State of California
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Department of Forestry

STATE FOREST NOTES

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No. 70 July, 1978

WEIGHT TABLES FOR HARDWOODS IN CENTRAL COAST COUNTIES, CALIFORNIA

Hardwoods native to the Central Coast Counties in California are an unused and largely unmanaged resource. However, as the cost of other forms of energy continues to rise, the potential for using hardwoods for firewood and wood-fuel in power plants becomes more attractive. One method for selling hardwoods in large quantities is through weight sales.

During the summer of 1977 detailed measurements were obtained for 170 hardwood trees for the purpose of developing volume and weight tables.*

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The species sampled are: coast liveoak (Quercus agrifolia), blue oak (Quercus douglasii), California white oak (Quercus lobata), interior live oak (Quercus wislizenii), tan oak (Lithocarpus densiflorus), and madrone (Arbutus menziesii). These species occurred in pure and mixed stands.

Among the tree variables measured in the field, diameter at breast height and total height were found to most accurately estimate weight values. Tree diameters were measured at breast height where possible or where swelling did not bias the measurement. Diameter values were obtained by a diameter tape and total tree heights were determined by the Spiegel Relaskop. A subsample of trees was severed at ground level and cut into firewood sized pieces (18 inches). Each tree (up to a 2 inch stem diameter) was weighed on a flatbed truck with a set of portable California Highway Patrol truck scales. The California Department of Forestry's Conservation Camp Program was instrumental in obtaining needed weight data, primarily through labor contribution.

A multiple regression analysis program was used to correlate green weight with tree diameter at breast height and total height (logarithmic transformation) for all species sampled (Equation 1). Equations 2 through 4 are for coast live oak, blue oak, and tan oak respectively. Green weight tables (1 through 4) were derived from these equations.

Species	Equation	R^2 (1)	n. (2)	Eqn. no.
All-species	$MWT = 0.8126\ (DBH^{1.9434})(HT^{0.6899})$	0.931	150	1
C. live oak	$MWT = 0.6464\ (DBH^{1.8148})(HT^{0.8496})$	0.905	56	2
Blue oak	$MWT = 1.2194\ (DBH^{2.1964})(HT^{0.4191})$	0.901	55	3
Tan Oak	$MWT = 0.1199\ (DBH^{2.0287})(HT^{0.9821})$	0.982	20	4

MWT = Merchantable Green Weight in pounds; DBH in inches; HT in feet

(1) R^2 = Multiple correlation coefficient (2) n = Number or trees

The all-species weight table should be used for general inventory purposed, and for rapid estimates in mixed stands. A closer weight estimate can be obtained by using tables developed for individual species. These tables are suggested as a basis for weight sales and weight inventory for hardwoods in the Central Coast Counties.

* The complete report Hardwood Volume and Weight Tables for California's Central Coast (Pillsbury and Stephens, April 1978) was published by the California Department of Forestry. The project was sponsored and funded through the Central Coast Resource Development Project, Salinas, California.

WEIGHT (ALL SPECIES) IN POUNDS.[1]

DBH	HEIGHT IN FEET										
Inches	5	10	15	20	25	30	35	40	45	50	55
4	36	59	78	95	111	128					
6	80	129	171	209	244	276	307	337	365		
8	140	226	299	365	426	483	537	589	639	687	734
10		349	462	563	657	745	829	909	986	1060	1132
12		498	658	803	937	1062	1181	1295	1405	1511	1614
14			888	1084	1264	1433	1594	1748	1896	2039	2177
16			1152	1405	1638	1858	2066	2266	2458	2643	2823
18			1448	1766	2060	2336	2598	2849	3090	3323	3548
20			1777	2167	2528	2867	3188	3496	3792	4078	4355
22				2608	3042	3450	3837	4207	4563	4907	5241
24				3089	3603	4085	4544	4982	5404	5812	6207
26				3608	4209	4773	5309	5821	6314	6790	7251
28				4167	4861	5512	6131	6723	7292	7841	8374
30					5558	6303	7011	7687	8338	8967	9576
32					6301	7146	7948	8714	9452	10165	10856
34					7089	8039	8941	9804	10634	11436	12213
36					7922	8984	9992	10956	11883	12779	13648
38						9979	11099	12170	13200	14195	15160
40						11025	12262	13445	14584	15683	16749
42						12122	13482	14783	16034	17243	18416
44						13269	14757	16181	17551	18875	20157
46						14466	16089	17642	19135	20578	21976
48								19163	20785	22352	23871
50								20745	22501	24197	25842
52								22388	24283	26114	27889
54								24092	26131	28101	30011

(continued). WEIGHT (ALL SPECIES) IN POUNDS[a]

DBH	HEIGHT IN FEET										
Inches	60	65	70	75	80	85	90	95	100	105	110
4											
6											
8	778	824									
10	1302	1271	1337								
12	1714	1811	1908								
14	2312	2443	2572								
16	2997	3167	3333	3496	3656	3811	3965	4115	4263	4409	4553
18	3768	3982	4191	4395	4595	4792	4984	5174	5360	5544	5724
20	4624	4887	5143	5394	5639	5880	6117	6349	6578	6803	7025
22	5565	5881	6190	6491	6787	7077	7362	7641	7917	8188	8455
24	6591	6965	7330	7687	8037	8381	8718	9049	9375	9696	10012
26	7700	8137	8564	8981	9393	9791	10185	10572	10953	11328	11697
28	8893	9397	9890	10372	10845	11308	11763	12210	12650	13082	13509
30	10168	10746	11309	11861	12401	12930	13451	13962	14465	14960	15448
32	11527	12182	12821	13446	14058	14658	15248	15827	16398	16959	17512
34	12969	13705	14424	15127	15816	16491	17155	17807	18448	19079	19702
36	14492	15315	16118	16904	17674	18429	19170	19898	20615	21321	22016
38	16098	17012	17904	18777	19632	20471	21294	22103	22899	23683	24456
40	17785	18795	19781	20745	21690	22616	23526	24420	25300	26166	27019
42	19554	20664	21748	22809	23847	24866	25868	26849	27818	28768	29706
44	21404	22620	23806	24967	26104	27218	28313	29389	30448	31490	32517
46	23336	24661	25954	27219	28455	29674	30868	32041	33198	34332	35451
48	25348	26787	28192	29567	30913	32233	33539	34804	36058	37292	38508
50	27441	28999	30520	32008	33465	34894	36298	37677	39005	40371	41688
52	29614	31286	32937	34543	36110	37656	38773	40887	42126	43588	44989
54	31868	33677	35444	37172	38864	40524	42154	43756	45332	46884	48413

[a] Based on Equation (27).

Derived from samples of the following species: coast live oak, California white oak, interior live oak, tan oak, and madrone.