

2007 Aerial Survey Results: California



USDA Forest Service
Pacific Southwest Region
Forest Health Protection

Forest Health Monitoring Programs
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www.fs.fed.us/r5/spf/fhp/fhm

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Cover Photo: Half Dome, Yosemite National Park
Courtesy Mark Roberts, Forest Service

Overview

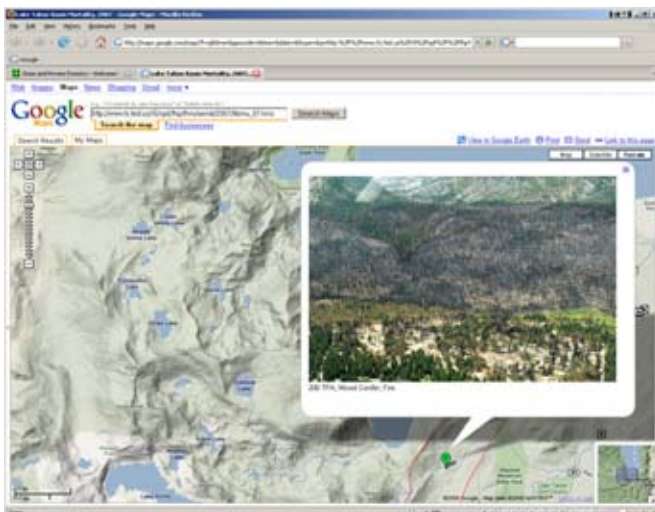
The US Forest Service Forest Health Protection program conducts aerial detection surveys nationally. Surveys have been conducted in the Pacific Southwest Region annually since 1994. Data is collected using a digital aerial sketch mapping system following national protocols in order to provide standardized information on biotic and abiotic damage to California's forested ecosystems.

Highlights for 2007...

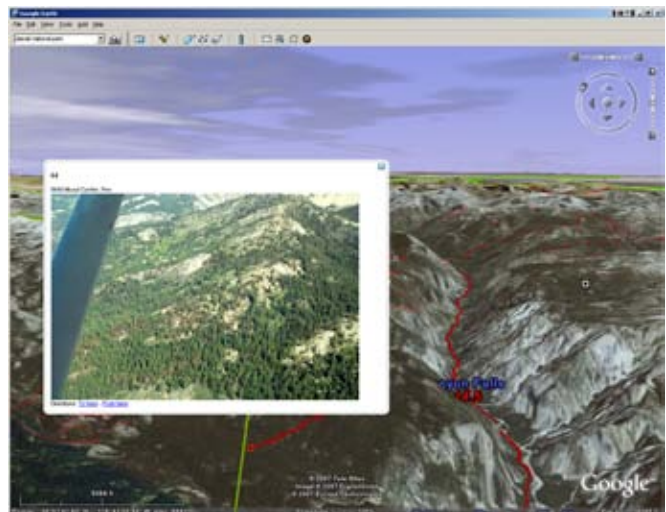
- Approximately 44 million acres were flown in California, including almost 19 million acres of private land and almost 1 million acres of state and local government lands (Fig.1).
- Approximately 791,000 acres with damage were observed in California in 2007. 347,000 acres were caused by biotic agents such as bark beetles and diseases, a decrease of nearly 50,000 acres from 2006.
- Intense mortality events resulting from Mountain Pine Beetle were observed in the northeast portion of the state (Klamath, Modoc, and Shasta-Trinity National Forests) affecting lodgepole, ponderosa, and white-bark pine.
- Douglas-fir tussock moth (DFTM) defoliation subsided from many areas where it was observed in 2006, with the exception of the 7,000 acres of DFTM defoliation mapped in and near the Shasta-Trinity National Forest.
- Live oak and tan-oak mortality from sudden oak death continued to advance within known infested counties.
- Large areas of defoliation (approximately 8,500 acres) resulting from California oak worm were observed along California's central coast.

This report contains maps of California displaying all areas surveyed, tables summarizing mapped damage by national forest, national park and county, and a comparison of annual precipitation to the mapped mortality (excluding fire) for all years surveyed (Fig. 2).

To learn more about aerial detection monitoring, view standards, metadata, maps and data, go to www.fs.fed.us/r5/spf/fhp. Data are viewable through Google Maps™, Google Earth™ and Adobe Acrobat. Data are also available for analysis online as an ARC Geodatabase.

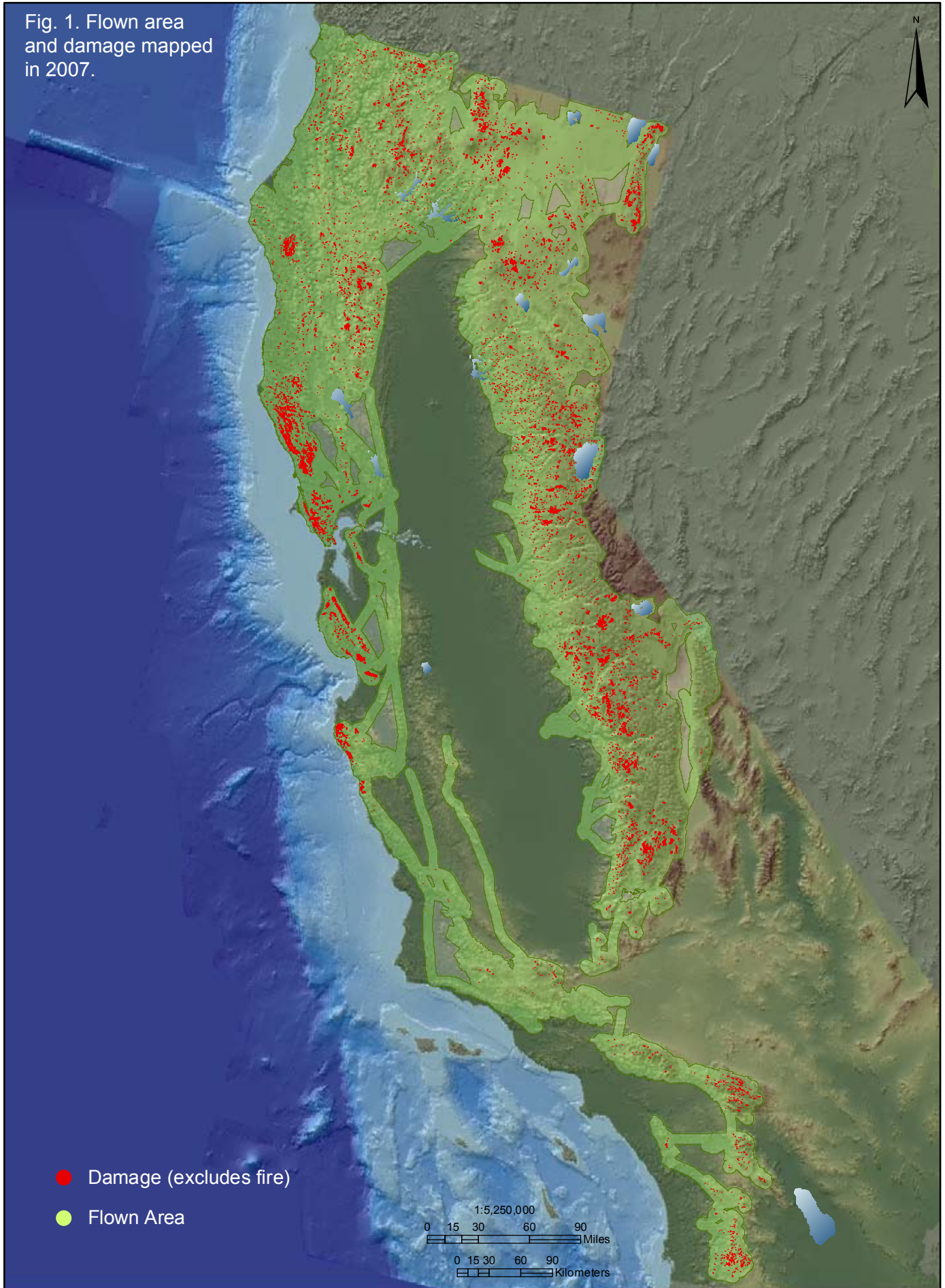


Screen capture of 2007 aerial survey results from the Lake Tahoe Basin Management Unit viewed through Google Maps™.



Screen capture of 2007 aerial survey results from Sequoia-Kings Canyon National Park viewed through Google Earth™.

Fig. 1. Flown area and damage mapped in 2007.



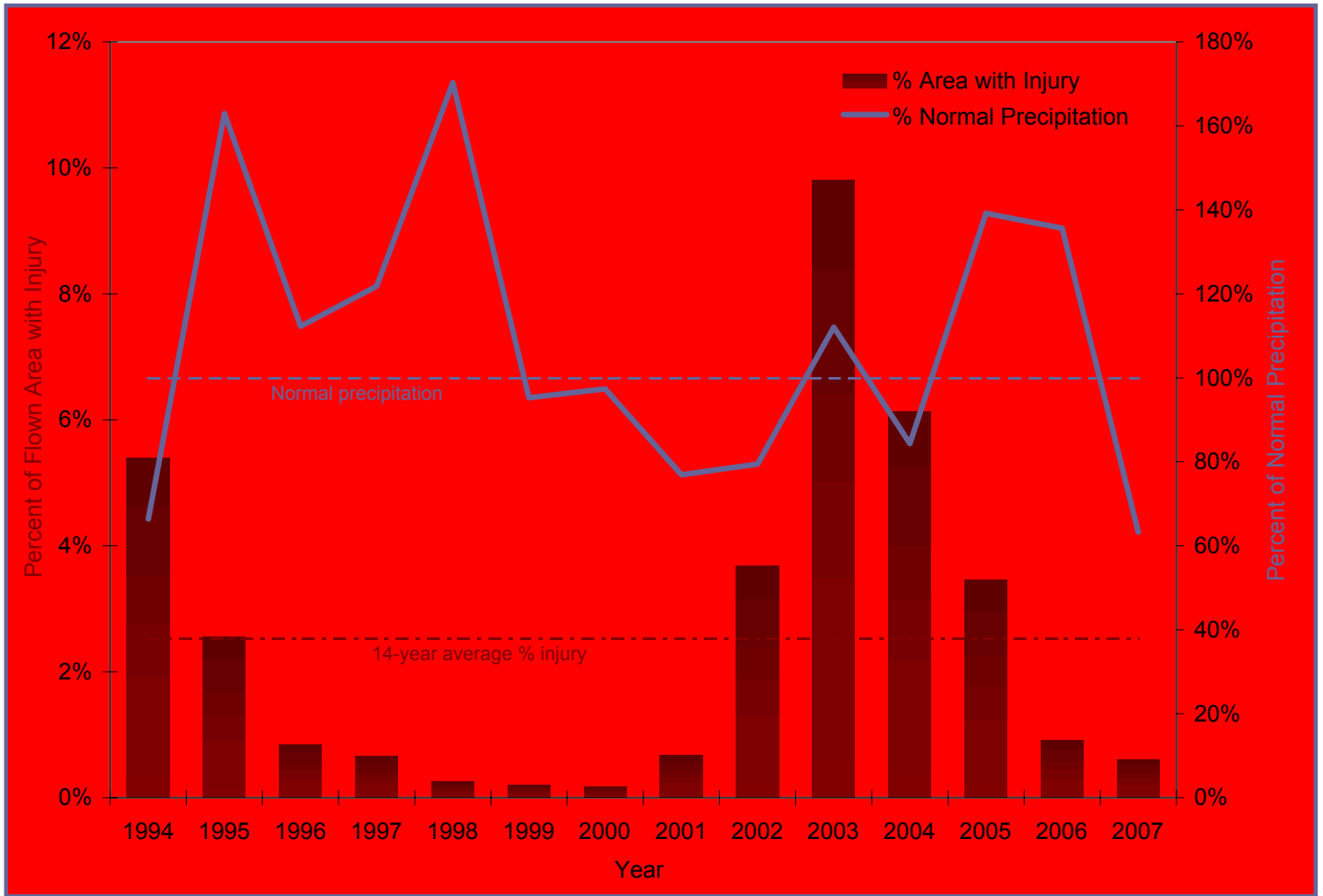


Fig. 2. Acres of biotic-caused mortality, as a percentage of the area surveyed and percentage of normal rainfall. The precipitation data is based on average rainfall for the State of California over the past 30 years (Precipitation data source: California Department of Water Resources).

Acres with Mortality by National Forest/Park

Unit	Bark Beetles				Fire	Other Agents					Unit
	Pine	Fir	Mix	Total	Total	Pine	Fir	Mix	Hardwood	Total	Total
Angeles	110	0	0	110	7,432	0	0	1	3	4	7,546
Cleveland	169	1	0	170	145	0	0	0	2,134	2,134	2,449
Eldorado	14,620	473	407	15,500	2,946	0	0	0	0	0	18,446
Inyo	6,547	12	2,190	8,749	12,775	1	0	0	6	7	21,531
Klamath	11,090	1,161	2,522	14,773	32,816	12	0	81	1	94	47,683
Lassen	4,718	3,801	7,740	16,259	1,618	0	0	1	0	1	17,878
Los Padres	75	1	0	76	155,218	0	0	0	4,841	4,841	160,135
Mendocino	2,633	5,027	6,879	14,539	8,698	0	0	118	0	118	23,355
Modoc	14,024	546	3,135	17,705	9,225	0	0	279	0	279	27,209
Plumas	3,694	1,245	840	5,779	87,059	0	0	0	1	1	92,839
San Bernardino	916	1	0	917	324	0	0	0	1	1	1,242
Sequoia	8,040	1,890	6,966	16,896	8,239	0	0	0	1	1	25,136
Shasta-Trinity	5,682	1,470	980	8,132	94,575	0	0	11	35	46	102,753
Sierra	13,229	2,437	11,017	26,683	909	0	2,830	0	0	2,830	30,422
Six Rivers	162	546	2,444	3,152	303	0	0	1,172	24	1,196	4,651
Stanislaus	703	247	282	1,232	363	0	55	0	0	55	1,650
Tahoe	5,100	8,547	2,088	15,735	2,831	0	0	0	27	27	18,593
Tahoe Basin	2,837	109	731	3,677	2,848	0	0	0	0	0	6,525
Total Forest Service	94,349	27,514	48,221	170,084	428,324	13	2,885	1,663	7,074	11,635	610,043
Golden Gate	0	0	0	0	0	0	0	0	2,907	2,907	2,907
Lassen Volcanic	2,201	140	7,121	9,462	108	0	0	0	0	0	9,570
Point Reyes	0	0	0	0	0	0	0	0	324	324	324
Redwood	0	1	0	1	0	0	0	191	0	191	192
Sequoia-Kings	2,328	1,822	1,660	5,810	2,811	0	0	0	0	0	8,621
Whiskeytown	50	0	105	155	0	0	0	1	0	1	156
Yosemite	1,636	54	1,513	3,203	2,107	0	0	0	0	0	5,310
Total Park Service	6,215	2,017	10,399	18,631	5,026	0	0	192	3,231	3,423	27,080

Unit	Other Mortality-Causing Events:
Angeles	Hardwood and bigcone Douglas-fir mortality
Cleveland	Oak and hardwood mortality
Eldorado	N/A
Inyo	Aspen and bristlecone pine mortality
Klamath	Douglas-fir, oak and Port-Orford cedar mortality, bear, flood and avelanche damage
Lassen	Douglas-fir mortality
Los Padres	Oak mortality (including P.ramorum), hardwood mortality
Mendocino	Douglas-fir mortality
Modoc	Habitat restoration (juniper clearing)
Plumas	Hardwood mortality
San Bernardino	Hardwood mortality
Sequoia	Hardwood mortality
Shasta-Trinity	Douglas-fir and hardwood mortality, POC disease eradication project
Sierra	White fir mortality from Douglas-fir tussock moth
Six Rivers	Douglas-fir, hardwood and Port-Orford cedar mortality, bear damage
Stanislaus	White fir mortality from Douglas-fir tussock moth
Tahoe	Hardwood mortality
Lake Tahoe Basin	N/A
Golden Gate	Oak mortality (including P.ramorum)
Lassen Volcanic	N/A
Point Reyes	Tan-oak mortality (including P.ramorum)
Redwood	Douglas-fir mortality, bear damage
Sequoia-Kings	N/A
Whiskeytown	Douglas-fir mortality
Yosemite	N/A

Number of Dead Trees by National Forest/Park

Unit	Bark Beetles				Fire	Other Agents					Unit
	Pine	Fir	Mix	Total	Total*	Pine	Fir	Mix	Hardwood	Total	Total*
Angeles	241	0	0	241	242	0	0	3	7	10	493
Cleveland	238	7	0	245	514	0	0	0	3,849	3,849	4,608
Eldorado	61,145	653	810	62,608	9,284	0	0	0	0	0	71,892
Inyo	18,073	21	5,414	23,508	45,622	2	0	0	18	18	69,148
Klamath	78,696	2,815	19,762	101,273	1,524,321	12	0	675	8	683	1,626,277
Lassen	8,773	2,759	6,576	18,108	15,632	0	0	3	0	3	33,743
Los Padres	410	4	0	414	69,466	0	0	0	40,414	40,414	110,294
Mendocino	10,013	11,390	10,919	32,322	173,769	0	0	109	0	109	206,200
Modoc	96,093	3,090	6,244	105,427	394,314	0	0	4,183	0	4,183	503,924
Plumas	4,572	962	804	6,338	1,086,963	0	0	0	1	1	1,093,302
San Bernardino	3,058	7	0	3,065	3,817	0	0	0	11	11	6,893
Sequoia	36,306	5,458	29,381	71,145	254,187	0	0	0	1	1	325,333
Shasta-Trinity	27,330	4,383	2,434	34,147	2,916,009	0	0	25	56	81	2,950,237
Sierra	31,850	3,921	23,447	59,218	1,155	0	3,323	0	0	3,323	63,696
Six Rivers	354	819	6,055	7,228	9,170	0	0	2,647	31	2,678	19,076
Stanislaus	1,544	331	574	2,449	10,687	0	165	0	0	165	13,301
Tahoe	18,755	7,574	1,613	27,942	51,653	0	0	0	13	13	79,608
Lake Tahoe Basin	13,507	58	489	14,054	551,521	0	0	0	0	0	565,575
Total Forest Service	410,958	44,252	114,522	569,732	7,118,326	14	3,488	7,645	44,409	55,542	7,743,600
Golden Gate	0	0	0	0	0	0	0	0	12,187	12,187	12,187
Lassen Volcanic	2,726	145	10,289	13,160	1,003	0	0	0	0	0	14,163
Point Reyes	0	0	0	0	0	0	0	0	1,857	1,857	1,857
Redwood	0	3	0	3	0	0	0	214	0	214	217
Sequoia-Kings	4,110	7,169	6,151	17,430	69,414	0	0	0	0	0	86,844
Whiskeytown	109	0	419	528	0	0	0	6	0	6	534
Yosemite	4,352	62	3,798	8,212	46,283	0	0	0	0	0	54,495
Total Park Service	11,297	7,379	20,657	39,333	116,700	0	0	220	14,044	14,264	170,297

* Mortality estimates not made for all burned areas.

Unit	Other Mortality-Causing Events:
Angeles	Hardwood and bigcone Douglas-fir mortality
Cleveland	Oak and hardwood mortality
Eldorado	N/A
Inyo	Aspen and bristlecone pine mortality
Klamath	Douglas-fir, oak and Port-Orford cedar mortality, bear, flood and avelanche damage
Lassen	Douglas-fir mortality
Los Padres	Oak mortality (including P.ramorum), hardwood mortality
Mendocino	Douglas-fir mortality
Modoc	Habitat restoration (juniper clearing)
Plumas	Hardwood mortality
San Bernardino	Hardwood mortality
Sequoia	Hardwood mortality
Shasta-Trinity	Douglas-fir and hardwood mortality, POC disease eradication project
Sierra	White fir mortality from Douglas-fir tussock moth
Six Rivers	Douglas-fir, hardwood and Port-Orford cedar mortality, bear damage
Stanislaus	White fir mortality from Douglas-fir tussock moth
Tahoe	Hardwood mortality
Lake Tahoe Basin	N/A
Golden Gate	Oak mortality (including P.ramorum)
Lassen Volcanic	N/A
Point Reyes	Tan-oak mortality (including P.ramorum)
Redwood	Douglas-fir mortality, bear damage
Sequoia-Kings	N/A
Whiskeytown	Douglas-fir mortality
Yosemite	N/A

Other Damage by National Forest/Park

Unit	Defoliation	Discoloration	Decline	Topkill	Flagging	Breakage	Total
Angeles	0	81	0	0	0	0	81
Cleveland	0	457	0	0	0	0	457
Eldorado	17	0	0	0	0	0	17
Inyo	0	18	222	0	37	0	277
Klamath	0	0	0	0	7,682	0	7,682
Lassen	0	0	0	0	256	0	256
Los Padres	44	0	0	0	0	0	44
Mendocino	0	75	0	3	71	0	149
Modoc	0	0	0	0	0	0	0
Plumas	0	22	0	1	0	0	23
San Bernardino	0	94	0	29	0	0	123
Sequoia	0	0	0	0	0	0	0
Shasta-Trinity	5,209	126	0	0	2,996	0	8,331
Sierra	0	0	0	10	2,355	0	2,365
Six Rivers	226	0	0	0	332	0	558
Stanislaus	0	0	0	0	320	0	320
Tahoe	0	0	0	1	0	0	1
Tahoe Basin	0	0	0	0	0	0	0
Total Forest Service	5,496	873	222	44	14,049	0	20,684
Golden Gate	0	0	0	0	0	0	0
Lassen Volcanic	0	0	0	0	24	0	24
Point Reyes	0	0	0	0	0	0	0
Redwood	0	0	0	0	0	0	0
Sequoia-Kings	0	10	0	0	0	0	10
Whiskeytown	0	0	0	0	0	0	0
Yosemite	15,360	0	0	191	0	0	15,551
Total Park Service	15,360	10	0	191	24	0	15,585

Unit	Other Damage-Causing Events:
Angeles	Bigcone Douglas-fir discoloration
Cleveland	Oak discoloration
Eldorado	Lodgepole pine defoliation
Inyo	Lodgepole pine discoloration, aspen decline, Cytospora in fir
Klamath	Cytospora in fir
Lassen	Cytospora in fir
Los Padres	Hardwood defoliation
Mendocino	Cytospora in fir, Ips topkill, knobcone pine discoloration
Modoc	N/A
Six Rivers	Knobcone pine, Douglas-fir and black oak discoloration
Plumas	Red fir discoloration, Ips and Scolytis topkill
San Bernardino	Ips topkill, oak discoloration
Sequoia	N/A
Shasta-Trinity	Douglas-fir tussock moth defoliation, Cytospora in fir, oak defoliation, cold damage
Sierra	Scolytis and Cytospora in fir
Stanislaus	Ips topkill, Cytospora in fir
Tahoe	Scolytis topkill
Lake Tahoe Basin	N/A
Golden Gate	N/A
Lassen Volcanic	Cytospora flagging
Point Reyes	N/A
Redwood	N/A
Sequoia-Kings	Fir discoloration
Whiskeytown	N/A
Yosemite	Lodgepole needleminer defoliation, Douglas-fir tussock moth topkill

Acres with Mortality by County

County	Bark Beetles				Fire	Other Agents					County
	Pine	Fir	Mix	Total	Total	Pine	Fir	Mix	Hardwood	Total	Total
Alameda	15	0	0	15	0	0	0	0	164	164	179
Alpine*	1,012	283	436	1,731	72	0	0	0	0	0	1,803
Amador	5,808	43	0	5,851	1,426	0	0	0	0	0	7,277
Butte	44	496	96	636	72	0	0	0	4	4	712
Calaveras	34	101	7	142	16	0	0	0	0	0	158
Colusa	459	2	0	461	0	0	0	0	0	0	461
Contra Costa	0	0	3	3	0	0	0	0	662	662	665
Del Norte	116	2	251	369	200	0	25	715	2	742	1,311
Eldorado	9,479	213	323	10,015	3,617	0	0	0	0	0	13,632
Fresno	8,038	1,707	6,659	16,404	5,342	0	0	0	0	0	21,746
Glenn	1,009	5	1,506	2,520	1,798	0	0	0	0	0	4,318
Humboldt	48	77	1,751	1,876	87	0	0	3,051	6,908	9,959	11,922
Inyo	943	0	234	1,177	4,656	1	0	0	6	7	5,840
Kern	127	7	40	174	3,936	0	0	0	1	1	4,111
Kings	0	0	0	0	56	0	0	0	0	0	56
Lake	569	3	529	1,101	218	0	0	23	27	50	1,369
Lassen	7,355	1,185	3,961	12,501	1,530	0	0	0	0	0	14,031
Los Angeles	110	0	0	110	12,577	0	0	1	3	4	12,691
Madera	6,288	830	4,015	11,133	29	0	2,389	0	0	2,389	13,551
Marin	1	0	0	1	0	0	0	0	9,775	9,775	9,776
Mariposa	588	49	1,944	2,581	981	0	441	0	0	441	4,003
Mendocino	196	642	4,284	5,122	6,213	0	0	1,804	5,900	7,704	19,039
Modoc	8,408	370	2,668	11,446	9,324	0	0	279	0	279	21,049
Mono*	2,857	27	452	3,336	9,196	0	0	0	0	0	12,532
Monterey	3	1	0	4	54	0	0	0	9,589	9,589	9,647
Napa	0	0	0	0	11	0	0	0	451	451	462
Nevada	2,430	830	665	3,925	118	0	0	0	35	35	4,078
Orange	1	0	0	1	0	0	0	0	0	0	1
Placer	2,767	7,595	1,613	11,975	1,497	0	0	0	28	28	13,500
Plumas	5,301	1,309	966	7,576	87,235	0	0	0	0	0	94,811
Riverside	28	1	0	29	16	0	0	0	1	1	46
San Benito	0	0	0	0	0	0	0	0	0	0	0
San Bernardino	1,022	1	0	1,023	651	0	0	0	1	1	1,675
San Diego	175	1	0	176	254	0	0	0	2,364	2,364	2,794
San Luis Obispo	1	0	4	5	0	0	0	0	1	1	6
San Mateo	0	0	0	0	0	0	0	0	4,751	4,751	4,751
Santa Barbara	60	0	0	60	130	0	0	0	0	0	190
Santa Clara	90	0	0	90	89	0	0	0	3,302	3,302	3,481
Santa Cruz	119	0	16	135	7	0	0	0	665	665	807
Shasta	3,077	2,209	11,474	16,760	1,096	0	0	2	7	9	17,865
Sierra	1,487	433	228	2,148	3,387	0	0	0	0	0	5,535
Siskiyou	18,882	2,743	2,873	24,498	33,844	12	0	128	1	141	58,483
Solano	2	0	0	2	0	0	0	0	209	209	211
Sonoma	15	0	0	15	286	0	0	21	48,360	48,381	48,682
Tehama	736	2,331	579	3,646	982	0	0	0	0	0	4,628
Trinity	453	4,031	1,756	6,240	93,413	0	0	213	46	259	99,912
Tulare	12,651	3,605	9,995	26,251	7,843	0	0	0	0	0	34,094
Tuolumne	1,087	49	13	1,149	1,681	0	55	0	0	55	2,885
Ventura	4	0	0	4	149,154	0	0	0	0	0	149,158
Yolo	0	0	0	0	0	0	0	0	0	0	0
Yuba	14	2	260	276	58	0	0	0	0	0	334
Total	103,909	31,183	59,601	194,693	443,152	13	2,910	6,237	93,263	102,423	740,268

* Includes acreage mapped by Region 4

Estimated Number of Dead Trees by County

County	Bark Beetles				Fire	Other Agents					County
	Pine	Fir	Mix	Total	Total**	Pine	Fir	Mix	Hardwood	Total	Total**
Alameda	5	0	0	5	0	0	0	0	576	576	581
Alpine*	1,756	302	914	2,972	100	0	0	0	0	0	3,072
Amador	17,666	61	0	17,727	3,992	0	0	0	0	0	21,719
Butte	198	269	702	1,169	97	0	0	0	9	9	1,275
Calaveras	219	140	7	366	200	0	0	0	0	0	566
Colusa	1,632	6	0	1,638	0	0	0	0	0	0	1,638
Contra Costa	0	0	4	4	0	0	0	0	1,876	1,876	1,880
Del Norte	333	17	376	726	8,192	0	25	1,240	5	1,270	10,188
Eldorado	52,897	364	623	53,884	614,503	0	0	0	0	0	668,387
Fresno	18,682	3,009	13,934	35,625	105,873	0	0	0	0	0	141,498
Glenn	2,523	6	4,580	7,109	60,758	0	0	0	0	0	67,867
Humboldt	91	80	5,199	5,370	234	0	0	7,096	53,428	60,524	66,128
Inyo	2,420	0	272	2,692	13,280	2	0	0	18	20	15,992
Kern	338	45	81	464	275,753	0	0	0	1	1	276,218
Kings	0	0	0	0	1,681	0	0	0	0	0	1,681
Lake	3,115	3	698	3,816	7,127	0	0	25	80	105	11,048
Lassen	23,573	2,703	3,939	30,215	16,377	0	0	0	0	0	46,592
Los Angeles	241	0	0	241	242	0	0	3	7	10	493
Madera	15,423	1,124	9,368	25,915	0	0	2,882	0	0	2,882	28,797
Marin	2	0	0	2	0	0	0	0	68,789	68,789	68,791
Mariposa	1,445	56	4,132	5,633	16,866	0	441	0	0	441	22,940
Mendocino	637	979	4,756	6,372	101,027	0	0	2,102	31,372	33,474	140,873
Modoc	77,191	965	5,195	83,351	388,749	0	0	4,183	0	4,183	476,283
Mono*	9,058	51	890	9,999	34,497	0	0	0	0	0	44,496
Monterey	65	4	0	69	1,247	0	0	0	123,750	123,750	125,066
Napa	0	0	0	0	2,081	0	0	0	596	596	2,677
Nevada	13,186	824	626	14,636	92	0	0	0	41	41	14,769
Orange	6	0	0	6	0	0	0	0	0	0	6
Placer	4,955	6,563	897	12,415	6,740	0	0	0	18	18	19,173
Plumas	5,529	990	1,420	7,939	1,086,945	0	0	0	0	0	1,094,884
Riverside	210	2	0	212	717	0	0	0	10	10	939
San Benito	0	0	0	0	0	0	0	0	0	0	0
San Bernardino	3,251	5	0	3,256	4,895	0	0	0	1	1	8,152
San Diego	301	7	0	308	1,299	0	0	0	4,325	4,325	5,932
San Luis Obispo	3	0	8	11	0	0	0	0	1	1	12
San Mateo	0	0	0	0	0	0	0	0	21,398	21,398	21,398
Santa Barbara	291	0	0	291	1,951	0	0	0	0	0	2,242
Santa Clara	244	0	0	244	802	0	0	0	11,351	11,351	12,397
Santa Cruz	217	0	25	242	10	0	0	0	1,950	1,950	2,202
Shasta	6,482	2,544	13,747	22,773	76,068	0	0	22	7	29	98,870
Sierra	4,326	447	170	4,943	50,738	0	0	0	0	0	55,681
Siskiyou	107,834	4,860	21,371	134,065	1,611,645	12	0	763	8	783	1,746,493
Solano	3	0	0	3	0	0	0	0	557	557	560
Sonoma	53	0	0	53	13,432	0	0	41	491,880	491,921	505,406
Tehama	4,532	5,134	849	10,515	19,995	0	0	0	0	0	30,510
Trinity	1,189	9,484	2,421	13,094	2,801,436	0	0	214	72	286	2,814,816
Tulare	46,211	12,371	39,515	98,097	262,918	0	0	0	0	0	361,015
Tuolumne	2,998	95	42	3,135	42,535	0	165	0	0	165	45,835
Ventura	40	0	0	40	0	0	0	0	0	0	40
Yolo	0	0	0	0	0	0	0	0	0	0	0
Yuba	196	17	260	473	1,150	0	0	0	0	0	1,623
Total	431,567	53,527	137,021	622,115	7,636,244	14	3,513	15,689	812,126	831,342	9,089,701

* Includes acreage mapped by Region 4

** Mortality estimates not made for all burned areas.

Other Mortality-Causing Events by County

County	Agents
Alameda	Tan-oak and live oak mortality (including P.ramorum)
Alpine	N/A
Amador	N/A
Butte	Hardwood mortality
Calaveras	N/A
Colusa	N/A
Contra Costa	Live oak mortality (including P.ramorum)
Del Norte	Bear damage, Douglas-fir, tan-oak and Port-Orford cedar mortality
Eldorado	N/A
Fresno	N/A
Glenn	N/A
Humboldt	Hardwood mortality (including P.ramorum), Douglas-fir and Port-Orford cedar mortality, bear damage
Inyo	Aspen mortality, blackstain disease
Kern	Black oak mortality
Kings	N/A
Lake	Tan-oak mortality (including P.ramorum) and Douglas-fir mortality
Lassen	N/A
Los Angeles	Hardwood and bigcone Douglas-fir mortality
Madera	Douglas-fir tussock moth caused-mortality
Marin	Tan-oak and live oak mortality (including P.ramorum)
Mariposa	Douglas-fir tussock moth caused-mortality
Mendocino	Tan-oak mortality (including P.ramorum) and Douglas-fir mortality, bear damage
Modoc	Juniper mortality (habitat restoration)
Mono	N/A
Monterey	Tan-oak and live oak mortality (including P.ramorum) and hardwood mortality
Napa	Oak mortality (including P.ramorum) mortality
Nevada	Hardwood mortality
Orange	N/A
Placer	Hardwood mortality
Plumas	N/A
Riverside	Hardwood mortality
San Benito	N/A
San Bernardino	Hardwood mortality
San Diego	Live oak, black oak and hardwood mortality
San Luis Obispo	Hardwood Mortality
San Mateo	Tan-oak and live oak mortality (including P.ramorum)
Santa Barbara	N/A
Santa Clara	Tan-oak and live oak mortality (including P.ramorum)
Santa Cruz	Tan-oak and live oak mortality (including P.ramorum)
Shasta	Douglas-fir, Port-Orford cedar, and oak mortality
Sierra	N/A
Siskiyou	Port-Orford cedar, Douglas-fir and oak mortality, bear, flood, and avelanche damage
Solano	Live oak mortality (including P.ramorum)
Sonoma	Oak mortality (including P.ramorum) and Douglas-fir mortality
Tehama	N/A
Trinity	Douglas-fir, Tan-oak, madrone and hardwood mortality, bear damage
Tulare	N/A
Tuolumne	Douglas-fir tussock moth caused-mortality
Ventura	N/A
Yolo	N/A
Yuba	N/A

Other Damage by County

County	Breakage	Decline	Defoliation	Discoloration	Flagging	Topkill	Total
Alameda	0	0	0	0	0	0	0
Alpine*	0	63	0	0	10	0	73
Amador	0	0	17	0	0	0	17
Butte	0	0	0	0	0	0	0
Calaveras	0	0	0	0	310	0	310
Colusa	0	0	0	0	0	0	0
Contra Costa	0	0	0	0	0	0	0
Del Norte	0	0	0	211	252	55	518
Eldorado	0	0	0	4	0	0	4
Fresno	0	0	0	0	1990	10	2,000
Glenn	0	0	0	0	71	0	71
Humboldt	1	0	46	14	101	0	162
Inyo	0	0	0	0	0	0	0
Kern	0	0	0	12	0	0	12
Kings	0	0	0	0	0	0	0
Lake	0	0	0	0	0	0	0
Lassen	0	0	0	0	45	0	45
Los Angeles	0	0	0	21	0	0	21
Madera	0	0	0	0	403	0	403
Marin	0	0	0	0	0	0	0
Mariposa	0	0	8,617	8	0	191	8,816
Mendocino	0	0	5	15	0	43	63
Modoc	0	0	0	0	0	0	0
Mono*	0	392	0	18	0	0	410
Monterey	0	0	2,928	0	0	0	2,928
Napa	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0
Orange	0	0	0	457	0	0	457
Placer	0	0	0	0	0	1	1
Plumas	0	0	0	0	22	1	23
Riverside	0	0	0	94	0	29	123
San Benito	0	0	563	0	0	0	563
San Bernardino	0	0	0	60	0	0	60
San Diego	0	0	0	0	0	0	0
San Luis Obispo	0	0	0	0	0	0	0
San Mateo	0	0	1,653	0	0	0	1,653
Santa Barbara	0	0	0	0	0	0	0
Santa Clara	0	0	0	0	0	0	0
Santa Cruz	0	0	4,048	0	0	0	4,048
Shasta	0	0	469	0	331	14	814
Sierra	0	0	0	0	0	0	0
Siskiyou	0	0	7,106	120	8,750	0	15,976
Solano	0	0	0	0	0	0	0
Sonoma	0	0	0	0	0	0	0
Tehama	0	0	0	107	10	0	117
Trinity	0	0	87	69	2,795	0	2,951
Tulare	0	0	0	10	0	0	10
Tuolumne	0	0	6,742	0	0	0	6,742
Ventura	0	0	0	0	0	0	0
Yolo	0	0	0	0	0	0	0
Yuba	0	0	0	0	0	0	0
Total	1	455	32,281	1,220	15,090	344	49,391

* Includes acreage mapped by Region 4

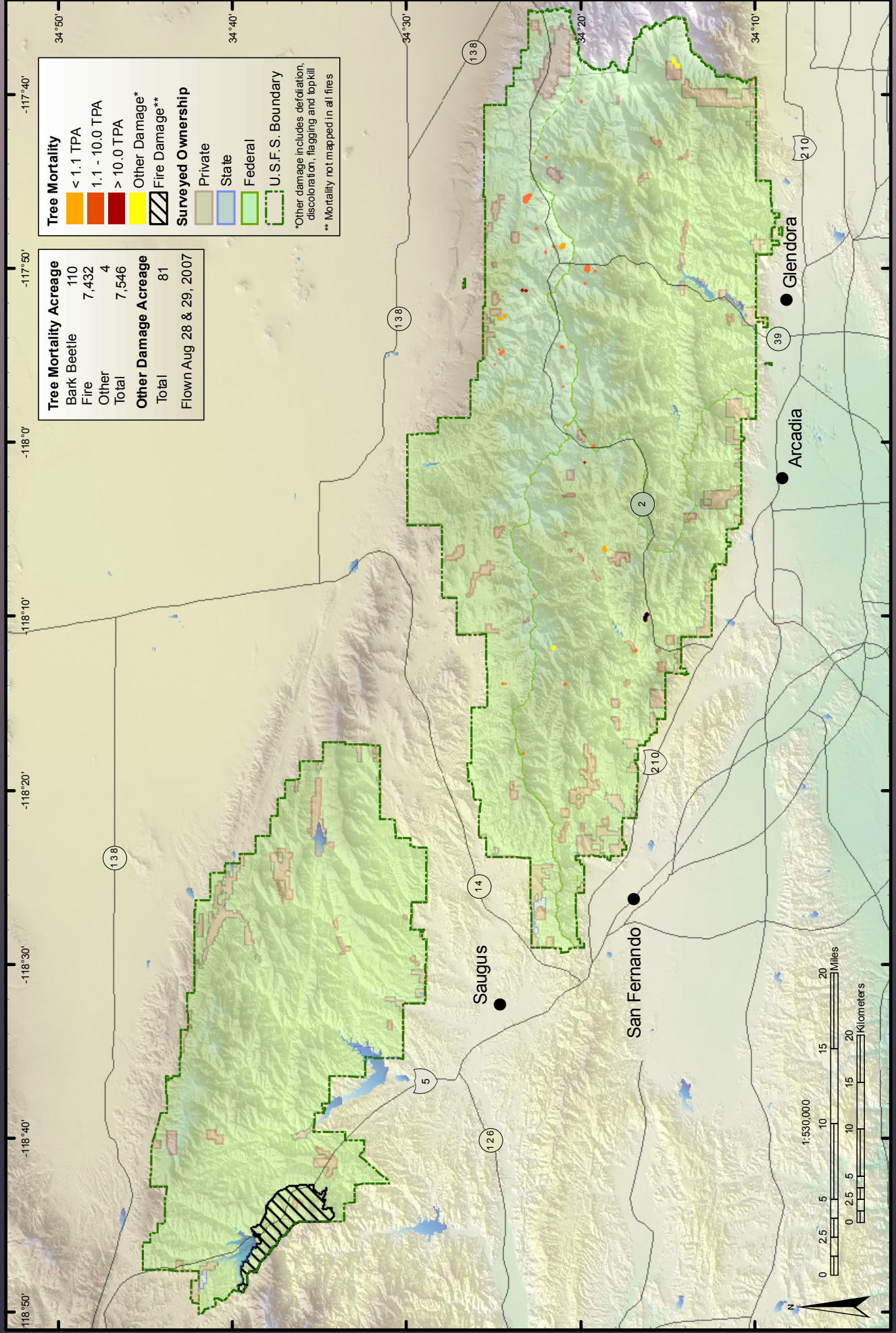
Other Damage-Causing Events by County

County	Agents
Alameda	N/A
Alpine	Cytospera of fir, aspen decline
Amador	Lodgepole pine defoliation
Butte	N/A
Calaveras	Cytospera of fir
Colusa	N/A
Contra Costa	N/A
Del Norte	Cytospera of fir, discoloration of knobcone, Douglas-fir and redwood, animal damage in redwood
Eldorado	Blackoak discoloration
Fresno	Cytospera of fir, Scolytis topkill
Glenn	Cytospera of fir
Humboldt	Hardwood defoliation and discoloration, redwood and Douglas-fir topkill, storm damage, Cytospera of fir
Inyo	N/A
Kern	Pine discoloration
Kings	N/A
Lake	N/A
Lassen	Cytospera of fir
Los Angeles	Discoloration of bigcone Douglas-fir
Madera	Cytospera of fir
Marin	N/A
Mariposa	Lodgepole needleminer defoliation, Diploidia needleblight, topkill from Douglas-fir tussock moth
Mendocino	Topkill and discoloration in redwood and Douglas-fir, defoliation in madrone, Ips topkill
Modoc	N/A
Mono	Aspen decline, lodgepole pine discoloration
Monterey	California oakworm defoliation in live oak, frost damage in madrone
Napa	N/A
Nevada	N/A
Orange	Oak discoloration
Placer	Scolytis topkill
Plumas	Sugar pine topkill, Scolytis topkill, Cytospera of fir
Riverside	Ips topkill, oak discoloration
San Benito	California oakworm defoliation in live oak
San Bernardino	bigcone douglas-fir discoloration
San Diego	N/A
San Luis Obispo	N/A
San Mateo	California oakworm defoliation in live oak
Santa Barbara	N/A
Santa Clara	N/A
Santa Cruz	California oakworm defoliation in live oak
Shasta	Douglas-fir tussock moth defoliation, Ips topkill, Cytospera flagging, pine needle sheathminer discoloration
Sierra	N/A
Siskiyou	Douglas-fir tussock moth defoliation, Cytospera flagging, discoloration of cold damage
Solano	N/A
Sonoma	N/A
Tehama	Knobcone pine discoloration, Cytospera flagging
Trinity	Madrone discoloration, discoloration of black oak, Cytospera of fir, maple leaf scorch
Tulare	Discoloration of fir
Tuolumne	Lodgepole needleminer
Ventura	N/A
Yolo	N/A
Yuba	N/A

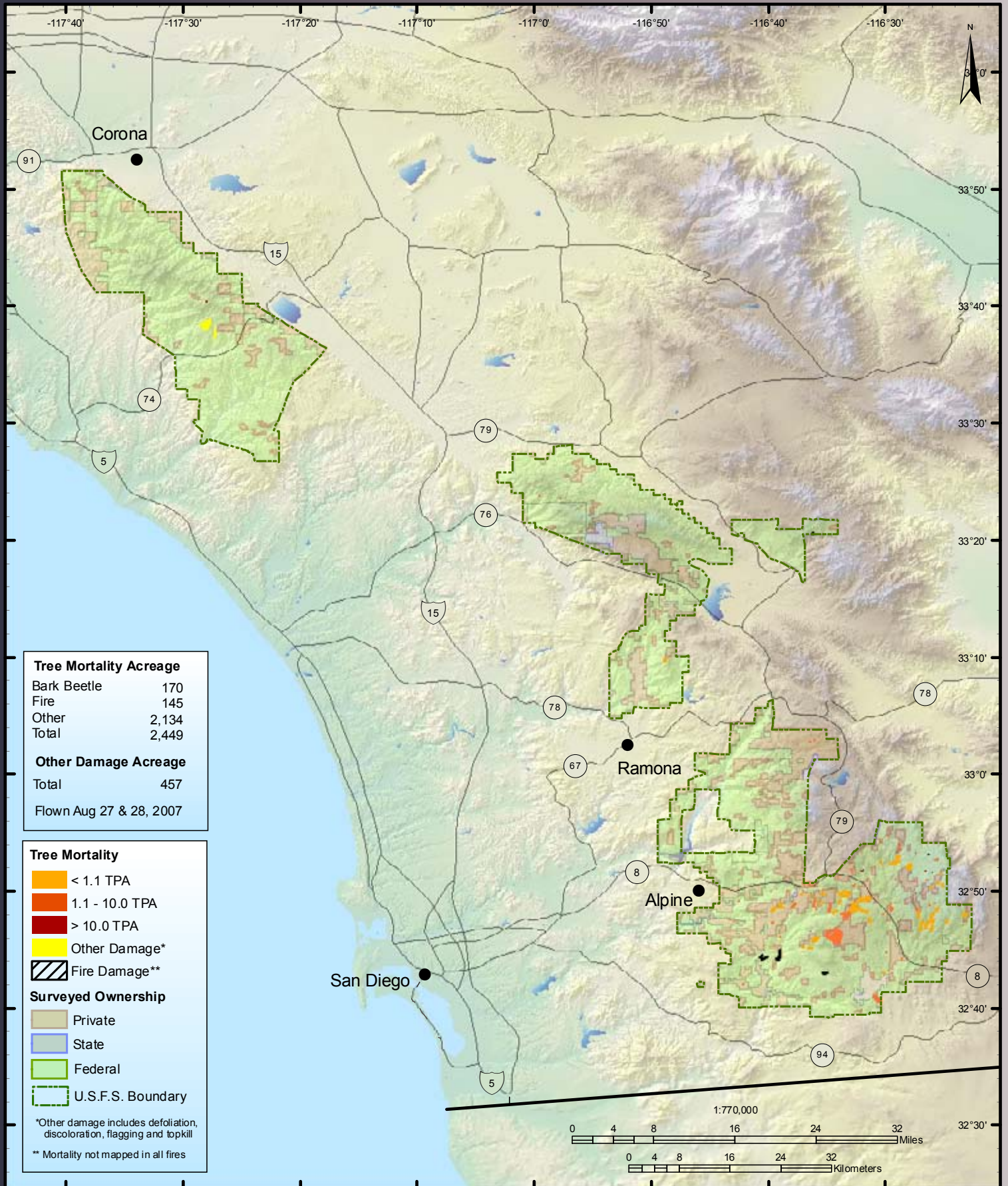
2007 Aerial Survey Results by National Forest/Park



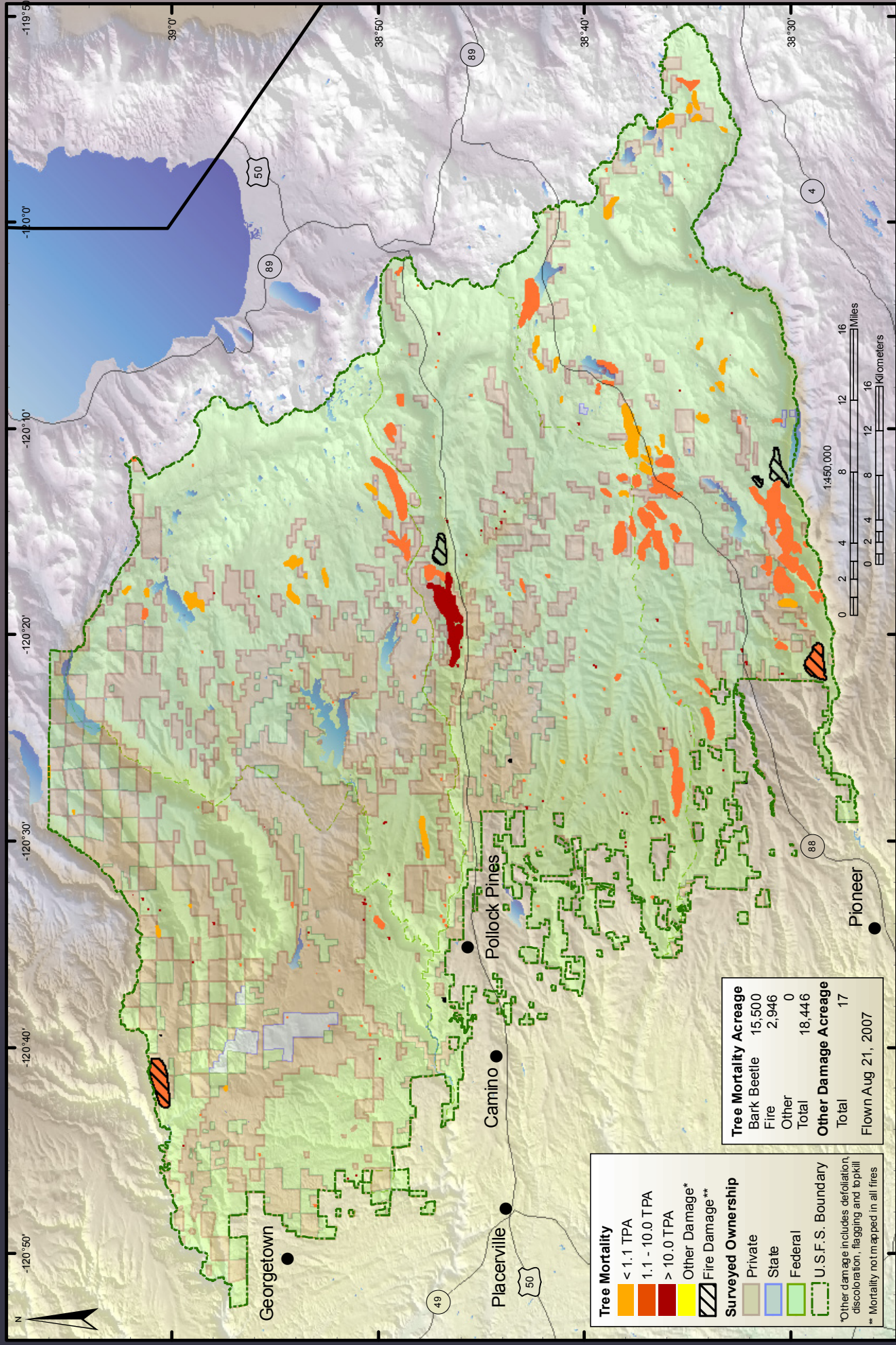
Angeles National Forest



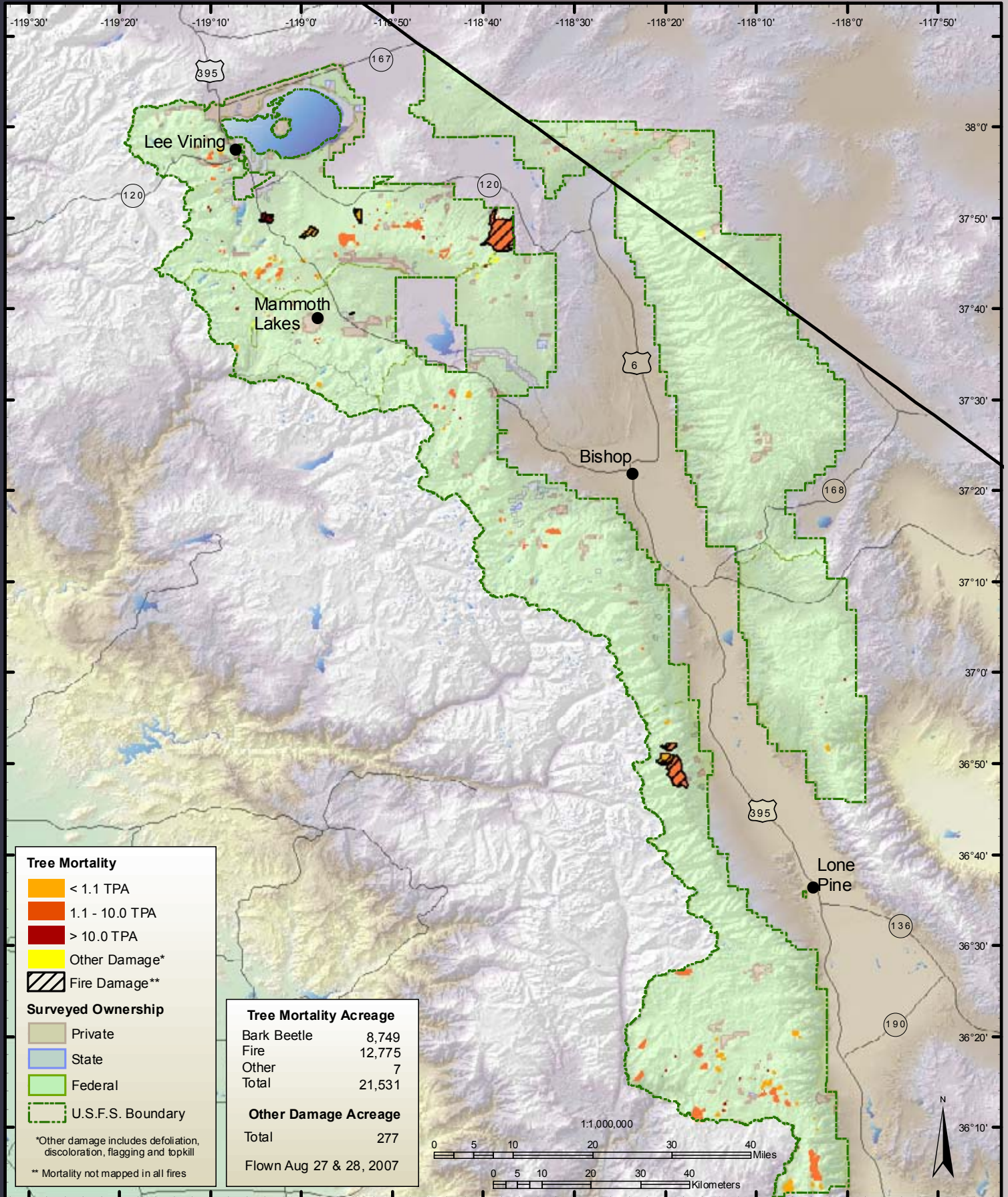
Cleveland National Forest



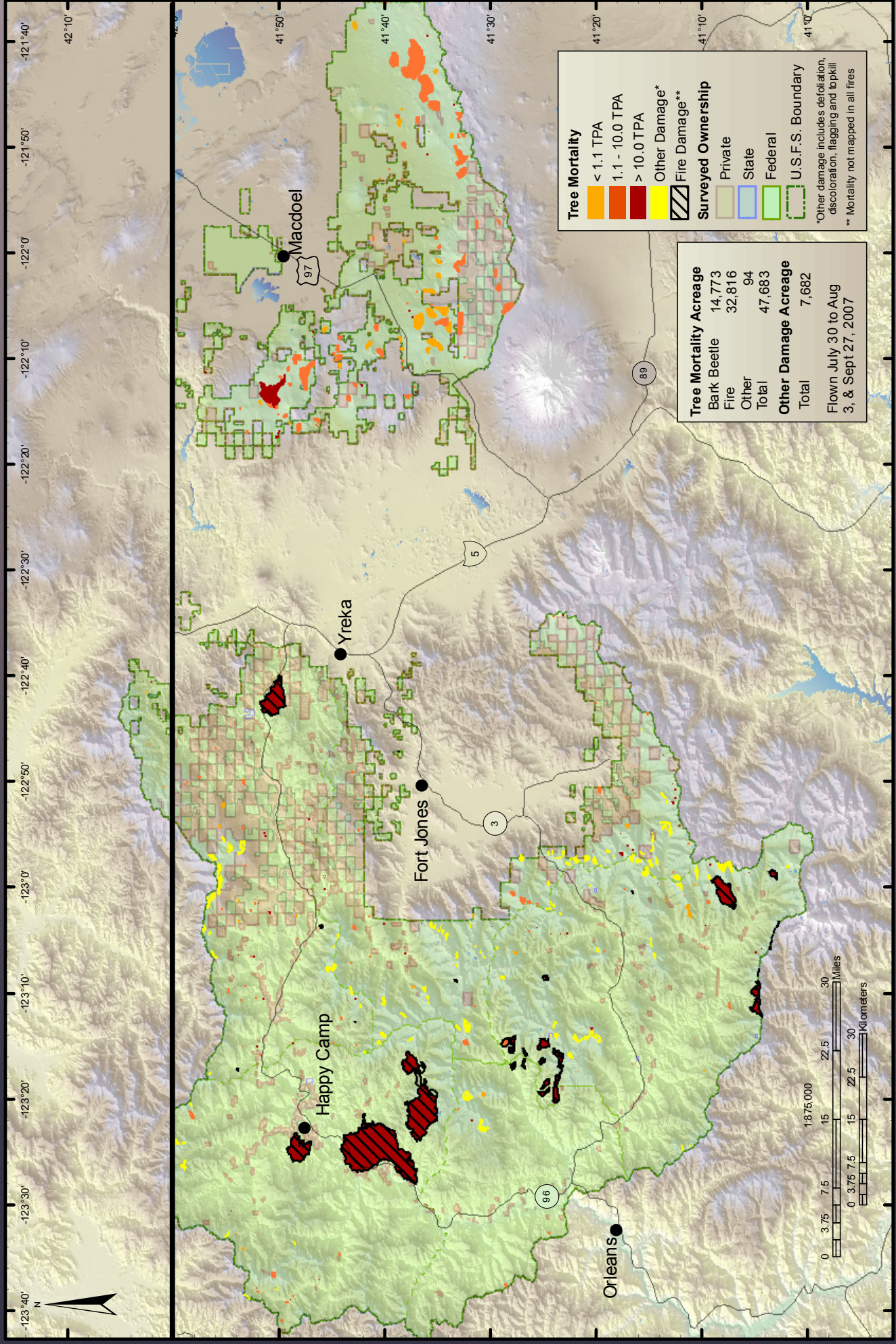
Eldorado National Forest



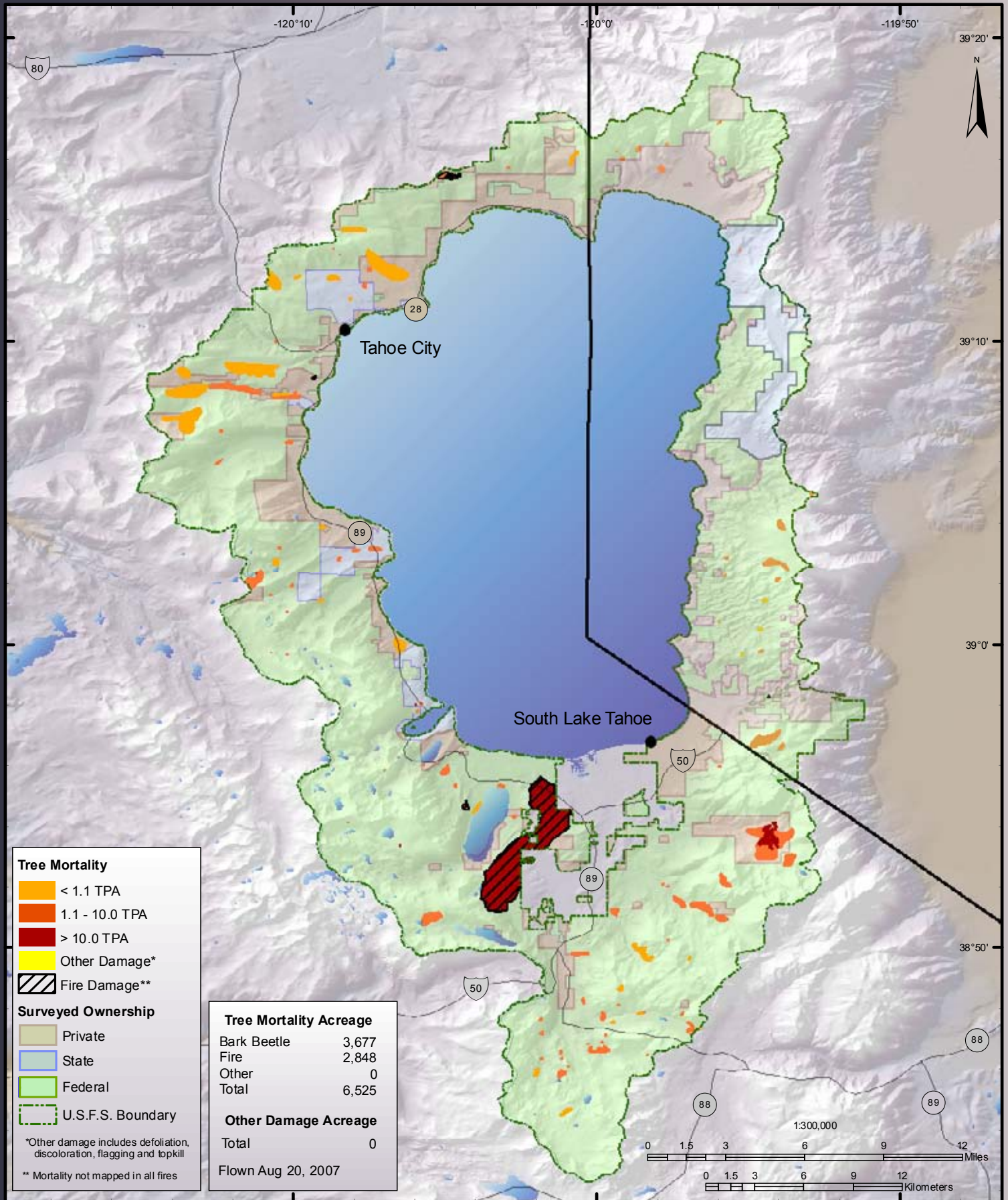
Inyo National Forest



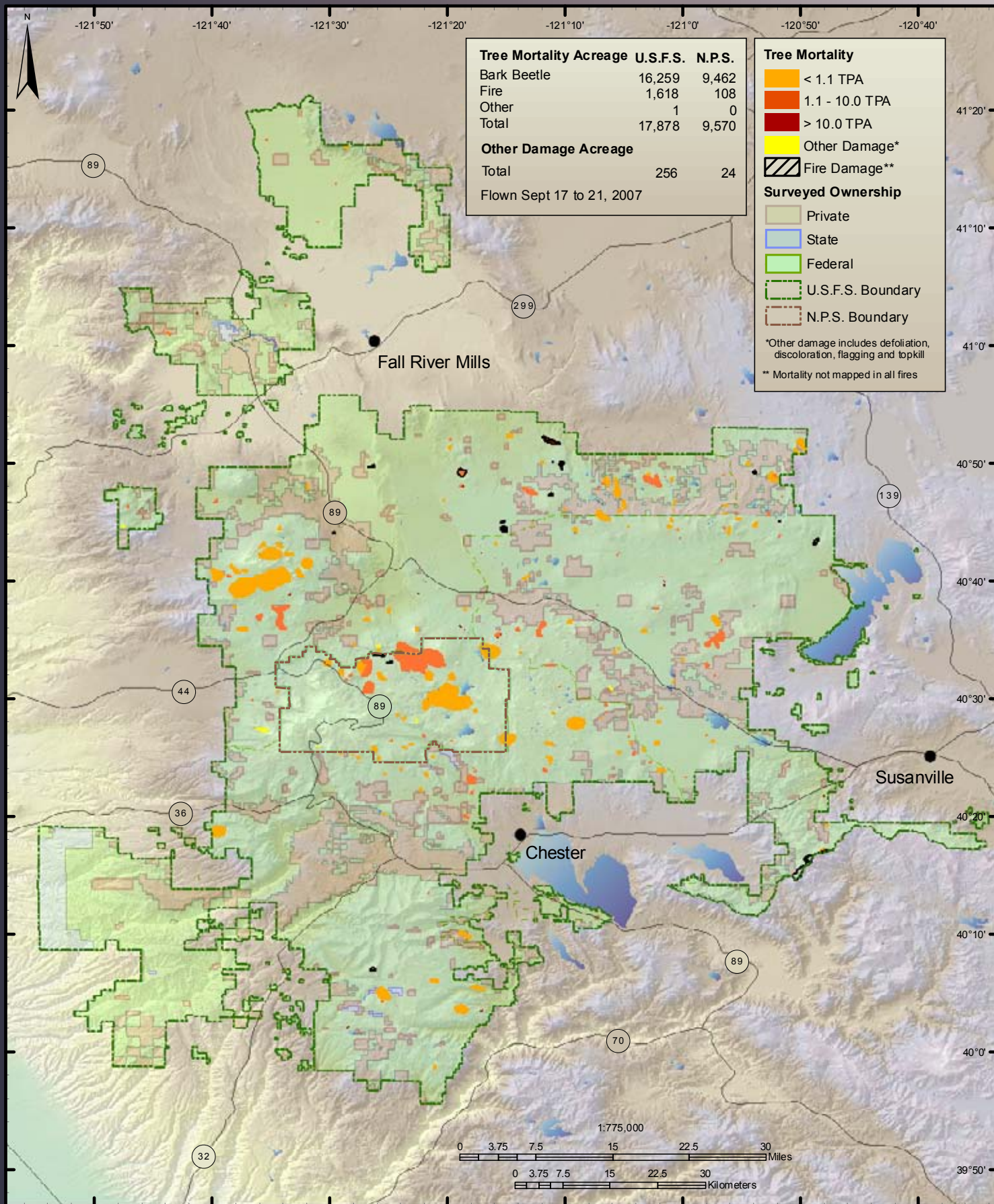
Klamath National Forest



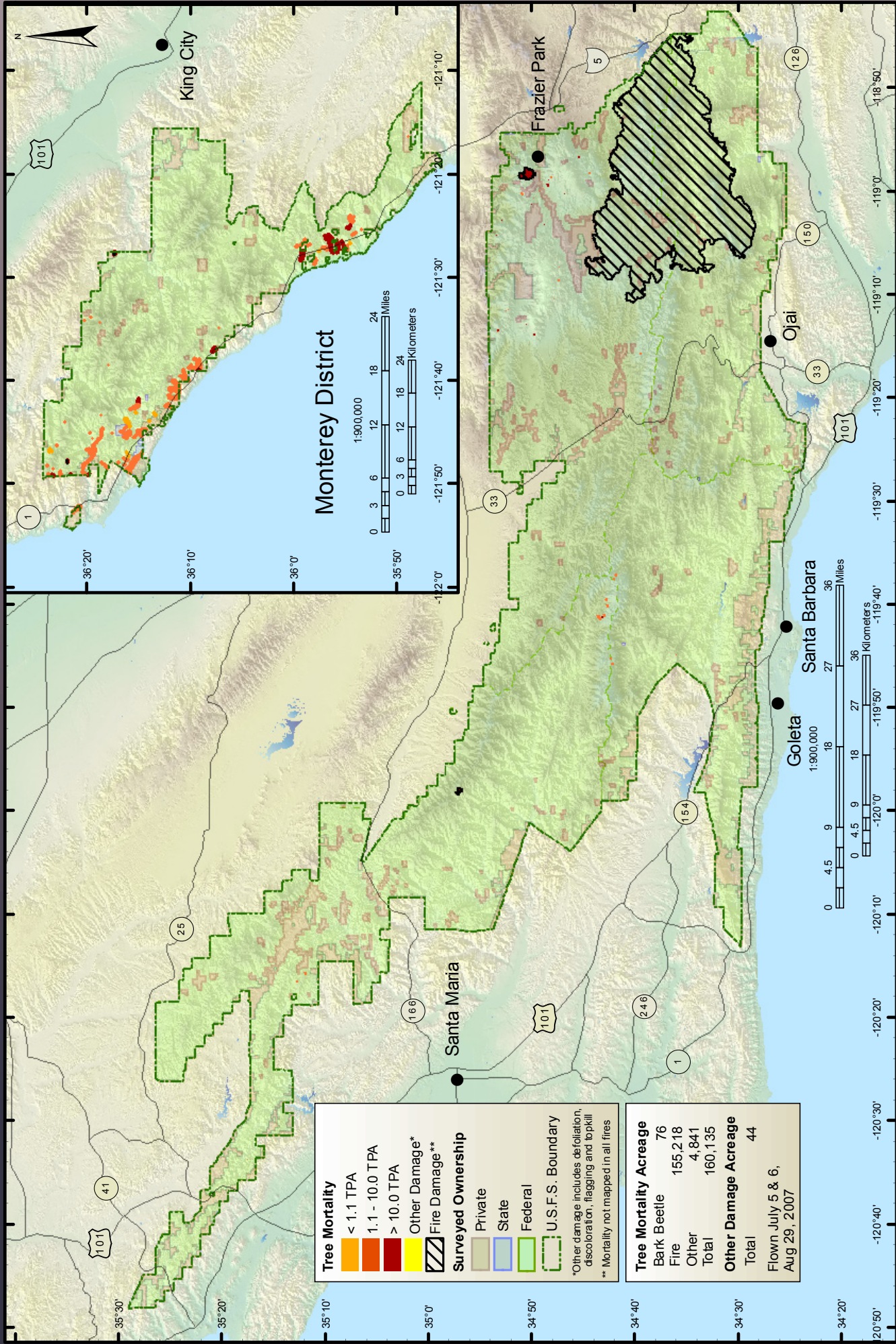
Lake Tahoe Basin Management Unit



Lassen National Forest & Lassen National Park



Los Padres National Forest



Tree Mortality	
[Light Red]	< 1.1 TPA
[Orange]	1.1 - 10.0 TPA
[Dark Red]	> 10.0 TPA
[Yellow]	Other Damage*
[Hatched]	Fire Damage**

Surveyed Ownership	
[Light Green]	Private
[Medium Green]	State
[Dark Green]	Federal
[Dashed Green]	U.S.F.S. Boundary

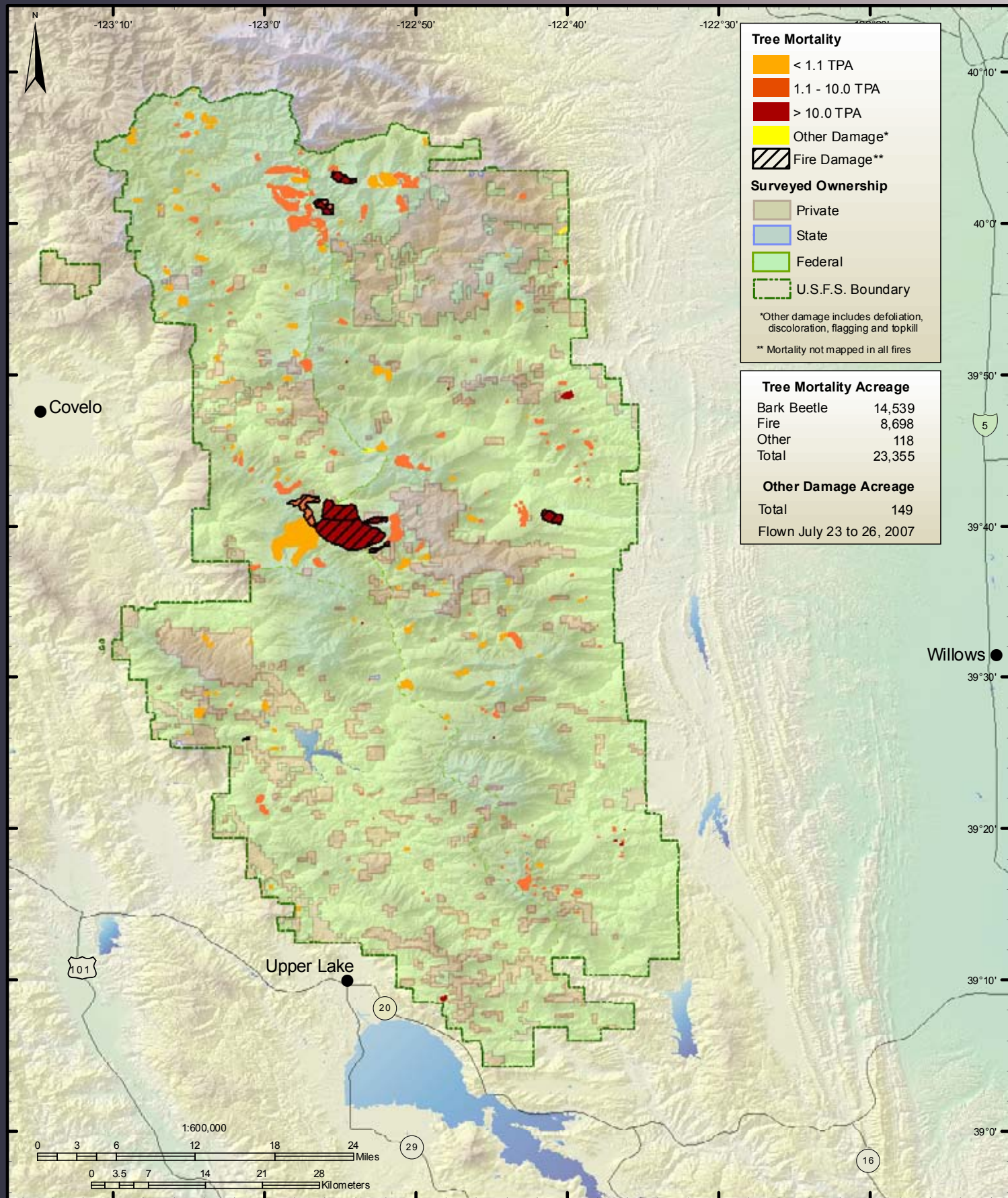
* Other damage includes defoliation, discoloration, flagging and topkill
 ** Mortality not mapped in all fires

Tree Mortality Acreage	
Bark Beetle	76
Fire	155,218
Other	4,841
Total	160,135

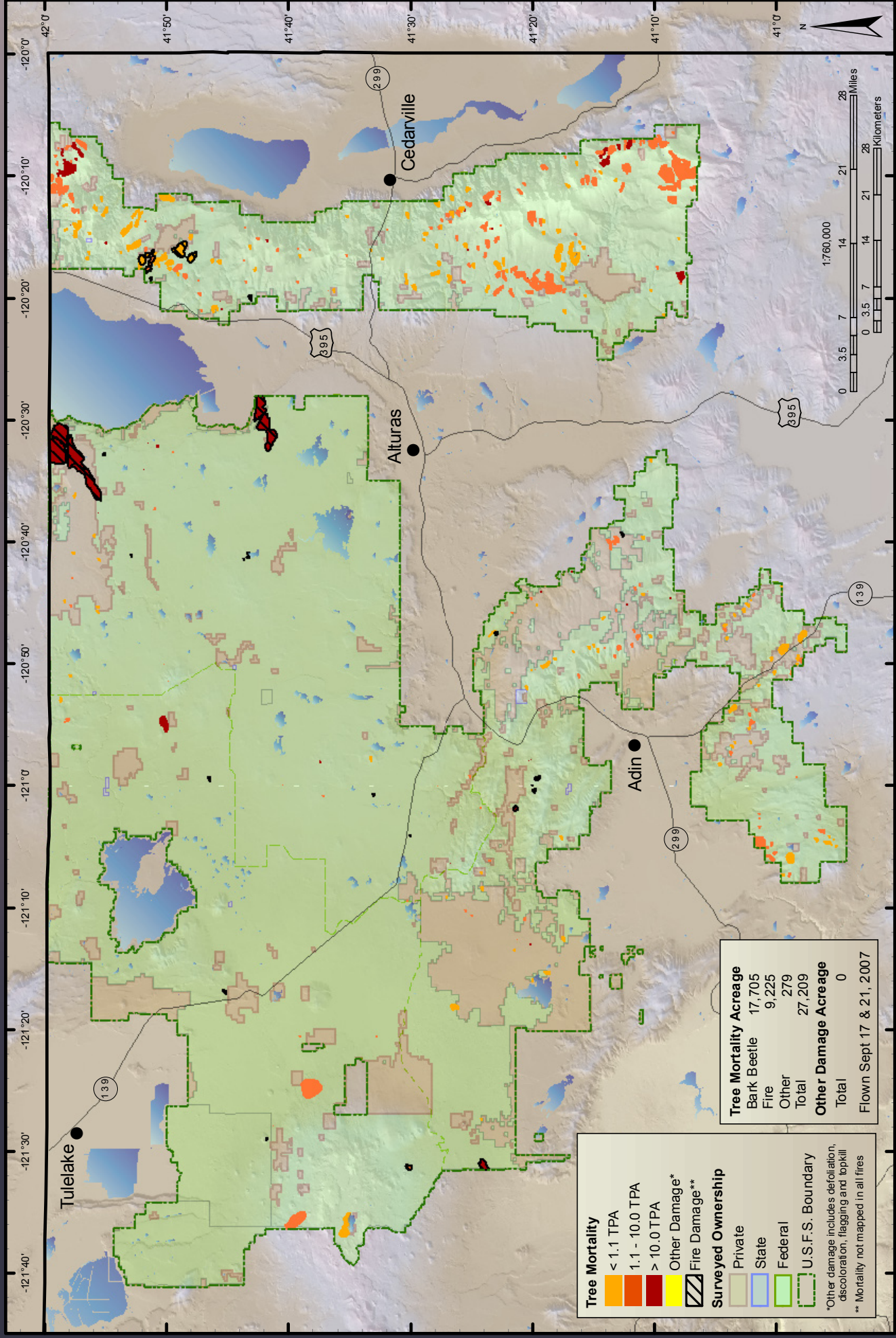
Other Damage Acreage	
Total	44

Flown July 5 & 6,
 Aug 29, 2007

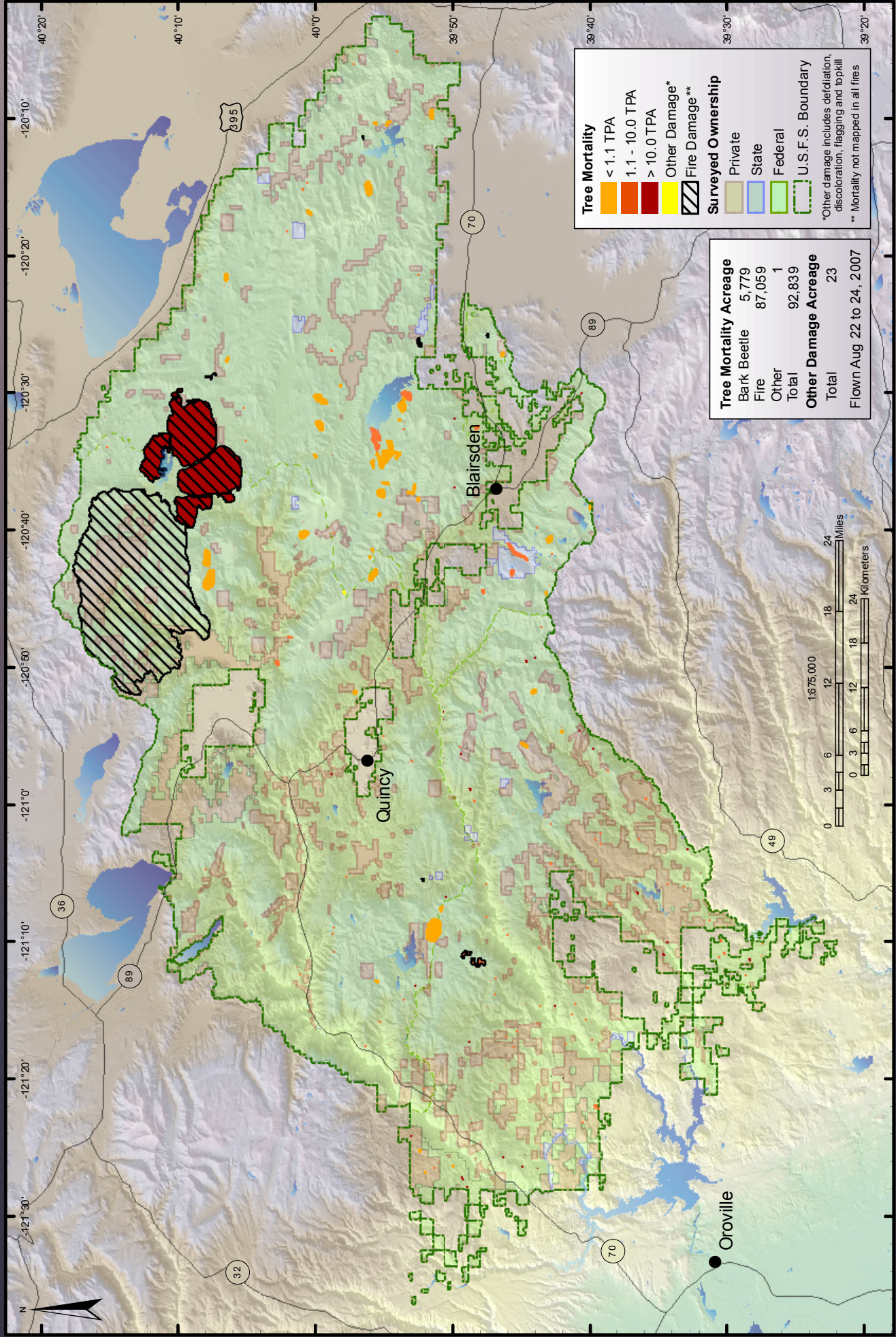
Mendocino National Forest



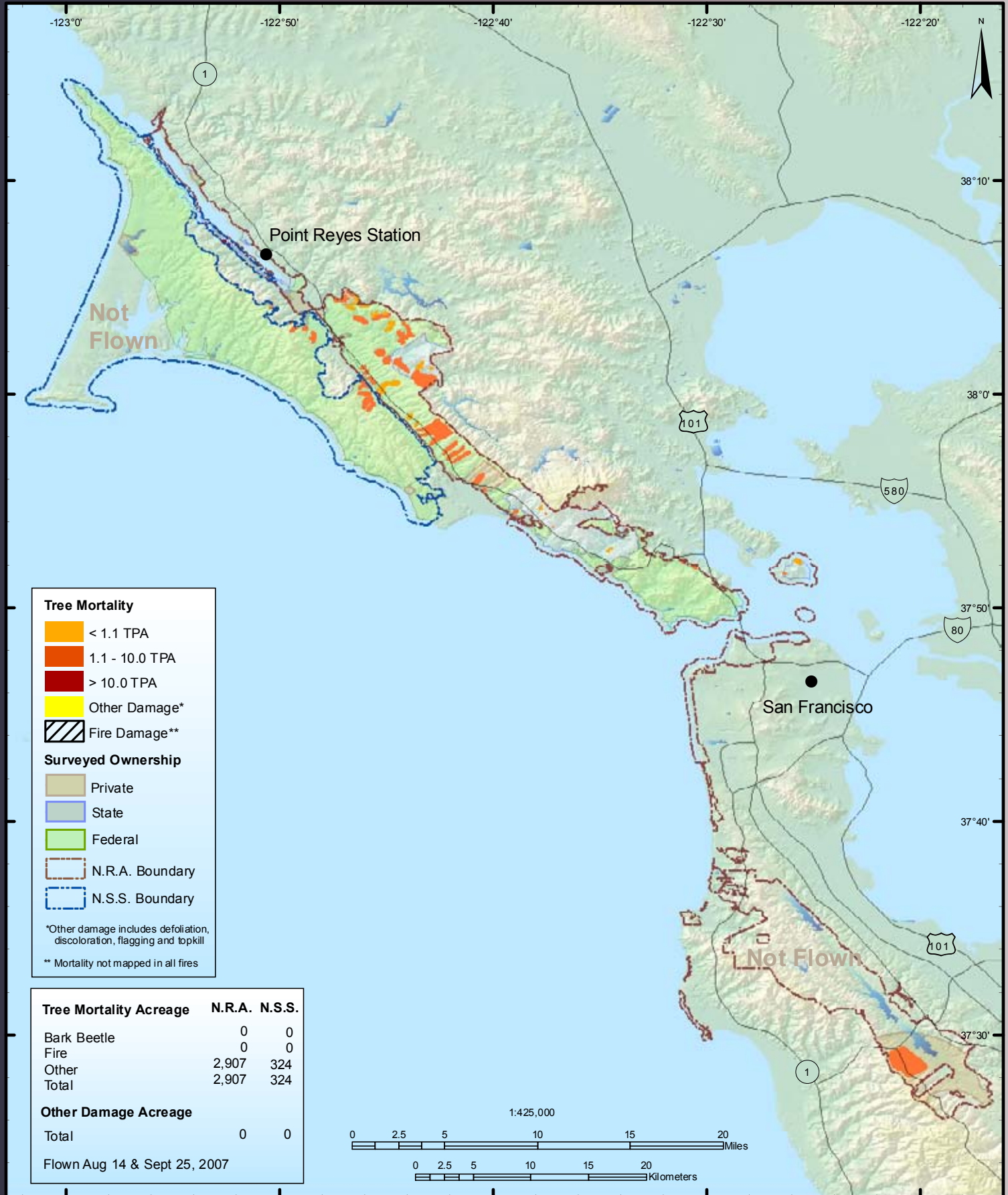
Modoc National Forest



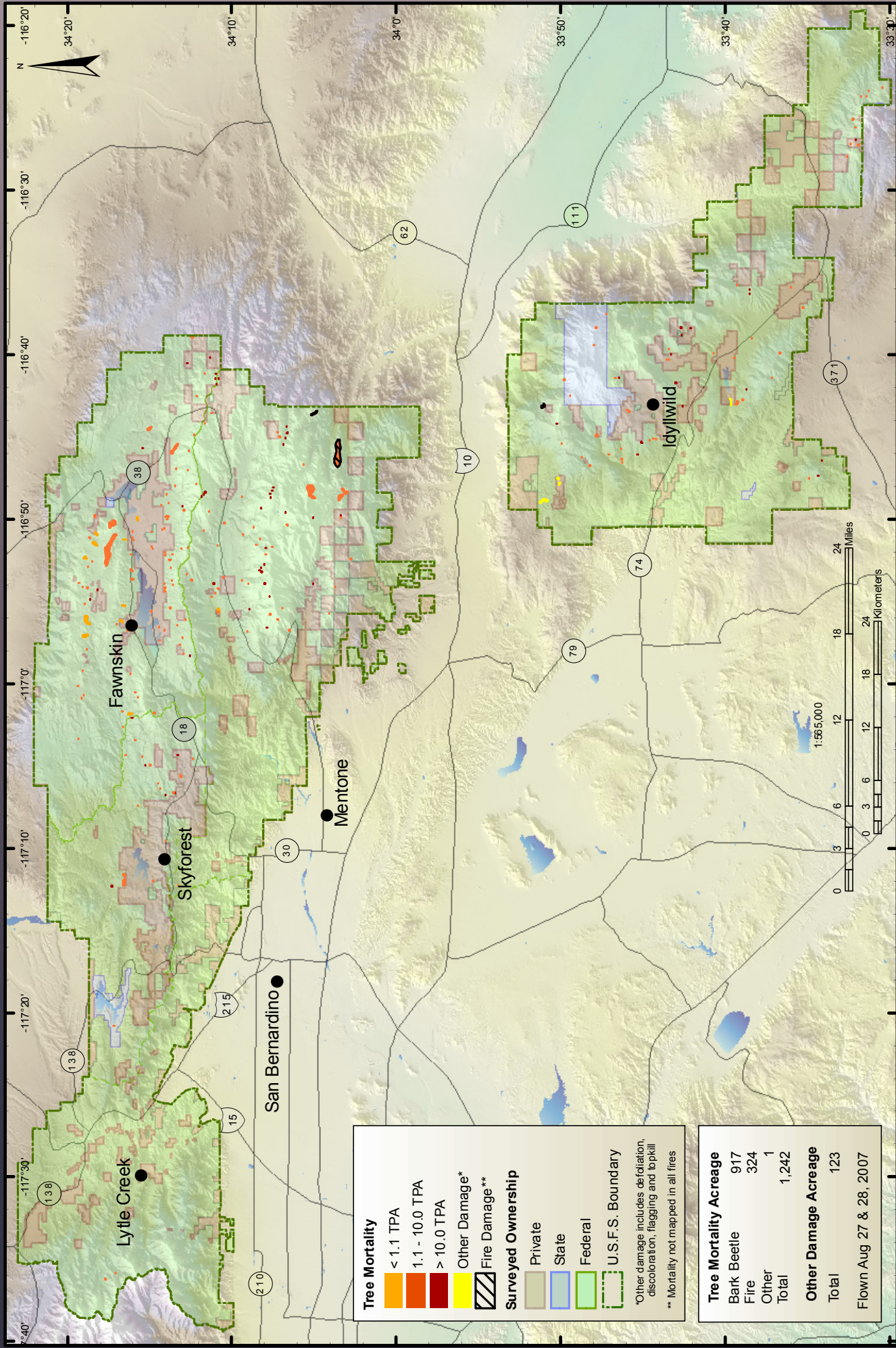
Plumas National Forest



Point Reyes National Seashore & Golden Gate National Recreation Area



San Bernardino National Forest



Tree Mortality

- < 1.1 TPA
- 1.1 - 10.0 TPA
- > 10.0 TPA
- Other Damage*
- Fire Damage**

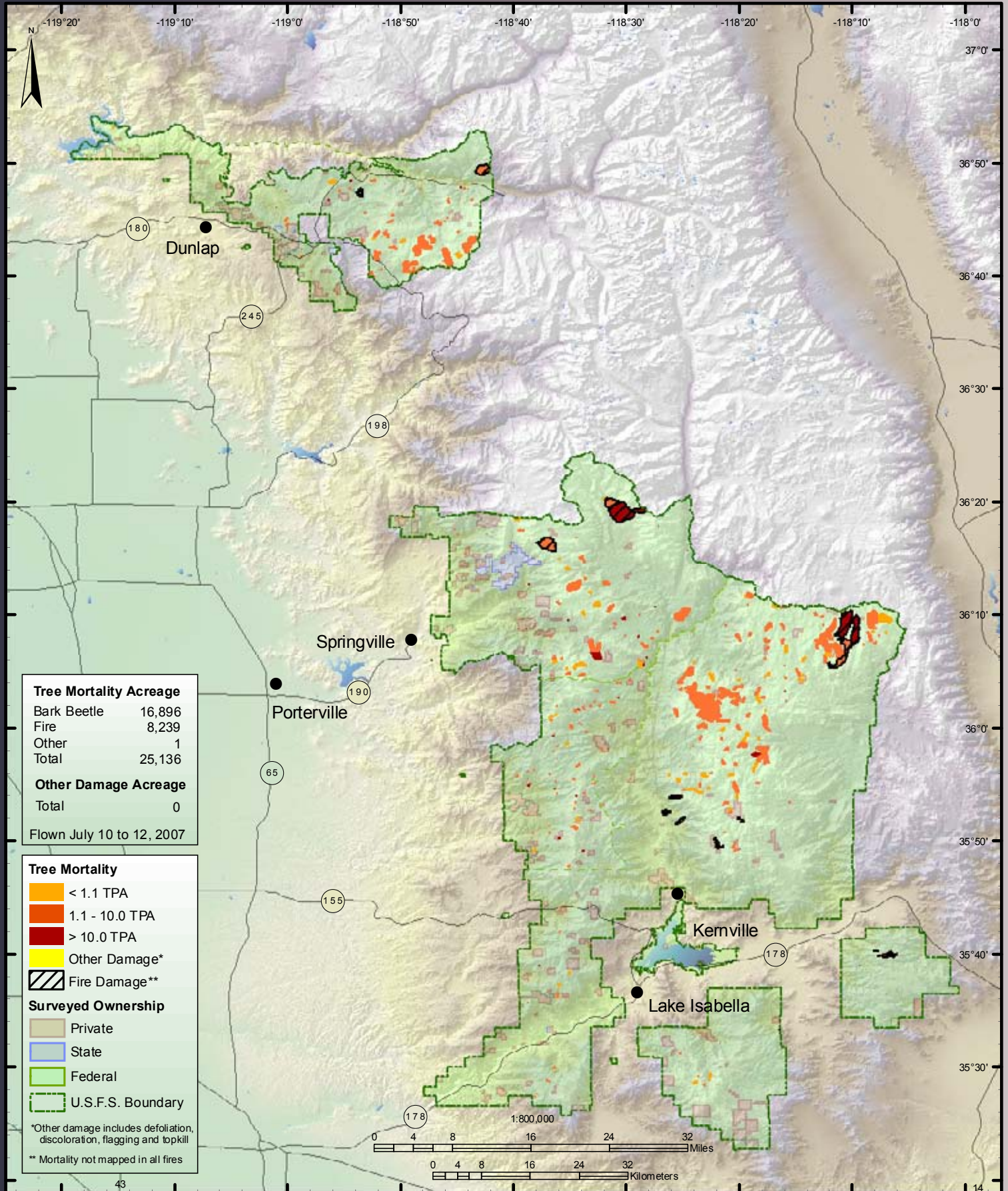
Surveyed Ownership

- Private
- State
- Federal
- U.S.F.S. Boundary

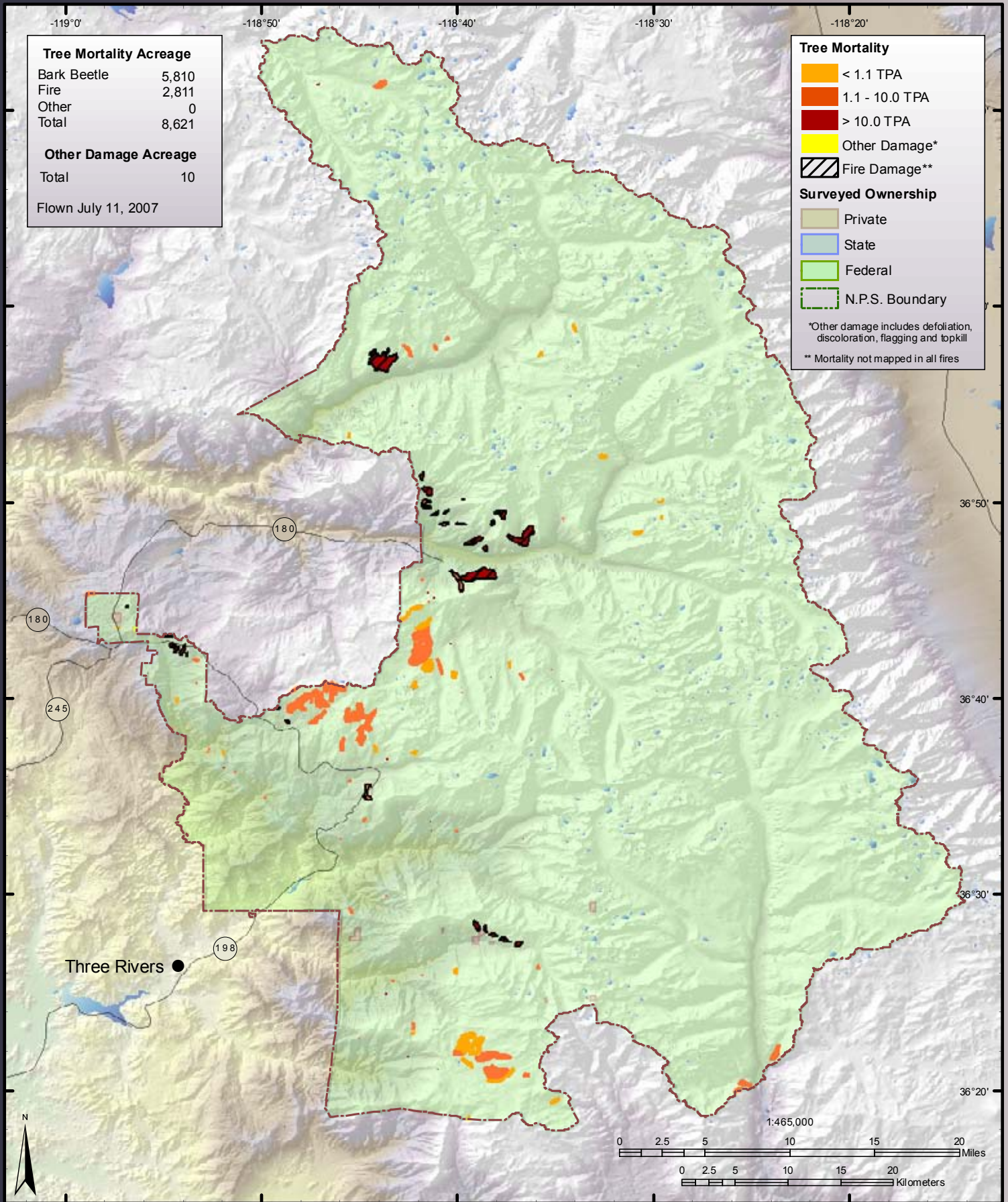
* Other damage includes deterioration, discoloration, flagging and to kill
** Mortality not mapped in all fires

Tree Mortality Acreage	
Bark Beetle	917
Fire	324
Other	1
Total	1,242
Other Damage Acreage	
Total	123
Flown Aug 27 & 28, 2007	

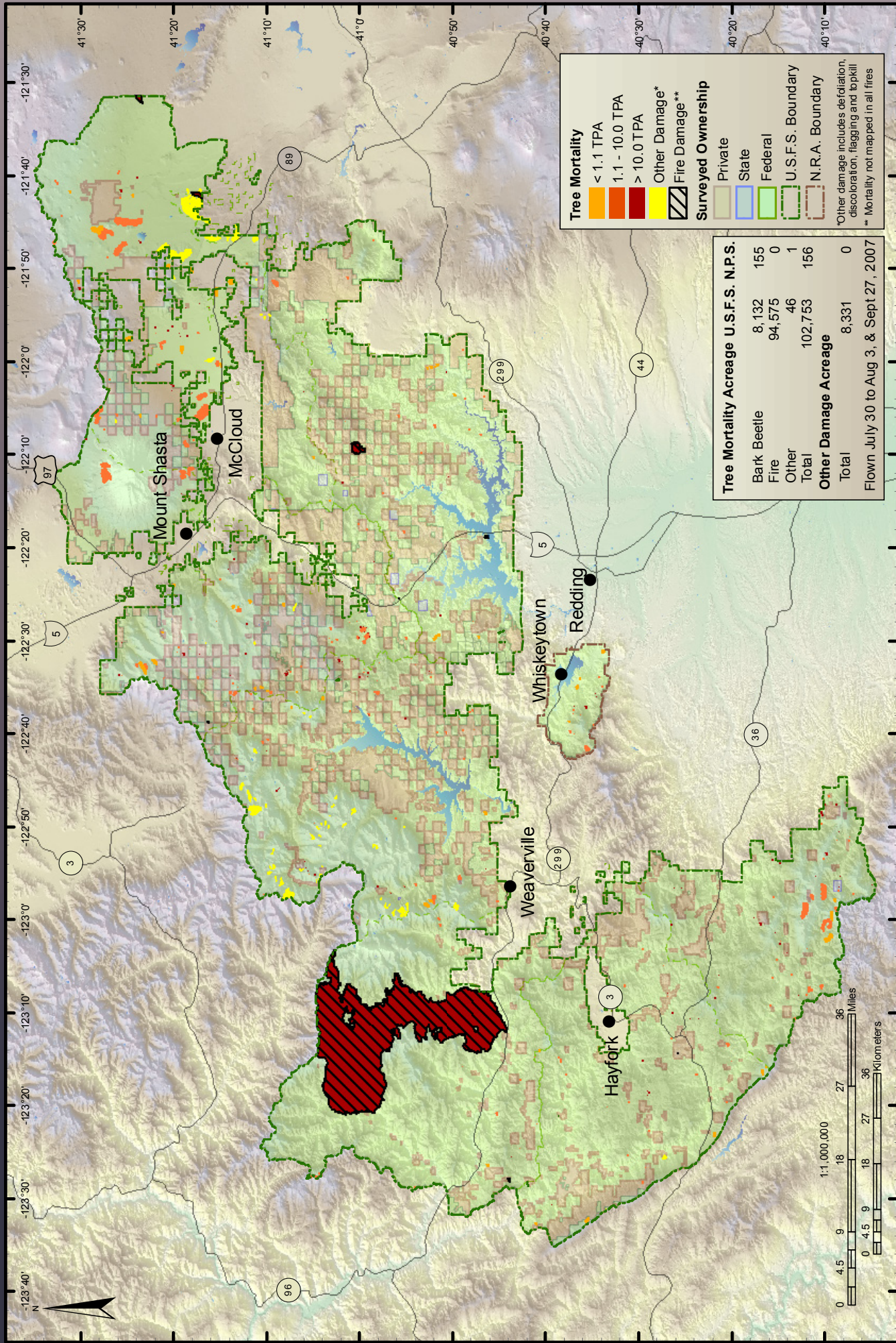
Sequoia National Forest



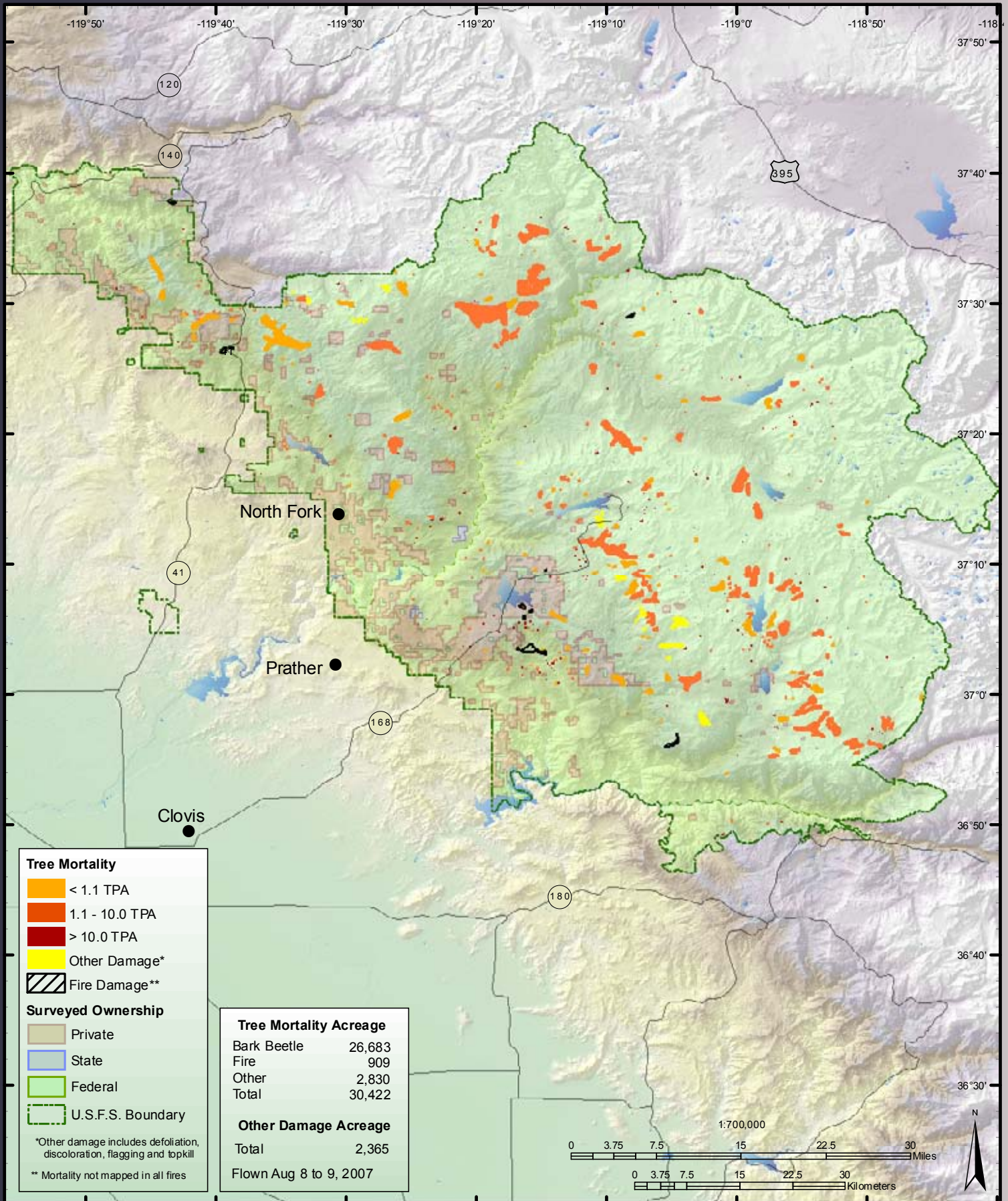
Sequoia-Kings National Park



Shasta-Trinity National Forest & Whiskeytown National Recreation Area



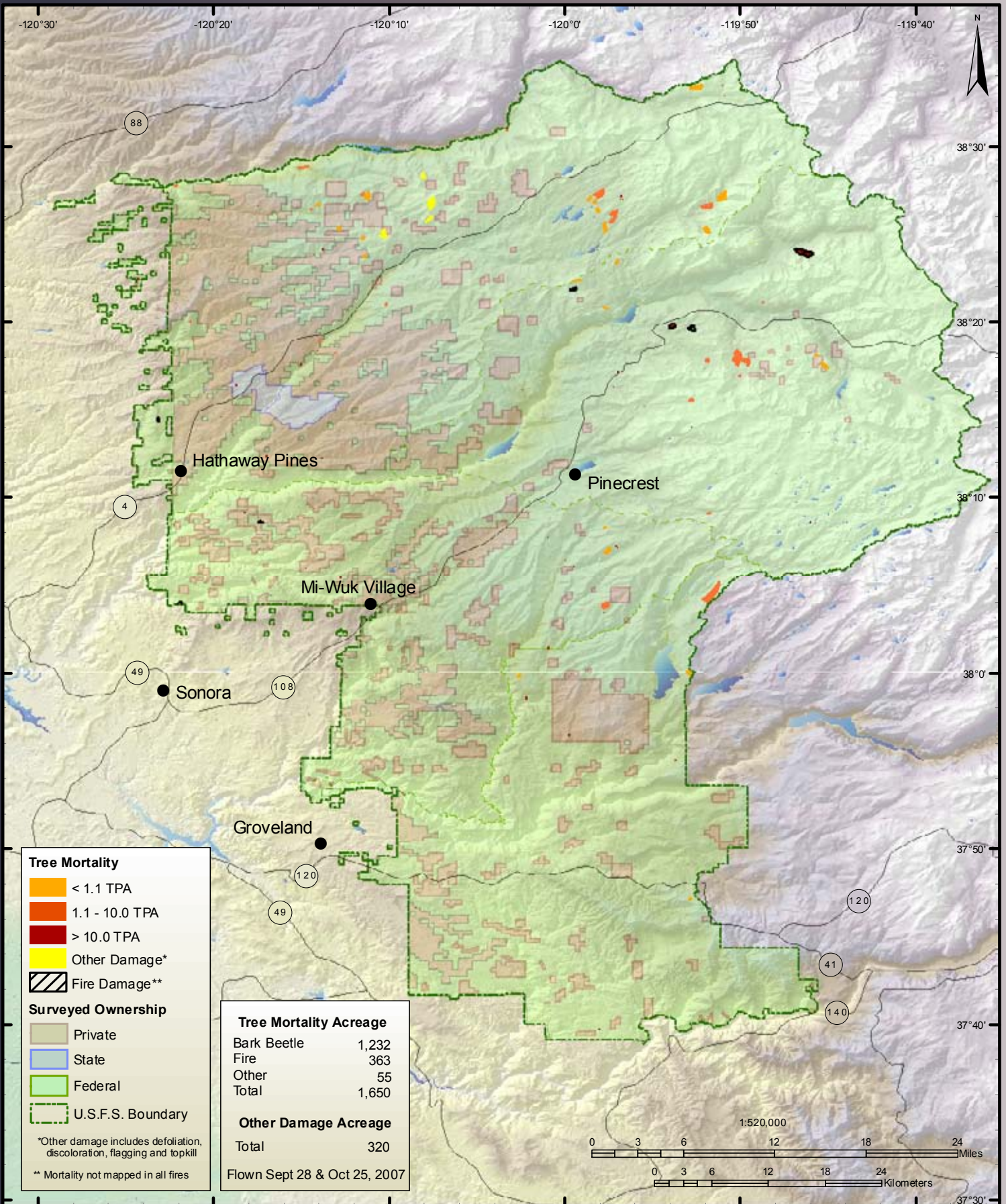
Sierra National Forest



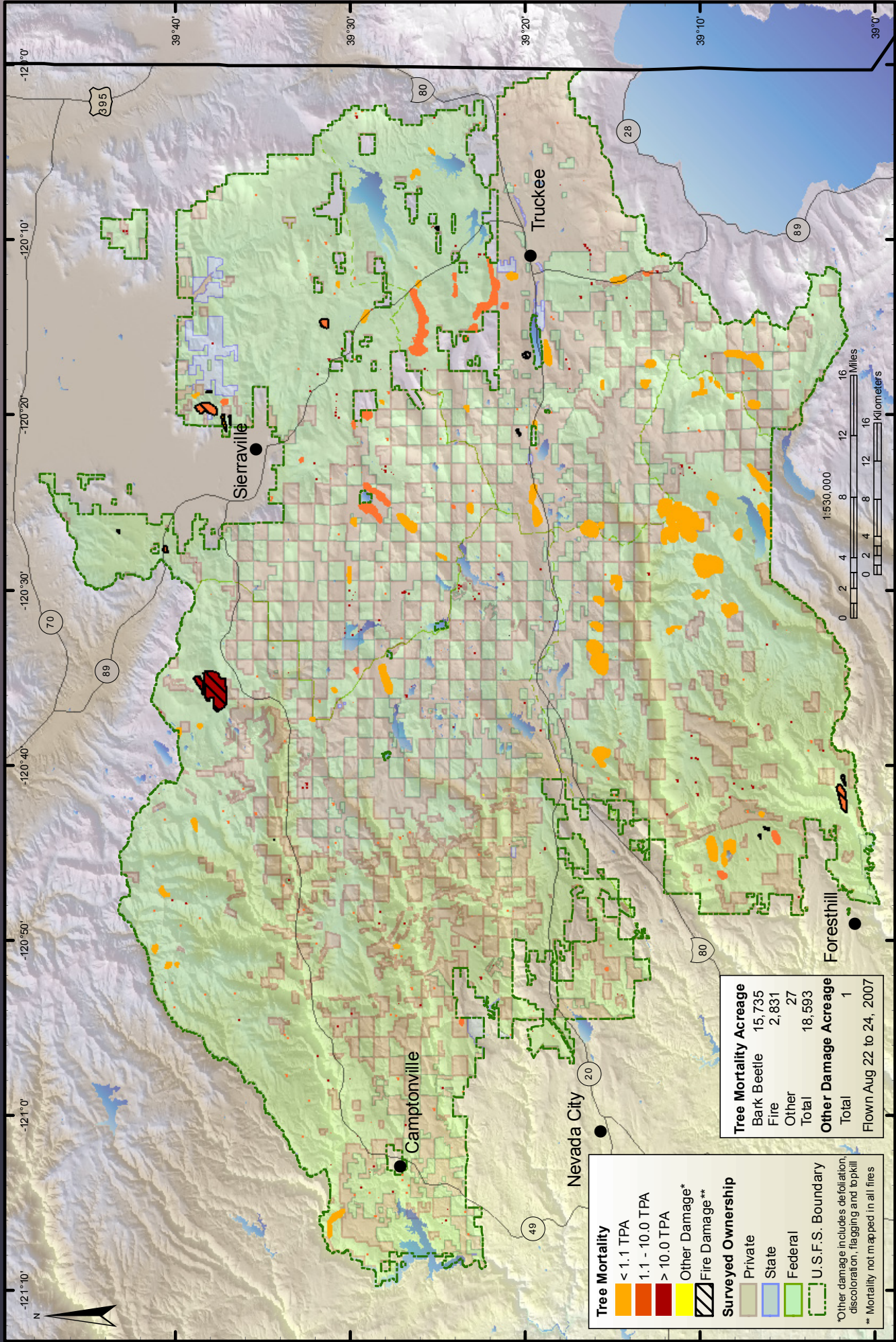
Six Rivers National Forest & Redwood State and National Parks



Stanislaus National Forest



Tahoe National Forest



Tree Mortality

- < 1.1 TPA
- 1.1 - 10.0 TPA
- > 10.0 TPA
- Other Damage*
- Fire Damage**

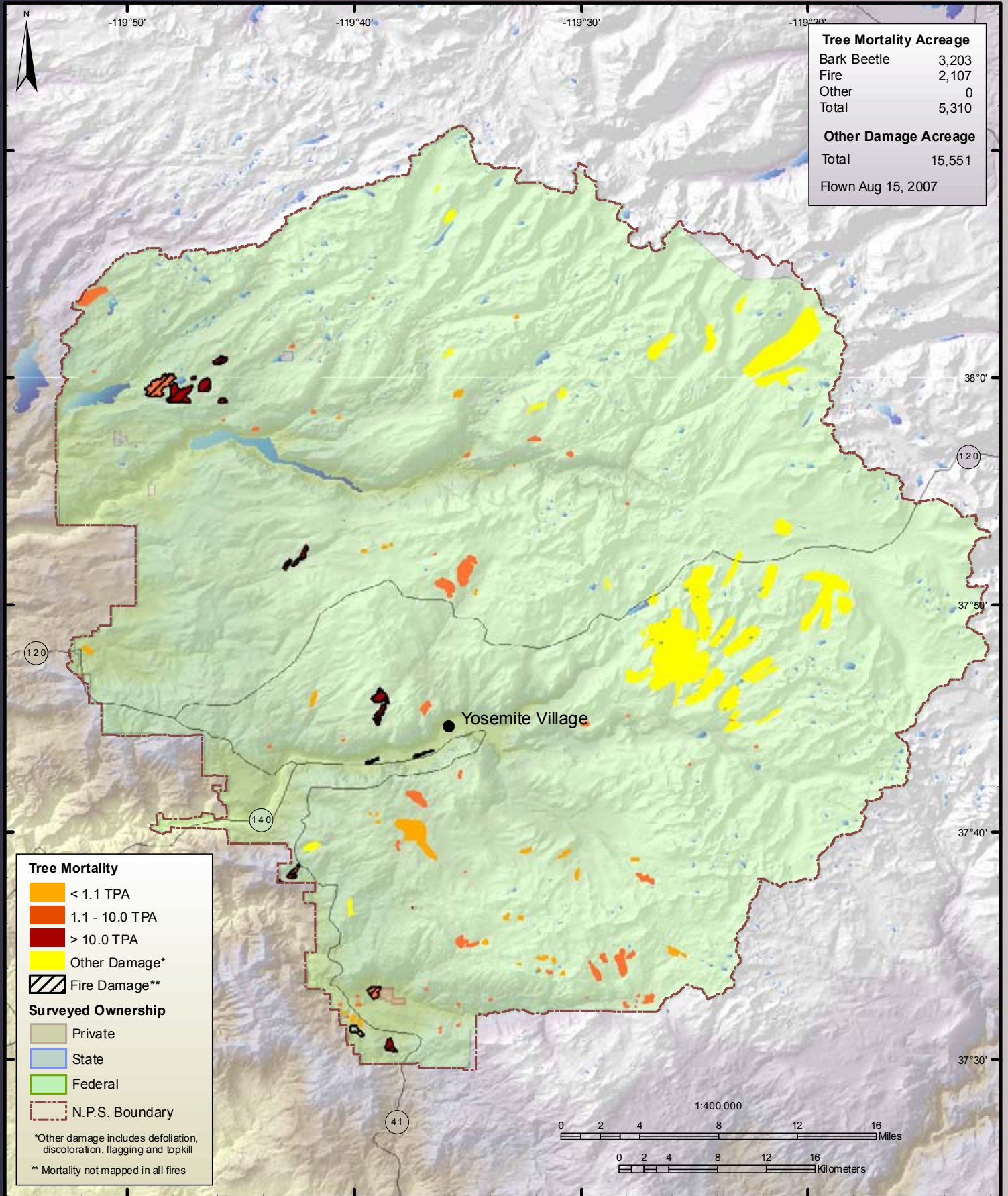
Surveyed Ownership

- Private
- State
- Federal
- U.S.F.S. Boundary

*Other damage includes delimitation, discoloration, flagging and topkill
** Mortality not mapped in all fires

Tree Mortality Acreage	
Bark Beetle	15,735
Fire	2,831
Other	27
Total	18,593
Other Damage Acreage	
Total	1
Flown Aug 22 to 24, 2007	

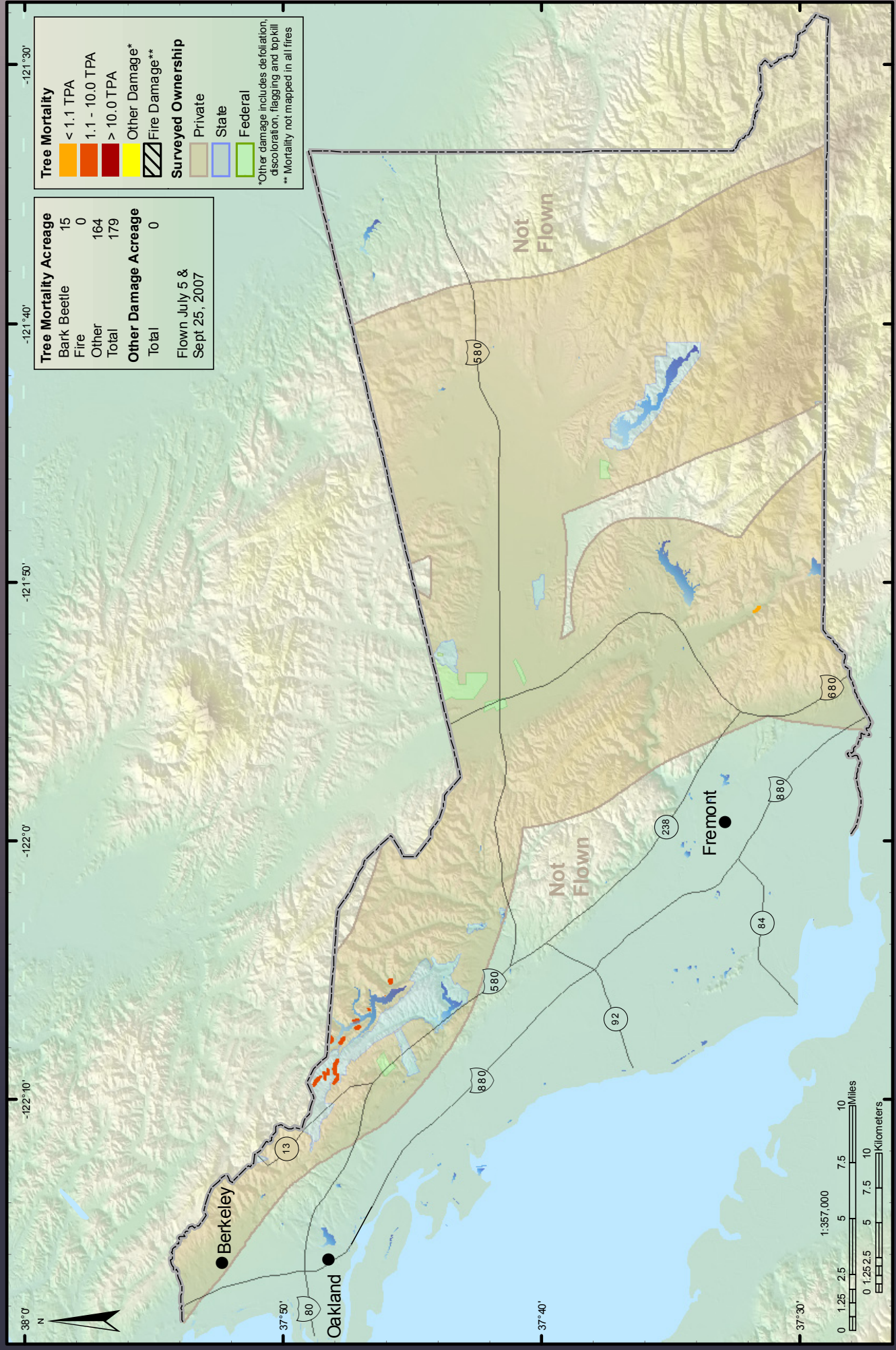
Yosemite National Park



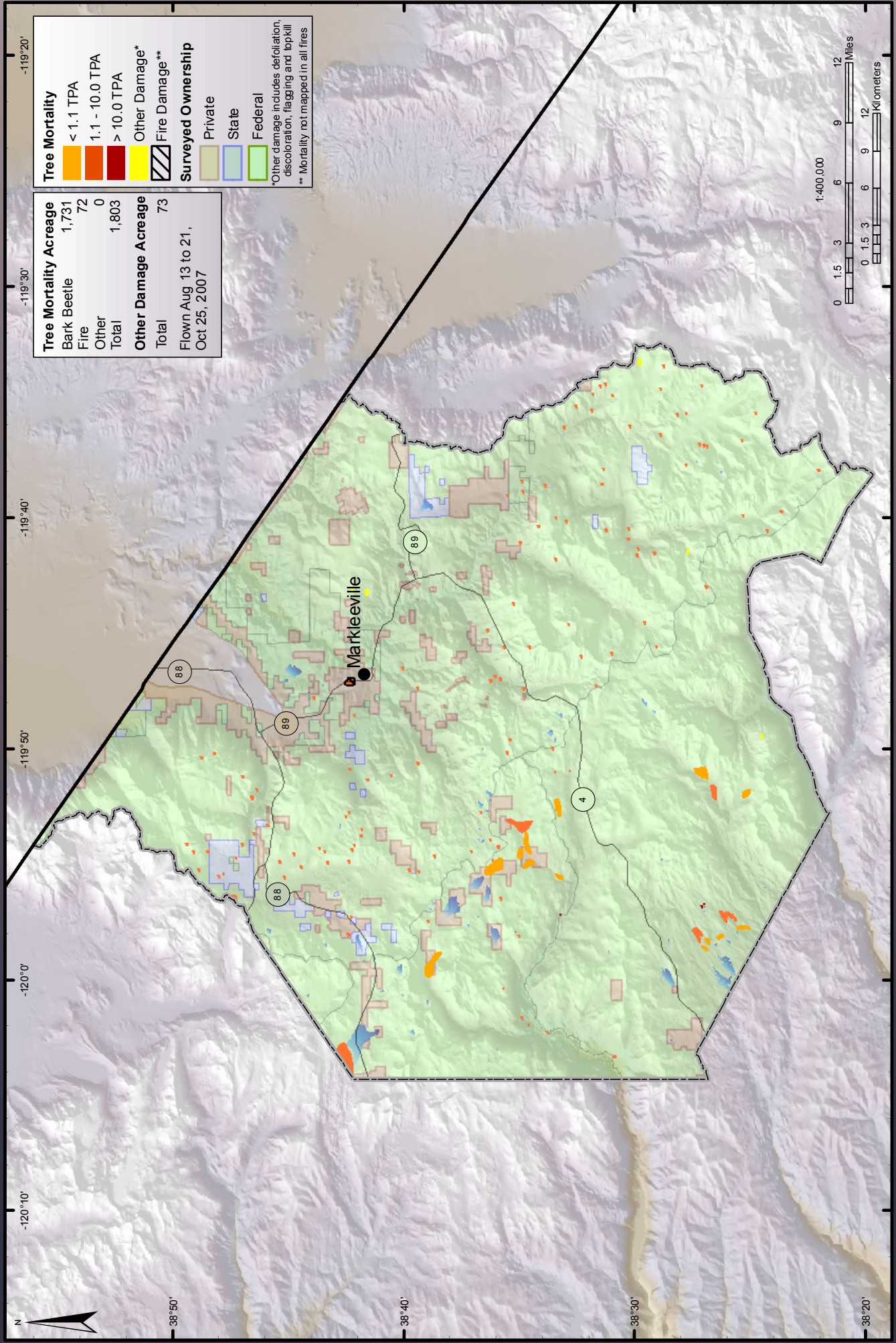
2007 Aerial Survey Results by County



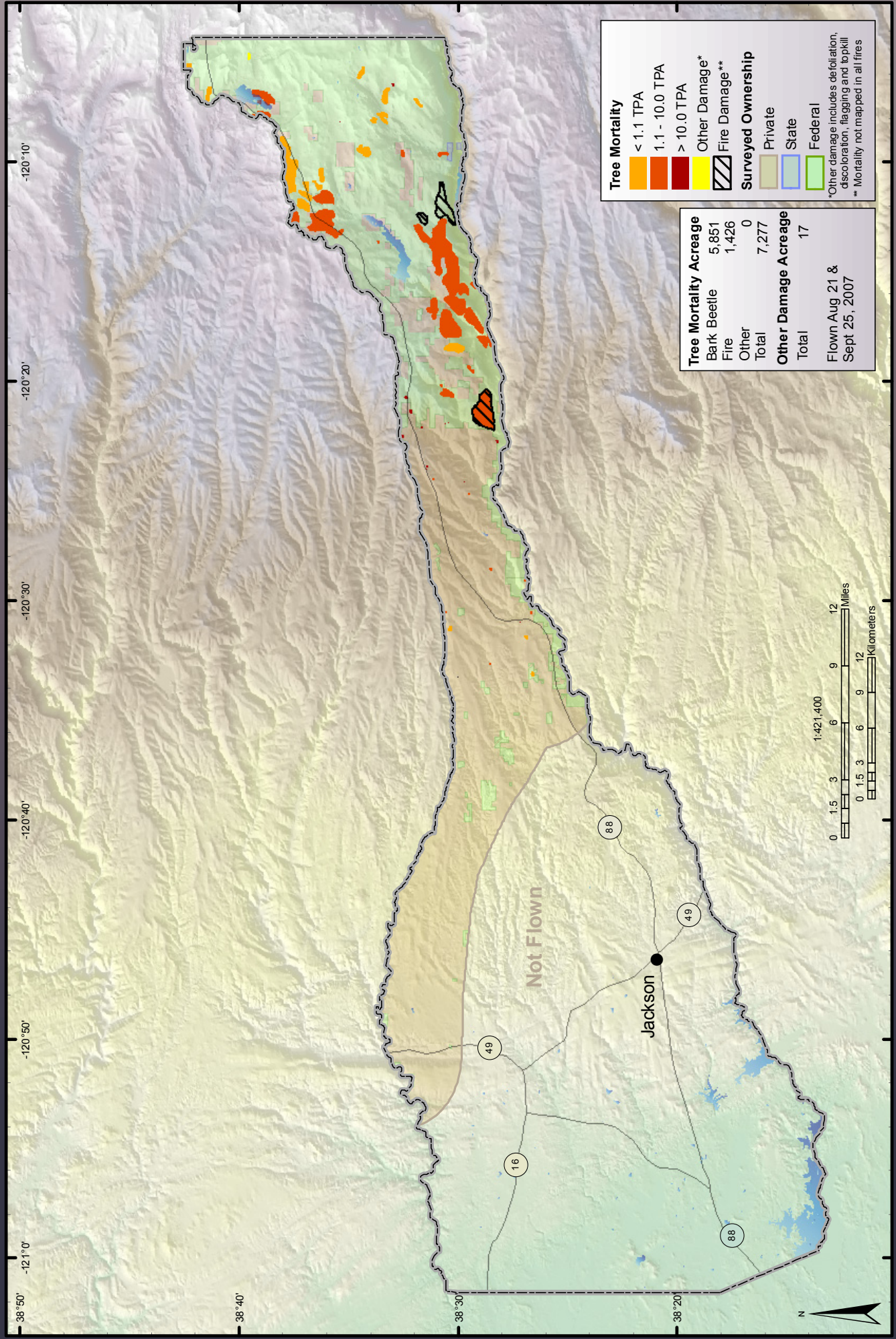
Alameda County



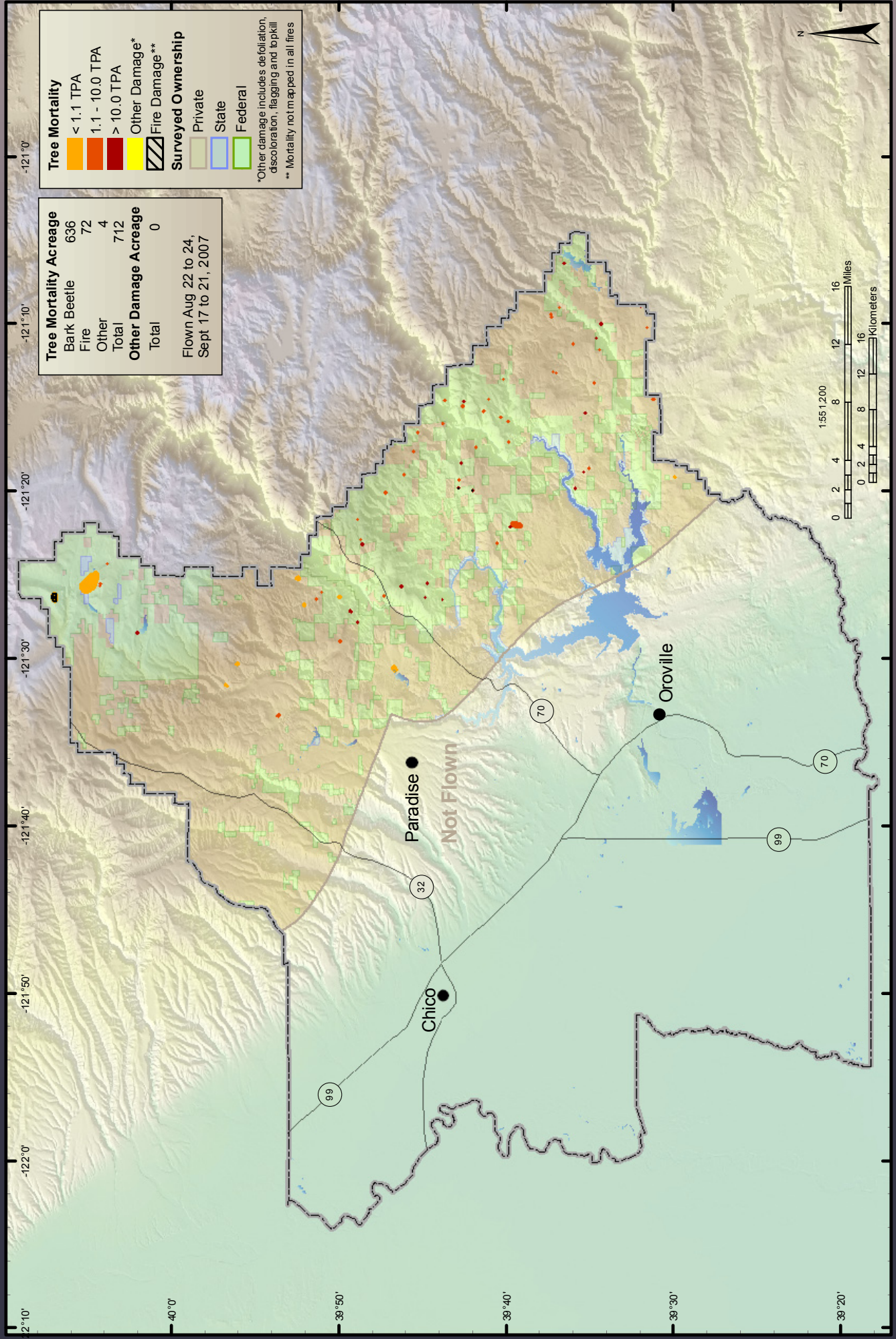
Alpine County



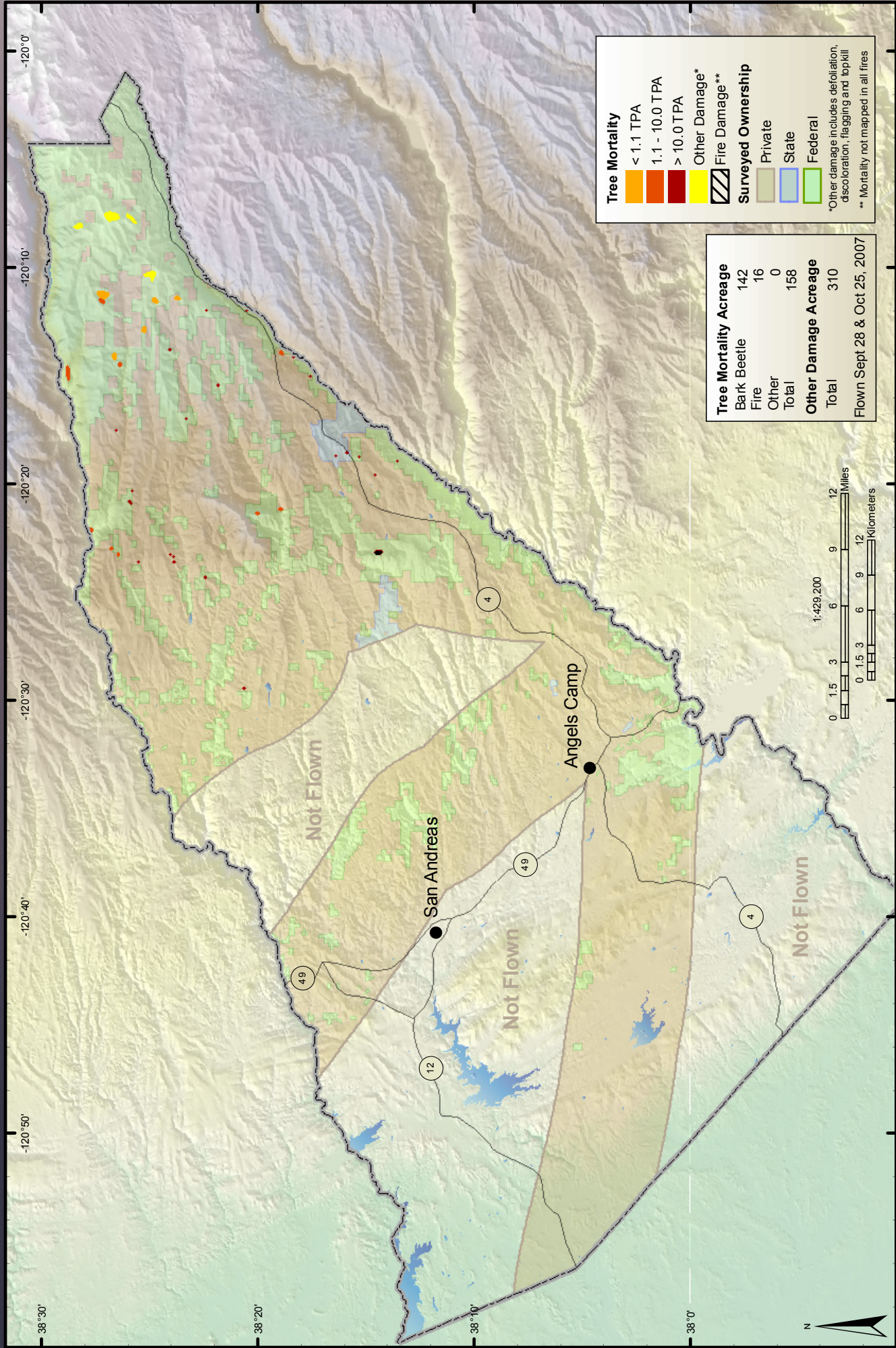
Amador County



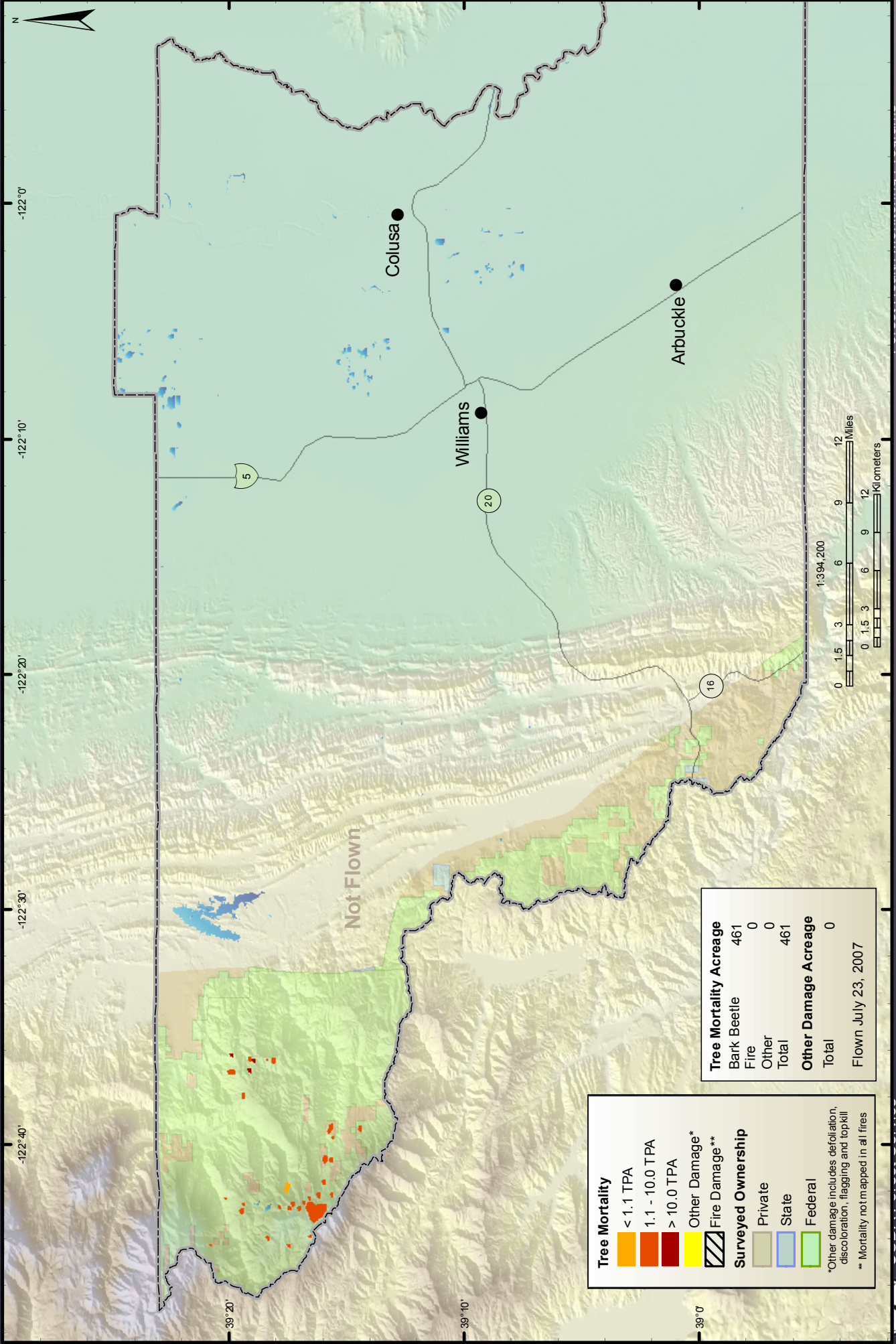
Butte County



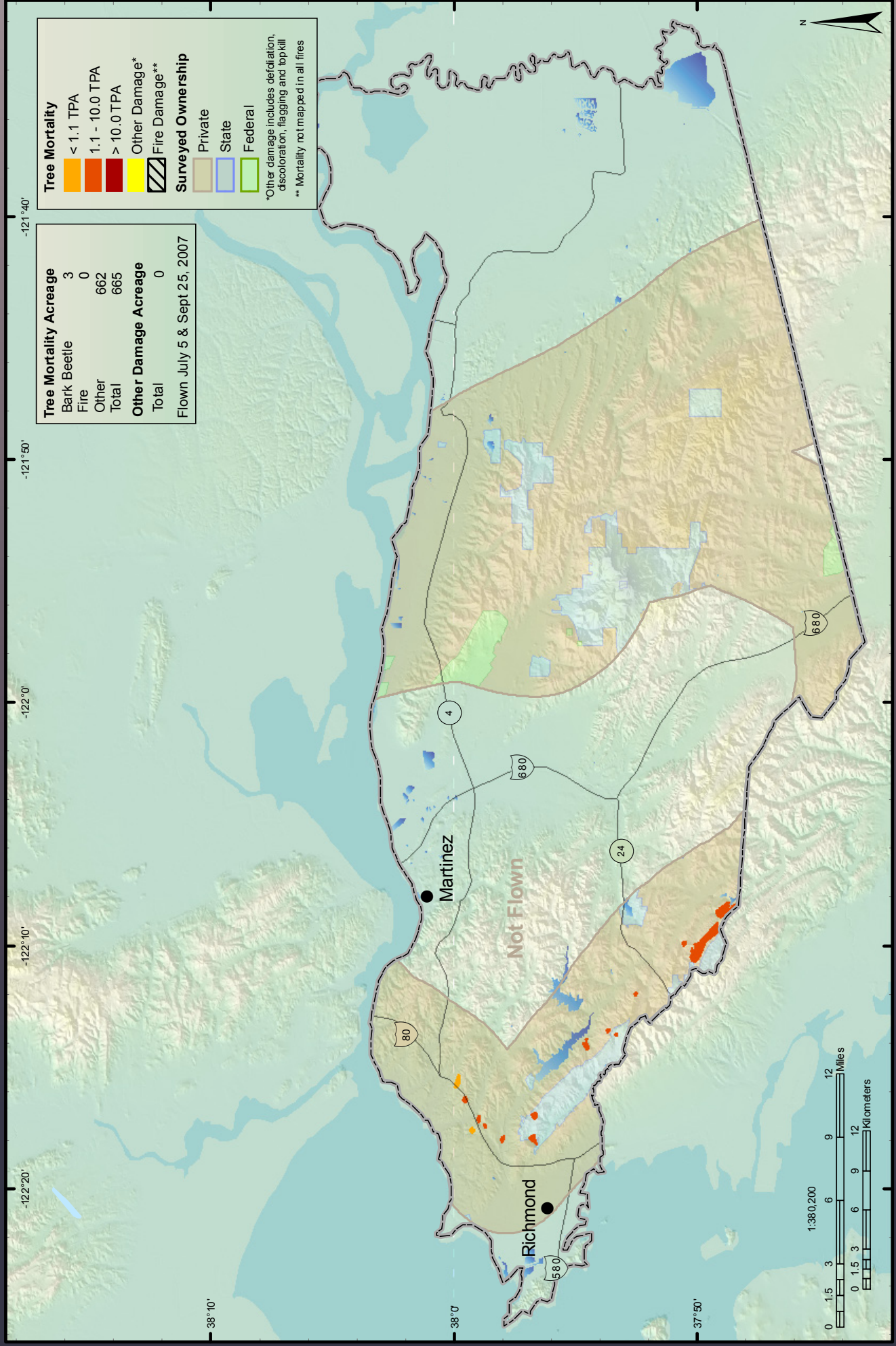
Calaveras County



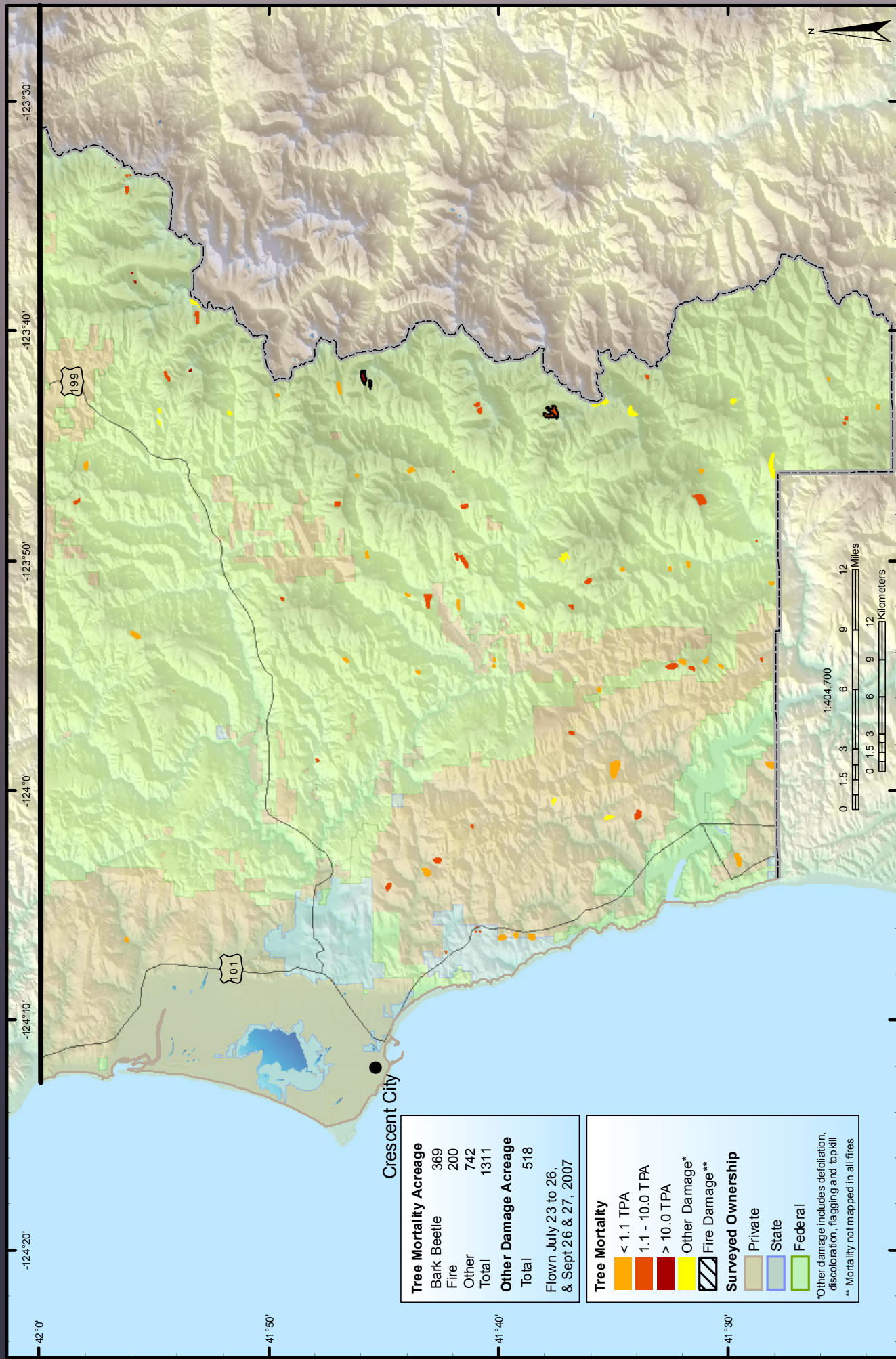
Colusa County



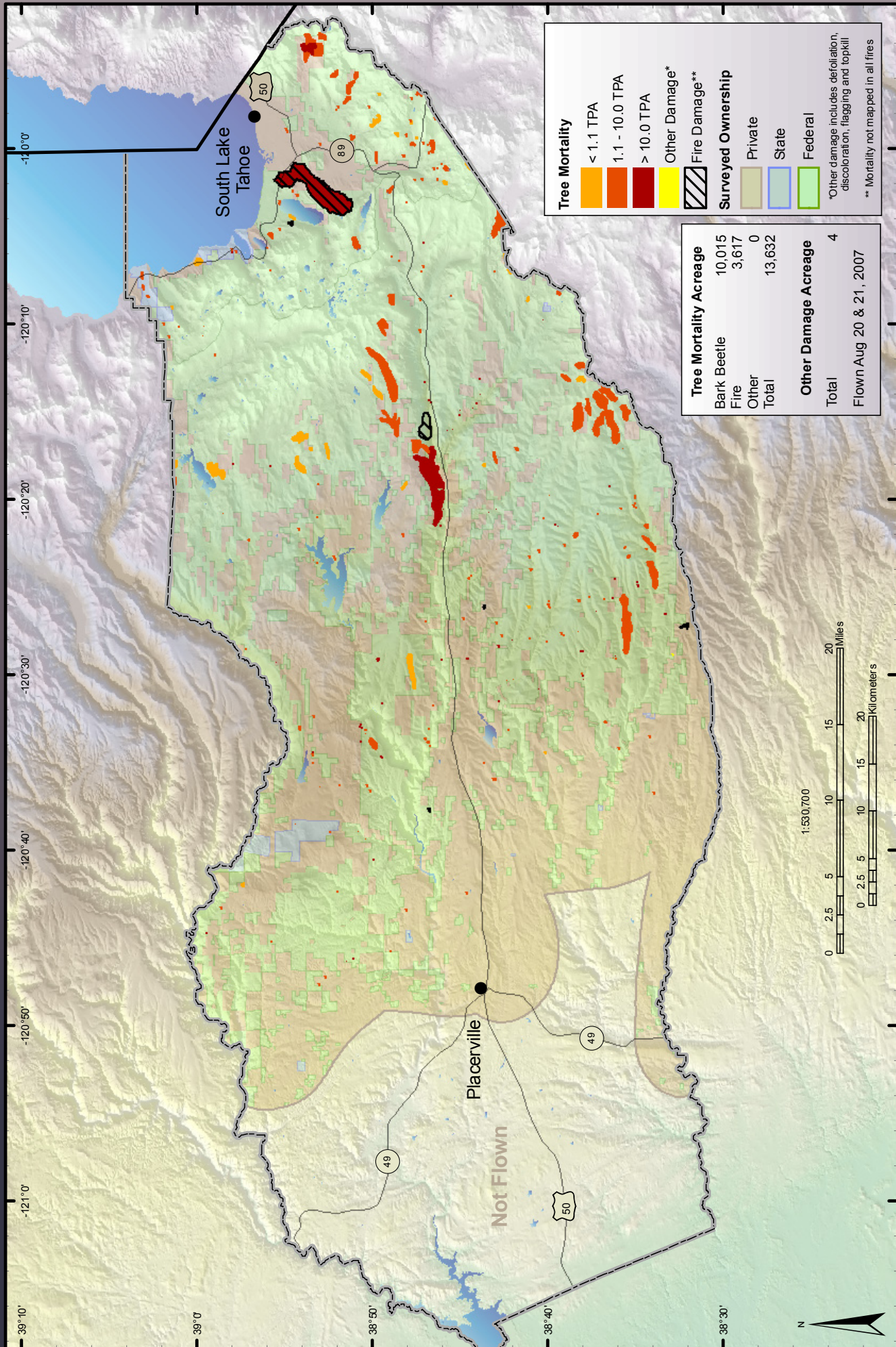
Contra Costa County



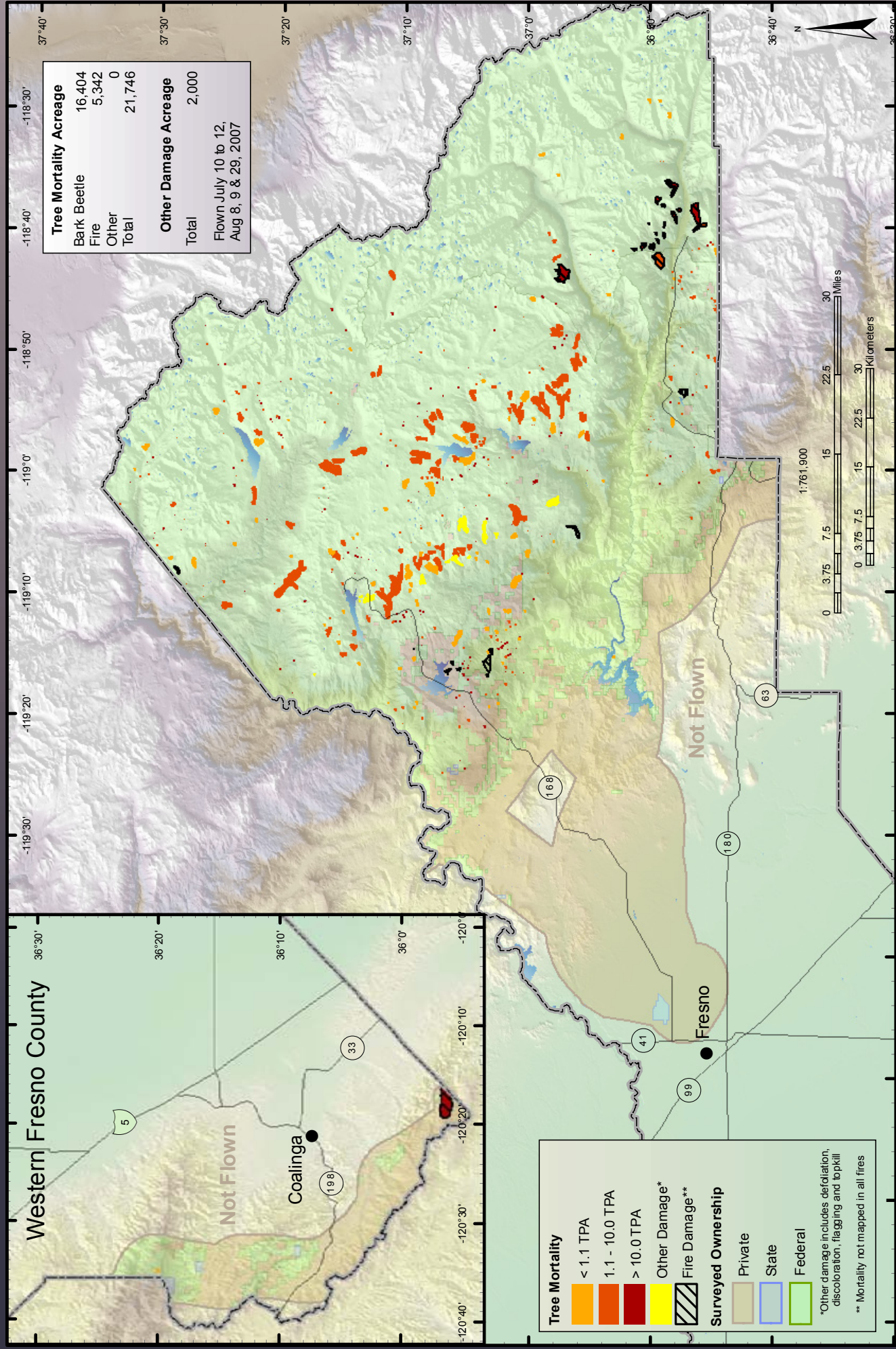
Del Norte County



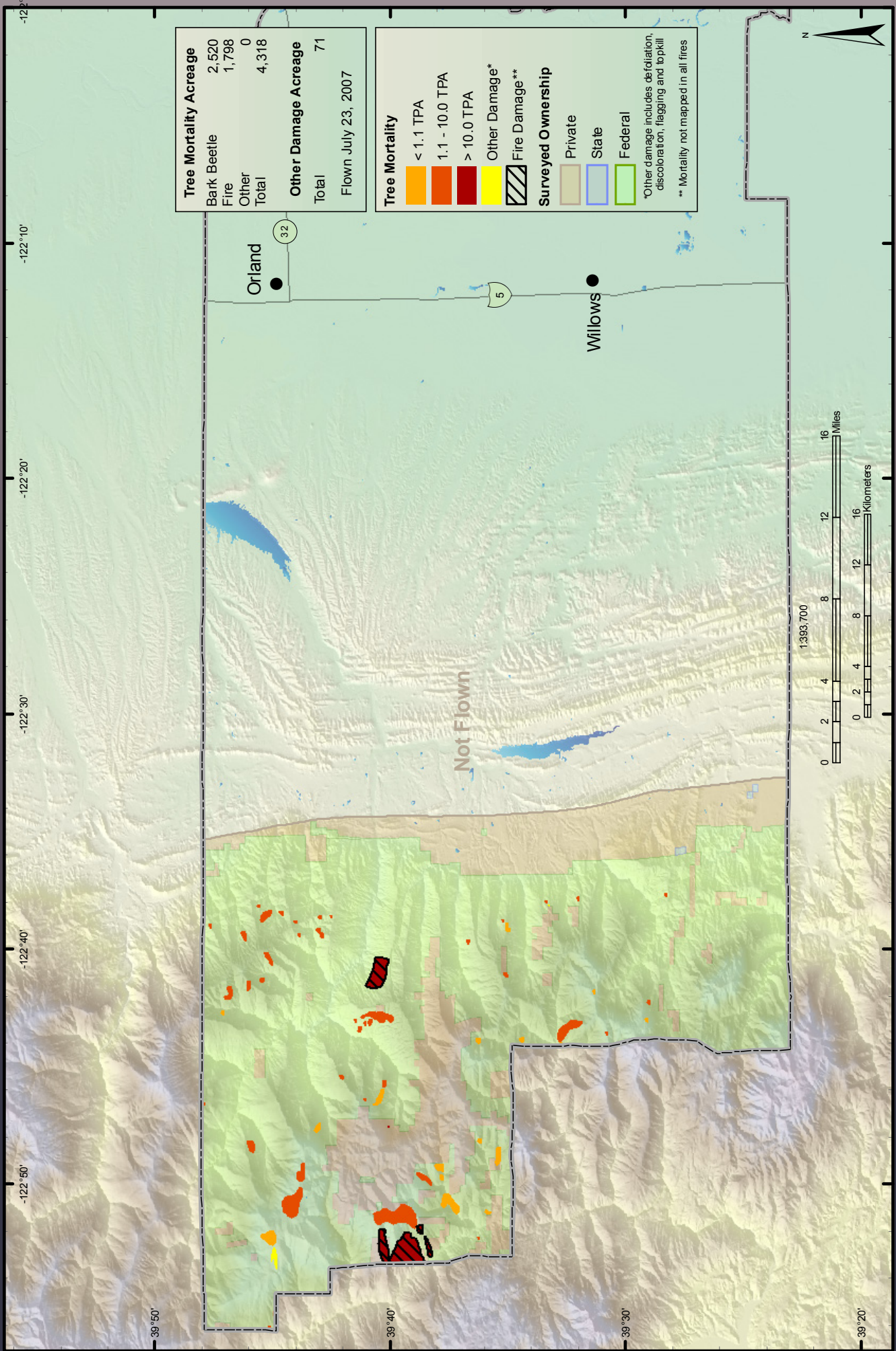
El Dorado County



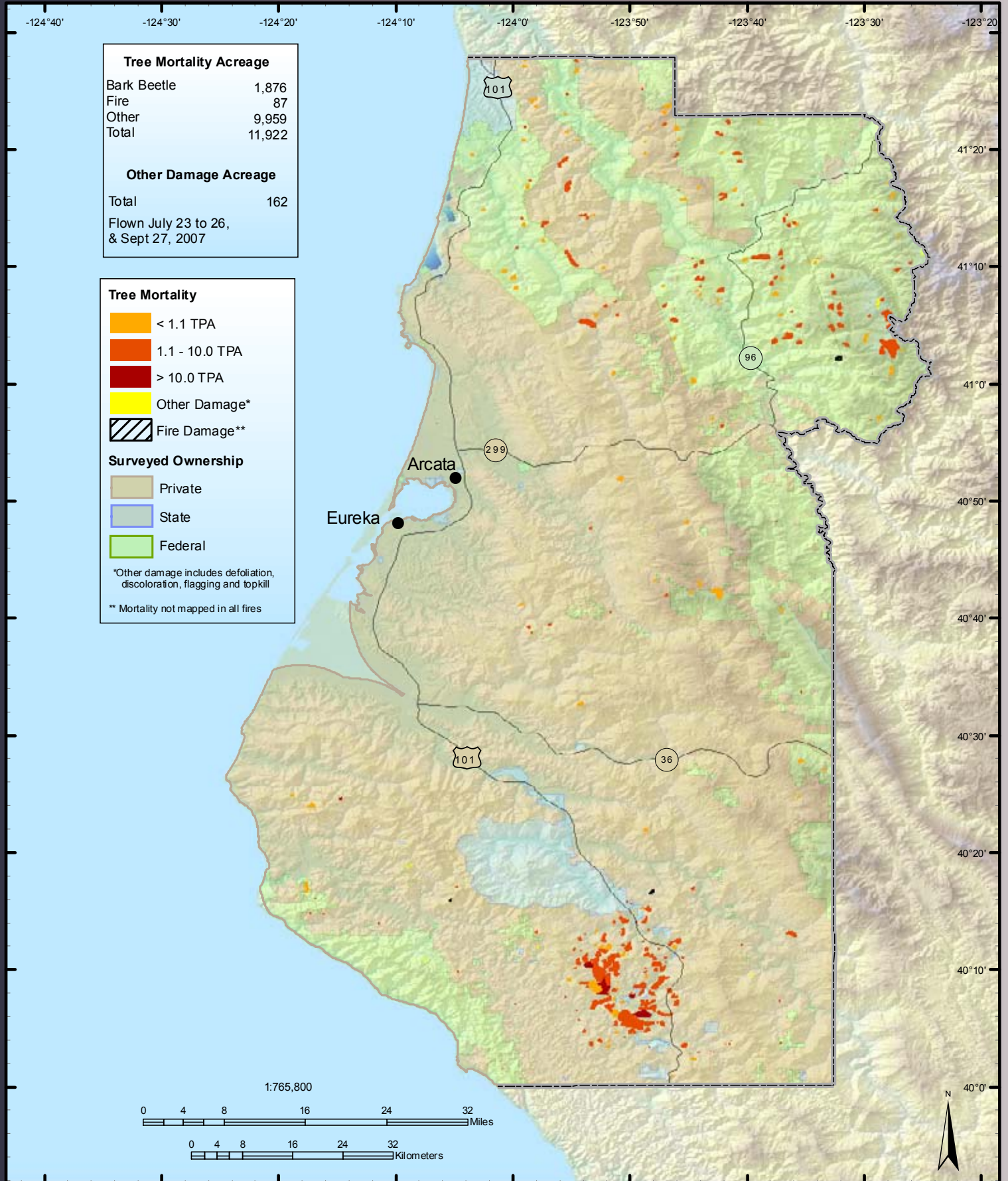
Fresno County



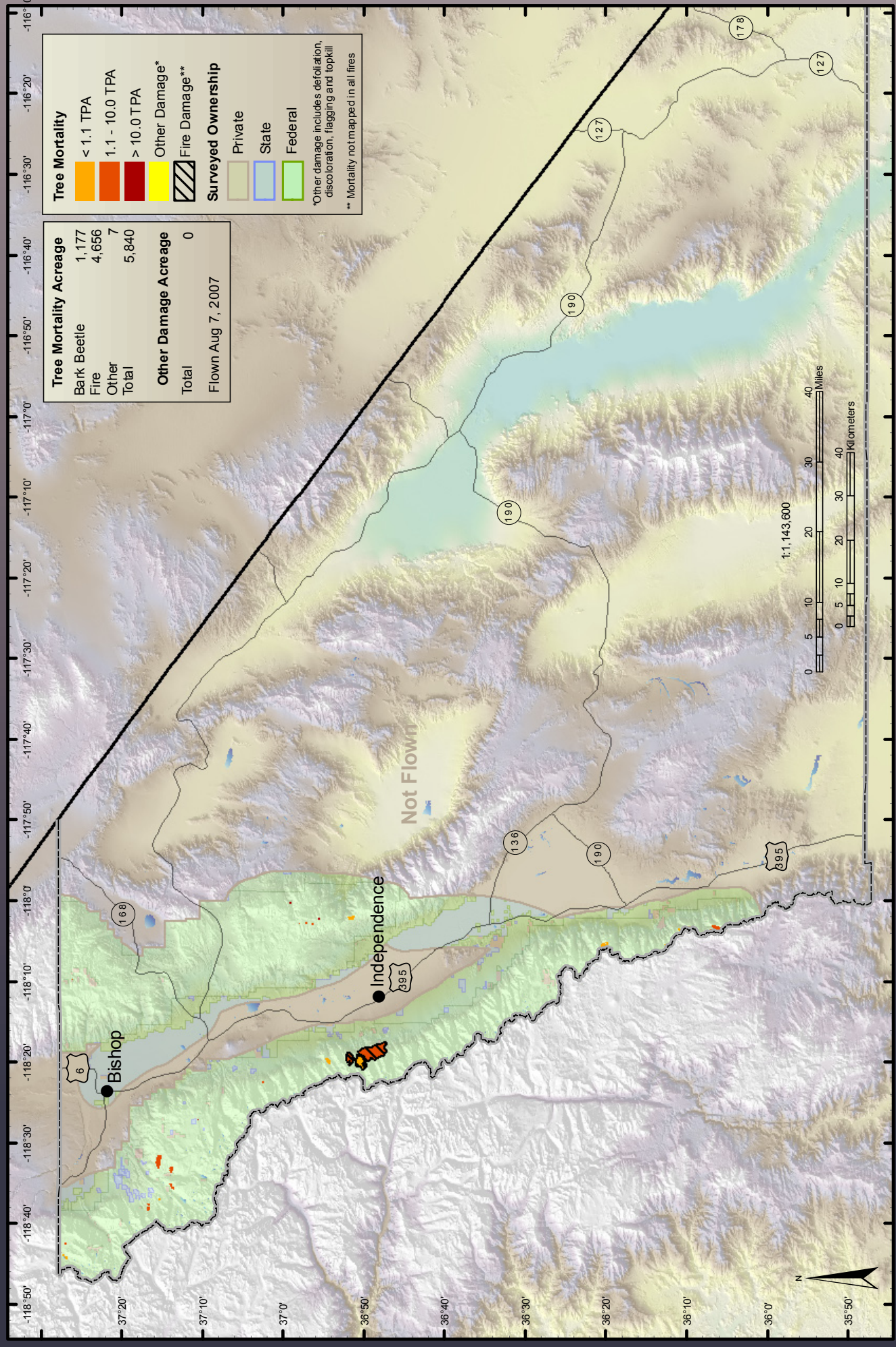
Glenn County



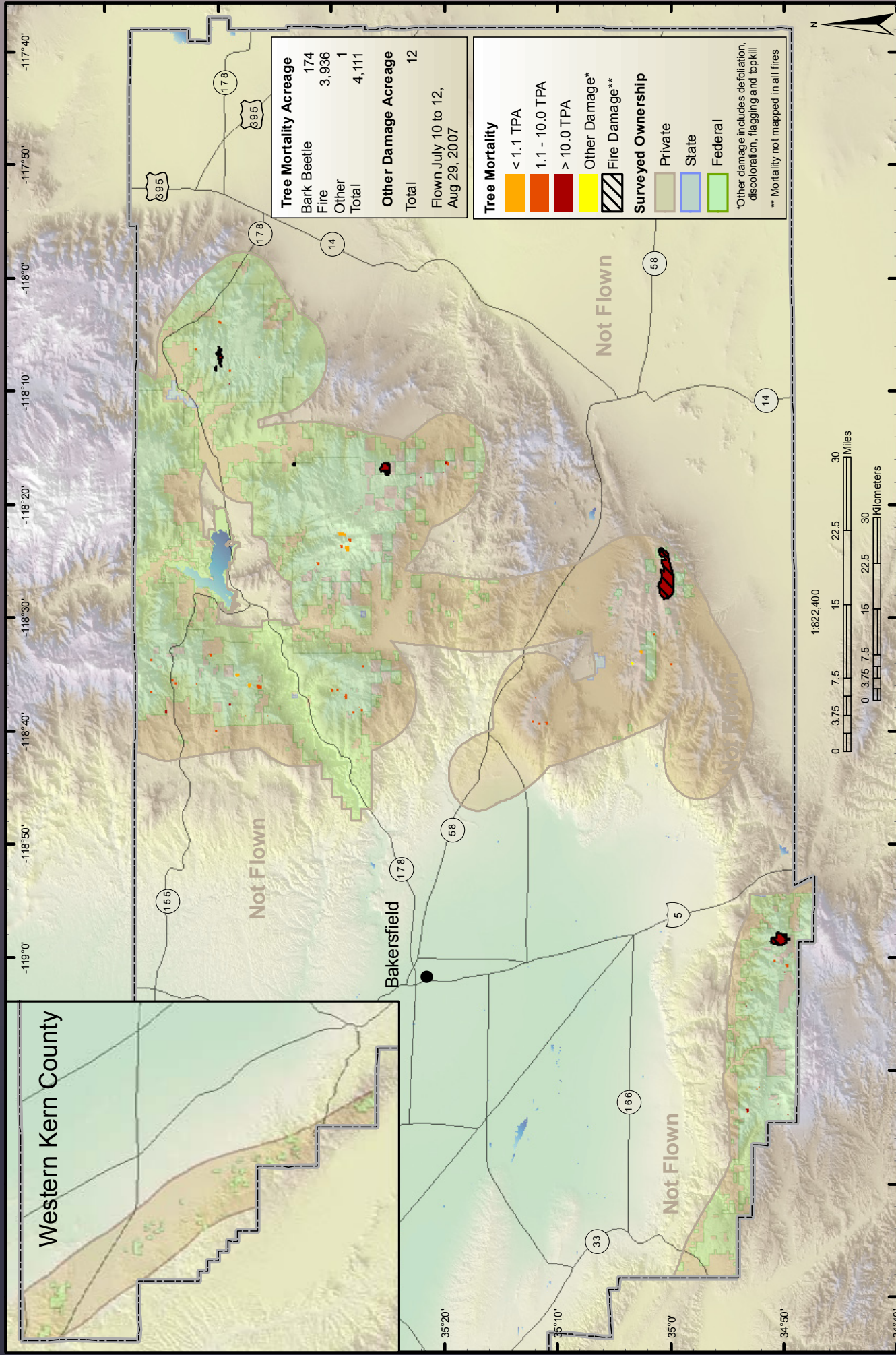
Humboldt County



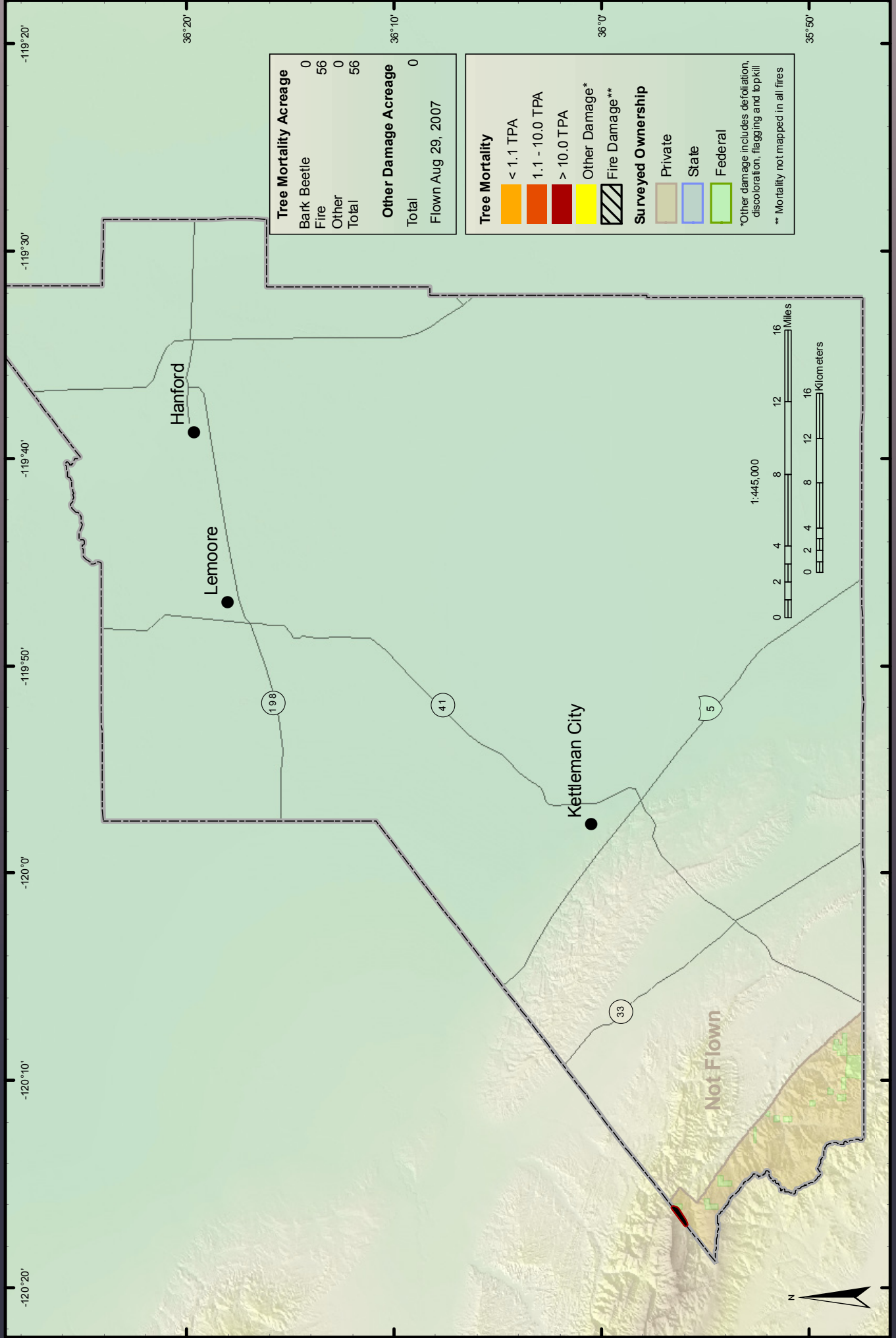
Inyo County



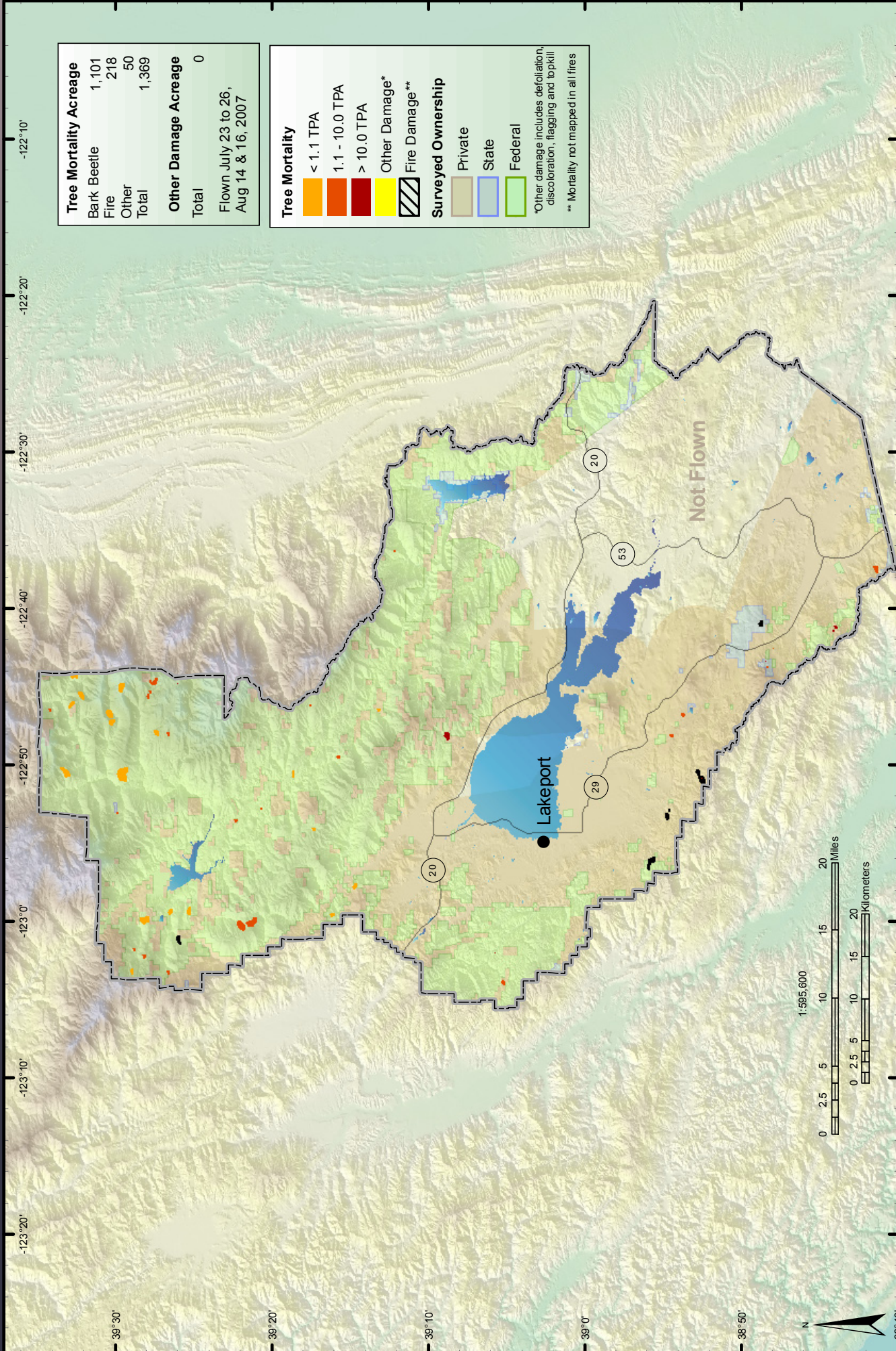
Kern County



Kings County



Lake County



Tree Mortality Acreage	
Bark Beetle	1,101
Fire	218
Other	50
Total	1,369

Other Damage Acreage	
Total	0

Flown July 23 to 26,
Aug 14 & 16, 2007

Tree Mortality

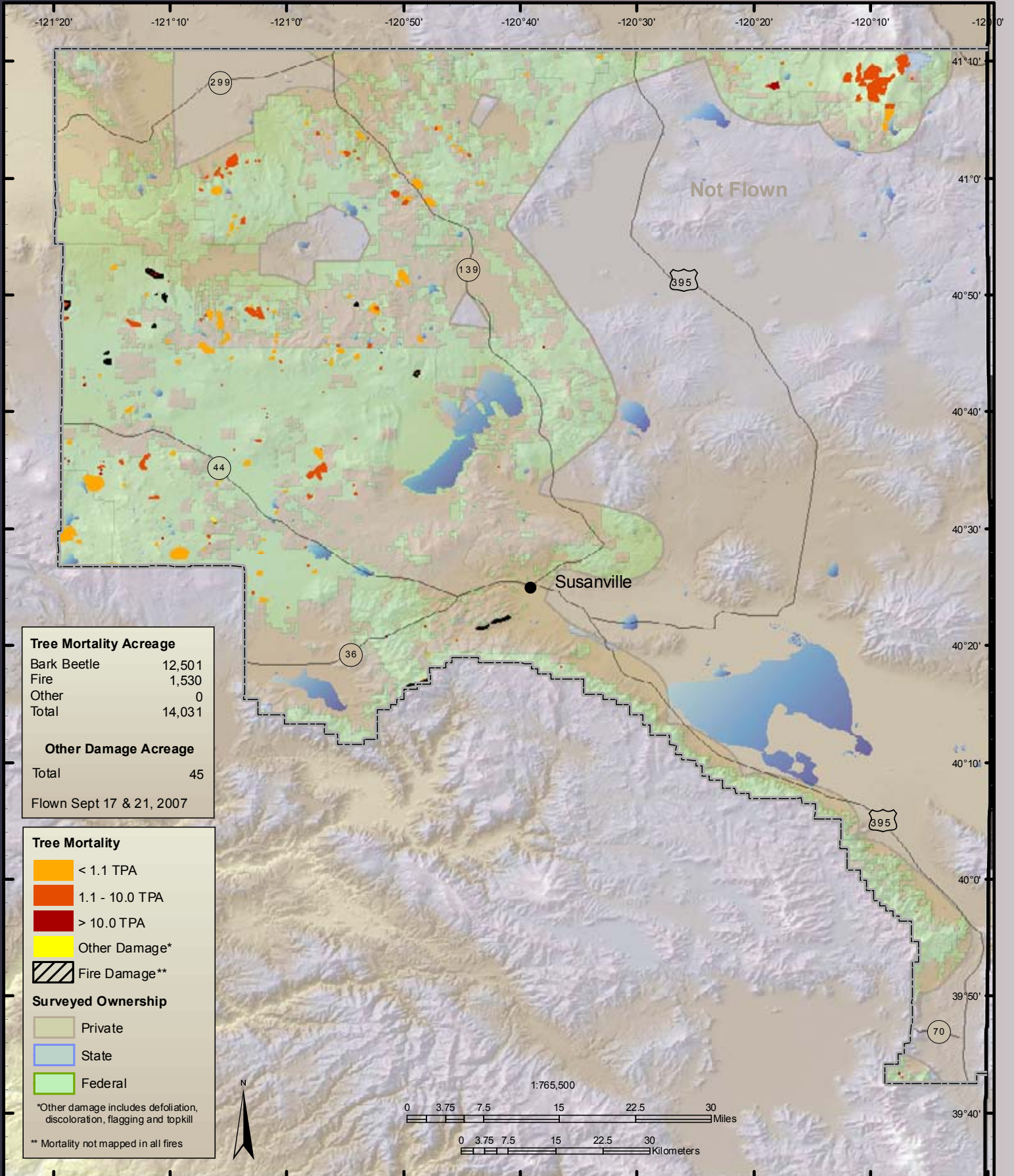
- < 1.1 TPA
- 1.1 - 10.0 TPA
- > 10.0 TPA
- Other Damage*
- Fire Damage**

Surveyed Ownership

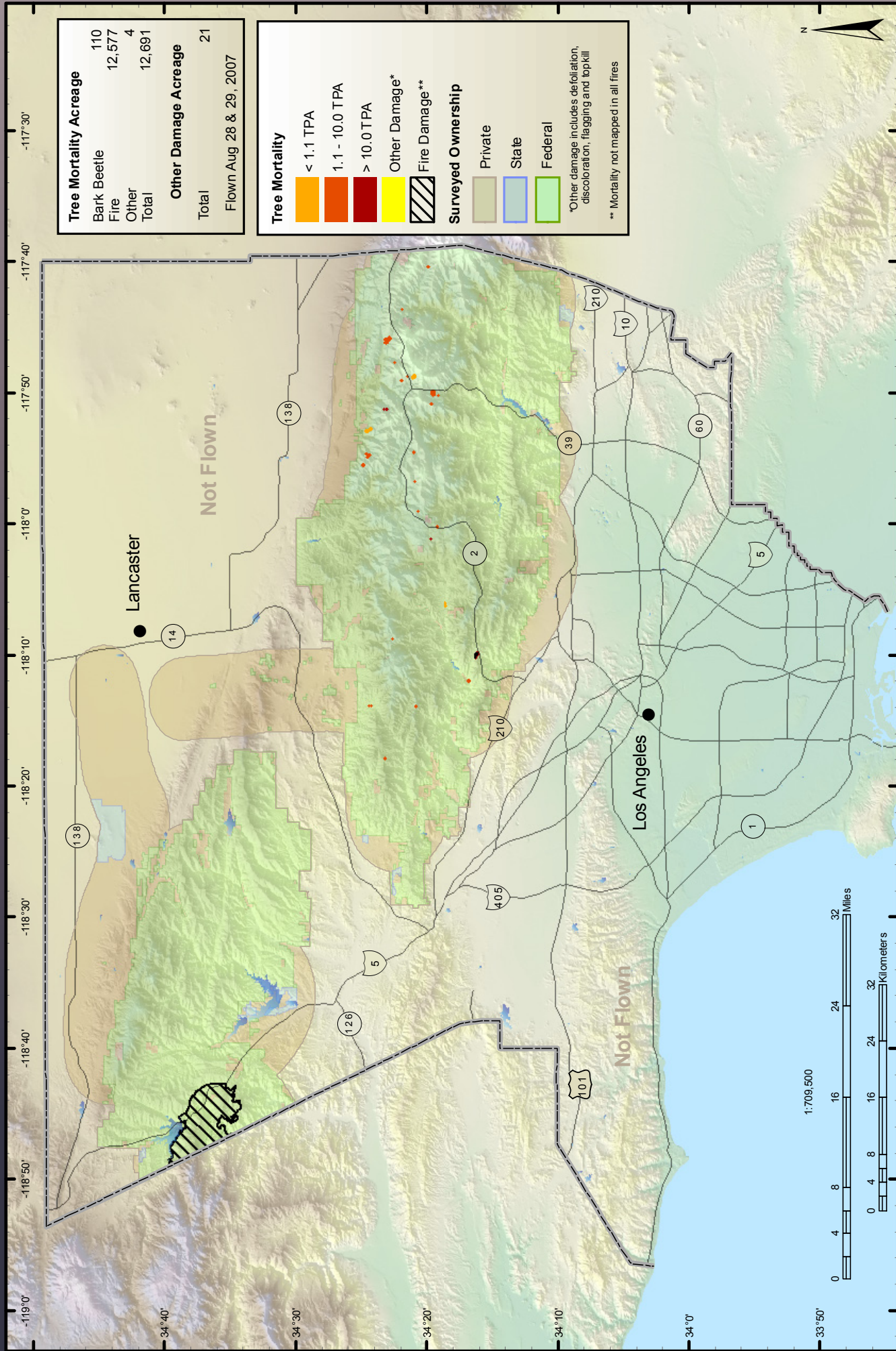
- Private
- State
- Federal

*Other damage includes defoliation, discoloration, flagging and topkill
** Mortality not mapped in all fires

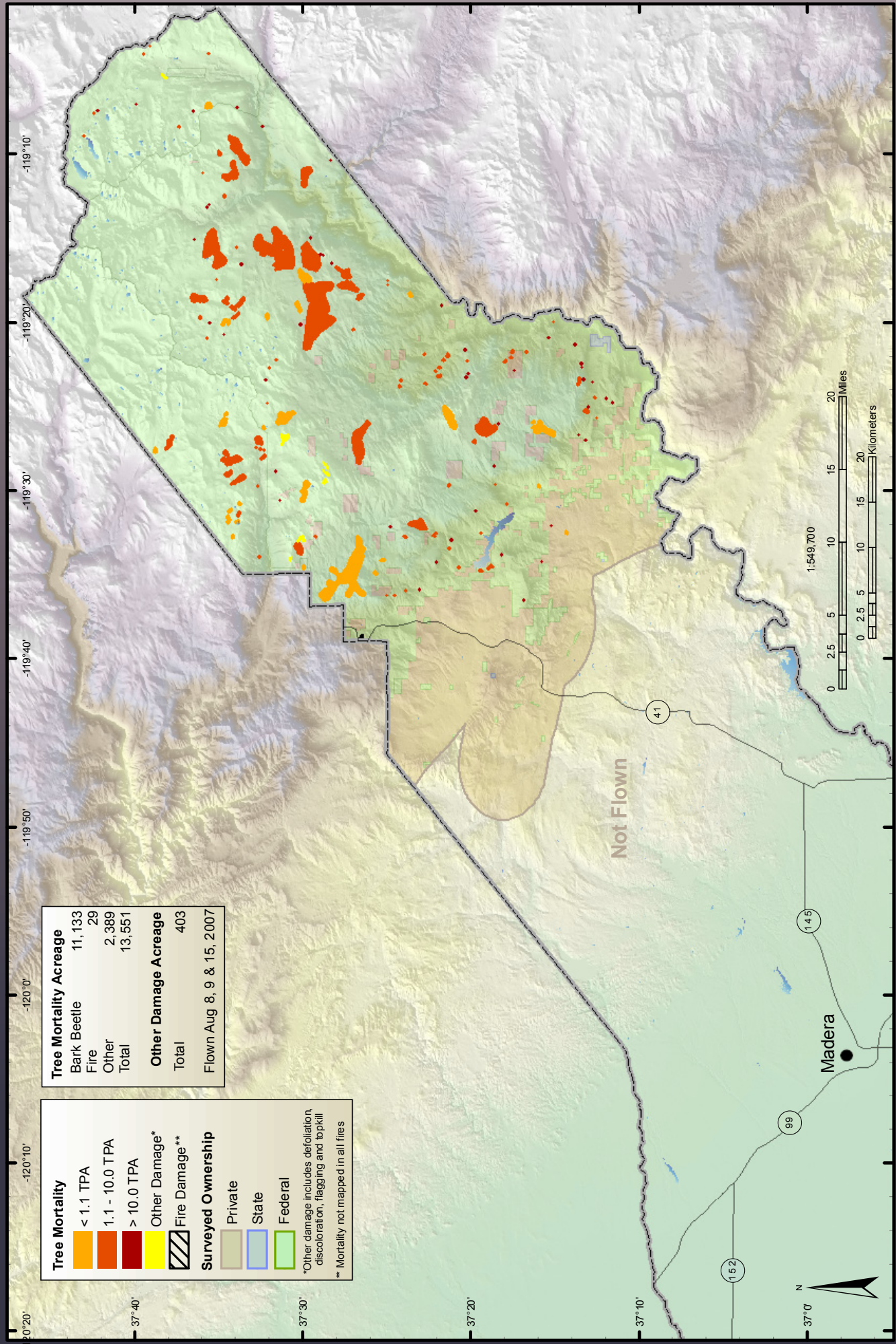
Lassen County



Los Angeles County



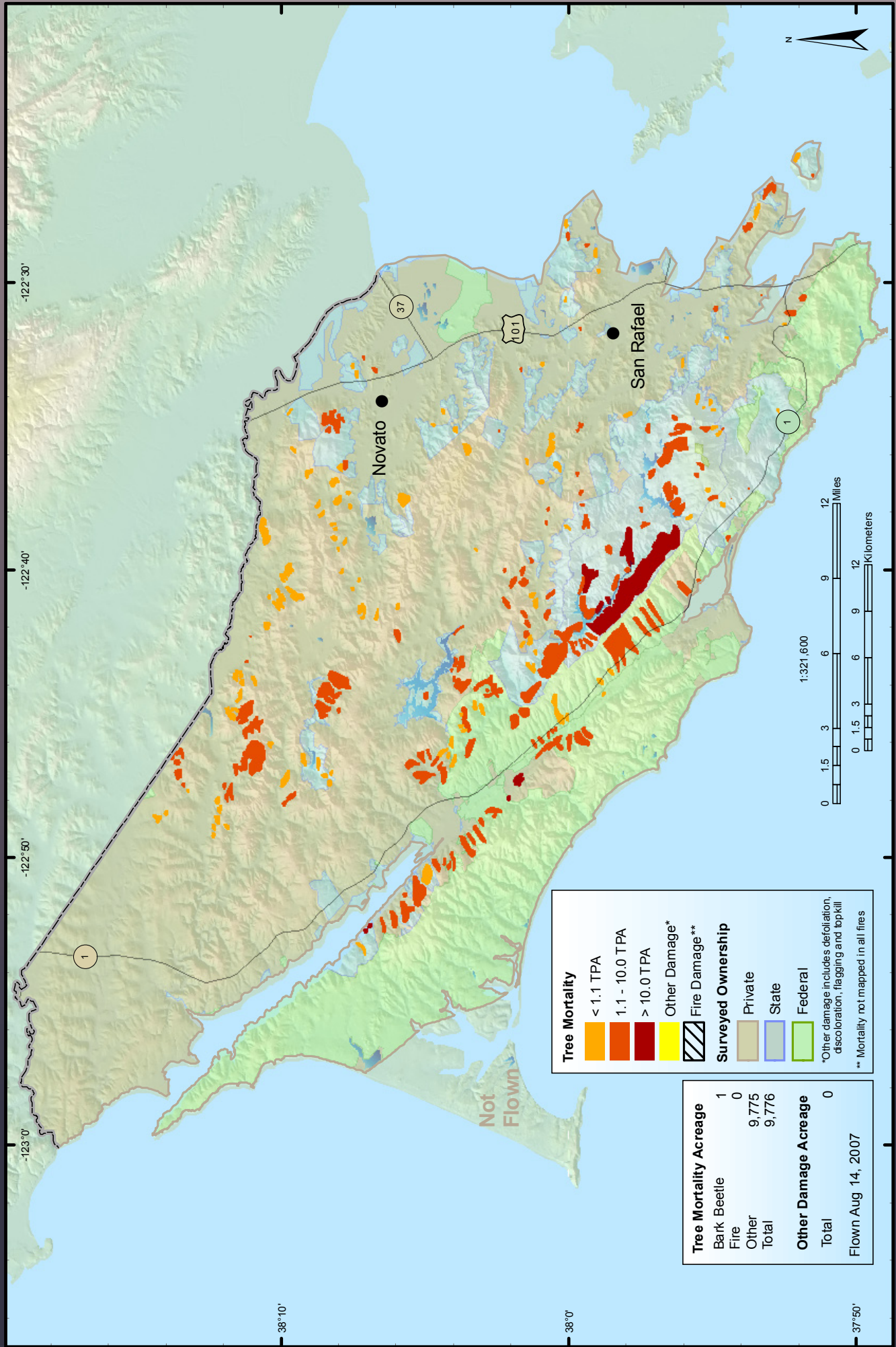
Madera County



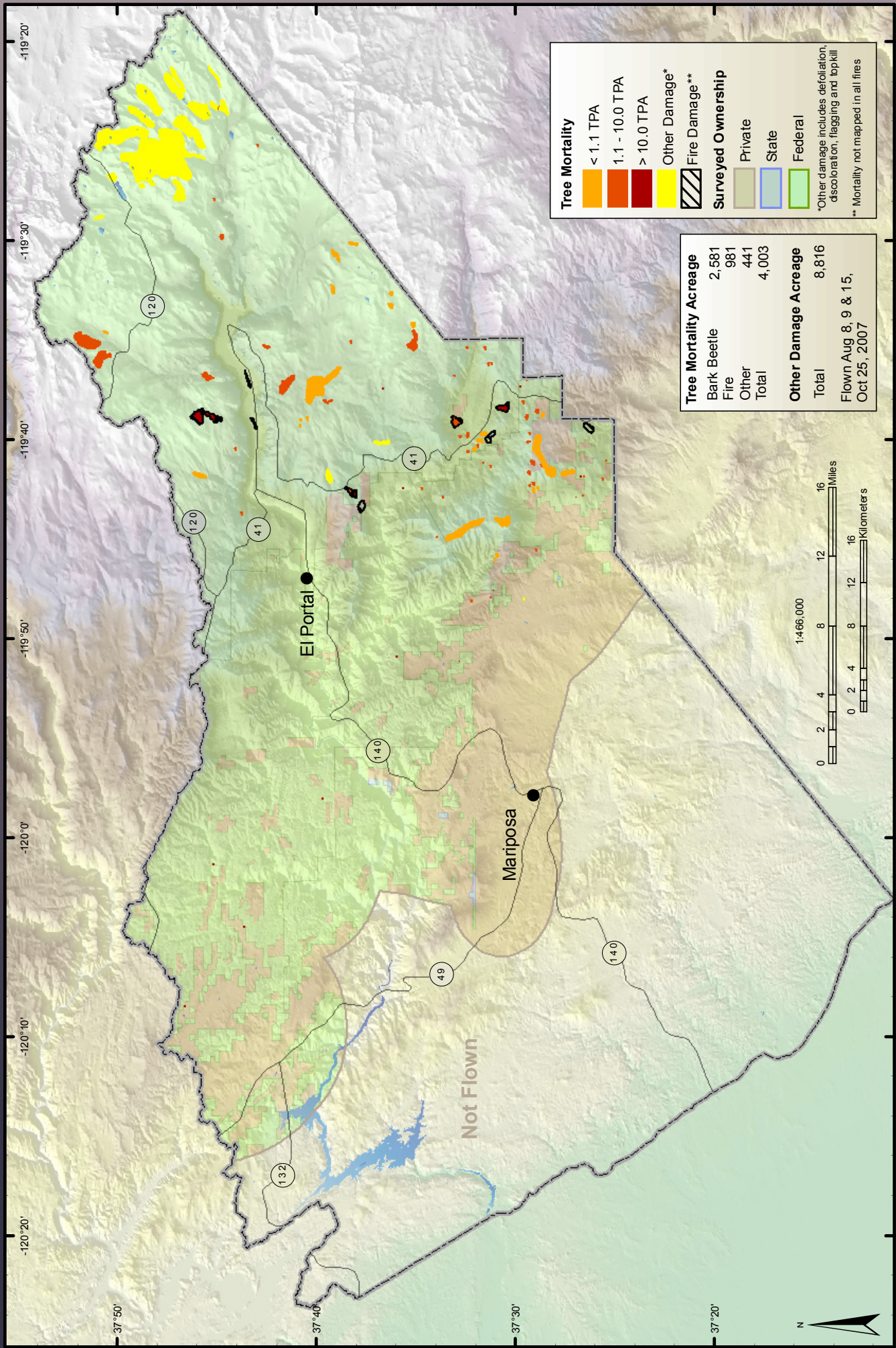
USDA Forest Service
Pacific Southwest Region
Forest Health Protection

Forest Health Monitoring Programs
1731 Research Park Drive ~ Davis, CA ~ 95618
www.fs.fed.us/r5/spf/fnp/fhm

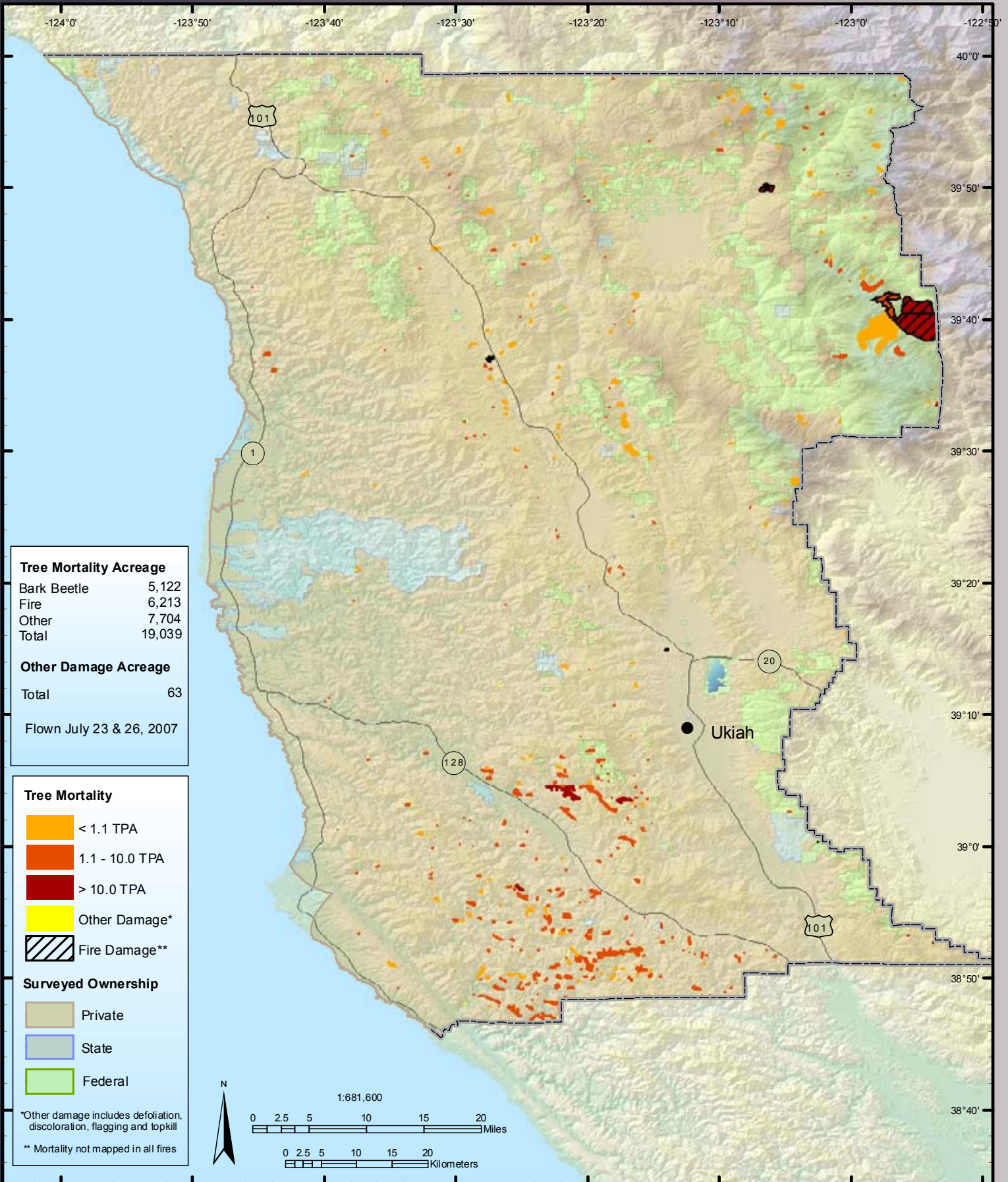
Marin County



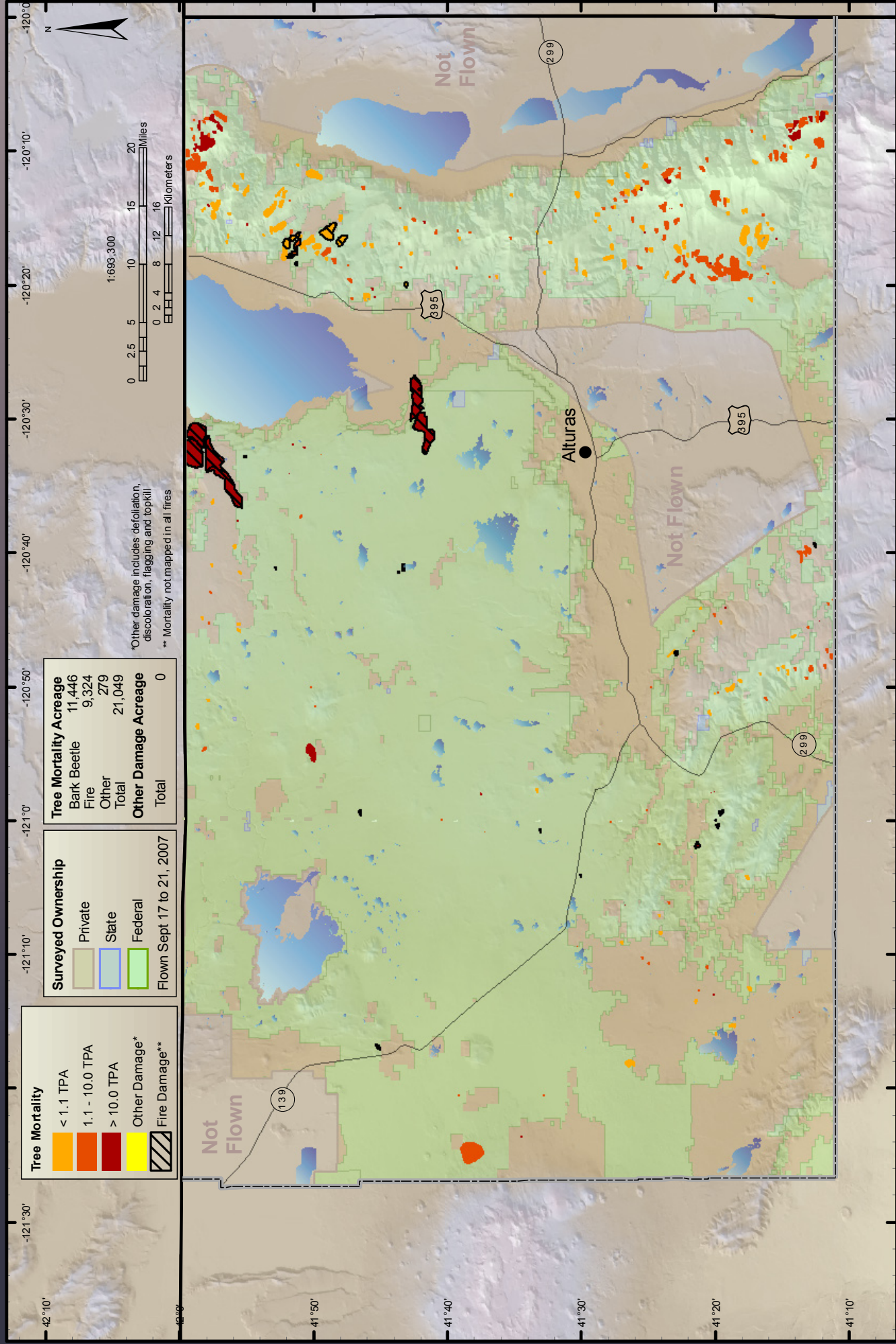
Mariposa County



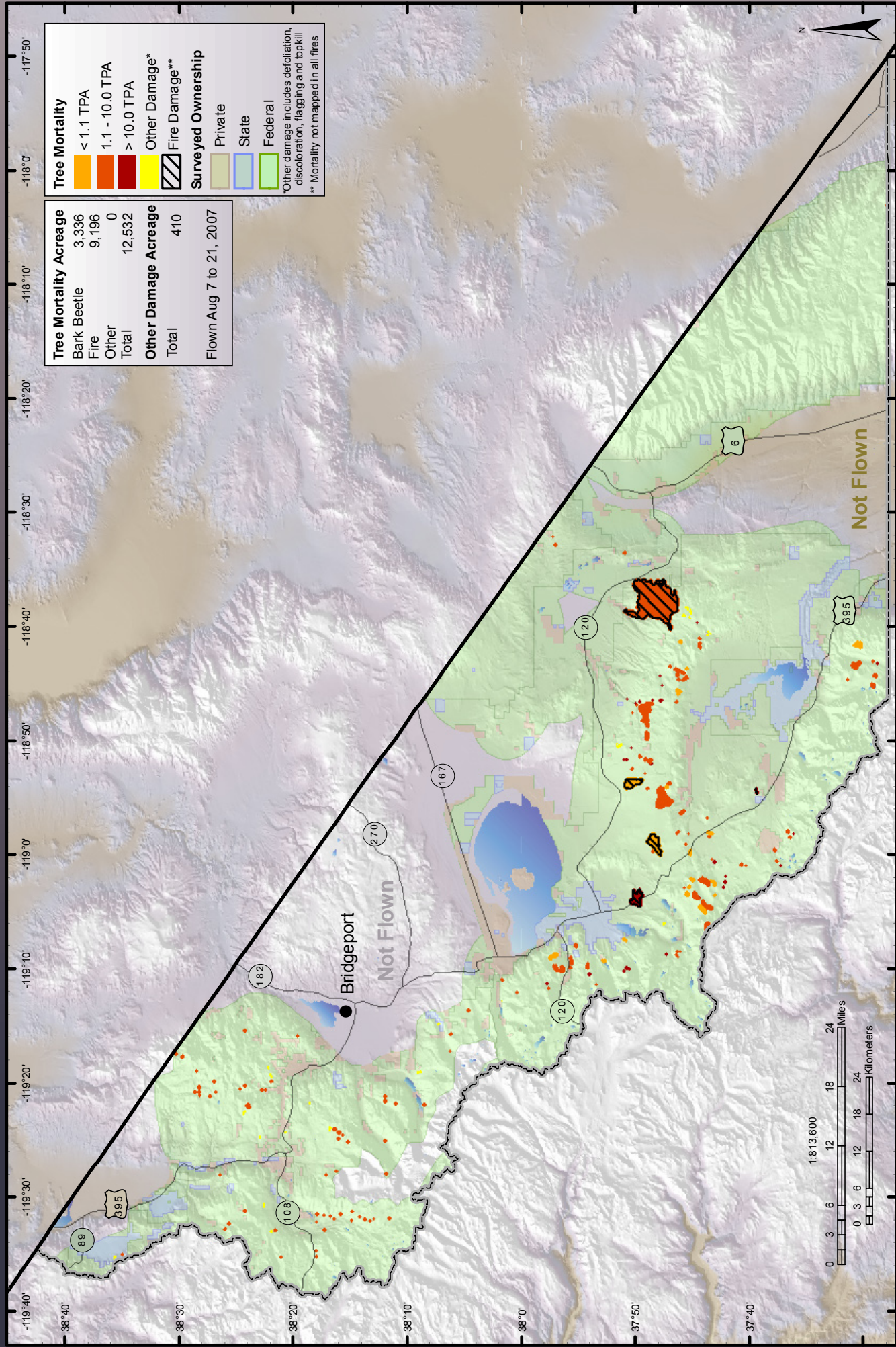
Mendocino County



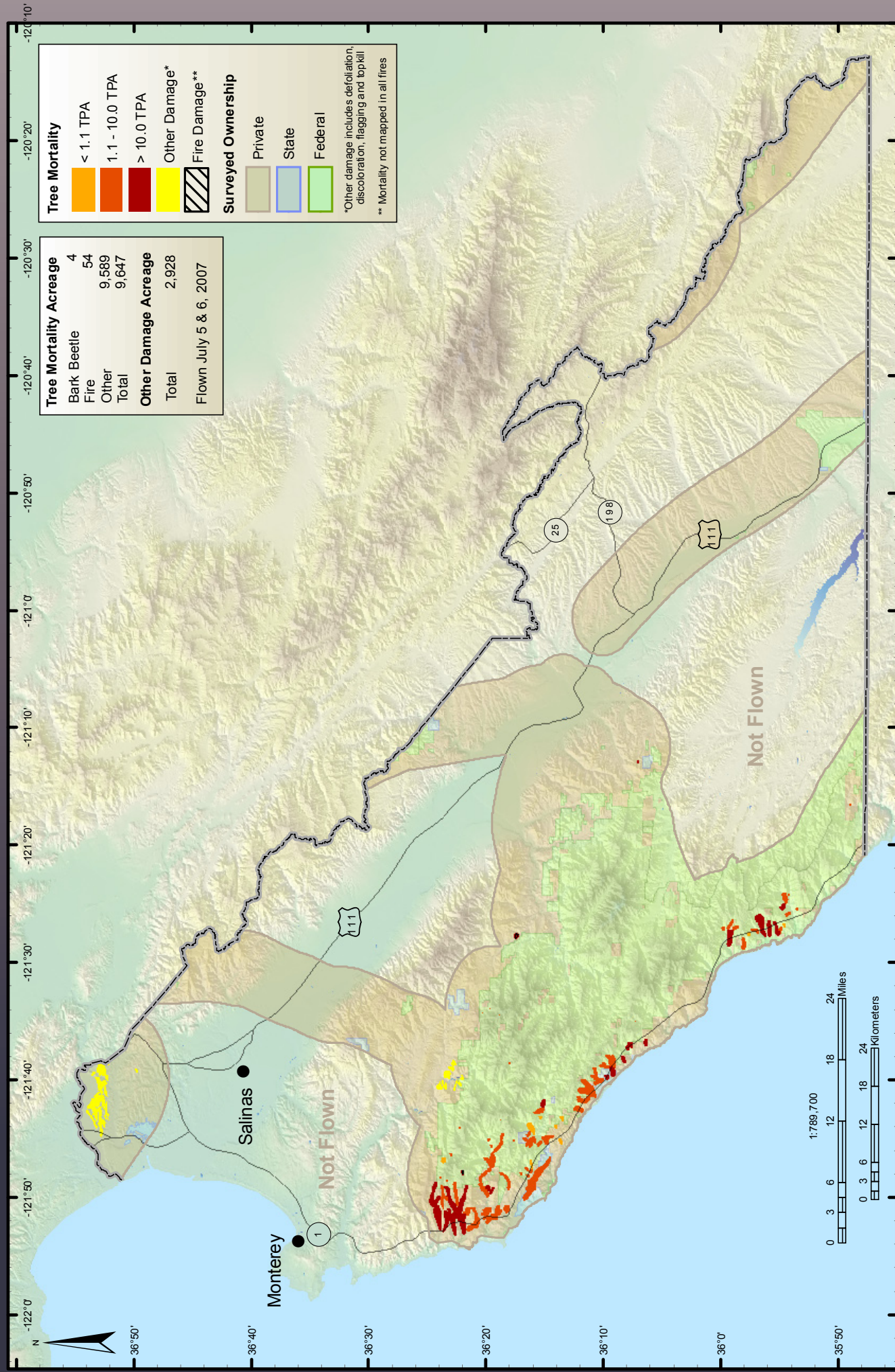
Modoc County



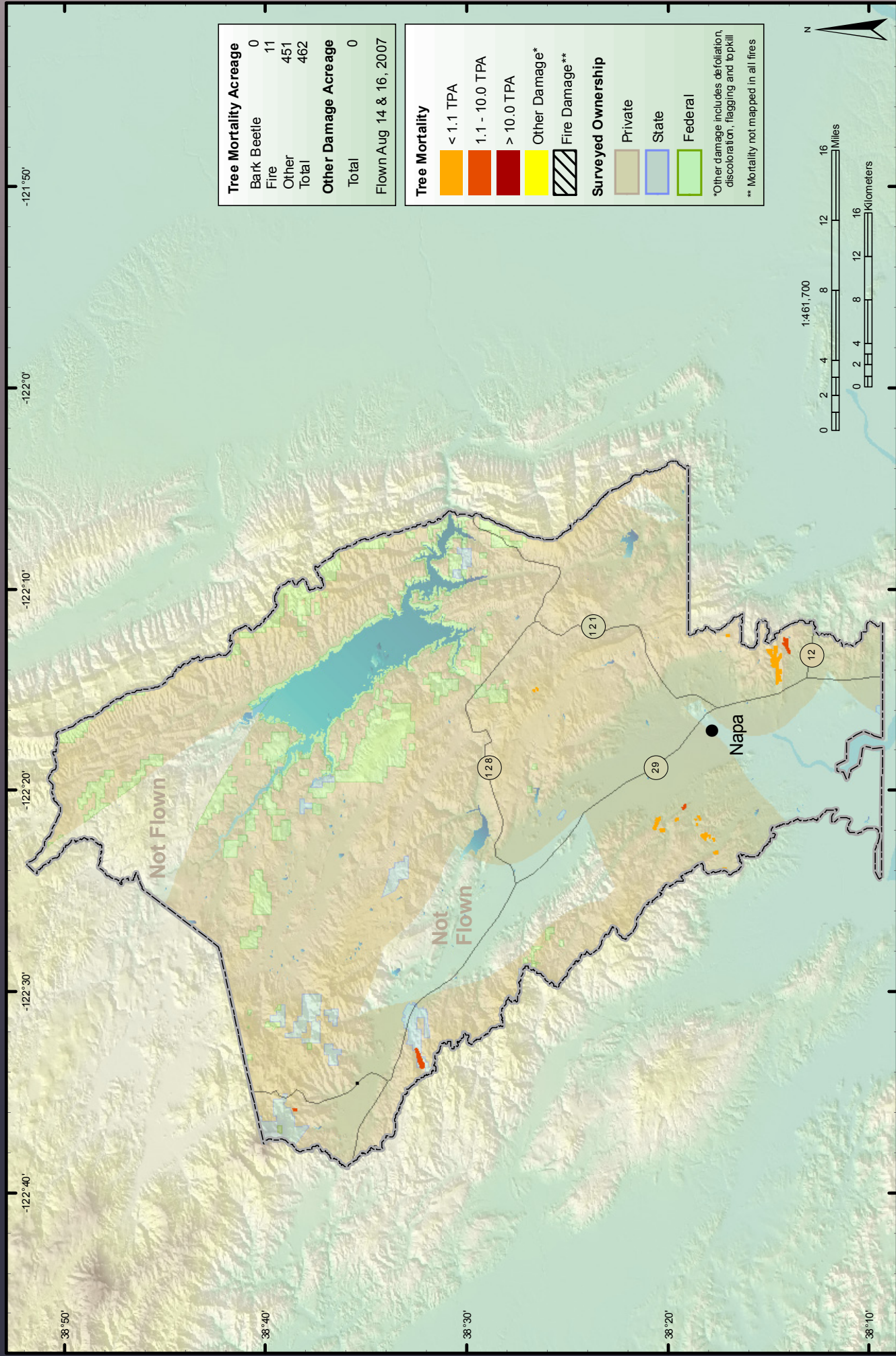
Mono County



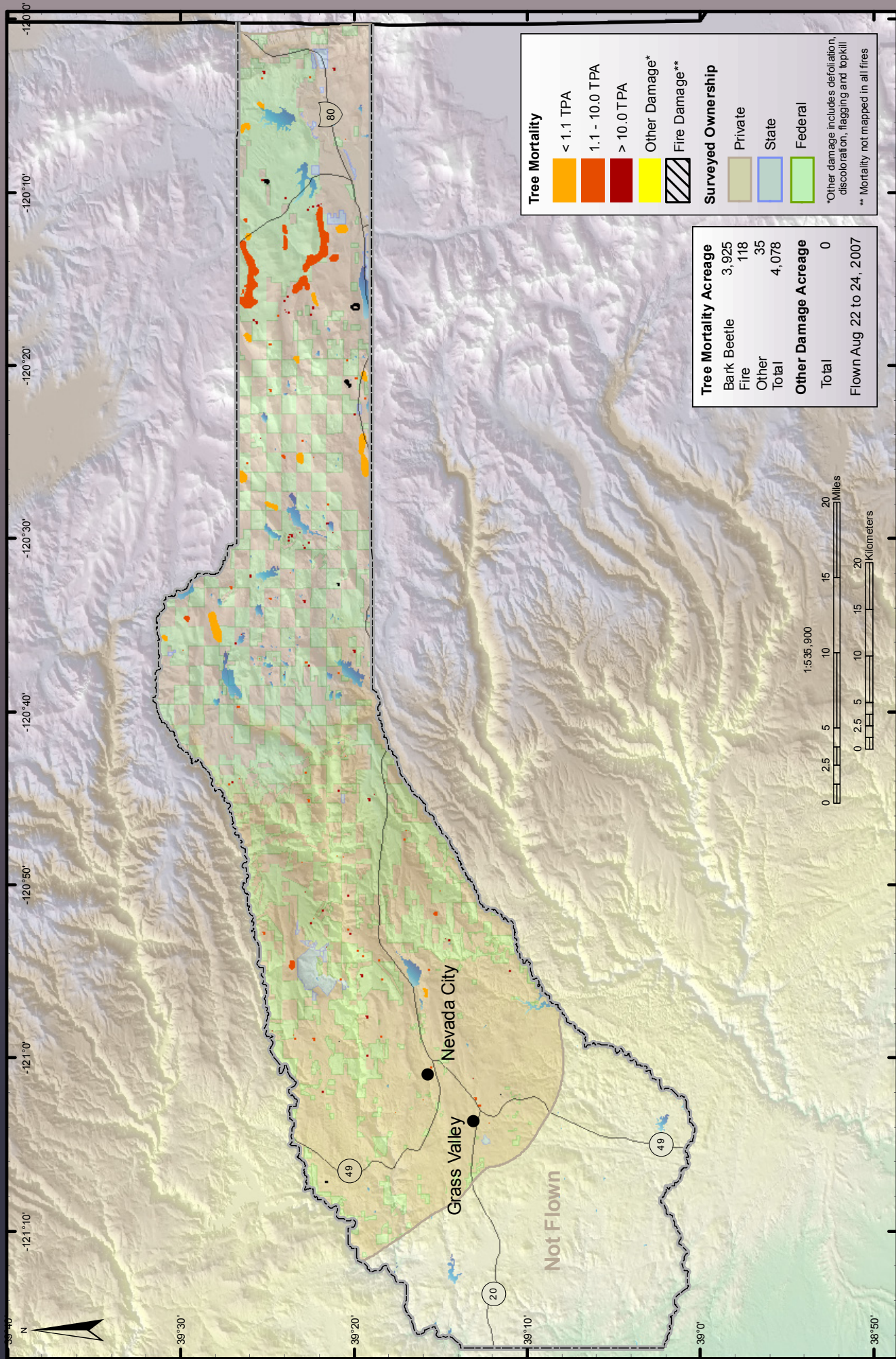
Monterey County



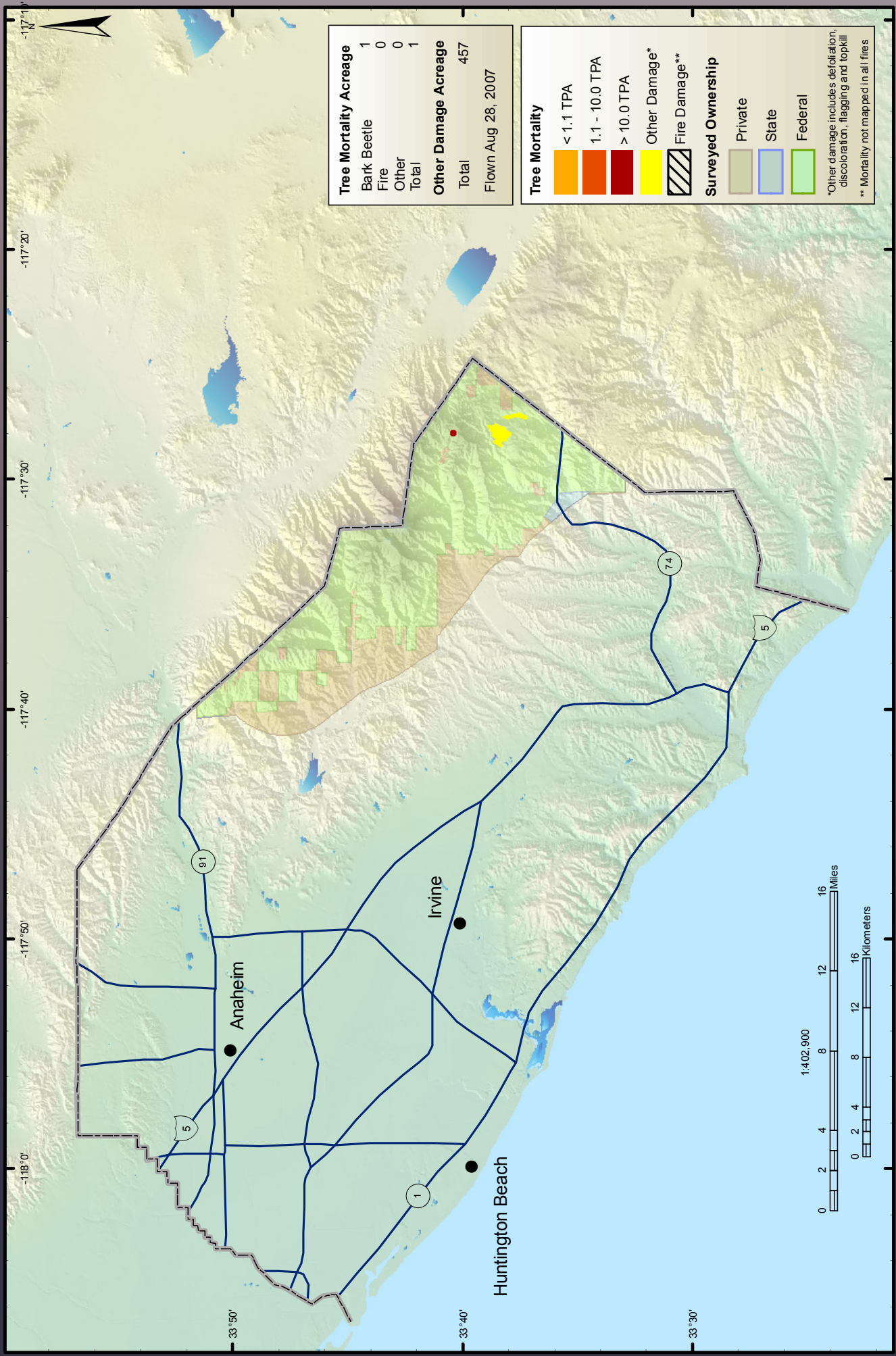
Napa County



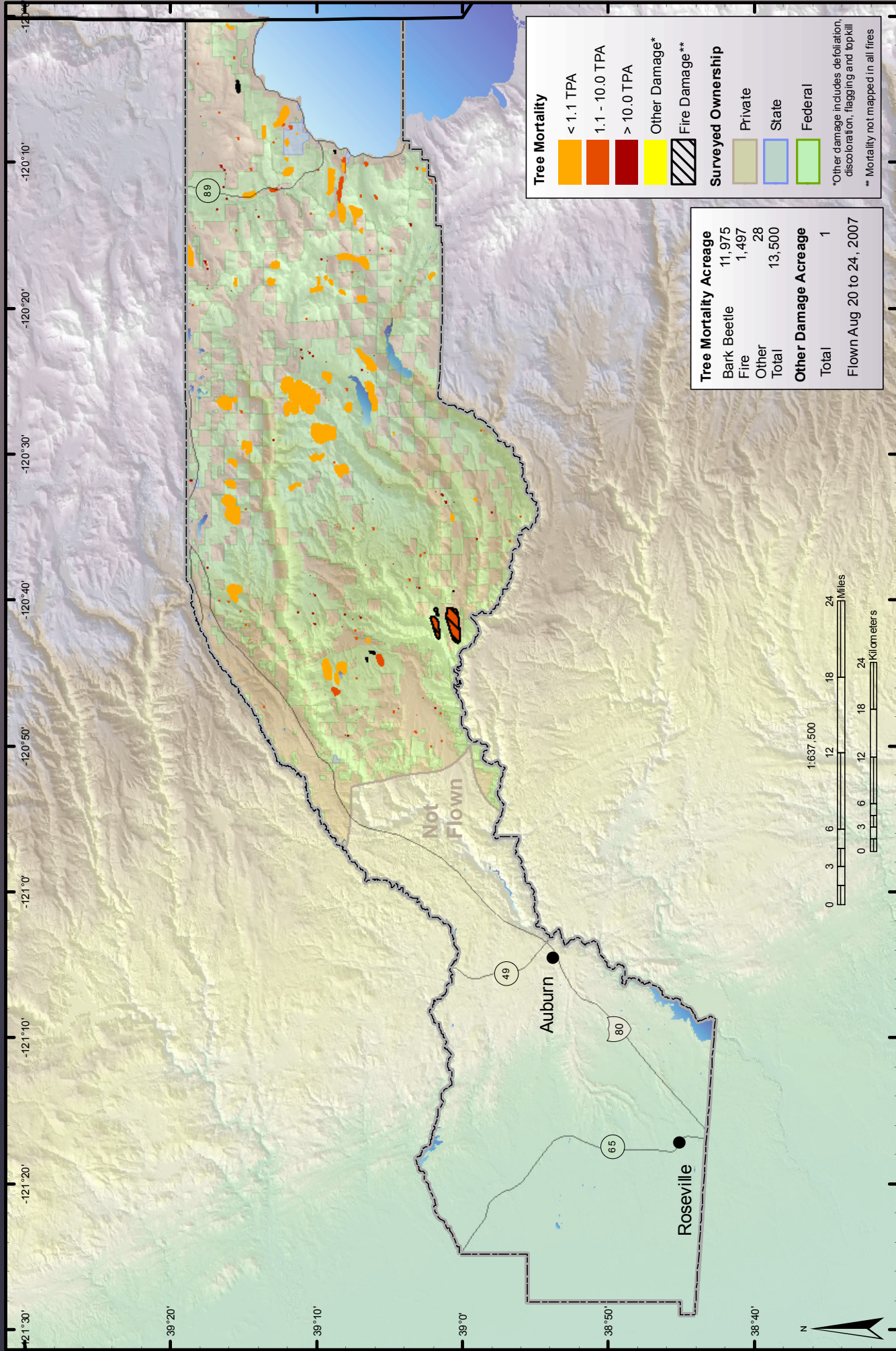
Nevada County



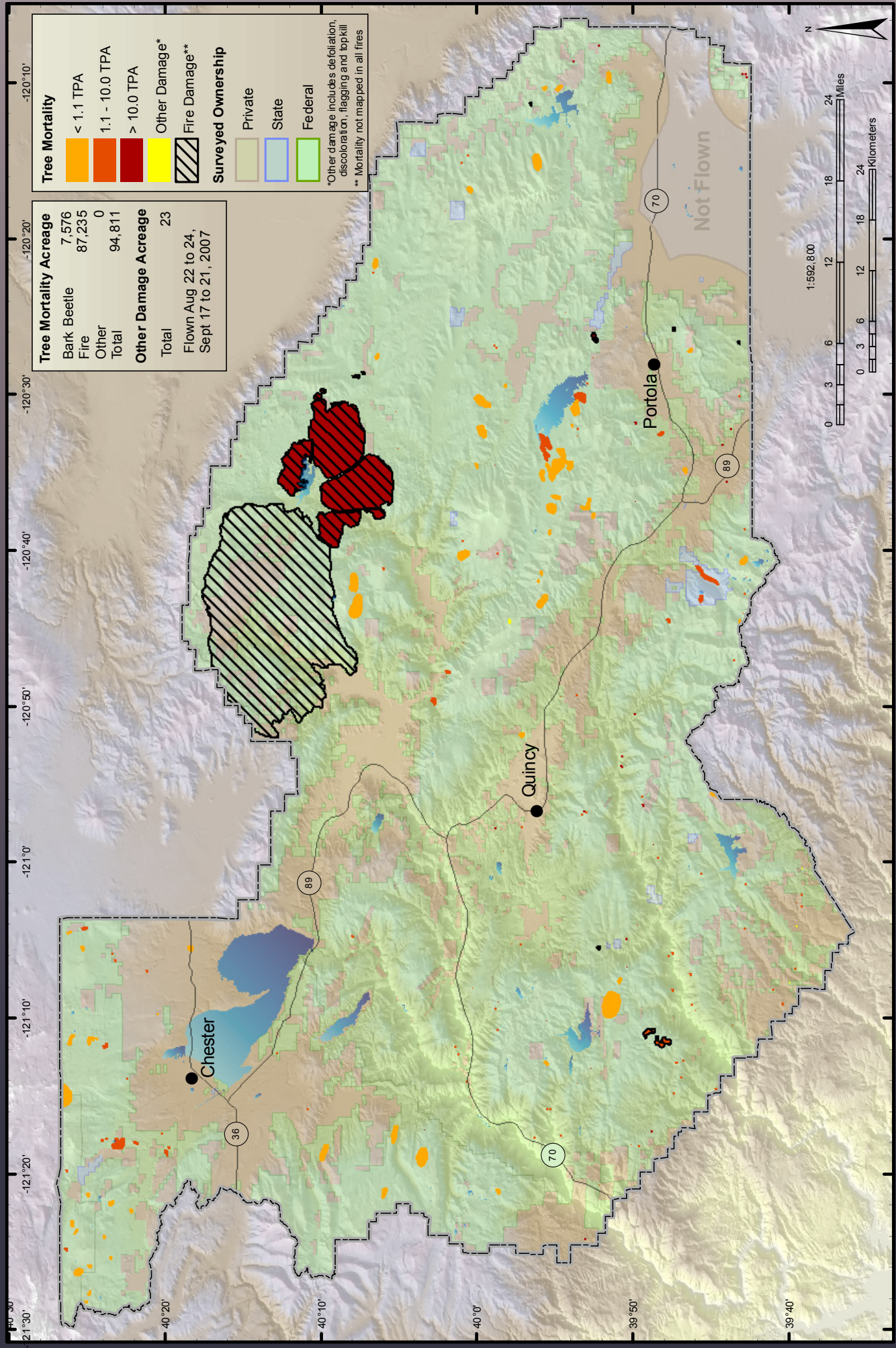
Orange County



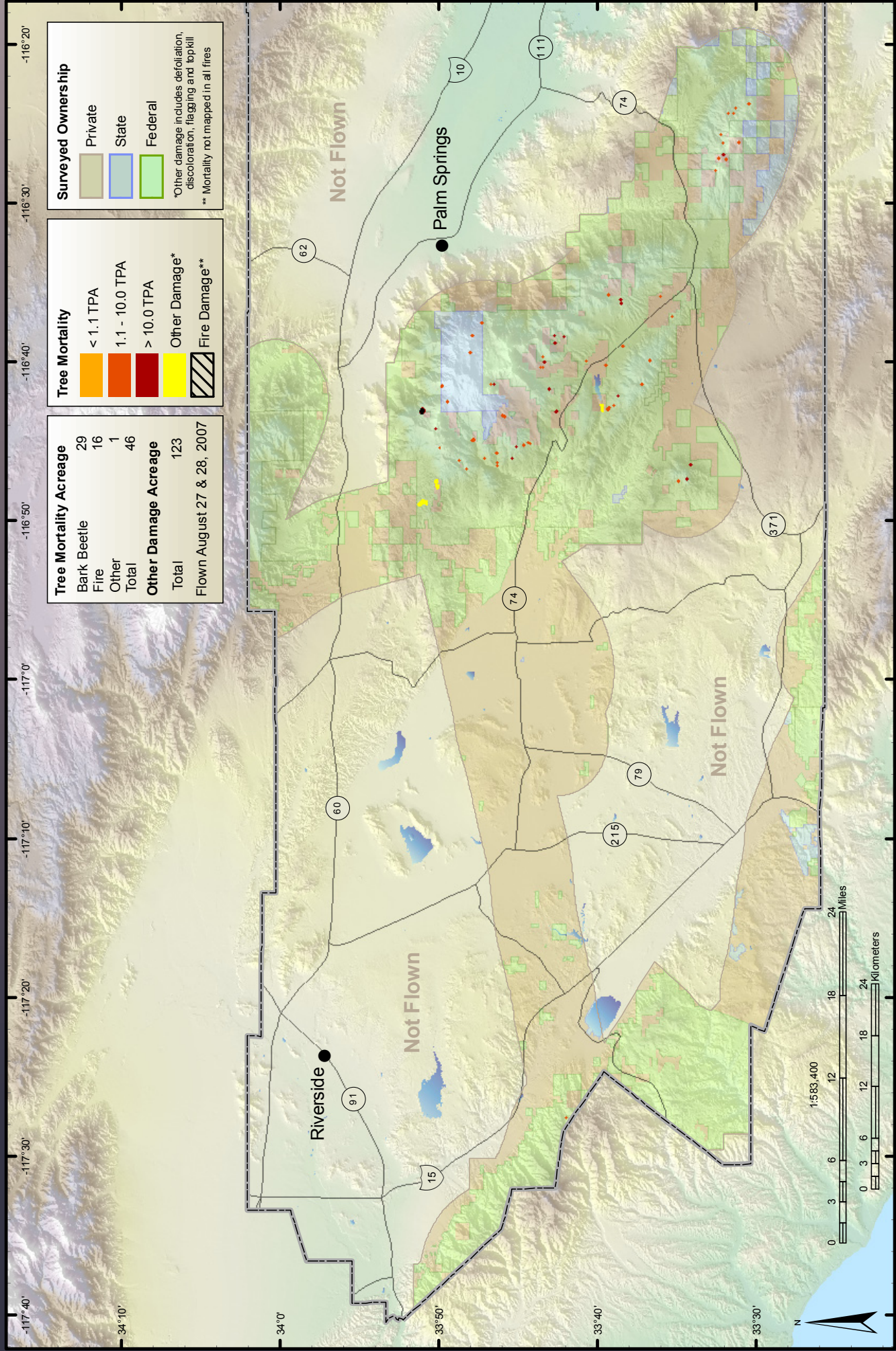
Placer County



Plumas County



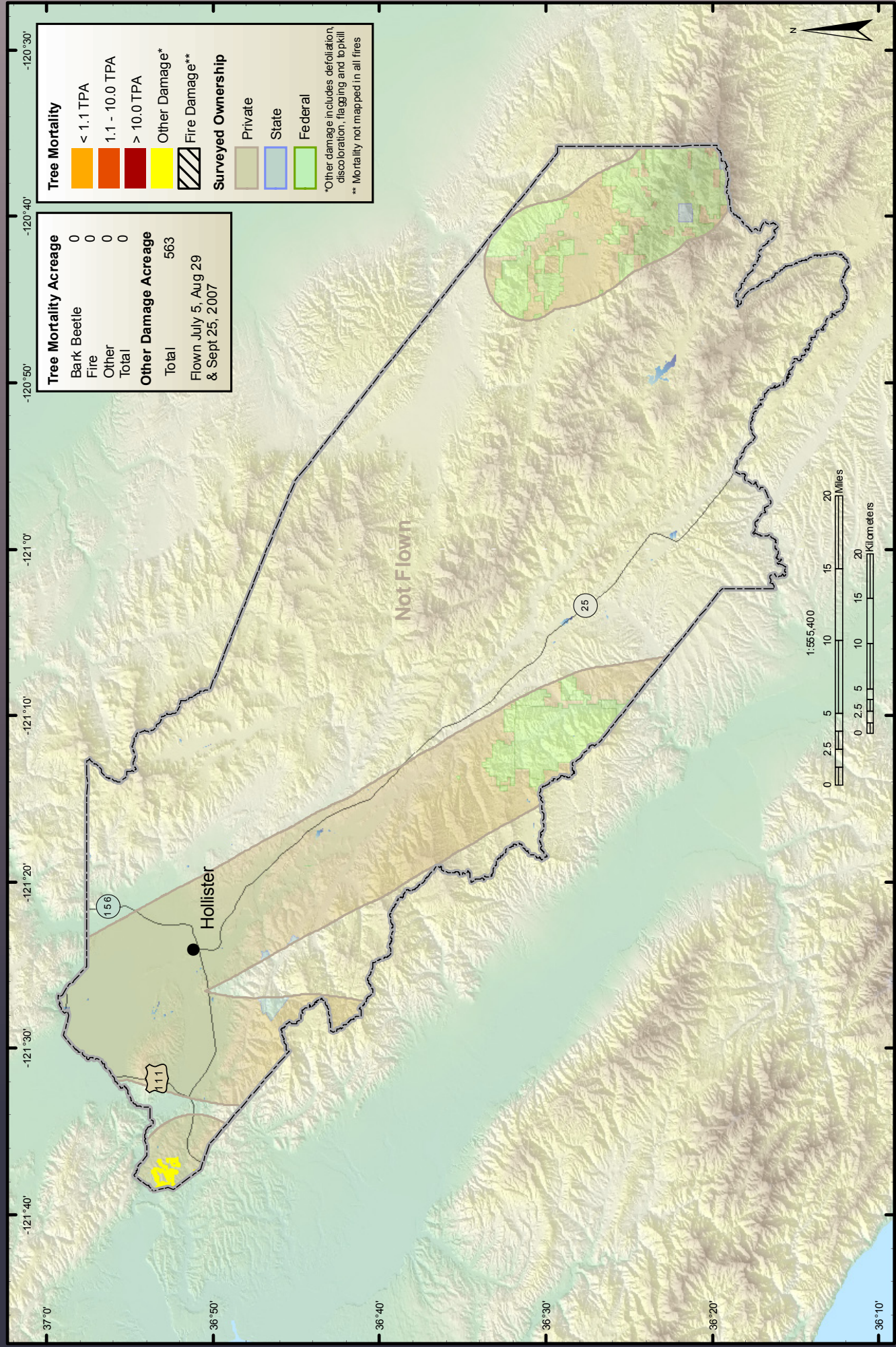
Riverside County



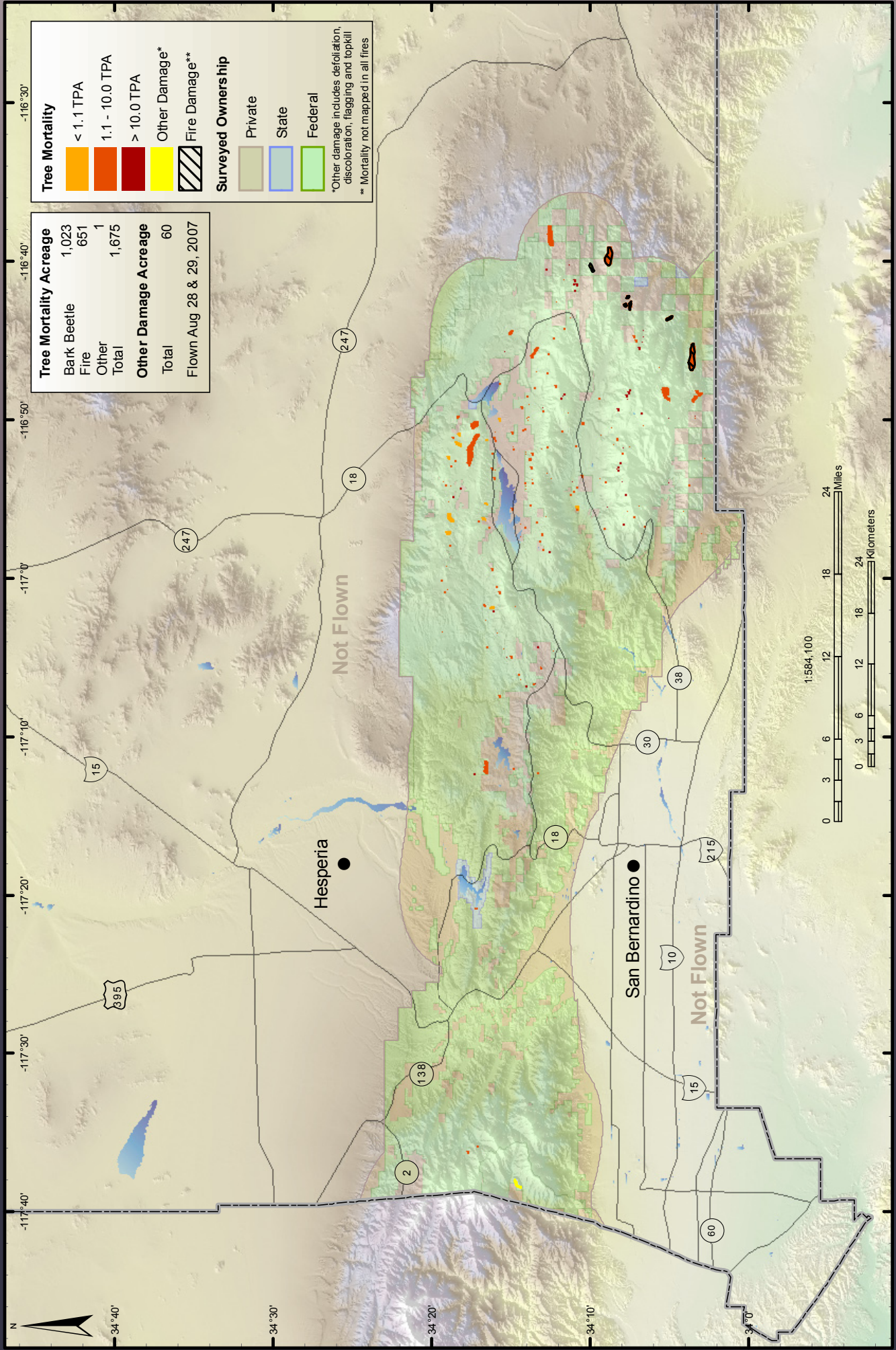
USDA Forest Service
 Pacific Southwest Region
 Forest Health Protection

Forest Health Monitoring Programs
 1731 Research Park Drive ~ Davis, CA ~ 95618
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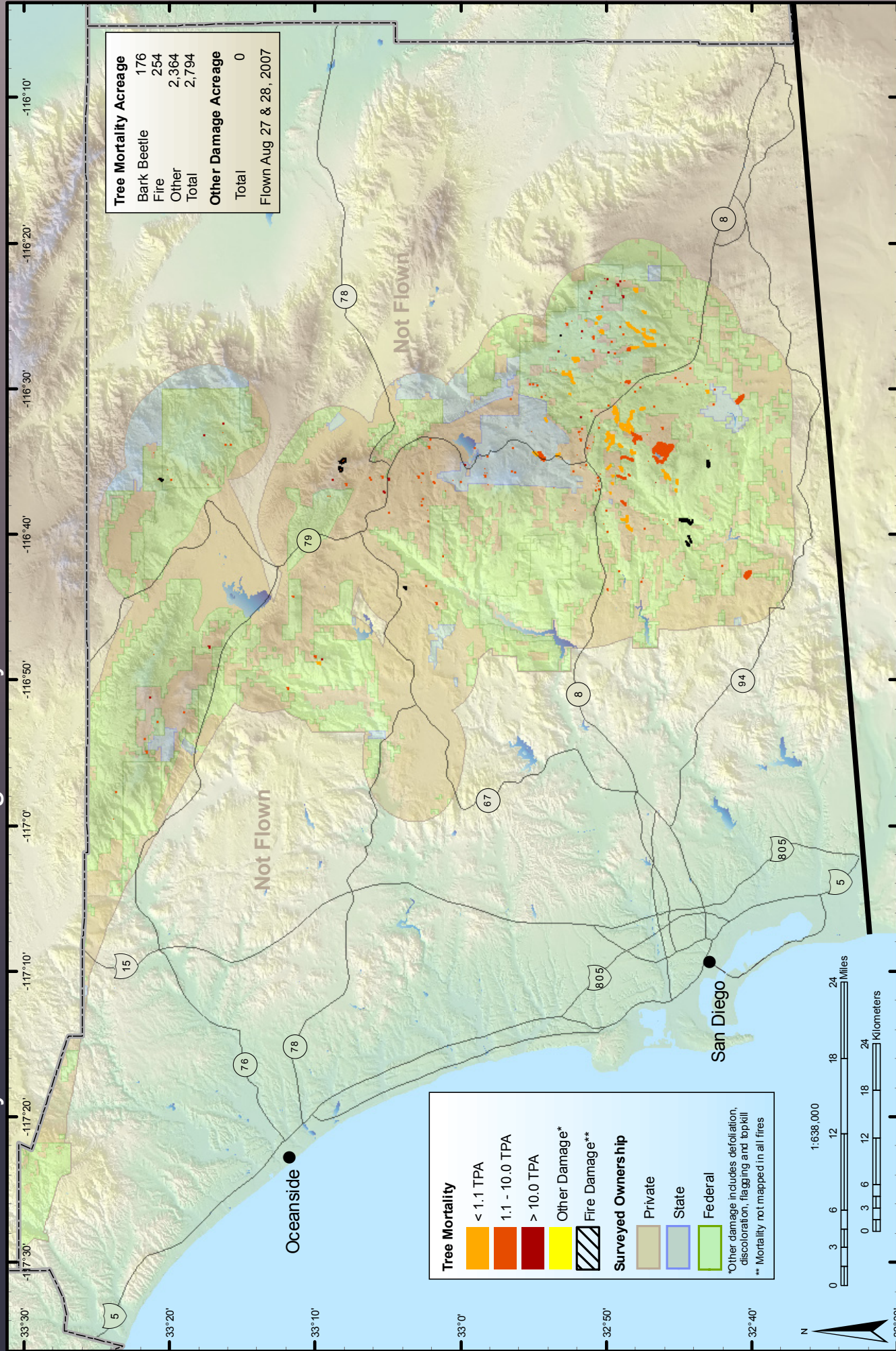
San Benito County



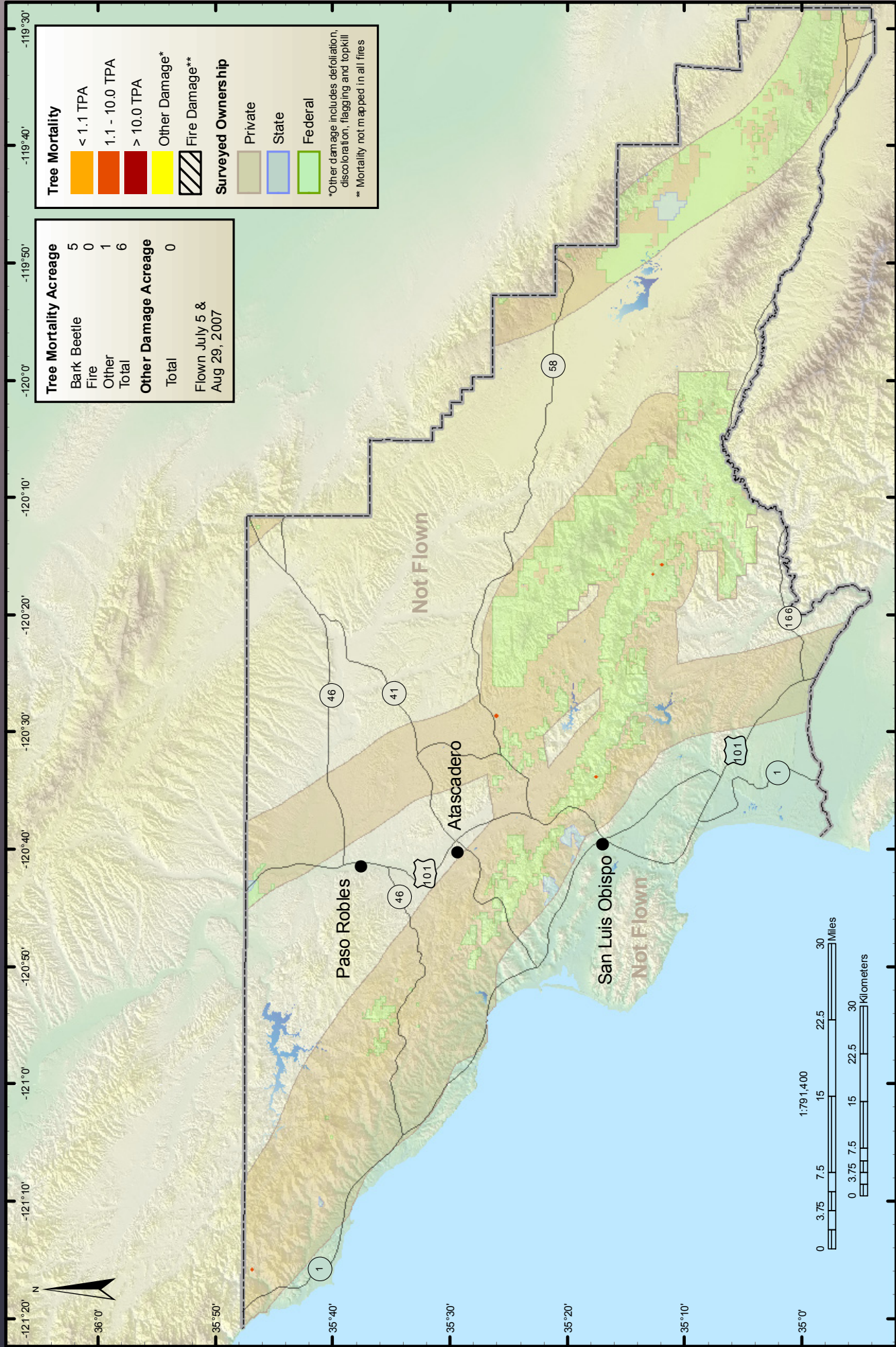
San Bernardino County



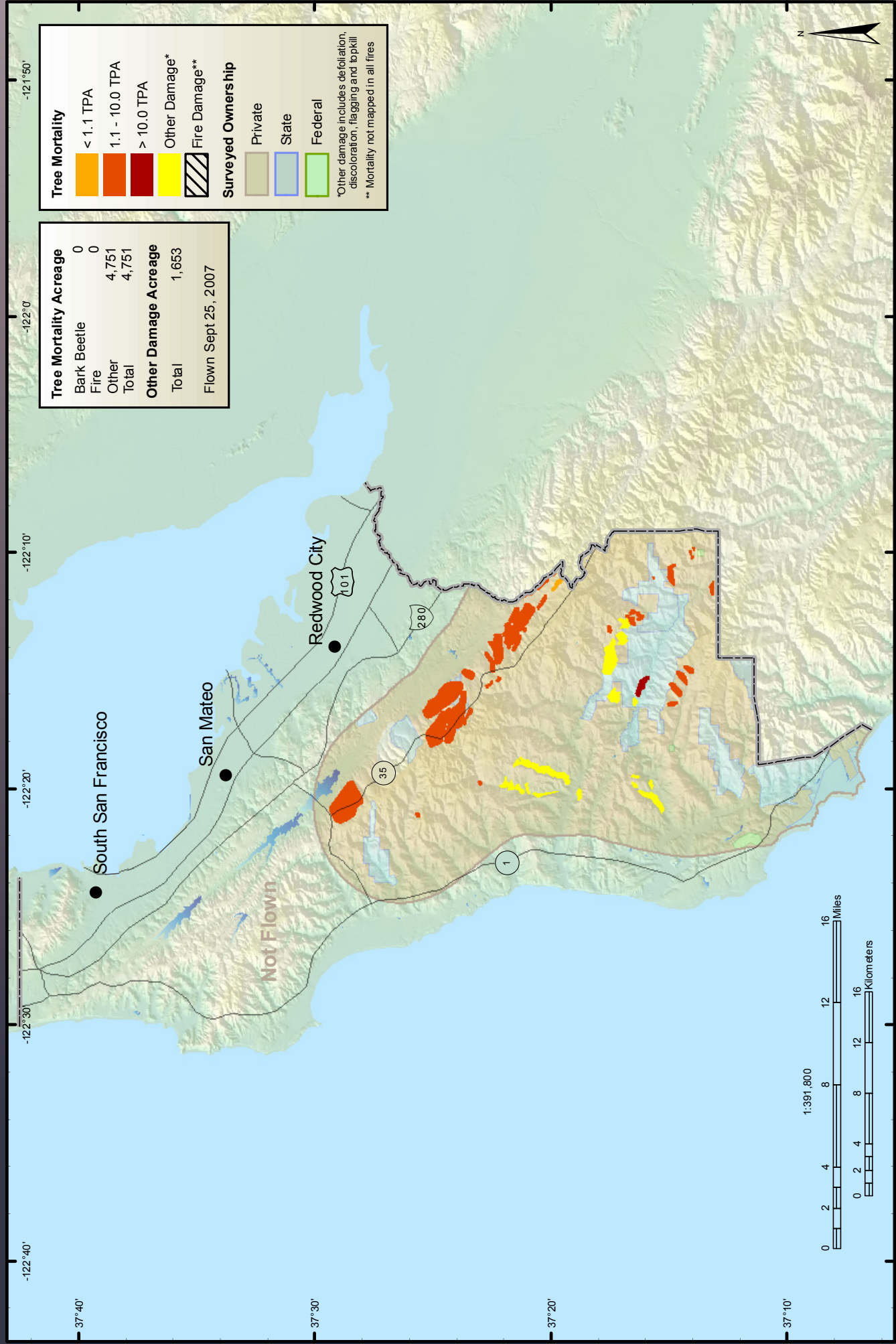
San Diego County



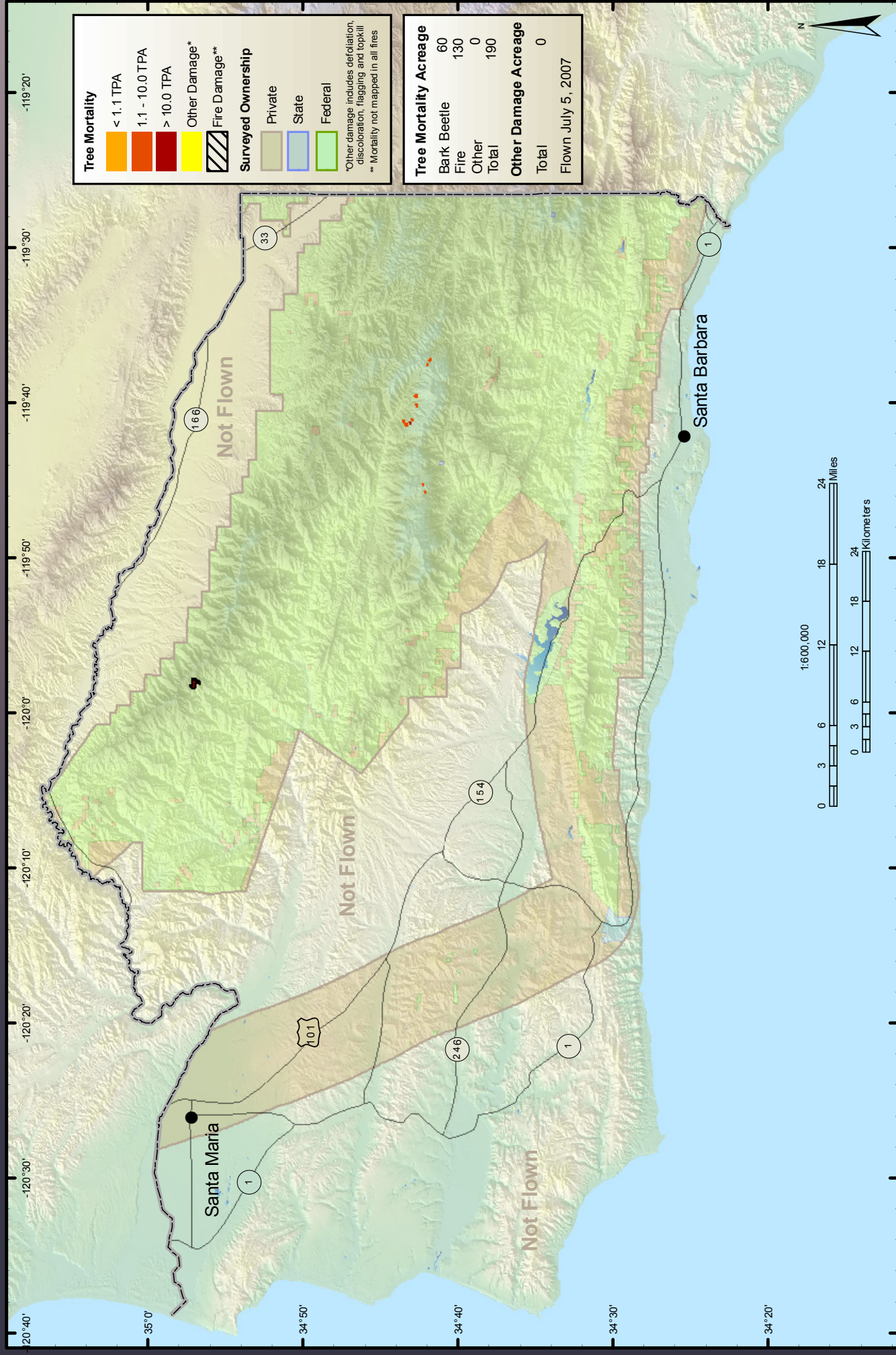
San Luis Obispo County



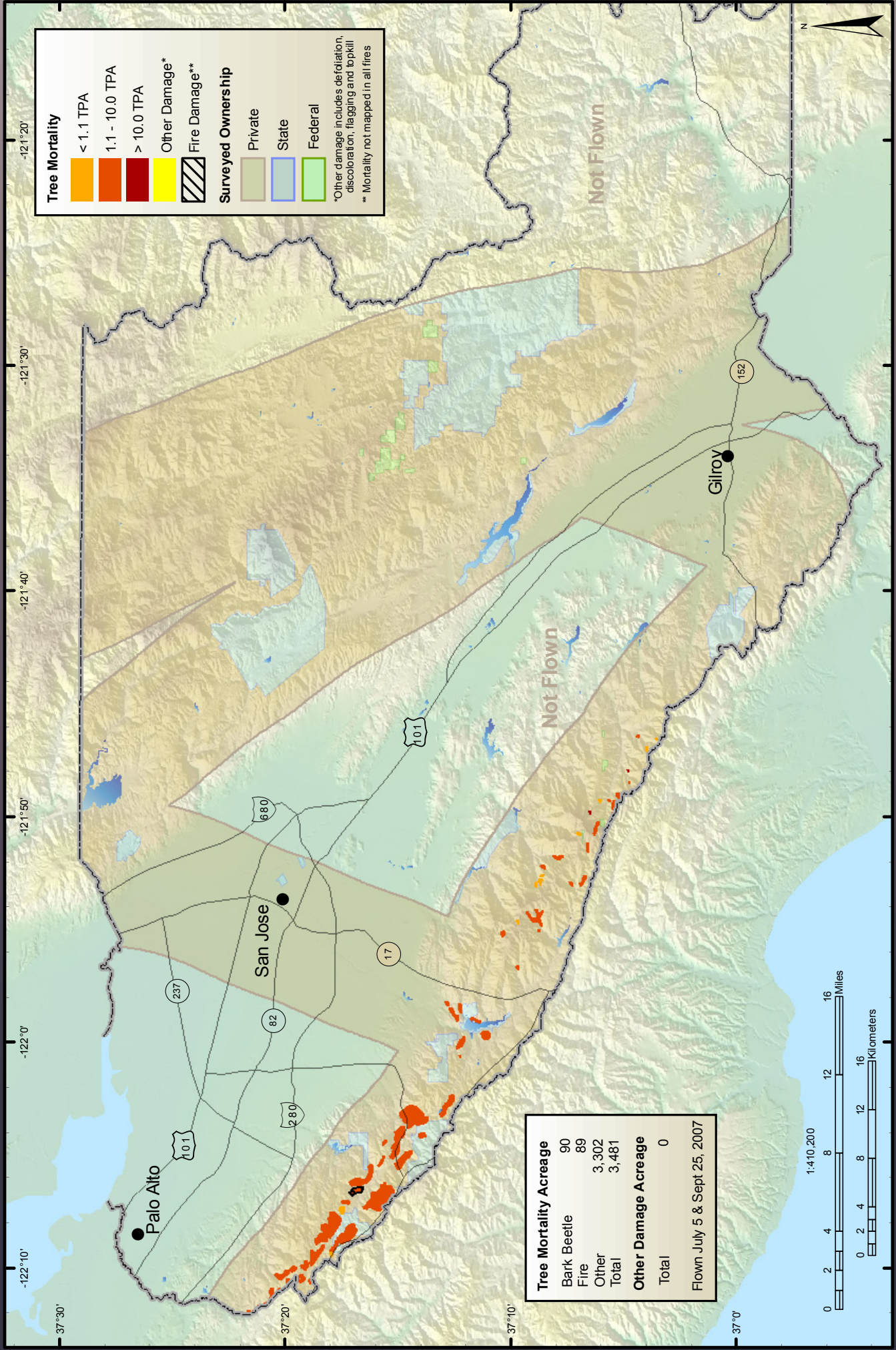
San Mateo County



Santa Barbara County



Santa Clara County



Tree Mortality

- < 1.1 TPA
- 1.1 - 10.0 TPA
- > 10.0 TPA
- Other Damage*
- Fire Damage**

Surveyed Ownership

- Private
- State
- Federal

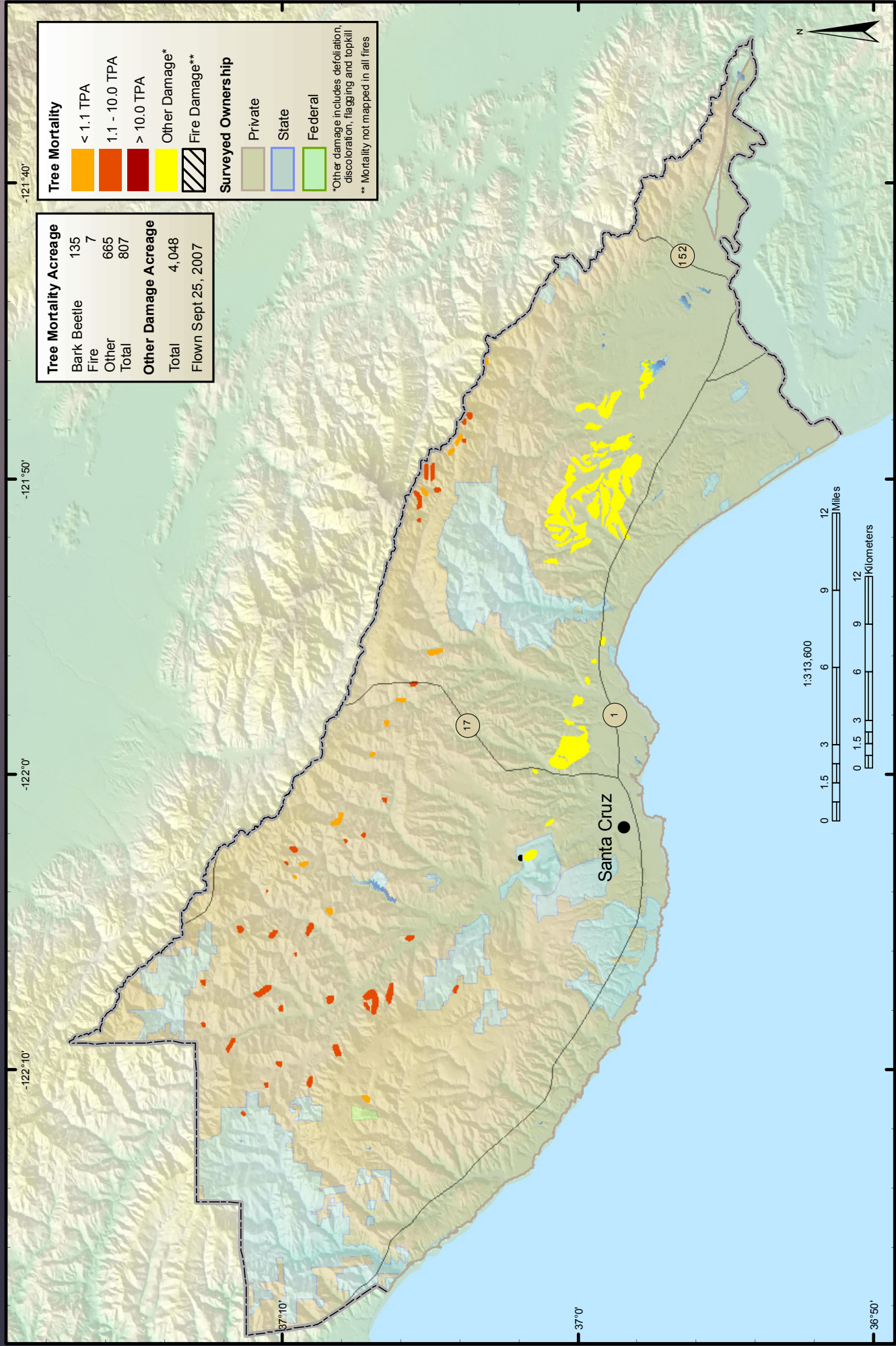
*Other damage includes defoliation, discoloration, flagging and topkill
 ** Mortality not mapped in all fires

Tree Mortality Acreage	
Bark Beetle	90
Fire	89
Other	3,302
Total	3,481
Other Damage Acreage	
Total	0

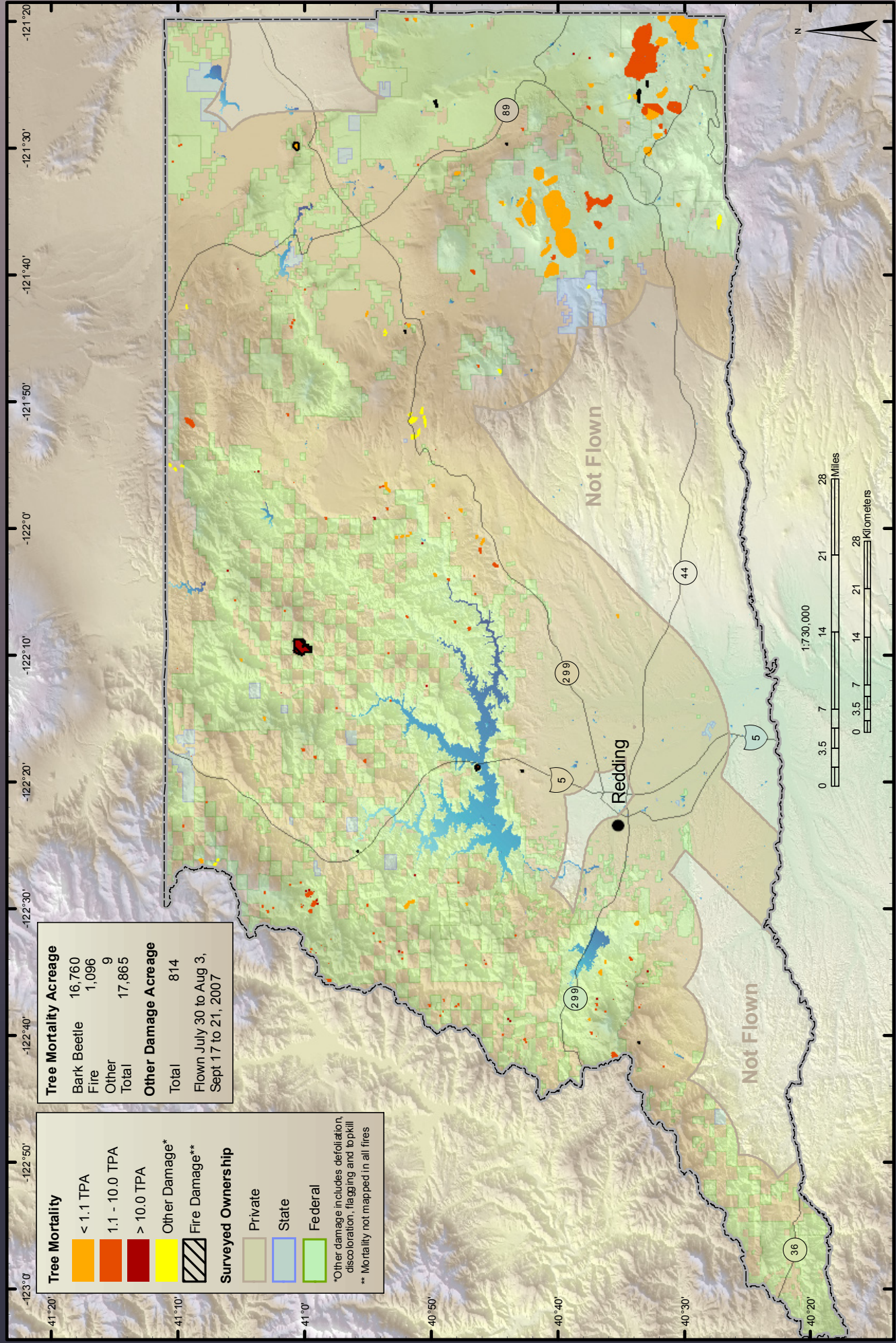
Flown July 5 & Sept 25, 2007



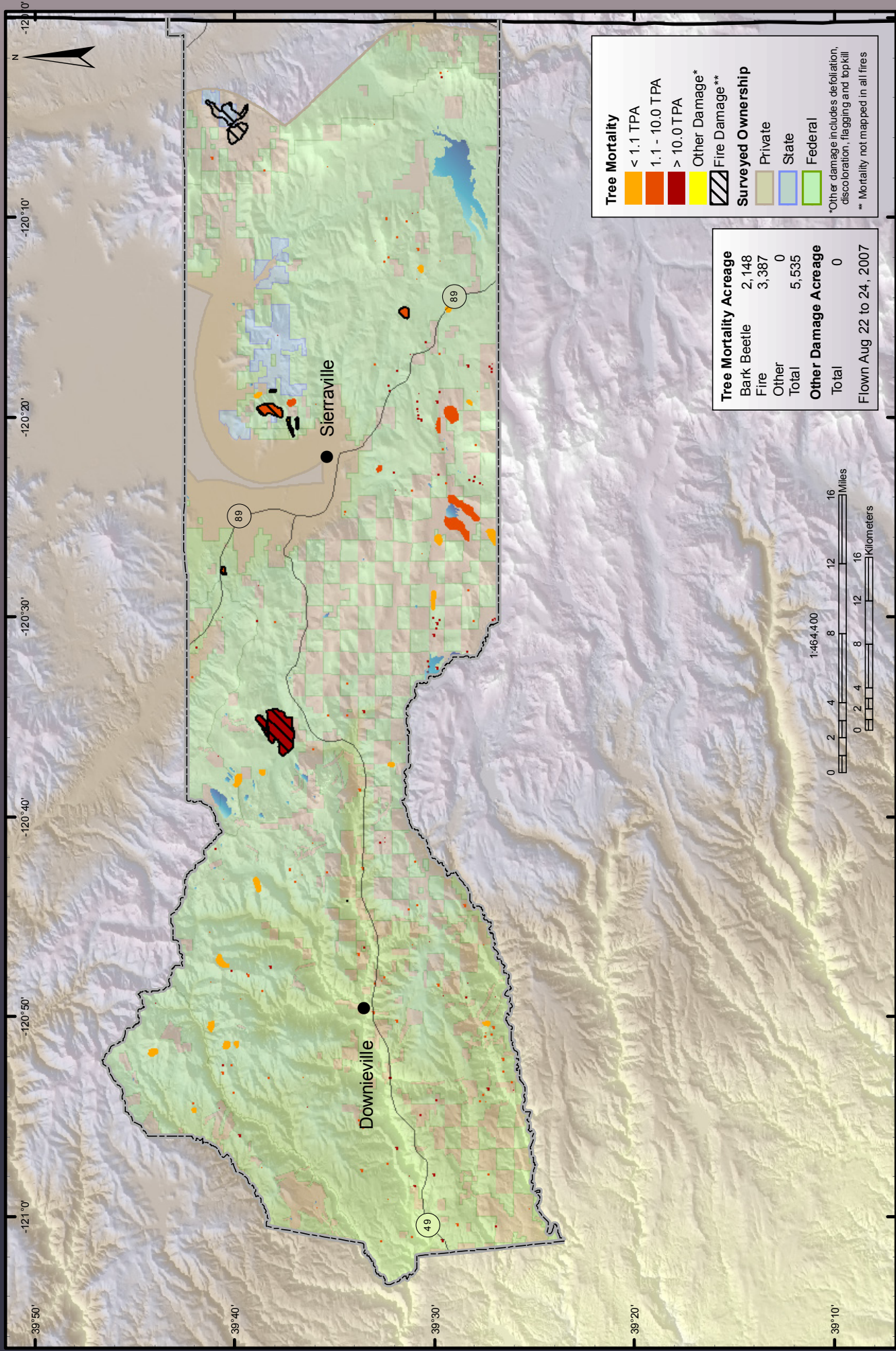
Santa Cruz County



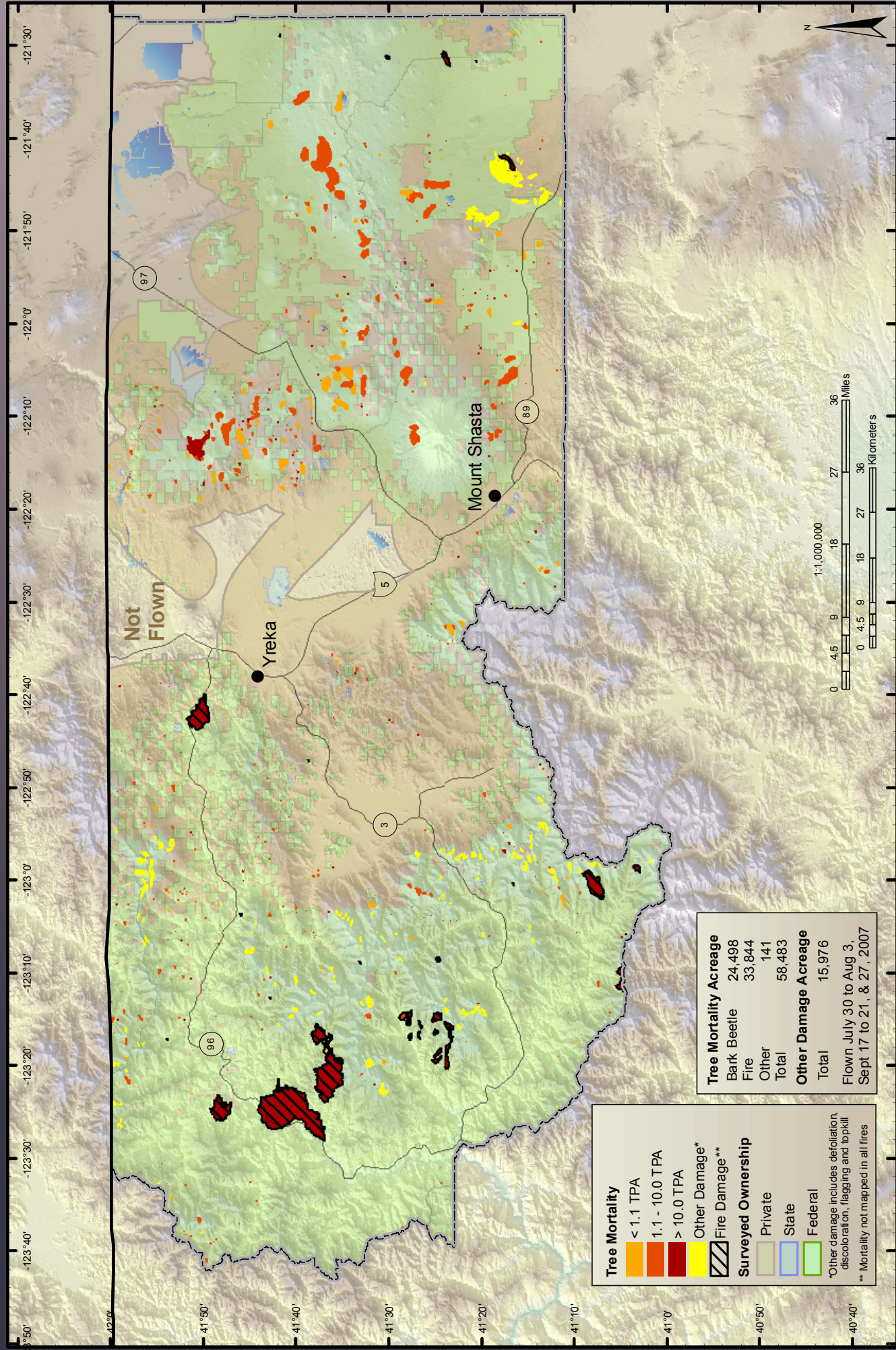
Shasta County



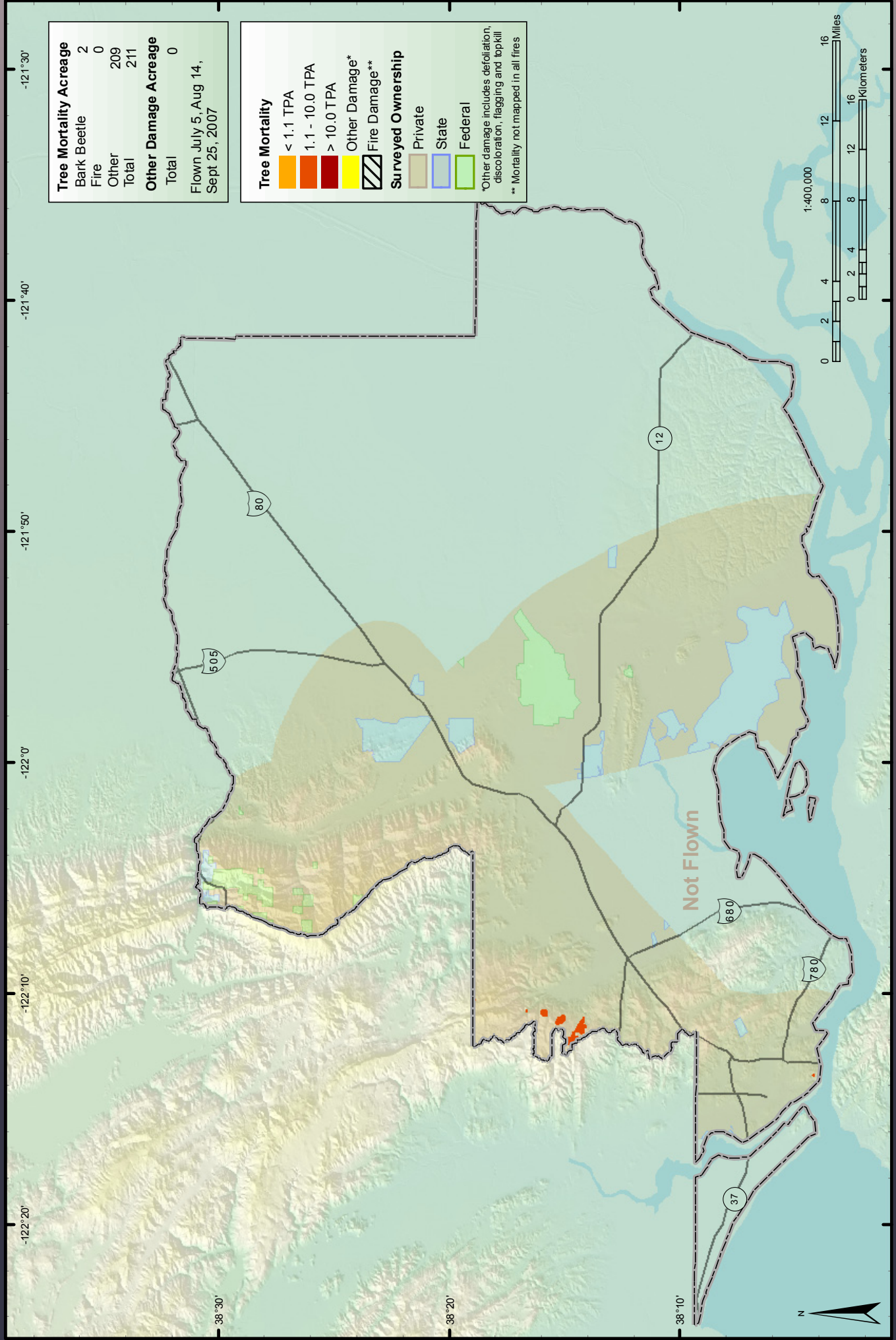
Sierra County



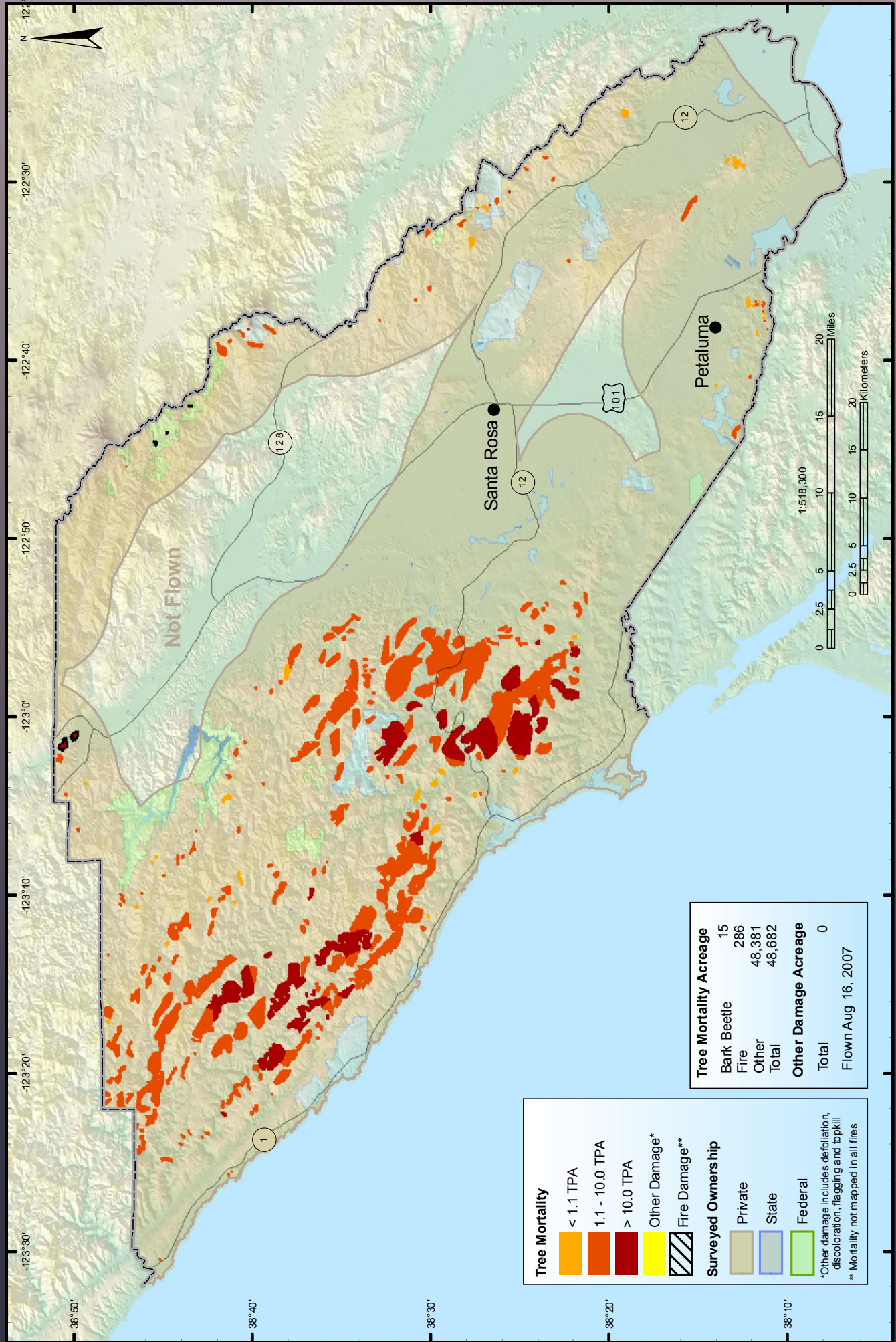
Siskiyou County



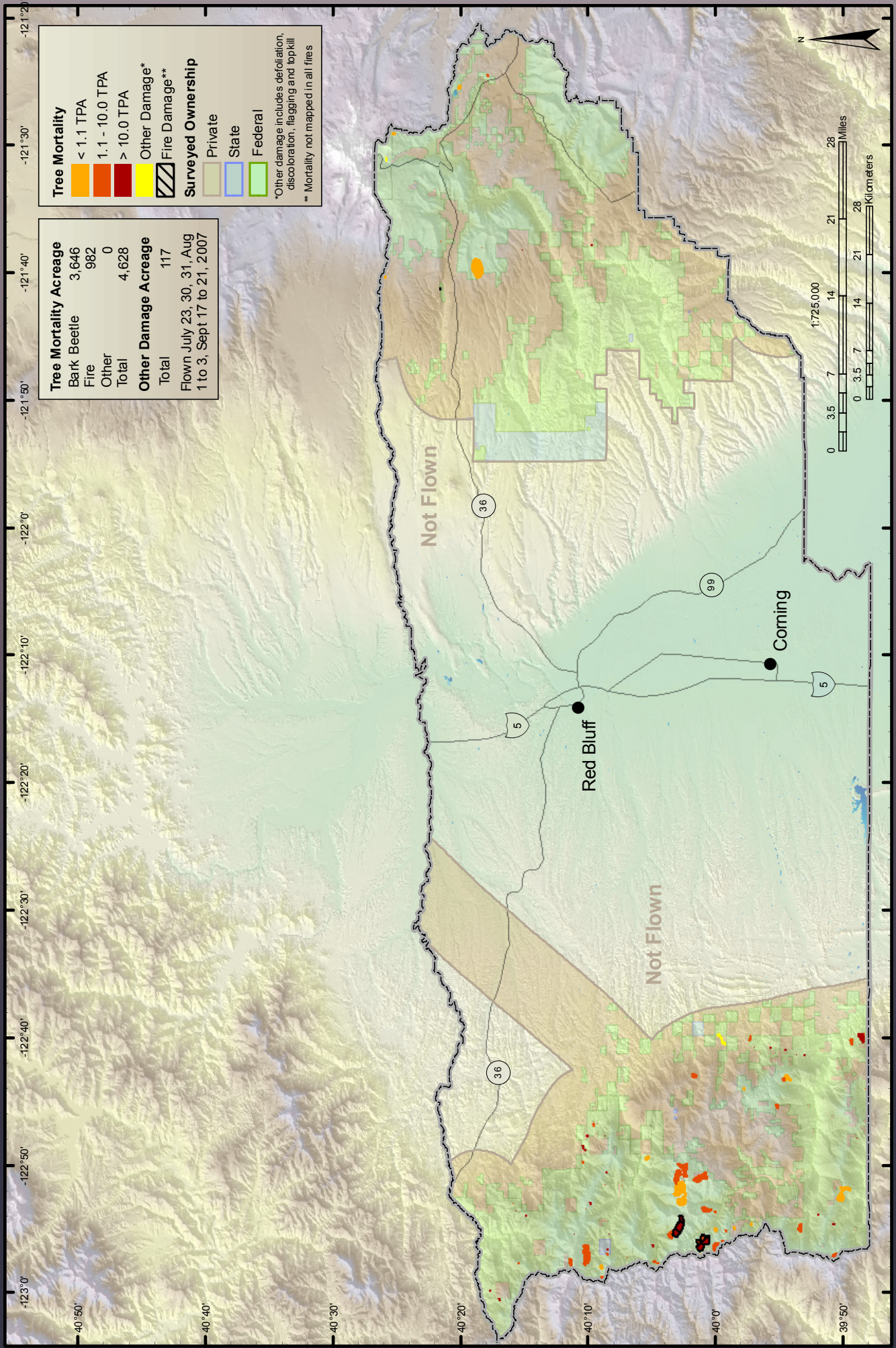
Solano County



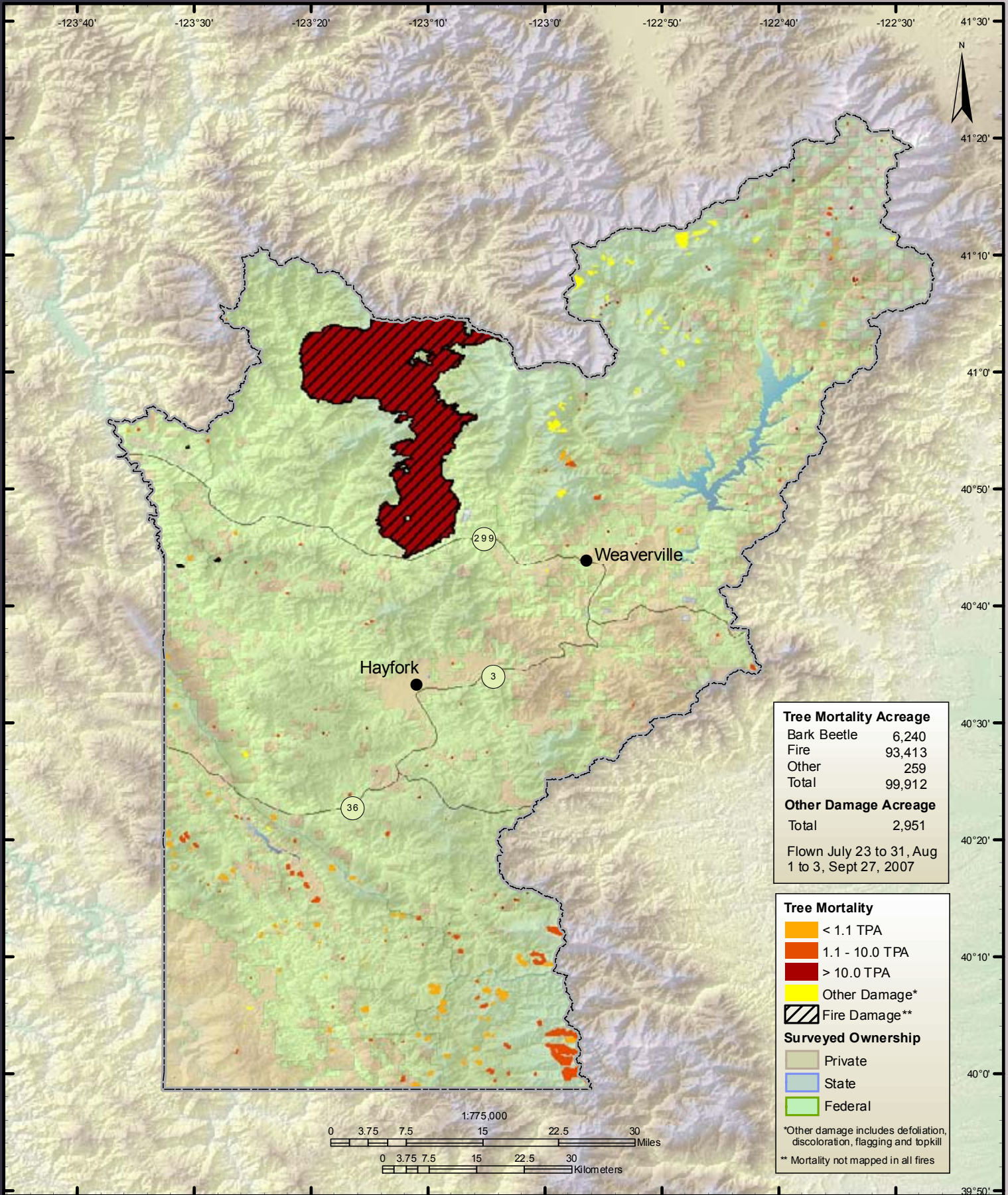
Sonoma County



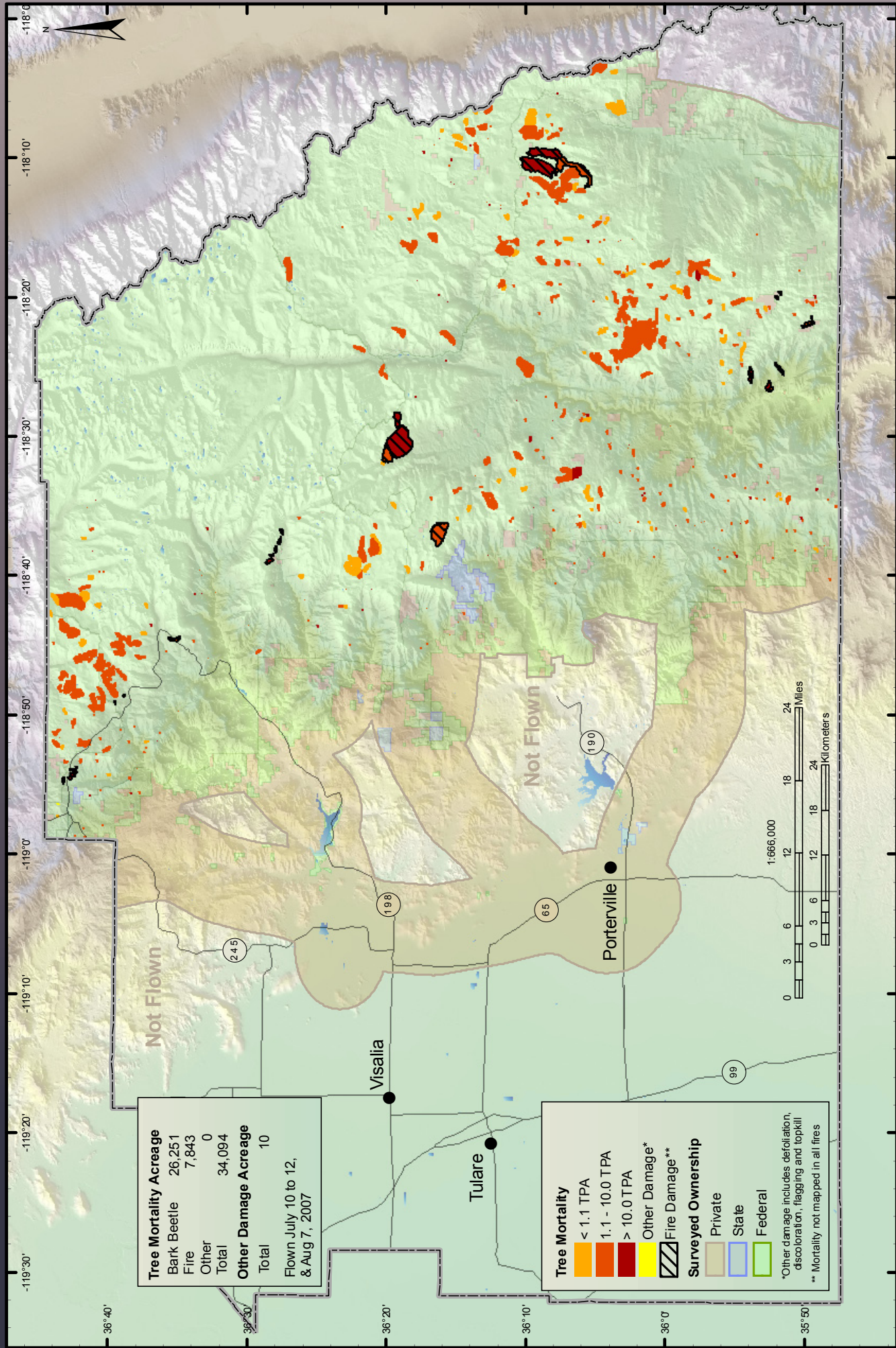
Tehama County



Trinity County



Tulare County



Tree Mortality Acreage	
Bark Beetle	26,251
Fire	7,843
Other	0
Total	34,094
Other Damage Acreage	
Total	10

Flown July 10 to 12, & Aug 7, 2007

Tree Mortality

- < 1.1 TPA
- 1.1 - 10.0 TPA
- > 10.0 TPA
- Other Damage*
- Fire Damage**

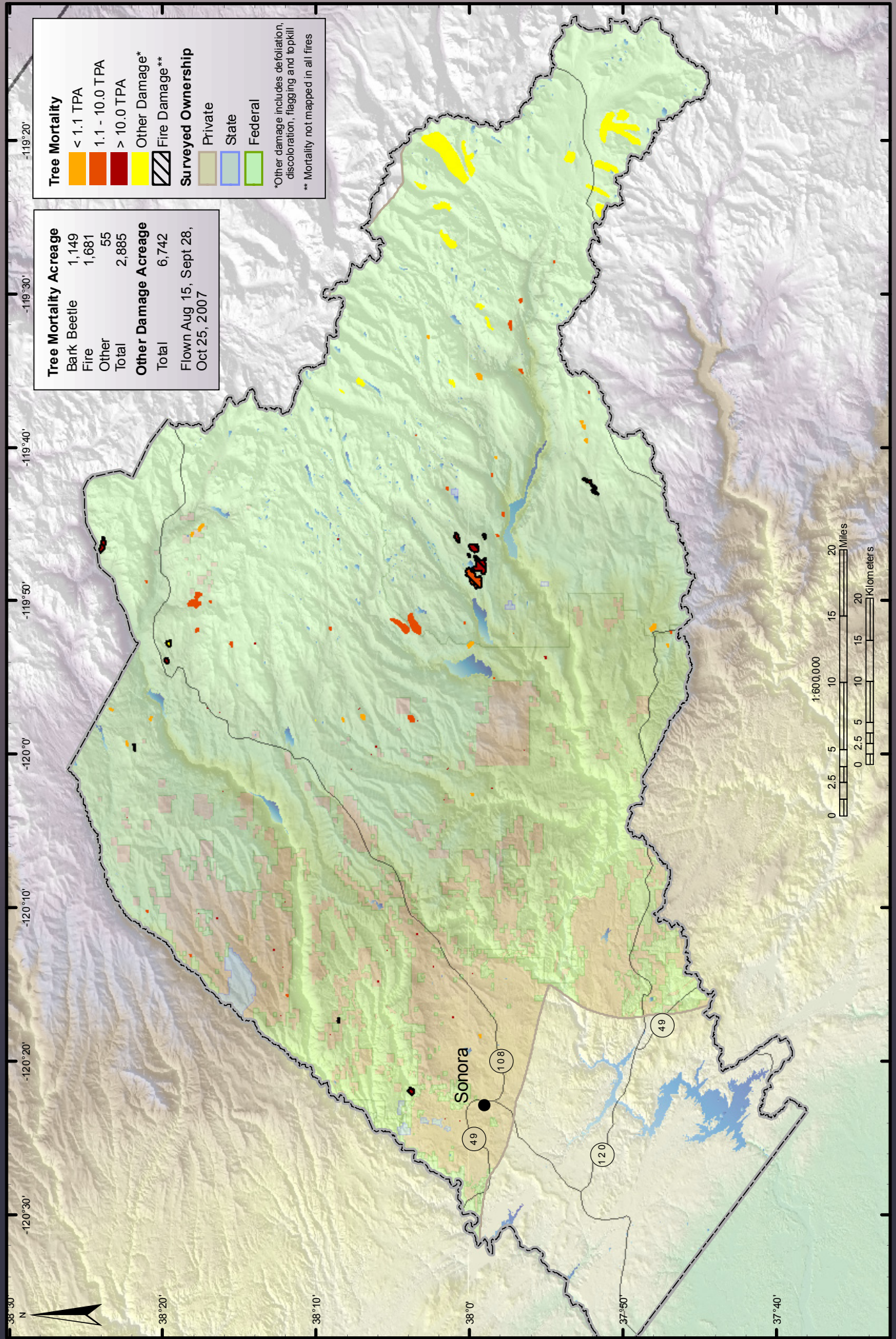
Surveyed Ownership

- Private
- State
- Federal

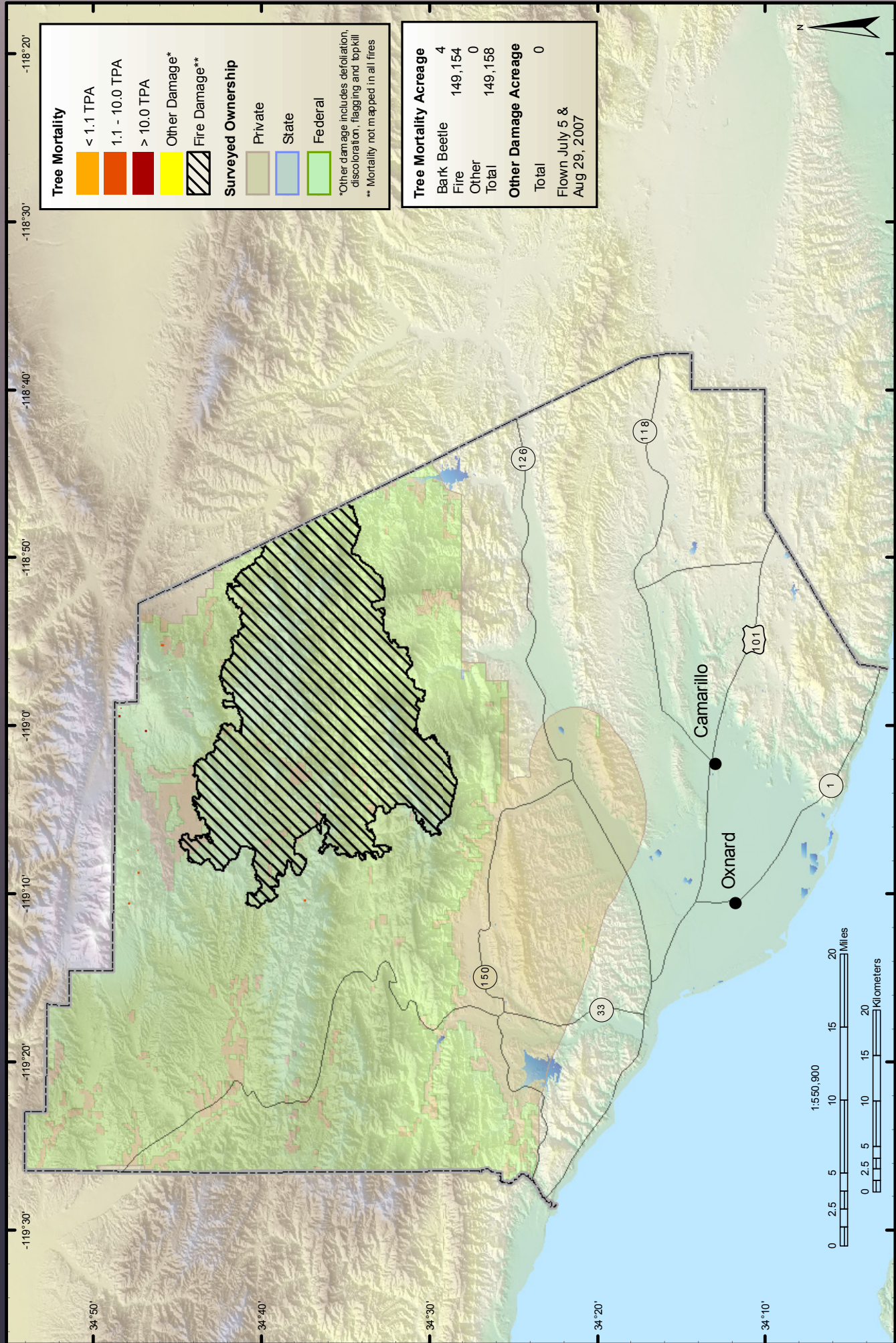
*Other damage includes defoliation, discoloration, flagging and topkill
** Mortality not mapped in all fires



Tuolumne County



Ventura County



Tree Mortality

- < 1.1 TPA
- 1.1 - 10.0 TPA
- > 10.0 TPA
- Other Damage*
- Fire Damage**

Surveyed Ownership

- Private
- State
- Federal

*Other damage includes defoliation, discoloration, flagging and topkill
 **Mortality not mapped in all fires

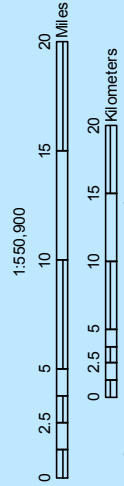
Tree Mortality Acreage

Bark Beetle	4
Fire	149,154
Other	0
Total	149,158

Other Damage Acreage

Total	0
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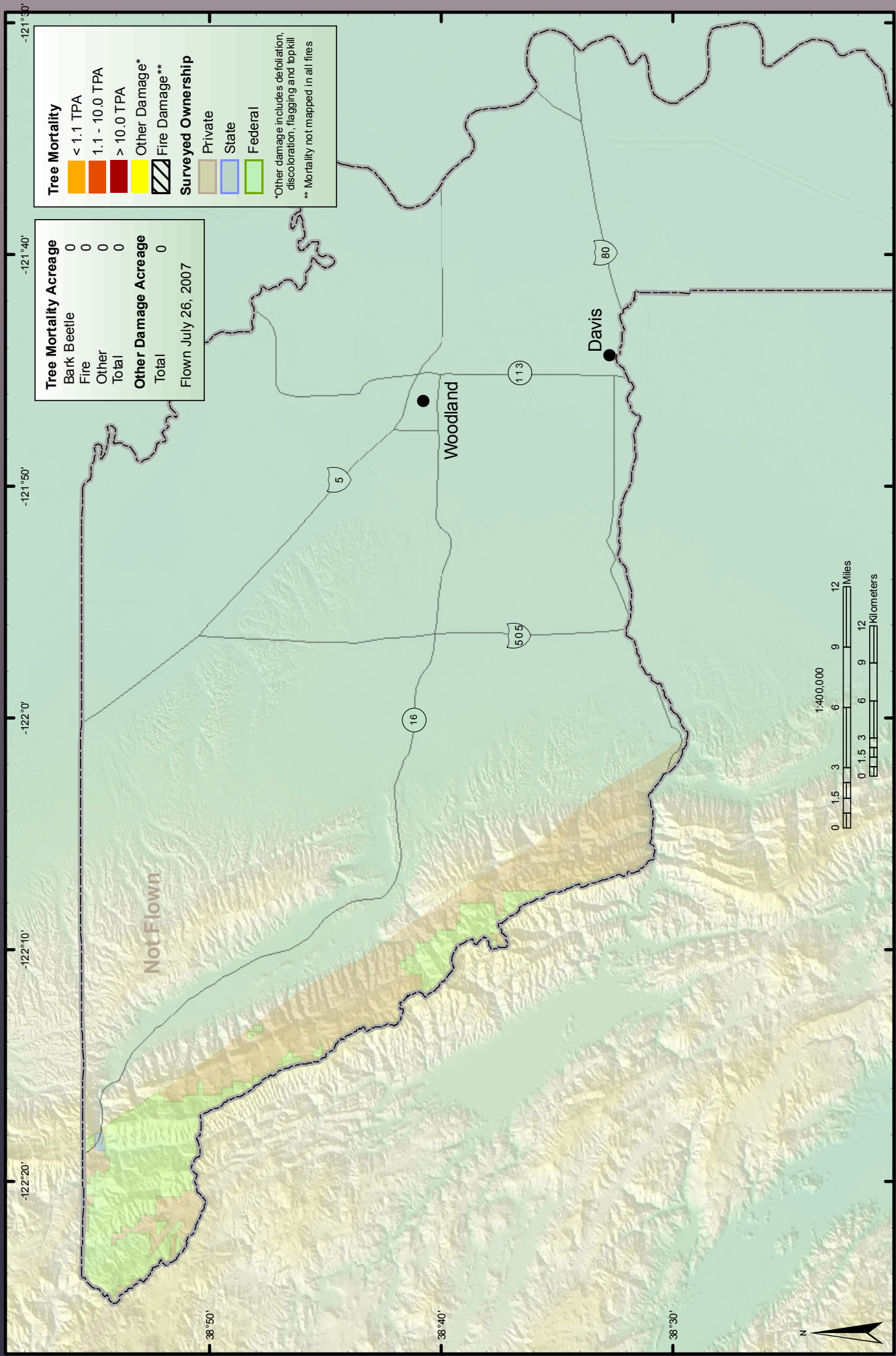
Flown July 5 &
 Aug 29, 2007



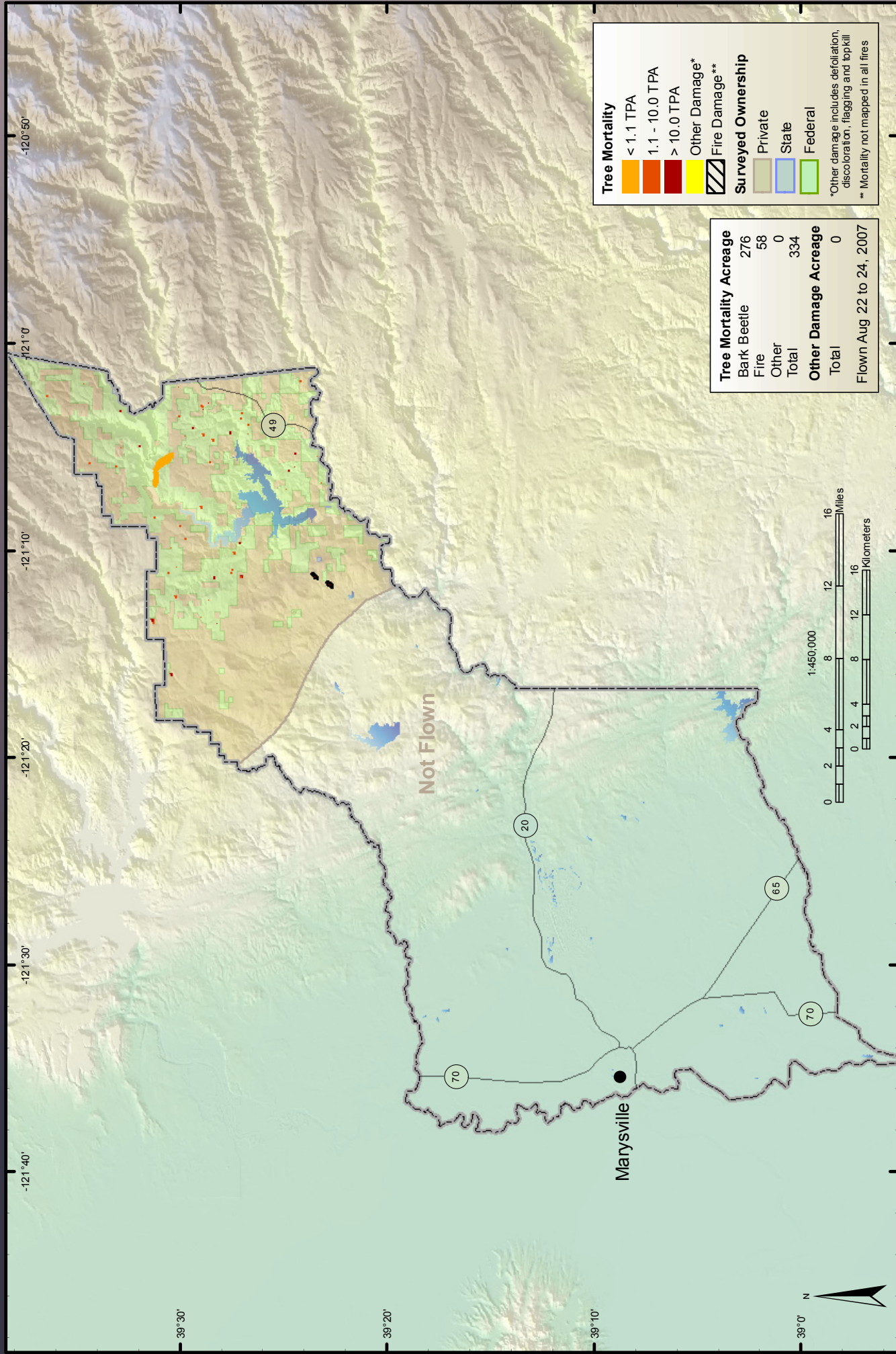
USDA Forest Service
 Pacific Southwest Region
 Forest Health Protection

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 www.fs.fed.us/r5/spf/fhp/fhm

Yolo County



Yuba County



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