0	1,104	0					36	0	3,050	0
+41 to +100% CC	532	0	290	0					3	0	825	0
Shrub/Grass Decrease > 15%					190	0	478	0	159	0	827	0
Shrub/Grass Increase > 15%					796	1	1,796	1	65	0	2,657	0
Non-Vegetation Change	73	0	341	0	619	0	212	0	1,394	1	2,639	0
Cloud or Cloud Shadow	18,804	3	6,581	2	30,190	24	25,163	7	23,499	11	104,237	6
Total	606,817	100	351,260	100	127,330	100	341,298	100	218,114	100	1,644,819	100

	Private													
	Conifer		Hardwood		Grass/Forb		Shrub/Chaparral		Non-Forested Other		Private Total		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	12,347	0	4,289	0					236	0	16,872	0	19,889	0
-41 to -70% CC	31,703	1	5,441	0					55	0	37,198	0	50,730	0
-16 to -40% CC	56,884	2	12,280	0					103	0	69,267	1	110,311	1
+15 to -15% CC (Little or No Change)	2,706,678	92	2,918,876	98	2,159,628	94	844,533	96	1,973,389	94	10,603,103	95	15,650,780	95
+16 to +40% CC	26,801	1	7,704	0					3,805	0	38,309	0	64,845	0
+41 to +100% CC	7,942	0	1,945	0					326	0	10,213	0	12,402	0
Shrub/Grass Decrease > 15%					7,935	0	3,026	0	3,362	0	14,323	0	16,627	0
Shrub/Grass Increase > 15%					8,616	0	14,755	2	682	0	24,053	0	32,402	0
Non-Vegetation Change	674	0	1,184	0	9,273	0	565	0	19,238	1	30,935	0	44,765	0
Cloud or Cloud Shadow	103,803	4	24,764	1	109,930	5	20,739	2	107,376	5	366,611	3	470,865	3
Total	2,946,831	100	2,976,482	100	2,295,382	100	883,617	100	2,108,571	100	11,210,884	100	16,473,616	100

Table P-7 Acres of Classified Change by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Juniper								
+15 to -15% CC (Little or No Change)	4	15					4	15
Non-Vegetation Change	22	85					22	85
Total	26	100					26	100
Closed Cone Pine - Cypress								
-71 to -100% CC	227	1	2	0	74	0	303	0
-41 to -70% CC	2,047	6	119	0	346	1	2,512	2
-16 to -40% CC	6,196	18	1,254	3	1,288	3	8,738	7
+15 to -15% CC (Little or No Change)	26,227	76	32,816	85	34,485	67	93,528	75
+16 to +40% CC	4	0	5	0	63	0	73	0
+41 to +100% CC			6	0	2	0	8	0
Non-Vegetation Change	26	0			7	0	34	0
Cloud or Cloud Shadow			4,287	11	14,947	29	19,233	15
Total	34,728	100	38,490	100	51,211	100	124,429	100
Douglas Fir								
-71 to -100% CC	1,074	0	187	0	4,417	0	5,678	0
-41 to -70% CC	3,293	0	810	0	9,164	1	13,267	1
-16 to -40% CC	9,724	1	1,733	1	17,577	2	29,035	1
+15 to -15% CC (Little or No Change)	1,126,193	98	250,118	95	1,027,055	95	2,403,367	96
+16 to +40% CC	13,495	1	1,192	0	6,629	1	21,316	1
+41 to +100% CC	1,036	0	329	0	1,747	0	3,112	0
Non-Vegetation Change	225	0	15	0	81	0	321	0
Cloud or Cloud Shadow			7,567	3	10,405	1	17,973	1
Total	1,155,040	100	261,953	100	1,077,076	100	2,494,069	100
Eastside Pine								
+15 to -15% CC (Little or No Change)	1,136	100			190	100	1,326	100
Total	1,136	100			190	100	1,326	100
Jeffrey Pine								
-71 to -100% CC	1	0			4	0	4	0
-41 to -70% CC	6	0			13	2	20	0
-16 to -40% CC	14	0			21	2	35	0
+15 to -15% CC (Little or No Change)	8,230	99	182	100	811	95	9,223	99
+16 to +40% CC	35	0			6	1	41	0
Non-Vegetation Change	1	0					1	0
Total	8,287	100	182	100	854	100	9,323	100
Klamath Mixed Conifer								
-71 to -100% CC	123	0	3	0	91	0	218	0
-41 to -70% CC	713	0	20	0	428	0	1,161	0
-16 to -40% CC	3,520	1	270	1	5,801	2	9,591	1
+15 to -15% CC (Little or No Change)	630,004	98	28,100	99	227,506	97	885,610	98
+16 to +40% CC	5,404	1	52	0	455	0	5,911	1
+41 to +100% CC	40	0	28	0	4	0	72	0
Non-Vegetation Change	156	0	3	0	106	0	265	0
Cloud or Cloud Shadow	15	0			1	0	16	0
Total	639,975	100	28,475	100	234,391	100	902,841	100
Lodgepole Pine								
+15 to -15% CC (Little or No Change)	96	100					96	100
Total	96	100					96	100
Montane Hardwoods Conifer								
-71 to -100% CC	136	0	36	0	1,005	0	1,176	0
-41 to -70% CC	895	0	107	0	1,626	1	2,629	0
-16 to -40% CC	2,828	1	292	1	3,371	1	6,490	1
+15 to -15% CC (Little or No Change)	333,023	98	33,289	97	295,821	96	662,134	97
+16 to +40% CC	1,153	0	192	1	3,927	1	5,271	1
+41 to +100% CC	64	0	52	0	1,109	0	1,225	0
Non-Vegetation Change	82	0	21	0	125	0	228	0
Cloud or Cloud Shadow			297	1	2,237	1	2,534	0
Total	338,181	100	34,285	100	309,222	100	681,687	100

Table P-7 Acres of Classified Change by Conifer Cover Type and Owner Class (cont.)

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Ponderosa Pine								
-71 to -100% CC	144	0			36	0	180	0
-41 to -70% CC	497	1	6	0	145	0	647	1
-16 to -40% CC	1,434	2	516	4	1,069	3	3,019	2
+15 to -15% CC (Little or No Change)	67,780	97	11,071	95	40,040	96	118,891	96
+16 to +40% CC	173	0	8	0	580	1	761	1
+41 to +100% CC	1	0					1	0
Non-Vegetation Change	47	0	2	0	41	0	91	0
Total	70,077	100	11,604	100	41,910	100	123,591	100
Redwood								
-71 to -100% CC	1	0	284	0	6,682	1	6,967	1
-41 to -70% CC	6	1	627	0	19,655	2	20,288	2
-16 to -40% CC	1	0	1,752	1	25,459	3	27,212	2
+15 to -15% CC (Little or No Change)	539	98	165,180	95	822,326	85	988,045	86
+16 to +40% CC	5	1	440	0	14,724	2	15,169	1
+41 to +100% CC	1	0	117	0	5,079	1	5,197	0
Non-Vegetation Change			27	0	41	0	68	0
Cloud or Cloud Shadow			6,116	4	74,320	8	80,436	7
Total	552	100	174,542	100	968,287	100	1,143,380	100
Red Fir								
-71 to -100% CC							1	0
-41 to -70% CC	23	0			10	0	34	0
-16 to -40% CC	426	1	4	2	235	3	665	1
+15 to -15% CC (Little or No Change)	73,255	97	187	98	7,497	96	80,939	97
+16 to +40% CC	692	1			38	0	730	1
+41 to +100% CC	1	0					1	0
Non-Vegetation Change	865	1			41	1	906	1
Total	75,263	100	192	100	7,821	100	83,276	100
Subalpine Conifer								
-41 to -70% CC	5	0					5	0
-16 to -40% CC	190	1			5	0	194	1
+15 to -15% CC (Little or No Change)	27,505	84			2,946	94	30,451	85
+16 to +40% CC	100	0					100	0
Non-Vegetation Change	4,842	15			186	6	5,027	14
Total	32,641	100			3,137	100	35,778	100
Sierran Mixed Conifer								
-16 to -40% CC			10	2	164	2	174	2
+15 to -15% CC (Little or No Change)	473	99	612	96	7,351	95	8,436	96
+16 to +40% CC	2	0	16	3	171	2	190	2
Non-Vegetation Change	2	0			21	0	23	0
Total	477	100	638	100	7,708	100	8,823	100
Unknown Conifer								
-71 to -100% CC					7	0	7	0
-41 to -70% CC			5	0	40	0	45	0
-16 to -40% CC			86	0	410	0	496	0
+15 to -15% CC (Little or No Change)			53,124	99	211,979	99	265,103	99
+16 to +40% CC			4	0	1	0	4	0
Non-Vegetation Change			5	0	22	0	27	0
Cloud or Cloud Shadow			538	1	1,893	1	2,431	1
Total			53,762	100	214,352	100	268,114	100
White Fir								
-71 to -100% CC	57	0			31	0	89	0
-41 to -70% CC	201	0			275	1	476	0
-16 to -40% CC	1,458	1	15	1	1,484	5	2,957	1
+15 to -15% CC (Little or No Change)	206,973	98	2,679	99	28,672	93	238,324	98
+16 to +40% CC	1,741	1	1	0	208	1	1,950	1
+41 to +100% CC	57	0					58	0
Non-Vegetation Change	161	0			2	0	163	0
Total	210,648	100	2,695	100	30,673	100	244,016	100
All Conifer	2,567,127		606,817		2,946,831		6,120,775	

Table P-8 Acres of Classified Change by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak/Foothill Pine								
-71 to -100% CC	0	0	1	0	29	0	30	0
-41 to -70% CC	92	1	137	0	178	0	407	0
-16 to -40% CC	403	3	504	2	694	0	1,601	1
+15 to -15% CC (Little or No Change)	14,289	97	30,391	98	268,755	100	313,435	99
+16 to +40% CC			3	0	51	0	54	0
+41 to +100% CC			1	0	56	0	57	0
Non-Vegetation Change	2	0	15	0	94	0	111	0
Total	14,786	100	31,053	100	269,858	100	315,697	100
Blue Oak Woodland								
-71 to -100% CC			1	0	27	0	28	0
-41 to -70% CC	20	0	13	0	73	0	106	0
-16 to -40% CC	69	1	64	0	349	0	482	0
+15 to -15% CC (Little or No Change)	7,158	99	26,003	99	597,987	100	631,148	100
+16 to +40% CC			2	0	79	0	81	0
+41 to +100% CC					17	0	17	0
Non-Vegetation Change			65	0	252	0	317	0
Cloud or Cloud Shadow			5	0	76	0	81	0
Total	7,248	100	26,153	100	598,860	100	632,260	100
Coastal Oak Woodland								
-71 to -100% CC			28	0	185	0	212	0
-41 to -70% CC			29	0	54	0	84	0
-16 to -40% CC			66	0	259	0	325	0
+15 to -15% CC (Little or No Change)			39,265	92	227,293	97	266,558	96
+16 to +40% CC			131	0	234	0	365	0
+41 to +100% CC			17	0	37	0	54	0
Non-Vegetation Change			32	0	182	0	214	0
Cloud or Cloud Shadow			3,136	7	6,152	3	9,288	3
Total			42,702	100	234,397	100	277,099	100
Eucalyptus								
-71 to -100% CC					1	0	1	0
+15 to -15% CC (Little or No Change)			260	67	9,903	93	10,162	92
+16 to +40% CC					5	0	5	0
+41 to +100% CC					1	0	1	0
Cloud or Cloud Shadow			127	33	756	7	882	8
Total			386	100	10,665	100	11,051	100
Montane Hardwood								
-71 to -100% CC	337	0	308	0	3,747	0	4,391	0
-41 to -70% CC	3,511	1	319	0	4,962	0	8,792	0
-16 to -40% CC	6,659	1	1,478	1	10,567	1	18,704	1
+15 to -15% CC (Little or No Change)	465,554	98	221,791	98	1,720,895	98	2,408,240	98
+16 to +40% CC	573	0	879	0	5,572	0	7,023	0
+41 to +100% CC	116	0	249	0	1,364	0	1,729	0
Non-Vegetation Change	426	0	116	0	568	0	1,110	0
Cloud or Cloud Shadow			1,940	1	13,945	1	15,885	1
Total	477,176	100	227,080	100	1,761,618	100	2,465,874	100
Montane Riparian								
-71 to -100% CC	12	0	55	0	301	0	368	0
-41 to -70% CC	1	0	14	0	169	0	184	0
-16 to -40% CC	11	0	45	0	397	1	453	0
+15 to -15% CC (Little or No Change)	12,023	98	18,518	92	57,642	89	88,183	91
+16 to +40% CC	100	1	88	0	1,726	3	1,914	2
+41 to +100% CC	49	0	22	0	460	1	531	1
Non-Vegetation Change	80	1	113	1	60	0	254	0
Cloud or Cloud Shadow			1,318	7	3,695	6	5,013	5
Total	12,276	100	20,174	100	64,451	100	96,901	100
Valley Oak Woodland								
-41 to -70% CC			1	0	4	0	5	0
-16 to -40% CC			16	0	14	0	29	0
+15 to -15% CC (Little or No Change)			3,404	100	35,919	100	39,324	100
+16 to +40% CC					37	0	37	0
+41 to +100% CC					10	0	10	0
Non-Vegetation Change					28	0	28	0
Total			3,421	100	36,011	100	39,432	100

Table P-8 Acres of Classified Change by Hardwood Cover Type and Owner Class (cont.)

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Valley Foothill Riparian								
+15 to -15% CC (Little or No Change)			234	80	483	78	716	79
+16 to +40% CC			1	0			1	0
+41 to +100% CC			1	0			1	0
Cloud or Cloud Shadow			56	19	138	22	194	21
Total			291	100	621	100	912	100
All Hardwood	511,486		351,260		2,976,482		3,839,228	

Table P-9 Acres of Classified Change by Shrub/Chaparral Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Bitterbrush								
+15 to -15 % CC (Little or No Change)	33	100					33	100
Total	33	100					33	100
Chamise-Redshank Chaparral								
Shrub/Grass Decrease > 15 %	24	0	20	0	245	0	289	0
+15 to -15 % CC (Little or No Change)	47,979	100	86,248	100	146,748	100	280,975	100
Shrub/Grass Increase > 15 %	34	0	62	0	332	0	428	0
Non-Vegetation Change	2	0	31	0	27	0	60	0
Cloud or Cloud Shadow					32	0	32	0
Total	48,039	100	86,361	100	147,385	100	281,784	100
Coastal Scrub								
Shrub/Grass Decrease > 15 %			23	0	201	0	224	0
+15 to -15 % CC (Little or No Change)	576	99	13,608	37	50,003	65	64,186	56
Shrub/Grass Increase > 15 %	6	1	1,061	3	8,041	11	9,108	8
Non-Vegetation Change			139	0	177	0	316	0
Cloud or Cloud Shadow			21,896	60	18,140	24	40,036	35
Total	582	100	36,727	100	76,561	100	113,870	100
Desert Scrub								
Cloud or Cloud Shadow					3	100	3	100
Total					3	100	3	100
Low Sagebrush								
Shrub/Grass Decrease > 15 %	5	8					5	8
+15 to -15 % CC (Little or No Change)	54	93					54	93
Total	58	100					58	100
Mixed Chaparral								
Shrub/Grass Decrease > 15 %	669	0	164	0	1,838	0	2,670	0
+15 to -15 % CC (Little or No Change)	190,282	99	186,302	100	454,408	99	830,992	99
Shrub/Grass Increase > 15 %	761	0	346	0	1,981	0	3,088	0
Non-Vegetation Change	304	0	20	0	185	0	509	0
Cloud or Cloud Shadow					541	0	541	0
Total	192,016	100	186,832	100	458,952	100	837,800	100
Montane Chaparral								
Shrub/Grass Decrease > 15 %	755	0	135	2	655	1	1,545	1
+15 to -15 % CC (Little or No Change)	188,205	96	8,355	96	91,682	95	288,242	96
Shrub/Grass Increase > 15 %	4,648	2	238	3	4,165	4	9,051	3
Non-Vegetation Change	1,762	1	9	0	83	0	1,854	1
Cloud or Cloud Shadow	2	0					2	0
Total	195,371	100	8,738	100	96,585	100	300,694	100
Sagebrush								
+15 to -15 % CC (Little or No Change)	652	99			135	100	787	99
Shrub/Grass Increase > 15 %	3	0					3	0
Non-Vegetation Change	2	0					2	0
Total	657	100			135	100	792	100

Table P-9 Acres of Classified Change by Shrub/Chaparral Type and Owner Class (cont.)

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Unknown Shrub/Chaparral								
Shrub/Grass Decrease > 15 %			135	1	87	0	222	0
+15 to -15 % CC (Little or No Change)			19,137	85	101,557	98	120,693	95
Shrub/Grass Increase > 15 %			89	0	236	0	324	0
Non-Vegetation Change			13	0	94	0	107	0
Cloud or Cloud Shadow			3,267	14	2,023	2	5,290	4
Total			22,641	100	103,996	100	126,637	100
All Shrub/Chaparral	436,756		341,298		883,617		1,661,671	

Table P-10 Acres of Verified Change in all Conifer Cover Types by Cause and Owner Class

	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Forest Service								
-71 to -100% CC	1,505	92			78		89	1,763
-41 to -70% CC	6,037	487			478		682	7,686
-16 to -40% CC	16,894	3,304	3		864		4,726	25,791
+16 to +40% CC				20,629	7		2,170	22,805
+41 to +100% CC				1,126			73	1,199
Total	24,436	3,884	3	21,754	1,427		7,740	59,244
Other Public								
-71 to -100% CC	2	383	3		3		122	512
-41 to -70% CC	176	1,086	6		14		413	1,695
-16 to -40% CC	1,815	2,262	2		23		1,830	5,932
+16 to +40% CC				1,260		1	649	1,910
+41 to +100% CC				433		3	96	532
Total	1,993	3,731	10	1,694	39	4	3,110	10,581
Private								
-71 to -100% CC	1,094	6,806	6		220		4,221	12,347
-41 to -70% CC	1,938	16,148	12		499		13,105	31,703
-16 to -40% CC	3,340	32,524	73		775	2	20,169	56,884
+16 to +40% CC				14,174	36	45	12,546	26,801
+41 to +100% CC				4,718		5	3,219	7,942
Total	6,371	55,478	92	18,892	1,530	52	53,260	135,676
All Owners	32,800	63,093	106	42,340	2,996	56	64,110	205,502

Table P-11 Acres of Verified Change in all Hardwood Cover Types by Cause and Owner Class

	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Forest Service								
-71 to -100% CC	295	6			5		43	349
-41 to -70% CC	3,539	30			8		47	3,624
-16 to -40% CC	6,761	82			35		265	7,143
+16 to +40% CC				397	0		276	673
+41 to +100% CC				82	1		82	165
Total	10,595	118		479	50		713	11,955
Other Public								
-71 to -100% CC	8	230			4		151	392
-41 to -70% CC	224	186			2		101	514
-16 to -40% CC	1,068	528			20		556	2,172
+16 to +40% CC				706		1	397	1,104
+41 to +100% CC				230			59	290
Total	1,301	944		937	26	1	1,264	4,473
Private								
-71 to -100% CC	428	2,043	30		545		1,243	4,289
-41 to -70% CC	1,470	1,622	68		756		1,524	5,441
-16 to -40% CC	2,161	4,011	165		819	4	5,120	12,280
+16 to +40% CC				4,698	10	22	2,974	7,704
+41 to +100% CC				1,328	5	1	611	1,945
Total	4,059	7,676	262	6,026	2,135	27	11,472	31,658
All Owners	15,954	8,738	263	7,442	2,211	28	13,449	48,086

Table P-12 Acres of Verified Change in all Shrub/Chaparral Cover Types by Cause and Owner Class

	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Forest Service								
Shrub/Grass Decrease > 15%	836	39			13		564	1,452
Shrub/Grass Increase > 15%				3,255		4	2,192	5,451
Total	836	39		3,255	13	4	2,756	6,903
Other Public								
Shrub/Grass Decrease > 15%	14	42					422	478
Shrub/Grass Increase > 15%				1,027		12	757	1,796
Total	14	42		1,027		12	1,179	2,274
Private								
Shrub/Grass Decrease > 15%	898	287	29		335		1,477	3,026
Shrub/Grass Increase > 15%				10,060	9	10	4,675	14,755
Total	898	287	29	10,060	345	10	6,152	17,780
All Owners	1,748	368	29	14,343	357	26	10,087	26,957

County Maps and Tables

For each county (if relevant), the following will be present:

1. Change map.
2. Table of change by ownership and lifeform.
3. Table of change by hardwood type.
4. Table of change by conifer type.
5. Table of change by shrub/chaparral type.
6. Table of hardwood change by cause.
7. Table of conifer change by cause.
8. Table of shrub/chaparral change by cause.

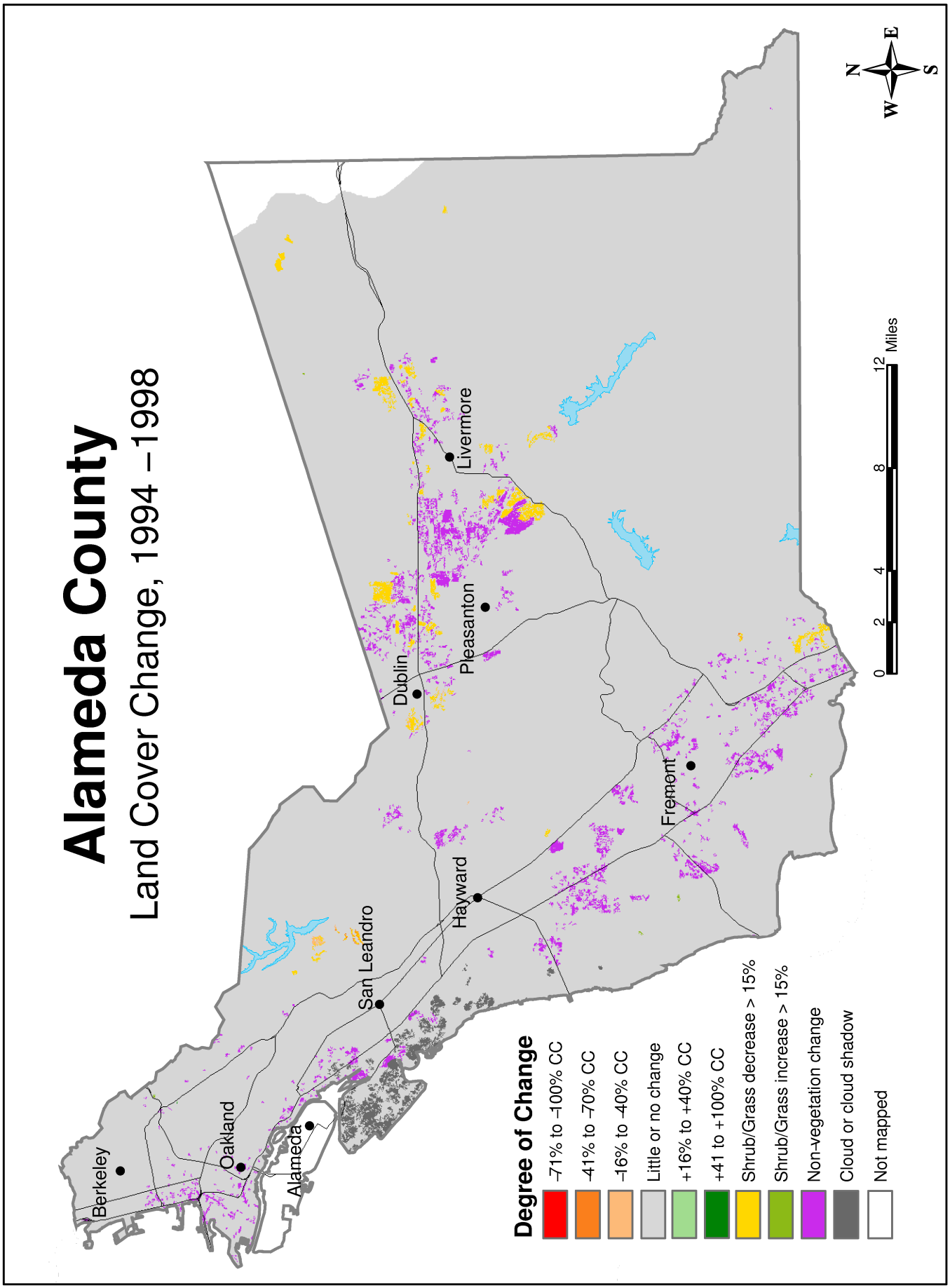

Alameda County
Land Cover Change, 1994 –1998
Berkeley
Oakland
Alameda
San Leandro
Hayward
Dublin
Pleasanton
Livermore
Fremont
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
0 2 4 8 12 Miles
N
E
S
W

Table C-1 Acres of Classified Change in Alameda County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC	3	0	21	1					11	0	36	0
-16 to -40% CC	38	2	25	1					1	0	64	0
+15 to -15% CC (Little or No Change)	1,584	97	3,123	99	2,861	96	1,700	93	21,499	98	30,767	98
+16 to +40% CC												
+41 to +100% CC												
Shrub/Grass Decrease > 15%					14	0	99	5	29	0	142	0
Shrub/Grass Increase > 15%							16	1	1	0	17	0
Non-Vegetation Change	8	1			109	4	11	1	297	1	426	1
Cloud or Cloud Shadow					8	0			49	0	57	0
Total	1,634	100	3,170	100	2,992	100	1,826	100	21,887	100	31,509	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC									7	0	7	0
-16 to -40% CC			43	0							43	0
+15 to -15% CC (Little or No Change)	4,745	100	61,840	100	110,140	96	10,200	99	230,117	96	417,042	97
+16 to +40% CC									4	0	4	0
+41 to +100% CC									4	0	4	0
Shrub/Grass Decrease > 15%					1,355	1	24	0	1,123	0	2,501	1
Shrub/Grass Increase > 15%							12	0			12	0
Non-Vegetation Change	5	0	65	0	2,783	2	21	0	6,198	3	9,072	2
Cloud or Cloud Shadow	1	0			481	0	11	0	2,629	1	3,123	1
Total	4,752	100	61,948	100	114,759	100	10,268	100	240,081	100	431,808	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC	3	0	21	0					18	0	42	0
-16 to -40% CC	39	1	67	0					1	0	107	0
+15 to -15% CC (Little or No Change)	6,329	99	64,963	100	113,000	96	11,901	98	251,616	96	447,809	97
+16 to +40% CC									4	0	4	0
+41 to +100% CC									4	0	4	0
Shrub/Grass Decrease > 15%					1,369	1	123	1	1,152	0	2,644	1
Shrub/Grass Increase > 15%							28	0	1	0	29	0
Non-Vegetation Change	13	0	65	0	2,893	2	32	0	6,495	2	9,498	2
Cloud or Cloud Shadow	1	0			489	0	11	0	2,678	1	3,179	1
Total	6,385	100	65,117	100	117,751	100	12,094	100	261,968	100	463,317	100

Table C-2 Acres of Verified Change in Alameda County by Cause and Lifeform

	Fire	Development	Other	Unknown Cause	All Causes
Conifer					
-41 to -70% CC				3	3
-16 to -40% CC				39	39
Total				42	42
Hardwood					
-41 to -70% CC				21	21
-16 to -40% CC		35	1	32	67
Total		35	1	53	88
Shrub/Chaparral					
Shrub/Grass Decrease > 15%		2	2	120	123
Shrub/Grass Increase > 15%				28	28
Total		2	2	148	151
Grass/Forb					
Shrub/Grass Decrease > 15%	12	1,218	44	95	1,369
Total	12	1,218	44	95	1,369
Non-Forested Other					
-41 to -70% CC				18	18
-16 to -40% CC				1	1
+16 to +40% CC				4	4
+41 to +100% CC				4	4
Shrub/Grass Decrease > 15%	6	1,063	14	69	1,152
Shrub/Grass Increase > 15%				1	1
Total	6	1,063	14	96	1,180
All Lifeforms	18	2,317	60	434	2,830

Table C-3 Acres of Classified Change in Alameda County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Redwood						
+15 to -15% CC (Little or No Change)	913	56	390	8	1,303	20
Non-Vegetation Change	3	0			3	0
Total	916	56	390	8	1,306	20
Unknown Conifer						
-41 to -70% CC	3	0			3	0
-16 to -40% CC	38	2			39	1
+15 to -15% CC (Little or No Change)	671	41	4,355	92	5,026	79
Non-Vegetation Change	5	0	5	0	10	0
Cloud or Cloud Shadow			1	0	1	0
Total	718	44	4,362	92	5,080	80
All Conifer	1,634	100	4,752	100	6,385	100

Table C-4 Acres of Classified Change in Alameda County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
-16 to -40% CC			1	0	1	0
+15 to -15% CC (Little or No Change)	399	100	16,309	100	16,708	100
Total	399	100	16,309	100	16,708	100
Blue Oak Woodland						
-16 to -40% CC			1	1	1	1
+15 to -15% CC (Little or No Change)			122	99	122	99
Total			123	100	123	100
Coastal Oak Woodland						
-41 to -70% CC	21	2			21	0
-16 to -40% CC	23	3	40	0	63	0
+15 to -15% CC (Little or No Change)	874	95	28,622	100	29,497	100
Non-Vegetation Change			62	0	62	0
Total	919	100	28,723	100	29,642	100
Montane Hardwood						
-16 to -40% CC	1	0	2	0	3	0
+15 to -15% CC (Little or No Change)	1,850	100	16,279	100	18,128	100
Non-Vegetation Change			3	0	3	0
Total	1,852	100	16,284	100	18,135	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)			508	100	508	100
Total			508	100	508	100
All Hardwood	3,170		61,948		65,117	

Table C-5 Acres of Classified Change in Alameda County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
+15 to -15% CC (Little or No Change)	15	100	756	100	771	100
Total	15	100	756	100	771	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)	417	100	1,545	100	1,963	100
Non-Vegetation Change			2	0	2	0
Total	418	100	1,548	100	1,965	100
Mixed Chaparral						
+15 to -15% CC (Little or No Change)			744	100	744	100
Total			744	100	744	100
Unknown Chaparral						
+15 to -15% CC (Little or No Change)	1,268	91	7,155	99	8,423	98
Shrub/Grass Decrease > 15%	99	7	24	0	122	1
Shrub/Grass Increase > 15%	16	1	12	0	28	0
Non-Vegetation Change	11	1	19	0	30	0
Cloud or Cloud Shadow			11	0	11	0
Total	1,393	100	7,221	100	8,614	100
All Shrub/Chaparral	1,826		10,268		12,094	

Table C-6 Acres of Verified Change in Alameda County by Cause and Conifer Cover Type

	Unknown Cause	All Causes
Unknown Conifer		
-16 to -40% CC	39	39
-41 to -70% CC	3	3
Total	42	42
All Conifer	42	42

Table C-7 Acres of Verified Change in Alameda County by Cause and Hardwood Cover Type

	Development	Other	Unknown Cause	All Causes
Blue Oak Woodland				
-16 to -40% CC		1		1
Total		1		1
Coastal Oak Woodland				
-41 to -70% CC			21	21
-16 to -40% CC	33		30	63
Total	33		51	84
Montane Hardwood				
-16 to -40% CC	2		1	3
Total	2		2	4
All Hardwood	35	1	53	88

Table C-8 Acres of Verified Change in Alameda County by Cause and Shrub/Chaparral Cover Type

	Development	Other	Unknown Cause	All Causes
Unknown Shrub/Chaparral				
Shrub/Grass Decrease > 15%	2	2	119	122
Shrub/Grass Increase > 15%			28	28
Total	2	2	147	150
All Shrub/Chaparral	2	2	148	151

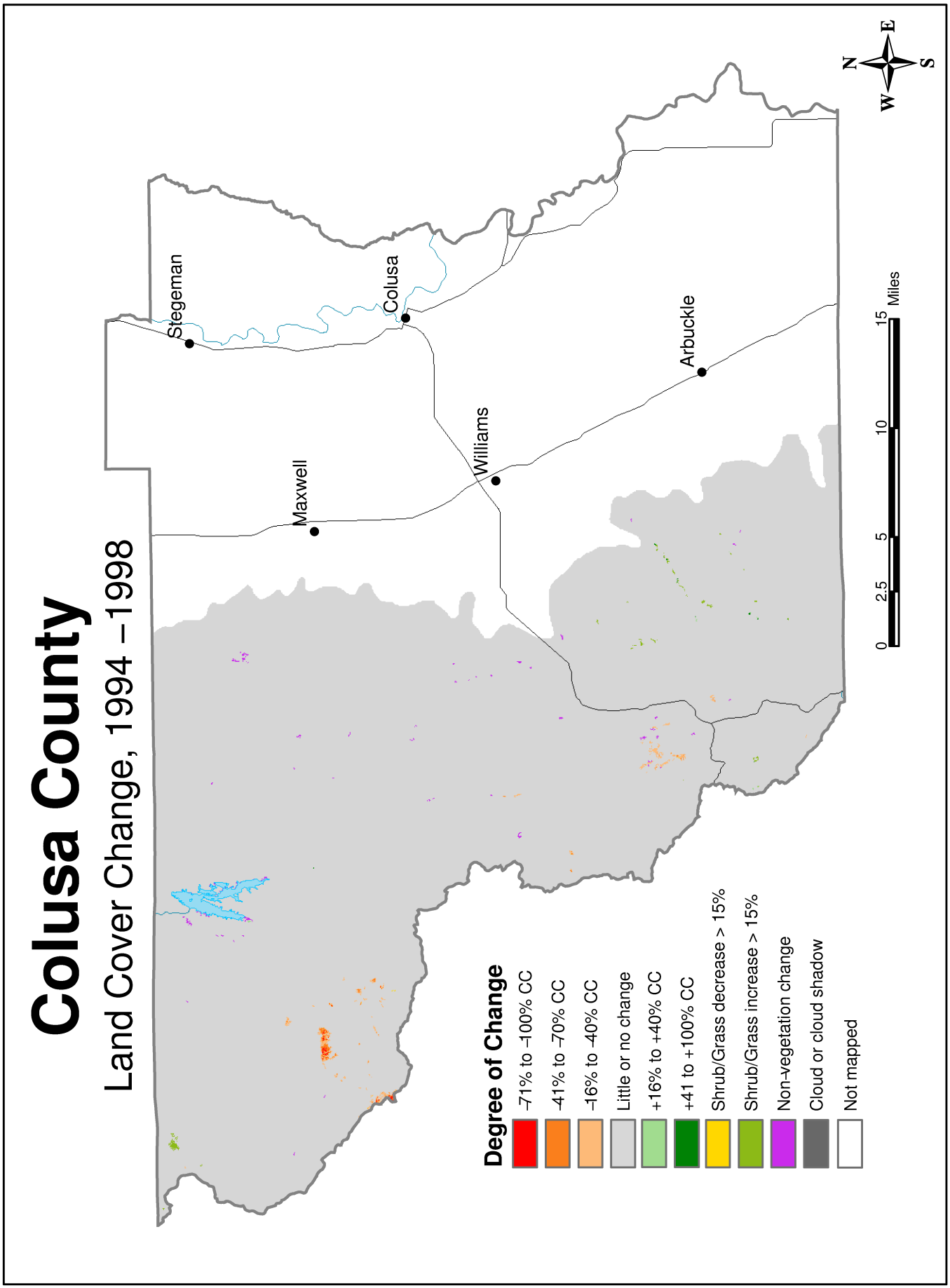

Colusa County
Land Cover Change, 1994 –1998
Stegeman
Colusa
Arbuckle
Maxwell
Williams
N
E
S
W
0
2.5
5
10
15
Miles
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped

Table C-9 Acres of Classified Change in Colusa County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	77	0	1	0							78	0
-41 to -70% CC	242	1	12	0							254	0
-16 to -40% CC	428	2	38	0							466	1
+15 to -15% CC (Little or No Change)	26,355	97	9,752	99	1,161	99	29,677	100	177	100	67,122	99
+16 to +40% CC												
+41 to +100% CC												
Shrub/Grass Decrease > 15%							18	0			18	0
Shrub/Grass Increase > 15%							89	0			90	0
Non-Vegetation Change					6	1					6	0
Total	27,103	100	9,804	100	1,168	100	29,784	100	177	100	68,035	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	1,301	100	3,059	100	675	100	27,576	100	69	100	32,679	100
+16 to +40% CC												
+41 to +100% CC												
Shrub/Grass Decrease > 15%												
Shrub/Grass Increase > 15%												
Non-Vegetation Change			1	0							1	0
Total	1,301	100	3,059	100	675	100	27,576	100	69	100	32,680	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	1	0									1	0
-41 to -70% CC	10	0	20	0							30	0
-16 to -40% CC	57	1	269	0							326	0
+15 to -15% CC (Little or No Change)	6,809	99	105,851	100	94,117	100	38,912	100	29,202	100	274,892	100
+16 to +40% CC			29	0							29	0
+41 to +100% CC			14	0							14	0
Shrub/Grass Decrease > 15%					1	0	1	0			2	0
Shrub/Grass Increase > 15%					139	0	1	0			140	0
Non-Vegetation Change	8	0	79	0	210	0			114	0	410	0
Total	6,884	100	106,261	100	94,467	100	38,914	100	29,316	100	275,843	100

Table C-9 Acres of Classified Change in Colusa County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	78	0	1	0							79	0
-41 to -70% CC	252	1	32	0							284	0
-16 to -40% CC	484	1	308	0							792	0
+15 to -15% CC (Little or No Change)	34,465	98	118,662	100	95,953	100	96,165	100	29,449	100	374,693	100
+16 to +40% CC			29	0							29	0
+41 to +100% CC			14	0							14	0
Shrub/Grass Decrease > 15%					1	0	19	0			20	0
Shrub/Grass Increase > 15%					140	0	90	0			230	0
Non-Vegetation Change	8	0	79	0	216	0			114	0	417	0
Total	35,287	100	119,124	100	96,310	100	96,274	100	29,563	100	376,558	100

Table C-10 Acres of Verified Change in Colusa County by Cause and Lifeform

	Fire	Regrowth	Unknown Cause	All Causes
Conifer				
-71 to -100% CC	33		46	78
-41 to -70% CC	44		207	252
-16 to -40% CC	121		364	484
Total	198		617	814
Hardwood				
-71 to -100% CC	1			1
-41 to -70% CC	10		22	32
-16 to -40% CC	28		280	308
+16 to +40% CC			29	29
+41 to +100% CC			14	14
Total	39		344	383
Shrub/Chaparral				
Shrub/Grass Decrease > 15%	12		7	19
Shrub/Grass Increase > 15%		90		90
Total	12	90	7	109
Grass/Forb				
Shrub/Grass Decrease > 15%			1	1
Shrub/Grass Increase > 15%			139	140
Total			141	141
All Lifeforms	249	91	1,108	1,447

Table C-11 Acres of Classified Change in Colusa County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress								
-71 to -100% CC	45	1					45	1
-41 to -70% CC	195	3			5	1	200	3
-16 to -40% CC	279	4			16	4	295	4
+15 to -15% CC (Little or No Change)	5,797	92	617	100	339	94	6,752	93
Total	6,316	100	617	100	360	100	7,293	100
Douglas Fir								
-71 to -100% CC	7	0					8	0
-41 to -70% CC	11	0			1	0	12	0
-16 to -40% CC	43	1			10	2	53	1
+15 to -15% CC (Little or No Change)	7,329	99			563	98	7,892	99
Total	7,391	100			574	100	7,964	100
Klamath Mixed Conifer								
-71 to -100% CC	25	1					25	1
-41 to -70% CC	27	1			1	7	28	1
-16 to -40% CC	71	2			6	43	77	2
+15 to -15% CC (Little or No Change)	3,575	97			6	47	3,581	96
Total	3,698	100			13	100	3,711	100
Montane hardwood-conifer								
-41 to -70% CC	6	0			2	0	8	0
-16 to -40% CC	22	0			20	0	42	0
+15 to -15% CC (Little or No Change)	4,427	99	684	100	5,661	99	10,772	99
Non-Vegetation Change					8	0	8	0
Total	4,456	100	684	100	5,691	100	10,831	100
Ponderosa Pine								
-41 to -70% CC	2	0			1	1	3	0
-16 to -40% CC	10	0			4	4	14	0
+15 to -15% CC (Little or No Change)	4,145	100			108	95	4,253	100
Total	4,156	100			114	100	4,270	100
Red Fir								
+15 to -15% CC (Little or No Change)	239	100			98	100	336	100
Total	239	100			98	100	336	100
White Fir								
-16 to -40% CC	3	0					3	0
+15 to -15% CC (Little or No Change)	844	100			35	100	878	100
Total	847	100			35	100	882	100
All Conifer	27,103		1,301		6,884		35,287	

Table C-12 Acres of Classified Change in Colusa County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine								
-41 to -70% CC					1	0	1	0
-16 to -40% CC	4	0			25	0	29	0
+15 to -15% CC (Little or No Change)	1,245	100	570	100	9,237	100	11,052	100
+16 to +40% CC					4	0	4	0
Non-Vegetation Change					11	0	11	0
Total	1,249	100	570	100	9,277	100	11,096	100
Blue Oak Woodland								
-41 to -70% CC					3	0	3	0
-16 to -40% CC					36	0	36	0
+15 to -15% CC (Little or No Change)	529	100	1,673	100	74,605	100	76,808	100
+16 to +40% CC					14	0	14	0
+41 to +100% CC					5	0	5	0
Non-Vegetation Change					45	0	45	0
Total	529	100	1,673	100	74,708	100	76,911	100
Montane Hardwood								
-71 to -100% CC	1	0				0	1	0
-41 to -70% CC	12	0			16	0	28	0
-16 to -40% CC	35	0			208	1	243	1
+15 to -15% CC (Little or No Change)	7,978	99	815	100	20,657	99	29,450	99
+16 to +40% CC					2	0	2	0
Non-Vegetation Change					17	0	18	0
Total	8,026	100	815	100	20,901	100	29,742	100
Montane Riparian								
+15 to -15% CC (Little or No Change)					49	94	49	94
Non-Vegetation Change					3	6	3	6
Total					52	100	52	100
Valley Oak Woodland								
+15 to -15% CC (Little or No Change)					1,303	98	1,303	98
+16 to +40% CC					9	1	9	1
+41 to +100% CC					8	1	8	1
Non-Vegetation Change					3	0	3	0
Total					1,323	100	1,323	100
All Hardwood	9,804		3,059		106,261		119,124	

Table C-13 Acres of Classified Change in Colusa County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral								
+15 to -15% CC (Little or No Change)	6,297	100	9,569	100	19,438	100	35,304	100
Total	6,297	100	9,569	100	19,438	100	35,304	100
Mixed Chaparral								
+15 to -15% CC (Little or No Change)	16,677	100	17,890	100	19,207	100	53,774	100
Shrub/Grass Decrease > 15%	2	0			1	0	3	0
Shrub/Grass Increase > 15%	2	0					2	0
Total	16,681	100	17,890	100	19,208	100	53,779	100
Montane Chaparral								
+15 to -15% CC (Little or No Change)	6,703	98	117	100	267	100	7,087	99
Shrub/Grass Decrease > 15%	16	0					16	0
Shrub/Grass Increase > 15%	88	1			1	0	89	1
Total	6,806	100	117	100	268	100	7,191	100
All Shrub/Chaparral	29,784		27,576		38,914		96,274	

Table C-14 Acres of Verified Change in Colusa County by Cause and Conifer Cover Type

	Fire	Unknown Cause	All Causes
Closed Cone Pine-Cypress			
-71 to -100% CC		45	45
-41 to -70% CC	4	197	200
-16 to -40% CC	1	294	295
Total	5	536	541
Douglas Fir			
-71 to -100% CC	7		8
-41 to -70% CC	9	3	12
-16 to -40% CC	36	17	53
Total	52	20	73
Klamath Mixed Conifer			
-71 to -100% CC	25		25
-41 to -70% CC	28		28
-16 to -40% CC	76	1	77
Total	129	1	130
Montane hardwood-conifer			
-41 to -70% CC	2	6	8
-16 to -40% CC	7	35	42
Total	9	41	51
Ponderosa Pine			
-41 to -70% CC	1	2	3
-16 to -40% CC	1	13	14
Total	2	15	17
White Fir			
-16 to -40% CC	1	3	3
Total	1	3	4
All Conifer	198	617	814

Table C-15 Acres of Verified Change in Colusa County by Cause and Hardwood Cover Type

	Fire	Unknown Cause	All Causes
Blue Oak Foothill Pine			
-41 to -70% CC		1	1
-16 to -40% CC		29	29
+16 to +40% CC		4	4
Total		33	33
Blue Oak Woodland			
-41 to -70% CC		3	3
-16 to -40% CC		36	36
+16 to +40% CC		14	14
+41 to +100% CC		5	5
Total		59	59
Montane Hardwood			
-71 to -100% CC	1		1
-41 to -70% CC	10	18	28
-16 to -40% CC	28	215	243
+16 to +40% CC		2	2
Total	39	234	274
Valley Oak Woodland			
+16 to +40% CC		9	9
+41 to +100% CC		8	8
Total		18	18
All Hardwood	39	344	383

Table C-16 Acres of Verified Change in Colusa County by Cause and Shrub/Chaparral Cover Type

	Fire	Regrowth	Unknown Cause	All Causes
Mixed Chaparral				
Shrub/Grass Decrease > 15%	1		2	3
Shrub/Grass Increase > 15%		2		2
Total	1	2	2	4
Montane Chaparral				
Shrub/Grass Decrease > 15%	12		4	16
Shrub/Grass Increase > 15%		89		89
Total	12	89	4	104
All Shrub/Chaparral	12	90	7	109

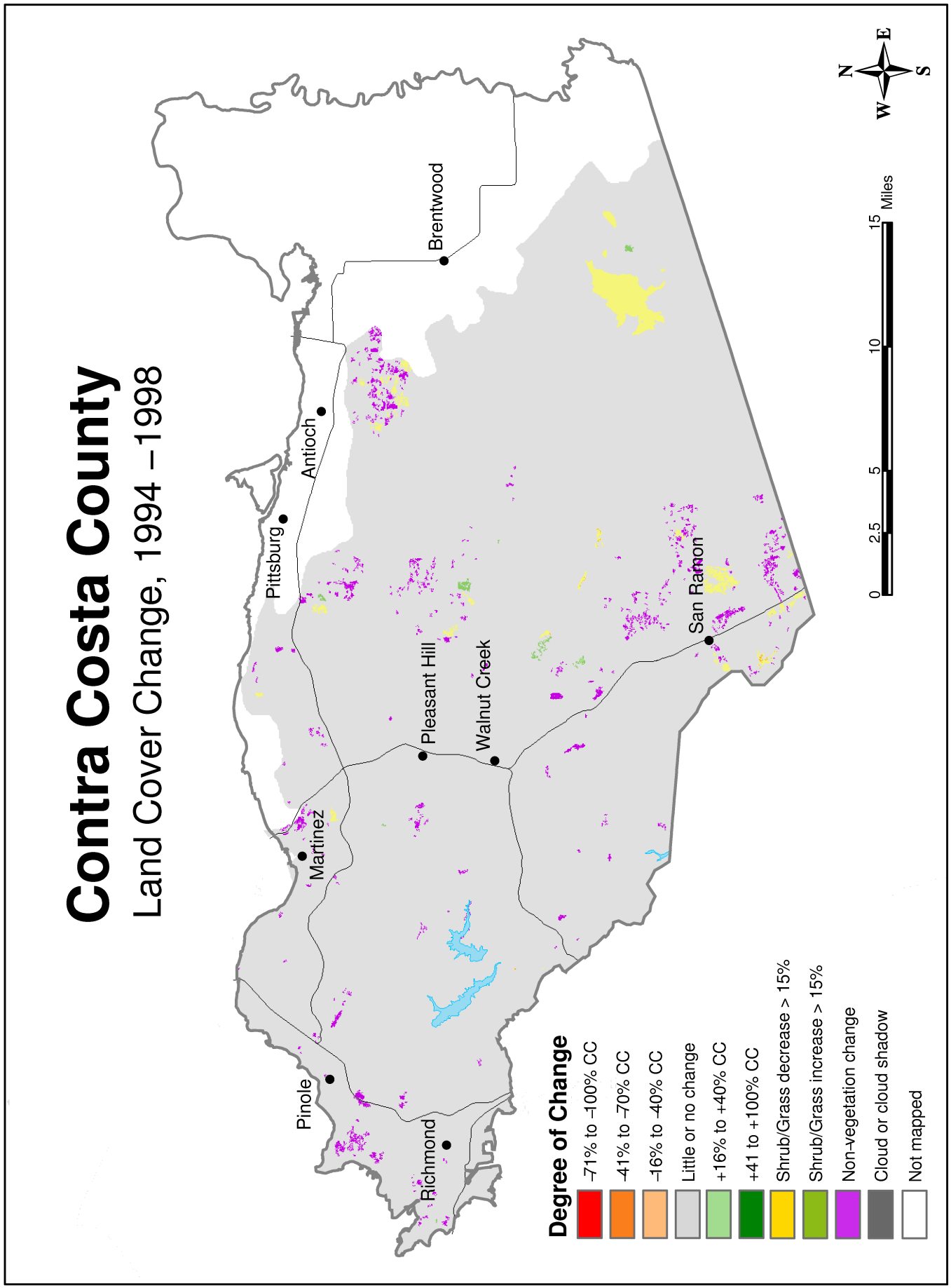

Contra Costa County
Land Cover Change, 1994 –1998
Brentwood
Antioch
Pittsburg
Pleasant Hill
Walnut Creek
San Ramon
Martinez
Pinole
Richmond
N
E
S
W
0
2.5
5
10
15
Miles
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped

Table C-17 Acres of Classified Change in Contra Costa County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-16 to -40% CC			10	0							10	0
+15 to -15% CC (Little or No Change)	1,070	100	6,189	100	13,333	98	5,461	98	14,851	98	40,903	99
+16 to +40% CC												
Shrub/Grass Decrease > 15%					88	1	36	1	111	1	235	1
Shrub/Grass Increase > 15%					66	0	56	1	29	0	150	0
Non-Vegetation Change	1	0	3	0	56	0			93	1	154	0
Total	1,071	100	6,202	100	13,543	100	5,553	100	15,083	100	41,451	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-16 to -40% CC			25	0							25	0
+15 to -15% CC (Little or No Change)	1,834	100	28,358	100	100,419	96	8,142	99	172,108	98	310,861	97
+16 to +40% CC			5	0							5	0
Shrub/Grass Decrease > 15%					2,777	3	12	0	1,345	1	4,134	1
Shrub/Grass Increase > 15%					60	0	50	1	28	0	138	0
Non-Vegetation Change	3	0	59	0	1,439	1	9	0	2,393	1	3,902	1
Total	1,837	100	28,446	100	104,695	100	8,213	100	175,875	100	319,066	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-16 to -40% CC			34	0							34	0
+15 to -15% CC (Little or No Change)	2,904	100	34,547	100	113,752	96	13,603	99	186,959	98	351,765	98
+16 to +40% CC			5	0							5	0
Shrub/Grass Decrease > 15%					2,865	2	48	0	1,456	1	4,369	1
Shrub/Grass Increase > 15%					125	0	106	1	57	0	288	0
Non-Vegetation Change	4	0	62	0	1,496	1	9	0	2,486	1	4,056	1
Total	2,908	100	34,648	100	118,238	100	13,766	100	190,958	100	360,518	100

Table C-18 Acres of Verified Change in Contra Costa County by Cause and Lifeform

	Fire	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Hardwood							
-16 to -40% CC		20				14	34
+16 to +40% CC						5	5
Total		20				20	39
Shrub/Chaparral							
Shrub/Grass Decrease > 15%		7				41	48
Shrub/Grass Increase > 15%						106	106
Total		7				147	154
Grass/Forb							
Shrub/Grass Decrease > 15%	1,191	757		844	8	64	2,865
Shrub/Grass Increase > 15%			51			74	125
Total	1,191	757	51	844	8	139	2,990
Non-Forested Other							
Shrub/Grass Decrease > 15%	384	643		297	18	113	1,456
Shrub/Grass Increase > 15%			18			39	57
Total	384	643	18	297	18	152	1,514
All Lifeforms	1,576	1,427	70	1,141	26	457	4,697

Table C-19 Acres of Classified Change in Contra Costa County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Redwood						
+15 to -15% CC (Little or No Change)	373	100	356	100	729	100
Non-Vegetation Change	1	0			1	0
Total	374	100	356	100	729	100
Unknown Conifer						
+15 to -15% CC (Little or No Change)	697	100	1,478	100	2,175	100
Non-Vegetation Change			3	0	3	0
Total	697	100	1,482	100	2,179	100
All Conifer	1,071		1,837		2,908	

Table C-20 Acres of Classified Change in Contra Costa County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
-16 to -40% CC	1	0			1	0
+15 to -15% CC (Little or No Change)	568	100	103	100	671	100
Total	569	100	103	100	672	100
Blue Oak Woodland						
-16 to -40% CC	6	0	1	0	7	0
+15 to -15% CC (Little or No Change)	1,961	100	7,475	100	9,436	100
Non-Vegetation Change			7	0	7	0
Total	1,967	100	7,482	100	9,449	100
Coastal Oak Woodland						
-16 to -40% CC	2	0	24	0	26	0
+15 to -15% CC (Little or No Change)	3,302	100	19,014	100	22,316	100
+16 to +40% CC			5	0	5	0
Non-Vegetation Change	3	0	52	0	55	0
Total	3,307	100	19,095	100	22,402	100
Montane Hardwood						
+15 to -15% CC (Little or No Change)	329	100	1,637	100	1,966	100
Total	329	100	1,637	100	1,966	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)	29	100	128	100	157	100
Total	29	100	128	100	157	100
All Hardwood	6,202		28,446		34,648	

Table C-21 Acres of Classified Change in Contra Costa County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
+15 to -15% CC (Little or No Change)	685	100	524	100	1,209	100
Total	685	100	524	100	1,209	100
Coastal Scrub						
Shrub/Grass Decrease > 15%			3	1	3	0
+15 to -15% CC (Little or No Change)	751	100	643	99	1,394	100
Non-Vegetation Change			1	0	1	0
Total	751	100	647	100	1,397	100
Mixed Chaparral						
+15 to -15% CC (Little or No Change)	751	100			751	100
Total	751	100			751	100
Unknown Shrub/Chaparral						
Shrub/Grass Decrease > 15%	36	1	9	0	45	0
+15 to -15% CC (Little or No Change)	3,274	97	6,976	99	10,249	98
Shrub/Grass Increase > 15%	56	2	50	1	106	1
Non-Vegetation Change			8	0	8	0
Total	3,366	100	7,043	100	10,408	100
All Shrub/Chaparral	5,553		8,213		13,766	

Table C-22 Acres of Verified Change in Contra Costa County by Cause and Hardwood Cover Type

	Development	Unknown Cause	All Causes
Blue Oak Foothill Pine			
-16 to -40% CC		1	1
Total		2	2
Blue Oak Woodland			
-16 to -40% CC		7	7
Total		7	7
Coastal Oak Woodland			
-16 to -40% CC	20	6	26
+16 to +40% CC		5	5
Total	20	11	31
All Hardwood	20	20	39

Table C-23 Acres of Verified Change in Contra Costa County by Cause and Shrub/Chaparral Cover Type

	Development	Unknown Cause	All Causes
Coastal Scrub			
Shrub/Grass Decrease > 15%		3	3
Total		3	3
Undetermined Shrub/Chaparral			
Shrub/Grass Decrease > 15%	6	38	45
Shrub/Grass Increase > 15%		106	106
Total	6	144	151
All Shrub/Chaparral	7	147	154

Del Norte County

Land Cover Change, 1994 –1998

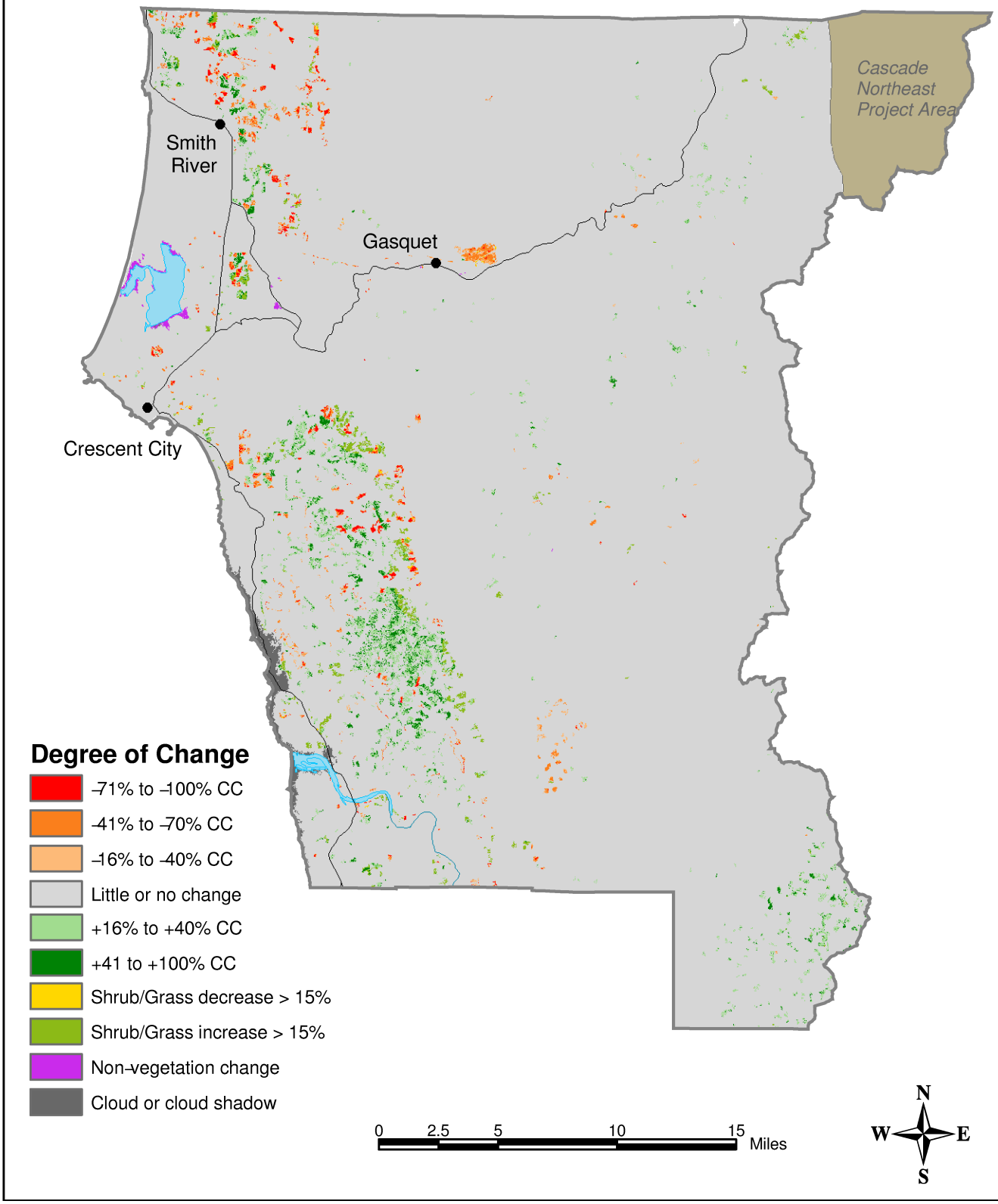


Table C-24 Acres of Classified Change in Del Norte County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	35	0	31	0							66	0
-41 to -70% CC	605	0	6	0							611	0
-16 to -40% CC	473	0	51	0							524	0
+15 to -15% CC (Little or No Change)	322,927	99	36,571	100	180	93	34,142	99	2,732	99	396,551	99
+16 to +40% CC	1,730	1	56	0					7	0	1,793	0
+41 to +100% CC	488	0	2	0							490	0
Shrub/Grass Decrease > 15%							27	0			27	0
Shrub/Grass Increase > 15%					13	7	179	1			192	0
Non-Vegetation Change									8	0	8	0
Cloud or Cloud Shadow												0
Total	326,259	100	36,715	100	193	100	34,348	100	2,747	100	400,262	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	6	0	40	0							45	0
-41 to -70% CC	46	0	20	0							67	0
-16 to -40% CC	41	0	56	0							97	0
+15 to -15% CC (Little or No Change)	24,705	96	10,526	94	1,069	73	2,041	81	4,977	88	43,318	93
+16 to +40% CC	48	0	98	1					8	0	154	0
+41 to +100% CC	54	0	23	0					1	0	78	0
Shrub/Grass Decrease > 15%					8	1	2	0			11	0
Shrub/Grass Increase > 15%					121	8	43	2	6	0	170	0
Non-Vegetation Change	10	0	66	1	67	5	129	5	60	1	332	1
Cloud or Cloud Shadow	816	3	389	3	196	13	298	12	607	11	2,305	5
Total	25,725	100	11,217	100	1,462	100	2,513	100	5,659	100	46,576	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	824	1	582	1					2	0	1,408	1
-41 to -70% CC	1,742	2	351	1					3	0	2,097	1
-16 to -40% CC	809	1	582	1					2	0	1,393	1
+15 to -15% CC (Little or No Change)	67,635	87	57,066	93	2,580	82	11,113	84	19,821	96	158,215	90
+16 to +40% CC	4,099	5	2,039	3					663	3	6,801	4
+41 to +100% CC	2,498	3	593	1					146	1	3,237	2
Shrub/Grass Decrease > 15%					12	0	115	1			127	0
Shrub/Grass Increase > 15%					507	16	1,746	13	1	0	2,253	1
Non-Vegetation Change	1	0	1	0	26	1	145	1	23	0	195	0
Cloud or Cloud Shadow	224	0	119	0	41	1	82	1	3	0	470	0
Total	77,833	100	61,333	100	3,165	100	13,200	100	20,665	100	176,195	100

Table C-24 Acres of Classified Change in Del Norte County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	864	0	653	1					2	0	1,519	0
-41 to -70% CC	2,394	1	377	0					3	0	2,774	0
-16 to -40% CC	1,323	0	688	1					2	0	2,014	0
+15 to -15% CC (Little or No Change)	415,267	97	104,163	95	3,829	79	47,296	94	27,530	95	598,085	96
+16 to +40% CC	5,877	1	2,193	2					679	2	8,748	1
+41 to +100% CC	3,040	1	617	1					147	1	3,804	1
Shrub/Grass Decrease > 15%					20	0	144	0			165	0
Shrub/Grass Increase > 15%					641	13	1,968	4	6	0	2,615	0
Non-Vegetation Change	11	0	67	0	93	2	274	1	91	0	535	0
Cloud or Cloud Shadow	1,040	0	508	0	237	5	380	1	611	2	2,775	0
Total	429,817	100	109,265	100	4,820	100	50,061	100	29,071	100	623,033	100

Table C-25 Acres of Verified Change in Del Norte County by Cause and Lifeform

	Fire	Harvest	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Conifer							
-71 to -100% CC	15	785		12		53	864
-41 to -70% CC	322	1,556		288		228	2,394
-16 to -40% CC	167	687		279		190	1,323
+16 to +40% CC			5,303		2	572	5,877
+41 to +100% CC			2,788		3	250	3,040
Total	505	3,027	8,091	579	5	1,292	13,499
Hardwood							
-71 to -100% CC		500		23		130	653
-41 to -70% CC		286		18		73	377
-16 to -40% CC		447		53		188	688
+16 to +40% CC			1,796		1	395	2,193
+41 to +100% CC			515		1	102	617
Total		1,232	2,311	95	2	888	4,528
Shrub/Chaparral							
Shrub/Grass Decrease > 15%	21	93		3		26	144
Shrub/Grass Increase > 15%			1,661		22	285	1,968
Total	21	93	1,661	3	22	311	2,112
Grass/Forb							
Shrub/Grass Decrease > 15%		7				13	20
Shrub/Grass Increase > 15%			364		67	210	641
Total		7	364		67	223	661
Non-Forested Other							
-71 to -100% CC		1				1	2
-41 to -70% CC		1				2	3
-16 to -40% CC		2				1	2
+16 to +40% CC			592		14	73	679
+41 to +100% CC			125		1	21	147
Shrub/Grass Decrease > 15%							0
Shrub/Grass Increase > 15%					1	5	6
Total		4	717		16	103	839
All Lifeforms	526	4,363	13,144	677	112	2,817	21,639

Table C-26 Acres of Classified Change in Del Norte County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Douglas Fir								
-71 to -100% CC	2	0	1	0	378	1	381	0
-41 to -70% CC	244	0	2	0	844	3	1,090	1
-16 to -40% CC	223	0	10	0	267	1	500	0
+15 to -15% CC (Little or No Change)	145,768	98	2,768	99	21,663	83	170,200	96
+16 to +40% CC	1,537	1	8	0	1,732	7	3,277	2
+41 to +100% CC	447	0	9	0	1,173	5	1,630	1
Cloud or Cloud Shadow					3	0	3	0
Total	148,222	100	2,798	100	26,061	100	177,081	100
Jeffrey Pine								
-71 to -100% CC					1	2	1	0
-41 to -70% CC	1	0			3	6	4	1
-16 to -40% CC	1	0			1	2	2	1
+15 to -15% CC (Little or No Change)	313	99	37	100	41	90	391	98
Total	316	100	37	100	46	100	399	100
Klamath Mixed Conifer								
-71 to -100% CC	18	0			1	0	19	0
-41 to -70% CC	336	0			3	0	339	0
-16 to -40% CC	192	0			7	0	199	0
+15 to -15% CC (Little or No Change)	88,936	99	499	100	5,884	100	95,320	99
+16 to +40% CC	11	0			4	0	16	0
Total	89,493	100	499	100	5,900	100	95,892	100
Montane hardwood-conifer								
-71 to -100% CC	13	0	1	0	281	1	295	0
-41 to -70% CC	18	0	3	0	195	1	216	0
-16 to -40% CC	56	0	13	1	250	1	319	0
+15 to -15% CC (Little or No Change)	67,327	100	1,714	94	22,476	93	91,517	98
+16 to +40% CC	85	0	6	0	563	2	653	1
+41 to +100% CC	10	0	7	0	246	1	263	0
Non-Vegetation Change			2	0			2	0
Cloud or Cloud Shadow			87	5	114	0	202	0
Total	67,509	100	1,833	100	24,125	100	93,467	100
Redwood								
-71 to -100% CC	1	0	4	0	163	1	168	0
-41 to -70% CC	4	1	42	0	698	3	743	2
-16 to -40% CC	1	0	18	0	284	1	303	1
+15 to -15% CC (Little or No Change)	513	98	19,687	96	17,569	81	37,769	88
+16 to +40% CC	5	1	35	0	1,800	8	1,839	4
+41 to +100% CC	1	0	37	0	1,079	5	1,117	3
Non-Vegetation Change			8	0			8	0
Cloud or Cloud Shadow			728	4	107	0	835	2
Total	523	100	20,559	100	21,700	100	42,783	100
Red Fir								
+15 to -15% CC (Little or No Change)	2,534	100					2,534	100
+16 to +40% CC	2	0					2	0
Total	2,537	100					2,537	100
Subalpine Conifer								
+15 to -15% CC (Little or No Change)	15	100					15	100
Total	15	100					15	100
White Fir								
-41 to -70% CC	2	0					2	0
+15 to -15% CC (Little or No Change)	17,520	99					17,521	99
+16 to +40% CC	90	1					90	1
+41 to +100% CC	31	0					31	0
Total	17,643	100					17,643	100
All Conifer	326,259	100	25,725	100	77,833	100	429,817	100

Table C-27 Acres of Classified Change in Del Norte County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Coastal Oak Woodland								
+15 to -15% CC (Little or No Change)			16	100			16	100
Total			16	100			16	100
Montane Hardwood								
-71 to -100% CC	23	0	10	0	523	1	557	1
-41 to -70% CC	6	0	14	0	305	1	325	0
-16 to -40% CC	45	0	33	1	485	1	563	1
+15 to -15% CC (Little or No Change)	32,209	100	4,785	97	42,185	93	79,179	96
+16 to +40% CC	50	0	44	1	1,515	3	1,610	2
+41 to +100% CC	2	0	6	0	391	1	398	0
Non-Vegetation Change		0	6	0			6	0
Cloud or Cloud Shadow		0	51	1	84	0	135	0
Total	32,334	100	4,949	100	45,489	100	82,772	100
Montane Riparian								
-71 to -100% CC	8	0	29	0	59	0	96	0
-41 to -70% CC			6	0	46	0	52	0
-16 to -40% CC	6	0	23	0	97	1	126	0
+15 to -15% CC (Little or No Change)	4,362	100	5,725	92	14,881	94	24,968	94
+16 to +40% CC	6	0	53	1	524	3	583	2
+41 to +100% CC			17	0	202	1	219	1
Non-Vegetation Change			60	1			60	0
Cloud or Cloud Shadow			337	5	35	0	373	1
Total	4,381	100	6,252	100	15,844	100	26,477	100
All Hardwood	36,715		11,217		61,333		109,265	

Table C-28 Acres of Verified Change in Del Norte County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Coastal Scrub								
Shrub/Grass Decrease > 15%		0	2	0	72	1	74	1
+15 to -15% CC (Little or No Change)	576	99	1,921	80	7,987	84	10,484	84
Shrub/Grass Increase > 15%	6	1	43	2	1,240	13	1,288	10
Non-Vegetation Change		0	129	5	145	2	274	2
Cloud or Cloud Shadow		0	298	12	82	1	380	3
Total	581	100	2,393	100	9,525	100	12,500	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	22	0			6	1	28	0
+15 to -15% CC (Little or No Change)	21,850	99	119	100	1,073	98	23,043	99
Shrub/Grass Increase > 15%	96	0			19	2	115	0
Total	21,968	100	119	100	1,098	100	23,185	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	5	0			37	1	42	0
+15 to -15% CC (Little or No Change)	11,715	99			2,053	80	13,768	96
Shrub/Grass Increase > 15%	78	1			487	19	565	4
Total	11,799	100			2,577	100	14,376	100
All Shrub/Chaparral	34,348		2,513		13,200		50,061	

Table C-29 Acres of Verified Change in Del Norte County by Cause and Conifer Cover Type

	Fire	Harvest	Other	Regrowth	Seasonal	Unknown Cause	All Causes
Douglas Fir							
-71 to -100% CC		372	3			6	381
-41 to -70% CC		805	243			42	1,090
-16 to -40% CC	1	254	208			37	500
+16 to +40% CC				3,002		274	3,277
+41 to +100% CC				1,553		77	1,630
Total	1	1,431	454	4,555		436	6,877
Jeffrey Pine							
-71 to -100% CC		1					1
-41 to -70% CC		4					4
-16 to -40% CC		2					2
Total		8					8
Klamath Mixed Conifer							
-71 to -100% CC	15	2				2	19
-41 to -70% CC	322	4	7			7	339
-16 to -40% CC	166	7	5			20	199
+16 to +40% CC				14		1	16
Total	503	12	12	14		30	573
Montane hardwood-conifer							
-71 to -100% CC		267	7			21	295
-41 to -70% CC		164	14			38	216
-16 to -40% CC		215	46			59	319
+16 to +40% CC				558	2	93	653
+41 to +100% CC				219	3	41	263
Total		646	66	777	5	252	1,746
Redwood							
-71 to -100% CC		143	1			23	168
-41 to -70% CC		579	25			140	743
-16 to -40% CC		208	20			74	303
+16 to +40% CC				1,645		195	1,839
+41 to +100% CC				989		128	1,117
Total		930	47	2,634		559	4,170
Red Fir							
+16 to +40% CC						2	2
Total						2	2
White Fir							
-41 to -70% CC						2	2
+16 to +40% CC				83		6	90
+41 to +100% CC				27		4	31
Total				110		12	123
All Conifer	505	3,027	579	8,091	5	1,292	13,499

Table C-30 Acres of Verified Change in Del Norte County by Cause and Hardwood Cover Type

	Harvest	Other	Regrowth	Seasonal	Unknown Cause	All Causes
Montane Hardwood						
-71 to -100% CC	465	22			69	557
-41 to -70% CC	255	17			53	325
-16 to -40% CC	403	45			115	563
+16 to +40% CC			1,454	1	154	1,610
+41 to +100% CC			367	1	31	398
Total	1,122	84	1,821	2	422	3,452
Montane Riparian						
-71 to -100% CC	35	1			61	96
-41 to -70% CC	31	1			20	52
-16 to -40% CC	44	8			73	126
+16 to +40% CC			342		241	583
+41 to +100% CC			148		71	219
Total	110	10	490		466	1,076
All Hardwoods	1,232	95	2,311	2	888	4,528

Table C-31 Acres of Verified Change in Del Norte County by Cause and Shrub/Chaparral Cover Type

	Fire	Harvest	Other	Regrowth	Seasonal	Unknown Cause	All Causes
Coastal Scrub							
Shrub/Grass Decrease > 15%		52				22	74
Shrub/Grass Increase > 15%				1,066	22	200	1,288
Total		52		1,066	22	222	1,362
Mixed Chaparral							
Shrub/Grass Decrease > 15%	21	4	1			1	28
Shrub/Grass Increase > 15%				111		3	115
Total	21	4	1	111		4	142
Montane Chaparral							
Shrub/Grass Decrease > 15%		37	2			3	42
Shrub/Grass Increase > 15%				483		82	565
Total		37	2	483		85	607
All Shrub/Chaparral	21	93	3	1,661	22	311	2,112

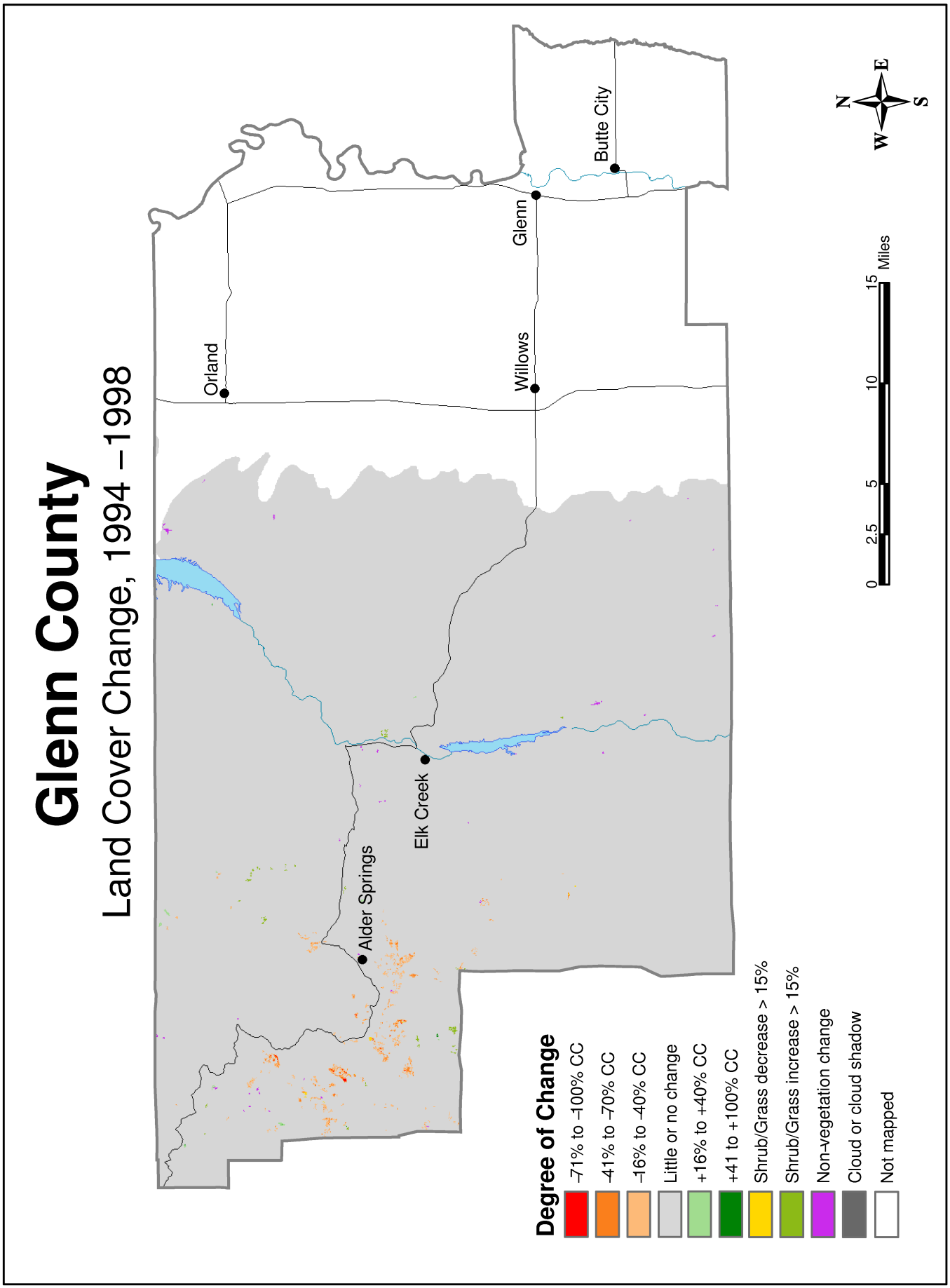

Glenn County
Land Cover Change, 1994 –1998
Orland
Willows
Glenn
Butte City
Alder Springs
Elk Creek
N
E
S
W
0
2.5
5
10
15
Miles
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped

Table C-32 Acres of Classified Change in Glenn County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	11	0									11	0
-41 to -70% CC	127	0	4	0							131	0
-16 to -40% CC	457	1	18	0							475	0
+15 to -15% CC (Little or No Change)	77,969	99	36,931	100	5,122	99	72,589	100	486	98	193,097	100
+16 to +40% CC	96	0									96	0
+41 to +100% CC	9	0									9	0
Shrub/Grass Decrease > 15%					17	0	7	0			24	0
Shrub/Grass Increase > 15%							116	0			116	0
Non-Vegetation Change	1	0	3	0	46	1			8	2	58	0
Cloud or Cloud Shadow												
Total	78,670	100	36,955	100	5,185	100	72,713	100	494	100	194,016	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												0
-41 to -70% CC												0
-16 to -40% CC												0
+15 to -15% CC (Little or No Change)	128	100	2,374	100	668	100	3,265	100	2,889	100	9,325	100
+16 to +40% CC			1	0							1	0
+41 to +100% CC												
Shrub/Grass Decrease > 15%												
Shrub/Grass Increase > 15%												
Non-Vegetation Change									3	0	3	0
Cloud or Cloud Shadow					1	0	1	0		0	2	0
Total	128	100	2,376	100	669	100	3,266	100	2,892	100	9,330	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	31	0		0							31	0
-41 to -70% CC	282	2	8	0							290	0
-16 to -40% CC	968	7	125	0							1,093	0
+15 to -15% CC (Little or No Change)	12,630	91	79,666	100	183,397	100	32,274	100	17,829	100	325,796	99
+16 to +40% CC			5	0							5	0
+41 to +100% CC			1	0							1	0
Shrub/Grass Decrease > 15%					4	0	19	0			22	0
Shrub/Grass Increase > 15%							97	0			97	0
Non-Vegetation Change			16	0	112	0	1	0	9	0	139	0
Cloud or Cloud Shadow									1	0	1	0
Total	13,911	100	79,822	100	183,513	100	32,390	100	17,838	100	327,475	100

Table C-32 Acres of Classified Change in Glenn County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non- Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	42	0									42	0
-41 to -70% CC	409	0	13	0							421	0
-16 to -40% CC	1,425	2	142	0							1,568	0
+15 to -15% CC (Little or No Change)	90,727	98	118,971	100	189,188	100	108,129	100	21,204	100	528,218	100
+16 to +40% CC	96	0	6	0							102	0
+41 to +100% CC	9	0	1	0							10	0
Shrub/Grass Decrease > 15%					21	0	25	0			46	0
Shrub/Grass Increase > 15%							213	0			213	0
Non-Vegetation Change	1	0	19	0	158	0	2	0	19	0	199	0
Cloud or Cloud Shadow					1	0	1	0	1	0	2	0
Total	92,709	100	119,153	100	189,368	100	108,369	100	21,224	100	530,821	100

Table C-33 Acres of Verified Change in Glenn County by Cause and Lifeform

	Harvest	Regrowth	Other	Unknown Cause	All Causes
Conifer					
-71 to -100% CC	6			36	42
-41 to -70% CC	92		10	307	409
-16 to -40% CC	278		82	1,065	1,425
+16 to +40% CC		67		29	96
+41 to +100% CC		8		1	9
Total	376	75	92	1,438	1,981
Hardwood					
-41 to -70% CC	5			8	13
-16 to -40% CC	57		1	84	142
+16 to +40% CC				6	6
+41 to +100% CC				1	1
Total	62		2	100	163
Shrub/Chaparral					
Shrub/Grass Decrease > 15%	6			20	25
Shrub/Grass Increase > 15%		80		133	213
Total	6	80		153	238
Grass/Forb					
Shrub/Grass Decrease > 15%				21	21
Total				21	21
All Lifeforms	443	155	93	1,711	2,402

Table C-34 Acres of Classified Change in Glenn County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine - Cypress								
-41 to -70% CC	12	0					12	0
-16 to -40% CC	94	2					94	2
+15 to -15% CC (Little or No Change)	4,538	98			28	100	4,566	98
Total	4,644	100			28	100	4,673	100
Douglas Fir								
-71 to -100% CC	1	0					1	0
-41 to -70% CC	13	0			14	0	27	0
-16 to -40% CC	64	0			86	3	151	1
+15 to -15% CC (Little or No Change)	24,987	100			2,900	97	27,887	99
+16 to +40% CC	39	0					39	0
+41 to +100% CC	4	0					4	0
Total	25,108	100			3,001	100	28,109	100
Klamath Mixed Conifer								
-71 to -100% CC	2	0			8	0	10	0
-41 to -70% CC	43	0			130	4	173	1
-16 to -40% CC	131	1			478	13	609	3
+15 to -15% CC (Little or No Change)	18,567	99			2,948	83	21,515	96
+16 to +40% CC	21	0					21	0
+41 to +100% CC	5	0					5	0
Total	18,769	100			3,564	100	22,332	100
Montane hardwood-conifer								
-41 to -70% CC	2	0					2	0
-16 to -40% CC	10	0			13	0	23	0
+15 to -15% CC (Little or No Change)	5,632	100	128	100	2,833	100	8,593	100
Total	5,645	100	128	100	2,847	100	8,619	100
Ponderosa Pine								
-71 to -100% CC	3	0			1	0	4	0
-41 to -70% CC	22	0			27	1	49	0
-16 to -40% CC	48	0			132	5	180	1
+15 to -15% CC (Little or No Change)	16,673	99			2,512	94	19,185	99
+16 to +40% CC	14	0					14	0
Total	16,761	100			2,672	100	19,432	100
Red Fir								
-41 to -70% CC							1	0
-16 to -40% CC	6	1			2	8	9	1
+15 to -15% CC (Little or No Change)	557	99			27	90	584	98
Total	564	100			30	100	593	100
White Fir								
-71 to -100% CC	6	0			21	1	27	0
-41 to -70% CC	34	0			111	6	145	2
-16 to -40% CC	103	1			256	14	359	4
+15 to -15% CC (Little or No Change)	7,016	98			1,381	78	8,397	94
+16 to +40% CC	21	0					21	0
+41 to +100% CC	1	0					1	0
Total	7,180	100			1,769	100	8,950	100
All Conifer	78,670		128		13,911		92,709	

Table C-35 Acres of Classified Change in Glenn County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine								
+15 to -15% CC (Little or No Change)	1,274	100	197	100	5,845	100	7,316	100
Total	1,274	100	197	100	5,845	100	7,316	100
Blue Oak Woodland								
+15 to -15% CC (Little or No Change)	1,829	100	1,386	100	60,458	100	63,673	100
+16 to +40% CC			1	0	5	0	6	0
+41 to +100% CC					1	0	1	0
Non-Vegetation Change					9	0	9	0
Total	1,829	100	1,387	100	60,474	100	63,690	100
Montane Hardwood								
-41 to -70% CC	4	0			8	0	13	0
-16 to -40% CC	18	0			125	1	142	0
+15 to -15% CC (Little or No Change)	33,828	100	587	100	11,151	99	45,565	100
Non-Vegetation Change	3	0			7	0	10	0
Total	33,852	100	587	100	11,291	100	45,730	100
Montane Riparian								
+15 to -15% CC (Little or No Change)			1	100	176	100	177	100
Total			1	100	176	100	177	100
Valley Oak Woodland								
+15 to -15% CC (Little or No Change)			203	100	2,036	100	2,239	100
Total			203	100	2,036	100	2,239	100
All Hardwood	36,955		2,376		79,822		119,153	

Table C-36 Acres of Classified Change in Glenn County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral								
+15 to -15% CC (Little or No Change)	18,613	100	1,139	100	7,239		26,990	100
Shrub/Grass Increase > 15%	22	0			26		48	0
Total	18,634	100	1,139	100	7,265		27,038	100
Coastal Scrub								
Cloud or Cloud Shadow			1	100			1	100
Total			1	100			1	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	1	0			9	0	10	0
+15 to -15% CC (Little or No Change)	41,582	100	2,124	100	17,080	100	60,786	100
Shrub/Grass Increase > 15%	57	0			10	0	66	0
Non-Vegetation Change					1	0	2	0
Total	41,640	100	2,124	100	17,100	100	60,864	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	6	0			10	0	15	0
+15 to -15% CC (Little or No Change)	12,395	100	2	100	7,954	99	20,352	99
Shrub/Grass Increase > 15%	38	0			60	1	98	0
Total	12,438	100	2	100	8,025	100	20,465	100
All Shrub/Chaparral	72,713		3,266		32,390		108,369	

Table C-37 Acres of Verified Change in Glenn County by Cause and Conifer Cover Type

	Harvest	Other	Regrowth	Unknown Cause	All Causes
Closed Cone Pine-Cypress					
-41 to -70% CC		3		9	12
-16 to -40% CC		56		38	94
Total		60		47	107
Douglas Fir					
-71 to -100% CC				1	1
-41 to -70% CC	3	2		22	27
-16 to -40% CC	24	7		120	151
+16 to +40% CC			37	2	39
+41 to +100% CC			4		4
Total	27	9	41	145	222
Klamath Mixed Conifer					
-71 to -100% CC	4			5	10
-41 to -70% CC	73	1		99	173
-16 to -40% CC	220	3		386	609
+16 to +40% CC			9	13	21
+41 to +100% CC			4	1	5
Total	297	4	13	504	817
Montane hardwood-conifer					
-41 to -70% CC				2	2
-16 to -40% CC	5	2		16	23
Total	5	3		18	26
Ponderosa Pine					
-71 to -100% CC				3	4
-41 to -70% CC	6	1		42	49
-16 to -40% CC	12	3		165	180
+16 to +40% CC				14	14
Total	18	4		224	247
Red Fir					
-41 to -70% CC				1	1
-16 to -40% CC				9	9
Total				10	10
White Fir					
-71 to -100% CC				27	27
-41 to -70% CC	10	2		132	145
-16 to -40% CC	17	10		332	359
+16 to +40% CC			21		21
+41 to +100% CC			1		1
Total	28	12	22	491	553
All Conifer	376	92	75	1,438	1,981

Table C-38 Acres of Verified Change in Glenn County by Cause and Hardwood Cover Type

	Harvest	Other	Unknown Cause	All Causes
Blue Oak Woodland				
+16 to +40% CC			6	6
+41 to +100% CC			1	1
Total			8	8
Montane Hardwood				
-41 to -70% CC	5		8	13
-16 to -40% CC	57	1	84	142
Total	62	2	92	155
All Hardwood	62	2	100	163

Table C-39 Acres of Verified Change in Glenn County by Cause and Shrub/Chaparral Cover Type

	Harvest	Regrowth	Unknown Cause	All Causes
Chamise-Redshank Chaparral				
Shrub/Grass Increase > 15%			48	48
Total			48	48
Mixed Chaparral				
Shrub/Grass Decrease > 15%			10	10
Shrub/Grass Increase > 15%			66	66
Total			76	76
Montane Chaparral				
Shrub/Grass Decrease > 15%	5		10	15
Shrub/Grass Increase > 15%		80	18	98
Total	5	80	28	113
All Shrub/Chaparral	6	80	153	238

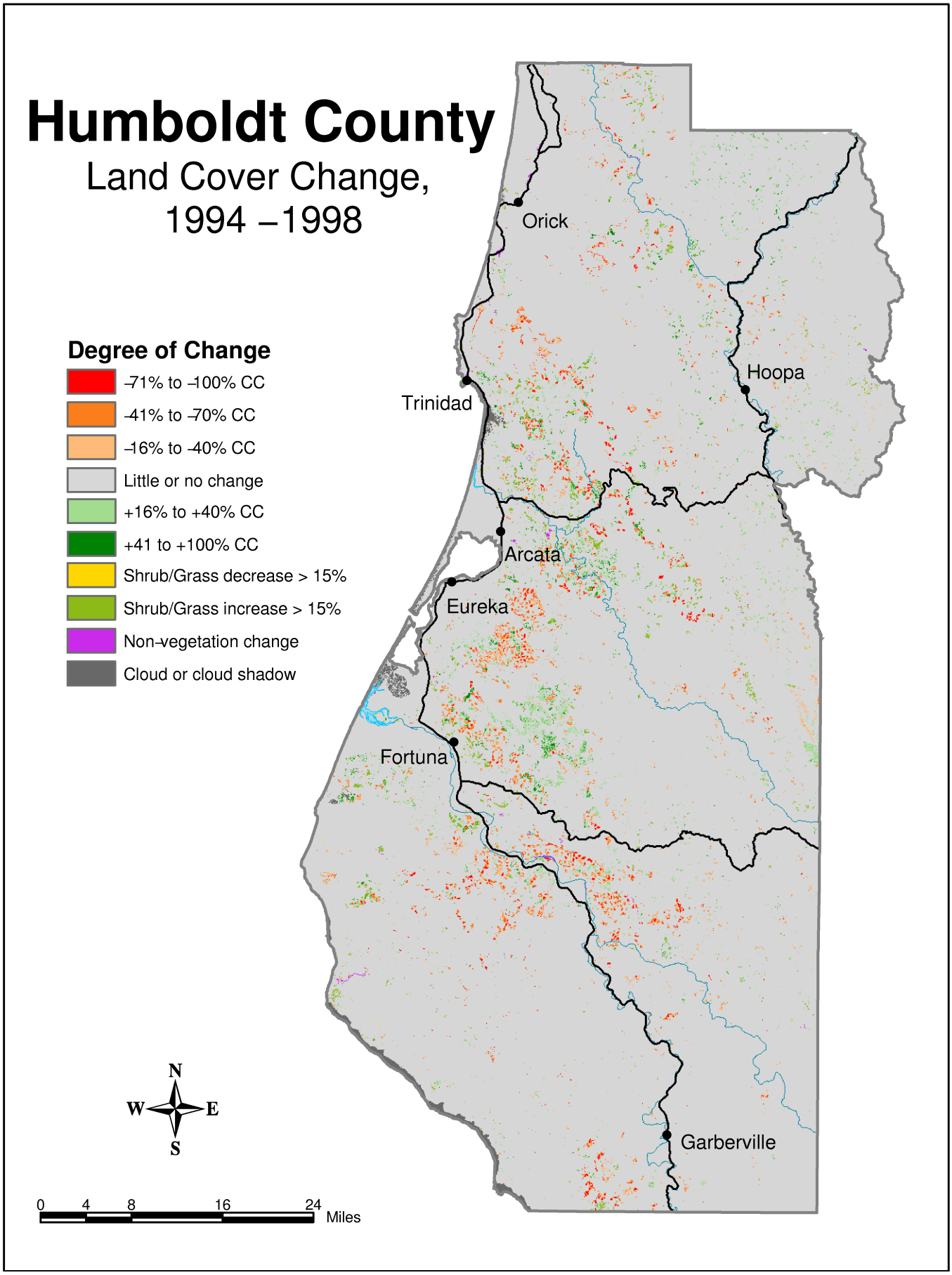

Humboldt County
Land Cover Change,
1994 –1998
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to –40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Orick
Trinidad
Hoopa
Arcata
Eureka
Fortuna
Garberville
N
W
E
S
0 4 8 16 24
Miles

Table C-40 Acres of Classified Change in Humboldt County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	20	0	15	0							34	0
-41 to -70% CC	198	0	10	0							208	0
-16 to -40% CC	972	0	66	0							1,038	0
+15 to -15% CC (Little or No Change)	266,018	97	42,055	99	2,433	96	13,715	95	2,016	100	326,237	98
+16 to +40% CC	5,316	2	141	0							5,457	2
+41 to +100% CC	432	0	34	0							466	0
Shrub/Grass Decrease > 15%					0	0	32	0			32	0
Shrub/Grass Increase > 15%					82	3	747	5			829	0
Non-Vegetation Change	21	0	17	0	24	1	7	0	8	0	76	0
Cloud or Cloud Shadow												
Total	272,978	100	42,338	100	2,538	100	14,500	100	2,024	100	334,378	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	278	0	341	0							619	0
-41 to -70% CC	778	0	194	0							972	0
-16 to -40% CC	728	0	689	1					2	0	1,420	0
+15 to -15% CC (Little or No Change)	221,016	97	94,434	98	10,578	79	4,225	84	10,649	88	340,901	96
+16 to +40% CC	1,328	1	860	1					25	0	2,214	1
+41 to +100% CC	406	0	242	0					2	0	650	0
Shrub/Grass Decrease > 15%					40	0	10	0			50	0
Shrub/Grass Increase > 15%					563	4	405	8	6	0	974	0
Non-Vegetation Change	23	0	31	0	134	1	3	0	244	2	435	0
Cloud or Cloud Shadow	3,081	1	58	0	2,124	16	417	8	1,141	9	6,821	2
Total	227,637	100	96,849	100	13,439	100	5,060	100	12,070	100	355,055	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	6,852	1	2,183	1					2	0	9,037	1
-41 to -70% CC	18,592	2	989	0					30	0	19,611	1
-16 to -40% CC	12,069	1	2,356	1					17	0	14,442	1
+15 to -15% CC (Little or No Change)	796,644	93	403,972	98	208,620	96	21,306	86	80,170	93	1,510,712	94
+16 to +40% CC	17,388	2	3,617	1					3,131	4	24,136	2
+41 to +100% CC	5,177	1	887	0					171	0	6,235	0
Shrub/Grass Decrease > 15%					405	0	83	0			488	0
Shrub/Grass Increase > 15%					6,113	3	2,907	12	16	0	9,036	1
Non-Vegetation Change	35	0	38	0	256	0	11	0	470	1	810	0
Cloud or Cloud Shadow	1,191	0	254	0	1,707	1	350	1	2,225	3	5,728	0
Total	857,947	100	414,296	100	217,102	100	24,658	100	86,231	100	1,600,235	100

Table C-40 Acres of Classified Change in Humboldt County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	7,149	1	2,539						2	0	9,690	0
-41 to -70% CC	19,568	1	1,193						31	0	20,792	1
-16 to -40% CC	13,769	1	3,111	1					19	0	16,899	1
+15 to -15% CC (Little or No Change)	1,283,678	94	540,461	98	221,631	95	39,247	89	92,834	93	2,177,851	95
+16 to +40% CC	24,032	2	4,619	1					3,156	3	31,807	1
+41 to +100% CC	6,015	0	1,163						173	0	7,351	0
Shrub/Grass Decrease > 15%					445	0	125	0			570	0
Shrub/Grass Increase > 15%					6,758	3	4,058	9	22	0	10,839	0
Non-Vegetation Change	79	0	86	0	414	0	21	0	721	1	1,321	0
Cloud or Cloud Shadow	4,272	0	312	0	3,832	2	767	2	3,366	3	12,549	1
Total	1,358,562	100	553,484	100	233,079	100	44,218	100	100,325	100	2,289,668	100

Table C-41 Acres of Verified Change in Humboldt County by Cause and Lifeform

	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Conifer								
-71 to -100% CC		3,530	3		60		3,555	7,149
-41 to -70% CC	6	8,602	8		230		10,722	19,568
-16 to -40% CC	9	7,043	2		298		6,416	13,769
+16 to +40% CC				12,866		44	11,122	24,032
+41 to +100% CC				2,991		5	3,019	6,015
Total	15	19,176	12	15,857	589	49	34,834	70,533
Hardwood								
-71 to -100% CC	10	1,454			46		1,029	2,539
-41 to -70% CC	5	693			27		468	1,193
-16 to -40% CC	37	1,659			115		1,301	3,111
+16 to +40% CC				2,584		22	2,013	4,619
+41 to +100% CC				778		1	384	1,163
Total	52	3,805		3,362	187	22	5,196	12,625
Shrub/Chaparral								
Shrub/Grass Decrease > 15%		49					76	125
Shrub/Grass Increase > 15%				2,920			1,138	4,058
Total		49		2,920			1,214	4,183
Grass/Forb								
Shrub/Grass Decrease > 15%	1	99			1		344	445
Shrub/Grass Increase > 15%				2,422		81	4,255	6,758
Total	1	99		2,422	1	81	4,600	7,203
Non-Forested Other								
-71 to -100% CC							2	2
-41 to -70% CC		13					18	31
-16 to -40% CC		10					10	19
+16 to +40% CC				1,714			1,442	3,156
+41 to +100% CC				104			69	173
Shrub/Grass Increase > 15%				10			12	22
Total		22		1,828			1,553	3,404
All Lifeforms	68	23,152	12	26,390	777	152	47,396	97,948

Table C-42 Acres of Classified Change in Humboldt County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress								
+15 to -15% CC (Little or No Change)			116	99	452	92	568	93
+16 to +40% CC					14	3	14	2
+41 to +100% CC					2	0	2	0
Non-Vegetation Change					1	0	1	0
Cloud or Cloud Shadow			1	1	24	5	25	4
Total			117	100	493	100	609	100
Douglas Fir								
-71 to -100% CC	17	0	168	0	2,413	1	2,598	0
-41 to -70% CC	151	0	624	0	5,050	1	5,825	1
-16 to -40% CC	376	0	553	0	3,479	1	4,408	1
+15 to -15% CC (Little or No Change)	152,979	97	119,688	96	402,198	96	674,865	96
+16 to +40% CC	4,349	3	1,057	1	3,471	1	8,878	1
+41 to +100% CC	382	0	317	0	563	0	1,262	0
Non-Vegetation Change	12	0	7	0	4	0	22	0
Cloud or Cloud Shadow			2,908	2	311	0	3,219	0
Total	158,265	100	125,322	100	417,490	100	701,077	100
Jeffrey Pine								
-71 to -100% CC					3	1	3	0
-41 to -70% CC	3	0			8	2	11	0
-16 to -40% CC	1	0			15	3	16	1
+15 to -15% CC (Little or No Change)	1,886	99	99	100	413	93	2,398	98
+16 to +40% CC	6	0			5	1	11	0
Total	1,897	100	99	100	444	100	2,439	100
Klamath Mixed Conifer								
-71 to -100% CC					10	0	11	0
-41 to -70% CC	2	0			28	1	30	0
-16 to -40% CC	30	0			61	2	91	0
+15 to -15% CC (Little or No Change)	13,611	99	1,327	95	3,640	97	18,578	98
+16 to +40% CC	70	1	49	3	10	0	130	1
+41 to +100% CC	12	0	28	2			40	0
Non-Vegetation Change	1	0					1	0
Total	13,727	100	1,403	100	3,750	100	18,881	100
Montane hardwood-conifer								
-71 to -100% CC	2	0	35	0	509	1	546	0
-41 to -70% CC	18	0	57	0	626	1	701	0
-16 to -40% CC	64	0	113	1	777	1	954	1
+15 to -15% CC (Little or No Change)	61,066	99	14,752	97	84,999	94	160,816	96
+16 to +40% CC	342	1	149	1	2,981	3	3,472	2
+41 to +100% CC	32	0	43	0	840	1	915	1
Non-Vegetation Change	3	0	2	0	4	0	10	0
Cloud or Cloud Shadow			3	0	81	0	84	0
Total	61,527	100	15,153	100	90,818	100	167,498	100
Ponderosa Pine								
+15 to -15% CC (Little or No Change)					73	100	73	100
Total					73	100	73	100

Table C-42 Acres of Classified Change in Humboldt County by Conifer Cover Type and Owner Class (cont.)

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Redwood								
-71 to -100% CC			74	0	3,915	1	3,989	1
-41 to -70% CC	2	6	97	0	12,874	4	12,973	3
-16 to -40% CC	1	2	54	0	7,628	2	7,682	2
+15 to -15% CC (Little or No Change)	26	91	84,455	99	303,318	88	387,799	91
+16 to +40% CC			72	0	10,842	3	10,914	3
+41 to +100% CC			18	0	3,771	1	3,789	1
Non-Vegetation Change			13	0	26	0	40	0
Cloud or Cloud Shadow			169	0	775	0	945	0
Total	28	100	84,952	100	343,149	100	428,130	100
Red Fir								
-41 to -70% CC	12	0					12	0
-16 to -40% CC	203	3			17	8	220	3
+15 to -15% CC (Little or No Change)	6,249	95			186	90	6,434	95
+16 to +40% CC	126	2			3	1	129	2
Non-Vegetation Change	2	0					2	0
Total	6,592	100			206	100	6,798	100
White Fir								
-71 to -100% CC					2	0	2	0
-41 to -70% CC	9	0			7	0	16	0
-16 to -40% CC	298	1	8	1	91	6	397	1
+15 to -15% CC (Little or No Change)	30,202	98	580	98	1,364	89	32,146	97
+16 to +40% CC	423	1	1	0	61	4	485	1
+41 to +100% CC	6	0					7	0
Non-Vegetation Change	3	0					3	0
Total	30,942	100	590	100	1,525	100	33,057	100
All Conifer	272,978		227,637		857,947		1,358,562	

Table C-43 Acres of Classified Change in Humboldt County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine								
+15 to -15% CC (Little or No Change)			27	100			27	100
Total			27	100			27	100
Coastal Oak Woodland								
-71 to -100% CC			28	0	165	1	193	1
-41 to -70% CC			9	0	32	0	40	0
-16 to -40% CC			40	1	103	0	143	0
+15 to -15% CC (Little or No Change)			7,019	97	25,026	98	32,045	98
+16 to +40% CC			123	2	186	1	309	1
+41 to +100% CC			16	0	36	0	52	0
Non-Vegetation Change			1	0			1	0
Cloud or Cloud Shadow					32	0	32	0
Total			7,235	100	25,581	100	32,816	100
Eucalyptus								
+15 to -15% CC (Little or No Change)			3	100	122	97	125	97
Cloud or Cloud Shadow					4	3	4	3
Total			3	100	125	100	128	100
Montane Hardwood								
-71 to -100% CC	10	0	288	0	1,779	1	2,078	0
-41 to -70% CC	10	0	177	0	839	0	1,026	0
-16 to -40% CC	62	0	628	1	2,000	1	2,690	1
+15 to -15% CC (Little or No Change)	37,962	99	75,554	97	345,910	98	459,426	98
+16 to +40% CC	136	0	703	1	2,298	1	3,137	1
+41 to +100% CC	32	0	220	0	600	0	852	0
Non-Vegetation Change	17	0	18	0	18	0	53	0
Cloud or Cloud Shadow			1	0	62	0	62	0
Total	38,229	100	77,590	100	353,505	100	469,324	100
Montane Riparian								
-71 to -100% CC	4	0	26	0	239	1	269	1
-41 to -70% CC	1	0	8	0	118	0	126	0
-16 to -40% CC	4	0	22	0	253	1	278	1
+15 to -15% CC (Little or No Change)	4,094	100	11,831	99	32,915	94	48,839	95
+16 to +40% CC	4	0	35	0	1,133	3	1,172	2
+41 to +100% CC	2	0	5	0	251	1	258	1
Non-Vegetation Change			12	0	20	0	32	0
Cloud or Cloud Shadow			57	0	157	0	214	0
Total	4,109	100	11,995	100	35,085	100	51,189	100
All Hardwood	42,338		96,849		414,296		553,484	

Table C-44 Acres of Classified Change in Humboldt County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral								
+15 to -15% CC (Little or No Change)	11	91	18	100	87	100	116	99
Non-Vegetation Change	1	9				0	1	1
Total	12	100	18	100	87	100	117	100
Coastal Scrub								
Shrub/Grass Decrease > 15%			5	0	33	0	38	0
+15 to -15% CC (Little or No Change)			2,990	81	8,397	82	11,387	82
Shrub/Grass Increase > 15%			260	7	1,445	14	1,705	12
Non-Vegetation Change			3	0	3	0	6	0
Cloud or Cloud Shadow			417	11	350	3	767	6
Total			3,675	100	10,229	100	13,904	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	9	0			2	0	11	0
+15 to -15% CC (Little or No Change)	3,582	99	176	98	3,383	98	7,140	99
Shrub/Grass Increase > 15%	16	0	4	2	51	1	71	1
Non-Vegetation Change	1	0					1	0
Total	3,607	100	180	100	3,436	100	7,223	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	23	0	5	0	48	0	76	0
+15 to -15% CC (Little or No Change)	10,122	93	1,042	88	9,440	87	20,604	90
Shrub/Grass Increase > 15%	731	7	140	12	1,411	13	2,282	10
Non-Vegetation Change	5	0			8	0	13	0
Total	10,881	100	1,187	100	10,906	100	22,975	100
All Shrub/Chaparral	14,500		5,060		24,658		44,218	

Table C-45 Acres of Verified Change in Humboldt County by Cause and Conifer Cover Type

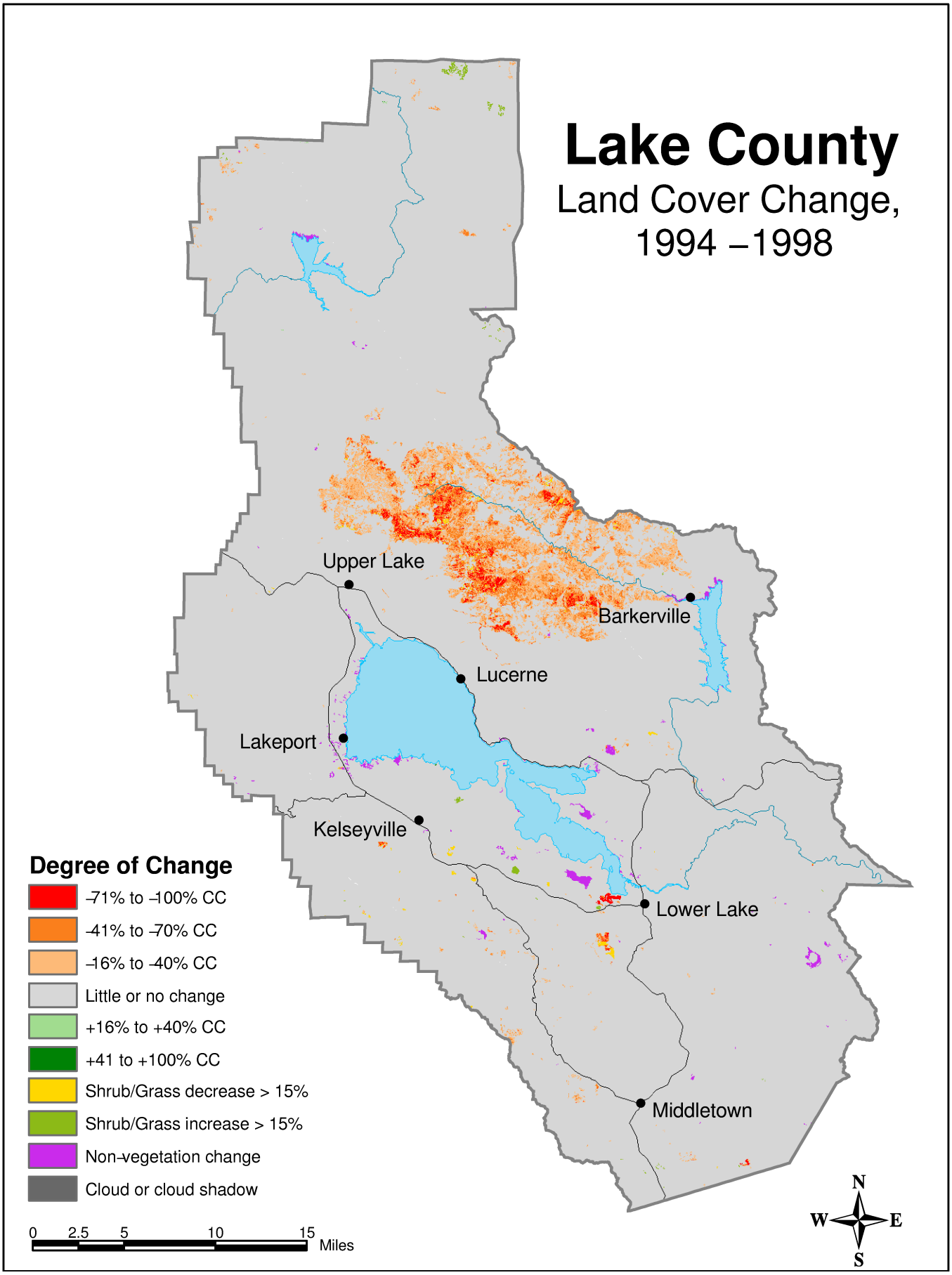
	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Closed Cone Pine-Cypress								
+16 to +40% CC				6			8	14
+41 to +100% CC				2				2
Total				8			8	16
Douglas Fir								
-71 to -100% CC		1,425			18		1,156	2,598
-41 to -70% CC	3	2,785			107		2,930	5,825
-16 to -40% CC	5	2,300			156		1,947	4,408
+16 to +40% CC				6,295		30	2,553	8,878
+41 to +100% CC				896		4	361	1,262
Total	7	6,511		7,191	280	34	8,947	22,970
Jeffrey Pine								
-71 to -100% CC		3						3
-41 to -70% CC		8					3	11
-16 to -40% CC		16						16
+16 to +40% CC				9			3	11
Total		26		9			6	42
Klamath Mixed Conifer								
-71 to -100% CC		11						11
-41 to -70% CC		30						30
-16 to -40% CC		64					27	91
+16 to +40% CC				121			9	130
+41 to +100% CC				40				40
Total		104		160			37	302
Montane hardwood-conifer								
-71 to -100% CC		394			4		147	546
-41 to -70% CC	3	361			12		325	701
-16 to -40% CC	4	593			26		331	954
+16 to +40% CC				1,853		14	1,605	3,472
+41 to +100% CC				548		1	367	915
Total	7	1,348		2,400	41	15	2,776	6,588
Redwood								
-71 to -100% CC		1,695	3		39		2,252	3,989
-41 to -70% CC		5,396	8		111		7,458	12,973
-16 to -40% CC		3,686	2		106		3,888	7,682
+16 to +40% CC				4,089			6,825	10,914
+41 to +100% CC				1,499			2,290	3,789
Total		10,778	12	5,588	256		22,712	39,346
Red Fir								
-41 to -70% CC		12						12
-16 to -40% CC		182					39	220
+16 to +40% CC				96			32	129
+41 to +100% CC								
Total		193		97			71	361
White Fir								
-71 to -100% CC		2					0	2
-41 to -70% CC		10			1		5	16
-16 to -40% CC		204			10		183	397
+16 to +40% CC				398			87	485
+41 to +100% CC				6			0	7
Total		216		404	12		276	908
All Conifer	15	19,176	12	15,857	589	49	34,834	70,533

Table C-46 Acres of Verified Change in Humboldt County by Cause and Hardwood Cover Type

	Fire	Harvest	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Coastal Oak Woodland							
-71 to -100% CC	2	114				76	193
-41 to -70% CC	1	28				11	40
-16 to -40% CC	9	84				50	143
+16 to +40% CC			276		2	31	309
+41 to +100% CC			49		0	3	52
Total	12	226	325		3	171	738
Montane Hardwood							
-71 to -100% CC	8	1,252		40		779	2,078
-41 to -70% CC	4	611		25		387	1,026
-16 to -40% CC	28	1,465		104		1,092	2,690
+16 to +40% CC			1,931		19	1,187	3,137
+41 to +100% CC			627		0	225	852
Total	40	3,327	2,558	169	20	3,670	9,783
Montane Riparian							
-71 to -100% CC		88		6		175	269
-41 to -70% CC		54		2		70	126
+16 to +40% CC			378			795	1,172
-16 to -40% CC		110		10		158	278
+41 to +100% CC			102			157	258
Total		251	479	18		1,355	2,104
All Hardwood	52	3,805	3,362	187	22	5,196	12,625

Table C-47 Acres of Verified Change in Humboldt County by Cause and Shrub/Chaparral Cover Type

	Harvest	Regrowth	Unknown Cause	All Causes
Coastal Scrub				
Shrub/Grass Decrease > 15%	10		28	38
Shrub/Grass Increase > 15%		1,077	627	1,705
Total	10	1,077	655	1,743
Mixed Chaparral				
Shrub/Grass Decrease > 15%			10	11
Shrub/Grass Increase > 15%		34	37	71
Total		34	47	82
Montane Chaparral				
Shrub/Grass Decrease > 15%	39		37	76
Shrub/Grass Increase > 15%		1,808	474	2,282
Total	39	1,808	511	2,358
All Shrub/Chaparral	49	2,920	1,214	4,183


Lake County
Land Cover Change,
1994 –1998
Upper Lake
Barkerville
Lucerne
Lakeport
Kelseyville
Lower Lake
Middletown
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to –40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
0 2.5 5 10 15
Miles
N
W
E
S

Appendix G

Table C-48 Acres of Classified Change in Lake County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	1,432	1	291	1							1,722	1
-41 to -70% CC	5,688	4	3,455	7							9,143	4
-16 to -40% CC	15,915	12	6,580	13							22,495	9
+15 to -15% CC (Little or No Change)	114,028	83	39,731	79	3,534	99	61,872	99	781	95	219,946	87
+16 to +40% CC	21	0									21	0
+41 to +100% CC	2	0									2	0
Shrub/Grass Decrease > 15%					1	0	311	0			312	0
Shrub/Grass Increase > 15%							152	0			152	0
Non-Vegetation Change	6	0	3	0	50	1	2	0	42	5	102	0
Cloud or Cloud Shadow												
Total	137,091	100	50,059	100	3,585	100	62,337	100	822	100	253,894	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	3	0	2	0							4	0
-41 to -70% CC	175	1	217	1							392	0
-16 to -40% CC	725	5	967	5							1,693	1
+15 to -15% CC (Little or No Change)	13,425	94	19,011	94	3,746	99	97,522	100	2,499	90	136,202	98
+16 to +40% CC												
+41 to +100% CC												
Shrub/Grass Decrease > 15%							14	0			14	0
Shrub/Grass Increase > 15%							3	0			3	0
Non-Vegetation Change	1	0	20	0	48	1	47	0	270	10	386	0
Cloud or Cloud Shadow												
Total	14,330	100	20,216	100	3,795	100	97,585	100	2,769	100	138,695	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	1,112	2	404	0					196	0	1,712	0
-41 to -70% CC	2,112	3	1,567	1					12	0	3,692	1
-16 to -40% CC	3,538	6	2,252	2					6	0	5,796	1
+15 to -15% CC (Little or No Change)	54,602	89	120,731	97	48,657	98	122,824	99	97,045	99	443,859	97
+16 to +40% CC	1	0	18	0							19	0
+41 to +100% CC			2	0							2	0
Shrub/Grass Decrease > 15%					67	0	685	1	5	0	757	0
Shrub/Grass Increase > 15%					68	0	382	0			449	0
Non-Vegetation Change	37	0	134	0	612	1	26	0	1,234	1	2,043	0
Cloud or Cloud Shadow					3	0					3	0
Total	61,402	100	125,108	100	49,406	100	123,917	100	98,498	100	458,332	100

Table C-48 Acres of Classified Change in Lake County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	2,547	1	696	0					196	0	3,439	0
-41 to -70% CC	7,976	4	5,238	3					12	0	13,226	2
-16 to -40% CC	20,178	9	9,800	5					6	0	29,984	4
+15 to -15% CC (Little or No Change)	182,055	86	179,472	92	55,938	99	282,218	99	100,324	98	800,007	94
+16 to +40% CC	22	0	18	0					0	0	40	0
+41 to +100% CC	2	0	2	0					0	0	4	0
Shrub/Grass Decrease > 15%					68	0	1,010	0	5	0	1,082	0
Shrub/Grass Increase > 15%					68	0	536	0			605	0
Non-Vegetation Change	44	0	157	0	710	1	75	0	1,546	2	2,531	0
Cloud or Cloud Shadow					3	0					3	0
Total	212,823	100	195,384	100	56,786	100	283,839	100	102,090	100	850,921	100

Table C-49 Acres of Verified Change in Lake County by Cause and Lifeform

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Conifer						
-71 to -100% CC	2,461	2		65	19	2,547
-41 to -70% CC	7,542	67		116	251	7,976
-16 to -40% CC	18,761	295		147	975	20,178
+16 to +40% CC			21		1	22
+41 to +100% CC			2			2
Total	28,764	363	23	327	1,247	30,724
Hardwood						
-71 to -100% CC	636	2		50	8	696
-41 to -70% CC	5,035	9		123	71	5,238
-16 to -40% CC	9,269	25		115	391	9,800
+16 to +40% CC					18	18
+41 to +100% CC					2	2
Total	14,940	36		288	491	15,754
Shrub/Chaparral						
Shrub/Grass Decrease > 15%	662	1		113	234	1,010
Shrub/Grass Increase > 15%			391		146	536
Total	662	1	391	113	379	1,546
Grass/Forb						
Shrub/Grass Decrease > 15%	1			32	34	68
Shrub/Grass Increase > 15%					68	68
Total	1			32	102	136
Non-Forested Other						
-71 to -100% CC					196	196
-41 to -70% CC				1	12	12
-16 to -40% CC					6	6
Shrub/Grass Decrease > 15%				1	4	5
Total				2	217	219
All Lifeforms	44,367	400	414	763	2,436	48,380

Table C-50 Acres of Classified Change in Lake County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress								
-71 to -100% CC	182	1	2	0	62	1	246	1
-41 to -70% CC	1,839	9	96	2	255	3	2,189	6
-16 to -40% CC	5,758	30	401	7	659	7	6,817	19
+15 to -15% CC (Little or No Change)	11,613	60	5,329	91	9,053	90	25,995	74
Total	19,392	100	5,827	100	10,029	100	35,248	100
Douglas Fir								
-71 to -100% CC	947	1	1	0	874	4	1,821	2
-41 to -70% CC	2,410	3	32	1	1,256	6	3,697	4
-16 to -40% CC	6,421	9	155	5	1,708	8	8,284	9
+15 to -15% CC (Little or No Change)	59,507	86	2,963	94	18,171	83	80,642	85
+16 to +40% CC	12	0		0		0	12	0
+41 to +100% CC	2	0		0		0	2	0
Non-Vegetation Change		0		0	2	0	2	0
Total	69,299	100	3,150	100	22,011	100	94,460	100
Jeffrey Pine								
+15 to -15% CC (Little or No Change)	64	100					65	100
Total	64	100					65	100
Klamath Mixed Conifer								
-71 to -100% CC	18	0			2	0	20	0
-41 to -70% CC	137	1	1	0	13	0	150	1
-16 to -40% CC	243	2	2	0	82	3	328	2
+15 to -15% CC (Little or No Change)	12,124	97	1,189	100	3,012	97	16,326	97
+16 to +40% CC	8	0					8	0
Non-Vegetation Change					1	0	1	0
Total	12,530	100	1,193	100	3,110	100	16,832	100
Montane hardwood-conifer								
-71 to -100% CC	107	1		0	142	1	249	1
-41 to -70% CC	805	5	44	2	518	2	1,368	3
-16 to -40% CC	2,302	14	135	5	747	3	3,184	8
+15 to -15% CC (Little or No Change)	13,419	81	2,770	94	19,992	93	36,182	88
+16 to +40% CC					1	0	1	0
	6	0			22	0	28	0
Total	16,639	100	2,950	100	21,422	100	41,012	100
All Conifer	117,860		13,120		56,572		187,552	

Table C-51 Acres of Classified Change in Lake County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine								
-71 to -100% CC			1	0	18	0	19	0
-41 to -70% CC	92	3	123	3	98	1	312	2
-16 to -40% CC	398	15	466	11	265	2	1,130	6
+15 to -15% CC (Little or No Change)	2,183	82	3,819	86	11,958	97	17,960	92
Non-Vegetation Change		0	7	0	21	0	29	0
Total	2,673	100	4,415	100	12,361	100	19,450	100
Blue Oak Woodland								
-41 to -70% CC	20	2	11	0	11	0	42	0
-16 to -40% CC	69	6	54	1	75	0	198	0
+15 to -15% CC (Little or No Change)	1,088	92	6,774	99	47,554	100	55,416	99
+16 to +40% CC					10	0	10	0
+41 to +100% CC					2	0	2	0
Non-Vegetation Change		0	10	0	72	0	82	0
Total	1,178	100	6,849	100	47,725	100	55,752	100
Coastal Oak Woodland								
+15 to -15% CC (Little or No Change)			654	100	719	100	1,373	100
Total			654	100	719	100	1,373	100
Montane Hardwood								
-71 to -100% CC	290	1			386	1	676	1
-41 to -70% CC	3,342	7	83	1	1,457	2	4,883	4
-16 to -40% CC	6,113	13	447	5	1,897	3	8,458	7
+15 to -15% CC (Little or No Change)	36,460	79	7,684	94	59,603	94	103,746	88
+16 to +40% CC					8	0	8	0
Non-Vegetation Change	2	0	3	0	39	0	44	0
Total	46,208	100	8,218	100	63,389	100	117,815	100
Montane Riparian								
-41 to -70% CC					1	2	1	1
-16 to -40% CC					14	25	14	11
+15 to -15% CC (Little or No Change)			73	100	41	73	113	88
Total			73	100	56	100	128	100
Valley Oak Woodland								
+15 to -15% CC (Little or No Change)			8	100	856	100	864	100
Non-Vegetation Change					2	0	2	0
Total			8	100	859	100	866	100
All Hardwood	50,059		20,216		125,108		195,384	

Table C-52 Acres of Classified Change in Lake County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral								
Shrub/Grass Decrease > 15%	16	0	6	0	111	0	133	0
+15 to -15% CC (Little or No Change)	14,231	100	32,915	100	30,830	100	77,976	100
Shrub/Grass Increase > 15%	7	0			26	0	32	0
Non-Vegetation Change	1	0	31	0	11	0	42	0
Total	14,255	100	32,952	100	30,977	100	78,183	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	84	0	8	0	327	0	418	0
+15 to -15% CC (Little or No Change)	34,350	100	64,392	100	89,106	99	187,849	100
Shrub/Grass Increase > 15%	10	0	3	0	131	0	144	0
Non-Vegetation Change	1	0	16	0	15	0	32	0
Total	34,446	100	64,419	100	89,579	100	188,443	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	211	2			248	7	459	3
+15 to -15% CC (Little or No Change)	13,291	97	214	100	2,888	86	16,393	95
Shrub/Grass Increase > 15%	135	1			225	7	360	2
Total	13,636	100	214	100	3,361	100	17,212	100
All Shrub/Chaparral	62,337		97,585		123,917		283,839	

Table C-53 Acres of Verified Change in Lake County by Cause and Conifer Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Closed Cone Pine-Cypress						
-71 to -100% CC	244				3	246
-41 to -70% CC	2,169				20	2,189
-16 to -40% CC	6,739			1	77	6,817
Total	9,152			1	100	9,253
Douglas Fir						
-71 to -100% CC	1,789			22	10	1,821
-41 to -70% CC	3,496	33		56	113	3,697
-16 to -40% CC	7,602	111		102	469	8,284
+16 to +40% CC			12			12
+41 to +100% CC			2			2
Total	12,888	143	14	181	591	13,817
Klamath Mixed Conifer						
-71 to -100% CC	17				3	20
-41 to -70% CC	79	2			69	150
-16 to -40% CC	176	26			125	328
+16 to +40% CC			8			8
Total	272	29	8		197	506
Montane hardwood-conifer						
-71 to -100% CC	203	1		42	2	249
-41 to -70% CC	1,252	31		58	26	1,368
-16 to -40% CC	2,838	143		41	162	3,184
+16 to +40% CC					1	1
Total	4,293	175		142	191	4,802
Ponderosa Pine						
-71 to -100% CC	163				2	165
-41 to -70% CC	486	1		1	15	504
-16 to -40% CC	1,322	15		2	58	1,397
Total	1,971	16		3	76	2,066
White Fir						
-71 to -100% CC	45					45
-41 to -70% CC	60				8	67
-16 to -40% CC	83				85	167
Total	187				93	280
All Conifer	28,764	363	23	327	1,247	30,724

Table C-54 Acres of Verified Change in Lake County by Cause and Hardwood Cover Type

	Fire	Harvest	Other	Unknown Cause	All Causes
Blue Oak Foothill Pine					
-71 to -100% CC			16	4	19
-41 to -70% CC	249		49	14	312
-16 to -40% CC	1,022		53	54	1,130
Total	1,271		117	72	1,461
Blue Oak Woodland					
-41 to -70% CC	35			8	42
-16 to -40% CC	149			49	198
+16 to +40% CC				10	10
+41 to +100% CC				2	2
Total	185			69	254
Montane Hardwood					
-71 to -100% CC	636	2	34	4	676
-41 to -70% CC	4,751	9	74	48	4,883
-16 to -40% CC	8,097	25	62	274	8,458
+16 to +40% CC				8	8
Total	13,485	36	171	334	14,025
Montane Riparian					
-41 to -70% CC				1	1
-16 to -40% CC				14	14
Total				15	15
All Hardwood	14,940	36	288	491	15,754

Table C-55 Acres of Verified Change in Lake County by Cause and Shrub/Chaparral Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%	32			9	92	133
Shrub/Grass Increase > 15%					32	32
Total	32			9	124	165
Mixed Chaparral						
Shrub/Grass Decrease > 15%	175	1		105	139	418
Shrub/Grass Increase > 15%			36		107	144
Total	175	1	36	105	246	562
Montane Chaparral						
Shrub/Grass Decrease > 15%	455				4	459
Shrub/Grass Increase > 15%			354		6	360
Total	455		354		10	819
All Shrub/Chaparral	662	1	391	113	379	1,546

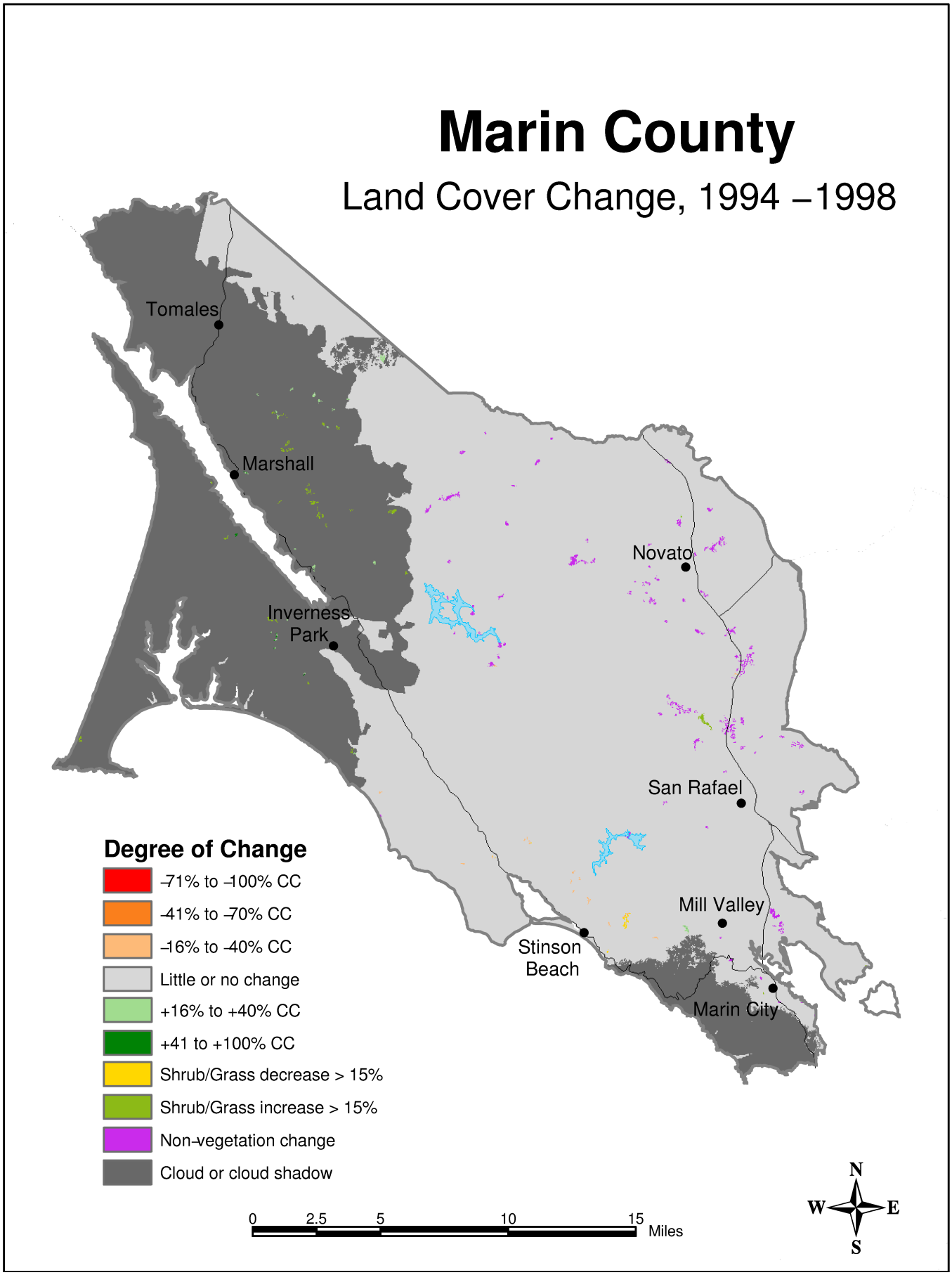

Marin County
Land Cover Change, 1994 –1998
Tomales
Marshall
Inverness Park
Novato
San Rafael
Mill Valley
Stinson Beach
Marin City
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
0 2.5 5 10 15 Miles
N
W
E
S

Table C-56 Acres of Classified Change in Marin County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC	1	0									1	0
-16 to -40% CC	46	0	12	0							58	0
+15 to -15% CC (Little or No Change)	20,443	72	24,191	85	15,304	41	6,734	27	8,624	67	75,297	57
+16 to +40% CC	14	0	22	0							36	0
+41 to +100% CC	9	0	4	0							12	0
Shrub/Grass Decrease > 15%					33	0	5	0			38	0
Shrub/Grass Increase > 15%					19	0	42	0	22	0	84	0
Cloud or Cloud Shadow	7,698	27	4,336	15	21,522	58	18,183	73	4,180	32	55,919	42
Non-Vegetation Change			24	0	49	0	6	0	68	1	148	0
Total	28,211	100	28,587	100	36,928	100	24,970	100	12,895	100	131,592	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC			1	0							1	0
-16 to -40% CC	2	0	4	0							6	0
+15 to -15% CC (Little or No Change)	6,944	80	36,961	81	51,442	56	3,087	35	43,729	91	142,164	70
+16 to +40% CC	1	0	90	0							91	0
+41 to +100% CC			3	0							3	0
Shrub/Grass Decrease > 15%							1	0			1	0
Shrub/Grass Increase > 15%					2	0	148	2	3	0	153	0
Cloud or Cloud Shadow	1,705	20	8,409	18	40,282	44	5,626	63	3,785	8	59,806	29
Non-Vegetation Change	2	0	50	0	262	0	4	0	500	1	819	0
Total	8,655	100	45,517	100	91,989	100	8,866	100	48,017	100	203,044	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC	1	0	1	0							1	0
-16 to -40% CC	48	0	16	0							64	0
+15 to -15% CC (Little or No Change)	27,388	74	61,152	83	66,747	52	9,821	29	52,353	86	217,461	65
+16 to +40% CC	15	0	111	0							127	0
+41 to +100% CC	9	0	6	0							15	0
Shrub/Grass Decrease > 15%					34	0	6	0	0	0	39	0
Shrub/Grass Increase > 15%					21	0	190	1	25	0	236	0
Cloud or Cloud Shadow	9,403	26	12,744	17	61,804	48	23,809	70	7,965	13	115,725	35
Non-Vegetation Change	2	0	74	0	312	0	11	0	569	1	967	0
Total	36,866	100	74,104	100	128,917	100	33,836	100	60,912	100	334,636	100

Table C-57 Acres of Verified Change in Marin County by Cause and Lifeform

	Unknown Cause	All Causes
Conifer		
-41 to -70% CC	1	1
-16 to -40% CC	48	48
+16 to +40% CC	15	15
+41 to +100% CC	9	9
Total	73	73
Hardwood		
-41 to -70% CC	1	1
-16 to -40% CC	16	16
+16 to +40% CC	111	111
+41 to +100% CC	6	6
Total	134	134
Shrub/Chaparral		
Shrub/Grass Decrease > 15%	6	6
Shrub/Grass Increase > 15%	190	190
Total	196	196
Grass/Forb		
Shrub/Grass Decrease > 15%	34	34
Shrub/Grass Increase > 15%	21	21
Total	55	55
Non-Forested Other		
Shrub/Grass Increase > 15%	25	25
Total	25	25
All Lifeforms	483	483

Table C-58 Acres of Classified Change in Marin County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress						
+15 to -15% CC (Little or No Change)	1,027	26	49	5	1,076	22
+41 to +100% CC	6	0			6	0
Cloud or Cloud Shadow	2,936	74	900	95	3,836	78
Total	3,970	100	949	100	4,919	100
Douglas Fir						
-41 to -70% CC	1	0			1	0
-16 to -40% CC	38	0	2	0	41	0
+15 to -15% CC (Little or No Change)	15,135	77	5,085	90	20,221	80
+16 to +40% CC	14	0	1	0	15	0
+41 to +100% CC	2	0			2	0
Cloud or Cloud Shadow	4,379	22	535	10	4,914	20
Total	19,569	100	5,624	100	25,193	100
Montane hardwood-conifer						
-16 to -40% CC	3	0			3	0
+15 to -15% CC (Little or No Change)	1,224	87	363	60	1,586	79
Cloud or Cloud Shadow	184	13	242	40	425	21
Total	1,411	100	604	100	2,016	100
Redwood						
-16 to -40% CC	4	0			4	0
+15 to -15% CC (Little or No Change)	2,575	96	463	100	3,038	97
Cloud or Cloud Shadow	103	4			103	3
Conifer	2,683	100	463	100	3,146	100
Unknown Conifer						
+15 to -15% CC (Little or No Change)	482	83	984	97	1,466	92
Cloud or Cloud Shadow	96	17	28	3	124	8
Non-Vegetation Change			2	0	2	0
Total	578	100	1,014	100	1,592	100
All Conifer	28,211		8,655		36,866	

Table C-59 Acres of Classified Change in Marin County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Woodland						
Cloud or Cloud Shadow			1	100	1	100
Total			1	100	1	100
Coastal Oak Woodland						
+15 to -15% CC (Little or No Change)	6,371	79	6,587	59	12,959	67
+16 to +40% CC	8	0	34	0	42	0
+41 to +100% CC			1	0	1	0
Non-Vegetation Change	14	0	14	0	28	0
Cloud or Cloud Shadow	1,702	21	4,605	41	6,307	33
Total	8,095	100	11,241	100	19,336	100
Eucalyptus						
+15 to -15% CC (Little or No Change)	181	64	214	38	395	47
Cloud or Cloud Shadow	104	36	350	62	453	53
Total	284	100	564	100	848	100
Montane Hardwood						
-41 to -70% CC			1	0	1	0
-16 to -40% CC	12	0	4	0	16	0
+15 to -15% CC (Little or No Change)	17,520	91	29,774	90	47,294	91
+16 to +40% CC	14	0	51	0	66	0
+41 to +100% CC	4	0			4	0
Non-Vegetation Change	10	0	35	0	45	0
Cloud or Cloud Shadow	1,745	9	3,037	9	4,781	9
Total	19,304	100	32,902	100	52,206	100
Montane Riparian						
+15 to -15% CC (Little or No Change)	100	11	177	30	277	19
+16 to +40% CC			4	1	4	0
+41 to +100% CC			2	0	2	0
Cloud or Cloud Shadow	785	89	416	70	1,201	81
Total	885	100	599	100	1,484	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)	18	100	209	100	227	100
Non-Vegetation Change			1	0	1	0
Total	18	100	210	100	228	100
All Hardwood	28,587		45,517		74,104	

Table C-60 Acres of Classified Change in Marin County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
+15 to -15% CC (Little or No Change)			98	80	98	80
Cloud or Cloud Shadow			24	20	24	20
Total			122	100	122	100
Coastal Scrub						
Shrub/Grass Decrease > 15%	5	0	1	0	6	0
+15 to -15% CC (Little or No Change)	4,634	20	2,511	30	7,146	23
Shrub/Grass Increase > 15%	42	0	144	2	186	1
Non-Vegetation Change	6	0	3	0	9	0
Cloud or Cloud Shadow	18,045	79	5,592	68	23,637	76
Total	22,732	100	8,252	100	30,984	100
Mixed Chaparral						
+15 to -15% CC (Little or No Change)	2,044	100	180	100	2,224	100
Total	2,044	100	180	100	2,224	100
Unknown Shrub/Chaparral						
+15 to -15% CC (Little or No Change)	55	29	298	95	354	70
Shrub/Grass Increase > 15%			4	1	4	1
Non-Vegetation Change			2	0	2	0
Cloud or Cloud Shadow	138	71	9	3	147	29
Total	193	100	313	100	506	100
All Shrub/Chaparral	24,970		8,866		33,836	

Table C-61 Acres of Verified Change in Marin County by Cause and Conifer Cover Type

	Unknown Cause	All Causes
Closed Cone Pine-Cypress		
+41 to +100% CC	6	6
Total	6	6
Douglas Fir		
-41 to -70% CC	1	1
-16 to -40% CC	41	41
+16 to +40% CC	15	15
+41 to +100% CC	2	2
Total	58	58
Montane hardwood-conifer		
-16 to -40% CC	3	3
Total	3	3
Redwood		
-16 to -40% CC	4	4
Total	4	4
All Conifer	73	73

Table C-63 Acres of Verified Change in Marin County by Cause and Hardwood Cover Type

	Unknown Cause	All Causes
Coastal Oak Woodland		
+16 to +40% CC	42	42
+41 to +100% CC	1	1
Total	43	43
Montane Hardwood		
-41 to -70% CC	1	1
-16 to -40% CC	16	16
+16 to +40% CC	66	66
+41 to +100% CC	4	4
Total	86	86
Montane Riparian		
+16 to +40% CC	4	4
+41 to +100% CC	2	2
Total	6	6
All Hardwood	134	134

Table C-64 Acres of Verified Change in Marin County by Cause and Shrub/Chaparral Cover Type

	Unknown Cause	All Causes
Coastal Scrub		
Shrub/Grass Decrease > 15%	6	6
Shrub/Grass Increase > 15%	186	186
Total	192	192
Unknown Shrub/Chaparral		
Shrub/Grass Increase > 15%	4	4
Total	4	4
All Shrub/Chaparral	196	196

Mendocino County

Land Cover Change, 1994 –1998

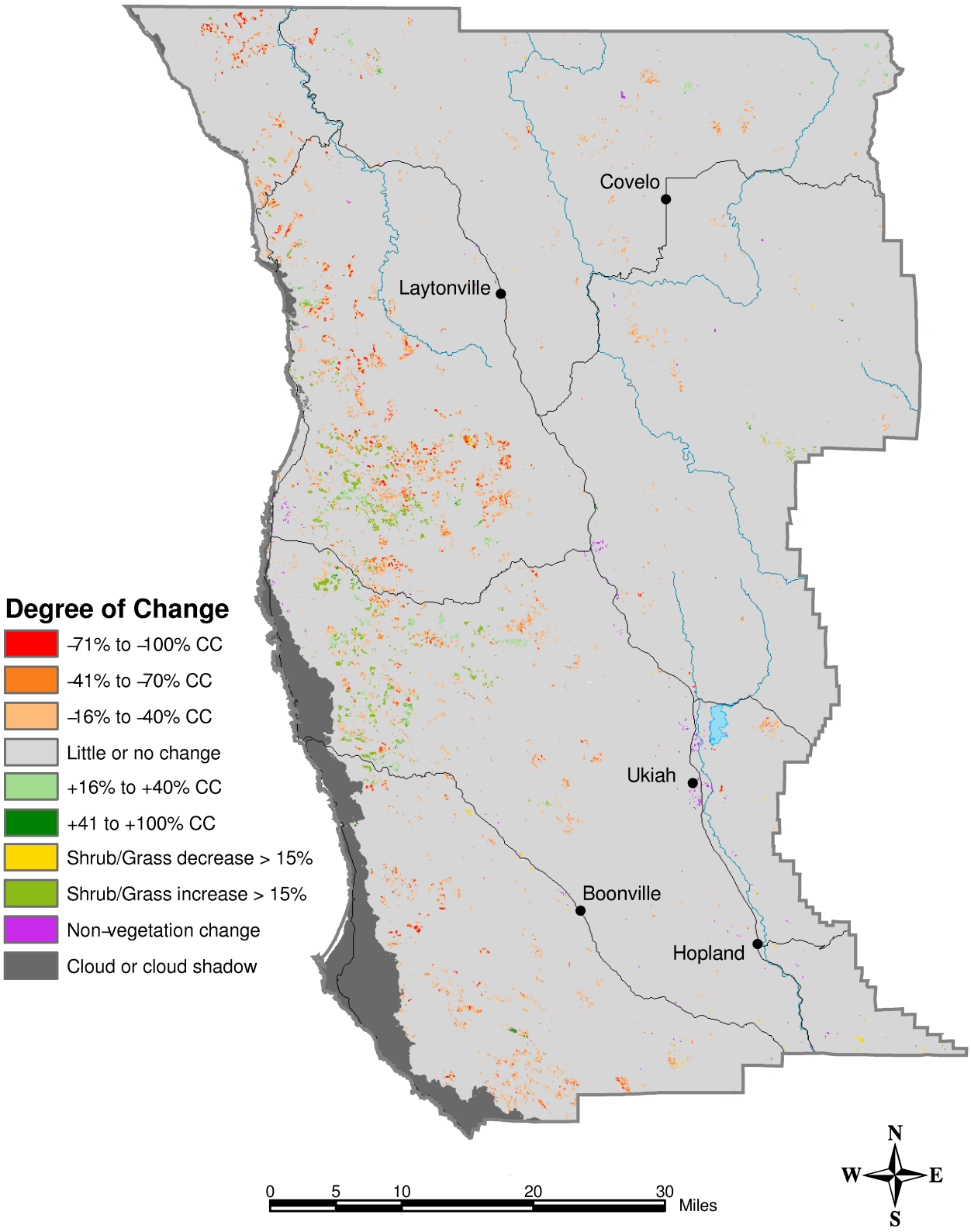


Table C-65 Acres of Classified Change in Mendocino County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	5	0									6	0
-41 to -70% CC	35	0	12	0							47	0
-16 to -40% CC	166	0	32	0							199	0
+15 to -15% CC (Little or No Change)	100,399	99	37,483	100	6,808	100	29,194	100	1,362	100	175,246	100
+16 to +40% CC	310	0	3	0							313	0
+41 to +100% CC	24	0									24	0
Shrub/Grass Decrease > 15%					1	0	18	0			20	0
Shrub/Grass Increase > 15%							72	0			72	0
Non-Vegetation Change			2	0	1	0		0	5	0	8	0
Cloud or Cloud Shadow				0								
Total	100,939	100	37,533	100	6,810	100	29,285	100	1,367	100	175,934	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	219	0	2	0							220	0
-41 to -70% CC	610	1	26	0							636	0
-16 to -40% CC	2,010	2	184	0							2,194	1
+15 to -15% CC (Little or No Change)	116,347	95	48,017	99	6,593	89	37,128	98	5,616	92	213,700	96
+16 to +40% CC	362	0	59	0							420	0
+41 to +100% CC	62	0	1	0							63	0
Shrub/Grass Decrease > 15%					3	0	36	0			39	0
Shrub/Grass Increase > 15%					18	0	726	2			744	0
Non-Vegetation Change	10	0	21	0	14	0			71	1	116	0
Cloud or Cloud Shadow	2,277	2	220	0	821	11	158	0	398	7	3,875	2
Total	121,898	100	48,529	100	7,448	100	38,048	100	6,085	100	222,008	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	3,121	0	435	0							3,556	0
-41 to -70% CC	7,383	1	1,330	0							8,714	0
-16 to -40% CC	22,169	3	3,758	1					1	0	25,928	1
+15 to -15% CC (Little or No Change)	760,102	91	569,374	98	244,314	93	80,429	92	68,574	92	1,722,794	93
+16 to +40% CC	2,418	0	1,098	0					1	0	3,517	0
+41 to +100% CC	228	0	76	0					5	0	309	0
Shrub/Grass Decrease > 15%					376	0	289	0	13	0	678	0
Shrub/Grass Increase > 15%					950	0	5,661	6			6,611	0
Non-Vegetation Change	8	0	88	0	366	0			865	1	1,327	0
Cloud or Cloud Shadow	42,463	5	5,064	1	15,905	6	1,313	1	4,730	6	69,474	4
Total	837,892	100	581,223	100	261,910	100	87,691	100	74,190	100	1,842,907	100

Table C-65 Acres of Classified Change in Mendocino County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	3,344	0	438	0							3,782	0
-41 to -70% CC	8,028	1	1,369	0							9,397	0
-16 to -40% CC	24,345	2	3,974	1					2	0	28,321	1
+15 to -15% CC (Little or No Change)	976,849	92	654,873	98	257,714	93	146,751	95	75,552	93	2,111,740	94
+16 to +40% CC	3,090	0	1,160	0	0	0	0	0	1	0	4,251	0
+41 to +100% CC	314	0	77	0	0	0	0	0	5	0	396	0
Shrub/Grass Decrease > 15%					380	0	343	0	13	0	737	0
Shrub/Grass Increase > 15%					967	0	6,459	4			7,426	0
Non-Vegetation Change	18	0	111	0	381	0	0	0	941	1	1,450	0
Cloud or Cloud Shadow	44,740	4	5,284	1	16,726	6	1,471	1	5,128	6	73,349	3
Total	1,060,729	100	667,285	100	276,168	100	155,024	100	81,642	100	2,240,848	100

Table C-66 Acres of Verified Change in Mendocino County by Cause and Lifeform

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Conifer						
-71 to -100% CC		2,672		1	672	3,344
-41 to -70% CC		6,066		15	1,948	8,028
-16 to -40% CC		17,007		67	7,271	24,345
+16 to +40% CC			2,203		887	3,090
+41 to +100% CC			249		65	314
Total		25,746	2,452	82	10,843	39,122
Hardwood						
-71 to -100% CC	11	289		1	137	438
-41 to -70% CC	56	656		2	655	1,369
-16 to -40% CC	296	1,578		8	2,092	3,974
+16 to +40% CC			824		336	1,160
+41 to +100% CC			44		33	77
Total	362	2,523	868	12	3,252	7,017
Shrub/Chaparral						
Shrub/Grass Decrease > 15%	15	44		1	284	343
Shrub/Grass Increase > 15%			4,224		2,235	6,459
Total	15	44	4,224	1	2,519	6,802
Grass/Forb						
Shrub/Grass Decrease > 15%		101		9	269	380
Shrub/Grass Increase > 15%			755		212	967
Total		101	755	9	481	1,347
Non-Forested Other						
-16 to -40% CC					2	2
+16 to +40% CC					1	1
+41 to +100% CC					5	5
Shrub/Grass Decrease > 15%					13	13
Total					21	21
All Lifeforms	377	28,414	8,299	104	17,116	54,310

Table C-67 Acres of Classified Change in Mendocino County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress								
-71 to -100% CC					9	0	9	0
-41 to -70% CC			16	0	50	0	67	0
-16 to -40% CC			27	0	149	1	177	1
+15 to -15% CC (Little or No Change)	394	100	8,199	95	11,202	52	19,795	65
+16 to +40% CC					40	0	40	0
Non-Vegetation Change					3	0	3	0
Cloud or Cloud Shadow			433	5	9,970	47	10,403	34
Total	394	100	8,676	100	21,423	100	30,494	100
Douglas Fir								
-71 to -100% CC	2	0	13	0	584	0	599	0
-41 to -70% CC	6	0	102	0	1,293	0	1,401	0
-16 to -40% CC	36	0	298	1	4,418	2	4,752	1
+15 to -15% CC (Little or No Change)	45,835	100	47,612	99	268,085	98	361,532	98
+16 to +40% CC	72	0	25	0	163	0	261	0
+41 to +100% CC					4	0	4	0
Non-Vegetation Change					2	0	2	0
Cloud or Cloud Shadow			235	0	9	0	244	0
Total	45,950	100	48,285	100	274,559	100	368,794	100
Jeffrey Pine								
-16 to -40% CC					4	13	4	5
+15 to -15% CC (Little or No Change)	43	100	10	100	27	85	80	94
Total	43	100	10	100	32	100	85	100
Klamath Mixed Conifer								
-71 to -100% CC	2	0					2	0
-41 to -70% CC	18	0			6	0	24	0
-16 to -40% CC	64	0	5	0	44	3	113	0
+15 to -15% CC (Little or No Change)	18,280	98	3,720	100	1,715	97	23,715	99
+16 to +40% CC	186	1			3	0	189	1
+41 to +100% CC	13	0					13	0
Total	18,562	100	3,726	100	1,769	100	24,057	100
Montane hardwood-conifer								
-71 to -100% CC					54	0	54	0
-41 to -70% CC			2	0	148	0	151	0
-16 to -40% CC	2	0	12	0	438	1	453	1
+15 to -15% CC (Little or No Change)	11,779	100	2,578	98	47,336	97	61,693	98
+16 to +40% CC			3	0	132	0	135	0
+41 to +100% CC					7	0	7	0
Non-Vegetation Change			10	0	1	0	10	0
Cloud or Cloud Shadow			17	1	448	1	465	1
Total	11,782	100	2,623	100	48,564	100	62,968	100
Ponderosa Pine								
-71 to -100% CC	1	0			2	0	3	0
-41 to -70% CC	4	0			19	0	23	0
-16 to -40% CC	19	0	4	1	115	2	138	1
+15 to -15% CC (Little or No Change)	7,988	100	675	99	7,215	98	15,878	99
Total	8,011	100	679	100	7,352	100	16,043	100

Table C-67 Acres of Classified Change in Mendocino County by Conifer Cover Type and Owner Class (cont.)

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Redwood								
-71 to -100% CC			206	0	2,470	1	2,676	0
-41 to -70% CC			489	1	5,858	1	6,346	1
-16 to -40% CC			1,664	3	16,974	4	18,638	3
+15 to -15% CC (Little or No Change)			53,506	92	423,586	88	477,091	88
+16 to +40% CC			333	1	2,079	0	2,412	0
+41 to +100% CC			62	0	217	0	279	0
Non-Vegetation Change			0	0	2	0	2	0
Cloud or Cloud Shadow			1,593	3	32,037	7	33,629	6
Total			57,852	100	483,222	100	541,074	100
Red Fir								
-41 to -70% CC	2	0			8	4	9	1
-16 to -40% CC	5	1			17	9	22	2
+15 to -15% CC (Little or No Change)	761	99			166	87	927	97
Total	767	100			191	100	959	100
White Fir								
-41 to -70% CC	6	0					6	0
-16 to -40% CC	40	0			8	1	48	0
+15 to -15% CC (Little or No Change)	15,320	99	47	100	770	99	16,137	99
+16 to +40% CC	52	0					52	0
+41 to +100% CC	11	0					11	0
Total	15,428	100	47	100	779	100	16,255	100
All Conifer	100,939		121,898		837,892		1,060,729	

Table C-68 Acres of Classified Change in Mendocino County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine								
-41 to -70% CC					2	0	2	0
-16 to -40% CC					13	0	13	0
+15 to -15% CC (Little or No Change)	1,100	100	1,561	100	4,524	100	7,185	1
Total	1,100	100	1,561	100	4,539	100	7,200	1
Blue Oak Woodland								
-71 to -100% CC					4	0	4	0
-41 to -70% CC					5	0	5	0
-16 to -40% CC					6	0	6	0
+15 to -15% CC (Little or No Change)	2,895	100	1,296	100	7,549	100	11,740	100
Non-Vegetation Change					5	0	5	0
Total	2,895	100	1,296	100	7,569	100	11,759	100
Coastal Oak Woodland								
-71 to -100% CC					3	0	3	0
-41 to -70% CC					3	0	3	0
-16 to -40% CC					23	0	23	0
+15 to -15% CC (Little or No Change)			190	98	4,993	97	5,184	97
+16 to +40% CC					6	0	6	0
Non-Vegetation Change					2	0	2	0
Cloud or Cloud Shadow			4	2	131	3	135	3
Total			195	100	5,160	100	5,355	100
Eucalyptus								
+15 to -15% CC (Little or No Change)			5	100	79	75	83	76
+16 to +40% CC					5	4	5	4
+41 to +100% CC					1	1	1	1
Cloud or Cloud Shadow					20	19	20	19
Total			5	100	105	100	109	100
Montane Hardwood								
-71 to -100% CC			2	0	429	0	431	0
-41 to -70% CC	12	0	26	0	1,317	0	1,356	0
-16 to -40% CC	32	0	184	0	3,698	1	3,914	1
+15 to -15% CC (Little or No Change)	33,487	100	44,240	99	546,221	98	623,947	99
+16 to +40% CC	3	0	58	0	1,041	0	1,103	0
+41 to +100% CC			1	0	70	0	71	0
Non-Vegetation Change	2	0	21	0	73	0	95	0
Cloud or Cloud Shadow			140	0	2,246	0	2,386	0
Total	33,538	100	44,671	100	555,094	100	633,303	100
Montane Riparian								
-41 to -70% CC					2	0	2	0
-16 to -40% CC					11	0	11	0
+15 to -15% CC (Little or No Change)			322	81	2,632	49	2,954	51
+16 to +40% CC					38	1	38	1
+41 to +100% CC					4	0	4	0
Non-Vegetation Change					4	0	4	0
Cloud or Cloud Shadow			76	19	2,666	50	2,742	48
Total			398	100	5,356	100	5,754	100
Valley Oak Woodland								
-41 to -70% CC					2	0	2	0
-16 to -40% CC					7	0	7	0
+15 to -15% CC (Little or No Change)			403	100	3,377	99	3,780	99
+16 to +40% CC					8	0	9	0
+41 to +100% CC					2	0	2	0
Non-Vegetation Change					5	0	5	0
Total			404	100	3,400	100	3,804	100
All Hardwood	37,533		48,529		581,223		667,285	

Table C-69 Acres of Classified Change in Mendocino County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral								
Shrub/Grass Decrease > 15%	6	0	3	0	19	0	27	0
+15 to -15% CC (Little or No Change)	3,675	100	19,005	100	14,600	100	37,281	100
Shrub/Grass Increase > 15%					16	0	16	0
Total	3,681	100	19,008	100	14,636	100	37,325	100
Coastal Scrub								
Shrub/Grass Decrease > 15%			10	1	67	0	78	1
+15 to -15% CC (Little or No Change)			583	40	7,250	52	7,834	51
Shrub/Grass Increase > 15%			714	49	5,208	38	5,922	39
Cloud or Cloud Shadow			158	11	1,313	9	1,471	10
Total			1,466	100	13,838	100	15,304	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	6	0	23	0	159	0	188	0
+15 to -15% CC (Little or No Change)	12,046	100	17,155	100	47,568	99	76,769	99
Shrub/Grass Increase > 15%	19	0	12	0	211	0	242	0
Total	12,071	100	17,190	100	47,937	100	77,198	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	7	0			44	0	50	0
+15 to -15% CC (Little or No Change)	13,473	100	384	100	11,011	98	24,867	99
Shrub/Grass Increase > 15%	52	0			226	2	278	1
Total	13,532	100	384	100	11,280	100	25,196	100
All Shrub/Chaparral	29,285		38,048		87,691		155,024	

Table C-70 Acres of Verified Change in Mendocino County by Cause and Conifer Cover Type

	Harvest	Regrowth	Other	Unknown Cause	All Causes
Closed Cone Pine-Cypress					
-71 to -100% CC	8			1	9
-41 to -70% CC	20			46	67
-16 to -40% CC	28			148	177
+16 to +40% CC				40	40
Total	57			236	293
Douglas Fir					
-71 to -100% CC	442			156	599
-41 to -70% CC	806		2	593	1,401
-16 to -40% CC	2,034		14	2,704	4,752
+16 to +40% CC		78		182	261
+41 to +100% CC		1		4	4
Total	3,282	79	16	3,639	7,017
Jeffrey Pine					
-16 to -40% CC				4	4
Total				5	5
Klamath Mixed Conifer					
-71 to -100% CC				2	2
-41 to -70% CC				24	24
-16 to -40% CC	4			109	113
+16 to +40% CC		186		4	189
+41 to +100% CC		13		0	13
Total	5	198		139	342
Montane hardwood-conifer					
-71 to -100% CC	32			22	54
-41 to -70% CC	79			72	151
-16 to -40% CC	204		1	248	453
+16 to +40% CC		83		53	135
+41 to +100% CC		3		4	7
Total	315	86	1	399	800
Ponderosa Pine					
-71 to -100% CC				3	3
-41 to -70% CC	1			22	23
-16 to -40% CC	5			133	138
Total	6			159	164
Redwood					
-71 to -100% CC	2,190		1	486	2,676
-41 to -70% CC	5,159		12	1,175	6,346
-16 to -40% CC	14,732		52	3,853	18,638
+16 to +40% CC		1,805		608	2,412
+41 to +100% CC		221		57	279
Total	22,081	2,026	66	6,179	30,351
Red Fir					
-41 to -70% CC				9	9
-71 to -100% CC				0	0
-16 to -40% CC				22	22
Total				32	32
White Fir					
-41 to -70% CC				6	6
-16 to -40% CC				48	48
+16 to +40% CC		52			52
+41 to +100% CC		11			11
Total		62		55	118
All Conifer	25,746	2,452	82	10,843	39,122

Table C-71 Acres of Verified Change in Mendocino County by Cause and Hardwood Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Blue Oak Foothill Pine						
-41 to -70% CC					2	2
-16 to -40% CC					13	13
Total					15	15
Blue Oak Woodland						
-71 to -100% CC					4	4
-41 to -70% CC					5	5
-16 to -40% CC					6	6
Total					15	15
Coastal Oak Woodland						
-71 to -100% CC					3	3
-41 to -70% CC					2	3
-16 to -40% CC		2			20	23
+16 to +40% CC					6	6
Total		2			31	34
Eucalyptus						
+16 to +40% CC					5	5
+41 to +100% CC					1	1
Total					6	6
Montane Hardwood						
-71 to -100% CC	11	289		1	131	431
-41 to -70% CC	56	656		2	642	1,356
-16 to -40% CC	295	1,571		8	2,039	3,914
+16 to +40% CC			821		282	1,103
+41 to +100% CC			44		26	71
Total	361	2,516	865	12	3,120	6,874
Montane Riparian						
-41 to -70% CC					1	2
-16 to -40% CC		4			7	11
+16 to +40% CC			3		35	38
+41 to +100% CC					4	4
Total		5	3		46	54
Valley Oak Woodland						
-41 to -70% CC					2	2
-16 to -40% CC					7	7
+16 to +40% CC					9	9
+41 to +100% CC					2	2
Total					19	19
All Hardwoood	362	2,523	868	12	3,252	7,017

Table C-72 Acres of Verified Change in Mendocino County by Cause and Shrub/Chaparral Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%					27	27
Shrub/Grass Increase > 15%					16	16
Total					44	44
Coastal Scrub						
Shrub/Grass Decrease > 15%		42			35	78
Shrub/Grass Increase > 15%			3,917		2,005	5,922
Total		42	3,917		2,040	6,000
Mixed Chaparral						
Shrub/Grass Decrease > 15%	15	1		1	171	188
Shrub/Grass Increase > 15%			52		190	242
Total	15	1	52	1	361	430
Montane Chaparral						
Shrub/Grass Decrease > 15%					50	50
Shrub/Grass Increase > 15%			254		24	278
Total			254		74	328
All Shrub/Chaparral	15	44	4,224	1	2,519	6,802

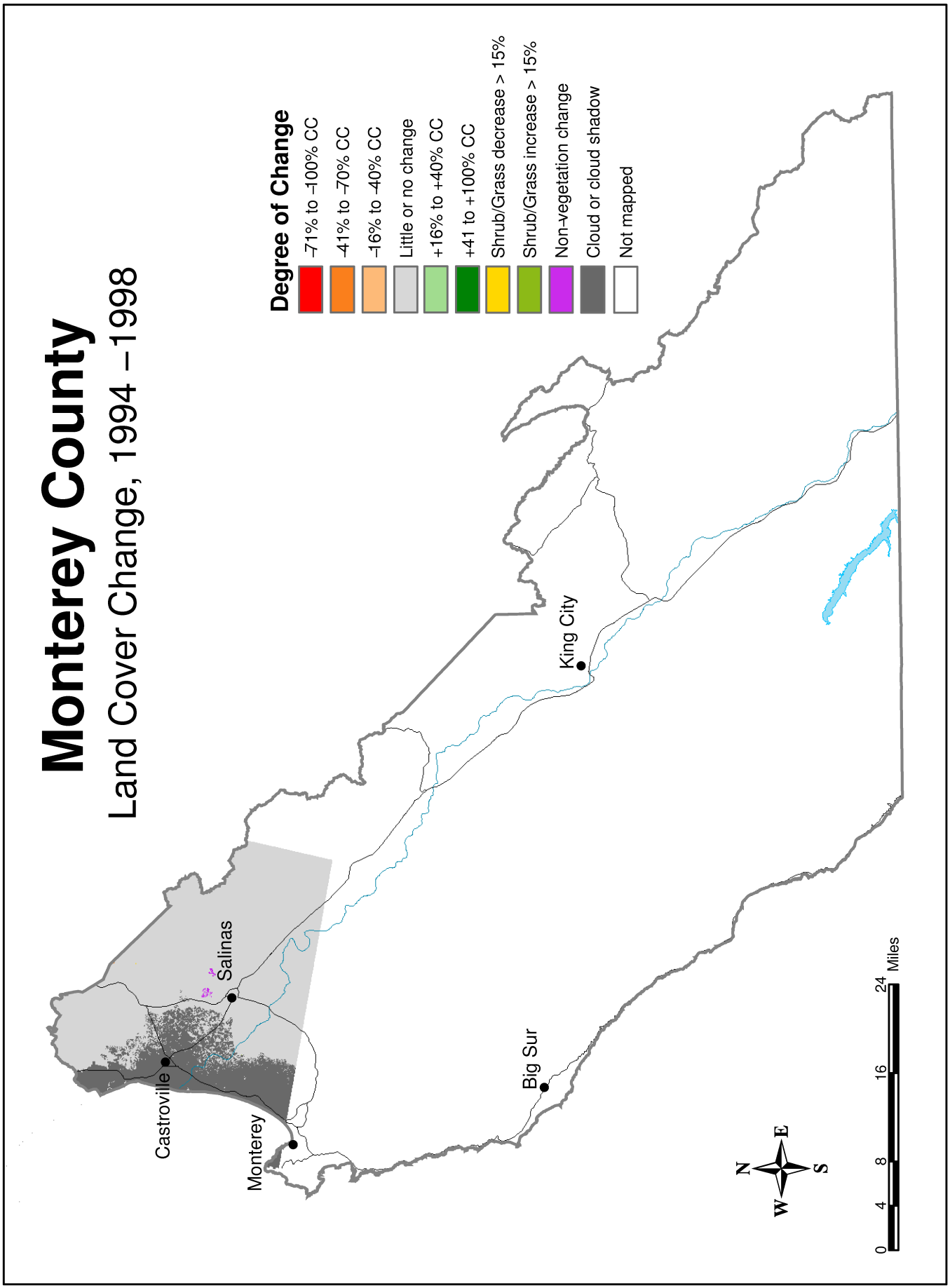

Monterey County
Land Cover Change, 1994 –1998
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
Castroville
Salinas
Monterey
Big Sur
King City
N
E
S
W
0
4
8
16
24
Miles

Table C-73 Acres of Classified Change in Monterey County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	7	38	1,909	57	4,043	62	1,668	37	5,161	36	12,788	45
Shrub/Grass Decrease > 15%											0	0
Shrub/Grass Increase > 15%					3	0					3	0
Non-Vegetation Change												
Cloud or Cloud Shadow	12	62	1,440	43	2,446	38	2,829	63	9,122	64	15,848	55
Total	19	100	3,348	100	6,492	100	4,497	100	14,284	100	28,639	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC	0	0	8	0							8	0
-16 to -40% CC	1	0	4	0					1	0	5	0
+15 to -15% CC (Little or No Change)	2,452	95	23,484	98	45,466	86	13,779	97	96,706	76	181,886	82
Shrub/Grass Decrease > 15%					4	0					4	0
Shrub/Grass Increase > 15%												
Non-Vegetation Change					117	0	2	0	212	0	331	0
Cloud or Cloud Shadow	128	5	491	2	7,139	14	422	3	30,410	24	38,590	17
Total	2,581	100	23,986	100	52,726	100	14,203	100	127,328	100	220,824	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC			8	0							8	0
-16 to -40% CC	1	0	4	0					1	0	5	0
+15 to -15% CC (Little or No Change)	2,459	95	25,392	93	49,509	84	15,447	83	101,867	72	194,674	78
Shrub/Grass Decrease > 15%					4	0					4	0
Shrub/Grass Increase > 15%					3	0					3	0
Non-Vegetation Change					117	0	2	0	212	0	331	0
Cloud or Cloud Shadow	140	5	1,931	7	9,585	16	3,251	17	39,532	28	54,439	22
Total	2,599	100	27,334	100	59,218	100	18,700	100	141,612	100	249,463	100

Table C-74 Acres of Verified Change in Monterey County by Cause and Lifeform

	Unknown Cause	All Causes
Conifer		
-16 to -40% CC	1	1
Total	1	1
Hardwood		
-41 to -70% CC	8	8
-16 to -40% CC	4	4
Total	11	11
Grass/Forb		
Shrub/Grass Decrease > 15%	4	4
Shrub/Grass Increase > 15%	3	3
Total	7	7
Non-Forested Other		
-16 to -40% CC	1	1
Total	1	1
All Lifeforms	20	20

Table C-75 Acres of Classified Change in Monterey County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Montane hardwood-conifer						
+15 to -15% CC (Little or No Change)			14	100	14	100
Total			14	100	14	100
Undetermined Conifer						
-16 to -40% CC			1	0	1	0
+15 to -15% CC (Little or No Change)	7	38	2,437	95	2,444	95
Cloud or Cloud Shadow	12	62	128	5	140	5
Total	19	100	2,567	100	2,585	100
All Conifer	19		2,581		2,599	

Table C-76 Acres of Classified Change in Monterey County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
+15 to -15% CC (Little or No Change)			73	97	73	97
Cloud or Cloud Shadow			2	3	2	3
Total			75	100	75	100
Blue Oak Woodland						
+15 to -15% CC (Little or No Change)	54	100	205	74	259	78
Cloud or Cloud Shadow			73	26	73	22
Total	54	100	278	100	332	100
Coastal Oak Woodland						
-41 to -70% CC			8	0	8	0
-16 to -40% CC			4	0	4	0
+15 to -15% CC (Little or No Change)	1,826	57	22,685	99	24,511	94
Cloud or Cloud Shadow	1,381	43	260	1	1,641	6
Total	3,208	100	22,956	100	26,164	100
Eucalyptus						
+15 to -15% CC (Little or No Change)	2	9			2	5
Cloud or Cloud Shadow	22	91	17	100	39	95
Total	24	100	17	100	42	100
Montane Hardwood						
Cloud or Cloud Shadow			3	100	3	100
Total			3	100	3	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)			240	100	240	100
Total			240	100	240	100
Valley Foothill Riparian						
+15 to -15% CC (Little or No Change)	26	42	280	67	306	64
Cloud or Cloud Shadow	36	58	137	33	173	36
Total	63	100	416	100	479	100
All Hardwood	3,348		23,986		27,334	

Table C-77 Acres of Classified Change in Monterey County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
+15 to -15% CC (Little or No Change)	8	100	1,456	99	1,464	99
Cloud or Cloud Shadow			8	1	8	1
Total	8	100	1,464	100	1,472	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)			334	89	334	53
Cloud or Cloud Shadow	260	100	42	11	302	47
Total	261	100	376	100	636	100
Undetermined Shrub/Chaparral						
+15 to -15% CC (Little or No Change)	1,660	39	11,989	97	13,649	82
Non-Vegetation Change			2	0	2	0
Cloud or Cloud Shadow	2,568	61	373	3	2,941	18
Total	4,228	100	12,364	100	16,592	100
All Shrub/Chaparral	4,497		14,203		18,700	

Table C-78 Acres of Verified Change in Monterey County by Cause and Conifer Cover Type

	Unknown Cause	All Causes
Undetermined Conifer		
-16 to -40% CC	1	1
Total	1	1
All Conifer	1	1

Table C-79 Acres of Verified Change in Monterey County by Cause and Hardwood Cover Type

	Unknown Cause	All Causes
Coastal Oak Woodland		
-41 to -70% CC	8	8
-16 to -40% CC	4	4
Total	11	11
All Hardwood	11	11

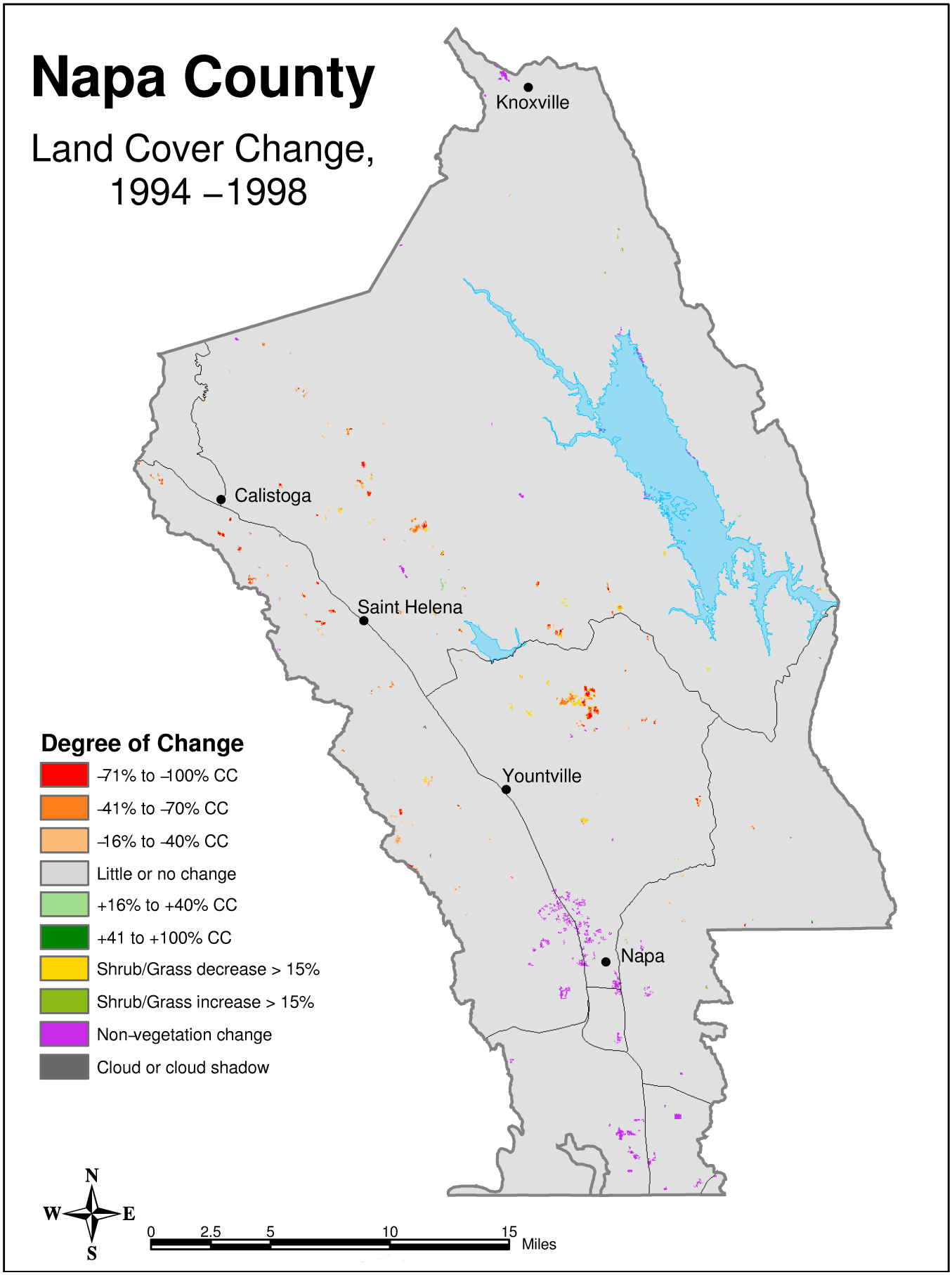

Napa County
Land Cover Change,
1994 –1998
Knoxville
Calistoga
Saint Helena
Yountville
Napa
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to –40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
N
W
E
S
0
2.5
5
10
15
Miles

Table C-80 Acres of Classified Change in Napa County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC			1	0		0		0		0	1	0
-41 to -70% CC			2	0		0		0		0	2	0
-16 to -40% CC	3	0	2	0		0		0		0	6	0
+15 to -15% CC (Little or No Change)	5,925	100	13,442	100	2,885	99	29,363	100	27,118	100	78,733	100
+16 to +40% CC			1	0							1	0
+41 to +100% CC			2	0							2	0
Shrub/Grass Decrease > 15%							8	0			8	0
Shrub/Grass Increase > 15%					1	0	2	0			2	0
Non-Vegetation Change			47	0	14	0			74	0	135	0
Cloud or Cloud Shadow												
Total	5,928	100	13,497	100	2,899	100	29,373	100	27,193	100	78,890	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	31	0	287	0					2	0	320	0
-41 to -70% CC	82	1	391	0							473	0
-16 to -40% CC	146	1	167	0							313	0
+15 to -15% CC (Little or No Change)	14,486	98	167,039	99	67,242	99	90,581	100	84,545	99	423,893	99
+16 to +40% CC	21	0	34	0					0	0	55	0
+41 to +100% CC	0	0	4	0							4	0
Shrub/Grass Decrease > 15%					107	0	256	0	3	0	366	0
Shrub/Grass Increase > 15%					19	0	10	0			29	0
Non-Vegetation Change			68	0	257	0	3	0	789	1	1,118	0
Cloud or Cloud Shadow	2	0	1	0	2	0			5	0	10	0
Total	14,769	100	167,991	100	67,627	100	90,850	100	85,345	100	426,582	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	31	0	288	0					2	0	321	0
-41 to -70% CC	82	0	393	0							475	0
-16 to -40% CC	149	1	170	0							319	0
+15 to -15% CC (Little or No Change)	20,411	99	180,480	99	70,127	99	119,944	100	111,663	99	502,625	99
+16 to +40% CC	21	0	35	0							56	0
+41 to +100% CC			6	0							6	0
Shrub/Grass Decrease > 15%					107	0	265	0	3	0	375	0
Shrub/Grass Increase > 15%					20	0	12	0	0	0	32	0
Non-Vegetation Change			116	0	271	0	3	0	864	1	1,253	0
Cloud or Cloud Shadow	2	0	1	0	2	0			5	0	10	0
Total	20,697	100	181,488	100	70,527	100	120,223	100	112,537	100	505,472	100

Table C-81 Acres of Verified Change in Napa County by Cause and Lifeform

	Fire	Development	Other	Unknown Cause	All Causes
Conifer					
-71 to -100% CC		1	27	3	31
-41 to -70% CC	1	2	60	19	82
-16 to -40% CC	7	3	46	95	149
+16 to +40% CC				21	21
Total	8	6	133	138	284
Hardwood					
-71 to -100% CC	12	6	222	48	288
-41 to -70% CC	2	4	327	61	393
-16 to -40% CC	2	1	92	75	170
+41 to +100% CC				6	6
Total	15	11	645	220	891
Shrub/Chaparral					
Shrub/Grass Decrease > 15%	27		141	97	265
Shrub/Grass Increase > 15%				12	12
Total	27		141	108	276
Grass/Forb					
Shrub/Grass Decrease > 15%			104	3	107
Shrub/Grass Increase > 15%				20	20
Total			104	23	127
Non-Forested Other					
-71 to -100% CC				2	2
Shrub/Grass Decrease > 15%			1	2	3
Total			1	4	5
All Lifeforms	50	17	1,023	493	1,584

Table C-82 Acres of Classified Change in Napa County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress						
-41 to -70% CC			9	1	9	0
-16 to -40% CC	3	0	38	2	41	1
+15 to -15% CC (Little or No Change)	4,802	100	1,532	97	6,333	99
Total	4,805	100	1,579	100	6,384	100
Douglas Fir						
-71 to -100% CC			27	0	27	0
-41 to -70% CC			59	1	59	1
-16 to -40% CC			91	1	91	1
+15 to -15% CC (Little or No Change)	933	100	10,030	98	10,963	98
+16 to +40% CC			21	0	21	0
Cloud or Cloud Shadow			2	0	2	0
Total	933	100	10,230	100	11,163	100
Klamath Mixed Conifer						
+15 to -15% CC (Little or No Change)			72	100	72	100
Total			72	100	72	100
Montane hardwood-conifer						
-41 to -70% CC			1	0	1	0
+15 to -15% CC (Little or No Change)	93	100	1,995	100	2,088	100
Total	93	100	1,997	100	2,090	100
Ponderosa pine						
-71 to -100% CC			4	1	4	1
-41 to -70% CC			13	4	13	4
-16 to -40% CC			16	5	16	4
+15 to -15% CC (Little or No Change)	42	100	293	90	336	91
Total	42	100	326	100	368	100
Redwood						
-16 to -40% CC			2	0	2	0
+15 to -15% CC (Little or No Change)	52	100	533	100	584	100
Total	52	100	534	100	586	100
Undetermined Conifer						
+15 to -15% CC (Little or No Change)	3	100	31	100	34	100
Total	3	100	31	100	34	100
All Conifer	5,928		14,769		20,697	

Table C-83 Acres of Classified Change in Napa County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
-71 to -100% CC		0	4	0	4	0
-41 to -70% CC	1	0	3	0	4	0
-16 to -40% CC		0	2	0	2	0
+15 to -15% CC (Little or No Change)	1,544	100	7,919	100	9,464	100
+16 to +40% CC		0	1	0	1	0
Total	1,545	100	7,929	100	9,474	100
Blue Oak Woodland						
-71 to -100% CC			6	0	6	0
-41 to -70% CC	1	0	12	0	13	0
-16 to -40% CC	2	0	5	0	7	0
+15 to -15% CC (Little or No Change)	5,455	99	47,281	100	52,736	100
+16 to +40% CC			7	0	7	0
Non-Vegetation Change	47	1	3	0	50	0
Total	5,505	100	47,315	100	52,820	100
Coastal Oak Woodland						
+15 to -15% CC (Little or No Change)			1,033	100	1,033	100
Non-Vegetation Change			1	0	1	0
Total			1,034	100	1,034	100
Eucalyptus						
+15 to -15% CC (Little or No Change)			74	100	74	100
Total			74	100	74	100
Montane Hardwood						
-71 to -100% CC	1	0	277	0	278	0
-41 to -70% CC	1	0	375	0	376	0
-16 to -40% CC			160	0	160	0
+15 to -15% CC (Little or No Change)	6,442	100	110,002	99	116,445	99
+16 to +40% CC	1	0	26	0	27	0
+41 to +100% CC	2	0	4	0	6	0
Non-Vegetation Change			60	0	60	0
Cloud or Cloud Shadow			1	0	1	0
Total	6,447	100	110,905	100	117,352	100
Montane Riparian						
+15 to -15% CC (Little or No Change)			189	98	189	98
Non-Vegetation Change			4	2	4	2
Total			193	100	193	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)			540	100	540	100
Total			541	100	541	100
All Hardwood	13,497		167,991		181,488	

Table C-84 Acres of Classified Change in Napa County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%	2	0	0	0	2	0
+15 to -15% CC (Little or No Change)	4,064	100	8,997	100	13,061	100
Total	4,067	100	8,998	100	13,064	100
Mixed Chaparral						
Shrub/Grass Decrease > 15%	6	0	256	0	262	0
+15 to -15% CC (Little or No Change)	25,272	100	81,298	100	106,571	100
Shrub/Grass Increase > 15%	1	0	6	0	7	0
Non-Vegetation Change			2	0	2	0
Total	25,280	100	81,561	100	106,841	100
Undetermined Shrub/Chaparral						
+15 to -15% CC (Little or No Change)	26	0	286	98	312	98
Shrub/Grass Increase > 15%			4	2	4	1
Non-Vegetation Change			1	0	1	0
Total	26	0	291	100	318	100
All Shrub/Chaparral	29,373		90,850		120,223	

Table C-85 Acres of Verified Change in Napa County by Cause and Conifer Cover Type

	Fire	Development	Other	Unknown Cause	All Causes
Closed Cone Pine-Cypress					
-41 to -70% CC	1			8	9
-16 to -40% CC	6			35	41
Total	7			43	50
Douglas Fir					
-71 to -100% CC		1	23	3	27
-41 to -70% CC		2	46	11	59
-16 to -40% CC	1	3	30	58	91
+16 to +40% CC				21	21
Total	1	6	99	92	197
Montane hardwood-conifer					
-41 to -70% CC			1		1
Total			1		2
Ponderosa Pine					
-71 to -100% CC			4		4
-41 to -70% CC			13		13
-16 to -40% CC			16		16
Total			32		32
Redwood					
-16 to -40% CC				2	2
Total				2	2
All Conifer	8	6	133	138	284

Table C-86 Acres of Verified Change in Napa County by Cause and Hardwood Cover Type

	Fire	Development	Other	Unknown Cause	All Causes
Blue Oak Foothill Pine					
-71 to -100% CC			3		4
-41 to -70% CC			3	1	4
-16 to -40% CC			1	1	2
+16 to +40% CC				1	1
Total			8	2	10
Blue Oak Woodland					
-71 to -100% CC			6		6
-41 to -70% CC			12	1	13
-16 to -40% CC			3	4	7
+16 to +40% CC				7	7
Total			21	13	34
Montane Hardwood					
-71 to -100% CC	12	6	213	47	278
-41 to -70% CC	2	4	312	59	376
-16 to -40% CC	2	1	87	70	160
+16 to +40% CC			4	23	27
+41 to +100% CC				6	6
Total	15	11	617	204	847
All Hardwood	15	11	645	220	891

Table C-87 Acres of Verified Change in Napa County by Cause and Shrub/Chaparral Cover Type

	Fire	Other	Unknown Cause	All Causes
Chamise-Redshank Chaparral				
Shrub/Grass Decrease > 15%			2	2
Shrub/Grass Increase > 15%			0	0
Total			3	3
Mixed Chaparral				
Shrub/Grass Decrease > 15%	27	141	94	262
Shrub/Grass Increase > 15%			7	7
Total	27	141	101	269
Undetermined Shrub/Chaparral				
Shrub/Grass Increase > 15%			4	4
Total			4	4
All Shrub/Chaparral	27	141	108	276

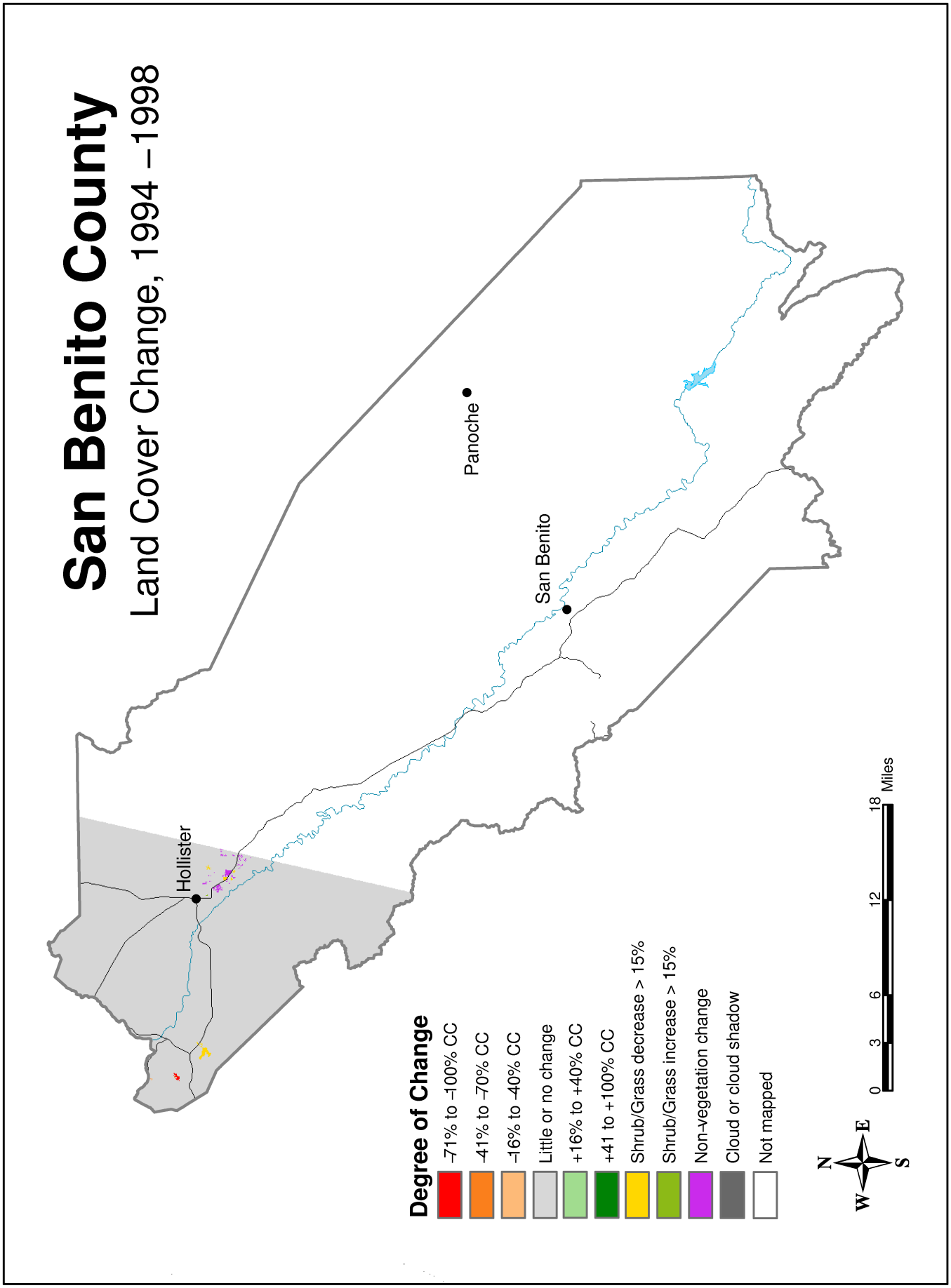

San Benito County
Land Cover Change, 1994 –1998
Hollister
Panoche
San Benito
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
0
3
6
12
18
Miles
N
W
E
S

Table C-88 Acres of Classified Change in San Benito County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	78	100	662	100	686	100	712	100	976	100	3,114	100
+16 to +40% CC												
Shrub/Grass Decrease > 15%												
Shrub/Grass Increase > 15%												
Non-Vegetation Change												
Total	78	100	662	100	686	100	712	100	976	100	3,114	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	2	0	18	0					33	0	53	0
-41 to -70% CC			2	0							2	0
-16 to -40% CC			2	0							2	0
+15 to -15% CC (Little or No Change)	3,743	100	15,486	100	44,415	99	9,570	100	60,824	100	134,039	100
+16 to +40% CC	1	0		0					1	0	1	0
Shrub/Grass Decrease > 15%					150	0			99	0	249	0
Shrub/Grass Increase > 15%							5	0			5	0
Non-Vegetation Change	0	0			200	0	2	0	94	0	296	0
Total	3,747	100	15,509	100	44,765	100	9,577	100	61,051	100	134,648	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	2	0	18	0					33	0	53	0
-41 to -70% CC			2	0							2	0
-16 to -40% CC			2	0							2	0
+15 to -15% CC (Little or No Change)	3,821	100	16,149	100	45,101	99	10,282	100	61,800	100	137,153	100
+16 to +40% CC	1	0							1	0	1	0
Shrub/Grass Decrease > 15%					150	0			99	0	249	0
Shrub/Grass Increase > 15%							5	0			5	0
Non-Vegetation Change					200	0	2	0	94	0	296	0
Total	3,824	100	16,171	100	45,451	100	10,289	100	62,027	100	137,763	100

Table C-89 Acres of Verified Change in San Benito County by Cause and Lifeform

	Development	Other	Unknown Cause	All Causes
Conifer				
-71 to -100% CC		2		2
-16 to -40% CC			1	1
Total		2	1	3
Hardwood				
-71 to -100% CC		18		18
-41 to -70% CC			2	2
-16 to -40% CC			2	2
Total		18	5	23
Shrub/Chaparral				
Shrub/Grass Increase > 15%			5	5
Total			5	5
Grass/Forb				
Shrub/Grass Decrease > 15%	143	4	3	150
Total	143	4	3	150
Non-Forested Other				
-71 to -100% CC		33		33
+16 to +40% CC			1	1
Shrub/Grass Decrease > 15%	96		3	99
Total	96	33	4	133
All Lifeforms	239	58	17	313

Table C-90 Acres of Classified Change in San Benito County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Montane hardwood-conifer						
+15 to -15% CC (Little or No Change)			422	100	422	100
Total			422	100	422	100
Undetermined Conifer						
-71 to -100% CC			2	0	2	0
-16 to -40% CC			1	0	1	0
+15 to -15% CC (Little or No Change)	78	100	3,321	100	3,399	100
Total	78	100	3,325	100	3,402	100
All Conifer	78		3,747		3,824	

Table C-91 Acres of Classified Change in San Benito County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Woodland						
+15 to -15% CC (Little or No Change)			65	100	65	100
Total			65	100	65	100
Coastal Oak Woodland						
-71 to -100% CC			17	0	17	0
-41 to -70% CC			2	0	2	0
-16 to -40% CC			2	0	2	0
+15 to -15% CC (Little or No Change)	638	100	15,199	100	15,837	100
Total	638	100	15,221	100	15,859	100
Eucalyptus						
-71 to -100% CC			1	2	1	2
+15 to -15% CC (Little or No Change)			35	98	35	98
Total			36	100	36	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)	24	100	128	100	153	100
Total	24	100	128	100	153	100
Valley Foothill Riparian						
+15 to -15% CC (Little or No Change)			58	100	58	100
Total			58	100	58	100
All Hardwood	662		15,509		16,171	

Table C-92 Acres of Classified Change in San Benito County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
+15 to -15% CC (Little or No Change)	374	100	892	100	1,266	100
Total	374	100	892	100	1,266	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)			94	100	94	100
Total			94	100	94	100
Mixed Chaparral						
+15 to -15% CC (Little or No Change)			114	100	114	100
Total			114	100	114	100
Undetermined Shrub/Chaparral						
+15 to -15% CC (Little or No Change)	338	100	8,470	100	8,808	100
Shrub/Grass Increase > 15%			5	0	5	0
Non-Vegetation Change			2	0	2	0
Total	338	100	8,477	100	8,815	100
All Shrub/Chaparral	712		9,577		10,289	

Table C-93 Acres of Verified Change in San Benito County by Cause and Conifer Cover Type

	Other	Unknown Cause	All Causes
Undetermined Conifer			
-71 to -100% CC	2		2
-16 to -40% CC		1	1
Total	2	1	3
All Conifer	2	1	3

Table C-94 Acres of Verified Change in San Benito County by Cause and Hardwood Cover Type

	Other	Unknown Cause	All Causes
Coastal Oak Woodland			
-71 to -100% CC	17		17
-41 to -70% CC		2	2
-16 to -40% CC		2	2
Total	17	5	22
Eucalyptus			
-71 to -100% CC	1		1
Total	1		1
All Hardwood	18	5	23

Table C-94 Acres of Verified Change in San Benito County by Cause and Shrub/Chaparral Cover Type

	Unknown Cause	All Causes
Undetermined Shrub/Chaparral		
Shrub/Grass Increase > 15%	5	5
Total	5	5
All Shrub/Chaparral	5	5

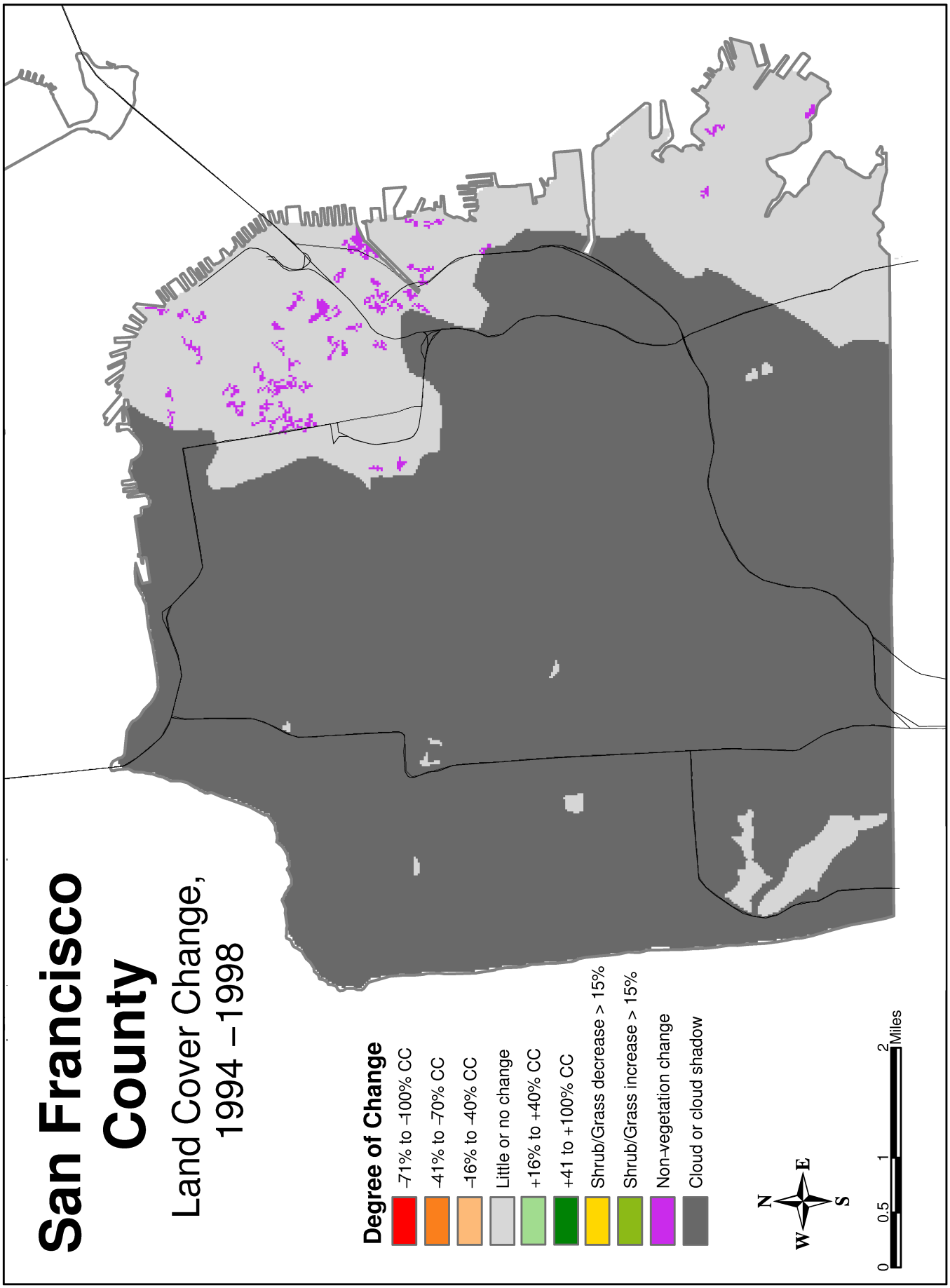

San Francisco County
Land Cover Change, 1994 –1998
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
N
E
S
W
0
0.5
1
2
Miles

Table C-96 Acres of Classified Change in San Francisco County by Lifeform Type and Owner Class

	Other Public									
	Conifer		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
+15 to -15% CC (Little or No Change)	4	2	56	26	3	1	699	16	762	16
Non-Vegetation Change							4	0	4	0
Cloud or Cloud Shadow	219	98	161	74	217	99	3,543	83	4,139	84
Total	223	100	218	100	219	100	4,245	100	4,906	100

	Private									
	Conifer		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
+15 to -15% CC (Little or No Change)	0	0	327	23	6	6	5,569	24	5,903	24
Non-Vegetation Change			3	0			204	1	207	1
Cloud or Cloud Shadow	100	100	1,066	76	98	94	17,077	75	18,341	75
Total	101	100	1,396	100	104	100	22,851	100	24,451	100

	All Owners									
	Conifer		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
+15 to -15% CC (Little or No Change)	4	1	384	24	9	3	6,268	23	6,665	23
Non-Vegetation Change			3	0			208	1	211	1
Cloud or Cloud Shadow	319	99	1,227	76	314	97	20,620	76	22,480	77
Total	323	100	1,614	100	323	100	27,096	100	29,357	100

Table C-97 Acres of Verified Change in San Francisco County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Undetermined Conifer						
+15 to -15% CC (Little or No Change)	4	2			4	1
Cloud or Cloud Shadow	219	98	100	100	319	99
Total	223	100	101	100	323	100
All Conifer	223		101		323	

Table C-98 Acres of Classified Change in San Francisco County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Undetermined Shrub/Chaparral						
+15 to -15% CC (Little or No Change)	3	1	6	6	9	3
Cloud or Cloud Shadow	217	99	98	94	314	97
Total	219	100	104	100	323	100
All Shrub/Chaparral	219		104		323	

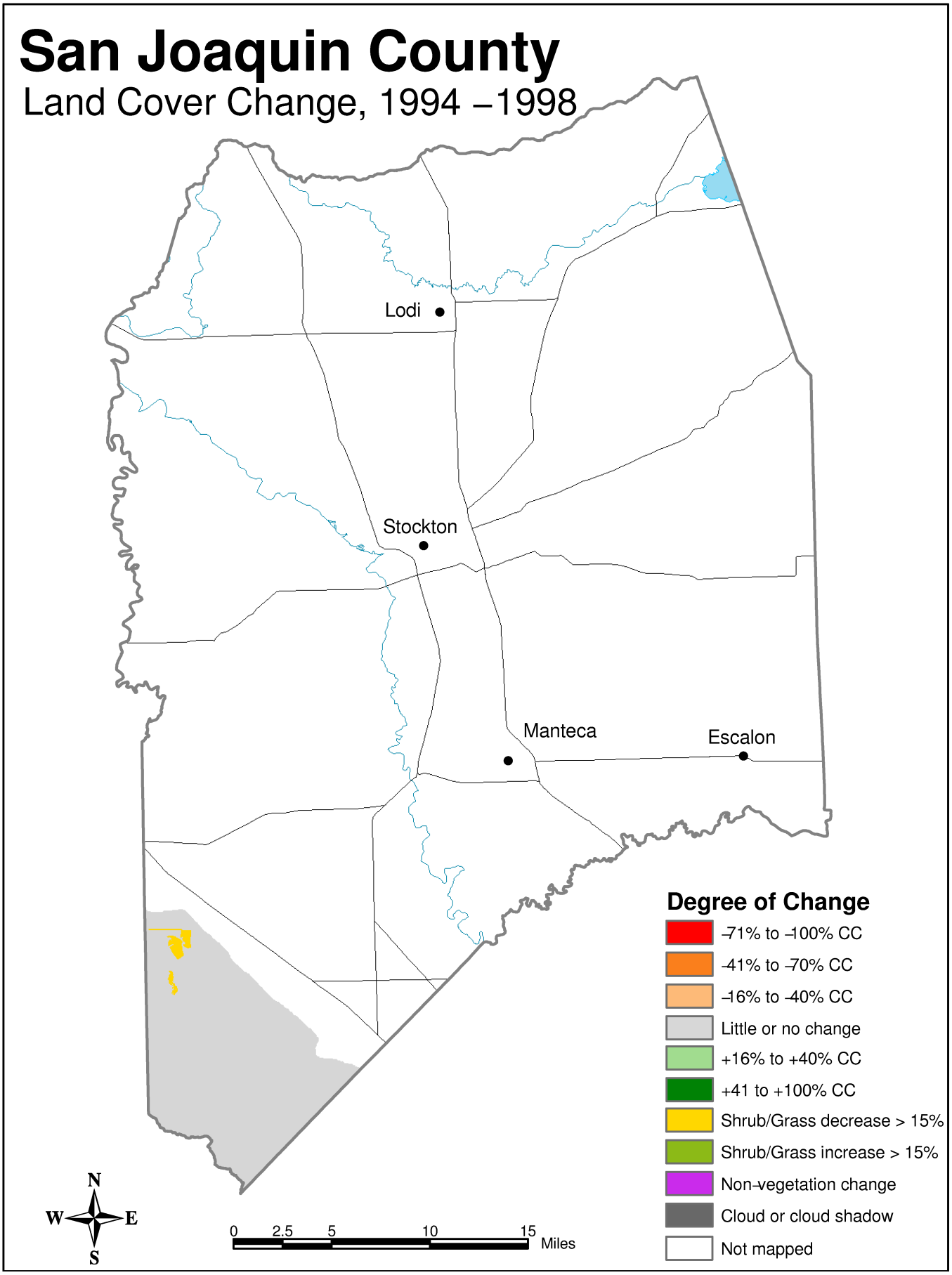

San Joaquin County
Land Cover Change, 1994 –1998
Lodi
Stockton
Manteca
Escalon
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to –40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
N
W
E
S
0 2.5 5 10 15
Miles

Table C-99 Acres of Classified Change in San Joaquin County by Lifeform Type and Owner Class

	Other Public					
	Grass/Forb		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%
+15 to -15% CC (Little or No Change)	91	100	2	100	93	100
Shrub/Grass Decrease > 15%						
Total	91	100	2	100	93	100

	Private									
	Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
+15 to -15% CC (Little or No Change)	8,302	100	32,108	98	791	100	13,152	99	54,263	98
Shrub/Grass Decrease > 15%			798	2			77	1	875	2
Total	8,302	100	32,907	100	791	100	13,228	100	55,138	100

	All Owners									
	Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
+15 to -15% CC (Little or No Change)	8,302	100	32,108	98	791	100	13,154	99	54,355	98
Shrub/Grass Decrease > 15%			798	2			77	1	875	2
Total	8,302	100	32,907	100	791	100	13,230	100	55,230	100

Table C-100 Acres of Verified Change in San Joaquin County by Cause and Lifeform

	Fire	All Causes
Grass/Forb		
Shrub/Grass Decrease > 15%	798	798
Total	798	798
Non-Forested Other		
Shrub/Grass Decrease > 15%	77	77
Total	77	77
All Lifeforms	875	875

Table C-101 Acres of Classified Change in San Joaquin County by Hardwood Cover Type and Owner Class

	Private		All Owners	
	Acres	%	Acres	%
Blue Oak Foothill Pine				
+15 to -15% CC (Little or No Change)	7,615	100	7,615	100
Total	7,615	100	7,615	100
Blue Oak Woodland				
+15 to -15% CC (Little or No Change)	687	100	687	100
Total	687	100	687	100
All Hardwood	8,302		8,302	

Table C-102 Acres of Classified Change in San Joaquin County by Shrub/Chaparral Cover Type and Owner Class

	Private		All Owners	
	Acres	%	Acres	%
Chamise-Redshank Chaparral				
+15 to -15% CC (Little or No Change)	519	100	519	100
Total	519	100	519	100
Undetermined Shrub/Chaparral				
+15 to -15% CC (Little or No Change)	273	100	273	100
Total	273	100	273	100
All Shrub/Chaparral	791		791	

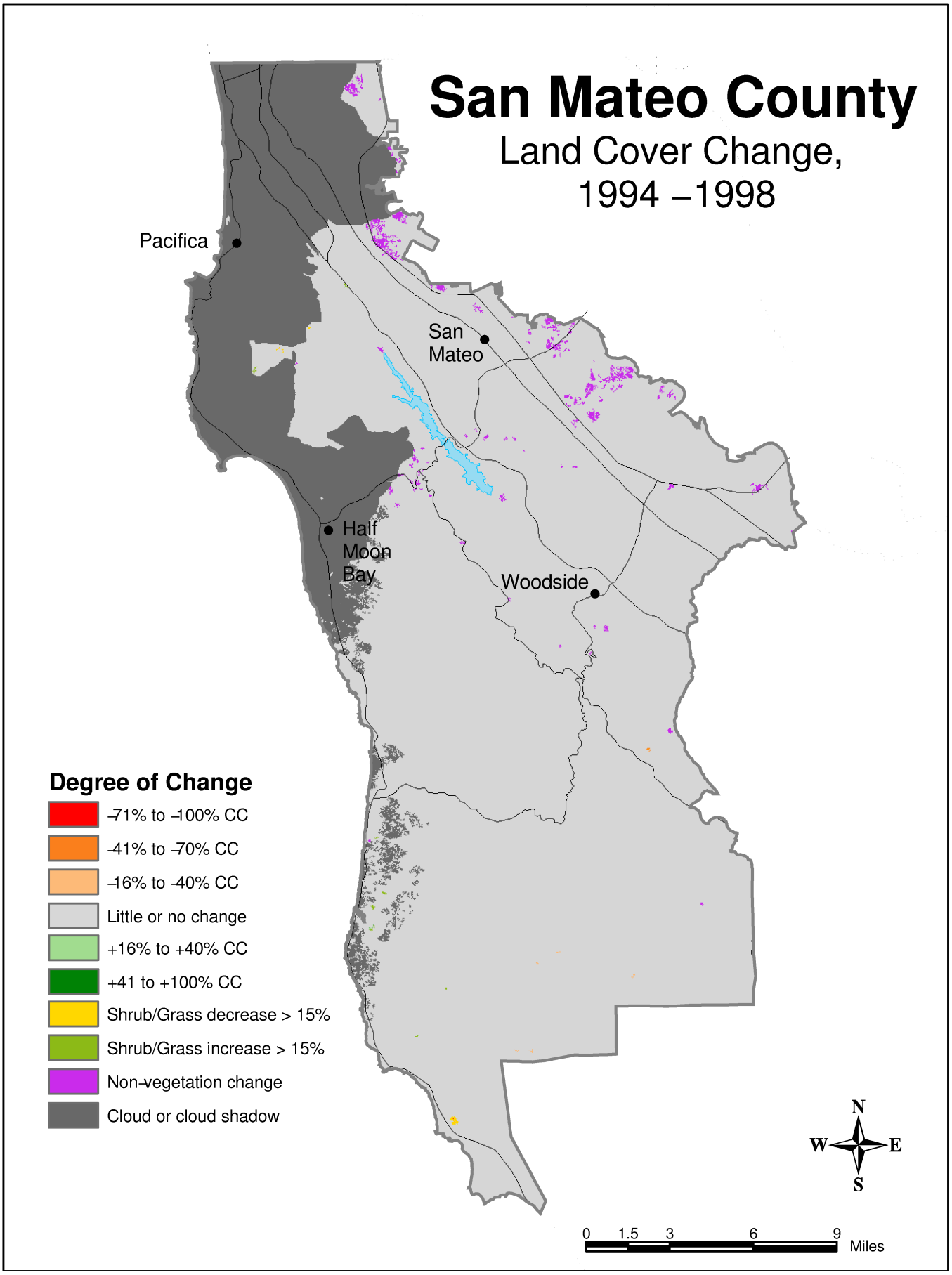

San Mateo County
Land Cover Change,
1994 –1998
Pacifica
San Mateo
Half Moon Bay
Woodside
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
N
W
E
S
0 1.5 3 6 9
Miles

Table C-103 Acres of Classified Change in San Mateo County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	15,113	99	556	96	1,139	62	2,736	50	7,013	69	26,556	80
+16 to +40% CC	4	0	1	0							5	0
+41 to +100% CC			1	0							1	0
Shrub/Grass Decrease > 15%												
Shrub/Grass Increase > 15%							14	0			14	0
Non-Vegetation Change	1	0			15	1			46	0	62	0
Cloud or Cloud Shadow	195	1	20	3	681	37	2,724	50	3,137	31	6,757	20
Total	15,312	100	578	100	1,834	100	5,475	100	10,196	100	33,396	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	2	0									2	0
-41 to -70% CC	1	0	3	0							4	0
-16 to -40% CC	20	0	2	0							22	0
+15 to -15% CC (Little or No Change)	58,372	97	10,419	97	22,681	78	22,615	70	93,278	74	207,364	80
+16 to +40% CC									1	0	1	0
+41 to +100% CC											0	0
Shrub/Grass Decrease > 15%							28	0	16	0	43	0
Shrub/Grass Increase > 15%							25	0			25	0
Non-Vegetation Change	5	0	19	0	341	1	32	0	1,044	1	1,441	1
Cloud or Cloud Shadow	1,704	3	245	2	5,996	21	9,680	30	31,131	25	48,757	19
Total	60,104	100	10,688	100	29,017	100	32,380	100	125,469	100	257,659	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	2	0									2	0
-41 to -70% CC	1	0	3	0							4	0
-16 to -40% CC	20	0	2	0							22	0
+15 to -15% CC (Little or No Change)	73,485	97	10,975	97	23,820	77	25,350	67	100,290	74	233,920	80
+16 to +40% CC	4	0	1	0					1	0	6	0
+41 to +100% CC			1	0							1	0
Shrub/Grass Decrease > 15%							28	0	16	0	43	0
Shrub/Grass Increase > 15%							40	0			40	0
Non-Vegetation Change	6	0	19	0	356	1	33	0	1,090	1	1,503	1
Cloud or Cloud Shadow	1,899	3	265	2	6,676	22	12,404	33	34,268	25	55,514	19
Total	75,416	100	11,266	100	30,852	100	37,855	100	135,665	100	291,055	100

Table C-104 Acres of Verified Change in San Mateo County by Cause and Lifeform

	Unknown Cause	All Causes
Conifer		
-71 to -100% CC	2	2
-41 to -70% CC	1	1
-16 to -40% CC	20	20
+16 to +40% CC	4	4
Total	26	26
Hardwood		
-41 to -70% CC	3	3
-16 to -40% CC	2	2
+16 to +40% CC	1	1
+41 to +100% CC	1	1
Total	8	8
Shrub/Chaparral		
Shrub/Grass Decrease > 15%	28	28
Shrub/Grass Increase > 15%	40	40
Total	67	67
Non-Forested Other		
+16 to +40% CC	1	1
Shrub/Grass Decrease > 15%	16	16
Total	17	17
All Lifeforms	118	118

Table C-105 Acres of Classified Change in San Mateo County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress						
+15 to -15% CC (Little or No Change)			90	37	90	37
Cloud or Cloud Shadow			154	63	154	63
Total			244	100	244	100
Douglas Fir						
+15 to -15% CC (Little or No Change)	137	100	538	79	675	82
Cloud or Cloud Shadow			143	21	143	18
Total	137	100	681	100	818	100
Montane hardwood-conifer						
+15 to -15% CC (Little or No Change)			415	100	415	100
Total			415	100	415	100
Ponderosa Pine						
+15 to -15% CC (Little or No Change)			95	100	95	100
Total			95	100	95	100
Redwood						
+15 to -15% CC (Little or No Change)	1,026	100	7,404	100	8,430	100
Non-Vegetation Change	1	0	4	0	5	0
Total	1,027	100	7,409	100	8,436	100
Undetermined Conifer						
-71 to -100% CC			2	0	2	0
-41 to -70% CC			1	0	1	0
-16 to -40% CC			20	0	20	0
+15 to -15% CC (Little or No Change)	13,950	99	49,831	97	63,781	98
+16 to +40% CC	4	0			4	0
Non-Vegetation Change			1	0	1	0
Cloud or Cloud Shadow	195	1	1,407	3	1,602	2
Total	14,149	100	51,260	100	65,409	100
All Conifer	15,312		60,104		75,416	

Table C-106 Acres of Classified Change in San Mateo County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
-41 to -70% CC			1	0	1	0
-16 to -40% CC			11	0	11	0
+15 to -15% CC (Little or No Change)	2,153	100	24,341	100	26,495	100
+16 to +40% CC			3	0	3	0
Non-Vegetation Change			4	0	4	0
Total	2,153	100	24,360	100	26,513	100
Blue Oak Woodland						
+15 to -15% CC (Little or No Change)	239	100	3,711	100	3,949	100
Non-Vegetation Change			1	0	1	0
Total	239	100	3,712	100	3,950	100
Coastal Oak Woodland						
-41 to -70% CC			3	0	3	0
-16 to -40% CC			41	0	41	0
+15 to -15% CC (Little or No Change)	15,941	100	81,440	100	97,381	100
Non-Vegetation Change	14	0	36	0	50	0
Total	15,956	100	81,520	100	97,475	100
Montane Hardwood						
+15 to -15% CC (Little or No Change)	973	100	8,184	100	9,157	100
Non-Vegetation Change		0	1	0	1	0
Total	973	100	8,186	100	9,158	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)	2,118	100	14,460	100	16,578	100
Non-Vegetation Change			4	0	4	0
Total	2,118	100	14,465	100	16,583	100
Valley Foothill Riparian						
+15 to -15% CC (Little or No Change)			16	100	16	100
Total			16	100	16	100
All Hardwood	21,438		132,258		153,696	

Table C-107 Acres of Classified Change in San Mateo County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%			1	0	1	0
+15 to -15% CC (Little or No Change)	1,306	100	16,833	100	18,139	100
Non-Vegetation Change			8	0	8	0
Total	1,306	100	16,843	100	18,149	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)	46	99	260	100	306	100
Non-Vegetation Change	1	1			1	0
Total	47	100	260	100	307	100
Mixed Chaparral						
Shrub/Grass Decrease > 15%			1	0	1	0
+15 to -15% CC (Little or No Change)	858	100	5,350	100	6,208	100
Non-Vegetation Change			3	0	3	0
Total	858	100	5,354	100	6,212	100
Undetermined Shrub/Chaparral						
Shrub/Grass Decrease > 15%			48	0	48	0
+15 to -15% CC (Little or No Change)	8,918	100	46,098	100	55,016	100
Shrub/Grass Increase > 15%	5	0	91	0	96	0
Non-Vegetation Change			42	0	42	0
Total	8,923	100	46,280	100	55,203	100
All Shrub/Chaparral	11,135		68,736		79,870	

Table C-108 Acres of Verified Change in San Mateo County by Cause and Conifer Cover Type

	Unknown Cause	All Causes
Undetermined Conifer		
-71 to -100% CC	2	2
-41 to -70% CC	1	1
-16 to -40% CC	20	20
+16 to +40% CC	4	4
Total	26	26
All Conifer	26	26

Table C-109 Acres of Verified Change in San Mateo County by Cause and Hardwood Cover Type

	Unknown Cause	All Causes
Coastal Oak Woodland		
-41 to -70% CC	3	3
-16 to -40% CC	2	2
Total	6	6
Valley Foothill Riparian		
+16 to +40% CC	1	1
+41 to +100% CC	1	1
Total	2	2
All Hardwood	8	8

Table C-110 Acres of Verified Change in San Mateo County by Cause and Shrub/Chaparral Cover Type

	Unknown Cause	All Causes
Coastal Scrub		
Shrub/Grass Decrease > 15%	24	24
Shrub/Grass Increase > 15%	6	6
Total	31	31
Undetermined Shrub/Chaparral		
Shrub/Grass Decrease > 15%	3	3
Shrub/Grass Increase > 15%	33	33
Total	36	36
All Shrub/Chaparral	67	67

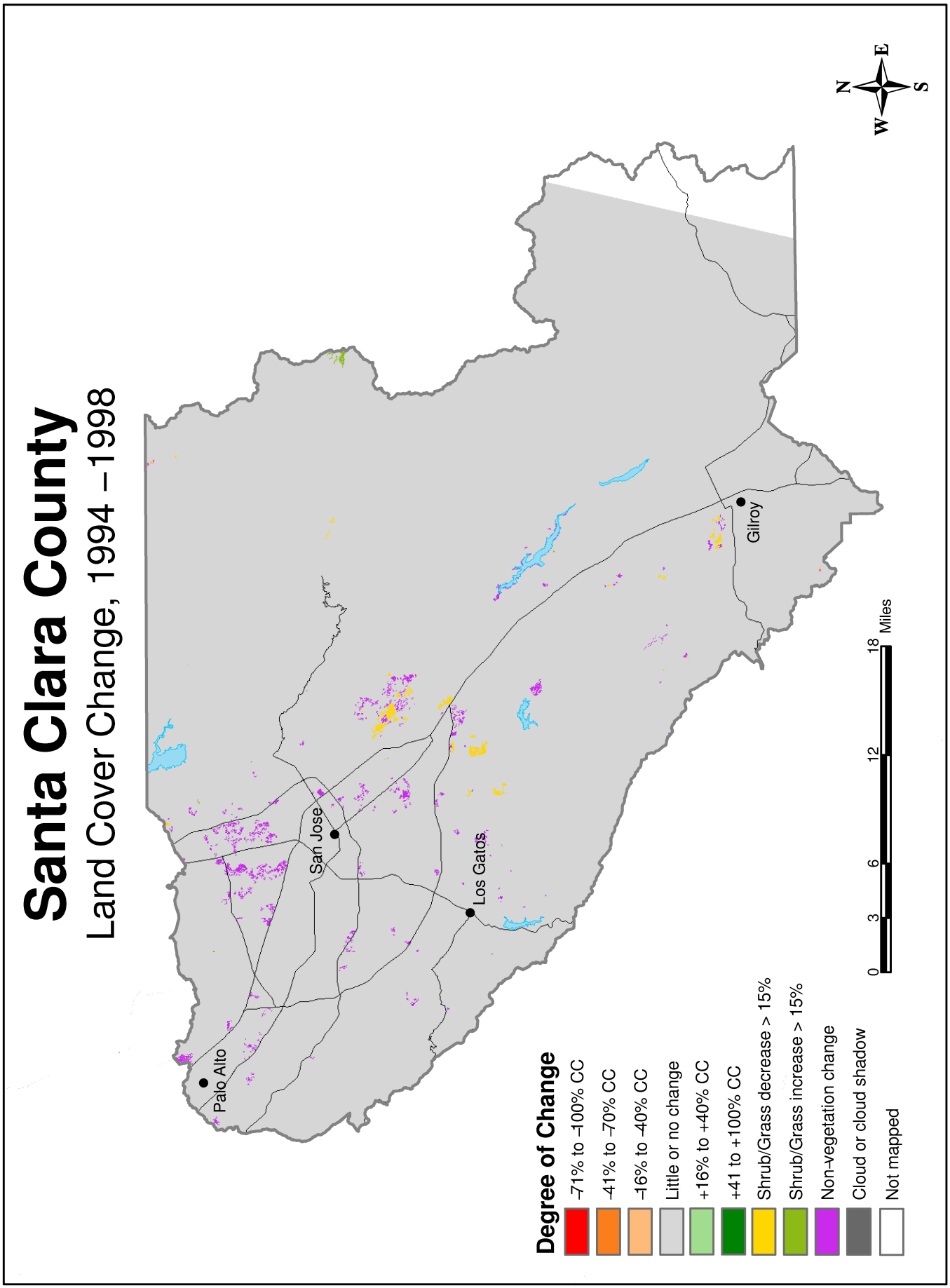

Santa Clara County
Land Cover Change, 1994 –1998
Palo Alto
San Jose
Los Gatos
Gilroy
N
E
S
W
0
3
6
12
18
Miles
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped

Table C-111 Acres of Classified Change in Santa Clara County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	7,025	100	21,424	100	6,340	99	11,129	100	33,570	100	79,488	100
+16 to +40% CC									2	0	2	0
Shrub/Grass Decrease > 15%									1	0	1	0
Shrub/Grass Increase > 15%				0	0	0	5	0		0	5	0
Non-Vegetation Change			14	0	45	1	1	0	84	0	145	0
Cloud or Cloud Shadow												
Total	7,025	100	21,438	100	6,386	100	11,135	100	33,658	100	79,642	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC			3	0							4	0
-16 to -40% CC	12	0	52	0					6	0	70	0
+15 to -15% CC (Little or No Change)	46,148	100	132,153	100	121,326	99	68,541	100	356,757	99	724,924	99
+16 to +40% CC			3	0							3	0
Shrub/Grass Decrease > 15%					673	1	50	0	589	0	1,313	0
Shrub/Grass Increase > 15%					1	0	91	0	88	0	180	0
Non-Vegetation Change	4	0	46	0	1,120	1	53	0	3,000	1	4,224	1
Cloud or Cloud Shadow									3	0	3	0
Total	46,166	100	132,258	100	123,120	100	68,736	100	360,443	100	730,722	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-41 to -70% CC		0	3	0							4	0
-16 to -40% CC	12	0	52	0					6	0	70	0
+15 to -15% CC (Little or No Change)	53,173	100	153,577	100	127,666	99	79,669	100	390,327	99	804,413	99
+16 to +40% CC			3	0					2	0	5	0
Shrub/Grass Decrease > 15%					673	1	50	0	590	0	1,314	0
Shrub/Grass Increase > 15%					1	0	96	0	88	0	185	0
Non-Vegetation Change	4	0	60	0	1,166	1	54	0	3,084	1	4,369	1
Cloud or Cloud Shadow									3	0	3	0
Total	53,191	100	153,696	100	129,506	100	79,870	100	394,100	100	810,363	100

Table C-112 Acres of Verified Change in Santa Clara County by Cause and Lifeform

	Fire	Development	Regrowth	Unknown Cause	All Causes
Conifer					
-16 to -40% CC				12	12
Total				14	14
Hardwood					
-41 to -70% CC				3	3
-16 to -40% CC	27	7		18	52
+16 to +40% CC				3	3
Total	27	7		24	58
Shrub/Chaparral					
Shrub/Grass Decrease > 15%	4	1		46	50
Shrub/Grass Increase > 15%			81	15	96
Total	4	1	81	61	147
Grass/Forb					
Shrub/Grass Decrease > 15%	73	600			673
Shrub/Grass Increase > 15%				1	1
Total	73	600		1	674
Non-Forested Other					
-16 to -40% CC				6	6
+16 to +40% CC				2	2
Shrub/Grass Decrease > 15%	168	409		13	590
Shrub/Grass Increase > 15%			87	1	88
Total	168	409	87	21	686
All Lifeforms	272	1,018	168	121	1,579

Table C-113 Acres of Classified Change in Santa Clara County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Montane hardwood-conifer						
+15 to -15% CC (Little or No Change)	171	100	479	100	650	100
Total	171	100	479	100	650	100
Ponderosa Pine						
+15 to -15% CC (Little or No Change)			25	100	25	100
Total			25	100	25	100
Redwood						
+15 to -15% CC (Little or No Change)	36	100	1,903	100	1,939	100
Total	36	100	1,903	100	1,939	100
Undetermined Conifer						
-16 to -40% CC			12	0	12	0
+15 to -15% CC (Little or No Change)	6,818	100	43,740	100	50,558	100
Non-Vegetation Change			4	0	4	0
Total	6,818	100	43,758	100	50,576	100
All Conifer	7,025		46,166		53,191	

Table C-114 Acres of Classified Change in Santa Clara County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
-41 to -70% CC			1	0	1	0
-16 to -40% CC			11	0	11	0
+15 to -15% CC (Little or No Change)	2,153	100	24,341	100	26,495	100
+16 to +40% CC			3	0	3	0
Non-Vegetation Change			4	0	4	0
Total	2,153	100	24,360	100	26,513	100
Blue Oak Woodland						
+15 to -15% CC (Little or No Change)	239	100	3,711	100	3,949	100
Non-Vegetation Change			1	0	1	0
Total	239	100	3,712	100	3,950	100
Coastal Oak Woodland						
-41 to -70% CC			3	0	3	0
-16 to -40% CC			41	0	41	0
+15 to -15% CC (Little or No Change)	15,941	100	81,440	100	97,381	100
Non-Vegetation Change	14	0	36	0	50	0
Total	15,956	100	81,520	100	97,475	100
Montane Hardwood						
+15 to -15% CC (Little or No Change)	973	100	8,184	100	9,157	100
Non-Vegetation Change			1	0	1	0
Total	973	100	8,186	100	9,158	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)	2,118	100	14,460	100	16,578	100
Non-Vegetation Change			4	0	4	0
Total	2,118	100	14,465	100	16,583	100
Valley Foothill Riparian						
+15 to -15% CC (Little or No Change)			16	100	16	100
Total			16	100	16	100
All Hardwood	21,438		132,258		153,696	

Table C-115 Acres of Classified Change in Santa Clara County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%			1	0	1	0
+15 to -15% CC (Little or No Change)	1,306	100	16,833	100	18,139	100
Non-Vegetation Change			8	0	8	0
Total	1,306	100	16,843	100	18,149	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)	46	99	260	100	306	100
Non-Vegetation Change	1	1			1	0
Total	47	100	260	100	307	100
Mixed Chaparral						
Shrub/Grass Decrease > 15%			1	0	1	0
+15 to -15% CC (Little or No Change)	858	100	5,350	100	6,208	100
Non-Vegetation Change			3	0	3	0
Total	858	100	5,354	100	6,212	100
Undetermined Shrub/Chaparral						
Shrub/Grass Decrease > 15%			48	0	48	0
+15 to -15% CC (Little or No Change)	8,918	100	46,098	100	55,016	100
Shrub/Grass Increase > 15%	5	0	91	0	96	0
Non-Vegetation Change			42	0	42	0
Total	8,923	100	46,280	100	55,203	100
All Shrub/Chaparral	11,135		68,736		79,870	

Table C-116 Acres of Verified Change in Santa Clara County by Cause and Conifer Cover Type

	Unknown Cause	All Causes
Undetermined Conifer		
-16 to -40% CC	12	12
Total	14	14
All Conifer	14	14

Table C-117 Acres of Verified Change in Santa Clara County by Cause and Hardwood Cover Type

	Fire	Development	Unknown Cause	All Causes
Blue Oak Foothill Pine				
-41 to -70% CC			1	1
-16 to -40% CC			11	11
+16 to +40% CC			3	3
Total			14	14
Coastal Oak Woodland				
-41 to -70% CC			3	3
-16 to -40% CC	27	7	7	41
Total	27	7	10	44
All Hardwood	27	7	24	58

Table C-118 Acres of Verified Change in Santa Clara County by Cause and Shrub/Chaparral Cover Type

	Fire	Development	Regrowth	Unknown Cause	All Causes
Chamise-Redshank Chaparral					
Shrub/Grass Decrease > 15%				1	1
Total				1	1
Mixed Chaparral					
Shrub/Grass Decrease > 15%				1	1
Total				1	1
Undetermined Shrub/Chaparral					
Shrub/Grass Decrease > 15%	4	1		44	48
Shrub/Grass Increase > 15%			81	15	96
Total	4	1	81	59	144
All Shrub/Chaparral	4	1	81	61	147

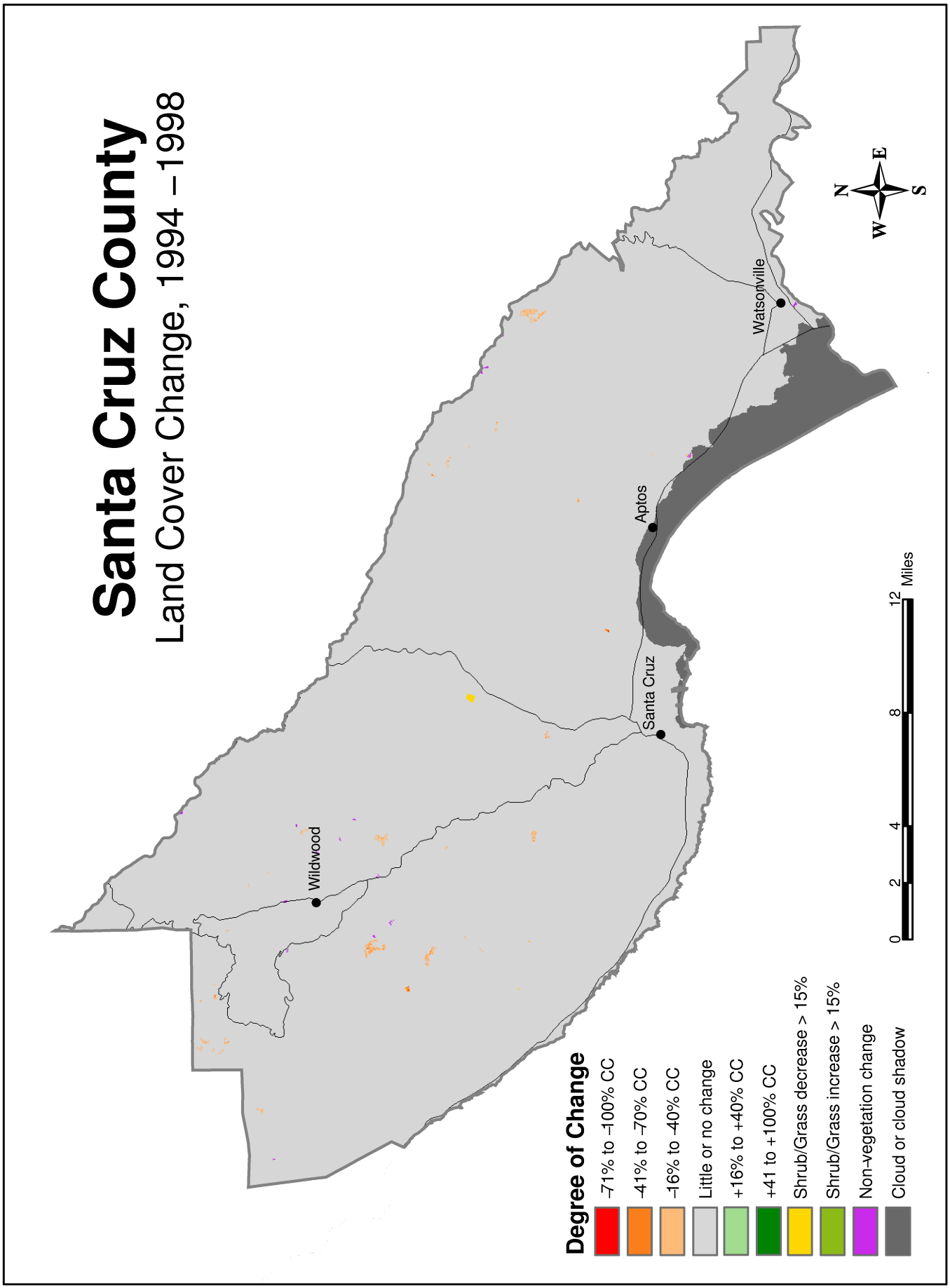

Santa Cruz County
Land Cover Change, 1994 –1998
Wildwood
Santa Cruz
Aptos
Watsonville
N
E
S
W
0
2
4
8
12
Miles
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow

Table C-119 Acres of Classified Change in Santa Cruz County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC	2	0									2	0
-16 to -40% CC	55	0									56	0
+15 to -15% CC (Little or No Change)	32,226	100	1,485	100	2,019	98	2,431	97	3,145	85	41,306	98
Shrub/Grass Decrease > 15%							1	0			1	0
Non-Vegetation Change												
Cloud or Cloud Shadow	18	0			43	2	64	3	540	15	664	2
Total	32,301	100	1,485	100	2,063	100	2,495	100	3,685	100	42,029	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	3	0	0	0							4	0
-41 to -70% CC	39	0	6	0					1	0	46	0
-16 to -40% CC	379	0	22	0					4	0	405	0
+15 to -15% CC (Little or No Change)	123,923	99	14,245	95	16,466	91	14,858	97	60,000	85	229,492	94
Shrub/Grass Decrease > 15%					25	0	4	0	15	0	45	0
Non-Vegetation Change	13	0	8	0	8	0	12	0	41	0	81	0
Cloud or Cloud Shadow	288	0	686	5	1,564	9	431	3	10,141	14	13,111	5
Total	124,645	100	14,967	100	18,063	100	15,305	100	70,203	100	243,184	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	3	0									4	0
-41 to -70% CC	41	0	6	0					1	0	48	0
-16 to -40% CC	434	0	22	0					4	0	461	0
+15 to -15% CC (Little or No Change)	156,149	99	15,730	96	18,485	92	17,289	97	63,145	85	270,799	95
Shrub/Grass Decrease > 15%					25	0	5	0	15	0	46	0
Non-Vegetation Change	13	0	8	0	8	0	12	0	41	0	81	0
Cloud or Cloud Shadow	306	0	686	4	1,607	8	495	3	10,681	14	13,775	5
Total	156,947	100	16,452	100	20,126	100	17,801	100	73,888	100	285,213	100

Table C-120 Acres of Verified Change in Santa Cruz County by Cause and Lifeform

	Fire	Development	Unknown Cause	All Causes
Conifer				
-71 to -100% CC			3	3
-41 to -70% CC	2		40	41
-16 to -40% CC	45		389	434
Total	47		432	479
Hardwood				
-41 to -70% CC			6	6
-16 to -40% CC			22	22
Total			29	29
Shrub/Chaparral				
Shrub/Grass Decrease > 15%			5	5
Total			5	5
Grass/Forb				
Shrub/Grass Decrease > 15%		23	2	25
Total		23	2	25
Non-Forested Other				
-41 to -70% CC			1	1
-16 to -40% CC			4	4
Shrub/Grass Decrease > 15%		15		15
Total		15	5	20
All Lifeforms	47	38	472	558

Table C-121 Acres of Classified Change in Santa Cruz County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress						
+15 to -15% CC (Little or No Change)	407	100	320	100	727	100
Total	407	100	320	100	727	100
Montane hardwood-conifer						
+15 to -15% CC (Little or No Change)			24	100	24	100
Total			24	100	24	100
Redwood						
-16 to -40% CC	8	1	3	0	11	0
+15 to -15% CC (Little or No Change)	1,413	99	17,816	100	19,228	100
Non-Vegetation Change			6	0	6	0
Cloud or Cloud Shadow	1	0	61	0	62	0
Total	1,422	100	17,887	100	19,309	100
Undetermined Conifer						
-71 to -100% CC		0	3	0	3	0
-41 to -70% CC	2	0	38	0	41	0
-16 to -40% CC	47	0	376	0	423	0
+15 to -15% CC (Little or No Change)	30,407	100	105,763	99	136,170	99
Non-Vegetation Change		0	7	0	7	0
Cloud or Cloud Shadow	16	0	227	0	243	0
Total	30,473	100	106,414	100	136,887	100
All Conifer	32,301		124,645		156,947	

Table C-122 Acres of Classified Change in Santa Cruz County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Coastal Oak Woodland						
-41 to -70% CC			4	0	4	0
-16 to -40% CC			19	0	19	0
+15 to -15% CC (Little or No Change)	833	100	10,858	94	11,691	94
Non-Vegetation Change			3	0	3	0
Cloud or Cloud Shadow			686	6	686	6
Total	833	100	11,570	100	12,403	100
Montane Hardwood						
-41 to -70% CC			2	0	2	0
-16 to -40% CC			3	0	3	0
+15 to -15% CC (Little or No Change)	613	100	3,270	100	3,883	100
Non-Vegetation Change			4	0	4	0
Total	613	100	3,280	100	3,893	100
Valley Foothill Riparian						
+15 to -15% CC (Little or No Change)	39	100	117	100	156	100
Total	39	100	117	100	156	100
All Hardwood	1,485		14,967		16,452	

C-123 Acres of Classified Change in Santa Cruz County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
+15 to -15% CC (Little or No Change)	559	100	2,051	100	2,610	100
Total	559	100	2,051	100	2,610	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)	5	100	2,164	100	2,169	100
Total	5	100	2,164	100	2,169	100
Mixed Chaparral						
Shrub/Grass Decrease > 15%			2	0	2	0
+15 to -15% CC (Little or No Change)	791	100	1,677	100	2,469	100
Non-Vegetation Change			2	0	2	0
Total	792	100	1,681	100	2,473	100
Undetermined Shrub/Chaparral						
Shrub/Grass Decrease > 15%	1	0	2	0	3	0
+15 to -15% CC (Little or No Change)	1,076	94	8,966	95	10,042	95
Non-Vegetation Change			10	0	10	0
Cloud or Cloud Shadow	64	6	431	5	495	5
Total	1,140	100	9,409	100	10,549	100
All Shrub/Chaparral	2,495		15,305		17,801	

Table C-124 Acres of Verified Change in Santa Cruz County by Cause and Conifer Cover Type

	Fire	Unknown Cause	All Causes
Redwood			
-16 to -40% CC	3	8	11
Total	3	8	12
Undetermined Conifer			
-71 to -100% CC		3	3
-41 to -70% CC	2	39	41
-16 to -40% CC	42	381	423
Total	44	423	467
All Conifer	47	432	479

Table C-125 Acres of Verified Change in Santa Cruz County by Cause and Hardwood Cover Type

	Unknown Cause	All Causes
Coastal Oak Woodland		
-41 to -70% CC	4	4
-16 to -40% CC	19	19
Total	23	23
Montane Hardwood		
-41 to -70% CC	2	2
-16 to -40% CC	3	3
Total	6	6
All Hardwood	29	29

Table C-126 Acres of Verified Change in Santa Cruz County by Cause and Shrub/Chaparral Cover Type

	Unknown Cause	All Causes
Mixed Chaparral		
Shrub/Grass Decrease > 15%	2	2
Total	2	2
Undetermined Shrub/Chaparral		
Shrub/Grass Decrease > 15%	2	3
Total	2	3
All Shrub/Chaparral	5	5

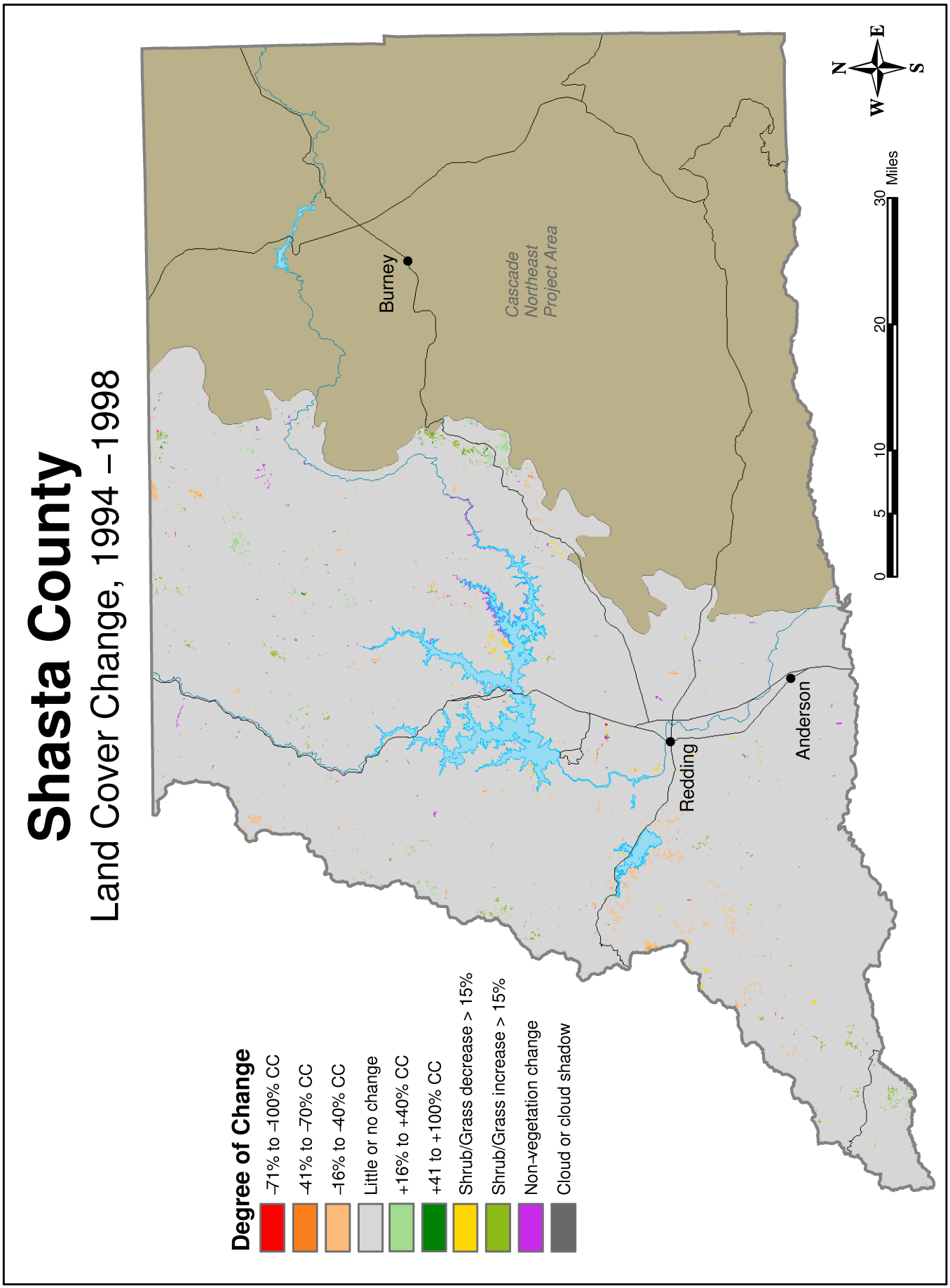

Shasta County
Land Cover Change, 1994 –1998
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Burney
Redding
Anderson
Cascade Northeast Project Area
N
E
S
W
0
5
10
20
30
Miles

Table C-127 Acres of Classified Change in Shasta County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	3	0									3	0
-41 to -70% CC	36	0	21	0							56	0
-16 to -40% CC	790	0	56	0							846	0
+15 to -15% CC (Little or No Change)	224,610	99	126,650	100	197	99	30,508	96	32,007	96	413,972	98
+16 to +40% CC	2,157	1	55	0							2,213	1
+41 to +100% CC	9	0	22	0							31	0
Shrub/Grass Decrease > 15%							535	2			535	0
Shrub/Grass Increase > 15%							563	2			563	0
Non-Vegetation Change	290	0	344	0	2	1	256	1	1,232	4	2,124	1
Total	227,894	100	127,148	100	200	100	31,862	100	33,239	100	420,343	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	3	0	1	0							4	0
-41 to -70% CC	56	0	18	0							73	0
-16 to -40% CC	1,916	3	76	0					1	0	1,994	2
+15 to -15% CC (Little or No Change)	55,917	96	39,406	99	1,026	99	23,477	98	4,063	100	123,888	98
+16 to +40% CC	64	0	43	0							107	0
+41 to +100% CC	1	0	12	0							13	0
Shrub/Grass Decrease > 15%							207	1			207	0
Shrub/Grass Increase > 15%					4	0	303	1			307	0
Non-Vegetation Change	6	0	94	0	3	0	11	0	2	0	117	0
Total	57,962	100	39,650	100	1,033	100	23,998	100	4,066	100	126,710	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	16	0	26	0		0		0		0	42	0
-41 to -70% CC	71	0	117	0		0		0		0	188	0
-16 to -40% CC	3,624	2	552	0		0		0	13	0	4,189	1
+15 to -15% CC (Little or No Change)	224,388	98	302,932	100	71,331	100	70,624	97	52,057	100	721,332	99
+16 to +40% CC	983	0	272	0							1,255	0
+41 to +100% CC	9	0	249	0							257	0
Shrub/Grass Decrease > 15%					22	0	645	1	9	0	675	0
Shrub/Grass Increase > 15%					77	0	1,677	2	1	0	1,756	0
Non-Vegetation Change	100	0	244	0	90	0	99	0	139	0	672	0
Total	229,189	100	304,392	100	71,520	100	73,046	100	52,219	100	730,365	100

Table C-127 Acres of Classified Change in Shasta County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	21	0	28	0							49	0
-41 to -70% CC	162	0	156	0							317	0
-16 to -40% CC	6,330	1	685	0			1	0	13	0	7,029	1
+15 to -15% CC (Little or No Change)	504,915	98	468,987	100	72,554	100	106,694	97	106,042	98	1,259,192	99
+16 to +40% CC	3,204	1	371	0							3,575	0
+41 to +100% CC	18	0	283	0							301	0
Shrub/Grass Decrease > 15%					22	0	645	1	751	1	1,417	0
Shrub/Grass Increase > 15%					81	0	1,677	2	867	1	2,626	0
Non-Vegetation Change	396	0	682	0	96	0	1,333	1	406	0	2,912	0
Total	515,045	100	471,190	100	72,753	100	110,351	100	108,079	100	1,277,418	100

Table C-128 Acres of Verified Change in Shasta County by Cause and Lifeform

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Conifer						
-71 to -100% CC	1	2		12	7	21
-41 to -70% CC	23	13		5	120	162
-16 to -40% CC	1,326	707		274	4,022	6,330
+16 to +40% CC			2,651	15	539	3,204
+41 to +100% CC			9		10	18
Total	1,350	722	2,659	306	4,697	9,735
Hardwood						
-71 to -100% CC				1	27	28
-41 to -70% CC	26	2		14	114	156
-16 to -40% CC	52	9		69	556	685
+16 to +40% CC			179		191	371
+41 to +100% CC			177	1	105	283
Total	78	10	356	85	993	1,521
Shrub/Chaparral						
Shrub/Grass Decrease > 15%	451	22		12	902	1,387
Shrub/Grass Increase > 15%			1,521	4	1,019	2,543
Total	451	22	1,521	16	1,921	3,930
Grass/Forb						
Shrub/Grass Decrease > 15%					22	22
Shrub/Grass Increase > 15%			1		80	81
Total			1		102	103
Non-Forested Other						
-16 to -40% CC					14	14
Shrub/Grass Decrease > 15%					9	9
Shrub/Grass Increase > 15%					1	1
Total					24	24
All Lifeforms	1,878	755	4,537	406	7,737	15,314

Table C-129 Acres of Classified Change in Shasta County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress								
-41 to -70% CC	1	0	4	0	0	0	5	0
-16 to -40% CC	56	3	809	7	292	9	1,156	7
+15 to -15% CC (Little or No Change)	1,623	95	10,138	93	2,902	91	14,663	92
+16 to +40% CC	1	0	5	0	8	0	14	0
Non-Vegetation Change	26	2	0	0	1	0	27	0
Total	1,707	100	10,956	100	3,203	100	15,865	100
Douglas Fir								
-71 to -100% CC					1	0	1	0
-41 to -70% CC	3	0	41	0	6	0	50	0
-16 to -40% CC	206	0	452	2	921	1	1,579	1
+15 to -15% CC (Little or No Change)	60,498	99	18,099	97	60,571	98	139,168	98
+16 to +40% CC	453	1	29	0	75	0	558	0
Non-Vegetation Change	101	0	0	0	24	0	125	0
Total	61,261	100	18,622	100	61,599	100	141,481	100
Jeffrey Pine								
+15 to -15% CC (Little or No Change)	217	100	37	100	20	100	274	100
Total	217	100	37	100	20	100	274	100
Klamath Mixed Conifer								
-71 to -100% CC	2	0	3	0	12	0	18	0
-41 to -70% CC	18	0	8	0	21	0	46	0
-16 to -40% CC	215	0	176	1	1,481	2	1,873	1
+15 to -15% CC (Little or No Change)	103,053	98	14,736	99	87,829	98	205,618	98
+16 to +40% CC	1,312	1			181	0	1,492	1
+41 to +100% CC	6	0			3	0	9	0
Non-Vegetation Change	38	0	1	0	32	0	72	0
Total	104,644	100	14,924	100	89,558	100	209,126	100
Montane hardwood-conifer								
-71 to -100% CC					2	0	2	0
-41 to -70% CC	4	0	0	0	17	0	21	0
-16 to -40% CC	82	0	1	0	241	1	324	0
+15 to -15% CC (Little or No Change)	44,354	99	4,147	100	41,678	99	90,179	99
+16 to +40% CC	128	0	11	0	32	0	172	0
+41 to +100% CC	3	0	1	0	6	0	10	0
Non-Vegetation Change	55	0	3	0	22	0	80	0
Total	44,626	100	4,163	100	41,999	100	90,788	100
Ponderosa Pine								
-41 to -70% CC			2	0	26	0	28	0
-16 to -40% CC	141	2	465	7	357	2	963	3
+15 to -15% CC (Little or No Change)	8,802	98	6,595	93	16,805	95	32,202	95
+16 to +40% CC	16	0	2	0	485	3	504	1
Non-Vegetation Change	44	0	1	0	20	0	65	0
Total	9,002	100	7,066	100	17,694	100	33,762	100
Red Fir								
-16 to -40% CC	1	0	3	3	18	2	23	1
+15 to -15% CC (Little or No Change)	815	94	103	97	746	97	1,664	96
+16 to +40% CC	23	3			2	0	25	1
Non-Vegetation Change	24	3					24	1
Total	864	100	107	100	766	100	1,737	100
Subalpine Conifer								
+15 to -15% CC (Little or No Change)	4	100					4	100
Total	4	100					4	100
Sierran Mixed Conifer								
-16 to -40% CC			10	2	164	2	174	2
+15 to -15% CC (Little or No Change)	10	100	612	96	7,050	95	7,672	95
+16 to +40% CC			16	3	171	2	188	2
Total	10	100	638	100	7,385	100	8,034	100
White Fir								
-41 to -70% CC	10	0					10	0
-16 to -40% CC	89	2			149	2	238	2
+15 to -15% CC (Little or No Change)	5,234	94	1,449	100	6,788	97	13,471	96
+16 to +40% CC	224	4			28	0	252	2
Non-Vegetation Change	2	0				0	2	0
Total	5,559	100	1,449	100	6,966	100	13,974	100
All Conifer	227,894		57,962		229,189		515,045	

Table C-130 Acres of Classified Change in Shasta County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine								
-71 to -100% CC					7	0	7	0
-41 to -70% CC			13	0	50	0	64	0
-16 to -40% CC			20	0	192	0	212	0
+15 to -15% CC (Little or No Change)	4,714	100	11,151	100	67,672	99	83,536	100
+16 to +40% CC			2	0	36	0	39	0
+41 to +100% CC			1	0	49	0	50	0
Non-Vegetation Change	2	0	4	0	16	0	22	0
Total	4,716	100	11,191	100	68,023	100	83,931	100
Blue Oak Woodland								
-71 to -100% CC					17	0	17	0
-41 to -70% CC			1	0	19	0	20	0
-16 to -40% CC			2	0	135	0	137	0
+15 to -15% CC (Little or No Change)	4	100	3,159	100	96,799	100	99,962	100
+16 to +40% CC			1	0	3	0	4	0
+41 to +100% CC					2	0	2	0
Non-Vegetation Change			7	0	47	0	54	0
Total	4	100	3,171	100	97,022	100	100,197	100
Montane Hardwood								
-71 to -100% CC			1	0	2	0	4	0
-41 to -70% CC	21	0	2	0	48	0	71	0
-16 to -40% CC	56	0	39	0	221	0	317	0
+15 to -15% CC (Little or No Change)	121,671	100	24,470	99	133,389	99	279,529	99
+16 to +40% CC	55	0	40	0	229	0	324	0
+41 to +100% CC	22	0	11	0	198	0	231	0
Non-Vegetation Change	331	0	42	0	171	0	543	0
Total	122,156	100	24,605	100	134,258	100	281,018	100
Montane Riparian								
+15 to -15% CC (Little or No Change)	261	96	236	85	1,194	99	1,691	96
+16 to +40% CC					4	0	4	0
+41 to +100% CC								
Non-Vegetation Change	11	4	41	15	10	1	62	4
Total	272	100	277	100	1,208	100	1,757	100
Valley Oak Woodland								
-41 to -70% CC			1	0			1	0
-16 to -40% CC			16	4	3	0	19	0
+15 to -15% CC (Little or No Change)			390	96	3,878	100	4,268	100
Total	127,148		407		3,881		4,288	

Table C-131 Acres of Classified Change in Shasta County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Bitterbrush								
+15 to -15% CC (Little or No Change)	33	100					34	100
Total	33	100					34	100
Chamise-Redshank Chaparral								
Shrub/Grass Decrease > 15%			4	0	92	1	96	1
+15 to -15% CC (Little or No Change)			5,120	99	8,818	98	13,939	98
Shrub/Grass Increase > 15%			57	1	116	1	173	1
Non-Vegetation Change				0	2	0	2	0
Total			5,181	100	9,029	100	14,210	100
Low Sagebrush								
Shrub/Grass Decrease > 15%	5	8					5	8
+15 to -15% CC (Little or No Change)	54	92					54	92
Total	58	100					58	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	478	2	99	1	414	1	991	1
+15 to -15% CC (Little or No Change)	18,664	95	15,503	98	52,628	97	86,795	97
Shrub/Grass Increase > 15%	282	1	158	1	977	2	1,417	2
Non-Vegetation Change	224	1	2	0	84	0	310	0
Total	19,648	100	15,762	100	54,103	100	89,512	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	52	0	104	3	139	1	295	1
+15 to -15% CC (Little or No Change)	11,757	97	2,854	93	9,178	93	23,789	95
Shrub/Grass Increase > 15%	281	2	89	3	584	6	954	4
Non-Vegetation Change	32	0	9	0	12	0	53	0
Total	12,122	100	3,055	100	9,913	100	25,091	100
All Shrub/Chaparral	31,862		23,998		73,046		128,906	

Table C-132 Acres of Verified Change in Shasta County by Cause and Conifer Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Closed Cone Pine-Cypress						
-41 to -70% CC	2				2	5
-16 to -40% CC	539	223			395	1,156
+16 to +40% CC					14	14
Total	541	223			411	1,175
Douglas Fir						
-71 to -100% CC					1	1
-41 to -70% CC	2				49	50
-16 to -40% CC	202	48		4	1,325	1,579
+16 to +40% CC			408		149	558
Total	203	48	408	4	1,524	2,188
Klamath Mixed Conifer						
-71 to -100% CC	1	2		12	3	18
-41 to -70% CC	6	7		5	28	46
-16 to -40% CC	114	371		264	1,124	1,873
+16 to +40% CC			1,312	7	174	1,492
+41 to +100% CC			5		4	9
Total	121	380	1,317	287	1,333	3,437
Montane hardwood-conifer						
-71 to -100% CC					2	2
-41 to -70% CC	2	3			16	21
-16 to -40% CC	16	12		3	294	324
+16 to +40% CC			64		108	172
+41 to +100% CC			4		6	10
Total	18	15	67	3	426	529
Ponderosa Pine						
-16 to -40% CC	383	11		2	568	963
-41 to -70% CC	1	3			24	28
+16 to +40% CC			448		56	504
Total	384	14	448	2	648	1,496
Red Fir						
-16 to -40% CC		4			20	23
+16 to +40% CC			21		4	25
Total		4	21		23	48
Sierran Mixed Conifer						
-16 to -40% CC					174	174
+16 to +40% CC			188			188
Total			188		174	362
White Fir						
-41 to -70% CC	10					10
-16 to -40% CC	74	38		2	124	238
+16 to +40% CC			210	8	34	252
Total	84	38	210	10	158	500
All Conifer	1,350	722	2,659	306	4,697	9,735

Table C-133 Acres of Verified Change in Shasta County by Cause and Hardwood Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Blue Oak Foothill Pine						
-71 to -100% CC					7	7
-41 to -70% CC				11	52	64
-16 to -40% CC				31	181	212
+16 to +40% CC			33		6	39
+41 to +100% CC			48		3	50
Total			81	42	249	372
Blue Oak Woodland						
-71 to -100% CC					17	17
-41 to -70% CC				2	18	20
-16 to -40% CC				37	100	137
+16 to +40% CC					4	4
+41 to +100% CC					2	2
Total				39	141	180
Montane Hardwood						
-71 to -100% CC				1	3	4
-41 to -70% CC	26	2		0	43	71
-16 to -40% CC	52	9		1	255	317
+16 to +40% CC			145	0	179	324
+41 to +100% CC			129	1	100	231
Total	78	10	274	4	580	945
Montane Riparian						
+16 to +40% CC			1		3	4
Total			1		4	5
Valley Oak Woodland						
-41 to -70% CC					1	1
-16 to -40% CC					19	19
Total					20	20
All Hardwood	78	10	356	85	993	1,521

Table C-134 Acres of Verified Change in Shasta County by Cause and Shrub/Chaparral Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%					96	96
Shrub/Grass Increase > 15%			120		53	173
Total			120		149	269
Low Sagebrush						
Shrub/Grass Decrease > 15%	5					5
Total	5					5
Mixed Chaparral						
Shrub/Grass Decrease > 15%	421			8	561	991
Shrub/Grass Increase > 15%			905		511	1,417
Total	421		905	8	1,073	2,407
Montane Chaparral						
Shrub/Grass Decrease > 15%	24	22		4	244	295
Shrub/Grass Increase > 15%			495	4	455	954
Total	24	22	495	8	699	1,249
All Shrub/Chaparral	451	22	1,521	16	1,921	3,930

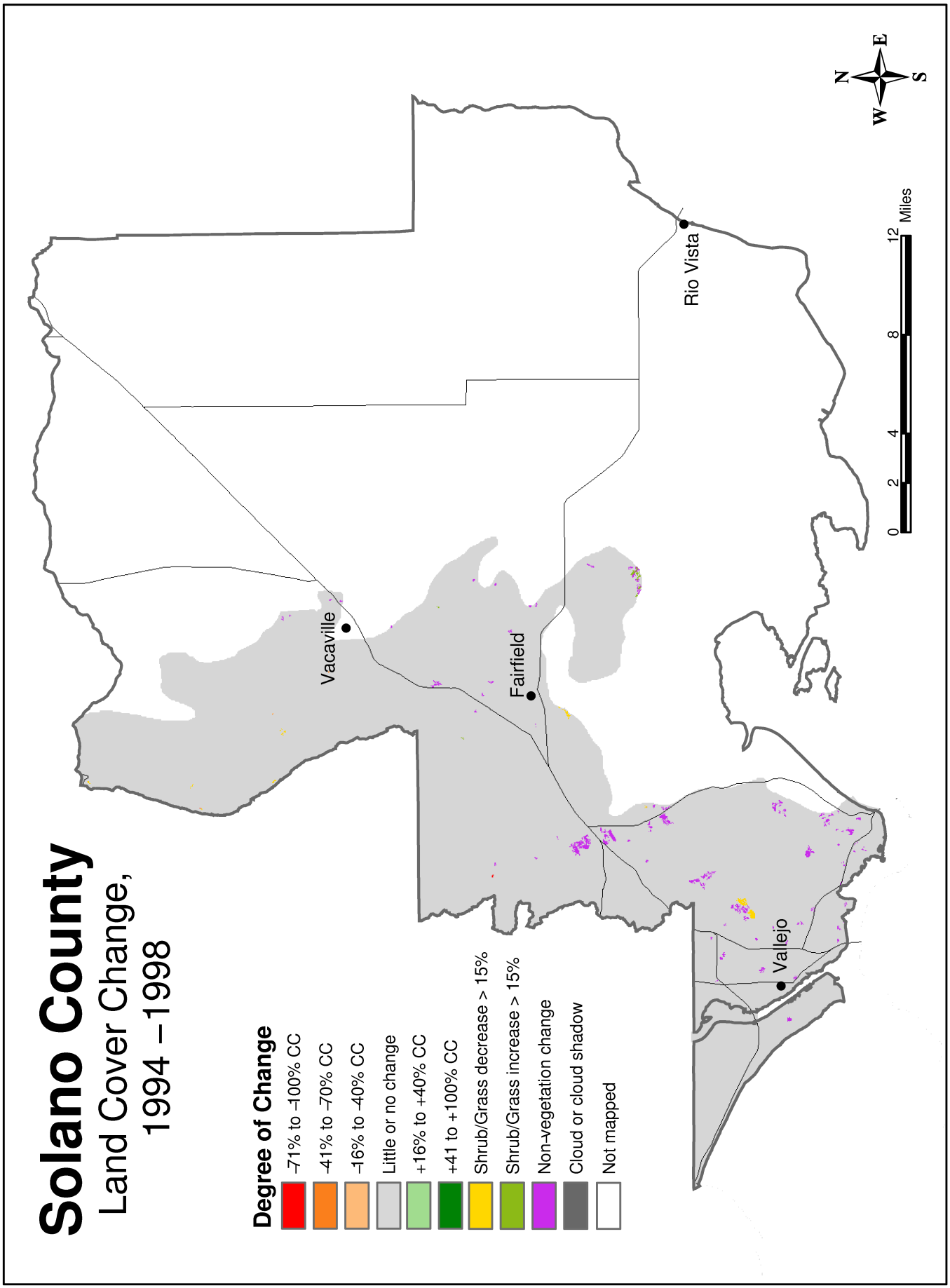

Solano County
Land Cover Change,
1994 –1998
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
Vacaville
Fairfield
Rio Vista
Vallejo
N
E
S
W
0
2
4
8
12
Miles

Table C-135 Acres of Classified Change in Solano County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	11	100	861	100	2,705	100	2,596	100	10,374	99	16,546	100
+16 to +40% CC												
Shrub/Grass Decrease > 15%					1	0	11	0	18	0	30	0
Shrub/Grass Increase > 15%												
Non-Vegetation Change					4	0			37	0	41	0
Total	11	100	862	100	2,710	100	2,607	100	10,430	100	16,618	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC			4	0							4	0
-41 to -70% CC			3	0					1	0	4	0
-16 to -40% CC			4	0							4	0
+15 to -15% CC (Little or No Change)	79	100	24,515	100	59,319	99	11,976	100	51,112	99	147,002	99
+16 to +40% CC									3	0	3	0
Shrub/Grass Decrease > 15%					81	0	16	0	18	0	115	0
Shrub/Grass Increase > 15%					45	0					46	0
Non-Vegetation Change			8	0	330	1			588	1	926	1
Total	80	100	24,533	100	59,775	100	11,993	100	51,723	100	148,104	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC			4	0							4	0
-41 to -70% CC			3	0					1	0	4	0
-16 to -40% CC			4	0							4	0
+15 to -15% CC (Little or No Change)	90	100	25,376	100	62,024	99	14,572	100	61,487	99	163,548	99
+16 to +40% CC									3	0	3	0
Shrub/Grass Decrease > 15%					81	0	27	0	36	0	145	0
Shrub/Grass Increase > 15%					45	0					46	0
Non-Vegetation Change			8	0	334	1			625	1	967	1
Total	90	100	25,395	100	62,485	100	14,600	100	62,152	100	164,722	100

Table C-136 Acres of Verified Change in Solano County by Cause and Lifeform

	Development	Unknown Cause	All Causes
Hardwood			
-71 to -100% CC		4	4
-41 to -70% CC		3	3
-16 to -40% CC		4	4
Total		11	11
Grass/Forb			
Shrub/Grass Decrease > 15%	58	23	81
Shrub/Grass Increase > 15%		45	45
Total	58	68	127
Non-Forested Other			
-41 to -70% CC		1	1
+16 to +40% CC		3	3
Shrub/Grass Decrease > 15%	36		36
Total	36	5	41
Shrub/Chaparral			
Shrub/Grass Decrease > 15%		27	27
Total		28	28
All Lifeforms	94	112	206

Table C-137 Acres of Classified Change in Solano County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Douglas Fir						
+15 to -15% CC (Little or No Change)			1	100	1	100
Total			1	100	1	100
Montane hardwood-conifer						
+15 to -15% CC (Little or No Change)	9	100	47	100	56	100
Total	9	100	47	100	56	100
Undetermined Conifer						
+15 to -15% CC (Little or No Change)	1	100	32	100	33	100
Total	1	100	32	100	33	100
All Conifer	11		80		90	

Table C-138 Acres of Classified Change in Solano County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
-41 to -70% CC			1	0	1	0
-16 to -40% CC			1	0	1	0
+15 to -15% CC (Little or No Change)	184	100	1,474	100	1,658	100
Total	184	100	1,476	100	1,660	100
Blue Oak Woodland						
-41 to -70% CC			2	0	2	0
-16 to -40% CC			3	0	3	0
+15 to -15% CC (Little or No Change)	423	100	17,344	100	17,767	100
Non-Vegetation Change			6	0	6	0
Total	423	100	17,355	100	17,778	100
Montane Hardwood						
-71 to -100% CC			4	0	4	0
+15 to -15% CC (Little or No Change)	248	100	5,123	100	5,370	100
Total	248	100	5,126	100	5,374	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)	6	100	573	100	579	100
Non-Vegetation Change			2	0	2	0
Total	6	100	575	100	581	100
Valley Foothill Riparian						
+15 to -15% CC (Little or No Change)			1	100	1	100
Total			1	100	1	100
All Hardwood	862		24,533		25,395	

Table C-139 Acres of Classified Change in Solano County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%			4	0	4	0
+15 to -15% CC (Little or No Change)	410	100	1,301	100	1,711	100
Total	410	100	1,305	100	1,715	100
Mixed Chaparral						
Shrub/Grass Decrease > 15%	11	1	12	0	23	0
+15 to -15% CC (Little or No Change)	2,089	99	10,379	100	12,468	100
Total	2,100	100	10,391	100	12,491	100
Undetermined Shrub/Chaparral						
Shrub/Grass Decrease > 15%			1	0	1	0
+15 to -15% CC (Little or No Change)	97	100	296	100	393	100
Total	97	100	297	100	395	100
All Shrub/Chaparral	2,607		11,993		14,600	

Table C-140 Acres of Verified Change in Solano County by Cause and Hardwood Cover Type

	Unknown Cause	All Causes
Blue Oak Foothill Pine		
-41 to -70% CC	1	1
-16 to -40% CC	1	1
Total	2	2
Blue Oak Woodland		
-41 to -70% CC	2	2
-16 to -40% CC	3	3
Total	5	5
Montane Hardwood		
-71 to -100% CC	4	4
Total	4	4
All Hardwood	11	11

Table C-141 Acres of Verified Change in Solano County by Cause and Shrub/Chaparral Cover Type

	Unknown Cause	All Causes
Chamise-Redshank Chaparral		
Shrub/Grass Decrease > 15%	4	4
Total	4	4
Mixed Chaparral		
Shrub/Grass Decrease > 15%	23	23
Total	23	23
Undetermined Shrub/Chaparral		
Shrub/Grass Decrease > 15%	1	1
Total	1	1
All Shrub/Chaparral	28	28

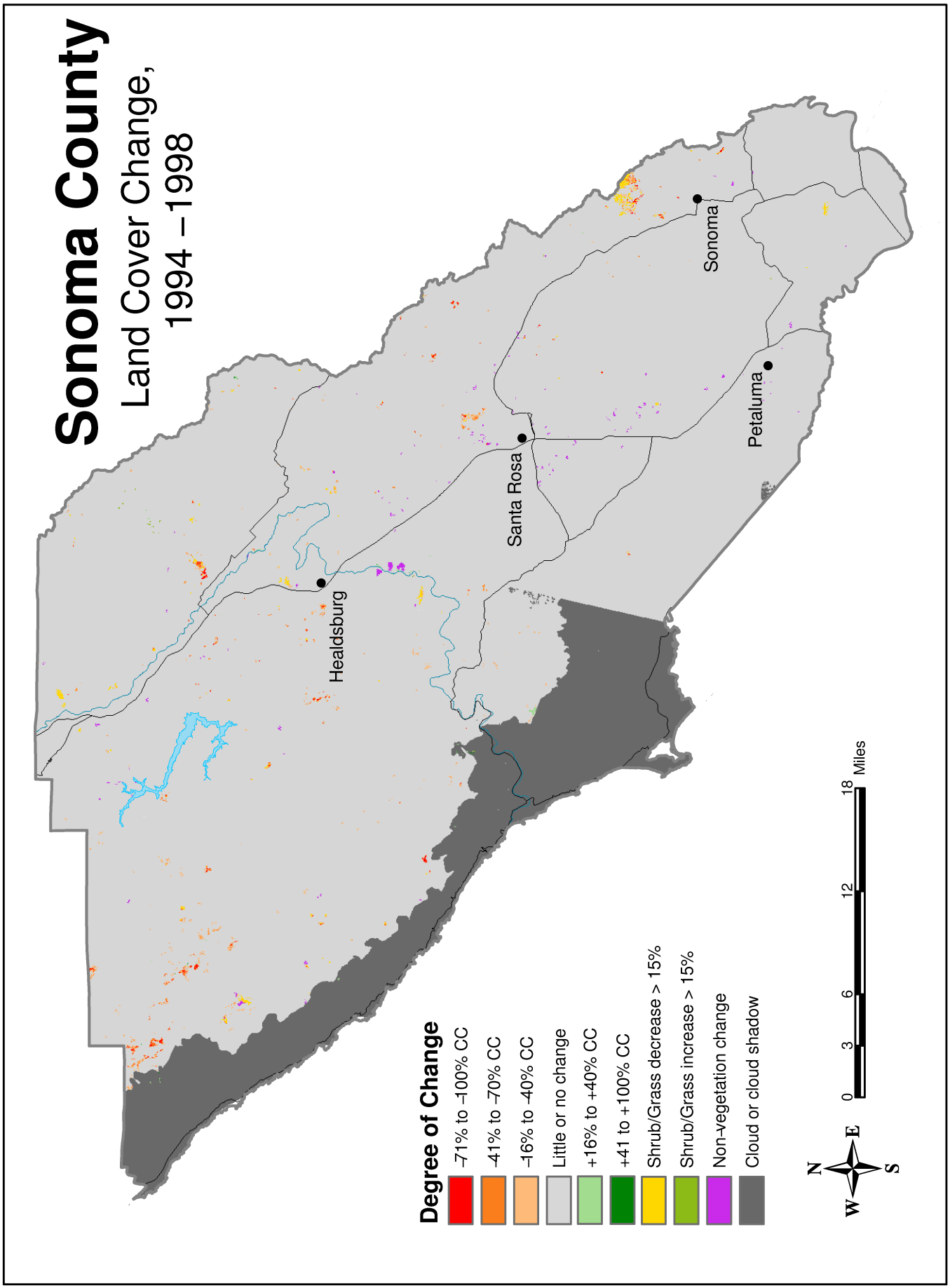

Sonoma County
Land Cover Change,
1994 –1998
Healdsburg
Santa Rosa
Sonoma
Petaluma
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
0
3
6
12
18
Miles
N
W
E
S

Table C-142 Acres of Classified Change in Sonoma County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC			6	0							6	0
-41 to -70% CC	3	0	3	0							6	0
-16 to -40% CC	19	0	6	0							25	0
+15 to -15% CC (Little or No Change)	7,580	63	17,103	99	12,219	85	6,519	96	8,012	91	51,432	87
+16 to +40% CC												
+41 to +100% CC												
Shrub/Grass Decrease > 15%							5	0			5	0
Shrub/Grass Increase > 15%												
Non-Vegetation Change	2	0			8	0			28	0	38	0
Cloud or Cloud Shadow	4,489	37	119	1	2,187	15	273	4	782	9	7,851	13
Total	12,093	100	17,237	100	14,414	100	6,798	100	8,822	100	59,363	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	231	0	334	0					1	0	566	0
-41 to -70% CC	487	0	496	0							983	0
-16 to -40% CC	1,265	1	956	0					52	0	2,273	0
+15 to -15% CC (Little or No Change)	123,127	68	270,028	96	192,544	84	38,032	92	214,803	97	838,534	88
+16 to +40% CC	76	0	126	0							203	0
+41 to +100% CC	18	0	7	0							25	0
Shrub/Grass Decrease > 15%					715	0	584	1	48	0	1,347	0
Shrub/Grass Increase > 15%					3	0	38	0			41	0
Non-Vegetation Change	3	0	62	0	136	0	5	0	661	0	867	0
Cloud or Cloud Shadow	55,995	31	9,495	3	35,744	16	2,726	7	5,234	2	109,194	11
Total	181,201	100	281,504	100	229,143	100	41,384	100	220,800	100	954,032	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	231	0	339	0					1	0	572	0
-41 to -70% CC	489	0	499	0							989	0
-16 to -40% CC	1,283	1	962	0					52	0	2,298	0
+15 to -15% CC (Little or No Change)	130,707	68	287,130	96	204,763	84	44,551	92	222,815	97	889,966	88
+16 to +40% CC	76	0	126	0							203	0
+41 to +100% CC	18	0	7	0							25	0
Shrub/Grass Decrease > 15%					715	0	589	1	48	0	1,352	0
Shrub/Grass Increase > 15%					3	0	38	0			41	0
Non-Vegetation Change	4	0	63	0	145	0	5	0	688	0	905	0
Cloud or Cloud Shadow	60,484	31	9,614	3	37,931	16	2,999	6	6,016	3	117,045	12
Total	193,294	100	298,741	100	243,557	100	48,181	100	229,622	100	1,013,395	100

Table C-143 Acres of Verified Change in Sonoma County by Cause and Lifeform

	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Conifer								
-71 to -100% CC	6	145	5		53		21	231
-41 to -70% CC	47	258	6		110		69	489
-16 to -40% CC	155	615	24		136	2	351	1,283
+16 to +40% CC				1			75	76
+41 to +100% CC				1			17	18
Total	208	1,018	35	2	299	2	534	2,098
Hardwood								
-71 to -100% CC	61	24	23		193		38	339
-41 to -70% CC	34	72	64		254		75	499
-16 to -40% CC	97	189	102		413	4	157	962
+16 to +40% CC				14			113	126
+41 to +100% CC				2			5	7
Total	192	285	189	15	860	4	388	1,934
Shrub/Chaparral								
Shrub/Grass Decrease > 15%	477		19		68		24	589
Shrub/Grass Increase > 15%				33			5	38
Total	477		19	33	68		29	626
Grass/Forb								
Shrub/Grass Decrease > 15%	2	2	57		519	109	27	715
Shrub/Grass Increase > 15%							3	3
Total	2	2	57		519	109	30	718
Non-Forested Other								
-16 to -40% CC			52					52
-71 to -100% CC								1
Shrub/Grass Decrease > 15%			20		28			48
Total			72		29			102
All Lifeforms	880	1,305	372	50	1,775	116	982	5,479

Table C-144 Acres of Classified Change in Sonoma County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress						
-71 to -100% CC			2	0	2	0
-41 to -70% CC	3	0	27	0	30	0
-16 to -40% CC	15	0	109	1	124	1
+15 to -15% CC (Little or No Change)	2,181	70	7,905	66	10,086	67
Cloud or Cloud Shadow	917	29	3,899	33	4,815	32
Total	3,115	100	11,941	100	15,057	100
Douglas Fir						
-71 to -100% CC			87	0	87	0
-41 to -70% CC			220	0	220	0
-16 to -40% CC	1	0	557	1	558	1
+15 to -15% CC (Little or No Change)	3,779	99	57,068	85	60,847	85
+16 to +40% CC			68	0	68	0
+41 to +100% CC			5	0	5	0
Non-Vegetation Change	2	0	1	0	3	0
Cloud or Cloud Shadow	46	1	9,402	14	9,447	13
Total	3,827	100	67,407	100	71,234	100
Klamath Mixed Conifer						
+15 to -15% CC (Little or No Change)			73	100	73	100
Total			73	100	73	100
Montane hardwood-conifer						
-71 to -100% CC			8	0	8	0
-41 to -70% CC			15	0	15	0
-16 to -40% CC			30	0	30	0
+15 to -15% CC (Little or No Change)	476	99	9,089	87	9,565	87
+16 to +40% CC			5	0	5	0
+41 to +100% CC			1	0	1	0
Cloud or Cloud Shadow	6	1	1,353	13	1,358	12
Total	481	100	10,501	100	10,982	100
Redwood						
-71 to -100% CC			134	0	134	0
-41 to -70% CC			225	0	225	0
-16 to -40% CC	3	0	568	1	571	1
+15 to -15% CC (Little or No Change)	1,144	25	48,989	54	50,134	52
+16 to +40% CC			3	0	3	0
+41 to +100% CC			12	0	12	0
Non-Vegetation Change			2	0	2	0
Cloud or Cloud Shadow	3,521	75	41,340	45	44,861	47
Total	4,669	100	91,274	100	95,942	100
Undetermined Conifer						
+15 to -15% CC (Little or No Change)			3	65	3	63
Cloud or Cloud Shadow			2	35	2	37
Total			5	100	5	100
All Conifer	12,093		181,201		193,294	

Table C-145 Acres of Classified Change in Sonoma County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
-16 to -40% CC			2	0	2	0
+15 to -15% CC (Little or No Change)	406	100	2,439	100	2,845	100
Total	406	100	2,441	100	2,847	100
Blue Oak Woodland						
-41 to -70% CC			3	1	3	1
-16 to -40% CC			3	1	3	1
+15 to -15% CC (Little or No Change)	34	88	422	98	456	97
Cloud or Cloud Shadow	5	12	2	0	7	1
Total	38	100	430	100	469	100
Coastal Oak Woodland						
-16 to -40% CC			1	0	1	0
+15 to -15% CC (Little or No Change)	426	90	4,791	93	5,217	93
+16 to +40% CC			3	0	3	0
Cloud or Cloud Shadow	48	10	361	7	408	7
Total	473	100	5,155	100	5,629	100
Eucalyptus						
+15 to -15% CC (Little or No Change)	64	100	1,414	88	1,478	88
Cloud or Cloud Shadow			199	12	199	12
Total	64	100	1,613	100	1,677	100
Montane Hardwood						
-71 to -100% CC	6	0	330	0	336	0
-41 to -70% CC	3	0	490	0	493	0
-16 to -40% CC	6	0	928	0	934	0
+15 to -15% CC (Little or No Change)	15,943	100	256,883	96	272,826	96
Non-Vegetation Change			57	0	57	0
Cloud or Cloud Shadow	4	0	8,513	3	8,517	3
Total	15,962	100	267,296	100	283,257	100
Montane Riparian						
-71 to -100% CC			3	0	3	0
-41 to -70% CC			3	0	3	0
-16 to -40% CC			22	1	22	1
+15 to -15% CC (Little or No Change)	230	79	3,663	89	3,894	88
+16 to +40% CC			16	0	16	0
Non-Vegetation Change			4	0	4	0
Cloud or Cloud Shadow	63	21	420	10	483	11
Total	293	100	4,132	100	4,425	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)			415	95	415	95
+16 to +40% CC			19	4	19	4
Non-Vegetation Change			2	0	2	0
Total			437	100	437	100
All Hardwood	17,237		281,504		298,741	

Table C-146 Acres of Classified Change in Sonoma County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%			10	0	10	0
+15 to -15% CC (Little or No Change)	977	100	3,474	100	4,450	100
Shrub/Grass Increase > 15%			5	0	5	0
Total	977	100	3,489	100	4,465	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)			269	9	269	9
Cloud or Cloud Shadow	265	100	2,598	91	2,862	91
Total	265	100	2,866	100	3,131	100
Desert Scrub						
Cloud or Cloud Shadow			3	100	3	100
Total			3	100	3	100
Mixed Chaparral						
Shrub/Grass Decrease > 15%	5	0	573	2	578	1
+15 to -15% CC (Little or No Change)	5,513	100	34,200	98	39,713	98
Shrub/Grass Increase > 15%			33	0	33	0
Non-Vegetation Change			5	0	5	0
Cloud or Cloud Shadow			93	0	93	0
Total	5,518	100	34,904	100	40,422	100
Montane Chaparral						
+15 to -15% CC (Little or No Change)	2	100			100	0
Total	2	100			100	0
Undetermined Shrub/Chaparral						
+15 to -15% CC (Little or No Change)	27	76	89	73	116	74
Cloud or Cloud Shadow	8	24	32	27	41	26
Total	36	100	121	100	157	100
All Shrub/Chaparral	6,798		41,384		48,181	

Table C-147 Acres of Verified Change in Sonoma County by Cause and Conifer Cover Type

	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Closed Cone Pine-Cypress								
-71 to -100% CC					2		1	2
-41 to -70% CC	22				2		5	30
-16 to -40% CC	74				3		48	124
Total	96				6		54	156
Douglas Fir								
-71 to -100% CC	6	30	5		40		5	87
-41 to -70% CC	23	81	4		86		27	220
-16 to -40% CC	76	234	18		84		146	558
+16 to +40% CC							68	68
+41 to +100% CC							5	5
Total	105	345	27		210		251	937
Montane hardwood-conifer								
-71 to -100% CC		4			3		0	8
-41 to -70% CC		4	1		5		4	15
-16 to -40% CC		16	2		5		8	30
+16 to +40% CC							5	5
+41 to +100% CC				1				1
Total		24	4	1	14		17	60
Redwood								
-71 to -100% CC		112			8		14	134
-41 to -70% CC	2	173	1		17		33	225
-16 to -40% CC	5	366	4		44	2	150	571
+16 to +40% CC							3	3
+41 to +100% CC							12	12
Total	7	650	4		70	2	213	946
All Conifer	208	1,018	35	2	299	2	534	2,098

Table C-148 Acres of Verified Change in Sonoma County by Cause and Hardwood Cover Type

	Development	Fire	Harvest	Other	Regrowth	Seasonal	Unknown Cause	All Causes
Blue Oak Foothill Pine								
-16 to -40% CC							2	2
Total							2	2
Blue Oak Woodland								
-41 to -70% CC				3				3
-16 to -40% CC				3				3
Total				6				6
Coastal Oak Woodland								
-16 to -40% CC								1
+16 to +40% CC					3			3
Total					3		1	4
Montane Hardwood								
-71 to -100% CC	22	61	24	191			38	336
-41 to -70% CC	64	34	72	249			74	493
-16 to -40% CC	101	97	189	394		4	149	934
+16 to +40% CC					11		78	89
+41 to +100% CC					2		5	6
Total	187	192	285	833	12	4	343	1,857
Montane Riparian								
-71 to -100% CC	1			2				3
-41 to -70% CC				2				3
-16 to -40% CC	1			16			6	22
+16 to +40% CC							16	16
Total	2			21			22	44
Valley Oak Woodland								
+16 to +40% CC							19	19
Total							20	20
All Hardwood	189	192	285	860	15	4	388	1,934

Table C-149 Acres of Verified Change in Sonoma County by Cause and Shrub/Chaparral Cover Type

	Development	Fire	Other	Regrowth	Unknown Cause	All Causes
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%			9		1	10
Shrub/Grass Increase > 15%				5		5
Total			9	5	1	15
Mixed Chaparral						
Shrub/Grass Decrease > 15%	19	477	59		23	578
Shrub/Grass Increase > 15%				28	5	33
Total	19	477	59	28	28	611
All Shrub/Chaparral	19	477	68	33	29	626

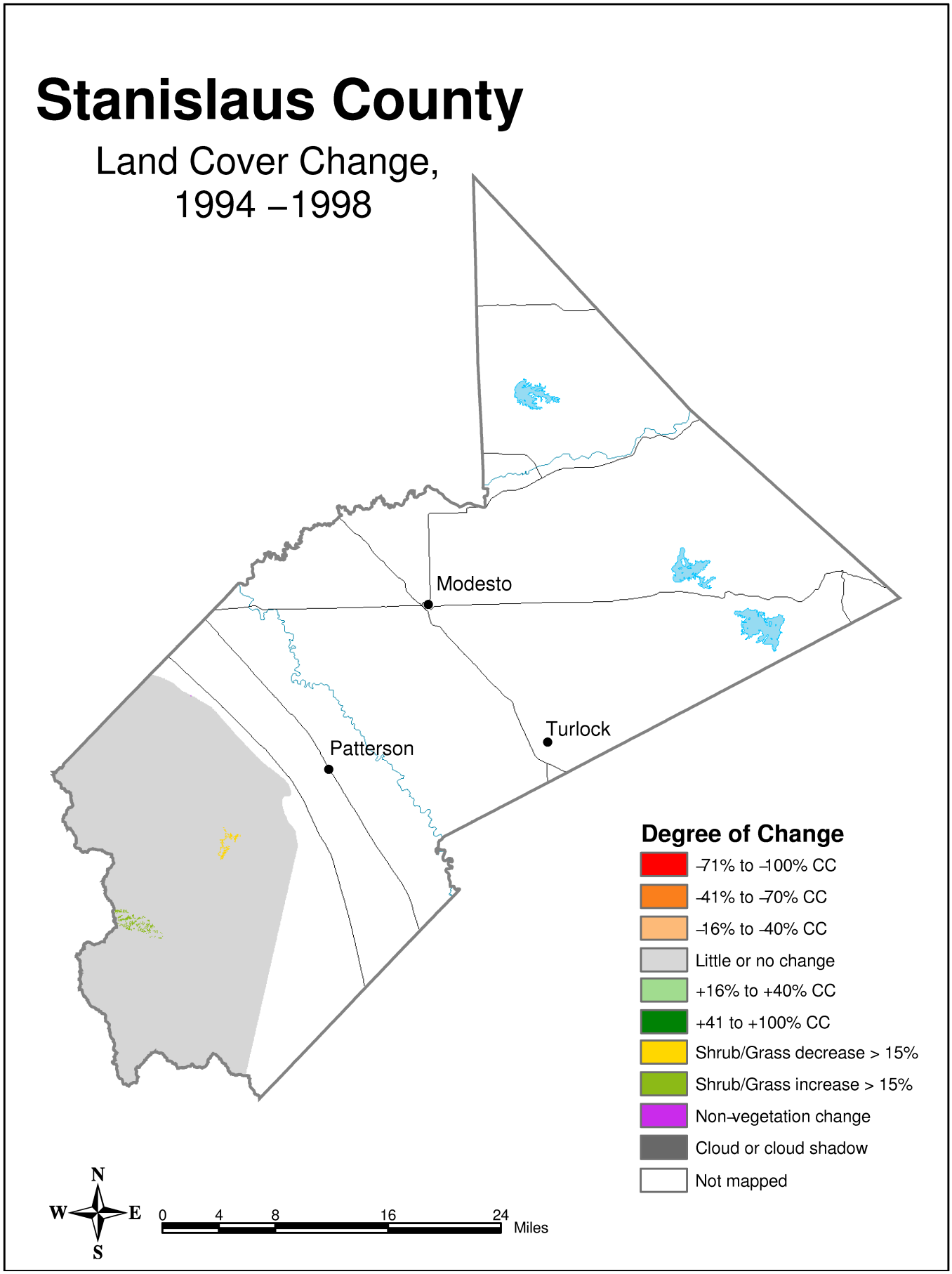

Stanislaus County
Land Cover Change,
1994 –1998
Modesto
Turlock
Patterson
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to –40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
N
W
E
S
0
4
8
16
24
Miles

Table C-150 Acres of Classified Change in Stanislaus County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	6	100	5,056	100	2,452	100	3,147	100	18,157	100	28,817	
+16 to +40% CC												
Shrub/Grass Decrease > 15%												
Shrub/Grass Increase > 15%									1	0	1	
Non-Vegetation Change												
Total	6	100	5,056	100	2,452	100	3,147	100	18,159	100	28,819	

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-16 to -40% CC			1	0							1	0
+15 to -15% CC (Little or No Change)	2	100	23,690	100	76,141	100	9,577	99	72,256	99	181,666	99
+16 to +40% CC			12	0							12	0
Shrub/Grass Decrease > 15%					344	0			2	0	346	0
Shrub/Grass Increase > 15%					10	0	61	1	544	1	615	0
Non-Vegetation Change					2	0			1	0	3	0
Total	2	100	23,702	100	76,497	100	9,638	100	72,804	100	182,643	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-16 to -40% CC			1	0							1	0
+15 to -15% CC (Little or No Change)	7	100	28,746	100	78,592	100	12,724	100	90,414	99	210,483	100
+16 to +40% CC			12	0							12	0
Shrub/Grass Decrease > 15%					344	0			2	0	346	0
Shrub/Grass Increase > 15%					10	0	61	0	546	1	616	0
Non-Vegetation Change					2	0			1	0	3	0
Total	7	100	28,758	100	78,949	100	12,785	100	90,962	100	211,461	100

Table C-151 Acres of Verified Change in Stanislaus County by Cause and Lifeform

	Regrowth	Unknown Cause	All Causes
Hardwood			
-16 to -40% CC		1	1
+16 to +40% CC	12		12
Total	12	1	12
Grass/Forb			
Shrub/Grass Decrease > 15%		344	344
Shrub/Grass Increase > 15%	10		10
Total	10	344	354
Non-Forested Other			
Shrub/Grass Decrease > 15%		2	2
Shrub/Grass Increase > 15%	546		546
Total	546	2	547
Shrub/Chaparral			
Shrub/Grass Increase > 15%	61		61
Total	61		61
All Lifeforms	628	347	975

Table C-152 Acres of Classified Change in Stanislaus County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Undetermined Conifer						
+15 to -15% CC (Little or No Change)	6	100	2	100	7	100
Total	6	100	2	100	7	100
All Conifer	6	100	2	100	7	100

Table C-153 Acres of Classified Change in Stanislaus County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
+15 to -15% CC (Little or No Change)	3,691	100	15,282	100	18,973	100
+16 to +40% CC			2	0	2	0
Total	3,691	100	15,284	100	18,975	100
Blue Oak Woodland						
+15 to -15% CC (Little or No Change)	498	100	7,745	100	8,243	100
+16 to +40% CC			10	0	10	0
Total	498	100	7,755	100	8,253	100
Coastal Oak Woodland						
+15 to -15% CC (Little or No Change)	867	100	112	100	979	100
Total	867	100	112	100	979	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)			551	100	551	100
Total			552	100	552	100
All Hardwood	5,056		23,702		28,758	

Table C-154 Acres of Classified Change in Stanislaus County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Causes	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
+15 to -15% CC (Little or No Change)	943	100	711	98	1,654	99
Shrub/Grass Increase > 15%			12	2	12	1
Total	943	100	723	100	1,666	100
Coastal Scrub						
+15 to -15% CC (Little or No Change)			277	100	277	100
Total			277	100	277	100
Mixed Chaparral						
+15 to -15% CC (Little or No Change)	131	100	1,384	100	1,515	100
Shrub/Grass Increase > 15%			1	0	1	0
Total	131	100	1,385	100	1,516	100
Undetermined Shrub/Chaparral						
+15 to -15% CC (Little or No Change)	2,073	100	7,205	99	9,278	99
Shrub/Grass Increase > 15%			48	1	48	1
Total	2,073	100	7,253	100	9,326	100
All Shrub/Chaparral	3,147		9,638		12,785	

Table C-155 Acres of Verified Change in Stanislaus County by Cause and Hardwood Cover Type

	Regrowth	Unknown Cause	All Causes
Blue Oak Foothill Pine			
+16 to +40% CC	2		2
Total	2		2
Blue Oak Woodland			
+16 to +40% CC	10		10
Total	10		10
All Hardwood	12	1	12

Table C-156 Acres of Verified Change in Stanislaus County by Cause and Shrub/Chaparral Cover Type

	Regrowth	All Causes
Chamise-Redshank Chaparral		
Shrub/Grass Increase > 15%	12	12
Total	12	12
Mixed Chaparral		
Shrub/Grass Increase > 15%	1	1
Total	1	1
Undetermined Shrub/Chaparral		
Shrub/Grass Increase > 15%	48	48
Total	48	48
All Shrub/Chaparral	61	61

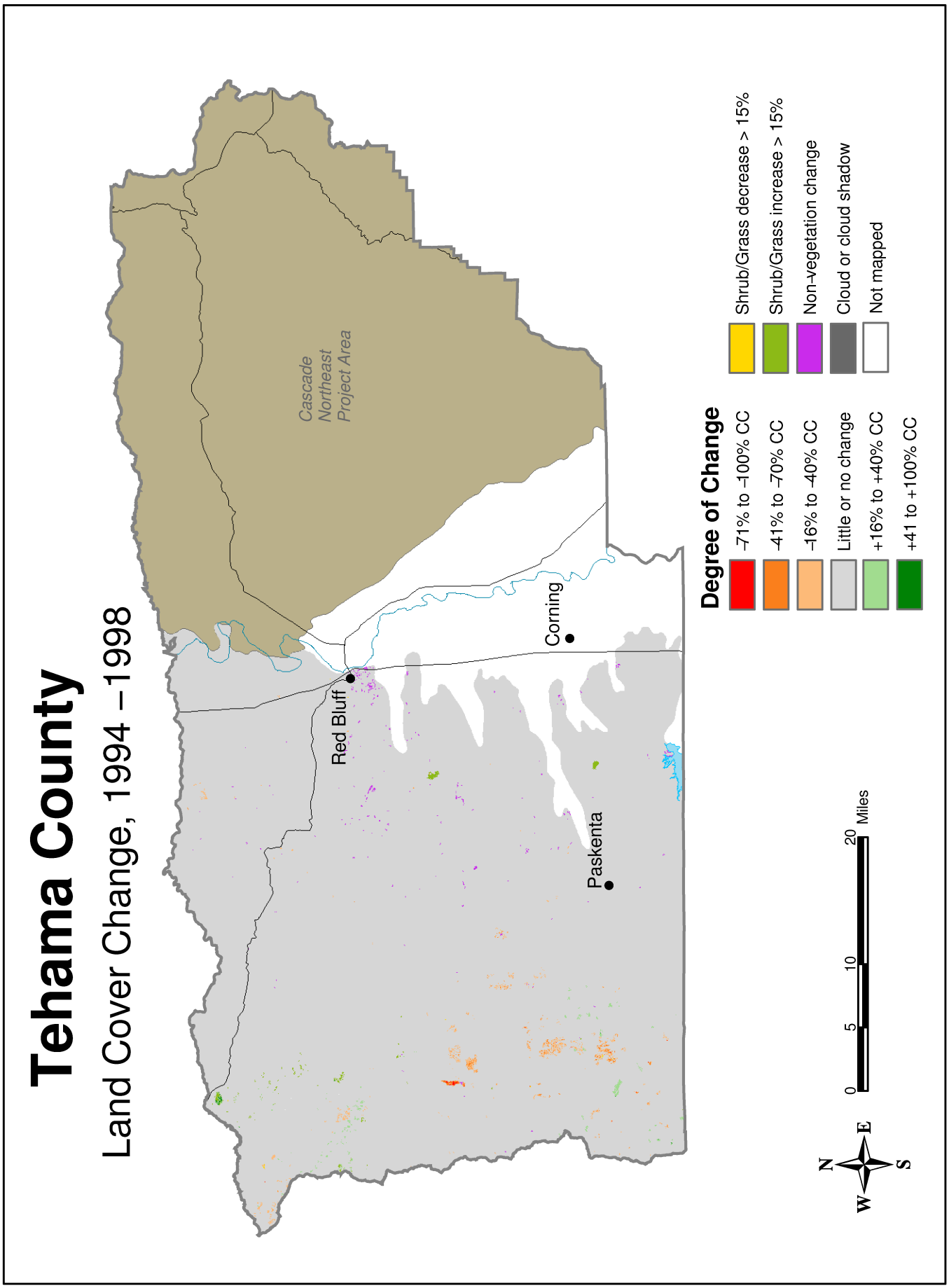

Tehama County
Land Cover Change, 1994 –1998
Cascade Northeast Project Area
Red Bluff
Corning
Paskenta
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped
0
5
10
20
Miles
N
E
S
W

Table C-157 Acres of Classified Change in Tehama County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	77	0	1	0							78	0
-41 to -70% CC	325	0	64	0							390	0
-16 to -40% CC	1,171	1	167	1							1,337	1
+15 to -15% CC (Little or No Change)	133,664	98	28,036	99	862	98	32,845	100	1,402	99	196,808	98
+16 to +40% CC	1,116	1	11	0							1,127	1
+41 to +100% CC	11	0	1	0							12	0
Shrub/Grass Decrease > 15%					1	0	47	0			48	0
Shrub/Grass Increase > 15%					2	0	102	0			104	0
Non-Vegetation Change	1	0	1	0	12	1	1	0	19	1	34	0
Total	136,363	100	28,281	100	876	100	32,995	100	1,421	100	199,937	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	2,578	100	5,933	100	2,850	98	13,539	100	2,283	100	27,183	100
+16 to +40% CC	8	0	3	0							11	0
+41 to +100% CC			3	0							3	0
Shrub/Grass Decrease > 15%												0
Shrub/Grass Increase > 15%							18	0			18	0
Non-Vegetation Change			0	0	51	2			9	0	60	0
Total	2,586	100	5,939	100	2,901	100	13,557	100	2,292	100	27,274	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	6	0									6	0
-41 to -70% CC	327	1	50	0							377	0
-16 to -40% CC	1,703	3	461	0							2,164	0
+15 to -15% CC (Little or No Change)	52,885	96	286,443	100	261,076	100	99,012	100	23,919	98	723,336	99
+16 to +40% CC	81	0	64	0							145	0
+41 to +100% CC	3	0	63	0							66	0
Shrub/Grass Decrease > 15%					6	0	20	0			26	0
Shrub/Grass Increase > 15%					354	0	417	0	1	0	772	0
Non-Vegetation Change	9	0	118	0	450	0	5	0	569	2	1,151	0
Total	55,013	100	287,200	100	261,887	100	99,454	100	24,489	100	728,043	100

Table C-157 Acres of Classified Change in Tehama County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	82	0	1	0							84	0
-41 to -70% CC	652	0	115	0							767	0
-16 to -40% CC	2,874	1	628	0							3,502	0
+15 to -15% CC (Little or No Change)	189,126	98	320,412	100	264,788	100	145,396	100	27,604	98	947,327	99
+16 to +40% CC	1,204	1	78	0							1,282	0
+41 to +100% CC	14	0	67	0							81	0
Shrub/Grass Decrease > 15%					7	0	67	0			74	0
Shrub/Grass Increase > 15%					356	0	537	0	1	0	894	0
Non-Vegetation Change	10	0	119	0	513	0	6	0	596	2	1,244	0
Total	193,962	100	321,420	100	265,664	100	146,005	100	28,202	100	955,254	100

Table C-158 Acres of Verified Change in Tehama County by Cause and Lifeform

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Conifer						
-71 to -100% CC	4	7		68	3	82
-41 to -70% CC	127	309		150	66	652
-16 to -40% CC	243	1,965		143	522	2,874
+16 to +40% CC			1,012		193	1,204
+41 to +100% CC			14			14
Total	374	2,281	1,026	362	784	4,826
Hardwood						
-71 to -100% CC	1					1
-41 to -70% CC	64	12			38	115
-16 to -40% CC	161	143		3	322	628
+16 to +40% CC			60		18	78
+41 to +100% CC			64		3	67
Total	226	155	124	3	382	889
Shrub/Chaparral						
Shrub/Grass Decrease > 15%	22	6		5	33	67
Shrub/Grass Increase > 15%			140		397	537
Total	22	6	140	5	429	604
Grass/Forb						
Shrub/Grass Decrease > 15%	1				6	7
Shrub/Grass Increase > 15%					356	356
Total	1				362	363
Non-Forested Other						
Shrub/Grass Increase > 15%					1	1
Total					1	1
All Lifeforms	622	2,442	1,290	370	1,958	6,682

Table C-159 Acres of Classified Change in Tehama County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress								
+15 to -15% CC (Little or No Change)	258	100			202	100	460	100
Total	258	100			202	100	460	100
Douglas Fir								
-71 to -100% CC	44	0			2	0	45	0
-41 to -70% CC	177	0			72	0	249	0
-16 to -40% CC	392	1			459	3	850	1
+15 to -15% CC (Little or No Change)	48,221	98	1,040	100	15,946	97	65,207	98
+16 to +40% CC	481	1	1	0	16	0	498	1
+41 to +100% CC	8	0					8	0
Total	49,322	100	1,041	100	16,495	100	66,858	100
Jeffrey Pine								
+15 to -15% CC (Little or No Change)	1,023	100			1	100	1,024	100
Total	1,023	100			1	100	1,024	100
Klamath Mixed Conifer								
-71 to -100% CC	22	0			1	0	23	0
-41 to -70% CC	84	0			95	1	178	0
-16 to -40% CC	497	1			455	4	952	2
+15 to -15% CC (Little or No Change)	41,135	98	462	100	11,499	95	53,096	97
+16 to +40% CC	260	1			13	0	273	1
+41 to +100% CC	1	0					1	0
Total	42,000	100	462	100	12,063	100	54,524	100
Montane hardwood-conifer								
-71 to -100% CC	3	0			1	0	4	0
-41 to -70% CC					19	0	19	0
-16 to -40% CC	4	0			157	1	161	1
+15 to -15% CC (Little or No Change)	9,597	100	830	100	18,525	99	28,952	99
+16 to +40% CC	11	0	2	0	18	0	30	0
+41 to +100% CC					3	0	4	0
Non-Vegetation Change					9	0	9	0
Total	9,615	100	832	100	18,732	100	29,179	100
Ponderosa Pine								
-71 to -100% CC	2	0					2	0
-41 to -70% CC	14	0			1	0	16	0
-16 to -40% CC	30	1			10	0	40	1
+15 to -15% CC (Little or No Change)	4,478	98	201	97	2,369	98	7,048	98
+16 to +40% CC	45	1	5	3	26	1	77	1
+41 to +100% CC	1	0					1	0
Total	4,571	100	207	100	2,406	100	7,184	100
Red Fir								
+15 to -15% CC (Little or No Change)	6,139	98			208	94	6,346	98
+16 to +40% CC	81	1			7	3	88	1
-16 to -40% CC	27	0			6	3	33	1
-41 to -70% CC	4	0			2	1	6	0
Total	6,252	100			222	100	6,474	100
White Fir								
-71 to -100% CC	6	0			2	0	8	0
-41 to -70% CC	46	0			139	3	184	1
-16 to -40% CC	220	1			616	13	836	3
+15 to -15% CC (Little or No Change)	22,813	98	45	100	4,135	85	26,993	96
+16 to +40% CC	238	1					238	1
Total	23,322	100	45	100	4,893	100	28,260	100
All Conifer	136,363		2,586		55,013		193,962	

Table C-160 Acres of Classified Change in Tehama County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine								
-41 to -70% CC					22	0	22	0
-16 to -40% CC	1	0			176	0	177	0
+15 to -15% CC (Little or No Change)	1,542	100	1,631	100	87,408	100	90,581	100
+16 to +40% CC					5	0	5	0
+41 to +100% CC					6	0	6	0
Non-Vegetation Change					40	0	40	0
Total	1,543	100	1,631	100	87,658	100	90,831	100
Blue Oak Woodland								
-41 to -70% CC					9	0	9	0
-16 to -40% CC					80	0	80	0
+15 to -15% CC (Little or No Change)	711	100	1,393	100	162,725	100	164,829	100
+16 to +40% CC					12	0	12	0
+41 to +100% CC					6	0	6	0
Non-Vegetation Change					56	0	56	0
Total	711	100	1,393	100	162,888	100	164,993	100
Eucalyptus								
+15 to -15% CC (Little or No Change)			5	100	7,712	100	7,718	100
Total			5	100	7,712	100	7,718	100
Montane Hardwood								
-71 to -100% CC	1	0					1	0
-41 to -70% CC	64	0			18	0	82	0
-16 to -40% CC	166	1			202	1	368	1
+15 to -15% CC (Little or No Change)	25,609	99	2,700	100	22,291	99	50,600	99
+16 to +40% CC	8	0	3	0	47	0	58	0
+41 to +100% CC	1	0	3	0	50	0	54	0
Non-Vegetation Change					14	0	14	0
Total	25,850	100	2,706	100	22,621	100	51,177	100
Montane Riparian								
+15 to -15% CC (Little or No Change)	175	98			57	100	232	98
+16 to +40% CC	2	1					2	1
+41 to +100% CC	1	0					1	0
Non-Vegetation Change	1	0					1	0
Total	178	100			57	100	236	100
Valley Oak Woodland								
-41 to -70% CC					2	0	2	0
-16 to -40% CC					3	0	3	0
+15 to -15% CC (Little or No Change)			204	100	6,249	100	6,453	100
Non-Vegetation Change					8	0	8	0
Total			204	100	6,262	100	6,466	100
All Hardwood	28,281		5,939		287,200		321,420	

Table C-161 Acres of Classified Change in Tehama County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral								
+15 to -15% CC (Little or No Change)	2,549	100	3,341	100	17,269	99	23,158	100
Shrub/Grass Increase > 15%			2	0	114	1	116	0
Total	2,549	100	3,343	100	17,383	100	23,275	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	6	0			10	0	17	0
+15 to -15% CC (Little or No Change)	13,084	100	8,037	100	53,753	100	74,874	100
Shrub/Grass Increase > 15%	10	0	6	0	146	0	163	0
Non-Vegetation Change	1	0			5	0	5	0
Total	13,101	100	8,043	100	53,914	100	75,059	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	40	0			10	0	50	0
+15 to -15% CC (Little or No Change)	17,211	99	2,161	100	27,990	99	47,363	99
Shrub/Grass Increase > 15%	92	1	9	0	157	1	258	1
Total	17,344	100	2,171	100	28,157	100	47,672	100
All Shrub/Chaparral	32,995		13,557		99,454		146,005	

Table C-162 Acres of Verified Change in Tehama County by Cause and Conifer Cover Type

	Fire	Regrowth	Harvest	Other	Unknown Cause	All Causes
Douglas Fir						
-71 to -100% CC	2		2	40	1	45
-41 to -70% CC	87		47	94	21	249
-16 to -40% CC	177		489	70	115	850
+16 to +40% CC		459			39	498
+41 to +100% CC		8				8
Total	266	468	537	204	176	1,651
Klamath Mixed Conifer						
-71 to -100% CC			2	20	1	23
-41 to -70% CC	28		100	37	13	178
-16 to -40% CC	40		719	52	140	952
+16 to +40% CC		239			34	273
+41 to +100% CC		1				1
Total	69	241	822	110	187	1,428
Montane hardwood-conifer						
-71 to -100% CC			1	3		4
-41 to -70% CC			18	0	1	19
-16 to -40% CC	2		122	0	37	161
+16 to +40% CC		8			22	30
+41 to +100% CC		3			0	4
Total	2	11	140	4	61	218
Ponderosa Pine						
-71 to -100% CC	2					2
-41 to -70% CC	12		4			16
-16 to -40% CC	24		9		7	40
+16 to +40% CC		58			19	77
+41 to +100% CC		1				1
Total	38	58	13		27	136
Red Fir						
-41 to -70% CC			3		3	6
-16 to -40% CC			15		18	33
+16 to +40% CC		10			78	88
Total		10	18		99	127
White Fir						
-71 to -100% CC			2	5	1	8
-41 to -70% CC			138	19	28	184
-16 to -40% CC			611	21	205	836
+16 to +40% CC		238				238
Total		238	751	45	233	1,267
All Conifer	374	1,026	2,281	362	784	4,826

Table C-163 Acres of Verified Change in Tehama County by Cause and Shrub/Chaparral Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Blue Oak Foothill Pine						
+16 to +40% CC			4		1	5
+41 to +100% CC			6			6
-16 to -40% CC					177	177
-41 to -70% CC					22	22
Total			11		200	211
Blue Oak Woodland						
+16 to +40% CC			10		3	12
+41 to +100% CC			6			6
-16 to -40% CC					80	80
-41 to -70% CC					9	9
Total			16		92	107
Montane Hardwood						
+16 to +40% CC			44		14	58
+41 to +100% CC			51		2	54
-16 to -40% CC	161	143		3	62	368
-41 to -70% CC	64	12			5	82
-71 to -100% CC	1					1
Total	226	155	96	3	84	563
Montane Riparian						
+16 to +40% CC			1		1	2
Total			1		2	3
Valley Oak Woodland						
-16 to -40% CC					3	3
-41 to -70% CC					2	2
Total					5	5
All Hardwood	226	155	124	3	382	889

Table C-164 Acres of Verified Change in Tehama County by Cause and Shrub/Chaparral Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Chamise-Redshank Chaparral						
Shrub/Grass Increase > 15%			109		7	116
Total			109		7	116
Mixed Chaparral						
Shrub/Grass Decrease > 15%	6				10	17
Shrub/Grass Increase > 15%			6		157	163
Total	6		6		167	179
Montane Chaparral						
Shrub/Grass Decrease > 15%	16	6		5	22	50
Shrub/Grass Increase > 15%			25		233	258
Total	16	6	25	5	256	308
All Shrub/Chaparral	22	6	140	5	429	604

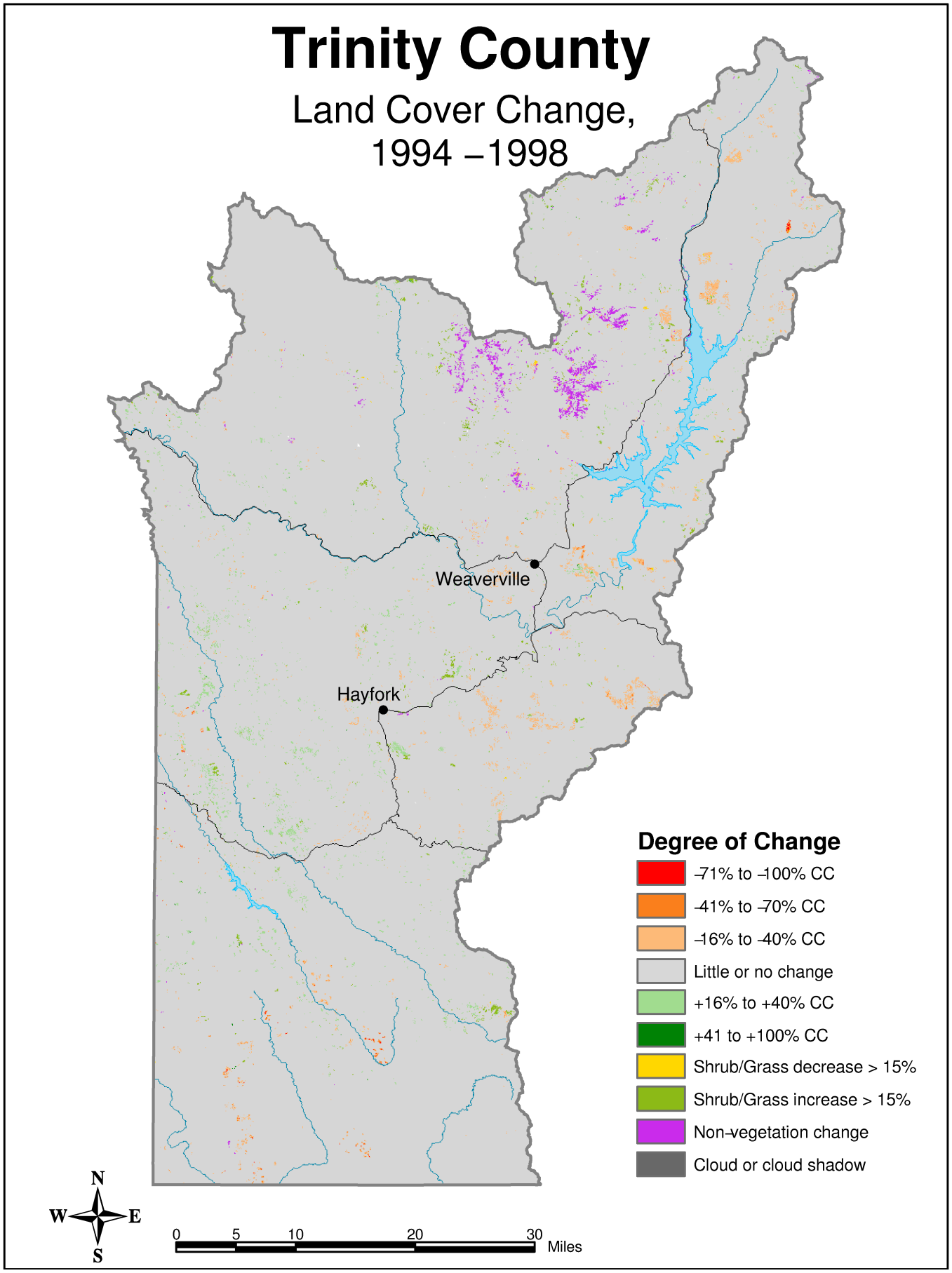

Trinity County
Land Cover Change,
1994 –1998
Weaverville
Hayfork
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to –40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
N
W
E
S
0
5
10
20
30
Miles

Table C-165 Acres of Classified Change in Trinity County by Lifeform Type and Owner Class

	Forest Service											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Forest Service Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	104	0	11	0							115	0
-41 to -70% CC	423	0	40	0							463	0
-16 to -40% CC	5,163	0	134	0							5,296	0
+15 to -15% CC (Little or No Change)	1,158,618	98	139,411	99	5,538	96	115,306	95	31,513	98	1,450,386	98
+16 to +40% CC	10,973	1	401	0							11,373	1
+41 to +100% CC	70	0	105	0							175	0
Shrub/Grass Decrease > 15%					6	0	456	0			462	0
Shrub/Grass Increase > 15%					139	2	3,387	3			3,526	0
Non-Vegetation Change	5,884	0	135	0	83	1	1,760	1	629	2	8,490	1
Total	1,181,235	100	140,236	100	5,765	100	120,909	100	32,142	100	1,480,286	100

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	5	0									5	0
-41 to -70% CC	20	0	13	0							33	0
-16 to -40% CC	350	1	145	1							494	1
+15 to -15% CC (Little or No Change)	50,562	99	18,217	99	1,089	100	6,209	97	623	99	76,701	99
+16 to +40% CC	83	0	16	0							100	0
+41 to +100% CC			3	0							3	0
Shrub/Grass Decrease > 15%					2	0	32	0			34	0
Shrub/Grass Increase > 15%					1	0	162	3			163	0
Non-Vegetation Change	10	0	19	0			2	0	4	1	35	0
Total	51,030	100	18,413	100	1,093	100	6,405	100	627	100	77,569	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	116	0	15	0							131	0
-41 to -70% CC	570	0	86	0							657	0
-16 to -40% CC	9,736	3	640	1					1	0	10,376	2
+15 to -15% CC (Little or No Change)	295,997	96	99,097	99	38,313	99	38,148	96	6,376	99	477,931	97
+16 to +40% CC	1,646	1	248	0							1,895	0
+41 to +100% CC	7	0	27	0							33	0
Shrub/Grass Decrease > 15%					13	0	181	0			193	0
Shrub/Grass Increase > 15%					209	1	1,402	4			1,610	0
Non-Vegetation Change	130	0	59	0	90	0	107	0	69	1	454	0
Total	308,202	100	100,172	100	38,624	100	39,837	100	6,446	100	493,281	100

Table C-165 Acres of Classified Change in Trinity County by Lifeform Type and Owner Class (cont.)

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC	225	0	26	0							251	0
-41 to -70% CC	1,014	0	139	0							1,153	0
-16 to -40% CC	15,248	1	918	0					1	0	16,167	1
+15 to -15% CC (Little or No Change)	1,505,178	98	256,725	99	44,940	99	159,663	96	38,512	98	2,005,018	98
+16 to +40% CC	12,702	1	665	0							13,368	1
+41 to +100% CC	77	0	135	0							212	0
Shrub/Grass Decrease > 15%					21	0	669	0			690	0
Shrub/Grass Increase > 15%					349	1	4,950	3			5,299	0
Non-Vegetation Change	6,024	0	213	0	173	0	1,868	1	701	2	8,979	0
Total	1,540,468	100	258,821	100	45,482	100	167,150	100	39,214	100	2,051,136	100

Table C-166 Acres of Verified Change in Trinity County by Cause and Lifeform

	Fire	Harvest	Development	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Conifer								
-71 to -100% CC	81	132					13	225
-41 to -70% CC	38	751	3		8		214	1,014
-16 to -40% CC	1,214	9,042	49		189		4,753	15,248
+16 to +40% CC				10,943			1,760	12,702
+41 to +100% CC				63			14	77
Total	1,333	9,924	52	11,005	197		6,754	29,266
Hardwood								
-71 to -100% CC		11					15	26
-41 to -70% CC	1	104			1		33	139
-16 to -40% CC	22	516			5		375	918
+16 to +40% CC				330			335	665
+41 to +100% CC				61			74	135
Total	23	631		391	6		832	1,883
Shrub/Chaparral								
Shrub/Grass Decrease > 15%	56	145			3		464	669
Shrub/Grass Increase > 15%				3,116		4	1,830	4,950
Total	56	145		3,116	3	4	2,294	5,619
Grass/Forb								
Shrub/Grass Decrease > 15%		7					13	21
Shrub/Grass Increase > 15%				20			328	349
Total		7		20			342	370
Non-Forested Other								
-16 to -40% CC		1						1
Total		1					1	1
All Lifeforms	1,413	10,708	53	14,532	206	4	10,222	37,138

Table C-167 Acres of Classified Change in Trinity County by Conifer Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Closed Cone Pine-Cypress								
-16 to -40% CC	9	1					9	0
+15 to -15% CC (Little or No Change)	1,555	99			338	100	1,893	99
+16 to +40% CC	3	0					3	0
Total	1,567	100			338	100	1,905	100
Douglas Fir								
-71 to -100% CC	54	0	5	0	51	0	110	0
-41 to -70% CC	278	0	9	0	349	0	636	0
-16 to -40% CC	1,963	0	227	1	5,579	3	7,768	1
+15 to -15% CC (Little or No Change)	569,942	99	37,962	99	161,385	96	769,289	98
+16 to +40% CC	5,700	1	59	0	1,079	1	6,837	1
+41 to +100% CC	50	0			2	0	52	0
Non-Vegetation Change	113	0	6	0	41	0	159	0
Total	578,100	100	38,267	100	168,485	100	784,852	100
Jeffrey Pine								
-41 to -70% CC	2	0			2	1	4	0
-16 to -40% CC	12	0				0	12	0
+15 to -15% CC (Little or No Change)	4,040	99			262	99	4,302	99
+16 to +40% CC	29	1					29	1
Total	4,083	100			265	100	4,347	100
Juniper								
+15 to -15% CC (Little or No Change)	4	15					4	15
Non-Vegetation Change	22	85					22	85
Total	26	100					26	100
Klamath Mixed Conifer								
-71 to -100% CC	34	0			56	0	90	0
-41 to -70% CC	48	0	10	0	131	0	190	0
-16 to -40% CC	1,884	1	87	1	2,903	4	4,874	1
+15 to -15% CC (Little or No Change)	297,994	98	6,027	98	75,739	96	379,760	98
+16 to +40% CC	3,501	1	3	0	195	0	3,698	1
+41 to +100% CC	3	0			1	0	4	0
Non-Vegetation Change	111	0	1	0	35	0	148	0
Total	303,575	100	6,129	100	79,060	100	388,763	100
Lodgepole Pine								
+15 to -15% CC (Little or No Change)	96	100					96	100
Total	96	100					96	100
Montane hardwood-conifer								
-71 to -100% CC	10	0			8	0	18	0
-41 to -70% CC	40	0			84	0	124	0
-16 to -40% CC	282	0	14	0	681	2	977	1
+15 to -15% CC (Little or No Change)	113,325	99	3,547	99	34,644	97	151,516	99
+16 to +40% CC	569	0	21	1	194	1	784	1
+41 to +100% CC	17	0			4	0	21	0
Non-Vegetation Change	18	0	3	0	7	0	29	0
Total	114,260	100	3,587	100	35,622	100	153,469	100
Ponderosa Pine								
-71 to -100% CC	1	0		0	1	0	2	0
-41 to -70% CC	8	0	1	0	2	0	12	0
-16 to -40% CC	74	1	14	1	183	3	271	1
+15 to -15% CC (Little or No Change)	11,834	98	2,384	99	6,348	96	20,565	98
+16 to +40% CC	98	1		0	68	1	167	1
Non-Vegetation Change	2	0		0	8	0	11	0
Total	12,017	100	2,399	100	6,610	100	21,027	100

Table C-167 Acres of Classified Change in Trinity County by Conifer Cover Type and Owner Class (cont.)

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%		Acres	%	Acres
Red Fir								
-41 to -70% CC	6	0					6	0
-16 to -40% CC	166	0	1	1	124	3	291	1
+15 to -15% CC (Little or No Change)	47,495	97	84	99	4,575	97	52,154	97
+16 to +40% CC	396	1			24	1	420	1
Non-Vegetation Change	783	2			7	0	790	1
Total	48,845	100	85	100	4,730	100	53,661	100
Subalpine Conifer								
-41 to -70% CC	5	0					5	0
-16 to -40% CC	187	1					187	1
+15 to -15% CC (Little or No Change)	22,227	82			2,022	99	24,248	83
+16 to +40% CC	95	0					95	0
Non-Vegetation Change	4,708	17			29	1	4,736	16
Total	27,221	100			2,051	100	29,272	100
White Fir								
-71 to -100% CC	5	0					5	0
-41 to -70% CC	37	0			1	0	38	0
-16 to -40% CC	586	1	6	1	266	2	858	1
+15 to -15% CC (Little or No Change)	90,108	99	558	99	10,686	97	101,352	98
+16 to +40% CC	582	1			86	1	669	1
Non-Vegetation Change	127	0			2	0	129	0
Total	91,445	100	564	100	11,041	100	103,050	100
All Conifer	1,181,235		51,030		308,202		1,540,468	

Table C-168 Acres of Classified Change in Trinity County by Hardwood Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
Blue Oak Foothill Pine								
-41 to -70% CC			1	0			1	0
-16 to -40% CC			17	1	6	0	22	0
+15 to -15% CC (Little or No Change)	2,231	100	1,854	99	2,693	100	6,778	100
+16 to +40% CC			1	0			1	0
Non-Vegetation Change			4	0			4	0
Total	2,231	100	1,876	100	2,699	100	6,807	100
Blue Oak Woodland								
+15 to -15% CC (Little or No Change)	102	100			54	100	155	100
Total	102	100			54	100	155	100
Montane Hardwood								
-71 to -100% CC	11	0			15	0	26	0
-41 to -70% CC	39	0	12	0	86	0	137	0
-16 to -40% CC	132	0	128	1	634	1	893	0
+15 to -15% CC (Little or No Change)	134,192	100	16,363	99	95,547	99	246,102	99
+16 to +40% CC	316	0	16	0	240	0	572	0
+41 to +100% CC	59	0	3	0	24	0	87	0
Non-Vegetation Change	67	0	15	0	46	0	128	0
Total	134,816	100	16,537	100	96,592	100	247,945	100
Montane Riparian								
-16 to -40% CC	2	0					2	0
+15 to -15% CC (Little or No Change)	2,886	94			804	97	3,690	94
+16 to +40% CC	85	3			8	1	93	2
+41 to +100% CC	46	1			2	0	48	1
Non-Vegetation Change	68	2			13	2	81	2
Total	3,086	100			827	100	3,913	100
All Hardwood	140,236		18,413		100,172		258,821	

Table C-169 Acres of Classified Change in Trinity County by Shrub/Chaparral Cover Type and Owner Class

	Forest Service		Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral								
Shrub/Grass Decrease > 15%	1	0			2	0	3	0
+15 to -15% CC (Little or No Change)	2,604	100	41	100	2,450	99	5,094	99
Shrub/Grass Increase > 15%	6	0			16	1	22	0
Non-Vegetation Change					5	0	5	0
Total	2,611	100	41	100	2,473	100	5,124	100
Mixed Chaparral								
Shrub/Grass Decrease > 15%	61	0	6	0	63	0	130	0
+15 to -15% CC (Little or No Change)	28,434	99	4,603	96	18,524	97	51,561	98
Shrub/Grass Increase > 15%	269	1	162	3	397	2	827	2
Non-Vegetation Change	77	0	2	0	65	0	143	0
Total	28,841	100	4,772	100	19,049	100	52,662	100
Montane Chaparral								
Shrub/Grass Decrease > 15%	394	0	26	2	115	1	536	0
+15 to -15% CC (Little or No Change)	84,266	94	1,566	98	17,097	94	102,929	94
Shrub/Grass Increase > 15%	3,112	3			989	5	4,101	4
Non-Vegetation Change	1,682	2			37	0	1,720	2
Total	89,455	100	1,592	100	18,239	100	109,285	100
Sagebrush								
+15 to -15% CC (Little or No Change)	2	100			77	100	79	100
Total	2	100			77	100	79	100
All Shrub/Chaparral	120,909		6,405		39,837		167,150	

Table C-170 Acres of Verified Change in Trinity County by Cause and Conifer Cover Type

	Fire	Harvest	Development	Regrowth	Other	Unknown Cause	All Causes
Closed Cone Pine-Cypress							
-16 to -40% CC	6					3	9
+16 to +40% CC				3			3
Total	6			3		3	12
Douglas Fir							
-71 to -100% CC		104				6	110
-41 to -70% CC	1	531	2		7	95	636
-16 to -40% CC	445	4,897	43		70	2,314	7,768
+16 to +40% CC				6,114		723	6,837
+41 to +100% CC				49		3	52
Total	446	5,532	45	6,163	77	3,140	15,404
Jeffrey Pine							
-41 to -70% CC						4	4
-16 to -40% CC	9	1				2	12
+16 to +40% CC				26		3	29
Total	9	1		26		9	46
Klamath Mixed Conifer							
-71 to -100% CC	81	7				3	90
-41 to -70% CC	37	105				48	190
-16 to -40% CC	690	2,810			92	1,282	4,874
+16 to +40% CC				3,378		320	3,698
+41 to +100% CC				3		1	4
Total	807	2,921		3,380	93	1,655	8,856
Montane hardwood-conifer							
-71 to -100% CC		15				3	18
-41 to -70% CC		96	1		1	26	124
-16 to -40% CC		631	6		20	320	977
+16 to +40% CC				579		205	784
+41 to +100% CC				11		10	21
Total		742	7	590	20	564	1,924
Ponderosa Pine							
-71 to -100% CC		2					2
-41 to -70% CC		10				2	12
-16 to -40% CC	26	170			2	73	271
+16 to +40% CC				138		29	167
Total	26	181		138	2	103	451
Red Fir							
-41 to -70% CC					0	6	6
-16 to -40% CC		135			5	151	291
+16 to +40% CC				214		206	420
Total		135		214	5	363	717
Subalpine Conifer							
-41 to -70% CC						5	5
-16 to -40% CC						187	187
+16 to +40% CC				24		72	95
Total				24		264	287
White Fir							
-71 to -100% CC		4				1	5
-41 to -70% CC		9				29	38
-16 to -40% CC	39	398				421	858
+16 to +40% CC				467		201	669
Total	39	411		467		652	1,569
All Conifer	1,333	9,924	52	11,005	197	6,754	29,266

Table C-171 Acres of Verified Change in Trinity County by Cause and Hardwood Cover Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Blue Oak Foothill Pine						
-41 to -70% CC					1	1
-16 to -40% CC		10			13	22
Total		10	1		15	25
Montane Hardwood						
-71 to -100% CC		11			15	26
-41 to -70% CC	1	104		1	32	137
-16 to -40% CC	22	506		5	360	893
+16 to +40% CC			311		260	572
+41 to +100% CC			49		38	87
Total	23	621	360	6	705	1,715
Montane Riparian						
-16 to -40% CC					2	2
+16 to +40% CC			18		74	93
+41 to +100% CC			12		36	48
Total			30		112	143
All Hardwood	23	631	391	6	832	1,883

Table C-172 Acres of Verified Change in Trinity County by Cause and Shrub/Chaparral Cover Type

	Fire	Harvest	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Chamise-Redshank Chaparral							
Shrub/Grass Decrease > 15%		1				2	3
Shrub/Grass Increase > 15%			5			17	22
Total		1	5			19	25
Mixed Chaparral							
Shrub/Grass Decrease > 15%	12	41				77	130
Shrub/Grass Increase > 15%			401			426	827
Total	12	41	401			502	957
Montane Chaparral							
Shrub/Grass Decrease > 15%	44	103		3		385	536
Shrub/Grass Increase > 15%			2,710		4	1,387	4,101
Total	44	103	2,710	3	4	1,773	4,637
All Shrub/Chaparral	56	145	3,116	3	4	2,294	5,619

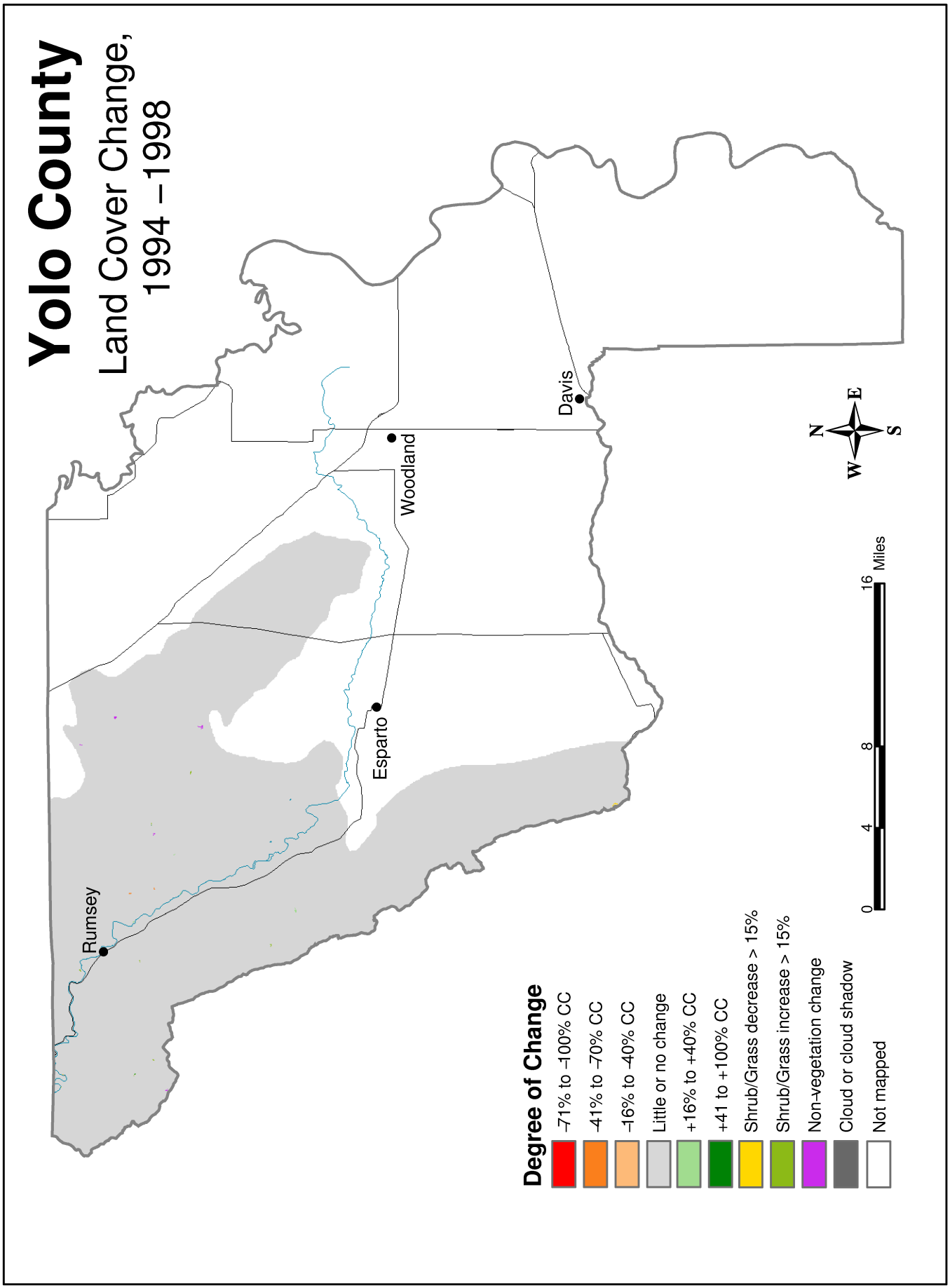

Yolo County
Land Cover Change, 1994 –1998
Davis
Woodland
Esparto
Rumsey
N
E
S
W
0
4
8
16
Miles
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
Not mapped

Table C-173 Acres of Classified Change in Yolo County by Lifeform Type and Owner Class

	Other Public											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Other Public Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC												
-16 to -40% CC												
+15 to -15% CC (Little or No Change)	148	100	2,810	100	1,074	100	24,457	100	73	100	28,562	100
+16 to +40% CC												
+41 to +100% CC												
Shrub/Grass Decrease > 15%							12	0			12	0
Shrub/Grass Increase > 15%							3	0			3	0
Non-Vegetation Change												
Total	148	100	2,811	100	1,074	100	24,471	100	73	100	28,577	100

	Private											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		Private Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC												
-41 to -70% CC			8	0							8	0
-16 to -40% CC			4	0							4	0
+15 to -15% CC (Little or No Change)	690	100	68,534	100	65,643	100	23,991	100	21,632	100	180,490	100
+16 to +40% CC	1	0	17	0							18	0
+41 to +100% CC			1	0							1	0
Shrub/Grass Decrease > 15%							8	0			8	0
Shrub/Grass Increase > 15%					17	0					18	0
Non-Vegetation Change			4	0	18	0			11	0	34	0
Total	692	100	68,567	100	65,679	100	24,000	100	21,643	100	180,580	100

	All Owners											
	Conifer		Hardwood		Grass/Forb		Shrub/ Chaparral		Non-Forested Other		All Owners Total	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
-71 to -100% CC			1	0							1	0
-41 to -70% CC			8	0							8	0
-16 to -40% CC			4	0							4	0
+15 to -15% CC (Little or No Change)	838	100	71,344	100	66,717	100	48,448	100	21,705	100	209,052	100
+16 to +40% CC	1	0	17	0							18	0
+41 to +100% CC			1	0							1	0
Shrub/Grass Decrease > 15%							20	0			20	0
Shrub/Grass Increase > 15%					17	0	3	0			20	0
Non-Vegetation Change			4	0	18	0			11	0	34	0
Total	839	100	71,378	100	66,753	100	48,471	100	21,716	100	209,157	100

Table C-174 Acres of Verified Change in Yolo County by Cause and Lifeform

	Unknown Cause	All Causes
Conifer		
+16 to +40% CC	1	1
Total	1	1
Hardwood		
-71 to -100% CC	1	1
-41 to -70% CC	8	8
-16 to -40% CC	4	4
+16 to +40% CC	17	17
+41 to +100% CC	1	1
Total	30	30
Shrub/Chaparral		
Shrub/Grass Decrease > 15%	20	20
Shrub/Grass Increase > 15%	3	3
Total	23	23
Grass/Forb		
Shrub/Grass Increase > 15%	17	17
Total	17	17
All Lifeforms	72	72

Table C-175 Acres of Classified Change in Yolo County by Conifer Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Montane hardwood-conifer						
+15 to -15% CC (Little or No Change)	148	100	690	100	838	100
+16 to +40% CC			1	0	1	0
Total	148	100	692	100	839	100
All Conifer	148	100	692	100	839	100

Table C-176 Acres of Classified Change in Yolo County by Hardwood Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Blue Oak Foothill Pine						
+15 to -15% CC (Little or No Change)	637	100	3,861	100	4,498	100
Non-Vegetation Change			2	0	2	0
Total	637	100	3,863	100	4,500	100
Blue Oak Woodland						
-41 to -70% CC			8	0	8	0
-16 to -40% CC			4	0	4	0
+15 to -15% CC (Little or No Change)	1,659	100	63,185	100	64,844	100
+16 to +40% CC			17	0	17	0
+41 to +100% CC			1	0	1	0
Non-Vegetation Change			2	0	2	0
Total	1,659	100	63,217	100	64,876	100
Eucalyptus						
+15 to -15% CC (Little or No Change)			252	100	252	100
Total			252	100	252	100
Montane Hardwood						
+15 to -15% CC (Little or No Change)	514	100	769	100	1,283	100
Total	514	100	769	100	1,283	100
Valley Oak Woodland						
+15 to -15% CC (Little or No Change)			467	100	467	100
Total			467	100	467	100
All Hardwood	2,811		68,567		71,378	

Table C-177 Acres of Classified Change in Yolo County by Shrub/Chaparral Cover Type and Owner Class

	Other Public		Private		All Owners	
	Acres	%	Acres	%	Acres	%
Chamise-Redshank Chaparral						
Shrub/Grass Decrease > 15%	6	0	6	0	11	0
+15 to -15% CC (Little or No Change)	5,759	100	8,325	100	14,084	100
Shrub/Grass Increase > 15%	3	0		0	3	0
Total	5,767	100	8,331	100	14,098	100
Mixed Chaparral						
Shrub/Grass Decrease > 15%	6	0	3	0	8	0
+15 to -15% CC (Little or No Change)	18,698	100	15,666	100	34,364	100
Total	18,704	100	15,669	100	34,373	100
All Shrub/Chaparral	24,471		24,000		48,471	

Table C-178 Acres of Verified Change in Yolo County by Cause and Conifer Cover Type

	Unknown Cause	All Causes
Montane hardwood-conifer		
+16 to +40% CC	1	1
Total	1	1
All Conifer	1	1

Table C-179 Acres of Verified Change in Yolo County by Cause and Hardwood Cover Type

	Unknown Cause	All Causes
Blue Oak Woodland		
-71 to -100% CC	1	1
-41 to -70% CC	8	8
-16 to -40% CC	4	4
+16 to +40% CC	17	17
+41 to +100% CC	1	1
Total	30	30
All Hardwood	30	30

Table C-180 Acres of Verified Change in Yolo County by Cause and Shrub/Chaparral Cover Type

	Unknown Cause	All Causes
Chamise-Redshank Chaparral		
Shrub/Grass Decrease > 15%	11	11
Shrub/Grass Increase > 15%	3	3
Total	14	14
Mixed Chaparral		
Shrub/Grass Decrease > 15%	8	8
Total	9	9

National Forest Maps and Tables

1. Forest Change Maps
2. Acres of Classified Change by Lifeform and National Forest
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    b. Shasta-Trinity National Forest
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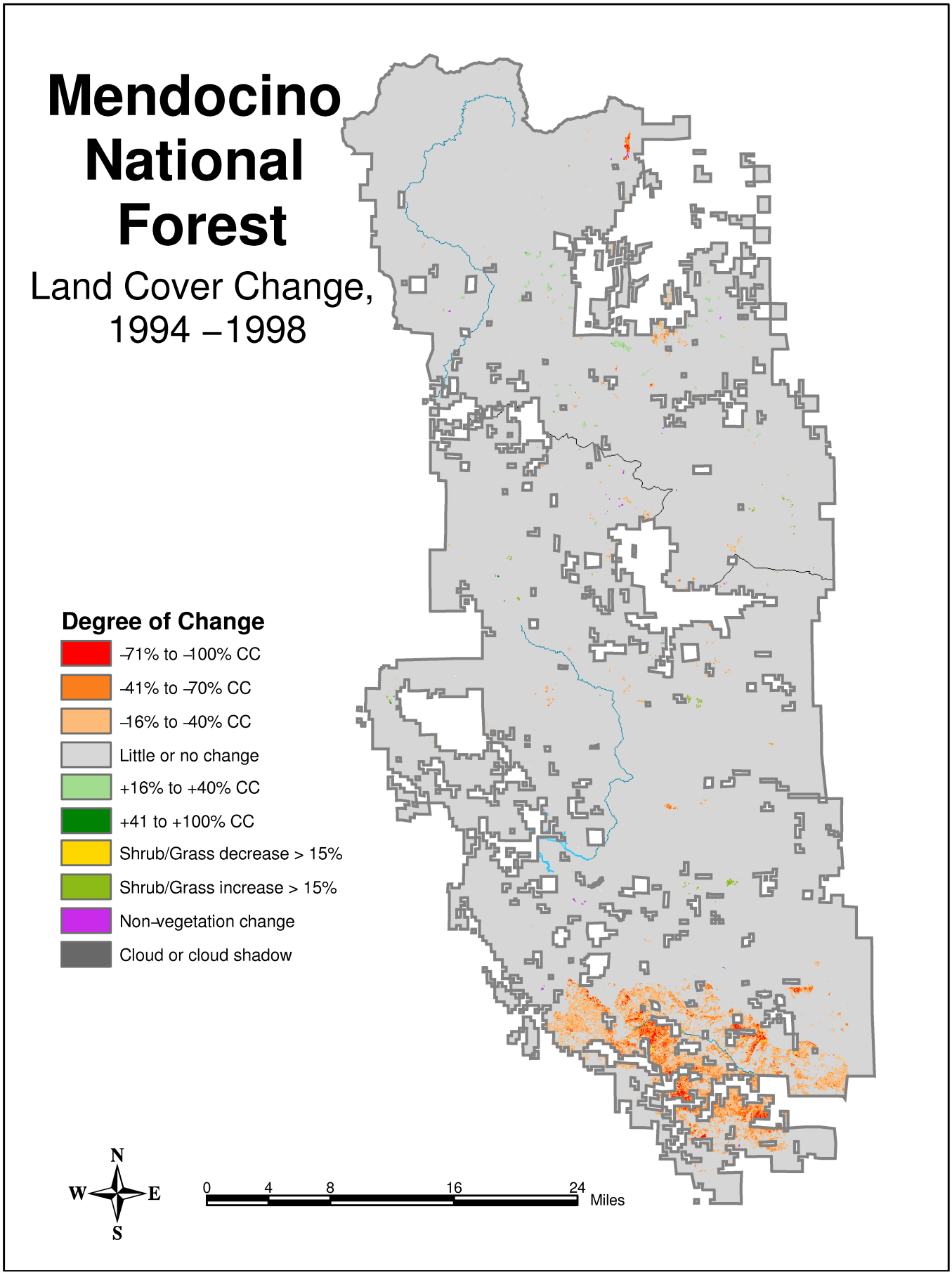
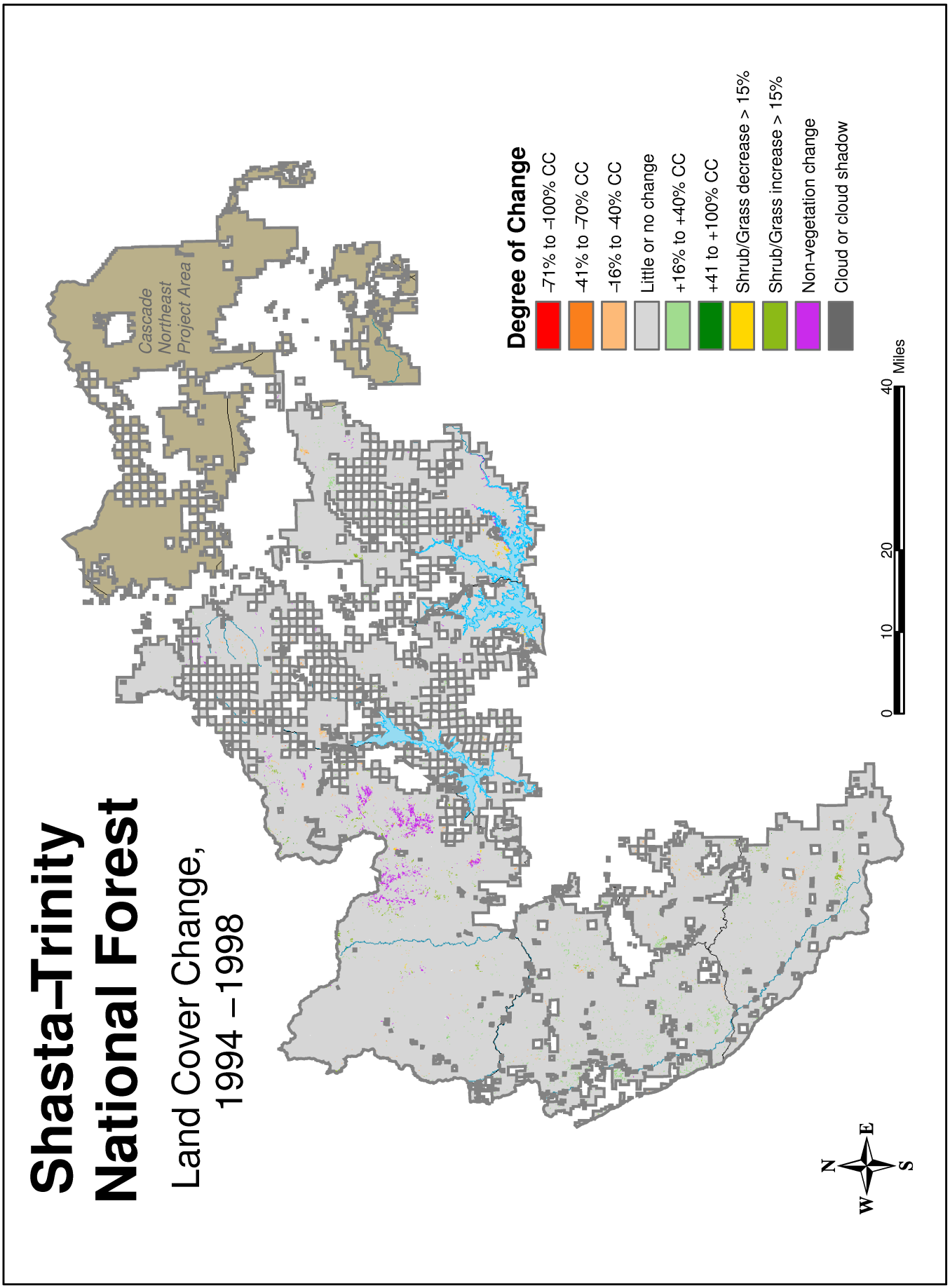
4. Acres of Classified Conifer Change by CALVEG Type and National Forest
5. Acres of Classified Hardwood Change by CALVEG Type and National Forest
6. Acres of Classified Shrub/Chaparral Change by CALVEG Type and National Forest
7. Acres of Verified Change in the Mendocino National Forest by Cause and Conifer CALVEG Type
8. Acres of Verified Change in the Mendocino National Forest by Cause and Hardwood CALVEG Type
9. Acres of Verified Change in the Mendocino National Forest by Cause and Shrub/ Chaparral CALVEG Type
10. Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Conifer CALVEG Type
11. Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Hardwood CALVEG Type
12. Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Shrub/ Chaparral CALVEG Type
13. Acres of Verified Change in the Six Rivers National Forest by Cause and Conifer CALVEG Type
14. Acres of Verified Change in the Six Rivers National Forest by Cause and Hardwood CALVEG Type
15. Acres of Verified Change in the Six Rivers National Forest by Cause and Shrub/ Chaparral CALVEG Type


Mendocino National Forest
Land Cover Change, 1994 –1998
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
N
W
E
S
0
4
8
16
24
Miles


Shasta–Trinity
National Forest
Land Cover Change,
1994 –1998
Cascade
Northeast
Project Area
Degree of Change
-71% to -100% CC
-41% to -70% CC
-16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
0
10
20
40
Miles
N
E
S
W

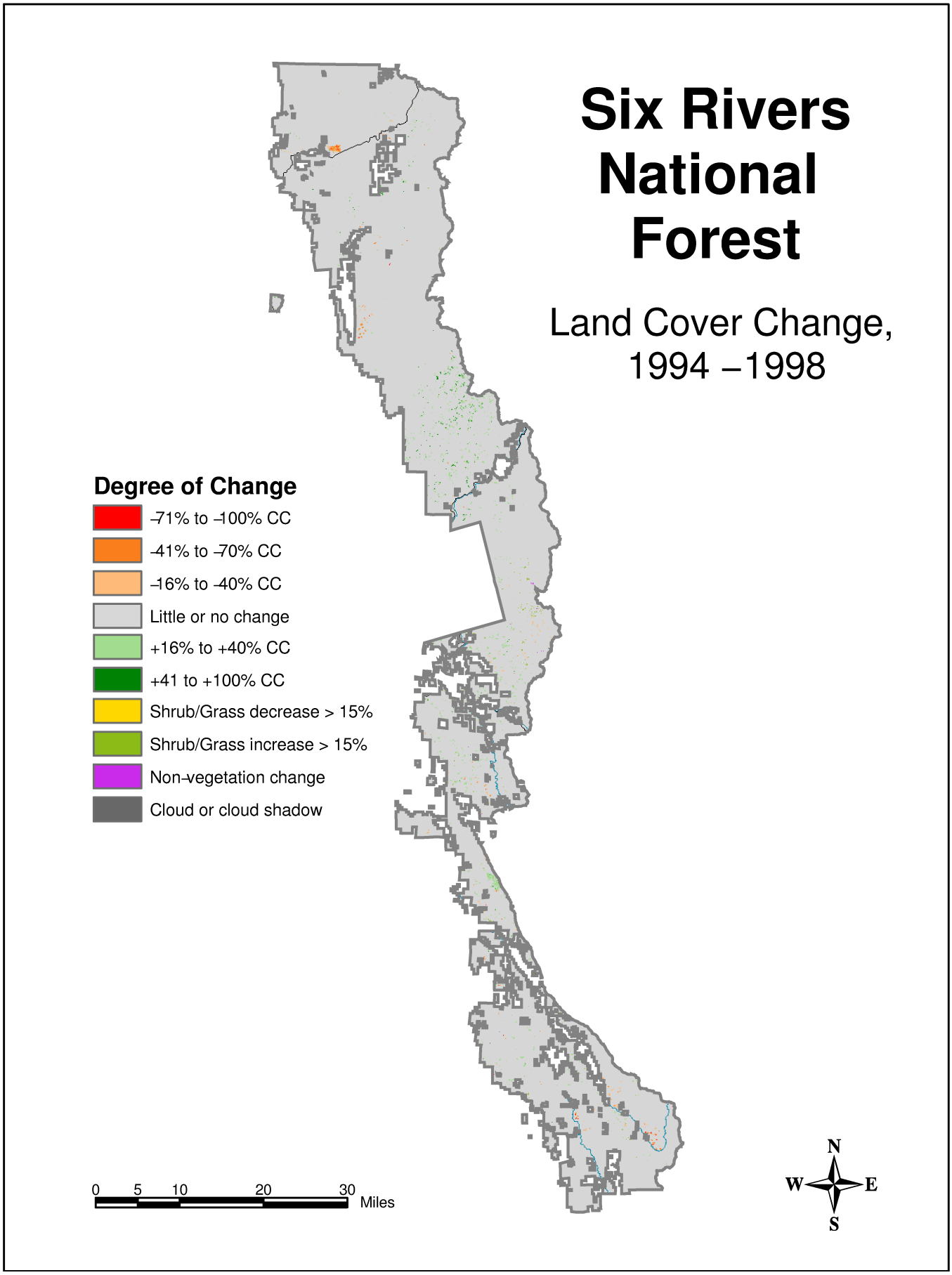

Six Rivers National Forest
Land Cover Change, 1994 –1998
Degree of Change
–71% to –100% CC
–41% to –70% CC
–16% to -40% CC
Little or no change
+16% to +40% CC
+41 to +100% CC
Shrub/Grass decrease > 15%
Shrub/Grass increase > 15%
Non-vegetation change
Cloud or cloud shadow
0 5 10 20 30 Miles
N
W
E
S

Table F-1 Acres of Classified Change by Lifeform and National Forest

	Mendocino		Shasta-Trinity		Six Rivers		All Forests	
	Acres	%	Acres	%	Acres	%	Acres	%
Conifer								
-71 to -100% CC	1,602	0	34	0	127	0	1,764	0
-41 to -70% CC	6,482	1	176	0	1,110	0	7,767	0
-16 to -40% CC	18,036	4	6,031	0	2,095	0	26,162	1
+15 to -15% CC (Little or No Change)	458,300	94	1,315,711	98	734,279	98	2,508,290	97
+16 to +40% CC	1,090	0	12,278	1	9,418	1	22,786	1
+41 to +100% CC	45	0	24	0	1,129	0	1,198	0
Non-Vegetation Change	8	0	6,402	0	21	0	6,431	0
Cloud or Cloud Shadow			16	0			16	0
Total	485,564	100	1,340,671	100	748,179	100	2,574,414	100
Hardwood								
-71 to -100% CC	292	0	1	0	56	0	349	0
-41 to -70% CC	3,465	2	30	0	48	0	3,543	1
-16 to -40% CC	6,456	4	136	0	173	0	6,765	1
+15 to -15% CC (Little or No Change)	139,696	93	221,213	99	125,141	100	486,050	98
+16 to +40% CC	4	0	415	0	244	0	663	0
+41 to +100% CC			126	0	38	0	164	0
Non-Vegetation Change	8	0	481	0	17	0	506	0
Total	149,920	100	222,402	100	125,717	100	498,039	100
Shrub/Chaparral								
Shrub/Grass Decrease > 15%	382	0	997	1	74	0	1,452	0
+15 to -15% CC (Little or No Change)	231,603	100	121,045	95	73,840	98	426,488	98
Shrub/Grass Increase > 15%	440	0	3,846	3	1,075	1	5,362	1
Non-Vegetation Change	4	0	2,054	2	8	0	2,066	0
Cloud or Cloud Shadow			2	0			2	0
Total	232,429	100	127,943	100	74,997	100	435,369	100
Grass/Forb								
Shrub/Grass Decrease > 15%	20	0			6	0	26	0
+15 to -15% CC (Little or No Change)	17,640	99	2,195	91	6,285	98	26,120	98
Shrub/Grass Increase > 15%	1	0	131	5	108	2	240	1
Non-Vegetation Change	113	1	80	3	33	1	226	1
Total	17,774	100	2,406	100	6,432	100	26,612	100
Non-Forested Other								
+15 to -15% CC (Little or No Change)	5,409	99	63,081	97	5,438	100	73,928	97
+16 to +40% CC					7	0	7	0
Non-Vegetation Change	73	1	1,865	3	18	0	1,957	3
Total	5,483	100	64,947	100	5,464	100	75,894	100
All Lifeforms	891,170		1,758,369		960,790		3,610,329	

Table F-2 Acres of Verified Change in the Mendocino National Forest by Cause and Lifeform

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Conifer						
+16 to +40% CC			1,009		81	1,090
+41 to +100% CC			44		1	45
-16 to -40% CC	16,244	231		265	1,297	18,036
-41 to -70% CC	5,763	83		170	466	6,482
-71 to -100% CC	1,462	3		70	67	1,602
Total	23,469	317	1,054	505	1,911	27,256
Hardwood						
+16 to +40% CC			4			4
-16 to -40% CC	6,358	3		6	87	6,456
-41 to -70% CC	3,440	1		1	23	3,465
-71 to -100% CC	292				0	292
Total	10,090	4	4	8	111	10,217
Shrub/Chaparral						
Shrub/Grass Decrease > 15%	340	5		5	31	382
Shrub/Grass Increase > 15%			279		161	440
Total	340	5	279	5	193	822
Grass/Forb						
Shrub/Grass Decrease > 15%	2				18	20
Shrub/Grass Increase > 15%			1			1
Total	2		1		18	21
All Lifeforms	33,901	327	1,337	518	2,232	38,316

Table F-3 Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Lifeform

	Fire	Harvest	Development	Regrowth	Other	Unknown Cause	All Causes
Conifer							
-71 to -100% CC	28	4				3	34
-41 to -70% CC	29	49			5	92	176
-16 to -40% CC	849	2,225	3		211	2,742	6,031
+16 to +40% CC				10,846	7	1,425	12,278
+41 to +100% CC				19		5	24
Total	906	2,277	3	10,865	223	4,267	18,543
Hardwood							
-71 to -100% CC						1	1
-41 to -70% CC	16	2			1	11	30
-16 to -40% CC	26	25			6	79	136
+16 to +40% CC				211		204	415
+41 to +100% CC				54	1	72	126
Total	42	27		265	8	366	708
Shrub/Chaparral							
Shrub/Grass Decrease > 15%	475	23			4	494	997
Shrub/Grass Increase > 15%				2,277		1,569	3,846
Total	475	23		2,277	4	2,063	4,842
Grass/Forb							
Shrub/Grass Increase > 15%				2		129	131
Total				2		129	131
All Lifeforms	1,423	2,328	3	13,409	236	6,825	24,224

Table F-4 Acres of Verified Change in the Six Rivers National Forest by Cause and Lifeform

	Fire	Harvest	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Conifer							
-71 to -100% CC	16	85		8		18	127
-41 to -70% CC	327	356		303		124	1,110
-16 to -40% CC	174	848		388		685	2,095
+16 to +40% CC			8,756			662	9,418
+41 to +100% CC			1,062			68	1,129
Total	516	1,289	9,817	698		1,558	13,878
Hardwood							
-71 to -100% CC	2	6		5		42	56
-41 to -70% CC	1	27		6		14	48
-16 to -40% CC	4	54		23		93	173
+16 to +40% CC			172			72	244
+41 to +100% CC			28			10	38
Total	7	87	200	34		231	559
Shrub/Chaparral							
Shrub/Grass Decrease > 15%	21	10		3		39	74
Shrub/Grass Increase > 15%			612		4	459	1,075
Total	21	10	612	3	4	498	1,149
Grass/Forb							
Shrub/Grass Decrease > 15%		2				3	6
Shrub/Grass Increase > 15%			71			38	108
Total		2	71			41	114
Non-Forested Other							
+16 to +40% CC						7	7
Total						8	8
All Lifeforms	545	1,389	10,700	735	4	2,336	15,709

Table F-5 Acres of Classified Conifer Change by CALVEG Type and National Forest

	Mendocino		Shasta-Trinity		Six Rivers		All Forests	
	Acres	%	Acres	%	Acres	%	Acres	%
Pacific Douglas Fir								
-71 to -100% CC	110	1			76	0	186	0
-41 to -70% CC	276	3	24	0	585	0	885	0
-16 to -40% CC	541	6	694	0	946	0	2,181	0
+15 to -15% CC (Little or No Change)	7,828	89	362,367	99	474,954	98	845,149	98
+16 to +40% CC			2,985	1	6,973	1	9,958	1
+41 to +100% CC			7	0	995	0	1,002	0
Non-Vegetation Change			116	0	15	0	131	0
Total	8,755	100	366,193	100	484,544	100	859,491	100
Douglas Fir-Pine								
-71 to -100% CC	927	0			21	0	948	0
-41 to -70% CC	2,796	1	10	0	93	0	2,900	1
-16 to -40% CC	7,552	4	674	0	355	1	8,581	2
+15 to -15% CC (Little or No Change)	195,411	94	147,318	99	59,143	98	401,872	96
+16 to +40% CC	471	0	781	1	949	2	2,201	1
+41 to +100% CC	14	0	2	0	55	0	71	0
Non-Vegetation Change			130	0			130	0
Total	207,171	100	148,916	100	60,616	100	416,702	100
Douglas Fir-Canyon Live Oak								
+15 to -15% CC (Little or No Change)					4	100	4	100
Total					4	100	4	100
Douglas Fir-Tanoak								
+15 to -15% CC (Little or No Change)					115	100	115	100
Total					115	100	115	100
Douglas Fir-White Fir								
-71 to -100% CC	44	1			1	0	45	0
-41 to -70% CC	97	2	9	0	30	0	136	0
-16 to -40% CC	163	4	603	0	27	0	793	1
+15 to -15% CC (Little or No Change)	3,657	92	135,151	98	14,782	96	153,589	98
+16 to +40% CC			1,770	1	587	4	2,357	2
+41 to +100% CC			1	0	16	0	17	0
Non-Vegetation Change			1	0			1	0
Total	3,962	100	137,534	100	15,443	100	156,939	100

Table F-6 Acres of Classified Hardwood Change by CALVEG Type and National Forest

	Mendocino		Shasta-Trinity		Six Rivers		All Forests	
	Acres	%	Acres	%	Acres	%	Acres	%
Canyon Live Oak								
-71 to -100% CC	80	0	0	0	3	0	83	0
-41 to -70% CC	1,772	2	18	0	8	0	1,798	1
-16 to -40% CC	3,839	5	63	0	24	0	3,926	2
+15 to -15% CC (Little or No Change)	65,744	92	83,621	100	18,461	100	167,826	97
+16 to +40% CC	1	0	99	0	25	0	125	0
+41 to +100% CC			21	0	9	0	30	0
Non-Vegetation Change	1	0	121	0		0	123	0
Total	71,437	100	83,944	100	18,529	100	173,910	100
Blue Oak								
-41 to -70% CC	22	0					22	0
-16 to -40% CC	74	1					74	1
+15 to -15% CC (Little or No Change)	7,614	99	8	100	102	100	7,723	99
Total	7,710	100	8	100	102	100	7,819	100
White Alder								
+15 to -15% CC (Little or No Change)			90	99			90	99
+16 to +40% CC			1	1			1	1
+41 to +100% CC								
Total			91	100			91	100
Oregon White Oak								
-71 to -100% CC	58	0			8	0	66	0
-41 to -70% CC	596	2	3	0	24	0	623	1
-16 to -40% CC	935	3	9	0	51	0	995	1
+15 to -15% CC (Little or No Change)	32,265	95	9,459	100	25,660	100	67,383	97
+16 to +40% CC	3	0	26	0	34	0	63	0
+41 to +100% CC			1	0	3	0	4	0
Non-Vegetation Change	1	0	2	0	2	0	5	0
Total	33,858	100	9,501	100	25,780	100	69,138	100
Cottonwood/Alder								
+15 to -15% CC (Little or No Change)			347	97			347	97
+16 to +40% CC								
Non-Vegetation Change			11	3			11	3
Total	113,005	100	358	100	44,411	100	358	100

Table F-7 Acres of Classified Shrub/Chaparral Change by CALVEG Type and National Forest

	Mendocino		Shasta-Trinity		Six Rivers		All Forests	
	Acres	%	Acres	%	Acres	%	Acres	%
Bitterbrush								
+15 to -15% CC (Little or No Change)			33	100			33	100
Total			33	100			33	100
Low Sagebrush								
Shrub/Grass Decrease > 15%			5	8			5	8
+15 to -15% CC (Little or No Change)			54	92			54	92
Total			58	100			58	100
Murleaf Mountain Mahogany								
+15 to -15% CC (Little or No Change)			647	99			647	99
Shrub/Grass Increase > 15%			3	0			3	0
Non-Vegetation Change			2	0			2	0
Total			652	100			652	100
Ultramafic Mixed Shrub								
Shrub/Grass Decrease > 15%			26	2	30	0	56	0
+15 to -15% CC (Little or No Change)			1,065	97	23,873	100	24,937	100
Shrub/Grass Increase > 15%			2	0	18	0	20	0
Total			1,092	100	23,922	100	25,014	100
Chamise								
Shrub/Grass Decrease > 15%	23	0			1	0	24	0
+15 to -15% CC (Little or No Change)	44,796	100	569	100	2,615	100	47,979	100
Shrub/Grass Increase > 15%	28	0			6	0	34	0
Non-Vegetation Change	1	0			1	0	2	0
Total	44,847	100	569	100	2,622	100	48,039	100
Salal-California Huckleberry Shrub								
+15 to -15% CC (Little or No Change)					576	99	576	99
Shrub/Grass Increase > 15%					6	1	6	1
Total					582	100	582	100
Greenleaf Manzanita								
Shrub/Grass Decrease > 15%			10	1			10	1
+15 to -15% CC (Little or No Change)			1,897	98			1,897	98
Non-Vegetation Change			21	1			21	1
Total			1,928	100			1,928	100
Huckleberry Oak								
Shrub/Grass Decrease > 15%			120	2	10	0	130	0
+15 to -15% CC (Little or No Change)	10,828	100	7,388	93	10,471	97	28,687	97
Shrub/Grass Increase > 15%	43	0	350	4	344	3	737	2
Non-Vegetation Change			58	1	2	0	60	0
Total	10,872	100	7,914	100	10,827	100	29,614	100
Brewer Oak								
Shrub/Grass Decrease > 15%	2	0					2	0
+15 to -15% CC (Little or No Change)	5,472	100	931	99	37	100	6,440	99
Shrub/Grass Increase > 15%	23	0	8	1			31	0
Non-Vegetation Change	1	0					1	0
Total	5,498	100	939	100	37	100	6,474	100
Wedgeleaf Ceanothus								
Shrub/Grass Decrease > 15%			12	3			12	3
+15 to -15% CC (Little or No Change)			407	94			407	94
Shrub/Grass Increase > 15%			13	3			13	3
Total			431	100			431	100
Upper Montane Mixed Shrub								
Shrub/Grass Decrease > 15%			220	0			220	0
+15 to -15% CC (Little or No Change)	1	100	41,502	93	10	100	41,512	93
Shrub/Grass Increase > 15%			1,435	3			1,435	3
Non-Vegetation Change			1,288	3			1,288	3
Cloud or Cloud Shadow			2	0			2	0
Total	1	100	44,446	100	10	100	44,457	100

Table F-7 Acres of Classified Shrub/Chaparral Change by CALVEG Type and National Forest (cont.)

	Mendocino		Shasta-Trinity		Six Rivers		All Forests	
	Acres	%	Acres	%	Acres	%	Acres	%
Pinemat Manzanita								
Shrub/Grass Decrease > 15%			13	0			13	0
+15 to -15% CC (Little or No Change)			6,181	93			6,181	93
Shrub/Grass Increase > 15%			80	1			80	1
Non-Vegetation Change			338	5			338	5
Total			6,611	100			6,611	100
Lower Montane Mixed Chaparral								
Shrub/Grass Decrease > 15%	97	0	399	2	4	0	500	0
+15 to -15% CC (Little or No Change)	112,462	100	20,120	95	16,324	99	148,906	99
Shrub/Grass Increase > 15%	73	0	317	2	77	0	468	0
Non-Vegetation Change	1	0	240	1	2	0	243	0
Total	112,633	100	21,076	100	16,407	100	150,116	100
Scrub Oak								
Shrub/Grass Decrease > 15%			32	1			32	1
+15 to -15% CC (Little or No Change)	4	100	5,022	97	626	100	5,652	97
Shrub/Grass Increase > 15%			141	3			141	2
Total	4	100	5,195	100	626	100	5,825	100
Whiteleaf Manzanita								
Shrub/Grass Decrease > 15%			67	2			67	2
+15 to -15% CC (Little or No Change)			3,205	96			3,205	96
Non-Vegetation Change			61	2			61	2
Total			3,333	100			3,333	100
Montane Mixed Chaparral								
Shrub/Grass Decrease > 15%	260	0	93	0	29	0	382	0
+15 to -15% CC (Little or No Change)	58,041	99	32,026	95	19,308	97	109,375	97
Shrub/Grass Increase > 15%	273	0	1,498	4	625	3	2,396	2
Non-Vegetation Change			47	0	4	0	51	0
Total	58,574	100	33,665	100	19,965	100	112,204	100
All Shrub/Chaparral	232,429		127,943		74,997		435,369	

Table F-8 Acres of Verified Change in the Mendocino National Forest by Cause and Conifer CALVEG Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Pacific Douglas Fir						
-71 to -100% CC	110					110
-41 to -70% CC	274				1	276
-16 to -40% CC	538			2	1	541
Total	923			2	2	927
Douglas Fir-Pine						
-71 to -100% CC	876	1		45	5	927
-41 to -70% CC	2,600	46		107	44	2,796
-16 to -40% CC	7,102	136		112	202	7,552
+16 to +40% CC			447		24	471
+41 to +100% CC			14			14
Total	10,577	182	461	264	276	11,760
Douglas Fir-White Fir						
-71 to -100% CC	44					44
-41 to -70% CC	97				1	97
-16 to -40% CC	154			5	4	163
Total	294			5	5	305
Knobcone Pine						
-71 to -100% CC	199				45	244
-41 to -70% CC	2,004			3	210	2,217
-16 to -40% CC	6,288			56	359	6,704
Total	8,492			60	614	9,166
Mixed Conifer-Fir						
-71 to -100% CC				17	0	17
-41 to -70% CC				25	2	27
-16 to -40% CC	1			10	40	51
+16 to +40% CC			53			53
+41 to +100% CC			1			1
Total	1		54	52	43	150
Mixed Conifer-Pine						
-71 to -100% CC	41	1		3	6	52
-41 to -70% CC	127	24		12	120	283
-16 to -40% CC	264	44		46	274	628
+16 to +40% CC			323		25	348
+41 to +100% CC			17		1	18
Total	432	69	340	61	426	1,329
Gray Pine						
-41 to -70% CC	111					111
-16 to -40% CC	465				8	473
Total	576				8	584
Ponderosa Pine						
-71 to -100% CC	150				4	154
-41 to -70% CC	497	4		1	28	529
-16 to -40% CC	1,354	20		3	81	1,458
+16 to +40% CC			29		31	60
+41 to +100% CC			1			1
Total	2,001	24	29	4	143	2,201
Red Fir						
-41 to -70% CC		1			4	6
-16 to -40% CC		9			27	36
Total		11			32	42
White Fir						
-71 to -100% CC	41			5	7	53
-41 to -70% CC	53	8		22	56	139
-16 to -40% CC	78	23		30	299	431
+16 to +40% CC			158			158
+41 to +100% CC			12			12
Total	173	31	169	57	362	793
All Conifer	23,469	317	1,054	505	1,911	27,256

Table F-9 Acres of Verified Change in the Mendocino National Forest by Cause and Hardwood CALVEG Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Canyon Live Oak						
-71 to -100% CC	80					80
-41 to -70% CC	1,764				8	1,772
-16 to -40% CC	3,810			4	26	3,839
+16 to +40% CC			1			1
Total	5,653		1	4	33	5,692
Blue Oak						
-41 to -70% CC	22					22
-16 to -40% CC	74					74
Total	96					96
Oregon White Oak						
-71 to -100% CC	58					58
-41 to -70% CC	591				5	596
-16 to -40% CC	920				14	935
+16 to +40% CC			3			3
Total	1,569	1	3		19	1,592
California Black Oak						
-71 to -100% CC	154					154
-41 to -70% CC	1,064	1		1	10	1,076
-16 to -40% CC	1,555	3		2	48	1,608
Total	2,772	4		3	58	2,838
All Hardwood	10,090	4	4	8	111	10,217

Table F-10 Acres of Verified Change in the Mendocino National Forest by Cause and Shrub/Chaparral CALVEG Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Chamise						
Shrub/Grass Decrease > 15%	16				6	23
Shrub/Grass Increase > 15%					28	28
Total	16				35	51
Huckleberry Oak						
Shrub/Grass Increase > 15%			40		3	43
Total			40		3	43
Brewer Oak						
Shrub/Grass Decrease > 15%	1				1	2
Shrub/Grass Increase > 15%			4		19	23
Total	1		4		20	25
Lower Montane Mixed Chaparral						
Shrub/Grass Decrease > 15%	90				7	97
Shrub/Grass Increase > 15%			7		67	73
Total	90		7		74	170
Montane Mixed Chaparral						
Shrub/Grass Decrease > 15%	233	5		5	16	260
Shrub/Grass Increase > 15%			228		44	273
Total	233	5	228	5	61	533
All Shrub/Chaparral	340	5	279	5	193	822

Table F-11 Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Conifer CALVEG Type

	Fire	Harvest	Development	Regrowth	Other	Unknown Cause	All Causes
Pacific Douglas Fir							
-41 to -70% CC		7			1	16	24
-16 to -40% CC		255	3		42	394	694
+16 to +40% CC				2,727		258	2,985
+41 to +100% CC				5		2	7
Total		262	3	2,732	42	670	3,710
Douglas Fir-Pine							
-71 to -100% CC						0	0
-41 to -70% CC		1				9	10
-16 to -40% CC	44	212			29	389	674
+16 to +40% CC				651		130	781
+41 to +100% CC				2			2
Total	45	213		652	29	529	1,468
Douglas Fir-White Fir							
-41 to -70% CC		3				6	9
-16 to -40% CC		316			2	284	603
+16 to +40% CC				1,668		102	1,770
+41 to +100% CC				1			1
Total		319		1,669	2	392	2,382
Jeffrey Pine							
-16 to -40% CC	9	1					10
+16 to +40% CC				26		3	29
Total	9	1		26		3	39
Knobcone Pine							
-41 to -70% CC	1						1
-16 to -40% CC	49					15	65
+16 to +40% CC				3		1	4
Total	50			3		16	70
Mixed Conifer-Fir							
-71 to -100% CC		1					1
-41 to -70% CC		14				14	28
-16 to -40% CC	53	244			5	139	440
+16 to +40% CC				122		48	169
Total	53	259		122	5	200	638
Mountain Hemlock							
-16 to -40% CC						41	41
+16 to +40% CC				8		4	11
Total				8		45	52
Mixed Conifer-Pine							
-71 to -100% CC	28	2				2	31
-41 to -70% CC	16	12			4	17	50
-16 to -40% CC	407	531			125	627	1,690
+16 to +40% CC				4,373	7	283	4,663
+41 to +100% CC				11		2	13
Total	450	545		4,384	136	932	6,446
Ultramafic Mixed Conifer							
-41 to -70% CC	2	3					6
-16 to -40% CC	113	260				128	501
+16 to +40% CC				93		18	111
Total	116	263		93		146	618
Gray Pine							
-16 to -40% CC		1				2	3
Total		1				3	4
Ponderosa Pine							
-16 to -40% CC	61				4	92	156
+16 to +40% CC				33		29	62
Total	61			33	4	121	219

Table F-11 Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Conifer CALVEG Type (cont.)

	Fire	Harvest	Development	Regrowth	Other	Unknown Cause	All Causes
Ponderosa Pine-White Fir							
+16 to +40% CC				2			2
Total				2			2
Red Fir							
-41 to -70% CC						6	6
-16 to -40% CC		47			5	141	193
+16 to +40% CC				232		271	503
Total		47		232	5	418	702
Subalpine Conifers							
-41 to -70% CC						4	4
-16 to -40% CC						126	126
+16 to +40% CC				16		65	81
Total				16		195	211
White Fir							
-71 to -100% CC		1					1
-41 to -70% CC	10	8				20	38
-16 to -40% CC	113	359				347	818
+16 to +40% CC				893		207	1,100
Total	123	368		893		574	1,958
Western White Pine							
-16 to -40% CC						16	16
+16 to +40% CC						8	8
Total						24	24
All Conifer	906	2,277	3	10,865	223	4,267	18,543

Table F-12 Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Hardwood CALVEG Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Canyon Live Oak						
-41 to -70% CC	16				2	18
-16 to -40% CC	21	8			34	63
+16 to +40% CC			49		50	99
+41 to +100% CC			11		10	21
Total	36	8	60		98	202
White Alder						
+16 to +40% CC			1			1
Total			1			1
Oregon White Oak						
-41 to -70% CC				1	2	3
-16 to -40% CC		3		2	4	9
+16 to +40% CC			14		12	26
+41 to +100% CC			1			1
Total		3	14	3	20	39
California Black Oak						
-41 to -70% CC	1	1			6	8
-16 to -40% CC	5	15		1	38	59
+16 to +40% CC			79		54	133
+41 to +100% CC			24	1	22	47
Total	6	16	103	2	120	247
Bigleaf Maple (Dogwood)						
+16 to +40% CC			6		1	7
+41 to +100% CC			2		0	2
Total			8		2	9
Tanoak (Madrone)						
-16 to -40% CC				3		3
+16 to +40% CC			40		15	55
+41 to +100% CC			4		4	8
Total			44	3	20	67
Willow-Alder						
-16 to -40% CC					2	2
+16 to +40% CC			17		70	87
+41 to +100% CC			9		34	43
Total			26		106	132
Mountain Alder						
+16 to +40% CC			2		1	3
+41 to +100% CC			2		1	3
Total			4		2	6
Tree Chinquapin						
+16 to +40% CC			3			3
+41 to +100% CC			1			1
Total			4			4
All Hardwood	42	27	265	8	366	708

Table F-13 Acres of Verified Change in the Shasta-Trinity National Forest by Cause and Shrub/Chaparral CALVEG Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Low Sagebrush						
Shrub/Grass Decrease > 15%	5					5
Total	5					5
Murleaf Mountain Mahogany						
Shrub/Grass Increase > 15%					3	3
Total					3	3
Ultramafic Mixed Shrub						
Shrub/Grass Decrease > 15%					26	26
Shrub/Grass Increase > 15%			2			2
Total			2		26	27
Greenleaf Manzanita						
Shrub/Grass Decrease > 15%					10	10
Total					10	10
Huckleberry Oak						
Shrub/Grass Decrease > 15%					120	120
Shrub/Grass Increase > 15%			304		46	350
Total			304		165	469
Brewer Oak						
Shrub/Grass Increase > 15%			1		7	8
Total			1		7	8
Wedgeleaf Ceanothus						
Shrub/Grass Decrease > 15%	12					12
Shrub/Grass Increase > 15%					13	13
Total	12				13	24
Upper Montane Mixed Shrub						
Shrub/Grass Decrease > 15%	34	9		2	175	220
Shrub/Grass Increase > 15%			594		841	1,435
Total	34	9	594	2	1,016	1,655
Pinemat Manzanita						
Shrub/Grass Decrease > 15%					13	13
Shrub/Grass Increase > 15%			16		63	80
Total			16		76	93
Lower Montane Mixed Chaparral						
Shrub/Grass Decrease > 15%	354	1			44	399
Shrub/Grass Increase > 15%			180		137	317
Total	354	1	180		181	717
Scrub Oak						
Shrub/Grass Decrease > 15%					32	32
Shrub/Grass Increase > 15%			12		129	141
Total			12		161	173
Whiteleaf Manzanita						
Shrub/Grass Decrease > 15%	59				8	67
Total	59				8	67
Montane Mixed Chaparral						
Shrub/Grass Decrease > 15%	11	13		2	67	93
Shrub/Grass Increase > 15%			1,168		330	1,498
Total	11	13	1,168	2	397	1,591
All Shrub/Chaparral	475	23	2,277	4	2,063	4,842

Table F-14 Acres of Verified Change in the Six Rivers National Forest by Cause and Conifer CALVEG Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Pacific Douglas Fir						
-71 to -100% CC		55		8	13	76
-41 to -70% CC		213		293	78	585
-16 to -40% CC	1	305		370	270	946
+16 to +40% CC			6,499		474	6,973
+41 to +100% CC			933		62	995
Total	1	574	7,433	670	897	9,575
Douglas Fir-Pine						
-71 to -100% CC		19			2	21
-41 to -70% CC	5	67		2	20	93
-16 to -40% CC	6	237		2	110	355
+16 to +40% CC			900		49	949
+41 to +100% CC			54		1	55
Total	11	322	955	4	181	1,473
Douglas Fir-White Fir						
-71 to -100% CC		1				1
-41 to -70% CC		29			1	30
-16 to -40% CC		25			1	27
+16 to +40% CC			587		1	587
+41 to +100% CC			16			16
Total		55	603		3	662
Jeffrey Pine						
-71 to -100% CC						1
-41 to -70% CC		2			5	6
-16 to -40% CC		2			2	4
+16 to +40% CC			4		3	6
Total		4	4		10	17
Mixed Conifer-Fir						
-71 to -100% CC		4				4
-41 to -70% CC		4				4
-16 to -40% CC		24			30	54
+16 to +40% CC			70		8	78
+41 to +100% CC			12			12
Total		32	82		39	153
Mixed Conifer-Pine						
-16 to -40% CC					10	11
+16 to +40% CC			33		2	35
Total			33		13	47
Ultramafic Mixed Conifer						
-71 to -100% CC	15				2	18
-41 to -70% CC	322	1		7	7	336
-16 to -40% CC	166	3		5	22	196
+16 to +40% CC			10		2	12
+41 to +100% CC			1			1
Total	503	4	11	12	32	563
Ponderosa Pine						
-71 to -100% CC		1				1
-41 to -70% CC		9				9
-16 to -40% CC		62			9	71
+16 to +40% CC			63		3	66
Total		71	63		12	147

Table F-14 Acres of Verified Change in the Six Rivers National Forest by Cause and Conifer CALVEG Type (cont.)

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Redwood-Douglas Fir						
-41 to -70% CC		2				2
+16 to +40% CC			1		4	4
+41 to +100% CC					1	1
Total		2	1		4	7
Red Fir						
-41 to -70% CC		12				12
-16 to -40% CC		155			41	196
+16 to +40% CC			156		33	189
+41 to +100% CC						1
Total		167	157		75	398
Redwood						
-71 to -100% CC		1				1
-41 to -70% CC		4				4
-16 to -40% CC		1				1
Total		6				6
White Fir						
-71 to -100% CC		3			1	4
-41 to -70% CC		14		1	13	28
-16 to -40% CC		35		10	189	234
+16 to +40% CC			432		84	517
+41 to +100% CC			44		4	48
Total		52	476	12	291	831
All Conifer	516	1,289	9,817	698	1,558	13,878

Table F-15 Acres of Verified Change in the Six Rivers National Forest by Cause and Hardwood CALVEG Type

	Fire	Harvest	Regrowth	Other	Unknown Cause	All Causes
Canyon Live Oak						
-71 to -100% CC	2					3
-41 to -70% CC	1	5			1	8
-16 to -40% CC	4	13		2	5	24
+16 to +40% CC			14		11	25
+41 to +100% CC			6		3	9
Total	7	19	20	3	20	68
Oregon White Oak						
-71 to -100% CC		3			4	8
-41 to -70% CC		21			3	24
-16 to -40% CC		28			23	51
+16 to +40% CC			28		6	34
+41 to +100% CC			2		1	3
Total		52	30		37	119
California Black Oak						
-71 to -100% CC		2			5	7
-41 to -70% CC		1			4	5
-16 to -40% CC		12		2	15	28
+16 to +40% CC			34		16	50
+41 to +100% CC			5		2	6
Total		14	39	2	41	97
Willow						
-71 to -100% CC					10	10
-41 to -70% CC					1	1
-16 to -40% CC					6	6
Total					17	17
Red Alder						
-71 to -100% CC					2	2
-16 to -40% CC				2	1	3
+16 to +40% CC			4		7	10
+41 to +100% CC					2	2
Total			4	2	12	18
Tanoak (Madrone)						
-71 to -100% CC		1		4	20	26
-41 to -70% CC				6	4	10
-16 to -40% CC		1		17	43	62
+16 to +40% CC			92		33	125
+41 to +100% CC			15		3	18
Total		2	107	27	103	240
`All Hardwood	7	87	200	34	231	559

Table F-16 Acres of Verified Change in the Six Rivers National Forest by Cause and Shrub/Chaparral CALVEG Type

	Fire	Harvest	Regrowth	Other	Seasonal	Unknown Cause	All Causes
Ultramafic Mixed Shrub							
Shrub/Grass Decrease > 15%	21					9	30
Shrub/Grass Increase > 15%			7			12	18
Total	21		7			20	49
Chamise							
Shrub/Grass Decrease > 15%		1					1
Shrub/Grass Increase > 15%			2			4	6
Total		1	2			4	7
Salal-California Huckleberry Shrub							
Shrub/Grass Increase > 15%			4			2	6
Total			4			2	6
Huckleberry Oak							
Shrub/Grass Decrease > 15%		6				4	10
Shrub/Grass Increase > 15%			61			283	344
Total		6	61			287	354
Lower Montane Mixed Chaparral							
Shrub/Grass Decrease > 15%		2				2	4
Shrub/Grass Increase > 15%			58			19	77
Total		2	58			21	81
Montane Mixed Chaparral							
Shrub/Grass Decrease > 15%		1		2		25	29
Shrub/Grass Increase > 15%			482		4	139	625
Total		1	482	2	4	164	654
All Shrub/Chaparral	21	10	612	3	4	498	1,149