Harold L. Baker

FOREST AREAS, TIMBER VOLUMES
AND
VEGETATION TYPES
IN
CALIFORNIA

A. E. WIESLANDER

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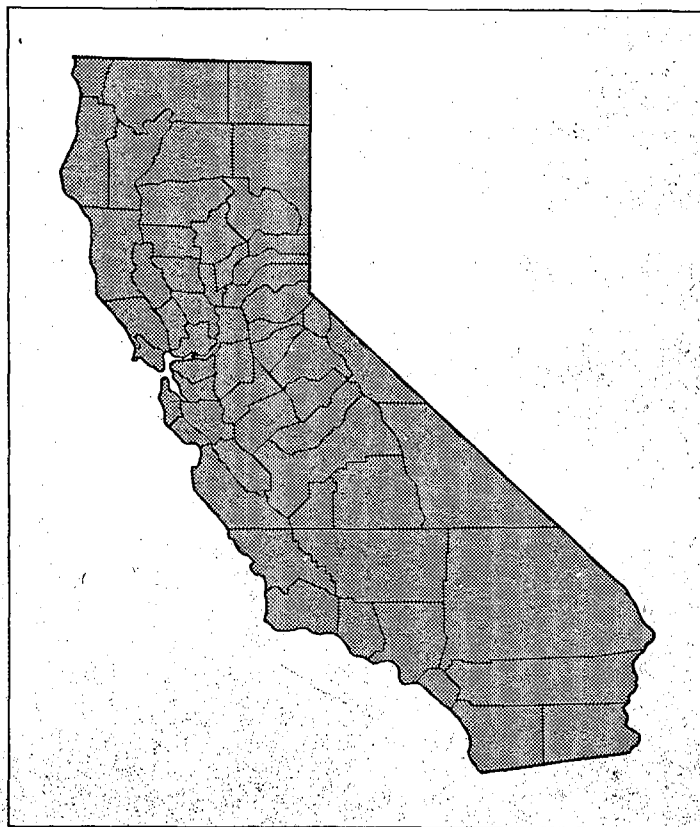
CALIFORNIA FOREST AND RANGE EXPERIMENT STATION

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Berkeley, California.

OSWALD

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INTRODUCTION

This release contains the forest-area and timber-volume figures being used by the United States Forest Service and the American Forestry Association in their separate appraisals of the Nation's timber supply. It presents the results of a study begun in March 1944 by the Forest Service -- the California Forest and Range Experiment Station and Region 5 to provide better forest-resource information for local use. This study was later merged into a National project and as carried on in California was a three-way undertaking of the Forest Service, the State Division of Forestry, and the American Forestry Association. In addition, the Save-the-Redwoods league and the State Division of Beaches and Parks gave substantial assistance because of their interest in the area and volume of redwood stands. This pooling of effort was done to avoid duplication and to obtain the best possible figures within financial and time limitations, each agency reserving the right to make its own interpretation of the significance of the data.

The figures represent the situation as of January 1, 1945. They are preliminary and will be replaced by those from the Nation-wide Forest Survey authorized by Congress when that survey is completed for California. However, they are believed to be as accurate as can be obtained by a carefully planned use of existing aerial photographs, timber cruises, and sample plots.

The tables are grouped under two main headings: "basic" and "reappraisal". The basic tables give the original data taken from aerial photograph classifications. The reappraisal tables represent a realignment of the data in the basic tables to comply with definitions and criteria set up for the reappraisal project. The basis for the realignments made are fully explained either by footnotes or by textual material following the tables.

SUMMARY STATISTICS[1]/

Areas

Major vegetation type	Million acres and percent[2]/
Timber forest	18
Other conifer forest	6
Woodland (Hardwoods)	10
Chaparral	10
Sagebrush	7
Grass	10
Desert	24
Cultivated urban and industrial	14
Barren	1
All types	100

Major class of land

Timber cropland	17
Other forest land	29
Pasture and range land	15
Agricultural cropland	12
Other lands	27
	100

Timber cropland

Type	Million acres	Percent
Pine	4.4	26
Redwood	1.9	11
Douglas fir	2.6	15
Fir	1.2	7
Pine-Douglas fir fir	7.0	41
All types	17.1	100

Age class		
Old growth	9.5	56
Young growth old growth	3.8	22
Young growth	1.7	10
Unstocked areas	2.1	12
All classes	17.1	100

Stand density		
Dense and semidense	4.4	26
Open	7.3	43
Very open	3.3	19
Unstocked areas	2.1	12
All densities	17.1	100

1/ For definitions of the classifications listed here and in the following tables see pp. 55-60.
2/ The same figure expresses both millions of acres and percent because the total land area of California is approximately 100 million acres.

Timber cropland   Cont'd.

Site quality	Million acres	Percent
High	4.3	25
Medium	9.2	54
Low	3.6	21
All site qualities	17.1	100

Ownership	Million acres	Percent
Public	8.8	51
Private	8.3	49
All ownerships	17.1	100

Availability class	Million acres	Percent
Available	13.0	76
Unavailable (Inaccessible)	2.1	12
Recreation	1.3	8
Withdrawn	.7	4
All classes	17.1	100

Very openly stocked and unstocked timber cropland

Potential timber type	Million acres	Percent
Pine	2.0	37
Redwood	.6	11
Douglas-fir	.8	15
Fir	.2	4
Pine-Douglas fir fir	1.8	33
All types	5.4	100

Present vegetation type	Million acres	Percent
Woodland	2.2	41
Chaparral	2.5	46
Other	.7	13
All types	5.4	100

Site quality	Million acres	Percent
High	1.1	20
Medium	2.9	54
Low	1.4	26
All site qualities	5.4	100

Volumes

Timber cropland

__All stands__[1]/

Species	Public	Private	Total
		Billion board feet	
Ponderosa pine	32.0	21.6	53.6
Sugar pine	12.8	8.2	21.0
Redwood	4.0	37.0	41.0
Douglas-fir	33.2	38.1	71.3
Fir	32.8	15.9	48.7
Incense-cedar	4.6	3.2	7.8
All species	119.4	124.0	243.4

__Available old growth stands__[1]/

Species	Public	Private	Total
		Billion board feet	
Ponderosa pine	17.2	11.2	28.4
Sugar pine	7.5	5.6	13.1
Redwood	1.0	29.2	30.2
Douglas-fir	13.5	22.4	35.9
Fir	15.6	9.2	24.8
Incense-cedar	2.4	1.7	4.1
All species	57.2	79.3	136.5

__Available young growth and young growth- old growth stands__[1]/

Species	Public	Private	Total
		Billion board feet	
Ponderosa pine	5.2	6.9	12.1
Sugar pine	1.8	1.8	3.6
Redwood	–	1.8	1.8
Douglas-fir	2.2	5.5	7.7
Fir	3.6	4.2	7.8
Incense-cedar	.9	1.1	2.0
All species	13.7	21.3	35.0

[1]/ Excluding very open stands.

Table 1.– <u>Total areas of forest and other vegetation types</u>[1].

Type	Thousand acres
Pine	4586 – *Forest*
Redwood	1788 –
Douglas-fir	2289 –
Fir	1757 –
Pine—Douglas-fir—fir	7236 –
Lodgepole pine—whitebark pine	2032 –
Piñon pine and juniper	3200 –
Minor conifers	405 –
Woodland (hardwoods)	2457 –
Woodland—grass	7570 –
Grass	10375 *Nonforest*
Chaparral	9866 *Forest*
Great Basin sagebrush	5071 *Nonforest*
Coastal sagebrush	2249
Desert	24276
Cultivated, urban, and industrial	13704
Marsh	79
Barren	1414
Total land area[2]	100354

1/ Blueline prints of the State map, scale 1 : 1,000,000 (approx. 1 inch = 16 miles), showing the distribution of these types in form suitable for coloring may be purchased from the Regional Forester, U. S. Forest Service, 630 Sansome Street, San Francisco.
2/ 1940 Census.

Total Forest w/ woodland/grass + chap → 43,186
w/out woodland grass + chap → 25,750
w/out chap → 33,320

Table 2.- Total timber cropland area by type and age class of timber, density of stand, and ownership[1]

Type and age class	Dense and semidense Public	Private	Total	Open Public	Private	Total	Very open Public	Private	Total	Unstocked Public	Private	Total	All densities Public	Private	Total
							Thousand acres								
Pine															
Old growth	123	86	209	678	289	967	283	87	370				1084	462	1546
Young growth-old growth	53	53	106	345	358	703	262	226	488				660	637	1297
Large young growth	14	52	66	34	154	188	104	298	402				152	504	656
Small young growth	8	12	20	20	31	51	41	21	62				69	64	133
Total	198	203	401	1077	832	1909	690	632	1322	260	472	732	2225	2139	4364
Redwood															
Old growth	65	645	708	8	261	269	4	115	119				77	1019	1096
Young growth-old growth	2	30	32	1	56	57	3	47	50				6	133	139
Large young growth	1	129	130	7	149	156	6	132	138				14	410	424
Small young growth	-	3	3	1	15	16	2	106	108				3	124	127
Total	68	805	873	17	481	498	15	400	415	7	154	161	107	1840	1947
Douglas-fir															
Old growth	487	337	824	409	319	728	158	156	314				1054	812	1866
Young growth-old growth	33	77	110	29	60	89	23	47	70				85	184	269
Large young growth	3	25	28	4	19	23	5	23	28				12	67	79
Small young growth	1	-	1	-	2	2	1	1	2				2	3	5
Total	524	439	963	442	400	842	187	227	414	140	222	362	1293	1288	2581
Fir															
Old growth	374	56	430	377	131	508	20	4	24				771	191	962
Young growth-old growth	19	6	25	33	13	46	11	5	16				63	24	87
Large young growth	10	4	14	1	-	1	-	1	1				11	5	16
Small young growth	7	2	9	1	1	2	2	-	2				10	3	13
Total	410	68	478	412	145	557	33	10	45	86	23	109	941	246	1187
Pine—Douglas-fir—fir															
Old growth	728	516	1244	1556	661	2217	345	186	531				2629	1363	3992
Young growth-old growth	188	213	401	531	620	1151	250	186	436				969	1019	1988
Large young growth	21	35	56	45	45	90	33	38	71				99	118	217
Small young growth	4	5	9	8	16	24	13	17	30				25	38	63
Total	941	769	1710	2140	1342	3482	641	427	1068	504	267	771	4226	2805	7031
All types															
Old growth	1777	1638	3415	3028	1661	4689	810	548	1358				5615	3847	9462
Young growth-old growth	295	379	674	939	1107	2046	549	511	1060				1783	1997	3780
Large young growth	49	245	294	91	367	458	148	492	640				288	1104	1392
Small young growth	20	22	42	30	65	95	59	145	204				109	232	341
Total	2141	2284	4425	4088	3200	7288	1566	1696	3262	997	1138	2135	8792	8318	17110

1/ Blueline prints of the State map, scale 1 : 1,000,000 (approx. 1 inch = 16 miles), showing the distribution of most of these classes in form suitable for coloring may be purchased from the Regional Forester, U. S. Forest Service, 630 Sansome St., San Francisco.

Table 3.- Available areas of timber cropland by type and age class of timber, density of stand, and ownership

Type and age class	Dense and semidense			Open			Very open			Unstocked			All densities		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
							Thousand acres								
Pine															
Old growth	104	81	185	508	255	763	221	71	292				833	407	1240
Young growth-old growth	49	51	100	333	335	668	246	205	451				628	591	1219
Large young growth	12	51	63	30	150	180	103	292	395				145	493	638
Small young growth	6	12	18	16	26	42	27	19	46				49	57	106
Total	171	195	366	887	766	1653	597	587	1184	235	448	683	1890	1996	3886
Redwood															
Old growth	19	569	588	4	233	237	2	104	106				25	906	931
Young growth-old growth	1	21	22	-	33	33	-	37	37				1	91	92
Large young growth	-	102	102	-	97	97	-	71	71				-	270	270
Small young growth	-	2	2	-	14	14	-	94	94				-	110	110
Total	20	694	714	4	377	381	2	306	308	2	89	91	28	1466	1494
Douglas-fir															
Old growth	185	213	398	129	216	345	41	123	164				355	552	907
Young growth-old growth	25	71	96	17	44	61	9	34	43				51	149	200
Large young growth	2	19	21	2	8	10	2	8	10				6	35	41
Small young growth	1	-	1	-	2	2	-	-	-				1	2	3
Total	213	303	516	148	270	418	52	165	217	55	125	180	468	863	1331
Fir															
Old growth	197	42	239	160	91	251	11	3	14				368	136	504
Young growth-old growth	12	6	18	31	11	42	9	4	13				52	21	73
Large young growth	5	2	7	-	-	-	-	1	1				5	3	8
Small young growth	7	2	9	1	1	2	2	-	2				10	3	13
Total	221	52	273	192	103	295	22	8	30	65	21	86	500	184	684
Pine—Douglas-fir—fir															
Old growth	554	483	1037	984	584	1568	186	129	315				1724	1196	2920
Young growth-old growth	172	200	372	485	574	1059	227	173	400				884	947	1831
Large young growth	20	32	52	38	37	75	30	33	63				88	102	190
Small young growth	4	5	9	8	15	23	12	17	29				24	37	61
Total	750	720	1470	1515	1210	2725	455	352	807	363	209	572	3083	2491	5574
All types															
Old growth	1059	1388	2447	1785	1379	3164	461	430	891				3305	3197	6502
Young growth-old growth	259	349	608	866	997	1863	491	453	944				1616	1799	3415
Large young growth	39	206	245	70	292	362	135	405	540				244	903	1147
Small young growth	18	21	39	25	58	83	41	130	171				84	209	293
Total	1375	1964	3339	2746	2726	5472	1128	1418	2546	720	692	1612	5969	7000	12969

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Table 4.- Unavailable areas of timber cropland by type and age class of timber, density of stand, and ownership

Type and age class	Dense and semidense			Open			Very open			Unstocked			All densities		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
									Thousand acres						
Pine															
Old growth	-	-	-	64	1	65	35	3	38				99	4	103
Young growth-old growth	-	-	-	3	3	6	4	-	4				7	3	10
Large young growth	-	-	-	2	-	2	-	1	1				2	1	3
Small young growth	1	-	1	-	-	-	-	-	-				1	-	1
Total	1	-	1	69	4	73	39	4	43	15	12	27	124	20	144
Redwood															
Old growth	-	3	3	-	-	-	-	1	1				-	4	4
Young growth-old growth	-	-	-	-	-	-	-	-	-				-	-	-
Large young growth	-	-	-	-	-	-	-	-	-				-	-	-
Small young growth	-	-	-	-	-	-	-	-	-				-	-	-
Total	-	3	3	-	-	-	-	1	1	-	-	-	-	4	4
Douglas-fir															
Old growth	242	101	343	223	89	312	107	25	132				572	215	787
Young growth-old growth	6	3	9	11	9	20	13	5	18				30	17	47
Large young growth	1	1	2	1	2	3	3	1	4				5	4	9
Small young growth	-	-	-	-	-	-	1	-	1				1	-	1
Total	249	105	354	235	100	335	124	31	155	66	23	89	674	259	933
Fir															
Old growth	47	6	53	105	22	127	3	-	3				155	28	183
Young growth-old growth	4	-	4	2	1	3	-	-	-				6	1	7
Large young growth	2	1	3	-	-	-	-	-	-				2	1	3
Small young growth	-	-	-	-	-	-	-	-	-				-	-	-
Total	53	7	60	107	23	130	3	-	3	10	1	11	173	31	204
Pine—Douglas-fir—fir															
Old growth	72	16	88	315	40	355	130	45	175				517	101	618
Young growth-old growth	9	5	14	27	17	44	14	4	18				50	26	76
Large young growth	1	1	2	3	3	6	1	4	5				5	8	13
Small young growth	-	-	-	-	-	-	-	-	-				-	-	-
Total	82	22	104	345	60	405	145	53	198	104	43	147	676	178	854
All types															
Old growth	361	126	487	707	152	859	275	74	349				1343	352	1695
Young growth-old growth	19	8	27	43	30	73	31	9	40				93	47	140
Large young growth	4	3	7	6	5	11	4	6	10				14	14	28
Small young growth	1	-	1	-	-	-	1	-	1				2	-	2
Total	385	137	522	756	187	943	311	89	400	195	79	274	1647	492	2139

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Table 5.- Recreation areas of timber cropland by type and age class of timber, density of stand, and ownership

Type and age class	Dense and semidense			Open			Very open			Unstocked			All densities		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
						Thousand acres									
Pine															
Old growth	7	1	8	59	28	87	26	13	39				92	42	134
Young growth-old growth	2	2	4	7	19	26	12	21	33				21	42	63
Large young growth	1	1	2	2	4	6	1	4	5				4	9	13
Small young growth	-	-	-	4	5	9	3	2	5				7	7	14
Total	10	4	14	72	56	128	42	40	82	8	12	20	132	112	244
Redwood															
Old growth	2	71	73	1	28	29	1	10	11				4	109	113
Young growth-old growth	-	9	9	-	23	23	-	10	10				-	42	42
Large young growth	-	27	27	1	52	53	3	61	64				4	140	144
Small young growth	-	1	1	-	1	1	-	12	12				-	14	14
Total	2	108	110	2	104	106	4	93	97	3	65	68	11	370	381
Douglas-fir															
Old growth	30	22	52	17	14	31	5	8	13				52	44	96
Young growth-old growth	1	3	4	1	7	8	1	8	9				3	18	21
Large young growth	-	5	5	-	9	9	-	14	14				-	28	28
Small young growth	-	-	-	-	-	-	-	1	1				-	1	1
Total	31	30	61	18	30	48	6	31	37	13	74	87	68	165	233
Fir															
Old growth	30	5	35	36	14	50	3	1	4				69	20	89
Young growth-old growth	3	-	3	-	1	1	1	1	2				4	2	6
Large young growth	-	1	1	1	-	1	-	-	-				1	1	2
Small young growth	-	-	-	-	-	-	-	-	-				-	-	-
Total	33	6	39	37	15	52	4	2	6	8	1	9	82	24	106
Pine—Douglas-fir—fir															
Old growth	22	11	33	113	50	143	20	11	31				155	52	207
Young growth-old growth	6	8	14	15	29	44	6	8	14				27	45	72
Large young growth	-	2	2	3	5	8	1	1	2				4	8	12
Small young growth	-	-	-	-	1	1	1	-	1				1	1	2
Total	28	21	49	131	65	196	28	20	48	26	14	40	213	120	333
All types															
Old growth	91	110	201	226	114	340	55	43	98				372	267	639
Young growth-old growth	12	22	34	23	79	102	20	48	68				55	149	204
Large young growth	1	36	37	7	70	77	5	80	85				13	186	199
Small young growth	-	1	1	4	7	11	4	15	19				8	23	31
Total	104	169	273	260	270	530	84	186	270	58	166	224	506	791	1297

Table 6.- Withdrawn areas of timber cropland by type and age class of timber, density of stand, and ownership

Type and age class	Dense and semidense			Open			Very open			Unstocked			All densities		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
							Thousand acres								
Pine															
Old growth	12	4	16	47	5	52	1	-	1				60	9	69
Young growth-old growth	2	-	2	2	1	3	-	-	-				4	1	5
Large young growth	1	-	1	-	-	-	-	1	1				1	1	2
Small young growth	1	-	1	-	-	-	11	-	11				12	-	12
Total	16	4	20	49	6	55	12	1	13	2	-	2	79	11	90
Redwood															
Old growth	44	-	44	3	-	3	1	-	1				48	-	48
Young growth-old growth	1	-	1	1	-	1	3	-	3				5	-	5
Large young growth	1	-	1	6	-	6	3	-	3				10	-	10
Small young growth	-	-	-	1	-	1	2	-	2				3	-	3
Total	46	-	46	11	-	11	9	-	9	2	-	2	68	-	68
Douglas-fir															
Old growth	30	1	31	40	-	40	5	-	5				75	1	76
Young growth-old growth	1	-	1	-	-	-	-	-	-				1	-	1
Large young growth	-	-	-	1	-	1	-	-	-				1	-	1
Small young growth	-	-	-	-	-	-	-	-	-				-	-	-
Total	31	1	32	41	-	41	5	-	5	6	-	6	83	1	84
Fir															
Old growth	100	3	103	76	4	80	3	-	3				179	7	186
Young growth-old growth	-	-	-	-	-	-	1	-	1				1	-	1
Large young growth	3	-	3	-	-	-	-	-	-				3	-	3
Small young growth	-	-	-	-	-	-	-	-	-				-	-	-
Total	103	3	106	76	4	80	4	-	4	3	-	3	186	7	193
Pine--Douglas-fir--fir															
Old growth	80	6	86	144	7	151	9	1	10				233	14	247
Young growth-old growth	1	-	1	4	-	4	3	1	4				8	1	9
Large young growth	-	-	-	1	-	1	1	-	1				2	-	2
Small young growth	-	-	-	-	-	-	-	-	-				-	-	-
Total	81	6	87	149	7	156	13	2	15	11	1	12	254	16	270
All types															
Old growth	266	14	280	310	16	326	19	1	20				595	31	626
Young growth-old growth	5	-	5	7	1	8	7	1	8				19	2	21
Large young growth	5	-	5	8	-	8	4	1	5				17	1	18
Small young growth	1	-	1	1	-	1	13	-	13				15	-	15
Total	277	14	291	326	17	343	43	3	46	24	1	25	670	35	705

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Table 7.- Total timber cropland area by type and age class of timber, density of stand, and ownership

Type and age class	High site Public	Private	Total	Medium site Public	Private	Total	Low site Public	Private	Total	All sites Public	Private	Total
						Thousand acres						
Pine												
Old growth	80	67	147	339	184	523	665	211	876	1084	462	1546
Young growth-old growth	170	242	412	223	202	425	267	193	460	660	637	1297
Large young growth	50	276	326	58	177	235	44	51	95	152	504	656
Small young growth	5	5	10	18	25	43	46	34	80	69	64	133
Unstocked	16	89	105	113	323	436	131	60	191	260	472	732
Total	321	679	1000	751	911	1662	1153	549	1702	2225	2139	4364
Redwood												
Old growth	29	249	278	28	428	456	20	342	362	77	1019	1096
Young growth-old growth	1	17	18	3	70	73	2	46	48	6	133	139
Large young growth	1	127	128	8	171	179	5	112	117	14	410	424
Small young growth	-	46	46	3	56	59	-	22	22	3	124	127
Unstocked	-	20	20	1	71	72	6	63	69	7	154	161
Total	31	459	490	43	796	839	33	585	618	107	1840	1947
Douglas-fir												
Old growth	358	657	1015	695	154	849	1	1	2	1054	812	1866
Young growth-old growth	24	138	162	59	40	99	2	6	8	85	184	269
Large young growth	4	45	49	7	21	28	1	1	2	12	67	79
Small young growth	-	-	-	2	2	4	-	1	1	2	3	5
Unstocked	21	112	133	119	97	216	-	13	13	140	222	362
Total	407	952	1359	882	314	1196	4	22	26	1293	1288	2581
Fir												
Old growth	16	8	24	586	128	714	169	55	224	771	191	962
Young growth-old growth	7	4	11	48	13	61	8	7	15	63	24	87
Large young growth	-	3	3	11	2	13	-	-	-	11	5	16
Small young growth	-	-	-	8	3	11	2	-	2	10	3	13
Unstocked	3	1	4	54	15	69	29	7	36	86	23	109
Total	26	16	42	707	161	868	208	69	277	941	246	1187
Pine—Douglas-fir—fir												
Old growth	243	252	495	1957	990	2947	429	121	550	2629	1363	3992
Young growth-old growth	304	346	650	515	550	1065	150	123	273	969	1019	1988
Large young growth	46	74	120	50	36	86	3	8	11	99	118	217
Small young growth	9	12	21	12	16	28	4	10	14	25	38	63
Unstocked	74	60	134	360	170	530	70	37	107	504	267	771
Total	676	744	1420	2894	1762	4656	656	299	955	4226	2805	7031
All types												
Old growth	726	1233	1959	3605	1884	5489	1284	730	2014	5615	3847	9462
Young growth-old growth	506	747	1253	848	875	1723	429	375	804	1783	1997	3780
Large young growth	101	525	626	134	407	541	53	172	225	288	1104	1392
Small young growth	14	63	77	43	102	145	52	67	119	109	232	341
Unstocked	114	282	396	647	676	1523	236	180	416	997	1138	2135
Total	1461	2850	4311	5277	3944	9221	2054	1524	3578	8792	8318	17110

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Table 8.- Available areas of timber cropland by type and age class of timber, site quality, and ownership

Type and age class	High site			Medium site			Low site			All sites		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total

Thousand acres

Type and age class	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Pine												
Old growth	63	60	123	257	159	416	513	188	701	833	407	1240
Young growth-old growth	158	233	391	209	176	385	261	182	443	628	591	1219
Large young growth	48	273	321	53	170	223	44	50	94	145	493	638
Small young growth	4	5	9	12	19	31	33	33	66	49	57	106
Unstocked	16	88	104	97	304	401	122	56	178	235	448	683
Total	289	659	948	628	828	1456	973	509	1482	1890	1996	3886
Redwood												
Old growth	8	224	232	8	383	391	9	299	308	25	906	931
Young growth-old growth	-	9	9	1	54	55	-	28	28	1	91	92
Large young growth	-	98	98	-	113	113	-	59	59	-	270	270
Small young growth	-	44	44	-	50	50	-	16	16	-	110	110
Unstocked	-	18	18	-	48	48	2	23	25	2	89	91
Total	8	393	401	9	648	657	11	425	436	28	1466	1494
Douglas-fir												
Old growth	146	451	597	208	100	308	1	1	2	355	552	907
Young growth-old growth	15	121	136	34	22	56	2	6	8	51	149	200
Large young growth	4	29	33	1	5	6	1	1	2	6	35	41
Small young growth	-	-	-	1	2	3	-	-	-	1	2	3
Unstocked	15	67	82	40	46	86	-	12	12	55	125	180
Total	180	668	848	284	175	459	4	20	24	468	863	1331
Fir												
Old growth	14	5	19	249	92	341	105	39	144	368	136	504
Young growth-old growth	6	4	10	39	11	50	7	6	13	52	21	73
Large young growth	-	2	2	5	1	6	-	-	-	5	3	8
Small young growth	-	-	-	8	3	11	2	-	2	10	3	13
Unstocked	1	1	2	36	13	49	28	7	35	65	21	86
Total	21	12	33	337	120	457	142	52	194	500	184	684
Pine—Douglas-fir—fir												
Old growth	169	233	402	1312	856	2168	243	107	350	1724	1196	2920
Young growth-old growth	287	336	623	451	492	943	146	119	265	884	947	1831
Large young growth	42	70	112	43	25	68	3	7	10	88	102	190
Small young growth	9	12	21	11	15	26	4	10	14	24	37	61
Unstocked	59	48	107	242	125	367	62	36	98	363	209	572
Total	566	699	1265	2059	1513	3572	458	279	737	3083	2491	5574
All types												
Old growth	400	973	1373	2034	1590	3624	871	634	1505	3305	3197	6502
Young growth-old growth	466	703	1169	734	755	1489	416	341	757	1616	1799	3415
Large young growth	94	472	566	102	314	416	48	117	165	244	903	1147
Small young growth	13	61	74	32	89	121	39	59	98	84	209	293
Unstocked	91	222	313	415	536	951	214	134	348	720	892	1612
Total	1064	2431	3495	3317	3284	6601	1588	1285	2873	5969	7000	12969

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Table 9.- Unavailable areas of timber cropland by type and age class of timber, site quality, and ownership

Type and age class	High site			Medium site			Low site			All sites		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
						Thousand acres						
Pine												
Old growth	-	-	-	29	3	32	70	1	71	99	4	103
Young growth-old growth	1	2	3	3	1	4	3	-	3	7	3	10
Large young growth	-	-	-	2	1	3	-	-	-	2	1	3
Small young growth	-	-	-	-	-	-	1	-	1	1	-	1
Unstocked	-	-	-	8	9	17	7	3	10	15	12	27
Total	1	2	3	42	14	56	81	4	85	124	20	144
Redwood												
Old growth	-	-	-	-	2	2	-	2	2	-	4	4
Young growth-old growth	-	-	-	-	-	-	-	-	-	-	-	-
Large young growth	-	-	-	-	-	-	-	-	-	-	-	-
Small young growth	-	-	-	-	-	-	-	-	-	-	-	-
Unstocked	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	2	2	-	2	2	-	4	4
Douglas-fir												
Old growth	192	189	381	380	26	406	-	-	-	572	215	787
Young growth-old growth	8	12	20	22	5	27	-	-	-	30	17	47
Large young growth	-	3	3	5	1	6	-	-	-	5	4	9
Small young growth	-	-	-	1	-	1	-	-	-	1	-	1
Unstocked	6	17	23	60	6	66	-	-	-	66	23	89
Total	206	221	427	468	38	506	-	-	-	674	259	933
Fir												
Old growth	1	1	2	122	20	142	32	7	39	155	28	183
Young growth-old growth	1	-	1	5	1	6	-	-	-	6	1	7
Large young growth	-	1	1	2	-	2	-	-	-	2	1	3
Small young growth	-	-	-	-	-	-	-	-	-	-	-	-
Unstocked	2	-	2	8	1	9	-	-	-	10	1	11
Total	4	2	6	137	22	159	32	7	39	173	31	204
Pine—Douglas-fir—fir												
Old growth	43	11	54	353	85	438	121	5	126	517	101	618
Young growth-old growth	6	1	7	43	25	68	1	-	1	50	26	76
Large young growth	-	1	1	5	7	12	-	-	-	5	8	13
Small young growth	-	-	-	-	-	-	-	-	-	-	-	-
Unstocked	13	10	23	89	33	122	2	-	2	104	43	147
Total	62	23	85	490	150	640	124	5	129	676	178	854
All types												
Old growth	236	201	437	884	136	1020	223	15	238	1343	352	1695
Young growth-old growth	16	15	31	73	32	105	4	-	4	93	47	140
Large young growth	-	5	5	14	9	23	-	-	-	14	14	28
Small young growth	-	-	-	1	-	1	1	-	1	2	-	2
Unstocked	21	27	48	165	49	214	9	3	12	195	79	274
Total	273	248	521	1137	226	1363	237	18	255	1647	492	2139

Table 10.- Recreation areas of timber cropland by type and age class of timber, site quality, and ownership

Type and age class	High site			Medium site			Low site			All sites		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
	Thousand acres											
Pine												
Old growth	1	1	2	20	19	39	71	22	93	92	42	134
Young growth-old growth	7	6	13	11	25	36	3	11	14	21	42	63
Large young growth	1	3	4	3	5	8	-	1	1	4	9	13
Small young growth	-	-	-	6	6	12	1	1	2	7	7	14
Unstocked	-	1	1	7	10	17	1	1	2	8	12	20
Total	9	11	20	47	65	112	76	36	112	132	112	244
Redwood												
Old growth	1	25	26	1	43	44	2	41	43	4	109	113
Young growth-old growth	-	8	8	-	16	16	-	18	18	-	42	42
Large young growth	-	29	29	1	58	59	3	53	56	4	140	144
Small young growth	-	2	2	-	6	6	-	6	6	-	14	14
Unstocked	-	2	2	-	23	23	3	40	43	3	65	68
Total	1	66	67	2	146	148	8	158	166	11	370	381
Douglas-fir												
Old growth	13	17	30	39	27	66	-	-	-	52	44	96
Young growth-old growth	1	5	6	2	13	15	-	-	-	3	18	21
Large young growth	-	13	13	-	15	15	-	-	-	-	28	28
Small young growth	-	-	-	-	-	-	-	1	1	-	1	1
Unstocked	-	28	28	13	45	58	-	1	1	13	74	87
Total	14	63	77	54	100	154	-	2	2	68	165	233
Fir												
Old growth	1	2	3	58	9	67	10	9	19	69	20	89
Young growth-old growth	-	-	-	3	1	4	1	1	2	4	2	6
Large young growth	-	-	-	1	1	2	-	-	-	1	1	2
Small young growth	-	-	-	-	-	-	-	-	-	-	-	-
Unstocked	-	-	-	8	1	9	-	-	-	8	1	9
Total	1	2	3	70	12	82	11	10	21	82	24	106
Pine—Douglas-fir—fir												
Old growth	5	4	9	106	39	145	44	9	53	155	52	207
Young growth-old growth	6	9	15	18	32	50	3	4	7	27	45	72
Large young growth	2	3	5	2	4	6	-	1	1	4	8	12
Small young growth	-	-	-	1	1	2	-	-	-	1	1	2
Unstocked	-	1	1	21	12	33	5	1	6	26	14	40
Total	13	17	30	148	88	236	52	15	67	213	120	333
All types												
Old growth	21	49	70	224	137	361	127	81	208	372	267	639
Young growth-old growth	14	28	42	34	87	121	7	34	41	55	149	204
Large young growth	3	48	51	7	83	90	3	55	58	13	186	199
Small young growth	-	2	2	7	13	20	1	8	9	8	23	31
Unstocked	-	32	32	49	91	140	9	43	52	58	166	224
Total	38	159	197	321	411	732	147	221	368	506	791	1297

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Table 11.- Withdrawn areas of timber cropland by type and age class of timber, site quality, and ownership

Type and age class	Site quality and ownership											
	High site			Medium site			Low site			All sites		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
	Thousand acres											
Pine												
Old growth	16	6	22	33	3	36	11	-	11	60	9	69
Young growth-old growth	4	1	5	-	-	-	-	-	-	4	1	5
Large young growth	1	-	1	-	1	1	-	-	-	1	1	2
Small young growth	1	-	1	-	-	-	11	-	11	12	-	12
Unstocked	-	-	-	1	-	1	1	-	1	2	-	2
Total	22	7	29	34	4	38	23	-	23	79	11	90
Redwood												
Old growth	20	-	20	19	-	19	9	-	9	48	-	48
Young growth-old growth	1	-	1	2	-	2	2	-	2	5	-	5
Large young growth	1	-	1	7	-	7	2	-	2	10	-	10
Small young growth	-	-	-	3	-	3	-	-	-	3	-	3
Unstocked	-	-	-	1	-	1	1	-	1	2	-	2
Total	22	-	22	32	-	32	14	-	14	68	-	68
Douglas-fir												
Old growth	7	-	7	68	1	69	-	-	-	75	1	76
Young growth-old growth	-	-	-	1	-	1	-	-	-	1	-	1
Large young growth	-	-	-	1	-	1	-	-	-	1	-	1
Small young growth	-	-	-	-	-	-	-	-	-	-	-	-
Unstocked	-	-	-	6	-	6	-	-	-	6	-	6
Total	7	-	7	76	1	77	-	-	-	83	1	84
Fir												
Old growth	-	-	-	157	7	164	22	-	22	179	7	186
Young growth-old growth	-	-	-	1	-	1	-	-	-	1	-	1
Large young growth	-	-	-	3	-	3	-	-	-	3	-	3
Small young growth	-	-	-	-	-	-	-	-	-	-	-	-
Unstocked	-	-	-	2	-	2	1	-	1	3	-	3
Total	-	-	-	163	7	170	23	-	23	186	7	193
Pine--Douglas-fir--fir												
Old growth	26	4	30	186	10	196	21	-	21	233	14	247
Young growth-old growth	5	-	5	3	1	4	-	-	-	8	1	9
Large young growth	2	-	2	-	-	-	-	-	-	2	-	2
Small young growth	-	-	-	-	-	-	-	-	-	-	-	-
Unstocked	2	1	3	8	-	8	1	-	1	11	1	12
Total	35	5	40	197	11	208	22	-	22	254	16	270
All types												
Old growth	69	10	79	463	21	484	63	-	63	595	31	626
Young growth-old growth	10	1	11	7	1	8	2	-	2	19	2	21
Large young growth	4	-	4	11	1	12	2	-	2	17	1	18
Small young growth	1	-	1	3	-	3	11	-	11	15	-	15
Unstocked	2	1	3	18	-	18	4	-	4	24	1	25
Total	86	12	98	502	23	525	82	-	82	670	35	705

Table 12.- **Total very openly stocked and unstocked timber cropland area by timber type, present cover, site quality, and ownership**

Timber type and present cover	Site quality and ownership											
	High site			Medium site			Low site			All sites		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
	Thousand acres											
Pine												
Other conifer forest	-	-	-	1	2	3	8	5	13	9	7	16
Woodland	30	68	98	138	228	366	20	22	42	188	318	506
Woodland—grass	4	47	51	17	135	152	21	12	33	42	194	236
Grass	1	6	7	2	5	7	10	4	14	13	15	28
Chaparral	57	172	229	171	203	374	235	108	343	465	483	946
Sagebrush	-	-	-	22	20	42	213	67	280	235	87	322
Total	92	293	385	351	593	944	507	218	725	950	1104	2054
Redwood												
Other conifer forest	-	-	-	-	-	-	-	1	1	-	1	1
Woodland	1	17	18	1	73	74	12	182	194	14	272	286
Woodland—grass	-	-	-	-	1	1	-	2	2	-	3	3
Grass	-	4	4	-	13	13	1	6	7	1	23	24
Chaparral	2	65	67	3	132	135	2	52	54	7	249	256
Sagebrush	-	-	-	-	2	2	-	4	4	-	6	6
Total	3	86	89	4	221	225	15	247	262	22	554	576
Douglas-fir												
Other conifer forest	1	1	2	7	-	7	-	-	-	8	1	9
Woodland	45	230	275	243	148	391	-	12	12	288	390	678
Woodland—grass	-	-	-	-	1	1	-	-	-	-	1	1
Grass	-	8	8	-	-	-	-	-	-	-	8	8
Chaparral	6	26	32	24	14	38	-	1	1	30	41	71
Sagebrush	-	6	6	1	2	3	-	-	-	1	8	9
Total	52	271	323	275	165	440	-	13	13	327	449	776
Fir												
Other conifer forest	-	-	-	-	1	1	1	-	1	1	1	2
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
Woodland—grass	-	-	-	1	-	1	-	1	1	1	1	2
Grass	-	-	-	-	1	1	-	-	-	-	1	1
Chaparral	4	2	6	53	17	70	55	11	66	112	30	142
Sagebrush	-	-	-	-	-	-	5	-	5	5	-	5
Total	4	2	6	54	19	73	61	12	73	119	33	152
Pine—Douglas-fir—fir												
Other conifer forest	-	-	-	15	3	18	-	-	-	15	3	18
Woodland	43	75	118	369	210	579	21	17	38	433	302	735
Woodland—grass	-	2	2	3	11	14	4	-	4	7	13	20
Grass	-	1	1	-	-	-	-	-	-	-	1	1
Chaparral	125	75	200	405	226	631	145	70	215	675	371	1046
Sagebrush	-	-	-	6	2	8	9	2	11	15	4	19
Total	168	153	321	798	452	1250	179	89	268	1145	694	1839
All timber types												
Other conifer forest	1	1	2	23	6	29	9	6	15	33	13	46
Woodland	119	390	509	751	659	1410	53	233	286	923	1282	2205
Woodland—grass	4	49	53	21	148	169	25	15	40	50	212	262
Grass	1	19	20	2	19	21	11	10	21	14	48	62
Chaparral	194	340	534	656	592	1248	437	242	679	1287	1174	2461
Sagebrush	-	6	6	29	26	55	227	73	300	256	105	361
Total	319	805	1124	1482	1450	2932	762	579	1341	2563	2834	5397

Table 13.- Available areas of very openly stocked and unstocked timber cropland by timber type, present cover, site quality, and ownership

Timber type and present cover	High site Public	High site Private	High site Total	Medium site Public	Medium site Private	Medium site Total	Low site Public	Low site Private	Low site Total	All sites Public	All sites Private	All sites Total
						Thousand acres						
Pine												
Other conifer forest	-	-	-	1	2	3	6	4	10	7	6	13
Woodland	29	68	97	99	208	307	14	12	26	142	288	430
Woodland—grass	2	46	48	12	130	142	14	10	24	28	186	214
Grass	1	6	7	2	4	6	10	4	14	13	14	27
Chaparral	56	168	224	158	189	347	210	104	314	424	461	885
Sagebrush	-	-	-	19	15	34	199	65	264	218	80	298
Total	88	288	376	291	548	839	453	199	652	832	1035	1867
Redwood												
Other conifer forest	-	-	-	-	-	-	-	1	1	-	1	1
Woodland	-	11	11	-	44	44	3	109	112	3	164	167
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	3	3	-	10	10	-	5	5	-	18	18
Chaparral	-	63	63	-	114	114	1	31	32	1	208	209
Sagebrush	-	-	-	-	-	-	-	4	4	-	4	4
Total	-	77	77	-	168	168	4	150	154	4	395	399
Douglas-fir												
Other conifer forest	1	1	2	3	-	3	-	-	-	4	1	5
Woodland	20	174	194	65	73	138	-	11	11	85	258	343
Woodland—grass	-	-	-	-	1	1	-	-	-	-	1	1
Grass	-	3	3	-	-	-	-	-	-	-	3	3
Chaparral	6	15	21	12	11	23	-	1	1	18	27	45
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	27	193	220	80	85	165	-	12	12	107	290	397
Fir												
Other conifer forest	-	-	-	-	1	1	-	-	-	-	1	1
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	1	1	-	-	-	-	1	1
Chaparral	2	2	4	29	15	44	51	10	61	82	27	109
Sagebrush	-	-	-	-	-	-	5	-	5	5	-	5
Total	2	2	4	29	17	46	56	10	66	87	29	116
Pine—Douglas-fir—fir												
Other conifer forest	-	-	-	8	2	10	-	-	-	8	2	10
Woodland	24	62	86	192	141	333	16	14	30	232	217	449
Woodland—grass	-	2	2	3	11	14	1	-	1	4	13	17
Grass	-	1	1	-	-	-	-	-	-	-	1	1
Chaparral	116	71	187	321	185	506	123	69	192	560	325	885
Sagebrush	-	-	-	6	1	7	8	2	10	14	3	17
Total	140	136	276	530	340	870	148	85	233	818	561	1379
All timber types												
Other conifer forest	1	1	2	12	5	17	6	5	11	19	11	30
Woodland	73	315	388	356	466	822	33	146	179	462	927	1389
Woodland—grass	2	48	50	15	142	157	15	10	25	32	200	232
Grass	1	13	14	2	15	17	10	9	19	13	37	50
Chaparral	180	319	499	520	514	1034	385	215	600	1085	1048	2133
Sagebrush	-	-	-	25	16	41	212	71	283	237	87	324
Total	257	696	953	930	1158	2088	661	456	1117	1848	2310	4168

Table 14.— Unavailable areas of very openly stocked and unstocked timber cropland by timber type, present cover, site quality, and ownership

Timber type and present cover	High site Public	High site Private	High site Total	Medium site Public	Medium site Private	Medium site Total	Low site Public	Low site Private	Low site Total	All sites Public	All sites Private	All sites Total
						Thousand acres						
Pine												
Other conifer forest	-	-	-	-	-	-	1	-	1	1	-	1
Woodland	-	-	-	28	10	38	-	-	-	28	10	38
Woodland—grass	-	-	-	1	-	1	-	-	-	1	-	1
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	-	-	-	2	2	4	19	3	22	21	5	26
Sagebrush	-	-	-	1	-	1	2	1	3	3	1	4
Total	-	-	-	32	12	44	22	4	26	54	16	70
Redwood												
Other conifer forest	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	-	-	-	-	-	-	-	1	1	-	1	1
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	1	1	-	1	1
Douglas-fir												
Other conifer forest	-	-	-	3	-	3	-	-	-	3	-	3
Woodland	24	28	52	159	12	171	-	-	-	183	40	223
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	1	1	-	-	-	-	-	-	-	1	1
Chaparral	-	7	7	4	1	5	-	-	-	4	8	12
Sagebrush	-	5	5	-	-	-	-	-	-	-	5	5
Total	24	41	65	166	13	179	-	-	-	190	54	244
Fir												
Other conifer forest	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
Woodland—grass	-	-	-	1	-	1	-	-	-	1	-	1
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	2	-	2	9	1	10	1	-	1	12	1	13
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	-	2	10	1	11	1	-	1	13	1	14
Pine--Douglas-fir--fir												
Other conifer forest	-	-	-	6	-	6	-	-	-	6	-	6
Woodland	17	11	28	150	58	208	1	-	1	168	69	237
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	3	1	4	54	26	80	17	-	17	74	27	101
Sagebrush	-	-	-	-	-	-	1	-	1	1	-	1
Total	20	12	32	210	84	294	19	-	19	249	96	345
All timber types												
Other conifer forest	-	-	-	9	-	9	1	-	1	10	-	10
Woodland	41	39	80	337	80	417	1	-	1	379	119	498
Woodland—grass	-	-	-	2	-	2	-	-	-	2	-	2
Grass	-	1	1	-	-	-	-	-	-	-	1	1
Chaparral	5	8	13	69	30	99	37	4	41	111	42	153
Sagebrush	-	6	6	1	-	1	3	1	4	4	6	10
Total	46	53	99	418	110	528	42	5	47	506	168	674

Table 15.- Recreation areas of very openly stocked and unstocked timber cropland by timber type, present cover, site quality, and ownership

Timber type and present cover	High site			Medium site			Low site			All sites		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
						Thousand acres						
Pine												
Other conifer forest	-	-	-	-	-	-	1	1	2	1	1	2
Woodland	1	-	1	10	9	19	6	10	16	17	19	36
Woodland—grass	2	1	3	4	5	9	7	2	9	13	8	21
Grass	-	-	-	-	1	1	-	-	-	-	1	1
Chaparral	1	4	5	10	12	22	5	1	6	16	17	33
Sagebrush	-	-	-	2	5	7	1	1	2	3	6	9
Total	4	5	9	26	32	58	20	15	35	50	52	102
Redwood												
Other conifer forest	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	6	6	-	29	29	7	73	80	7	108	115
Woodland—grass	-	-	-	-	1	1	-	2	2	-	3	3
Grass	-	1	1	-	3	3	-	1	1	-	5	5
Chaparral	-	2	2	-	18	18	-	20	20	-	40	40
Sagebrush	-	-	-	-	2	2	-	-	-	-	2	2
Total	-	9	9	-	53	53	7	96	103	7	158	165
Douglas-fir												
Other conifer forest	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	1	28	29	10	63	73	-	1	1	11	92	103
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	4	4	-	-	-	-	-	-	-	4	4
Chaparral	-	4	4	7	2	9	-	-	-	7	6	13
Sagebrush	-	1	1	1	2	3	-	-	-	1	3	4
Total	1	37	38	18	67	85	-	1	1	19	105	124
Fir												
Other conifer forest	-	-	-	-	-	-	1	-	1	1	-	1
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
Woodland—grass	-	-	-	-	-	-	-	1	1	-	1	1
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	-	-	-	10	1	11	1	1	2	11	2	13
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	10	1	11	2	2	4	12	3	15
Pine—Douglas-fir—fir												
Other conifer forest	-	-	-	-	1	1	-	-	-	-	1	1
Woodland	2	2	4	18	11	29	3	3	6	23	16	39
Woodland—grass	-	-	-	-	-	-	3	-	3	3	-	3
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	1	1	2	23	14	37	4	1	5	28	16	44
Sagebrush	-	-	-	-	1	1	-	-	-	-	1	1
Total	3	3	6	41	27	68	10	4	14	54	34	88
All timber types												
Other conifer forest	-	-	-	-	1	1	2	1	3	2	2	4
Woodland	4	36	40	38	112	150	16	87	103	58	235	293
Woodland—grass	2	1	3	4	6	10	10	5	15	16	12	28
Grass	-	5	5	-	4	4	-	1	1	-	10	10
Chaparral	2	11	13	50	47	97	10	23	33	62	81	143
Sagebrush	-	1	1	3	10	13	1	1	2	4	12	16
Total	8	54	62	95	180	275	39	118	167	142	352	494

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Table 16.- Withdrawn areas of very openly stocked and unstocked timber cropland by timber type, present cover, site quality, and ownership

Timber type and present cover	High site Public	High site Private	High site Total	Medium site Public	Medium site Private	Medium site Total	Low site Public	Low site Private	Low site Total	All sites Public	All sites Private	All sites Total
						Thousand acres						
Pine												
Other conifer forest	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	1	1	2	-	-	-	1	1	2
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	-	-	-	1	-	1	1	-	1	2	-	2
Sagebrush	-	-	-	-	-	-	11	-	11	11	-	11
Total	-	-	-	2	1	3	12	-	12	14	1	15
Redwood												
Other conifer forest	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	1	-	1	1	-	1	2	-	2	4	-	4
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	1	-	1	1	-	1
Chaparral	2	-	2	3	-	3	1	-	1	6	-	6
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	-	3	4	-	4	4	-	4	11	-	11
Douglas-fir												
Other conifer forest	-	-	-	1	-	1	-	-	-	1	-	1
Woodland	-	-	-	9	-	9	-	-	-	9	-	9
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	-	-	-	1	-	1	-	-	-	1	-	1
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	11	-	11	-	-	-	11	-	11
Fir												
Other conifer forest	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	-	-	-	5	-	5	2	-	2	7	-	7
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	5	-	5	2	-	2	7	-	7
Pine—Douglas-fir—fir												
Other conifer forest	-	-	-	1	-	1	-	-	-	1	-	1
Woodland	-	-	-	9	-	9	1	-	1	10	-	10
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	-	-	-	-	-	-
Chaparral	5	2	7	7	1	8	1	-	1	13	3	16
Sagebrush	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	2	7	17	1	18	2	-	2	24	3	27
All timber types												
Other conifer forest	-	-	-	2	-	2	-	-	-	2	-	2
Woodland	1	-	1	20	1	21	3	-	3	24	1	25
Woodland—grass	-	-	-	-	-	-	-	-	-	-	-	-
Grass	-	-	-	-	-	-	1	-	1	1	-	1
Chaparral	7	2	9	17	1	18	5	-	5	29	3	32
Sagebrush	-	-	-	-	-	-	11	-	11	11	-	11
Total	8	2	10	39	2	41	20	-	20	67	4	71

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Table 17.- Board-foot volume, log scale, on timber cropland areas by stand character, species, availability class, and ownership

Stand character and species	Available			Unavailable			Recreation			Withdrawn			All classes		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
	Million board feet														
Dense to open old growth															
Ponderosa pine 1/	17243	11235	28478	2182	351	2533	1456	523	1979	2172	181	2353	23053	12290	35343
Sugar pine	7544	5557	13101	957	147	1104	474	129	603	1383	141	1524	10358	5974	16332
Redwood 2/	970	29261	30231	6	90	96	128	3732	3860	2783	9	2792	3887	33092	36979
Douglas-fir 3/	13505	22415	35920	11079	5117	16196	1316	1729	3045	2427	87	2514	28327	29348	57675
Fir 4/	15580	9185	24765	4955	766	5721	1977	493	2470	5325	228	5553	27817	10692	38509
Incense-cedar	2411	1693	4104	311	50	361	136	46	182	535	101	636	3393	1890	5283
All species	57253	79346	136599	19470	6541	26011	5487	6652	12139	14625	747	15372	96835	93286	190121
Dense to open young growth-old growth															
Ponderosa pine	4498	5055	9553	139	80	219	155	261	416	58	3	61	4850	5399	10249
Sugar pine	1623	1721	3344	77	38	115	73	60	133	20	1	21	1793	1820	3613
Redwood	9	772	781	-	-	-	-	364	364	21	-	21	30	1136	1166
Douglas-fir	2047	4328	6375	472	274	746	89	288	377	21	1	22	2629	4891	7520
Fir	3221	3474	6695	91	50	141	201	218	419	33	1	34	3546	3743	7289
Incense-cedar	805	960	1765	16	10	26	25	40	65	13	-	13	859	1010	1869
All species	12203	16310	28513	795	452	1247	543	1231	1774	166	6	172	13707	17999	31706
Dense to open large young growth															
Ponderosa pine	674	1840	2514	6	1	7	37	52	89	20	-	20	737	1893	2630
Sugar pine	152	90	242	3	1	4	8	6	14	5	-	5	168	97	265
Redwood	1	1052	1053	-	-	-	4	385	389	36	-	36	41	1437	1478
Douglas-fir	167	1179	1346	76	48	124	10	388	398	32	-	32	285	1615	1900
Fir	425	715	1140	30	17	47	33	33	66	68	1	69	556	766	1322
Incense-cedar	47	120	167	2	2	4	3	6	9	2	-	2	54	128	182
All species	1466	4996	6462	117	69	186	95	870	965	163	1	164	1841	5936	7777
Very open stands (all age classes)															
Ponderosa pine	2688	1751	4439	494	126	620	193	151	344	26	3	29	3401	2031	5432
Sugar pine	408	283	691	87	25	112	24	18	42	10	1	11	529	327	856
Redwood	16	1095	1111	1	5	6	11	212	223	24	-	24	52	1312	1364
Douglas-fir	847	1708	2555	935	272	1207	85	239	324	49	2	51	1916	2221	4137
Fir	683	592	1275	123	37	160	64	49	113	35	4	39	905	682	1587
Incense-cedar	222	171	393	27	5	32	12	10	22	4	-	4	265	186	451
All species	4864	5600	10464	1667	470	2137	389	679	1068	148	10	158	7068	6759	13827
All stands															
Ponderosa pine	25103	19881	44984	2821	558	3379	1841	987	2828	2276	187	2463	32041	21613	53654
Sugar pine	9727	7651	17378	1124	211	1335	579	213	792	1418	143	1561	12848	8218	21066
Redwood	996	32180	33176	7	95	102	143	4693	4836	2864	9	2873	4010	36977	40987
Douglas-fir	16566	29630	46196	12562	5711	18273	1500	2644	4144	2529	90	2619	33157	38075	71232
Fir	19909	13966	33875	5179	890	6069	2275	793	3068	5461	234	5695	32824	15883	48707
Incense-cedar	3485	2944	6429	356	67	423	176	102	278	554	101	655	4571	3214	7785
All species	75786	106252	182038	22049	7532	29581	6514	9432	15946	15102	764	15866	119451	123980	243431

1/ Including Jeffrey pine.
2/ Coastal redwood only; no estimate made for giant sequoia because of weak basis.
3/ Including other "whitewoods" (Sitka spruce, western hemlock, Port Orford white-cedar, western redcedar, and, except where distinguished on cruise records, white fir) in the redwood and Douglas-fir types of the redwood, Coast Range pine, and Douglas-fir subregions.
4/ Including the western white pine, mountain hemlock, and lodgepole pine in fir stands.

Table 18.- Total county areas of forest and other vegetation types

County	Pine	Redwood	Douglas-fir	Fir	Pine— Douglas-fir— fir	Lodgepole pine— whitebark pine	Piñon pine and juniper	Minor conifers	Woodland (hard-woods)	Woodland-grass	Grass	Chaparral	Great Basin sage-brush	Coastal sage-brush	Desert	Cultivated, urban, and industrial	Marsh	Barren	All types
															Thousand acres				
Alameda	-	1/	-	-	-	-	1	1	20	57	169	10	-	10	-	196	6	*	469
Alpine	104	-	-	56	23	166	23	-	1	-	5	20	51	-	-	4	-	10	463
Amador	76	-	2	16	34	28	-	-	12	110	34	49	*	-	-	17	-	3	380
Butte	118	-	4	18	169	1	-	-	53	172	137	95	-	-	-	299	-	-	1066
Calaveras	145	-	2	16	75	1	-	*	25	247	60	80	-	-	-	7	-	1	658
Colusa	*	-	-	1	25	-	-	4	4	143	60	103	-	-	-	408	-	-	738
Contra Costa	-	*	-	-	-	-	*	*	14	40	161	11	-	6	-	239	*	-	470
Del Norte	4	147	144	13	95	-	-	91	37	-	2	79	-	6	-	22	-	2	642
Eldorado	240	-	2	45	347	119	-	*	62	158	35	79	1	-	-	15	-	13	1104
Fresno	108	-	-	191	231	355	33	1	38	327	962	223	7	49	-	1059	-	246	3830
Glenn	17	-	2	7	78	-	-	1	9	138	149	120	-	-	-	321	-	1	843
Humboldt	9	618	944	22	52	-	-	4	104	112	233	64	-	13	-	101	*	11	2287
Imperial	-	-	-	-	-	-	2	-	-	-	11	-	-	-	2222	507	-	-	2742
Inyo	4	-	-	-	27	71	476	-	*	-	119	22	636	-	4821	34	-	246	6456
Kern	70	-	-	1	45	-	258	3	62	560	1454	163	451	264	1432	475	-	1	5229
Kings	-	-	-	-	-	-	3	-	*	7	419	1	37	14	-	412	-	-	893
Lake	27	-	8	3	117	-	-	10	30	131	22	405	-	-	-	51	-	-	804
Lassen	460	-	-	53	317	25	369	-	2	-	140	39	1415	-	-	86	-	6	2911
Los Angeles	35	-	-	-	18	1	130	51	58	35	148	761	31	183	446	702	-	6	2605
Madera	96	-	-	74	135	110	1	-	13	258	209	60	-	1	-	361	-	57	1375
Marin	-	11	13	-	-	-	-	2	23	34	174	19	-	24	-	32	*	1	333
Mariposa	183	1	3	51	71	64	-	2	33	245	150	151	-	1	-	2	-	15	931
Mendocino	22	696	248	10	129	-	-	40	136	460	101	303	-	5	-	93	-	3	2246
Merced	-	-	-	-	-	-	2	-	6	55	685	2	-	14	-	504	*	1	1269
Modoc	482	-	-	72	134	40	457	-	2	-	107	15	1086	-	-	212	-	13	2620
Mono	111	-	-	7	13	214	363	-	1	-	60	33	828	-	153	12	-	154	1949
Monterey	8	13	-	-	1	-	*	23	164	402	455	515	-	128	-	376	2	40	2127
Napa	-	1	8	-	-	-	-	-	47	158	36	147	-	-	-	107	-	2	506
Nevada	130	-	-	36	157	36	-	-	27	95	3	89	11	-	-	18	-	25	627
Orange	-	-	-	-	-	-	-	1	12	5	65	56	-	95	-	266	-	*	500
Placer	92	-	-	67	230	49	-	-	88	98	59	88	1	-	-	130	-	14	916
Plumas	281	-	4	167	766	14	8	-	62	-	46	143	128	*	-	27	-	4	1645
Riverside	24	-	-	2	24	3	113	16	24	7	61	636	5	279	2932	464	-	6	4595
Sacramento	-	-	-	-	-	-	-	-	5	30	210	*	-	-	-	381	*	4	630
San Benito	3	-	-	-	-	-	15	8	12	226	281	188	-	49	-	128	-	3	893
San Bernardino	87	-	-	*	69	13	351	29	26	9	24	312	8	85	11631	231	-	9	12884
San Diego	17	-	-	8	2	-	25	28	57	52	190	1028	13	381	639	282	2	1	2725
San Francisco	-	-	1/	-	-	-	-	-	-	-	2	*	-	*	-	27	-	*	29
San Joaquin	-	-	-	-	-	-	-	-	-	30	160	1	-	4	-	707	*	-	902
San Luis Obispo	1	-	-	-	-	-	36	12	145	303	661	306	23	204	-	414	-	25 2/	2129
San Mateo	-	41	8	-	-	-	-	1	29	4	55	18	-	44	-	83	7	1	291
Santa Barbara	1	-	-	-	1	-	55	18	113	175	297	626	-	217	-	250	-	6	1767
Santa Clara	-	10	3	-	-	-	-	3	96	180	130	147	-	16	-	239	11	*	835
Santa Cruz	1	99	4	-	-	-	-	6	34	1	21	41	-	8	-	67	*	*	281
Shasta	362	-	38	41	721	26	34	1	134	394	82	505	9	-	-	87	-	27	2461
Sierra	82	-	3	99	221	9	2	1	26	1	11	81	55	-	-	19	-	3	613
Siskiyou	425	-	424	365	976	160	134	22	153	122	189	590	222	*	-	151	-	107	4040
Solano	-	-	-	-	-	-	-	-	4	33	51	15	-	-	-	374	52	-	529
Sonoma	-	152	54	-	2	-	-	1	51	264	155	89	-	1	-	238	-	8	1011
Stanislaus	-	-	-	-	-	-	4	-	1	117	310	58	-	16	-	457	-	1	964
Sutter	-	-	-	-	-	-	-	-	5	16	38	1	-	-	-	328	*	-	388
Tehama	66	-	17	32	343	6	-	-	23	689	323	227	-	-	-	171	-	4	1903
Trinity	76	-	353	82	935	48	-	2	172	97	27	222	-	-	-	8	-	20	2042
Tulare	206	-	-	148	336	210	140	-	76	388	422	271	55	-	-	703	-	166	3101
Tuolumne	335	-	1	55	261	263	5	2	70	205	46	80	5	-	-	5	-	121	1456
Ventura	47	-	-	-	6	-	160	22	41	41	58	452	1	133	-	227	-	21	1189
Yolo	-	-	-	-	-	-	-	-	-	90	33	49	-	-	-	490	-	-	662
Yuba	49	-	-	1	50	-	-	-	26	83	98	15	-	-	-	80	-	7	408
All counties	4586	1788	2289	1767	7286	2032	3200	405	2457	7570	10575	9866	5071	2249	24276	13704	79	1414	100354

1/ Reported area too small to be included here.
2/ Includes very sparsely vegetated "badlands" area.

19,688

Table 19.- Total county areas of timber cropland[1] by density of stand and ownership

County[2]	Dense and semidense			Open			Very open			Unstocked			All densities		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
							Thousand acres								
Alameda	-	-	-	*[3]	*	*	-	-	-	-	-	-	*	*	*
Alpine	3	*	3	30	7	37	7	3	10	3	*	3	43	10	53
Amador	8	14	22	24	42	66	2	21	23	1	31	32	35	108	143
Butte	25	43	68	44	80	124	32	68	100	23	55	78	124	246	370
Calaveras	30	49	79	19	48	67	8	55	63	1	19	20	58	171	229
Colusa	-	-	-	17	2	19	4	1	5	1	*	1	22	3	25
Contra Costa	*	*	*	*	-	*	-	-	-	-	-	-	*	*	*
Del Norte	119	115	234	54	23	77	29	10	39	46	7	53	248	155	403
Eldorado	61	51	112	164	172	356	40	80	120	9	94	103	294	397	691
Fresno	67	10	77	206	19	225	30	11	41	9	5	14	312	45	357
Glenn	27	8	35	32	11	43	13	3	16	1	*	1	73	22	95
Humboldt	204	738	942	146	292	438	58	176	234	80	58	138	488	1264	1752
Kern	1	*	1	39	7	46	40	11	51	4	*	4	84	18	102
Lake	13	1	14	47	32	79	24	28	52	12	9	21	96	70	166
Lassen	130	103	233	234	196	430	45	50	95	19	12	31	428	361	789
Los Angeles	-	-	-	10	1	11	4	*	4	-	-	-	14	1	15
Madera	66	3	69	119	11	130	22	12	34	13	14	27	220	40	260
Marin	*	7	7	1	5	6	*	11	11	-	10	10	1	33	34
Mariposa	58	7	65	70	20	90	45	30	75	24	20	44	197	77	274
Mendocino	21	264	285	63	410	473	33	284	317	22	134	156	139	1092	1231
Modoc	81	60	141	204	135	339	146	31	177	31	5	36	462	231	693
Mono	5	-	5	55	10	65	33	6	39	-	-	-	93	16	109
Monterey	1	4	5	5	6	11	3	2	5	-	-	-	9	12	21
Napa	-	-	-	-	3	3	*	6	6	-	29	29	*	38	38
Nevada	13	29	42	52	74	126	38	69	107	32	54	86	135	226	361
Placer	21	18	39	92	111	203	37	61	98	13	30	43	163	220	383
Plumas	202	76	278	391	140	531	113	49	162	79	25	104	785	290	1075
Riverside	-	-	-	13	9	22	2	3	5	-	-	-	15	12	27
San Bernardino	1	2	3	45	19	64	11	7	18	2	2	4	59	30	89
San Diego	6	-	6	3	5	8	4	9	13	-	-	-	13	14	27
San Luis Obispo	-	-	-	-	1	1	*	*	*	-	-	-	*	1	1
San Mateo	2	18	20	2	13	15	3	11	14	6	16	22	13	58	71
Santa Barbara	-	-	-	2	-	2	*	-	*	-	-	-	2	-	2
Santa Clara	*	1	1	*	5	5	1	6	7	*	14	14	1	26	27
Santa Cruz	5	5	10	1	42	43	1	50	51	1	37	38	8	134	142
Shasta	61	185	246	186	326	512	103	182	285	105	124	229	455	817	1272
Sierra	51	15	66	117	43	160	83	22	105	33	8	41	284	88	372
Siskiyou	328	134	462	549	384	933	283	142	425	263	157	420	1423	817	2240
Sonoma	*	56	56	1	84	85	*	66	66	*	49	49	1	255	256
Tehama	73	86	159	98	106	204	12	12	24	29	10	39	212	214	426
Trinity	260	79	339	427	192	619	127	64	191	93	33	126	907	368	1275
Tulare	39	6	45	329	23	352	83	6	89	24	9	33	475	44	519
Tuolumne	134	63	197	144	75	219	33	26	59	16	41	57	327	205	532
Ventura	-	-	-	23	-	23	11	*	11	-	-	-	34	*	34
Yuba	25	34	59	10	16	26	3	12	15	2	27	29	40	89	129
All counties	2141	2284	4425	4088	3200	7288	1566	1696	3262	997	1138	2135	8792	8318	17110

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1/ See map, page 5, for a graphic presentation and table listing percentages in available, unavailable, recreation, and withdrawn classes.
2/ Counties without reportable timber cropland and therefore not included here or in the following county tables are Imperial, Inyo, Kings, Merced, Orange, Sacramento, San Benito, San Francisco, San Joaquin, Solano, Stanislaus, Sutter, and Yolo.
3/ Reported area too small to be included here.

Table 20.- County areas of timber cropland with dense to very open stands by age class of timber and ownership

County[1]	Old growth Public	Private	Total	Young growth-old growth Public	Private	Total	Large young growth Public	Private	Total	Small young growth Public	Private	Total	All age classes Public	Private	Total
								Thousand acres							
Alameda	-	-	-	-	-	-	*[2]	*	*	-	-	-	*	*	*
Alpine	27	6	33	2	*	2	5	3	8	6	1	7	40	10	50
Amador	23	6	29	8	26	34	3	45	48	-	-	-	34	77	111
Butte	24	30	54	64	115	179	12	36	48	1	10	11	101	191	292
Calaveras	22	22	44	27	71	98	8	59	67	-	-	-	57	152	209
Colusa	19	2	21	2	1	3	-	-	-	-	-	-	21	3	24
Contra Costa	-	-	-	-	-	-	*	*	*	-	-	-	*	*	*
Del Norte	188	122	310	8	3	11	6	20	26	*	3	3	202	148	350
Eldorado	119	53	172	152	174	326	9	69	78	5	7	12	285	303	588
Fresno	252	12	264	24	21	45	22	7	29	5	*	5	303	40	343
Glenn	67	19	86	5	3	8	*	-	*	-	-	-	72	22	94
Humboldt	372	868	1240	31	125	156	4	153	157	1	60	61	408	1206	1614
Kern	49	13	62	26	5	31	5	*	5	-	-	-	80	18	98
Lake	76	35	111	5	16	21	3	10	13	-	-	-	84	61	145
Lassen	251	177	428	150	158	308	4	11	15	4	3	7	409	349	758
Los Angeles	14	1	15	-	*	*	-	-	-	-	-	-	14	1	15
Madera	143	6	149	50	7	57	14	13	27	-	-	-	207	26	233
Marin	1	6	7	*	6	6	-	11	11	-	-	-	1	23	24
Mariposa	87	4	91	65	19	84	16	31	47	5	3	8	173	57	230
Mendocino	92	650	742	18	130	148	5	125	130	2	53	55	117	958	1075
Modoc	313	133	446	89	86	175	6	3	9	23	4	27	431	226	657
Mono	73	8	81	19	2	21	*	2	2	1	4	5	93	16	109
Monterey	9	12	21	*	*	*	-	-	-	-	-	-	9	12	21
Napa	-	1	1	*	6	6	-	2	2	-	-	-	*	9	9
Nevada	17	17	34	66	58	124	17	94	111	3	3	6	103	172	275
Placer	83	48	131	50	76	126	17	63	80	*	3	3	150	190	340
Plumas	494	121	615	195	116	311	10	13	23	7	15	22	706	265	971
Riverside	13	7	20	2	5	7	*	*	*	-	-	-	15	12	27
San Bernardino	52	20	72	4	6	10	1	2	3	*	*	*	57	28	85
San Diego	12	7	19	1	7	8	-	-	-	-	-	-	13	14	27
San Luis Obispo	-	1	1	*	*	*	-	-	-	-	-	-	*	1	1
San Mateo	3	13	16	*	10	10	4	19	23	-	-	-	7	42	49
Santa Barbara	2	-	2	-	-	-	-	-	-	-	-	-	2	-	2
Santa Clara	-	-	-	-	1	1	1	11	12	-	-	-	1	12	13
Santa Cruz	4	5	9	1	14	15	2	71	73	-	7	7	7	97	104
Shasta	268	491	759	73	159	232	5	33	38	4	10	14	350	693	1043
Sierra	96	32	128	119	36	155	26	7	33	10	5	15	251	80	331
Siskiyou	860	334	1194	232	248	480	46	42	88	22	36	58	1160	660	1820
Sonoma	1	122	123	*	22	22	*	59	59	-	3	3	1	206	207
Tehama	170	148	318	9	50	59	3	6	9	1	*	1	183	204	387
Trinity	691	228	919	109	86	195	13	21	34	1	*	1	814	335	1149
Tulare	419	24	443	28	8	36	3	3	6	1	-	1	451	35	486
Tuolumne	174	40	214	117	90	207	13	32	45	7	2	9	311	164	475
Ventura	30	-	30	4	*	4	-	-	-	-	-	-	34	*	34
Yuba	5	3	8	28	31	59	5	28	33	*	*	*	38	62	100
All counties	5615	3847	9462	1783	1997	3780	288	1104	1392	109	232	341	7795	7180	14975

1/ Counties omitted for lack of reportable timber cropland are listed in table 19, footnote 2.
2/ Reported area too small to be included here.

Table 21.- Subregion areas of timber cropland by timber type, site quality, and ownership

Subregion[1] and type	High site			Medium site			Low site			All sites		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
						Thousand acres						
Eastside Sierra pine												
Pine	-	-	-	226	189	415	1075	478	1553	1301	667	1968
Redwood	-	-	-	-	-	-	-	-	-	-	-	-
Douglas-fir	-	-	-	*2/	1	1	-	*	*	*	1	1
Fir	-	-	-	96	85	181	160	59	219	256	144	400
Pine—Douglas-fir—fir	-	*	*	369	454	823	495	199	694	864	653	1517
Total	-	*	*	691	729	1420	1730	736	2466	2421	1465	3886
Westside Sierra pine												
Pine	322	667	989	424	548	972	63	27	90	809	1242	2051
Redwood	-	-	-	-	-	-	-	-	-	-	-	-
Douglas-fir	5	2	7	16	16	32	-	-	-	21	18	39
Fir	23	13	36	469	48	517	45	7	52	537	68	605
Pine—Douglas-fir—fir	598	697	1295	1160	532	1692	124	24	148	1882	1253	3135
Total	948	1379	2327	2069	1144	3213	232	58	290	3249	2581	5830
Coast Range pine												
Pine	*	3	3	96	173	269	13	41	54	109	217	326
Redwood	-	-	-	-	2	2	-	-	-	-	2	2
Douglas-fir	20	2	22	416	104	520	5	17	22	441	123	564
Fir	*	*	*	114	27	141	2	2	4	116	29	145
Pine—Douglas-fir—fir	7	6	13	1136	715	1851	37	77	114	1180	798	1978
Total	27	11	38	1762	1021	2783	57	137	194	1846	1169	3015
Douglas-fir												
Pine	*	6	6	2	3	5	-	-	-	2	9	11
Redwood	-	-	-	1	8	9	*	5	5	1	13	14
Douglas-fir	344	553	897	444	144	588	-	3	3	788	700	1488
Fir	3	2	5	29	3	32	-	-	-	32	5	37
Pine—Douglas-fir—fir	70	40	110	229	59	288	-	-	-	299	99	398
Total	417	601	1018	705	217	922	*	8	8	1122	826	1948
Redwood												
Pine	-	1	1	4	3	7	-	-	-	4	4	8
Redwood	31	460	491	40	780	820	35	585	620	106	1825	1931
Douglas-fir	38	398	436	5	48	53	-	-	-	43	446	489
Fir	-	-	-	-	-	-	-	-	-	-	-	-
Pine—Douglas-fir—fir	-	-	-	1	2	3	-	-	-	1	2	3
Total	69	859	928	50	833	883	35	585	620	154	2277	2431
All subregions												
Pine	322	677	999	752	916	1668	1151	546	1697	2225	2139	4364
Redwood	31	460	491	41	790	831	35	590	625	107	1840	1947
Douglas-fir	407	955	1362	881	313	1194	5	20	25	1293	1288	2581
Fir	26	15	41	708	163	871	207	68	275	941	246	1187
Pine—Douglas-fir—fir	675	743	1418	2895	1762	4657	656	300	956	4226	2805	7031
Total	1461	2850	4311	5277	3944	9221	2064	1524	3578	8792	8318	17110

1/ Subregions as shown on map, page 8.
2/ Reported area too small to be included here.

Table 22.- County board-foot volumes by groups of species and ownership

County[1]	Pine			Redwood			Other species			All species		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
						Million board feet						
Alameda	-	-	-	*3/	*	*	-	-	-	*	*	*
Alpine	123	42	165	-	-	-	219	18	237	342	60	402
Amador	403	592	995	-	-	-	342	328	670	745	920	1665
Butte	704	1161	1865	-	-	-	796	1196	1992	1500	2357	3857
Calaveras	693	1468	2161	-	-	-	698	866	1564	1391	2354	3725
Colusa	141	17	158	-	-	-	98	13	111	239	30	269
Contra Costa	-	-	-	*	4	4	-	-	-	*	4	4
Del Norte	81	8	89	1751	4497	6248	3551	1956	5507	5383	6461	11844
Eldorado	2386	2010	4396	-	-	-	2789	2134	4923	5175	4144	9319
Fresno	1983	299	2282	-	-	-	3805	325	4130	5788	624	6412
Glenn	581	169	750	-	-	-	595	171	766	1176	340	1516
Humboldt	209	112	321	1756	18127	19883	6899	18816	25715	8864	37055	45919
Kern	436	87	523	-	-	-	245	38	283	681	125	806
Lake	564	319	883	-	-	-	530	236	766	1094	555	1649
Lassen	3391	2445	5836	-	-	-	1372	1037	2409	4763	3482	8245
Los Angeles	86	7	93	-	-	-	4	*	4	90	7	97
Madera	1844	167	2011	-	-	-	1860	104	1964	3704	271	3975
Marin	-	-	-	22	57	79	6	157	163	28	214	242
Mariposa	1177	232	1409	-	-	-	1784	128	1912	2961	360	3321
Mendocino	405	413	818	143	10706	10849	1188	6814	8002	1736	17933	19669
Modoc	2601	1574	4175	-	-	-	630	709	1339	3231	2283	5514
Mono	561	70	631	-	-	-	157	11	168	718	81	799
Monterey	36	30	66	119	229	348	8	-	8	163	259	422
Napa	-	-	-	-	8	8	*	34	34	*	42	42
Nevada	438	733	1171	-	-	-	694	786	1480	1132	1519	2651
Placer	1243	975	2218	-	-	-	1622	1225	2847	2865	2200	5065
Plumas	5998	2098	8096	-	-	-	6574	2228	8802	12572	4326	16898
Riverside	101	60	161	-	-	-	4	2	6	105	62	167
San Bernardino	337	156	493	-	-	-	33	10	43	370	166	536
San Diego	63	40	103	-	-	-	69	73	142 4/	132	113	245
San Luis Obispo	*	15	15	-	-	-	-	-	-	*	15	15
San Mateo	-	-	-	7	668	675	37	198	235	44	866	910
Santa Barbara	11	-	11	-	-	-	7	-	7	18	-	18
Santa Clara	-	-	-	6	45	51	*	12	12	6	57	63
Santa Cruz	-	4	4	192	507	699	36	157	193	228	668	896
Shasta	2390	5911	8301	-	-	-	1551	5212	6763	3941	11123	15064
Sierra	1386	278	1664	-	-	-	2331	625	2956	3717	903	4620
Siskiyou	3024	2972	5996	-	-	-	12022	3510	15532	15046	6482	21528
Sonoma	-	13	13	14	2129	2143	15	1350	1365	29	3492	3521
Tehama	1584	1815	3399	-	-	-	1815	2090	3905	3399	3905	7304
Trinity	3293	1306	4599	-	-	-	8390	2625	11015	11683	3931	15614
Tulare	2969	288	3257	-	-	-	4348	389	4737	7317	677	7994
Tuolumne	2906	1370	4276	-	-	-	2973	1163	4136	5879	2533	8412
Ventura	278	1	279	-	-	-	10	-	10	288	1	289
Yuba	463	574	1037	-	-	-	445	426	871	908	1000	1908
All counties	44889	29831	74720	4010	36977	40987	70552	57172	127724	119451	123980	243431

1/ Counties omitted for lack of reportable timber cropland are listed in table 19, footnote 2.
2/ Contents of these groups may be determined by comparison with species listed in table 17.
3/ Reported volume too small to be included here.
4/ Including bigcone-spruce, which in this county occurs with white fir on timber cropland.

Table 23.- Area by major class of land

All forest	Croplands in farms	Pasture and range				Other	Total
		In farms	Not in farms	Total			
		Thousand acres					
[1]/45515	[2]/11899	[3]/9373	[3]/5993	[4]/15366		[5]/27574	[6]/100354

1/ Includes from table 1 types as follows: pine, redwood, Douglas-fir, fir, Pine—Douglas-fir—fir, lodgepole pine—whitebark pine, piñon pine and juniper, minor conifers, woodland, woodland—grass, and chaparral, together with the coastal sagebrush of primary value for watershed purposes.
2/ Production adjustments in California agriculture in 1946. U.S.Dept. Agr. and Calif. Agr.Col., Berkeley, Calif. July 1945 (Figure given is for 1944 and includes same categories listed in 1940 census from Form 1, pp. 1 and 2 of Appendix.
3/ Breakdown of privately owned grass and Great Basin sagebrush by proportion listed in Form 3, p. 6 of Appendix, in Production adjustments in California agriculture in 1946 (see footnote 2) — 61 percent farm and 39 percent non-farm ownership of privately owned range lands including woodland—grass type. Proportion of total (15,366 thousand acres) privately owned estimated as 90 percent of total grassland and 50 percent of total Great Basin sagebrush.
4/ Total of grass (10,375 M acres) and Great Basin sagebrush (5,071 M acres) from table 1.
5/ Total of desert, barren, marsh, and cultivated, urban, and industrial from table 1, minus deduction for croplands in farms. No road adjustment included for lack of adequate basis and apparently insignificant effect on the classifications involved.
6/ 1940 Census.

Table 24.- Area of commercial and noncommercial forest land

Commercial[1]/ forest land	Noncommercial forest land				Total forest land
	Withdrawn from timber use[2]/	Chiefly valuable for purposes other than timber[3]/	Total		
	Thousand acres				
16405	705	28405	29110		45515

1/ All timber cropland on available, unavailable, and recreation areas as shown in tables 3, 4, and 5.
2/ Timber cropland in National, State, county, and municipal parks and in primitive areas as shown in table 6.
3/ All types listed in footnote 1, table 23, exclusive of those on timber cropland.

Table 25.- Area of commercial forest land by stand class, subregion, and ownership

Subregion and ownership	Stands of saw-timber trees on —		Pole-timber and seedling and sapling areas	Poorly stocked seedling and sapling and unstocked areas	All areas
	Saw-timber areas	Other areas[1]			
	Thousand acres				
Eastside Sierra pine					
Forest Service	1602	396	61	273	2332
Other public 2/	14	4	1	3	22
Private in farms 3/	79	38	4	20	141
Other private 4/	898	282	36	118	1334
All ownerships	2593	720	102	414	3829
Westside Sierra pine					
Forest Service	1916	576	37	292	2821
Other public	42	32	1	70	145
Private in farms	106	94	6	62	268
Other private	1193	666	45	368	2272
All ownerships	3257	1368	89	792	5506
Coast Range pine					
Forest Service	1226	131	7	158	1522
Other public	33	26	1	16	76
Private in farms	58	25	3	23	109
Other private	674	193	27	164	1058
All ownerships	1991	375	38	361	2765
Douglas-fir					
Forest Service	826	41	3	111	981
Other public	109	5	-	21	135
Private in farms	132	14	1	46	193
Other private	494	55	2	86	637
All ownerships	1561	115	6	264	1946
Redwood					
Forest Service	16	9	-	3	28
Other public	44	7	-	9	60
Private in farms	359	111	34	94	598
Other private	1076	367	110	120	1673
All ownerships	1495	494	144	226	2359
All subregions					
Forest Service	5586	1153	108	837	7684
Other public	242	74	3	119	438
Private in farms	734	282	48	245	1309
Other private	4335	1563	220	856	6974
All ownerships	10897	3072	379	2057	16405

1/ Stand volumes below minimums required for classification as sawtimber areas as defined on page 58.
2/ Public domain, Indian reservation, U. S. Grazing Service, State, county, and municipal.
3/ Proportion of farm ownership in total privately owned land for eastside Sierra pine, westside Sierra pine, and Coast Range pine subregions determined from table 24 in Land Utilization Statistics for the northern Sierra Nevada, California Forest Survey Release No. 3, as being 9 percent of saw-timber areas, 13 percent of other areas or saw-timber trees, 13 percent of pole-timber, 16 percent of seedlings and saplings, and 16 percent of poorly stocked seedlings and saplings and unstocked areas. Proportions for Douglas-fir and redwood subregions obtained from Bureau of Agricultural Economics study in Mendocino County, 1945, giving 25 percent of the saw-timber area, 23 percent of other areas of saw-timber trees, 23 percent for the pole-timber areas, 36 percent for seedling and sapling areas, and 44 percent for poorly stocked seedling and sapling and unstocked areas.
4/ Balance of total privately owned land after deducting farm ownership.

Table 26. Volume in board feet, lumber tally,[1] of saw-timber trees on commercial forest lands by saw-timber and other areas and by availability class and subregion.

Availability class and subregion	Saw-timber areas[2]	Other areas[3]	Total commercial forest areas
	Million board feet		
Available			
Eastside Sierra pine	26977	1808	28785
Westside Sierra pine	61451	7397	68848
Coast Range pine	19640	1170	20810
Douglas fir	17459	373	17832
Redwood	43566	2197	45763
All subregions	169093	12945	182038
Unavailable			
Eastside Sierra pine	2700	18	2718
Westside Sierra pine	5730	214	5944
Coast Range pine	5834	190	6024
Douglas fir	10408	120	10528
Redwood	4317	50	4367
All subregions	28989	592	29581
Recreation			
Eastside Sierra pine	2101	132	2234
Westside Sierra pine	3196	228	3424
Coast Range pine	2560	90	2650
Douglas fir	902	8	910
Redwood	5864	864	6728
All subregions	14624	1322	15946
All classes			
Eastside Sierra pine	31779	1958	33737
Westside Sierra pine	70377	7839	78216
Coast Range pine	28034	1450	29484
Douglas fir	28769	501	29270
Redwood	53747	3111	56858
All subregions	212706	14859	227565

1/ Log scale volumes of the basic tables are reported in this and other reappraisal tables as lumber tally because the slight difference between log-scale and lumber tally is considered of insignificant effect.

2/ Total volume on virgin, large second-growth, and small second-growth saw-timber areas from tables 32, 33, and 34.

3/ Total volume on areas having stand volumes below minimums required for saw-timber areas, from table 35.

Table 27.- Volume in board feet, lumber tally, of saw-timber trees on commercial forest lands by species, availability class, and subregion.

Availability class and subregion	Kind of wood (species)						All species
	Ponderosa pine[1]	Sugar pine	Redwood	Douglas-fir[2]	White and red firs[3]	Incense-cedar	
	Million board feet						
Available							
Eastside Sierra pine	16916	1344	–	1656	7676	1193	28785
Westside Sierra pine	21416	12741	–	7027	23138	4526	68848
Coast Range pine	6220	2924	–	9133	1880	653	20810
Douglas-fir	420	519	132	16516	388	57	17832
Redwood	–	62	33044	11864	793	–	45763
All subregions	44972	17390	33176	46196	33875	6429	182038
Unavailable							
Eastside Sierra pine	1059	56	–	7	1559	37	2718
Westside Sierra pine	1124	534	–	345	3685	256	5944
Coast Range pine	730	444	–	4333	427	90	6024
Douglas-fir	466	301	64	9260	397	40	10528
Redwood	–	–	38	4328	1	–	4367
All subregions	3379	1335	102	18273	6069	423	29581
Recreation							
Eastside Sierra pine	1353	77	–	25	743	36	2234
Westside Sierra pine	855	458	–	177	1755	179	3424
Coast Range pine	554	236	8	1316	475	61	2650
Douglas-fir	16	9	2	865	16	2	910
Redwood	62	–	4826	1761	79	–	6728
All subregions	2840	780	4836	4144	3068	278	15946
All classes							
Eastside Sierra pine	19328	1477	–	1688	9978	1266	33737
Westside Sierra pine	23395	13733	–	7549	28578	4961	78216
Coast Range pine	7504	3604	8	14782	2782	804	29484
Douglas-fir	902	629	198	26641	801	99	29270
Redwood	62	62	37908	17953	873	–	56858
All subregions	51191	19505	38114	68613	43012	7130	227565

1/ Includes Jeffrey pine.
2/ In the redwood subregion, and to lesser extents in Douglas-fir and Coast Range pine subregions, reported volume of Douglas-fir includes other "whitewoods" - white fir, Sitka spruce, western hemlock, Port Orford white-cedar, and western red cedar - usually lumped with Douglas-fir in redwood cruising. White fir is excluded only where distinguished in the cruise.
3/ Includes the western white pine, mountain hemlock, and lodgepole pine recorded in cruises of fir areas.

Table 28.- **Volume in cords of pole-timber trees[1] and tops of saw-timber trees[2] (including bark) on commercial forest land by saw-timber, pole-timber, and other areas and by availability class and subregion**

Availability class and subregion	Saw-timber areas			Pole-timber[3] areas	Other areas[4]			All areas		
	Pole-timber trees	Tops	All material	Pole-timber trees	Pole-timber trees	Tops	All material	Pole-timber trees	Tops	All material
				Thousand cords[5]						
Available										
Eastside Sierra pine	3209	2942	6151	815	959	197	1156	4983	3139	8122
Westside Sierra pine	6092	4487	10579	664	1820	539	2359	8576	5026	13602
Coast Range pine	2198	933	3131	347	656	56	712	3201	939	4190
Douglas-fir	372	619	991	–	111	13	124	483	632	1115
Redwood	16263	17797	34060	486	4858	884	5742	21607	18668	40288
All subregions	28134	26778	54912	2312	8404	1689	10093	38850	28467	67317
Unavailable										
Eastside Sierra pine	326	304	630	30	97	2	99	453	305	759
Westside Sierra pine	303	281	584	–	90	10	100	393	291	684
Coast Range pine	349	270	619	–	104	9	113	453	270	732
Douglas-fir	349	475	824	–	104	6	110	453	481	934
Redwood	22	1227	1249	–	7	14	21	29	1241	1270
All subregions	1349	2557	3906	30	402	41	443	1781	2598	4379
Recreation										
Eastside Sierra pine	46	115	161	151	14	7	21	211	122	333
Westside Sierra pine	256	158	414	30	76	11	87	362	169	531
Coast Range pine	197	120	317	–	59	4	63	256	124	380
Douglas-fir	11	42	53	–	4	–	4	15	42	57
Redwood	5704	2502	8206	72	1703	364	2067	7479	2866	10345
All subregions	6214	2937	9151	253	1856	386	2242	8323	3323	11646
All classes										
Eastside Sierra pine	3581	3361	6942	996	1070	206	1276	5647	3567	9214
Westside Sierra pine	6651	4926	11577	694	1986	560	2546	9331	5486	14817
Coast Range pine	2744	1323	4067	347	819	69	888	3910	1392	5302
Douglas-fir	732	1136	1868	–	219	19	238	951	1155	2106
Redwood	21989	21526	43515	558	6568	1262	7830	29115	22788	51903
All subregions	35697	32272	67969	2595	10662	2116	12778	48954	34388	83342

[1] Trees 4-11 inches d.b.h. in species other than redwood; 4-23 inches in redwood.
[2] In redwood also includes breakage.
[3] Stands of trees about 4-11 inches d.b.h.
[4] Areas of saw-timber size trees having less than the minimum volume per acre requirements for saw-timber stands.
[5] Conversion based on 90 cu.ft., inside bark, per cord with 36-percent increase in volume for bark in species other than redwood and 30 percent increase in redwood. Volume in tops comprises 4.92 percent of total tree volume in eastside Sierra pine subregion, 2.12 percent for species other than redwood in all other subregions, and 20 percent for redwood according to Region-5 Division of Timber Management studies.

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Table 29.- Volume in cubic feet (excluding bark) of saw-timber and pole-timber trees on commercial forest land by availability class and subregion.

Availability class and subregion	Saw-timber[1] trees	Pole-timber[2] trees	Total
	Million cubic feet[3]		
Available			
Eastside Sierra pine	4226	330	4556
Westside Sierra pine	15703	568	16271
Coast Range pine	3091	212	3303
Douglas-fir	1977	32	2009
Redwood	9305	1511	10816
All subregions	34302	2653	36955
Unavailable			
Eastside Sierra pine	412	30	442
Westside Sierra pine	908	26	934
Coast Range pine	871	30	901
Douglas-fir	1501	30	1531
Redwood	618	2	620
All subregions	4310	118	4428
Recreation			
Eastside Sierra pine	165	14	179
Westside Sierra pine	530	24	554
Coast Range pine	387	17	404
Douglas-fir	129	1	130
Redwood	1427	523	1950
All subregions	2638	579	3217
All classes			
Eastside Sierra pine	4803	374	5177
Westside Sierra pine	17141	618	17759
Coast Range pine	4349	259	4608
Douglas-fir	3607	63	3670
Redwood	11350	2036	13386
All subregions	41250	3350	44600

[1] Trees 12 inches d.b.h. and larger in species other than redwood; trees 24 inches d.b.h. and larger in redwood.
[2] Trees about 11 inches d.b.h. in species other than redwood, 4-23 inches in redwood.
[3] Conversion from board feet to cubic feet entire tree, for all species except redwood based on new factors developed by Duncan Dunning to take account of differences between species and size classes. For redwood, conversion provided by A. A. Hasel and H. A. Fowells consists of actual ratio board feet to cubic feet for lumber tally volume, plus 45 percent additional for portion of tree (tops and breakage) not becoming boards as suggested by differences between Spaulding and Humboldt log rules.

Table 30.- Volume in board feet, lumber tally, of saw-timber trees on
commercial forest lands by ownership, availability
class, and subregion.

Availability class and subregion	Public			Private			All owner-ships
	Forest Service	Other 1/	Total	Farm 2/	Other	Total	

Million board feet

Available							
Eastside Sierra pine	15099	176	15275	946	12564	13510	28785
Westside Sierra pine	38662	882	39544	2052	27252	29304	68848
Coast Range pine	11878	377	12255	599	7956	8555	20810
Douglas-fir	6366	914	7280	1899	8653	10552	17832
Redwood	837	595	1432	7980	36351	44331	45763
All subregions	72842	2944	75786	13476	92776	106252	182038
Unavailable							
Eastside Sierra pine	2406	—	2406		312	312	2718
Westside Sierra pine	4724	22	4746		1198	1198	5944
Coast Range pine	5374	100	5474		550	550	6024
Douglas-fir	8008	943	8951		1577	1577	10528
Redwood	—	472	472	701	3194	3895	4367
All subregions	20512	1537	22049	701	6831	7532	29581
Recreation							
Eastside Sierra pine	1342	4	1346	—	888	888	2234
Westside Sierra pine	2658	2	2660	—	764	764	3424
Coast Range pine	1838	18	1856	—	794	794	2650
Douglas-fir	409	20	429	—	481	481	910
Redwood	169	54	223	1171	5334	6505	6728
All subregions	6416	98	6514	1171	8261	9432	15946
All classes							
Eastside Sierra pine	18847	180	19027	946	13764	14710	33737
Westside Sierra pine	46044	906	46950	2052	29214	31266	78216
Coast Range pine	19090	495	19585	599	9300	9899	29484
Douglas-fir	14783	1877	16660	1899	10711	12610	29270
Redwood	1006	1121	2127	9852	44879	54731	56858
All subregions	99770	4579	104349	15348	107868	123216	227565

1/ Public domain, Indian reservation, U. S. Grazing Service, State, county, and municipal.

2/ Proportions of farm ownership in total private for Douglas-fir and redwood subregions considered 18 percent of total private as found in Bureau of Agricultural Economics study in Mendocino County. Proportion for eastside Sierra pine, westside Sierra pine, and Coast Range pine subregions considered 7 percent of total private as determined by applying ratio of volume to area for saw-timber areas as found in Bureau of Agricultural Economics Mendocino study to the area ratio of 9 percent in table 25.

Table 31.- <u>Area of commercial forest land by stand class,</u>
<u>availability class, and subregion.</u>

Availability class and subregion	Stands of saw-timber trees on: Saw-timber [1/] areas	Other areas [2/]	Pole-timber [3/] areas	Seedling [4/] and sapling areas	Poorly [5/] stocked seedling and sapling and understocked areas	All areas
			Thousand acres			
Available						
Eastside Sierra pine	2123	673	79	8	383	3266
Westside Sierra pine	2814	1280	71	14	684	4863
Coast Range pine	1413	316	31	5	241	2006
Douglas-fir	917	82	-	3	160	1162
Redwood	1130	316	112	7	107	1672
All subregions	8397	2667	293	37	1575	12969
Unavailable						
Eastside Sierra pine	252	5	1	–	17	275
Westside Sierra pine	289	47	-	2	86	424
Coast Range pine	415	37	-	1	61	514
Douglas-fir	603	30	1	2	88	724
Redwood	177	8		–	17	202
All subregions	1736	127	2	5	269	2139
Recreation						
Eastside Sierra pine	218	42	14	–	14	288
Westside Sierra pine	154	41	2	–	22	219
Coast Range pine	163	22		1	59	245
Douglas-fir	41	3		–	16	60
Redwood	188	170	15	10	102	485
All subregions	764	278	31	11	213	1297
All classes						
Eastside Sierra pine	2593	720	94	8	414	3829
Westside Sierra pine	3257	1368	73	16	792	5506
Coast Range pine	1991	375	31	7	361	2765
Douglas-fir	1561	115	1	5	264	1946
Redwood	1495	494	127	17	226	2359
All subregions	10897	3072	326	53	2057	16405

1/ Total area on virgin, large second-growth, and small second-growth saw-timber areas from tables 32, 33, and 34.
2/ From table 35.
3/ From table 36.
4/ From table 36.
5/ Total of area classed as unstocked from aerial photographs minus the seedling and saplings area obtained as explained in footnote 2, table 36.

Table 32.— Area and board-foot volume, lumber tally, of virgin saw timber by quality class, availability class, and subregion[1].

Availability class and subregion	Good quality		Medium quality		Poor quality		All qualities	
	Area	Volume	Area	Volume	Area	Volume	Area	Volume
	Thousand acres and million board feet							
Available								
Eastside Sierra pine	451	9572	686	7743	417	4964	1554	22279
Westside Sierra pine	466	14351	951	24946	275	4256	1672	43553
Coast Range pine	31	785	186	4253	971	12424	1188	17462
Douglas-fir	-	1	305	8633	491	6695	794	15329
Redwood	217	19394	486	16853	245	4991	948	41238
All subregions	1165	44103	2592	62428	2399	33330	6156	139861
Unavailable								
Eastside Sierra pine	8	225	46	462	183	1903	237	2590
Westside Sierra pine	12	306	95	2803	178	2535	285	5644
Coast Range pine	-		32	845	355	4569	387	5414
Douglas-fir	4	86	197	5217	355	4529	556	9832
Redwood	-	-	74	3801	96	391	170	4192
All subregions	24	617	444	13128	1167	13927	1635	27672
Recreation								
Eastside Sierra pine	6	118	39	438	135	1131	180	1687
Westside Sierra pine	6	210	60	1619	55	843	121	2672
Coast Range pine	7	134	26	547	109	1575	142	2256
Douglas-fir	-	2	18	514	18	317	36	833
Redwood	23	2031	61	2525	46	545	130	5101
All subregions	42	2495	204	5643	363	4411	609	12549
All classes								
Eastside Sierra pine	465	9915	771	8643	735	7998	1971	26556
Westside Sierra pine	484	14867	1086	29368	508	7634	2078	51869
Coast Range pine	38	919	244	5645	1435	18568	1717	25132
Douglas-fir	4	89	518	14364	864	11541	1386	25994
Redwood	240	21425	621	23179	387	5927	1248	50531
All subregions	1231	47215	3240	81199	3929	51668	8400	180082

1/ For definitions of virgin saw timber and good, medium, and poor quality classes, see pp. 58-59.

Table 33.- Area and board-foot volume, lumber tally, of large second-growth saw-timber stands by stocking class, availability class, and subregion[1].

Availability class and subregion	Well stocked		Partially stocked		Poorly stocked		All classes	
	Area	Volume	Area	Volume	Area	Volume	Area	Volume
	Thousand acres and million board feet							
Available								
Eastside Sierra pine	92	879	419	3401	52	319	563	4599
Westside Sierra pine	329	6913	676	9382	108	964	1113	17259
Coast Range pine	50	655	166	1430	8	80	224	2165
Douglas-fir	75	1497	47	627	1	3	123	2127
Redwood	30	575	47	653	–	–	77	1228
All subregions	576	10519	1355	15493	169	1366	2100	27378
Unavailable								
Eastside Sierra pine	–	–	12	96	3	14	15	110
Westside Sierra pine	1	14	3	72	–	–	4	86
Coast Range pine	13	216	13	146	–	–	26	362
Douglas-fir	8	128	38	423	–	–	46	551
Redwood	4	85	3	40	–	–	7	125
All subregions	26	443	69	777	3	14	98	1234
Recreation								
Eastside Sierra pine	6	60	27	327	4	17	37	404
Westside Sierra pine	7	161	15	252	11	101	33	514
Coast Range pine	6	162	13	129	2	13	21	304
Douglas-fir	2	53	3	16	–	–	5	69
Redwood	8	158	22	315	–	–	30	473
All subregions	29	594	80	1039	17	131	126	1764
All classes								
Eastside Sierra pine	98	939	458	3824	59	350	615	5113
Westside Sierra pine	337	7088	694	9706	119	1065	1150	17859
Coast Range pine	69	1033	192	1705	10	93	271	2831
Douglas-fir	85	1678	88	1066	1	3	174	2747
Redwood	42	818	72	1008	–	–	114	1826
All subregions	631	11556	1504	17309	189	1511	2324	30376

[1] For definitions of large second-growth saw-timber and stocking classes, see p. 59.

Table 34.— Area and board-foot volume, lumber tally, of small second-growth saw-timber stands by stocking class, availability class, and subregion[1].

Availability class and subregion	Well stocked Area	Well stocked Volume	Partially stocked Area	Partially stocked Volume	Poorly stocked Area	Poorly stocked Volume	All classes Area	All classes Volume
	Thousand acres and million board feet							
Available								
Eastside Sierra pine	6	99	–		–	–	6	99
Westside Sierra pine	29	639	–	–	–	–	29	639
Coast Range pine	1	13	–	–	–	–	1	13
Douglas-fir		3	–	–	–	–	–	3
Redwood	105	1100	–	–	–	–	105	1110
All subregions	141	1854	–	–	–	–	141	1854
Unavailable								
Eastside Sierra pine	–	–	–		–	–	–	–
Westside Sierra pine	–	–	–	–	–	–	–	–
Coast Range pine	2	58	–		–	–	2	58
Douglas-fir	1	25	–	–	–	–	1	25
Redwood			–	–	–	–	–	–
All subregions	3	83	–	–	–	–	3	83
Recreation								
Eastside Sierra pine	1	11	–		–	–	1	11
Westside Sierra pine	–	10	–	–	–	–	–	10
Coast Range pine	–	–	–	–	–	–	–	–
Douglas-fir	–	–	–	–	–	–	–	–
Redwood	28	290	–	–	–	–	28	290
All subregions	29	311	–	–	–	–	29	311
All classes								
Eastside Sierra pine	7	110	–	–	–	–	7	110
Westside Sierra pine	29	649	–	–	–	–	29	649
Coast Range	3	71	–	–	–	–	3	71
Douglas-fir	1	28	–	–	–	–	1	28
Redwood	133	1390	–	–	–	–	133	1390
All subregions	173	2248	–	–	–	–	173	2248

[1] For definitions of small second-growth saw-timber and stocking classes see p. 59.

Table 35.- Area of pole-timber and seedling and sapling stands by stocking class, availability class, and subregion[1]

Availability class and subregion	Pole-timber stands				Seedling and sapling stands[2]		
	Well stocked	Partially stocked	Poorly stocked	Total	Well stocked	Partially stocked	Total
	Thousand acres						
Available							
Eastside Sierra pine	18	24	37	79	1	7	8
Westside Sierra pine	14	29	28	71	2	12	14
Coast Range pine	5	14	12	31	1	4	5
Douglas-fir	--	-		--	--	3	3
Redwood	3	16	93	112	--	7	7
All subregions	40	83	170	293	4	33	37
Unavailable							
Eastside Sierra pine	1	--		1	--	--	--
Westside Sierra pine	--	--		--	--	2	2
Coast Range pine	--	--	--	--	--	1	1
Douglas-fir	--	--	1	1	--	2	2
Redwood	--	--	--	--	--	--	--
All subregions	1	-	1	2	--	5	5
Recreation							
Eastside Sierra pine	--	9	5	14	--	--	--
Westside Sierra pine	--	1	1	2	--	--	--
Coast Range pine	--	-	-	--	--	1	1
Douglas-fir	--	--		--	--	--	--
Redwood	1	1	13	15	--	10	10
All subregions	1	11	19	31	--	11	11
All classes							
Eastside Sierra pine	19	33	42	94	1	7	8
Westside Sierra pine	14	30	29	73	2	14	16
Coast Range pine	5	14	12	31	1	6	7
Douglas-fir	--	--	1	1	--	5	5
Redwood	4	17	106	127	--	17	17
All subregions	42	94	190	326	4	49	53

1/ For definitions of pole-timber, seedling and sapling stands, and stocking classes, see pp. 58-60.

2/ For areas other than redwood, well and partially stocked acreage determined as 0.3 and 1.7 percent of the area classified as unstocked from the aerial photographs; for the redwood area as 15.0 percent of the unstocked area. The basis for these estimates are explained on p. 53.

PROCEDURES

Area Determination

Density, age, and type classification

The first step leading to the foregoing tables consisted of de-
lineating all areas having evident timber-cropland potentialities, segre-
gating the timber stands on such areas according to density and age
classes, and classifying both timber and nontimber vegetation according
to type. For most of the State all except the timber typing was accom-
plished through study of aerial photos by a group of National Forest men
who had just completed a 1-month training program in their use and inter-
pretation. This common experience, during which classifications similar
to that used here were viewed on both the photos and ground, and its
skillful application resulted in the need of but few adjustments to bring
the work of all individuals into uniformity.

Base maps. U. S. Forest Service and State Division of Forestry
maps on a scale of 1/2 inch to the mile were used as bases wherever pos-
sible. Where duplicate coverage was available for any locality, the map
giving the best representation of culture, streams, and, in some cases,
topography was selected. For localities not covered by 1/2-inch scale
maps, U. S. Geological Survey and Army quadrangles at scales of 1 inch
and 1/4 inch to the mile or, as a last resort, any other available maps.
were used.

As a further aid to relating the aerial photos to the base maps
the center point of each photo was marked on the map wherever the Region-5
Forest Service Division of Engineering could provide that information.

General procedure. To make the classification, as defined on
pp. 55-58 and illustrated on pp. 62-66, only single photos were as a
rule viewed, stereoscopic study being limited to cases of doubt. Then,
using the map features and photo-center locations as control, the bound-
aries between the various classes encountered were visually sketched di-
rectly on the maps and symbols added to identify them. Unless the map
features were very greatly in error they were accepted as presented and
the photo areas fitted to them in the best manner possible. The minimum
size of area given recognition was 500 acres.

The timber types were classified in a separate operation by the
junior author everywhere except in Modoc County and a few other localities
known to those making the initial classification. This work was guided,
in descending order of use, by Experiment Station (Forest Survey) and
National Park Service vegetation type maps, Region-5 Forest Service timber
survey type maps, National Forest type maps, topographic relationships
observed in local aerial-photo studies, and previous personal ground ob-
servations. Where necessary, the density and age classes were subdivided
for type differences but in no case was this carried below the 500-acre
minimum.

As a part of the timber typing all boundary lines and symbols were transferred to tracing vellum sheets in 30-minute quadrangle units showing county lines. From these sheets prints were then made as needed for other phases of the project.

Exceptions. Principal exceptions to the above-outlined general procedure were as follows:

1. Modoc National Forest and contiguous uncultivated areas (unphotographed) - Timber cropland and density and age of timber classified by P. C. Johnson of the U. S. Bureau of Entomology and Plant Quarantine from insect hazard inventory records and personal observations. Correlation with the classification used here was obtained through comparisons in adjacent areas covered by aerial photos. Types were taken from the Modoc National Forest type map.

2. Unphotographed parts of northern Inyo County - Timber cropland and density and age of timber classified by E. C. Thomas and A. Fausett of the Inyo National Forest from timber survey records and personal observations. Types were obtained from Inyo National Forest type maps and personal observations of A. Fausett.

3. Sequoia and Kings Canyon National Parks (unphotographed) - Timber cropland and density and age of timber classified through application of previous ground observations to the Sequoia National Park type map and early Forest Service land classification sheets of Kings Canyon.

4. South Coast Range, southern California, and Sierra foothill sections covered by Experiment Station (Forest Survey) type maps - Classification of several small unphotographed timber areas based on the type maps, ground photos, and previous ground observations. All types other than timber obtained from the type maps.

5. Northeastern Lassen County (unphotographed) - Types based on application of topographic relationships to previous ground observations.

6. Sacramento and San Joaquin Valleys and cultivated sections of the desert - Types obtained from aerial-photo indexes.

7. Islands off the coast of southern California - Types for the northern group obtained from aerial-photo indexes and available publications; for the southern group from publications alone.

Adjustment for old photos. Inasmuch as the dates of photography ranged from 1936 to 1944 adjustments were made wherever necessary to have the timber classification as of January 1945. Boundaries of these adjustments were based on cut-over maps obtained from the National Forests and certain individual operators and on fire maps from the National Forests and State Division of Forestry. Unless otherwise specified areas cut since the photography were classified the same as similarly-situated adjacent cut-over areas of the same operator appearing on the photos. Cut-over

areas of new operators were generally classified like those of the nearest older operator. On areas burned since the photography any young-growth element in the age class was eliminated and the remaining old growth given the density class below that found on the photos unless otherwise described. Again, consideration was limited to areas larger than 500 acres except where smaller areas were extensions of others above the minimum.

A special adjustment was given the volumes calculated for young-growth—old-growth and large young growth stands in Butte, Yuba, Placer, Nevada, and Eldorado Counties (photographed during 1937-40) to account for the cutting on many small areas in the lower timber belt for which cut-over maps were lacking. Its amount was determined from production figures reported to the U. S. Bureau of Census by mills believed to be cutting such stands.

Adjustment for roads, home sites, etc. No reductions in areas or volumes to account for roads, home sites, etc. were made because of their unknown total amount and distribution by forest and other vegetation classes. Other variables within the figures presented here did not appear to justify making estimates of them.

Limitations to the classification. While the procedures used are believed fully adequate for the large-unit standards at which the project was aimed, the following points concerning this classification, upon which all others hinged, should be borne in mind.

1. The base maps available for use varied greatly in amount of control features shown and in accuracy. The accuracy of the classification boundaries could be no greater than the base maps on which they were recorded.

2. Topographic and cultural features provided the control for sketching the classification boundaries, not land lines. Segregations by legal units were therefore limited by the degree to which the land lines and other features appeared in proper relationship.

3. The classification was based on direct viewing of the aerial photos; detailed stereoscopic study giving more positive interpretation being possible only occasionally.

4. All questions on the classification had to be decided in the office; neither allotted time nor season of work permitting field checks.

5. Only areas more than 500 acres in size were given recognition and the refinement with which eligible boundaries were drawn was commensurate with that minimum.

Site-quality classification

The next step was to grade timber cropland according to relative capacity for growing timber. The basis of this site classification is shown in table A.

Table A.- Site-quality classification of timber cropland

Broad rating	All types except redwood		Redwood type	
	Site class[1]	Site index[2]	Site class[3]	Gross volume[4] virgin stand per acre in board feet
High	IA	200	I	162,500 and over
	I	175	II	87,500 to 162,499
Medium	II	150	III	37,500 to 87,499
	III	125		
Low	IV	100	IV	Under 37,500
	V	75		

1/ According to D. Dunning in Research Note No. 28, A site classification for the mixed conifer selection forests of the Sierra Nevada. California Forest and Range Experiment Station, December 1, 1942.
2/ Height of average dominant tree at 300 years of age.
3/ Site classes developed by D. Dunning in 1945 from data supplied by E. P. French; from cruises of certain private tracts by W. Gibbs; from data compiled for the Yurok Experimental Forest (a branch of the Calif. For. & Range Expt. Sta.); from Preliminary yield tables for second-growth redwood, by D. Bruce, Calif. Univ. Agr. Expt. Sta. Bul. 361, pp. 425-467; and from related young- and old-growth height measurements by J. S. Barnes (unpublished masters thesis, Univ. of Calif.).
4/ Gross volume per acre in board feet Spaulding rule, all species including cull trees, according to cruising basis of E. P. French.

In all types but redwood the grading was done by the senior author who, utilizing information accumulated in connection with the vegetation type map project, judged and recorded by appropriate symbol in each stand or area unit the predominant site class for that unit. In the redwood type, because so many cruises of the original stand were available, the site boundaries for a predominant part of the old-growth area and a large part of the cut-over area were outlined on a map as determined by local stand-per-acre figures recorded in each General Land Office 40-acre subdivision for which a cruise was available. The site-class pattern thus developed was used by A. F. Wallen as a basis for judging the sites on redwood areas for which cruise information was lacking. This site-quality map was not designed for use by small units but primarily intended as an aid in estimating timber volume and growth by subregions. For this reason site-quality statistics are compiled only for subregions and by a broad grouping, as high, medium, and low.

Availability classes, working circles and subregions

     The availability classes, working circles, and subregions[1] were next drawn on the maps. First the parks and other withdrawn areas were distinctively outlined. Then the remaining timber cropland — commercial forest area -- was segregated into available, unavailable, and recreation areas[1]. In determining the limits of recreation areas outside the national forests, local officials of the State Division of Forestry and the Save the-Redwoods League were consulted. The separation of available from un-available areas was made after a careful study in which working circles were delineated and designated as to availability. The average area of the working circle is about 100,000 acres. The number of working circles in each subregion is shown on the map on page 8. The unavailable area comprises, in addition to the working-circle units so designated, inac-cessible stands of timber cropland not included in any working circle.

     The working circles were used in estimating availability of timber and, as explained on page 53, the extent of various classifications of the saw timber area. They will also be helpful in analyzing the over-all timber situation. However, forest area and volume statistics by such small units are not considered sufficiently accurate to warrant inclusion in this release.

     The boundaries of the five subregions shown on the map on page 8 were drawn to include working circles and other areas of timber cropland with types generally similar in species composition and site. As indi-cated by the names, pine species are most important in three of the sub-regions, Douglas fir in one, and redwood in another. The eastside and westside Sierra pine subregions were further divided into sections for the purpose of estimating timber volume and growth in cut-over areas, these being considered the smallest units to which the available cruise and plot data should be applied.

Measurement of areas

     Acreages of types, age, density, and site-quality classes of timber cropland were determined by cut and uncut areas, by General Land Office Survey townships, by working circles, by available, unavailable, recrea-tion, and withdrawn areas, and by quadrangles, counties, and subregions; that of all other types and areas by quadrangles, counties, and subregions only. For each quadrangle unit containing timber cropland the measurement of acreage required ---

     1. A quadrangle tracing showing in color and symbol private and public ownership, the latter being subdivided by Forest Service, Indian reservation, public domain, United States Grazing Service, other Federal, State, county, and municipal. The minimum ownership unit shown was 40 acres.

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[1] See definitions on pp. 57-58.

2.   A print of the corresponding quadrangle type and stand map on transparent frosted acetate foil upon which the boundaries of the area units — cut and uncut areas, townships, and others — were distinctively outlined in color.

3.   A quadrangle-sized sheet of transparent acetate foil with a grid of dots so spaced that each dot represented 40 acres.

Acreage figures were then obtained by superimposing the type and stand map sheet over the ownership sheet with the dot sheet between and counting the dots. As acreages by ownership were determined they were entered directly in the type and stand subdivision on the frosted foil, private land figures being recorded in red and public in black.

For types other than timber cropland, acreages were obtained either by dot counting or by means of a polar planimeter. The resulting figures were added up by counties and checked with the official county areas reported in the 1940 Census. If the county totals agreed within 2 percent of the official areas, they were adjusted to result in the official totals. If they were off more than 2 percent, the adjustment was made after the source of the error had been determined and corrected to within 2 percent or less. In areas containing timber cropland, acreages were also added up by townships and checked and adjusted with the General Land Office Survey figures for individual townships. This was done because in estimating timber volumes, stand-per-acre figures were ordinarily applied as described on page 50 at a township level.

Volume Determination

Cruise and sample plot basis

Saw-timber volumes for uncut old-growth and young-growth—old-growth stands were calculated from available cruises. For types other than redwood, Forest Service and other cruises of like standard or standards adjusted to it were used. For the redwood type the cruises of E. P. French were the standard to which all other cruises were adjusted. In Forest Service cruises the volume covers all trees 12 inches d.b.h.[2]/and larger. It is net volume in board feet Scribner rule after deducting for cull and breakage. This deduction varies with species and locality. The cruises of E. P. French give board-foot volume recoverable from all trees 24 inches d.b.h. and larger. This volume is calculated by the Spaulding rule, cull and breakage deduction being made for each tree as it is recorded in the cruise.

The coverage by cruises was strongest in the redwood type and in the pine and pine-Douglas fir-fir types of the eastside and westside Sierra pine subregions, excluding southern California. It was weakest in the Douglas-fir and fir types, particularly outside the eastside and westside Sierra pine subregions.

2/ Diameter at breast height, or $4\frac{1}{2}$ feet.

In using the cruise data, those of unknown standard as well as those in areas of significant insect loss since cruising were discarded. Some of the cruises in the very open stands that were obviously too high were also discarded. They represented small tracts included in very open stands because the minimum area differentiated in the classification was 500 acres and cruises were by 40-acre units. Since the tracts were present in undue proportion their inclusion would give an erroneous estimate. However, in the insect-damaged areas the Bureau of Entomology and Plant Quarantine supplied a good coverage of cruises corrected for such loss.

Saw-timber volumes for cut-over areas and stands of large young growth of unknown history as to cutting were calculated from sources as follows:

1. Station[3] sample plots.
2. Station cruises in the redwood subregion for the Reappraisal project.
3. Region-5[4], Station, and private cruises of certain study tracts in the redwood subregion.
4. Region-5 management-plan cruises.
5. Station (Forest Survey) sample plots.
6. Bureau of Entomology and Plant Quarantine cruises made in insect-loss surveys.
7. Cruises of private cut-over land made as a basis for cutting-practice recommendations.
8. Yield tables listed in footnote 5 below.

The pole-timber volumes in stands of small young growth were calculated from available yield tables[5] on the basis of estimated age and density of stand, age being determined by estimating the size of the average tree.

3/ California Forest and Range Experiment Station. Unless otherwise indicated, data were collected by Division of Forest Management.
4/ Forest Service, California Region.
5/ Meyer, W. H. Yield of even-aged stands of ponderosa pine. U.S. Dept. Agr. Tech. Bul. 630. 60 pp. 1938.
Dunning, D., and L. H. Reineke. Preliminary yield tables for second-growth stands in the California Pine region. U.S. Dept. Agr. Tech. Bul. 354. 24 pp. 1933.
Schumacher, F. X. Yield, stand, and volume tables for Douglas-fir in California. Calif. Univ. Agr. Expt. Sta. Bul. 491. 44 pp. 1930.
Schumacher, F. X. Yield, stand, and volume tables for white fir in the California pine region. Calif. Univ. Agr. Expt. Sta. Bul. 407. 28 pp. 1926.
Bruce, D. Preliminary yield tables for second-growth redwood. Calif. Univ. Agr. Expt. Sta. Bul. 361. pp. 425-467. 1923.

Method of estimating

General method. Timber volumes were calculated by multiplying the acreage figures of the area subdivisions, broken into type, age, density, and site-quality classes, by appropriate stand-per-acre figures. Obtaining these stand-per-acre figures first required placing the transparent quadrangle maps showing area subdivisions over corresponding sheets showing location of cruises and sample plots. Then by referring to these maps, the cruise and sample plot data were sorted and tabulated by applicable area subdivisions. For the small sample plots, it was necessary to verify their classification by locating their positions on aerial photos.

Determining board-foot volumes. As a basis for estimating volume of saw-timber stands the stand-per-acre figures were determined at various levels.

For uncut old-growth and young-growth--old-growth stands the cruises were first classified and tabulated by townships without regard to ownership. Then average stand-per-acre figures were computed as follows:

1. By townships for all area subdivisions in which the cruise was judged large enough to be representative.
2. By zones formed by grouping townships in which the kind and proportion of species in corresponding types and sites were judged fairly alike.
3. By the State as a whole.

Between these three levels, stand-per-acre figures were available for nearly all the classifications. For those missing, it would be possible to calculate rather closely by interpolation from the nearest related classifications. However, it was apparent that the data for the Douglas-fir type in the three subregions in the Coast Range Mountains were entirely inadequate and that in the Coast Range the pine content of the fir type was obviously too high.

Values for the Douglas-fir type were therefore developed from curves combining all figures for Douglas-fir and the closest related type, pine--Douglas-fir--fir. Two assumptions were made: (1) that the Douglas-fir stands are pure stands, which is essentially true; and (2) that the gross volume for corresponding age, density, and site classes of Douglas-fir and pine--Douglas-fir--fir types would be the same. The stand-per-acre figures thus developed are given in table B, page 51. The details of derivation are explained in footnotes accompanying the table.

In the fir type, the figures showing too-high pine content resulted because the majority of the cruises were in the lower fir elevations and represented not the typical fir type, which comprises essentially pure stands, but a transition zone between the fir and the pine--Douglas-fir--fir types. The stand-per-acre figures including both pine and fir were therefore used as representing fir alone.

Table B.— <u>Basis for estimating volume of uncut old-growth and young-growth — old-growth stands of Douglas-fir type in the Coast Range, Douglas-fir, and redwood subregions</u>.

Age class	Density class	Site-index class	Douglas-fir and related types [1]		Estimated Douglas-fir net stand [4]
			Net stand [2]	Gross stand [3]	
Average stand M board feet per acre					
Old growth	Dense	200	45	56.5	33
		175	35	41.2	25
		150	28	32.9	20
		125	21	24.7	15
		100	17	20.0	12
	Open	200	30	35.3	21
		175	23	27.0	16
		150	18	21.2	13
		125	14	16.5	10
		100	11	12.8	7
	Very open	200	10	11.7	7
		175	8	9.4	6
		150	7	8.2	5
		125	6	7.0	4
		100	4	4.7	3
Young growth– old growth	Dense	200	34	40.0	24
		175	27	31.8	19
		150	21	24.7	15
		125	16	18.8	11
		100	13	15.3	9
	Open	200	23	27.0	16
		175	17	20.0	12
		150	13	15.3	9
		125	10	11.8	7
		100	8	9.5	6
	Very open	200	8	9.5	6
		175	7	8.3	5
		150	5	5.9	4
		125	4	4.7	3
		100	3	3.5	2

1/ Mixed stands of pine with Douglas-fir or with both Douglas-fir and fir.
2/ Determined from the average of all available cruises of Douglas-fir and pine— Douglas-fir—stands in the Coast Range, Douglas-fir, and fir subregions, which comprises species in the following proportion: Ponderosa pine 28 percent, sugar pine 17 percent, Douglas-fir 42 percent, fir 9 percent, and incense-cedar 3 percent.
3/ Calculated on the basis of the weighted average cull and breakage factor of 15 percent.
4/ Calculated by applying a cull and breakage factor determined to be about 40 percent to the gross stand all species, assuming that the gross stand for the Douglas-fir type and the mixed-species types would be approximately the same for corresponding age, density, and site classes.

For cut-over and large young-growth stands, the figures were de-termined by subregions except for the eastside and westside Sierra pine subregions, where they were determined by a further section breakdown as shown on the map on page 8. In calculating these averages, separate values were obtained for public and private land.

In calculating saw-timber volume by working circles and county units, the procedure varied. For the classifications of cut-over, large young-growth, and Douglas-fir stands, stand-per-acre figures, which were determined only at the level of a subregion or section subdivision of a subregion, were applied to area compilations by working circles, avail-able and unavailable areas outside working circles, and withdrawn areas within each county. For all other areas the figures were applied to township area compilations within working circles and counties. Three steps were involved: Volumes were calculated first for all area classi-fications for which local stand-per-acre figures were available, next for the classifications to which available zone averages applied, and third for all remaining classes; values being derived from State-wide aver-ages or, when these were lacking, by interpolation from available values for nearest related stands. In deriving values from State-wide figures, the latter were adjusted for volume by application of the volume ratio between available zone figures and corresponding State-wide figures. Species values were also adjusted from local zone ratios of related types.

Determining cubic-foot and cord volumes. Cubic-foot volumes ex-clude bark but include 1.5 foot stump and entire top. For stands of small young growth, stand-per-acre figures were determined from yield tables as mentioned on page 49 by the following procedure. First, on the judgment of the junior author and Duncan Dunning, it was assumed that the average tree in these stands was 25 feet high and 5 inches d.b.h. The age at which stands attain an average tree size of 5 inches d.b.h. was then used to enter yield tables for appropriate types and sites. Full stocking was taken as 75 percent of yield table values. Dense, open, and very open stands were assumed to be 60, 45, and 15 percent, respectively, of full stocking. Adjustments were made to bring all tables to the site classification used. Allowances also were made for differing lower diameter limits used in tallying the original yield plots.

Total cubic volume was calculated by applying the stand-per-acre figures thus derived to acreage figures of the classifications by sub-regions or, where divided, by subregion sections.

The cubic-foot volume of trees of saw-timber size in all stands was calculated by subregions or subregion sections from the board-foot volumes for these stands by means of board-foot-cubic-foot ratios re-lated to the average tree in each age class.

The cubic-foot volume of trees of pole-timber size in all stands of trees of saw-timber size was calculated also on a subregion level from cubic-foot volume for trees of saw-timber size in these stands by means of ratios established from sources enumerated on page 49.

Volume in cords for trees of pole size was calculated at a sub-region level from cubic-foot values increased for bark volume by a factor of 90 cubic feet to the cord. The increases for bark volume were determined by comparing tabular values from inside and outside bark measurements to the average tree in each age class.

Realignment of Basic Data for Reappraisal Tables

The realignment made of data for the reappraisal tables is largely explained by footnotes on tables or by definitions on pp. 57-60. However some additional explanation is needed of the following points:

1. Procedure followed in classifying virgin, large second-growth, and small second-growth saw-timber stands and in breaking down virgin saw-timber into stands of good, medium, and poor quality.
2. Estimate of the area of seedling and sapling stands.
3. Estimate of forest area and timber volume in farm ownership.

The criteria for classification of saw-timber stands were developed locally and are based on the collective judgment of best-informed Station and Region-5 personnel. The first step in this classification was to tabulate by working circles and other areas (available, unavailable, and recreation) within each county the acreage, volume in board feet, and stand per acre for each combination of type, age, density, and site-quality class. Stand per acre of pine and redwood separately as well as total was shown. Then after appropriately designating each combination according to saw-timber stand definitions, the areas and volumes were compiled for the reappraisal tables.

The basic tables do not provide information on the area of seedling and saplings, since trees of these sizes are not visible in the aerial photographs. Thus in the basic tables, stands of such trees are included in shrub- or woodland-covered areas classified as unstocked. However, from information provided by the vegetation type survey the ratio of the 0 to 20-year age class — essentially seedling and sapling size — to the unstocked shrub-covered timber cropland area was determined in an eight-county Sierra Nevada area. The acreage of seedlings and sapling stands for all types other than redwood was therefore determined for the reappraisal tables by applying this ratio to the total acreage classified from aerial photographs in each subregion as unstocked. This assumes that the proportion of seedling and saplings occurring in the woodland-covered area is the same as in the shrub-covered area. In the redwood type, the estimate of seedling and saplings was based on the judgment of A. A. Hasel, who cruised cut-over redwood areas for the reappraisal project in 1945.

The basic tables do not show farm ownership, since it would have been prohibitive in time and cost to determine it by the procedures followed for other ownerships. The ratio of farm to total private ownership in two sample areas was therefore used as a basis for estimating it for all areas in the reappraisal tables. The first sample area comprised

Road Districts 3 and 4 of Mendocino County, containing more than 700,000 acres of commercial forest land. In this area the ratios pertaining to both forest area and timber volume were determined by a field study carried on by the Bureau of Agricultural Economics in 1945. These ratios were applied in estimating farm ownership in the redwood and Douglas-fir subregions. The second sample area, which comprised the northern Sierra Nevada Land Utilization Study Area, was considered appropriate for estimating farm ownership in the eastside and westside Sierra and Coast Range pine subregions. This study provided the basis for only the area estimated. The volume estimate was derived by applying to this area estimate the ratio of area to volume obtaining in the Mendocino County sample area.

DEFINITION OF TERMS

Basic Tables

Timber cropland includes all areas, regardless of present cover, that appear to possess the climate and soil qualities essential for the production of commercial timber crops. Formerly timbered lands now cultivated for crops or urbanized are excepted.

Density classes segregate the timber cropland into:

1. Dense and semidense stands, where over 50 percent of the ground is covered with timber growth.

2. Open stands, where from 20 to 50 percent of the ground is covered with timber growth.

3. Very open stands, where from 5 to 20 percent of the ground is covered with timber growth.

4. Unstocked areas, where less than 5 percent of the ground appears to be covered with timber growth. Visible timber plantings in which the trees are still too small to be seen on the aerial photos are included here.

Age classes segregate all timber cropland with dense to very open stands into:

1. Old growth, (including old growth-young growth), where over 50 percent of the conifer canopy consists of mature trees.

2. Young growth-old growth, where from 20 to 50 percent of the conifer canopy consists of mature trees.

3. Large young growth, where less than 20 percent of the conifer canopy consists of mature trees and more than 20 percent of the young trees are about 12 inches d.b.h. and larger.

4. Small young growth, where less than 20 percent of the conifer canopy consists of mature trees and less than 20 percent of the young trees are about 12 inches d.b.h. and larger.

Types segregate all land according to existing vegetation cover or other condition, regardless of potentiality for commercial timber production.

Timber forest types have over 5 percent of the ground covered with trees of commercial timber species, including:

1. Pine, with ponderosa, Jeffrey or sugar pines comprising over 80 percent of the timber cover.

2. Redwood, with redwood comprising 20 percent or more of the timber cover.

3. Douglas-fir, with Douglas-fir comprising over 80 percent of the timber cover, or mixtures of Douglas-fir and the true firs in which Douglas-fir comprises 20 percent or more of the timber cover.

4. Fir, with the true firs (white or red) comprising over 80 percent of the timber cover.

5. Pine--Douglas-fir--fir, with mixtures of the timber pines and either Douglas-fir or the true firs in which the pines comprise from 20 to 80 percent of the timber cover. This type contains the giant sequoia groves of the Sierra Nevada.

Other conifer forest contains types of the coniferous trees which have no present commercial timber value. They include, except where in mixture with timber types:

1. Lodgepole pine--whitebark pine, with lodgepole, whitebark, foxtail, limber, or western white pines or mountain hemlock, either individually or in mixture, covering over 5 percent of the ground.

2. Piñon pines, with piñon pines alone or piñon pines and junipers together covering over 5 percent of the ground.

3. Junipers, with junipers covering over 5 percent of the ground except where associated with piñon pines or with hardwoods in the woodland--grass type.

4. Minor conifers, with such trees as knobcone, Monterey, Bishop, and Coulter pines, Bigcone-spruce, or cypresses covering over 5 percent of the ground.

Hardwood, shrub, and herb types consist of the following where not in mixture with timber types or other conifer forest:

1. Woodland, with hardwood trees (oaks, madrone, etc.) covering over 50 percent of the ground except where in mixture with herbaceous vegetation.

2. Woodland--grass, with hardwood trees and herbaceous vegetation occurring in mixture and the trees cover from 5 to 80 percent of the ground.

3. Chaparral, with such shrubs or manzanitas, scrub oaks and chamise covering over 50 percent of the ground.

4. Coastal sagebrush, with such shrubs as California sagebrush, coyote brush, and wild-buckwheats covering over 50 percent of the ground.

5. Great Basin sagebrush, with such shrubs as big sagebrush, bitterbrush, and saltbushes covering over 20 percent of the ground.

6. Desert, with only those shrubs characteristic of the Mojave and Colorado Deserts occurring in any density, together with included barren areas.

7. Grass, with grasses and associated herbaceous vegetation covering over 50 percent of the ground except where the type qualifies as woodland—grass or Great Basin sagebrush.

8. Marsh, with the herbaceous vegetation characteristic of very poorly drained areas, especially tidal areas.

Other types include:

1. Barren, areas that are essentially devoid of vegetation.

2. Cultivated, urban and industrial, areas that are under culti- vation or are used for residential or industrial purposes. Plantations of eucalyptus and "other conifer" trees, usually associated with rural and urban developments, are included.

Reappraisal Tables

Forest land includes (1) all timber cropland whether or not tree covered, (2) all other conifer, woodland, and woodland—grass types, and (3) chaparral and the generally intermingled coastal sagebrush of primary value for watershed purposes. It comprises both commercial and noncommercial forest land.

Commercial forest land is timber cropland that has not been officially withdrawn from commercial timber use. It comprises —

1. Available areas[1] where such factors as topography and ac- cessibility and character of timber are judged favorable for economic operation of saw-timber stands within the next 30 or 40 years.

2. Unavailable areas[1] including entire working circles as well as small detached units where such factors as topography, accessibility, and character of timber are judged unfavorable for economic operation within the next 30 or 40 years.

3. Recreation areas[1] including roadside scenic strips considered to be of such high recreational value that for large areas the usual form of timber management would not apply — any cutting being less than usual and primarily to benefit the stand for recreation purposes.

_____

[1] These classes also appear in basic tables.

Noncommercial forest land includes (1) timber cropland actually withdrawn[2]/ from commercial timber use for such purposes as parks, preserves, and wilderness areas and (2) all other forest land unsuitable for growing commercial timber crops.

Subregions[2]/ comprise broad geographic divisions of the timber cropland with types generally similar in species composition and site.

Working circles comprise geographic divisions of the commercial forest area for which it is judged that the timber resource should logically be managed as a whole and under a single plan.

Saw-timber trees are those large enough for sawlog production in accordance with the cutting practice of the region concerned. In the redwood types saw timber trees are 24 inches d.b.h. and larger; in all other types 12 inches d.b.h. and larger.

Pole-timber trees are those too small for sawlogs but large enough for cordwood use; that is, 4 to 23 inches d.b.h. in the redwood type and 4 to 11 inches d.b.h. in other types.

Saw-timber areas support stands characterized by timber large enough and in sufficient volume per acre for sawlog operation. Thus saw-timber areas include (1) stands within the eastside Sierra Pine subregion with a minimum volume of 3 M board feet per acre in trees 18 inches d.b.h. and larger; (2) stands (except those of the redwood type) within the westside Sierra, Coast Range Douglas-fir, and redwood sub regions with a minimum volume of 5 M board feet per acre in trees 20 inches d.b.h. and larger; and (3) stands of the redwood type with a minimum volume of 10 M board feet per acre in trees 24 inches d.b.h. and larger.

Pole-timber areas comprise the areas classified from the aerial photographs as small young growth timber; that is, trees ranging from approximately 4 to 11 inches in diameter.

Seedling and sapling areas are those on which at least 40 per cent of the growing space is occupied by commercial species below pole-timber size.

Virgin saw-timber area supports stands classified from the aerial photographs as old growth and old growth-young growth, excluding (1) those showing evidence of being cut-over and (2) those with a stand per acre below the minimums required for classification as saw-timber. It includes:

1. Good virgin saw-timber, comprising stands with (1) 50 M board feet or more redwood per acre, (2) 12 M board feet or more pine per acre in the eastside Sierra pine subregion, and (3) 15 M board feet or more pine per acre in all other subregions.

2/ cf. footnote 1, page 57.

2. Medium virgin saw-timber, comprising stands with (1) 20.0 to 49.9 board feet or more redwood per acre, (2) 7.0 to 11.9 M board feet or more pine per acre in the eastside Sierra subregion, (3) 10.0 to 14.9 M board feet pine per acre in all other subregions, and (4) 25.0 M board feet or more per acre all species in all subregions except the eastside Sierra but with less than 15 M board feet pine or 50 M board feet redwood per acre.

3. Poor virgin saw-timber, comprising stands with (1) 10.0 to 24.9 M board feet per acre all species in the redwood type but with less than 20.0 M board feet redwood per acre, (2) at least 3.0 M board feet per acre pine in the East Slope Sierra subregion but with less than 7.0 M board feet pine and (3) 5.0 to 24.9 M board feet per acre all species in all subregions except eastside Sierra but with less than 10.0 M board feet pine per acre.

Large second-growth saw timber comprises (1) both cut-over and uncut stands classified from the aerial photographs as young growth-old growth, excluding those with a stand per acre below the minimum required for classification as saw-timber and (2) old-growth and old-growth—young-growth stands showing evidence in the aerial photographs of having been cut-over. To be classed as saw-timber, large second growth must have, excluding the redwood type, a minimum stand per acre in trees 12 inches d.b.h. and larger of (a) 4.0 M board feet estimated (3.0 M in trees 18 inches d.b.h. and larger) in the eastside Sierra subregion and (b) 7.5 M board feet estimated (5.0 M in trees 20 inches d.b.h. and larger) per acre in all other subregions. In the redwood type it must have a minimum stand per acre of 10.0 M board feet.

Small second-growth saw-timber comprises (1) both cut-over and uncut areas classified from the aerial photographs as supporting stands of large young growth, excluding those with a stand per acre below the required minimums. To be classed as saw-timber, small second growth must have, excluding the redwood type, a minimum stand per acre in trees 12 inches d.b.h. and larger of (a) 12.0 M board feet per acre estimated (3.0 M in trees 18 inches d.b.h. and larger) in the East Slope Sierra subregion and (b) 20.0 M board feet per acre estimated (5.0 M in trees 20 inches d.b.h. and larger) in all other subregions. In the redwood type it must have a stand of at least 10.0 M board feet per acre.

Density of stocking of large and small second-growth saw-timber and pole-timber stands. Three classes are recognized:

1. Well stocked, comprising stands classified from the aerial photographs as semidense and dense.

2. Partially stocked, comprising stands classified from the aerial photographs as open.

3. Poorly stocked, comprising stands classified from the aerial photographs as very open.

Density of stocking of seedling and sapling stands. Three classes are recognized:

1. Well stocked, comprising areas on which, as judged in field mapping, at least 70 percent of the growing space is occupied by commercial species below pole-timber size.

2. Partially stocked, comprising areas on which, as judged in field mapping, 40 to 70 percent of the growing space is occupied by commercial species below pole-timber size.

3. Poorly stocked seedling and sapling and unstocked areas, comprising areas on which, as judged in field mapping, less than 40 percent of the growing space is occupied by commercial species below pole-timber size. The acreage of these areas was determined by measuring the total area classified from the aerial photographs as apparently unstocked and subtracting from it the area estimated from field observations to be at least partially stocked with seedlings and saplings.

Common and Scientific Names of Plants Mentioned

Bigcone-spruce	Pseudotsuga macrocarpa
Big sagebrush	Artemisia tridentata
Bishop pine[1]	Pinus muricata
Bitterbrush	Purshia tridentata
California sagebrush	Artemisia californica
Chamise (chamiso)	Adenostoma fasciculatum
Coulter pine	Pinus coulteri
Coyote brush (kidneywort)	Baccharis pilularis
Cypresses	Cupressus spp.
Douglas-fir	Pseudotsuga taxifolia
Eucalyptus	Eucalyptus spp.
Fir	Abies spp.
Foxtail pine	Pinus balfouriana
Giant sequoia	Sequoia washingtoniana (S. gigantea)
Incense-cedar (California incense-cedar)	Libocedrus decurrens
Jeffrey pine	Pinus jeffreyi
Junipers	Juniperus spp. (mainly J. californica and J. occidentalis)
Knobcone pine	Pinus attenuata
Limber pine	Pinus flexilis
Lodgepole pine	Pinus contorta murrayana
Madrone (Pacific madrone)	Arbutus menziesii
Manzanitas	Arctostaphylos spp.
Monterey pine	Pinus radiata
Mountain hemlock	Tsuga mertensiana
Oaks	Quercus spp.
Piñon pines (mainly singleleaf piñon)	Pinus monophylla
Ponderosa pine	Pinus ponderosa
Port Orford white-cedar	Chamaecyparis lawsoniana
Red fir (California red fir)	Abies magnifica
Redwood	Sequoia sempervirens
Saltbushes	Atriplex spp.
Scrub oak	Quercus dumosa and others
Sitka spruce	Picea sitchensis
Sugar pine	Pinus lambertiana
Western hemlock	Tsuga occidentalis
Western redcedar	Thuja plicata
Western white pine	Pinus monticola
Whitebark pine	Pinus albicaulis
White fir	Abies concolor (A. grandis in redwood subregion)
Wild-buckwheats (Buckwheat-brushes)	Eriogonum spp.

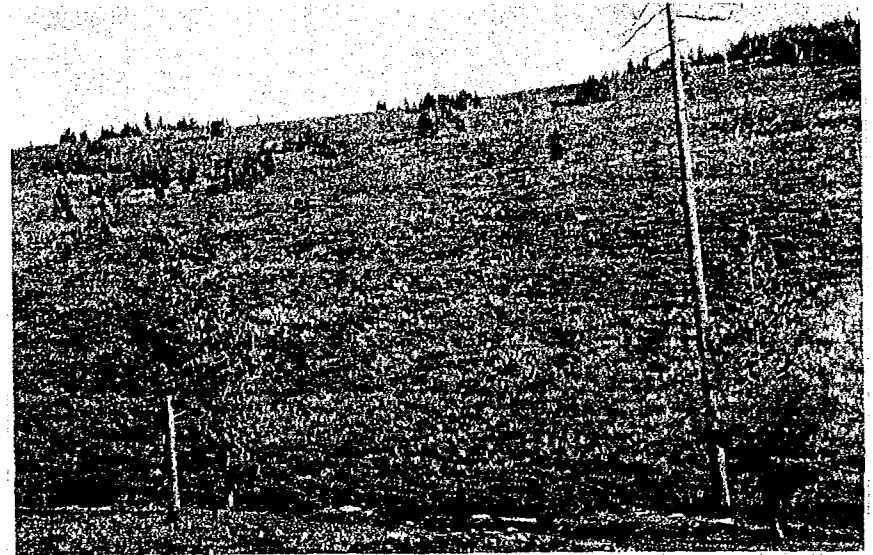1/ Associated with Santa Cruz Island pine (Pinus remorata) in the northern island group.

Dense and semidense
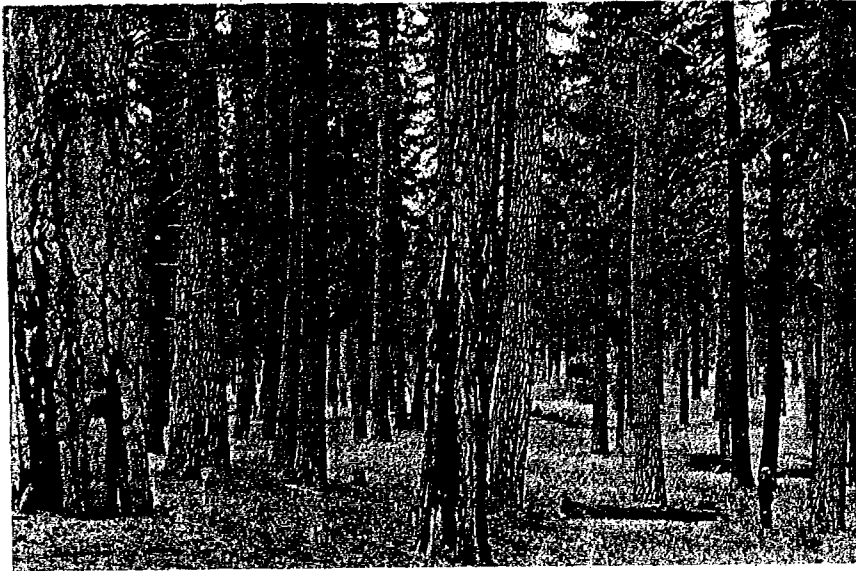
Open

Very open

Unstocked

Old growth

Young growth—old growth

Large young growth

Small young growth

Pine

Redwood

Douglas-fir

Fir

Pine — Douglas-fir — Fir

Lodgepole pine — whitebark pine

Minor conifers (Knobcone pine)

Piñon pine

Juniper

HARDWOOD TYPES
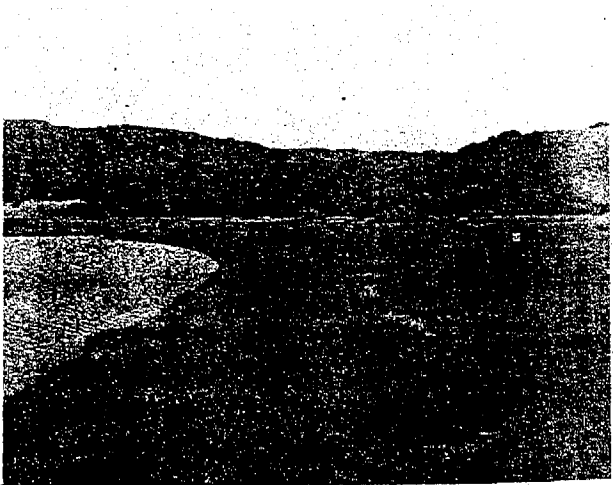

Woodland

Woodland — grass

Chaparral

Coastal sagebrush

Great Basin sagebrush

Desert

Grass

Marsh