

## **Estimation of Leaf Biomass Density for Tree Species in East Texas**

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### Objective:

As a part of the contract with the University of Texas Center for Space Research (CSR), the Texas Forest Service agreed to estimate the mean and variation of the leaf biomass density per hectare for each observed tree genus in each land cover classification in East Texas. The information is required to model biogenics emission in Texas, and to quantify the time and resources required to establish and update a comprehensive database for the eastern half of the State.

### Data and Method:

The estimation was based on 2003 Texas Forest Inventory and Analysis (FIA) plot and tree level data. The data was limited to all live trees on forestlands. There were a total of 1,825 plots, 44,242 trees in 43 counties of East Texas (Table 1). These plots were classified into 7 land categories based on information supplied by the CSR (Table 2). Plots with more than one land categories were excluded from the sample.

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We estimated the leaf biomass by associating leaf biomass with variables in the FIA database such tree diameter at breast height (DBH) and tree height. The existing leaf biomass equations in the literature were thoroughly reviewed and evaluated. While many biomass leaf equations exist for species in North America, the existing equations do not cover each species in each geographical location. There are also quality differences in the existing equations. The selection of the equations for each species was based on three factors: Species, geographical location, and equation quality. Sometimes, tradeoffs needed to be made if these three factors conflicted with each other. Species factor usually received the highest priority. If an equation exists for a species, we would usually choose to use it, even if it meant using an equation of a species that was from a location far from Texas. Only when there was no equation available for a certain species, an equation for a similar species was used. Location factor was given the next highest priority. If there were more than one equation available for a certain species, the equation from the location that was closest to East Texas was chosen. The location factor was not a pure distant concept; it also took into account the geographical distributions of each species. Efforts were made to choose equations from locations with similar growing conditions for each species. The last consideration was equation quality. Equations based on both DBH and height were given higher priority over equations based on DBH only. The final selection of the equations was documented in Tables 3, 4, and 5.

The estimation of the means and variations of the means and variations of leaf biomass by land cover type and species took three steps. The first step was to compute the leaf biomass for each three in the sample. The second step was to

summarize the leaf biomass by land cover type and species for each plot. The third step was to estimate the mean, standard deviation, and coefficient of variation of the leaf biomass by land cover type and species. The estimated leaf biomass results were presented in kg/hectare dry weight. Using similar steps, we also computed the means and variations of leaf biomass by land cover type and species group, by forest type and species, and by forest type and species group.

#### Results:

The estimated mean and standard deviation of each species in each land cover type was presented in Tables 6-9. Many of the standard deviations and coefficient of variations were fairly high. Majority of the standard deviations were bigger than their corresponding means which means that the coefficients of variations were bigger than 100%. The main reason for the high variation of leaf biomass was the uneven distribution of tree species across landscape. There are dozens of tree species in each land cover type in East Texas. However, for each particular FIA plot, there are usually far less number of species. The species that are not present in each plot are treated as having zero biomass in that plot. The large amount of zero values of leaf biomass by species and by plot substantially increased the leaf biomass variation by species and by land cover type. The second contributing factor for some high variation of leaf biomass was the age distribution of trees. In managed forests, trees are harvested regularly, and trees of different ages are distributed across landscape which causes leaf biomass to vary from across the landscape. The variations of leaf biomass differ from Tables 6-9 in some small ways, showing the impact of different

ways of presenting the information, but they are generally fairly large due to the two reasons stated above.

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Table 1. Number of plots and trees by county

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Table 3. Equations and parameters for leaf biomass equations\

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Table 6. Estimated leaf biomass by land cover type and species

Table 7. Estimated leaf biomass by land cover type and species group

Table 8. Estimated leaf biomass by forest type and species

Table 9. Estimated leaf biomass by forest type and species group

**Table 1. -- Number of forested plots and trees by county in East Texas**

<b>County Name</b>	<b>Plot Number</b>	<b>Tree Number</b>
Anderson	67	1460
Angelina	53	1328
Bowie	47	894
Camp	4	107
Cass	50	1206
Chambers	8	158
Cherokee	52	1250
Franklin	15	348
Gregg	15	382
Grimes	24	429
Hardin	75	2309
Harris	39	661
Harrison	57	1491
Henderson	29	541
Houston	56	1242
Jasper	71	1756
Jefferson	15	384
Leon	62	1147
Liberty	68	1869
Madison	18	221
Marion	31	871
Montgomery	78	1604
Morris	11	324
Nacogdoches	61	1502
Newton	78	1950
Orange	22	519
Panola	47	1158
Polk	80	2094
Red River	51	1232
Rusk	51	1128
Sabine	39	1367
San Augustine	41	1297
San Jacinto	40	1125
Shelby	51	1178
Smith	39	765
Titus	16	377
Trinity	48	1589
Tyler	74	2134
Upshur	28	583
Van Zandt	23	406
Walker	50	1073
Waller	10	143
Wood	31	640
<i>Total</i>	<i>1825</i>	<i>44242</i>

**Table 2. -- Number of forested plots and trees by land cover type and Forest Type**

<b>Land Cover</b>	<b>Plot Number</b>	<b>Tree Number</b>	<b>Comment</b>
FDC32	5	52	Cold-deciduous Forest, EPA Level III ecoregion 32
FDC33	211	3,817	Cold-deciduous Forest, EPA Level III ecoregion 33
FDC34	39	633	Cold-deciduous Forest, EPA Level III ecoregion 34
FDC35	574	11,354	Cold-deciduous Forest, EPA Level III ecoregion 35
FEN	762	23,215	Evergreen Needleleaf Forest
MIX	234	5,171	Mixed Forest
<i>Total</i>	<i>1,825</i>	<i>44,242</i>	

<b>Forest Type</b>	<b>Plot Number</b>	<b>Tree Number</b>	<b>Comment</b>
L/SL P	28	800	Longleaf / Slash Pine
L/SH P	726	22,304	Loblolly / Shortleaf Pine
P/J	8	111	Pinyon / Juniper
O/P	234	5,171	Oak / Pine
O/H	492	8,799	Oak / Hickory
O/G/C	201	4,577	Oak / Gum / Cypress
E/A/C	109	1,983	Elm / Ash / Cottonwood
OWH	2	4	Other Western Hardwoods
EH	25	493	Exotic Hardwoods
<i>Total</i>	<i>1,825</i>	<i>44,242</i>	

Table 3. -- Equations and parameters for diameter(dbh)&height-based leaf biomass equations

Species	Common Name	Equation								R <sup>2</sup>	Min Diameter	Max Diameter	Min Height	Max Height	Sample size	Diameter Unit	Height Unit	leaf biomass Unit (dry)	Source	Notes
		Form ID	a	b	c	d	e	f												
951	American basswood	2	0.0147	1.83	0					0.51	3.7	54.8	3.8	26.1	80	cm	m	kg	1	Canadian forest service ENFOR database
531	American beech	2	0.0452	1.5567	0					0.48	1.8	46.3	2.9	26.5	177	cm	m	kg	1	Canadian forest service ENFOR database
972	American elm	3	0.19128	0.91936	0.1769	0.92435				0.99	1	11.2	13	77	16	in	ft	lb	2	Clark Piedmont Area
591	American holly	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
391	American hornbeam	2	0.0247	2.0056	0					0.95	5.2	18.5	6.3	11.9	14	cm	m	kg	1	Canadian forest service ENFOR database
994	Chinese tallowtree	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
828	Nuttall oak	3	0.1622	0.95348	0.14786	0.96117				0.99	2.3	10	30	81	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117		0.99	11	18.8	68	88	24	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
641	Osage-orange	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
834	Shumard oak	3	0.1622	0.95348	0.14786	0.96117				0.99	2.3	10	30	81	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117		0.99	11	18.8	68	88	24	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
221	baldcypress	2	0.1554	2.4021	-1.1043					0.73	1.3	68.7	1.6	52.2	4859	cm	m	kg	1	Canadian forest service ENFOR database
402	bitternut hickory	3	0.18316	0.9503	0.16922	0.95583				0.99	1.5	10.8	17	68	12	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583		0.99	11.5	18.5	68	97	10	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
762	black cherry	2	0.1976	1.4421	-0.5264					0.55	0.9	49.6	2.1	25.9	78	cm	m	kg	1	Canadian forest service ENFOR database
408	black hickory	3	0.18316	0.9503	0.16922	0.95583				0.99	1.5	10.8	17	68	12	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583		0.99	11.5	18.5	68	97	10	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
837	black oak	3	0.13493	0.98969	0.13069	0.98979				0.99	2.1	10.5	15	76	71	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06771	1.13346	0.98969	0.06451	1.13699	0.98979		0.99	11.2	20.9	52	95	39	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
602	black walnut	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
922	black willow	3	0.1349	0.93309	0.12693	0.93728				0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728		0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
693	blackgum	3	0.1617	0.92799	0.15457	0.93057				0.99	1	10.9	17	80	72	in	ft	lb	3	Clark Gulf and Atlantic coastal Area dbh
		4	0.06657	1.11305	0.92799	0.06419	1.11381	0.93057		0.99	11	19.5	50	101	63	in	ft	lb	3	Clark Gulf and Atlantic coastal Area dbh
824	blackjack oak	3	0.1622	0.95348	0.14786	0.96117				0.99	2.3	10	30	81	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117		0.99	11	18.8	68	88	24	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
842	bluejack oak	3	0.1622	0.95348	0.14786	0.96117				0.99	2.3	10	30	81	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117		0.99	11	18.8	68	88	24	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
313	boxelder	5	0.161	0.000757						0.81	3.6	36.8	4	21.3	49	cm	m	kg	5	mississippi delta area
973	cedar elm	3	0.19128	0.91936	0.1769	0.92435				0.98	1	11.2	13	77	16	in	ft	lb	2	Clark Piedmont Area
813	cherrybark oak	3	0.1622	0.95348	0.14786	0.96117				0.99	2.3	10	30	81	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117		0.99	11	18.8	68	88	24	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
993	chinaberry	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
381	chittamwood	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
521	common persimmon	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
840	dwarf post oak	3	0.12835	0.9969	0.12487	0.9969				0.98	5.1	10.2	33	66	14	in	ft	lb	4	Clark Upland-South Area dbh <11 inch
		4	0.14308	0.97425	0.9969	0.14035	0.97254	0.9969		0.98	11.2	20.9	50	63	12	in	ft	lb	4	Clark Upland-South Area dbh >=11 inch
701	eastern hophornbeam	2	0.0247	2.0056	0					0.95	5.2	18.5	6.3	11.9	14	cm	m	kg	1	Canadian forest service ENFOR database
471	eastern redbud	3	0.1349	0.93309	0.12693	0.93728				0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728		0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
970	elm spp.	3	0.19128	0.91936	0.1769	0.92435				0.98	1	11.2	13	77	16	in	ft	lb	2	Clark Piedmont Area
311	florida maple	3	0.19766	0.90302	0.17603	0.91317				0.99	1	10.7	15	74	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.03697	1.25258	0.90302	0.04068	1.21861	0.91317		0.99	11.2	15.9	72	80	8	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
491	flowering dogwood	3	0.1732	0.95225	0.16065	0.95747				0.99	1	10.9	12	90	238	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747		0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
544	green ash	3	0.19954	0.89285	0.19022	0.89669				0.98	1	10.9	13	93	148	in	ft	lb	3	Clark Gulf and Atlantic coastal Area
0	hard hardwoods	3	0.1732	0.95225	0.16065	0.95747				0.99	11.1	18.1	12	90	10	in	ft	lb	2	Clark Piedmont Area dbh <11 inch

		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
500	hawthorn	3	0.1732	0.95225	0.16065	0.95747			0.99	11.1	18.1	12	90	10	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
400	hickory spp.	3	0.18316	0.9503	0.16922	0.95583			0.99	1.5	10.8	17	68	12	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99	11.5	18.5	68	97	10	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
552	honeylocust	3	0.1732	0.95225	0.16065	0.95747			0.99	11.1	18.1	12	90	10	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
820	laurel oak	3	0.20494	0.94196	0.1785	0.95476			0.99	1.1	10.5	19	61	35	in	ft	lb	3	Clark Gulf and Atlantic coastal Area dbh
		4	0.07233	1.15911	0.94196	0.07226	1.14333	0.95476	0.99	11.2	17.3	49	90	12	in	ft	lb	3	Clark Gulf and Atlantic coastal Area dbh
131	loblolly pine	1	-2.5375	3.0096	-1.5756				0.84	13	43	14	29	112	cm	m	kg	6	Louisiana
		6	-4.20535	0.05515	0.49941	0.94595	2.93469	-1.15977	0.92	0.93	21.15	1.73	13.19	41	cm	m	kg	7	North Carolina
121	longleaf pine	7	-1.06186	1.00853	-1.15588	1.027			0.98	5	21	36	83	87	in	ft	lb	8	West Gulf Region Louisiana Texas
		7	-0.65729	0.88019	-0.71944	0.88503			0.95	1	4.9	12	54	24	in	ft	lb	8	West Gulf Region Louisiana Texas
409	mockernut hickory	3	0.18316	0.9503	0.16922	0.95583			0.99	1.5	10.8	17	68	12	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99	11.5	18.5	68	97	10	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
999	other, unknown	3	0.15769	0.938	0.14724	0.94275			0.98	1	10.9	12	96	549	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05216	1.16867	0.938	0.04964	1.16948	0.94275	0.98	11	20.9	52	115	223	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
822	overcup oak	3	0.13493	0.98969	0.13069	0.98979			0.99	2.1	10.5	15	76	71	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06771	1.13346	0.98969	0.06451	1.13699	0.98979	0.99	11.2	20.9	52	95	39	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
404	pecan	3	0.18316	0.9503	0.16922	0.95583			0.99	1.5	10.8	17	68	12	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99	11.5	18.5	68	97	10	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
403	pignut hickory	3	0.18316	0.9503	0.16922	0.95583			0.99	1.5	10.8	17	68	12	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99	11.5	18.5	68	97	10	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
835	post oak	3	0.12835	0.9969	0.12487	0.9969			0.98	5.1	10.2	33	66	14	in	ft	lb	4	Clark Upland-South Area dbh <11 inch
		4	0.14308	0.97425	0.9969	0.14035	0.97254	0.9969	0.98	11.2	20.9	50	63	12	in	ft	lb	4	Clark Upland-South Area dbh >=11 inch
316	red maple	3	0.19766	0.90302	0.17603	0.91317			0.99	1	10.7	15	74	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.03697	1.25258	0.90302	0.04068	1.21861	0.91317	0.99	11.2	15.9	72	80	8	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
682	red mulberry	3	0.1732	0.95225	0.16065	0.95747			0.99	11.1	18.1	12	90	10	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
721	redbay	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
68	redcedar	2	0.2575	2.5136	-1.5565				0.81	2	38.2	2.7	12.8	33	cm	m	kg	1	Canadian forest service ENFOR database
373	river birch	2	0.1683	1.2764	0				0.45	0.8	70.3	2.7	25.6	280	cm	m	kg	1	Canadian forest service ENFOR database
931	sassafras	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
110	shortleaf pine	6	-3.96415	0.05515	0.49941	0.94595	2.93469	-1.15977	0.92	3.39	14.44	3.08	7.9	15	cm	m	kg	7	North Carolina
111	slash pine	6	-3.96415	0.05515	0.49941	0.94595	2.93469	-1.15977	0.92	3.39	14.44	3.08	7.9	15	cm	m	kg	7	North Carolina
975	slippery elm	3	0.19128	0.91936	0.1769	0.92435			0.98	1	11.2	13	77	16	in	ft	lb	2	Clark Piedmont Area
0	soft hardwoods	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
652	southern magnolia	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
812	southern red oak	3	0.1622	0.95348	0.14786	0.96117			0.99	2.3	10	30	81	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99	11	18.8	68	88	24	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
461	sugarberry	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
825	swamp chestnut oak	3	0.11665	0.99033	0.11122	0.99205			0.99	1.2	14.6	12	70	37	in	ft	lb	2	Clark Piedmont Area
694	swamp tupelo	3	0.12557	0.92338	0.1223	0.92453			0.98	1	19.9	15	70	79	in	ft	lb	3	Clark Gulf and Atlantic coastal Area
653	sweetbay	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
611	sweetgum	3	0.11357	0.94351	0.108	0.94648			0.99	1	10.8	13	96	180	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.03107	1.2138	0.94351	0.02818	1.22662	0.94648	0.99	11.1	20.7	71	107	56	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
731	sycamore	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
401	water hickory	3	0.18316	0.9503	0.16922	0.95583			0.99	1.5	10.8	17	68	12	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99	11.5	18.5	68	97	10	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
827	water oak	3	0.23742	0.92299	0.20692	0.93496			0.99	1	10.7	15	93	79	in	ft	lb	3	Clark Gulf and Atlantic coastal Area dbh
		4	0.15568	1.01099	0.92299	0.14638	1.00713	0.93496	0.99	11.6	20	68	100	33	in	ft	lb	3	Clark Gulf and Atlantic coastal Area dbh
691	water tupelo	3	0.12557	0.92338	0.1223	0.92453			0.99	1	19.9	15	70	79	in	ft	lb	3	Clark Gulf and Atlantic coastal Area

551	waterlocust	3	0.1732	0.95225	0.16065	0.95747		0.99	11.1	18.1	12	90	10	in	ft	lb	2	Clark Piedmont Area dbh <11 inch	
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99	11	20.9	52	97	99	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
541	white ash	2	0.0195	1.0509	0.7836				0.49	2.4	53.7	3.9	26.9	109	cm	m	kg	1	Canadian forest service ENFOR database
802	white oak	3	0.13493	0.98969	0.13069	0.98979			0.99	2.1	10.5	15	76	71	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06771	1.13346	0.98969	0.06451	1.13699	0.98979	0.99	11.2	20.9	52	95	39	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
920	willow	3	0.1349	0.93309	0.12693	0.93728			0.99	1	10.9	12	96	311	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99	11	20.7	70	115	124	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
831	willow oak	3	0.1622	0.95348	0.14786	0.96117			0.99	2.3	10	30	81	24	in	ft	lb	2	Clark Piedmont Area dbh <11 inch
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99	11	18.8	68	88	24	in	ft	lb	2	Clark Piedmont Area dbh >=11 inch
971	winged elm	3	0.19128	0.91936	0.1769	0.92435			0.98	1	11.2	13	77	16	in	ft	lb	2	Clark Piedmont Area

**Table 4. -- Equation form key**

<b>Equation Form Description</b>	<b>Equation Form ID</b>
$\ln \text{ biomass} = a + b * \ln(\text{dia}) + c * \ln(\text{ht})$	1
$\text{biomass} = a * (\text{dia} ^ b) * (\text{ht} ^ c)$	2
$\text{biomass} = a * ((\text{dia}^2 * \text{ht}) ^ b) - c * ((\text{dia}^2 * \text{ht}) ^ d)$	3
$\text{biomass} = a * ((\text{dia}^2) ^ b) * (\text{ht} ^ c) - d * ((\text{dia}^2) ^ e) * (\text{ht} ^ f)$	4
$\text{biomass} = a + b * (\text{dia}^2 * \text{ht})$	5
$\ln \text{ biomass} = a+b*\ln(\text{dia}+1)+c*(\ln(\text{dia}+1))^2+d*\ln(\text{cr}*\text{ht})+e*\ln(\text{ht})+f * (\ln(\text{ht}))^2$	6
$\ln \text{ biomass} = a + b * \ln(\text{dia}^2 * \text{ht}) - c - d * \ln(\text{dia}^2 * \text{ht})$	7

Note:

dia: tree diameter at breast height

ht: tree height

a-f are parameters

biomass: leaf biomass

**Table 5. -- Citation information for equations and data referenced in Table 3**

<b>Reference no.</b>	<b>Reference</b>	<b>Origin</b>
1	Lambert, M.-C.; Ung, C.-H.; Raulier, F. 2005 <b>Canadian national tree aboveground biomass equations</b> . Can. J. For. Res. 35: 1996-2018.	Canada
2	Clark, A. I.; Phillips, D.; Frederick, D. 1986a. <b>Weight, volume, and physical properties of major hardwood species in the Piedmont</b> . Res. Pap. SE-255. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station.	Piedmont Area.
3	Clark, A. I.; Phillips, D.; Frederick, D. 1985. <b>Weight, volume, and physical properties of major hardwood species in the Gulf and Atlantic Coastal Plains</b> . Res. Pap. SE-250. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station.	Gulf and Atlantic coastal Area
4	Clark, A. I.; Phillips, D.; Frederick, D. 1986b. <b>Weight, volume, and physical properties of major hardwood species in the Upland South</b> . Res. Pap. SE-257. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station.	Upland South
5	Schlaegel, B. E. 1982. <b>Boxelder (Acer negundo L.) biomass component regression analysis for the Mississippi Delta</b> . Forest Science 28:355-358	
6	Baldwin, V.C., Jr. 1989. <b>Is sapwood area a better predictor of loblolly pine crown biomass than bole diameter?</b> Biomass, 20: 177-185.	Louisiana
7	Nemeth, J.C. 1973. <b>Dry matter production in young loblolly pine (Pinus taeda L.) and slash pine (Pinus elliottii Engelm.) plantations</b> . Ecological Monographs. 43: 21-41.	North Carolina
8	Baldwin, K.C.; Jr. Saucier, JR 1983. <b>Above groundweight and volume of unthinned, planted longleaf pine on west gulf forest sites</b> . Res. Pap. SO-191. New Orleans: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station	West Gulf Region Louisiana Texas

Table 6. -- Estimated leaf biomass by land cover type and species

Land Cover	Class Number	Species	Leaf Biomass (kg/ha)			Plot Number	Tree Number	Comments
			Mean	Standard error	Coefficient of variation			
FEN	1	eastern redcedar	36.1	316.7	878.5%	48	145	Evergreen Needleleaf Forest
		shortleaf pine	165.6	623.0	376.2%	235	1,205	
		slash pine	53.1	295.8	557.6%	46	457	
		longleaf pine	0.8	6.2	733.2%	23	117	
		loblolly pine	3,198.7	2,495.8	78.0%	693	14,462	
		Virginia pine	0.9	9.5	1081.4%	8	8	
		baldcypress	0.2	6.2	2760.4%	1	2	
		Florida maple	0.3	4.0	1461.3%	7	11	
		boxelder	0.0	0.1	2760.4%	1	1	
		red maple	9.6	39.7	414.4%	114	252	
		mimosa/silktree	0.0	0.1	2118.1%	2	3	
		pawpaw	0.0	0.1	2760.4%	1	3	
		river birch	1.9	32.2	1736.6%	4	15	
		chittamwood	0.0	0.4	1949.2%	3	5	
		American hornbeam	4.5	73.1	1626.4%	32	76	
		hickory spp.	0.8	13.7	1773.2%	3	4	
		water hickory	0.0	0.0	2760.4%	1	1	
		bitternut hickory	0.8	11.5	1514.6%	6	8	
		pignut hickory	0.6	10.1	1677.7%	7	9	
		shagbark hickory	0.9	17.8	2003.4%	2	3	
		black hickory	8.2	53.7	652.2%	51	85	
		mockernut hickory	7.0	39.6	566.7%	54	92	
		sugarberry	1.5	10.8	706.4%	27	36	
		hackberry	0.1	3.2	2258.5%	2	5	
		eastern redbud	0.1	1.3	1752.2%	6	7	
		flowering dogwood	1.4	8.5	593.1%	59	81	
		hawthorn	0.4	4.5	1296.8%	27	61	
		cockspur hawthorn	0.0	0.3	1988.0%	2	3	
		downy hawthorn	0.0	0.1	2760.4%	1	2	
		common persimmon	1.1	24.8	2346.4%	19	26	
		American beech	0.9	12.7	1376.8%	9	11	
		white ash	3.8	22.8	596.8%	54	93	
		green ash	0.7	5.1	713.4%	30	45	
		waterlocust	0.0	1.1	2760.4%	1	1	
		honeylocust	0.1	2.3	1960.8%	2	7	
		American holly	5.6	31.3	558.9%	68	142	
		black walnut	1.8	32.1	1745.9%	3	8	
		sweetgum	63.2	123.1	194.8%	453	1,869	
		Osage-orange	0.1	1.0	2007.1%	2	4	
		magnolia spp.	0.0	0.7	2760.4%	1	1	
		southern magnolia	1.7	26.9	1557.1%	14	34	
		sweetbay	1.1	13.7	1282.1%	17	56	
		red mulberry	0.3	7.0	2116.6%	7	11	
		water tupelo	0.0	0.9	2760.4%	1	1	
		blackgum	12.7	69.8	548.8%	144	330	
		swamp tupelo	0.0	0.0	2760.4%	1	1	
		eastern hophornbeam	4.6	28.4	619.4%	38	90	
		redbay	0.5	8.0	1503.4%	25	54	
		sycamore	0.2	5.0	2213.6%	2	2	
		cottonwood and poplar spp.	0.0	1.1	2760.4%	1	3	
		black cherry	1.2	7.4	615.6%	31	35	
		wild plum	0.1	1.4	1671.0%	4	4	
		oak spp. -- deciduous	0.0	0.9	2760.4%	1	1	
		white oak	44.7	233.8	522.6%	107	236	
		southern red oak	61.9	240.9	389.3%	209	444	
		cherrybark oak	19.4	127.7	658.2%	66	109	
		turkey oak	0.0	0.2	2760.4%	1	2	
		laurel oak	10.0	85.0	846.6%	37	134	
		overcup oak	0.0	0.7	2760.4%	1	1	
		blackjack oak	3.5	37.9	1074.6%	29	44	

swamp chestnut oak	1.2	29.5	2555.9%	6	8	
chinkapin oak	1.0	26.7	2760.4%	1	7	
water oak	62.4	185.5	297.0%	233	576	
Nuttall oak	0.1	1.9	2760.4%	1	2	
willow oak	12.8	111.7	871.7%	49	166	
northern red oak	0.2	6.3	2760.4%	1	1	
Shumard oak	0.0	0.4	2760.4%	1	2	
post oak	51.4	162.8	316.9%	179	486	
Delta post oak	0.1	2.8	2760.4%	1	1	
black oak	0.8	20.2	2476.9%	4	4	
live oak	0.0	0.1	2760.4%	1	1	
dwarf post oak	0.0	0.2	2760.4%	1	7	
bluejack oak	1.3	19.5	1456.6%	11	26	
black locust	0.0	0.9	2760.4%	1	1	
willow	0.1	2.5	2020.6%	2	3	
black willow	0.4	11.7	2614.9%	2	7	
white willow	0.0	0.0	2760.4%	1	1	
sassafras	1.0	8.3	790.7%	35	62	
basswood spp.	0.0	0.6	2760.4%	1	1	
elm spp.	0.0	1.1	2526.4%	2	2	
winged elm	29.3	78.0	265.9%	229	574	
American elm	3.9	34.3	875.5%	35	55	
cedar elm	0.5	10.5	1949.1%	3	6	
Siberian elm	0.1	2.0	2760.4%	1	1	
slippery elm	0.9	11.3	1287.0%	9	21	
chinaberry	0.3	6.0	1944.8%	4	6	
Chinese tallowtree	8.2	56.2	686.6%	48	230	
<b>Total</b>	<b>3,909.2</b>	<b>2,518.4</b>	<b>64.4%</b>	<b>762</b>	<b>23,215</b>	
<b>FDC-32 2</b>						
loblolly pine	3.0	6.7	223.6%	1	1	Cold-deciduous Forest,
water hickory	115.9	259.3	223.6%	1	2	EPA Level III ecoregion 32
sugarberry	4.1	9.3	223.6%	1	1	
white ash	54.3	103.1	189.9%	2	4	
honeylocust	93.5	209.0	223.6%	1	2	
Osage-orange	16.1	22.3	138.3%	2	4	
southern red oak	205.8	298.6	145.1%	2	3	
cherrybark oak	32.8	73.3	223.6%	1	4	
water oak	1,031.4	956.0	92.7%	3	18	
post oak	539.2	1,205.6	223.6%	1	3	
winged elm	81.4	164.3	201.8%	2	5	
cedar elm	65.3	144.5	221.2%	2	3	
slippery elm	1.3	2.9	223.6%	1	1	
Chinese tallowtree	1.4	3.0	223.6%	1	1	
<b>Total</b>	<b>2,245.4</b>	<b>1,234.9</b>	<b>55.0%</b>	<b>5</b>	<b>52</b>	
<b>FDC-33 3</b>						
eastern redcedar	91.7	309.5	337.6%	42	146	Cold-deciduous Forest,
shortleaf pine	3.5	28.4	806.7%	4	11	EPA Level III ecoregion 33
slash pine	1.2	18.0	1452.6%	1	1	
loblolly pine	31.6	193.6	612.0%	8	26	
boxelder	3.7	31.3	845.3%	7	12	
red maple	0.2	2.4	1166.2%	2	5	
Texas buckeye	0.0	0.0	1452.6%	1	1	
river birch	1.9	19.7	1036.5%	3	6	
chittamwood	3.7	22.9	620.2%	12	15	
American hornbeam	0.9	13.2	1452.6%	1	4	
hickory spp.	8.9	129.8	1452.6%	1	10	
water hickory	28.7	265.0	923.8%	8	28	
bitternut hickory	1.6	15.4	989.9%	4	4	
pignut hickory	16.7	129.5	775.3%	9	34	
pecan	32.3	226.7	702.2%	6	38	
shagbark hickory	0.7	6.8	1035.5%	2	3	
black hickory	54.3	200.0	368.3%	36	94	
mockernut hickory	30.8	128.2	416.2%	25	64	
sugarberry	27.0	73.8	273.2%	51	157	
hackberry	1.7	13.7	786.0%	4	11	
eastern redbud	0.4	3.8	898.1%	3	4	
flowering dogwood	1.9	12.3	647.4%	13	18	
hawthorn	1.3	8.4	658.7%	15	38	

downy hawthorn	0.2	2.7	1452.6%	1	1
common persimmon	4.6	31.3	682.6%	14	18
white ash	12.8	71.1	554.4%	15	41
green ash	30.5	89.9	294.8%	49	255
waterlocust	0.2	2.9	1452.6%	1	1
honeylocust	6.9	41.2	595.6%	12	22
American holly	5.5	38.5	693.8%	8	20
sweetgum	59.7	163.8	274.2%	44	254
Osage-orange	19.8	120.2	606.6%	10	55
mulberry spp.	0.2	3.3	1452.6%	1	2
red mulberry	7.4	42.7	574.3%	9	11
blackgum	10.9	55.6	512.2%	14	36
swamp tupelo	0.2	2.5	1452.6%	1	2
eastern hophornbeam	3.0	33.1	1108.1%	4	6
screwbean mesquite	0.0	0.4	1034.0%	2	4
black cherry	0.8	8.6	1092.2%	2	4
chokecherry	0.1	0.8	1452.6%	1	1
wild plum	0.1	1.3	1039.2%	2	2
white oak	1.0	14.2	1452.6%	1	1
southern red oak	190.1	656.8	345.6%	49	167
cherrybark oak	49.6	301.5	607.4%	16	38
laurel oak	2.5	30.8	1232.5%	2	4
overcup oak	31.7	239.8	756.3%	10	37
blackjack oak	29.2	99.2	340.3%	32	69
water oak	266.5	735.1	275.8%	74	192
Nuttall oak	6.3	91.0	1452.6%	1	3
willow oak	116.7	490.0	419.8%	27	115
Shumard oak	5.4	55.0	1025.7%	5	9
post oak	563.5	838.1	148.7%	123	1,015
Delta post oak	0.2	3.3	1452.6%	1	1
black oak	2.8	25.9	913.1%	4	7
dwarf post oak	0.6	9.3	1452.6%	1	1
bluejack oak	11.7	58.2	499.4%	16	46
black locust	2.1	19.1	922.0%	6	15
western soapberry	0.2	3.5	1452.6%	1	1
willow	0.7	8.0	1133.0%	2	3
peachleaf willow	0.1	1.5	1452.6%	1	1
black willow	0.5	5.7	1169.1%	3	3
sassafras	2.3	14.1	619.6%	10	15
American basswood	2.1	30.7	1452.6%	1	4
Carolina basswood	1.8	15.9	882.2%	3	6
elm spp.	1.3	12.7	984.5%	4	4
winged elm	79.8	156.0	195.4%	115	406
American elm	20.0	91.4	456.0%	22	41
cedar elm	51.8	215.5	416.1%	29	130
slippery elm	1.5	18.6	1272.7%	2	11
chinaberry	1.0	9.7	921.4%	3	4
Chinese tallowtree	0.7	10.5	1452.6%	1	3
<b>Total</b>	<b>1,951.5</b>	<b>1,607.7</b>	<b>82.4%</b>	<b>211</b>	<b>3,817</b>
<b>FDC-34 4</b>					
southern redcedar	12.6	78.7	624.5%	1	2
loblolly pine	170.3	386.6	227.0%	11	15
baldcypress	66.6	415.7	624.5%	1	9
red maple	9.3	32.2	345.1%	4	10
chittamwood	1.1	6.6	624.5%	1	1
American hornbeam	3.8	14.4	377.0%	3	6
hickory spp.	1.4	8.7	624.5%	1	1
bitternut hickory	1.8	11.2	624.5%	1	1
pignut hickory	3.6	22.8	624.5%	1	1
pecan	223.0	1,061.6	476.0%	4	6
sugarberry	24.4	75.3	308.5%	9	29
hawthorn	1.6	10.0	616.4%	2	8
common persimmon	1.8	11.1	624.5%	1	2
white ash	0.5	2.5	542.2%	2	2
green ash	12.0	33.3	277.3%	9	18
Carolina ash	3.4	21.0	624.5%	1	15
American holly	9.8	56.2	570.3%	3	9

Cold-deciduous Forest,  
EPA Level III ecoregion 34

	sweetgum	29.5	66.9	226.7%	12	42	
	Osage-orange	9.3	58.4	624.5%	1	3	
	magnolia spp.	2.0	12.8	624.5%	1	3	
	blackgum	14.6	54.9	375.3%	5	9	
	eastern hophornbeam	9.4	58.5	624.5%	1	1	
	cherry and plum spp.	2.3	12.4	540.2%	2	2	
	black cherry	3.7	13.2	356.7%	3	3	
	southern red oak	10.7	50.4	470.1%	3	4	
	cherrybark oak	62.3	389.1	624.5%	1	4	
	laurel oak	275.3	1,131.2	410.9%	4	30	
	overcup oak	37.6	234.7	624.5%	1	1	
	swamp chestnut oak	56.3	324.3	575.7%	3	5	
	water oak	248.6	506.8	203.8%	15	59	
	Nuttall oak	3.4	21.2	624.5%	1	1	
	willow oak	184.3	590.8	320.6%	6	51	
	post oak	5.5	27.5	503.1%	2	2	
	live oak	95.1	540.9	568.6%	3	12	
	willow	0.6	4.0	624.5%	1	1	
	black willow	1.0	6.5	624.5%	1	2	
	elm spp.	1.2	7.5	624.5%	1	1	
	American elm	6.1	21.0	343.9%	5	8	
	cedar elm	4.4	17.2	387.5%	3	7	
	slippery elm	1.2	6.8	564.3%	2	2	
	chinaberry	4.3	20.1	463.1%	2	3	
	Chinese tallowtree	200.4	252.9	126.2%	27	242	
	<b>Total</b>	<b>1,816.4</b>	<b>2,266.8</b>	<b>124.8%</b>	<b>39</b>	<b>633</b>	
<b>FDC-35 5</b>	eastern redcedar	18.9	108.0	572.4%	50	93	Cold-deciduous Forest,
	shortleaf pine	33.8	142.8	423.1%	72	176	EPA Level III ecoregion 35
	slash pine	1.4	25.5	1804.5%	3	13	
	longleaf pine	0.1	1.3	2395.8%	1	5	
	loblolly pine	178.9	377.8	211.1%	187	592	
	baldcypress	163.6	1,178.8	720.3%	24	215	
	Florida maple	7.1	65.7	924.0%	28	46	
	boxelder	5.7	53.2	938.7%	19	77	
	red maple	29.7	128.0	431.4%	129	326	
	mimosa/silktree	0.1	1.0	1519.5%	4	7	
	serviceberry	0.1	2.3	2395.8%	1	1	
	pawpaw	0.0	0.1	2395.8%	1	1	
	river birch	19.8	119.9	604.4%	27	114	
	chittamwood	0.9	9.7	1106.1%	9	12	
	American hornbeam	17.4	55.2	317.2%	104	352	
	hickory spp.	3.6	39.1	1072.3%	9	18	
	water hickory	15.6	126.5	813.2%	33	56	
	bitternut hickory	4.8	64.3	1326.8%	8	16	
	pignut hickory	4.1	47.1	1162.5%	8	13	
	pecan	7.5	76.1	1018.1%	18	35	
	shellbark hickory	0.3	7.6	2395.8%	1	3	
	shagbark hickory	2.5	35.2	1391.5%	6	7	
	black hickory	20.9	108.4	519.4%	41	80	
	mockernut hickory	22.9	108.4	474.4%	60	121	
	sugarberry	24.7	103.9	421.2%	88	257	
	eastern redbud	0.4	5.1	1387.1%	10	16	
	flowering dogwood	1.8	9.5	517.9%	41	64	
	hawthorn	1.7	19.7	1192.2%	25	42	
	cockspur hawthorn	0.3	4.3	1611.6%	3	5	
	common persimmon	2.5	23.7	967.3%	22	33	
	American beech	9.4	65.2	695.3%	17	37	
	white ash	6.2	36.8	592.1%	34	56	
	green ash	16.1	62.7	390.3%	81	305	
	Carolina ash	0.2	2.7	1727.4%	5	6	
	waterlocust	2.9	37.1	1283.4%	6	20	
	honeylocust	3.8	32.6	867.7%	15	22	
	American holly	13.6	56.8	418.5%	80	210	
	black walnut	4.8	67.5	1395.3%	5	5	
	sweetgum	144.7	214.6	148.3%	376	1,980	
	Osage-orange	1.2	15.3	1275.9%	7	18	

southern magnolia	7.7	56.5	737.9%	19	59	
sweetbay	7.7	57.3	746.8%	18	113	
mulberry spp.	0.1	1.4	2395.8%	1	1	
red mulberry	1.4	10.3	751.2%	18	24	
water tupelo	15.4	184.1	1196.5%	7	173	
blackgum	42.9	172.8	402.6%	125	381	
swamp tupelo	1.0	12.0	1224.6%	6	35	
eastern hophornbeam	19.2	90.7	472.2%	65	191	
sourwood	0.1	1.4	2395.8%	1	1	
redbay	0.9	8.1	869.4%	16	46	
water-elm, planertree	2.3	22.8	990.0%	12	52	
sycamore	6.2	51.5	826.9%	18	41	
cottonwood and poplar spp.	0.7	17.4	2395.8%	1	1	
eastern cottonwood	9.3	155.9	1669.3%	4	27	
cherry and plum spp.	0.3	5.3	2003.4%	2	4	
black cherry	2.5	13.8	560.1%	35	49	
wild plum	0.0	0.7	2395.8%	1	2	
oak spp. -- deciduous	0.9	16.2	1761.0%	4	4	
white oak	91.4	368.9	403.4%	96	244	
southern red oak	145.9	623.2	427.2%	156	392	
cherrybark oak	97.4	752.5	772.3%	84	167	
laurel oak	110.4	625.6	566.5%	48	220	
overcup oak	85.8	401.7	468.2%	48	137	
blackjack oak	11.5	86.9	753.2%	23	48	
swamp chestnut oak	28.8	359.4	1246.5%	20	36	
water oak	311.3	776.0	249.3%	243	853	
Nuttall oak	2.6	30.6	1173.9%	8	16	
willow oak	158.2	672.4	425.1%	102	389	
Shumard oak	11.0	192.8	1752.0%	8	29	
post oak	153.3	428.8	279.8%	135	581	
Delta post oak	0.1	2.4	2395.8%	1	1	
black oak	17.3	214.8	1238.5%	11	29	
bluejack oak	1.9	20.6	1097.5%	10	20	
black locust	0.3	6.9	2395.8%	1	2	
willow	1.3	18.4	1402.2%	6	22	
peachleaf willow	0.1	3.2	2395.8%	1	1	
black willow	10.2	132.0	1291.3%	12	66	
sassafras	2.3	14.4	616.3%	36	64	
American basswood	2.3	29.4	1276.4%	6	18	
Carolina basswood	0.9	14.8	1610.5%	4	5	
elm spp.	1.4	18.6	1325.3%	4	14	
winged elm	46.6	105.9	227.1%	211	568	
American elm	26.3	84.5	320.8%	99	209	
cedar elm	16.5	98.0	593.0%	32	108	
Siberian elm	0.3	5.0	1767.8%	2	2	
slippery elm	12.9	84.8	658.5%	28	92	
chinaberry	3.2	30.5	942.1%	11	30	
Chinese tallowtree	20.1	157.8	786.2%	59	332	
<b>Total</b>	<b>2,283.9</b>	<b>2,369.4</b>	<b>103.7%</b>	<b>574</b>	<b>11,354</b>	
<b>FM 6</b>						<b>Mixed Forest</b>
eastern redcedar	40.9	235.2	575.7%	21	80	
shortleaf pine	120.2	287.0	238.8%	73	239	
slash pine	13.0	114.7	882.3%	5	18	
longleaf pine	0.1	0.8	760.1%	4	4	
loblolly pine	1,170.0	1,174.7	100.4%	192	1,416	
Virginia pine	0.5	7.8	1529.7%	1	1	
baldcypress	6.9	104.9	1529.7%	1	4	
Florida maple	2.3	20.6	883.3%	10	14	
boxelder	0.1	1.4	1341.2%	2	4	
red maple	22.1	87.5	395.9%	44	117	
mimosa/silktree	0.1	2.0	1529.7%	1	1	
river birch	1.7	25.4	1529.7%	1	1	
chittamwood,gum bumelia	0.0	0.4	1529.7%	1	1	
American hornbeam,musclewood	7.2	37.5	518.0%	20	60	
hickory spp.	0.2	3.0	1529.7%	1	1	
water hickory	11.6	169.6	1467.6%	2	5	
bitternut hickory	0.8	11.5	1500.2%	2	2	

pignut hickory	2.3	24.9	1073.9%	3	5
pecan	5.9	83.3	1401.1%	2	5
nutmeg hickory	2.3	34.8	1529.7%	1	1
shagbark hickory	1.5	19.5	1272.7%	3	3
black hickory	14.4	66.9	464.8%	18	38
mockernut hickory	25.4	108.8	429.1%	29	67
southern catalpa	19.4	274.7	1417.3%	2	3
sugarberry	5.4	33.5	617.7%	16	41
hackberry	0.4	6.4	1529.7%	1	5
eastern redbud	0.2	2.5	1019.3%	4	7
flowering dogwood	3.1	15.0	476.6%	23	38
hawthorn	0.4	4.5	1099.2%	6	11
cockspur hawthorn	0.1	1.7	1483.8%	2	2
common persimmon	0.0	0.2	805.0%	4	6
American beech	10.2	76.4	748.6%	7	18
white ash	5.4	30.4	567.4%	23	36
green ash	2.1	11.3	536.5%	11	15
honeylocust	0.3	4.7	1529.7%	1	1
American holly	7.0	29.7	425.8%	27	51
black walnut	0.6	9.7	1529.7%	1	2
sweetgum	109.9	158.6	144.4%	156	840
Osage-orange	1.8	28.0	1529.7%	1	4
southern magnolia	7.0	63.2	905.5%	7	19
sweetbay	4.4	35.6	805.0%	9	32
red mulberry	2.1	15.6	758.5%	6	7
water tupelo	0.1	1.9	1529.7%	1	1
blackgum	31.7	137.6	434.0%	54	117
eastern hophornbeam	10.7	66.7	622.7%	15	44
redbay	0.7	9.1	1221.4%	5	19
water-elm, planertree	0.3	4.0	1529.7%	1	1
sycamore	0.5	7.0	1292.9%	2	3
black cherry	3.2	16.2	509.2%	18	27
wild plum	0.1	1.9	1529.7%	1	1
white oak	54.6	252.4	461.8%	37	91
southern red oak	188.7	447.6	237.2%	99	277
cherrybark oak	74.8	342.8	458.5%	35	80
laurel oak	32.8	289.4	881.4%	14	32
overcup oak	16.5	138.0	834.2%	4	9
blackjack oak	8.7	51.6	590.2%	13	21
swamp chestnut oak	27.4	300.8	1096.8%	5	6
water oak	214.8	435.1	202.6%	109	383
willow oak	72.0	384.5	534.0%	22	121
Shumard oak	9.2	138.8	1516.1%	2	2
post oak	128.1	371.9	290.3%	67	214
black oak	5.0	61.9	1247.4%	3	3
dwarf post oak	0.3	4.2	1529.7%	1	12
dwarf live oak	0.2	2.4	1529.7%	1	1
bluejack oak	0.8	8.3	1053.0%	3	7
black locust	0.2	2.6	1529.7%	1	1
willow	0.4	3.9	1091.6%	2	3
sassafras	1.7	9.6	575.4%	18	28
elm spp.	2.4	27.8	1181.4%	3	9
winged elm	42.5	102.1	240.1%	89	242
American elm	7.6	42.3	555.1%	15	30
cedar elm	0.7	8.0	1076.6%	3	5
Siberian elm	0.7	11.4	1529.7%	1	1
slippery elm	0.5	6.6	1396.0%	3	5
chinaberry	3.0	30.2	1001.9%	4	9
Chinese tallowtree	23.2	146.8	632.4%	18	141
<b>Total</b>	<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>234</b>	<b>5,171</b>
<b>Overall Total</b>	<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>

Table 7. -- Estimated leaf biomass by land cover type and species group

Land Cover	Class Number	Species	Leaf Biomass (kg/ha)			Plot Number	Tree Number	Comments
			Mean	Standard Error	Coefficient of Variation			
FEN	1	Longleaf and slash pines	53.9	296.0	549.3%	66	574	<i>Evergreen Needleleaf Forest</i>
		Loblolly and shortleaf pines	3,364.3	2,475.7	73.6%	719	15,667	
		Other yellow pines	0.9	9.5	1081.4%	8	8	
		Cypress	0.2	6.2	2760.4%	1	2	
		Other eastern softwoods	36.1	316.7	878.5%	48	145	
		Select white oaks	46.9	236.8	505.3%	112	251	
		Select red oaks	19.6	127.9	650.8%	67	112	
		Other white oaks	51.5	162.8	316.0%	183	496	
		Other red oaks	151.6	349.5	230.5%	416	1,370	
		Hickory	18.2	70.9	388.8%	116	202	
		Hard maple	0.3	4.0	1461.3%	7	11	
		Soft maple	9.6	39.7	414.4%	114	252	
		Beech	0.9	12.7	1376.8%	9	11	
		Sweetgum	63.2	123.1	194.8%	453	1,869	
		Tupelo and blackgum	12.8	69.9	547.6%	144	332	
		Ash	4.5	23.3	512.8%	83	138	
		Cottonwood and aspen	0.0	1.1	2760.4%	1	3	
		Basswood	0.0	0.6	2760.4%	1	1	
		Black walnut	1.8	32.1	1745.9%	3	8	
		Other eastern soft hardwoods	44.6	103.6	232.5%	348	968	
Other eastern hard hardwoods	8.6	41.7	483.4%	141	269			
Eastern noncommercial hardwoods	19.5	104.7	536.2%	159	522			
Western woodland hardwoods	0.2	2.6	1697.4%	3	4			
<b>Total</b>			<b>3,909.2</b>	<b>2,518.4</b>	<b>64.4%</b>	<b>762</b>	<b>23,215</b>	
FDC-32	2	Loblolly and shortleaf pines	3.0	6.7	223.6%	1	1	Cold-deciduous Forest, EPA Level III ecoregion 32
		Select red oaks	32.8	73.3	223.6%	1	4	
		Other white oaks	539.2	1,205.6	223.6%	1	3	
		Other red oaks	1,237.2	1,020.3	82.5%	4	21	
		Hickory	115.9	259.3	223.6%	1	2	
		Ash	54.3	103.1	189.9%	2	4	
		Other eastern soft hardwoods	152.1	305.5	200.8%	3	10	
		Other eastern hard hardwoods	93.5	209.0	223.6%	1	2	
		Eastern noncommercial hardwoods	17.5	21.3	121.5%	3	5	
<b>Total</b>			<b>2,245.4</b>	<b>1,234.9</b>	<b>55.0%</b>	<b>5</b>	<b>52</b>	
FDC-33	3	Longleaf and slash pines	1.2	18.0	1452.6%	1	1	Cold-deciduous Forest, EPA Level III ecoregion 33
		Loblolly and shortleaf pines	35.2	195.1	554.9%	12	37	
		Other eastern softwoods	91.7	309.5	337.6%	42	146	
		Select white oaks	1.0	14.2	1452.6%	1	1	
		Select red oaks	55.0	305.6	555.7%	21	47	
		Other white oaks	596.1	852.0	142.9%	132	1,054	
		Other red oaks	614.0	1,177.5	191.8%	135	557	
		Hickory	174.0	440.1	253.0%	80	275	
		Soft maple	0.2	2.4	1166.2%	2	5	
		Sweetgum	59.7	163.8	274.2%	44	254	
		Tupelo and blackgum	11.0	55.7	505.1%	14	38	
		Ash	43.3	111.7	257.8%	62	296	
		Basswood	3.9	34.4	880.6%	4	10	
		Other eastern soft hardwoods	192.3	292.1	151.9%	165	801	
		Other eastern hard hardwoods	28.9	83.8	290.0%	55	107	
Eastern noncommercial hardwoods	43.2	137.9	318.9%	62	181			
Western woodland hardwoods	0.7	8.0	1081.9%	4	7			
<b>Total</b>			<b>1,951.5</b>	<b>1,607.7</b>	<b>82.4%</b>	<b>211</b>	<b>3,817</b>	
FDC-34	4	Loblolly and shortleaf pines	170.3	386.6	227.0%	11	15	Cold-deciduous Forest, EPA Level III ecoregion 34
		Cypress	66.6	415.7	624.5%	1	9	
		Other eastern softwoods	12.6	78.7	624.5%	1	2	
		Select white oaks	56.3	324.3	575.7%	3	5	
		Select red oaks	62.3	389.1	624.5%	1	4	
		Other white oaks	138.2	582.7	421.7%	6	15	
		Other red oaks	722.3	1,353.5	187.4%	18	145	
		Hickory	229.9	1,060.7	461.4%	6	9	
		Soft maple	9.3	32.2	345.1%	4	10	
		Sweetgum	29.5	66.9	226.7%	12	42	
		Tupelo and blackgum	14.6	54.9	375.3%	5	9	
Ash	15.8	38.2	241.2%	12	35			

		Other eastern soft hardwoods	44.1	89.6	203.0%	17	55	
		Other eastern hard hardwoods	11.6	57.0	489.6%	4	11	
		Eastern noncommercial hardwoods	232.3	274.7	118.3%	30	266	
		Western woodland hardwoods	0.6	4.0	624.5%	1	1	
		<b>Total</b>	<b>1,816.4</b>	<b>2,266.8</b>	<b>124.8%</b>	<b>39</b>	<b>633</b>	
<b>FDC-35</b>	<b>5</b>	Longleaf and slash pines	1.5	25.7	1749.5%	3	18	Cold-deciduous Forest,
		Loblolly and shortleaf pines	212.7	403.1	189.5%	224	768	EPA Level III ecoregion 35
		Cypress	163.6	1,178.8	720.3%	24	215	
		Other eastern softwoods	18.9	108.0	572.4%	50	93	
		Select white oaks	120.3	510.4	424.3%	114	280	
		Select red oaks	108.4	782.1	721.2%	91	196	
		Other white oaks	239.2	565.9	236.6%	179	719	
		Other red oaks	757.2	1,357.7	179.3%	388	1,947	
		Hickory	82.1	233.8	284.7%	165	349	
		Hard maple	7.1	65.7	924.0%	28	46	
		Soft maple	29.7	128.0	431.4%	129	326	
		Beech	9.4	65.2	695.3%	17	37	
		Sweetgum	144.7	214.6	148.3%	376	1,980	
		Tupelo and blackgum	59.3	250.3	422.2%	137	589	
		Ash	22.4	71.5	318.6%	117	367	
		Cottonwood and aspen	10.1	156.8	1558.3%	5	28	
		Basswood	3.2	32.8	1019.4%	10	23	
		Black walnut	4.8	67.5	1395.3%	5	5	
		Other eastern soft hardwoods	191.7	326.8	170.5%	390	1,879	
		Other eastern hard hardwoods	26.2	80.0	304.8%	163	376	
		Eastern noncommercial hardwoods	69.1	199.0	287.9%	244	1,087	
		Western woodland hardwoods	2.2	24.5	1096.2%	10	26	
		<b>Total</b>	<b>2,283.9</b>	<b>2,369.4</b>	<b>103.7%</b>	<b>574</b>	<b>11,354</b>	
<b>FM</b>	<b>6</b>	Longleaf and slash pines	13.1	114.7	875.0%	9	22	Mixed Forest
		Loblolly and shortleaf pines	1,290.2	1,160.4	89.9%	208	1,655	
		Other yellow pines	0.5	7.8	1529.7%	1	1	
		Cypress	6.9	104.9	1529.7%	1	4	
		Other eastern softwoods	40.9	235.2	575.7%	21	80	
		Western redcedar	0.2	2.4	1529.7%	1	1	
		Select white oaks	82.1	393.9	480.0%	40	97	
		Select red oaks	83.9	368.7	439.3%	35	82	
		Other white oaks	144.9	391.4	270.1%	71	235	
		Other red oaks	522.1	777.7	149.0%	164	837	
		Hickory	64.4	229.3	356.3%	57	127	
		Hard maple	2.3	20.6	883.3%	10	14	
		Soft maple	22.1	87.5	395.9%	44	117	
		Beech	10.2	76.4	748.6%	7	18	
		Sweetgum	109.9	158.6	144.4%	156	840	
		Tupelo and blackgum	31.8	137.6	432.3%	55	118	
		Ash	7.5	32.6	437.3%	33	51	
		Black walnut	0.6	9.7	1529.7%	1	2	
		Other eastern soft hardwoods	79.6	157.7	198.1%	136	471	
		Other eastern hard hardwoods	12.7	37.2	293.5%	57	104	
		Eastern noncommercial hardwoods	67.5	321.4	476.0%	63	292	
		Western woodland hardwoods	0.4	3.9	1091.6%	2	3	
		<b>Total</b>	<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>234</b>	<b>5,171</b>	
		<b>Overall Total</b>	<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>	

Table 8. -- Estimated leaf biomass by forest type and species

		<i>Leaf Biomass (kg/ha)</i>						
Forest Type	Class Number	Species	Mean	Standard Error	Coefficient of Variation	Plot Number	Tree Number	Comments
L/SL P	1	shortleaf pine	21.5	47.5	220.4%	7	11	<i>Longleaf / Slash Pine</i>
		slash pine	1,247.9	906.4	72.6%	24	403	
		longleaf pine	11.7	24.8	212.3%	6	60	
		loblolly pine	419.7	578.3	137.8%	14	60	
		red maple	5.1	14.9	294.4%	3	13	
		bitternut hickory	0.3	1.7	529.2%	1	2	
		black hickory	5.3	26.8	503.9%	3	5	
		sugarberry	4.5	23.7	529.2%	1	1	
		flowering dogwood	0.8	3.8	452.1%	3	3	
		hawthorn	0.1	0.4	529.2%	1	1	
		green ash	0.0	0.2	529.2%	1	2	
		American holly	0.4	1.9	529.2%	1	2	
		sweetgum	56.1	120.6	214.9%	16	78	
		sweetbay	9.9	48.8	493.1%	2	13	
		blackgum	8.8	28.6	325.0%	6	9	
		redbay	7.5	39.2	522.0%	3	11	
		white oak	15.3	37.5	244.9%	5	8	
		southern red oak	71.8	190.7	265.6%	6	25	
		laurel oak	1.6	7.9	504.4%	2	2	
		blackjack oak	1.5	5.6	381.6%	3	3	
		swamp chestnut oak	0.1	0.6	529.2%	1	1	
		water oak	50.8	172.2	338.7%	6	23	
		willow oak	4.7	24.1	506.7%	2	27	
		post oak	1.7	8.9	512.4%	2	3	
		live oak	0.1	0.3	529.2%	1	1	
		sassafras	0.4	2.2	529.2%	1	3	
		winged elm	1.4	7.2	529.2%	1	3	
		American elm	3.5	18.6	529.2%	1	1	
Chinese tallowtree	11.4	56.1	492.9%	5	26			
		<b>Total</b>	<b>1,964.0</b>	<b>946.4</b>	<b>48.2%</b>	<b>28</b>	<b>800</b>	
L/SH P	2	eastern redcedar	11.7	86.0	732.9%	40	76	<i>Loblolly / Shortleaf Pine</i>
		shortleaf pine	171.9	637.2	370.7%	226	1,187	
		slash pine	7.6	63.3	837.6%	22	54	
		longleaf pine	0.4	3.6	815.0%	17	57	
		loblolly pine	3,338.8	2,471.4	74.0%	675	14,397	
		Virginia pine	0.9	9.7	1055.4%	8	8	
		baldcypress	0.2	6.4	2694.4%	1	2	
		Florida maple	0.3	4.1	1426.2%	7	11	
		boxelder	0.0	0.1	2694.4%	1	1	
		red maple	9.9	40.6	411.3%	111	239	
		mimosa/silktree	0.0	0.1	2067.4%	2	3	
		pawpaw	0.0	0.1	2694.4%	1	3	
		river birch	1.9	33.0	1695.0%	4	15	
		chittamwood,gum bumelia	0.0	0.4	1902.6%	3	5	
		American hornbeam,musclewood	4.7	74.9	1587.4%	32	76	
		hickory spp.	0.8	14.0	1730.7%	3	4	
		water hickory	0.0	0.0	2694.4%	1	1	
		bitternut hickory	0.8	11.8	1500.8%	5	6	
		pignut hickory	0.6	10.3	1637.5%	7	9	
		shagbark hickory	0.9	18.2	1955.5%	2	3	
		black hickory	8.4	54.8	649.1%	48	80	
		mockernut hickory	7.3	40.5	552.7%	54	92	
		sugarberry	1.4	9.9	727.0%	24	33	
		hackberry	0.1	3.2	2204.5%	2	5	
		eastern redbud	0.1	1.4	1710.3%	6	7	
		flowering dogwood	1.5	8.7	590.3%	55	77	
		hawthorn	0.4	4.7	1274.8%	26	60	
		cockspur hawthorn	0.0	0.3	1940.4%	2	3	
		downy hawthorn	0.0	0.1	2694.4%	1	2	
		common persimmon	1.1	25.3	2389.6%	18	25	
		American beech	1.0	13.0	1343.7%	9	11	
		white ash	4.0	23.4	582.1%	54	93	

green ash	0.7	5.0	722.9%	28	42
waterlocust	0.0	1.2	2694.4%	1	1
honeylocust	0.1	2.3	1913.8%	2	7
American holly	5.9	32.1	546.4%	67	140
black walnut	1.9	32.9	1704.1%	3	8
sweetgum	64.0	123.8	193.3%	435	1,788
Osage-orange	0.1	1.1	1959.0%	2	4
magnolia spp.	0.0	0.7	2694.4%	1	1
southern magnolia	1.8	27.5	1519.7%	14	34
sweetbay	0.7	10.2	1385.5%	15	43
red mulberry	0.3	7.2	2155.2%	6	7
water tupelo	0.0	0.9	2694.4%	1	1
blackgum	13.0	71.3	547.9%	138	321
swamp tupelo	0.0	0.0	2694.4%	1	1
eastern hophornbeam	4.8	29.1	604.2%	38	90
redbay	0.3	2.7	1026.6%	22	43
sycamore	0.2	5.1	2160.6%	2	2
cottonwood and poplar spp.	0.0	1.1	2694.4%	1	3
black cherry	1.3	7.5	600.6%	31	35
wild plum	0.1	1.5	1631.0%	4	4
oak spp. -- deciduous	0.0	0.9	2694.4%	1	1
white oak	46.4	239.3	516.1%	102	228
southern red oak	62.2	244.0	392.3%	203	419
cherrybark oak	20.4	130.8	642.1%	66	109
turkey oak	0.0	0.2	2694.4%	1	2
laurel oak	10.5	87.0	830.8%	35	132
overcup oak	0.0	0.7	2694.4%	1	1
blackjack oak	2.9	34.0	1153.6%	25	40
swamp chestnut oak	1.2	30.3	2504.0%	5	7
chinkapin oak	1.0	27.4	2694.4%	1	7
water oak	63.2	186.9	295.5%	225	550
Nuttall oak	0.1	2.0	2694.4%	1	2
willow oak	13.3	114.4	861.8%	47	139
northern red oak	0.2	6.5	2694.4%	1	1
Shumard oak	0.0	0.4	2694.4%	1	2
post oak	53.4	166.3	311.5%	174	480
Delta post oak	0.1	2.8	2694.4%	1	1
black oak	0.9	20.7	2417.6%	4	4
dwarf post oak	0.0	0.2	2694.4%	1	7
bluejack oak	1.4	20.0	1421.7%	11	26
black locust	0.0	0.9	2694.4%	1	1
willow	0.1	2.5	1972.2%	2	3
black willow	0.5	12.0	2552.4%	2	7
white willow	0.0	0.0	2694.4%	1	1
sassafras	1.0	8.2	818.1%	33	58
basswood spp.	0.0	0.6	2694.4%	1	1
elm spp.	0.0	1.2	2466.0%	2	2
winged elm	30.1	79.0	262.9%	223	561
American elm	4.0	35.0	879.0%	34	54
cedar elm	0.6	10.8	1902.4%	3	6
Siberian elm	0.1	2.0	2694.4%	1	1
slippery elm	0.9	11.6	1256.1%	9	21
chinaberry	0.3	6.2	1898.3%	4	6
Chinese tallowtree	8.1	56.5	693.6%	43	204
<b>Total</b>	<b>3,995.3</b>	<b>2,532.7</b>	<b>63.4%</b>	<b>726</b>	<b>22,304</b>
<b>P/J</b>	<b>3</b>				
eastern redcedar	2,369.4	1,962.2	82.8%	8	69
shortleaf pine	98.4	201.6	204.8%	2	7
loblolly pine	207.6	370.6	178.5%	4	5
sugarberry	6.4	17.3	271.6%	2	2
flowering dogwood	0.2	0.6	282.8%	1	1
common persimmon	4.3	12.1	282.8%	1	1
green ash	5.1	14.5	282.8%	1	1
sweetgum	9.2	25.5	278.2%	2	3
red mulberry	1.3	3.8	282.8%	1	4
blackjack oak	63.8	180.4	282.8%	1	1
water oak	32.9	89.0	270.9%	2	3
post oak	42.0	81.4	193.9%	3	3
sassafras	7.7	21.9	282.8%	1	1
					Pinyon / Juniper

		winged elm	61.1	100.6	164.6%	5	10	
		<b>Total</b>	<b>2,909.5</b>	<b>2,144.7</b>	<b>73.7%</b>	<b>8</b>	<b>111</b>	
<b>O/P</b>	<b>4</b>	eastern redcedar	40.9	235.2	575.7%	21	80	Oak / Pine
		shortleaf pine	120.2	287.0	238.8%	73	239	
		slash pine	13.0	114.7	882.3%	5	18	
		longleaf pine	0.1	0.8	760.1%	4	4	
		loblolly pine	1,170.0	1,174.7	100.4%	192	1,416	
		Virginia pine	0.5	7.8	1529.7%	1	1	
		baldcypress	6.9	104.9	1529.7%	1	4	
		Florida maple	2.3	20.6	883.3%	10	14	
		boxelder	0.1	1.4	1341.2%	2	4	
		red maple	22.1	87.5	395.9%	44	117	
		mimosa/silktree	0.1	2.0	1529.7%	1	1	
		river birch	1.7	25.4	1529.7%	1	1	
		chittamwood,gum bumelia	0.0	0.4	1529.7%	1	1	
		American hornbeam,musclewood	7.2	37.5	518.0%	20	60	
		hickory spp.	0.2	3.0	1529.7%	1	1	
		water hickory	11.6	169.6	1467.6%	2	5	
		bitternut hickory	0.8	11.5	1500.2%	2	2	
		pignut hickory	2.3	24.9	1073.9%	3	5	
		pecan	5.9	83.3	1401.1%	2	5	
		nutmeg hickory	2.3	34.8	1529.7%	1	1	
		shagbark hickory	1.5	19.5	1272.7%	3	3	
		black hickory	14.4	66.9	464.8%	18	38	
		mockernut hickory	25.4	108.8	429.1%	29	67	
		southern catalpa	19.4	274.7	1417.3%	2	3	
		sugarberry	5.4	33.5	617.7%	16	41	
		hackberry	0.4	6.4	1529.7%	1	5	
		eastern redbud	0.2	2.5	1019.3%	4	7	
		flowering dogwood	3.1	15.0	476.6%	23	38	
		hawthorn	0.4	4.5	1099.2%	6	11	
		cockspur hawthorn	0.1	1.7	1483.8%	2	2	
		common persimmon	0.0	0.2	805.0%	4	6	
		American beech	10.2	76.4	748.6%	7	18	
		white ash	5.4	30.4	567.4%	23	36	
		green ash	2.1	11.3	536.5%	11	15	
		honeylocust	0.3	4.7	1529.7%	1	1	
		American holly	7.0	29.7	425.8%	27	51	
		black walnut	0.6	9.7	1529.7%	1	2	
		sweetgum	109.9	158.6	144.4%	156	840	
		Osage-orange	1.8	28.0	1529.7%	1	4	
		southern magnolia	7.0	63.2	905.5%	7	19	
		sweetbay	4.4	35.6	805.0%	9	32	
		red mulberry	2.1	15.6	758.5%	6	7	
		water tupelo	0.1	1.9	1529.7%	1	1	
		blackgum	31.7	137.6	434.0%	54	117	
		eastern hophornbeam	10.7	66.7	622.7%	15	44	
		redbay	0.7	9.1	1221.4%	5	19	
		water-elm, planertree	0.3	4.0	1529.7%	1	1	
		sycamore	0.5	7.0	1292.9%	2	3	
		black cherry	3.2	16.2	509.2%	18	27	
		wild plum	0.1	1.9	1529.7%	1	1	
		white oak	54.6	252.4	461.8%	37	91	
		southern red oak	188.7	447.6	237.2%	99	277	
		cherrybark oak	74.8	342.8	458.5%	35	80	
		laurel oak	32.8	289.4	881.4%	14	32	
		overcup oak	16.5	138.0	834.2%	4	9	
		blackjack oak	8.7	51.6	590.2%	13	21	
		swamp chestnut oak	27.4	300.8	1096.8%	5	6	
		water oak	214.8	435.1	202.6%	109	383	
		willow oak	72.0	384.5	534.0%	22	121	
		Shumard oak	9.2	138.8	1516.1%	2	2	
		post oak	128.1	371.9	290.3%	67	214	
		black oak	5.0	61.9	1247.4%	3	3	
		dwarf post oak	0.3	4.2	1529.7%	1	12	
		dwarf live oak	0.2	2.4	1529.7%	1	1	
		bluejack oak	0.8	8.3	1053.0%	3	7	
		black locust	0.2	2.6	1529.7%	1	1	

		willow	0.4	3.9	1091.6%	2	3	
		sassafras	1.7	9.6	575.4%	18	28	
		elm spp.	2.4	27.8	1181.4%	3	9	
		winged elm	42.5	102.1	240.1%	89	242	
		American elm	7.6	42.3	555.1%	15	30	
		cedar elm	0.7	8.0	1076.6%	3	5	
		Siberian elm	0.7	11.4	1529.7%	1	1	
		slippery elm	0.5	6.6	1396.0%	3	5	
		chinaberry	3.0	30.2	1001.9%	4	9	
		Chinese tallowtree	23.2	146.8	632.4%	18	141	
		<b>Total</b>	<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>234</b>	<b>5,171</b>	
<b>O/H</b>	<b>5</b>	eastern redcedar	50.5	201.7	399.5%	77	203	Oak / Hickory
		shortleaf pine	34.9	114.4	327.3%	70	178	
		slash pine	2.2	29.9	1373.0%	4	14	
		longleaf pine	0.1	1.4	2218.1%	1	5	
		loblolly pine	189.3	397.4	209.9%	161	540	
		Florida maple	1.4	13.3	938.2%	13	20	
		boxelder	1.0	18.8	1965.5%	3	5	
		red maple	16.8	96.3	573.6%	75	211	
		Texas buckeye	0.0	0.0	2218.1%	1	1	
		mimosa/silktree	0.1	1.1	1432.2%	3	6	
		serviceberry	0.1	2.5	2218.1%	1	1	
		river birch	2.6	26.9	1047.3%	8	18	
		chittamwood,gum bumelia	1.8	16.6	915.5%	14	17	
		American hornbeam,musclewood	5.3	28.7	542.8%	37	120	
		hickory spp.	6.0	89.5	1488.1%	6	21	
		water hickory	2.4	45.9	1906.3%	3	7	
		bitternut hickory	0.5	5.5	1123.0%	6	8	
		pignut hickory	11.0	98.1	891.5%	12	41	
		pecan	5.1	86.2	1678.6%	4	8	
		shellbark hickory	0.4	8.2	2218.1%	1	3	
		shagbark hickory	1.6	20.0	1280.4%	4	5	
		black hickory	39.3	150.6	382.9%	68	156	
		mockernut hickory	36.2	137.4	379.3%	76	171	
		sugarberry	5.1	27.2	538.5%	41	78	
		hackberry	0.3	5.5	1826.2%	2	4	
		eastern redbud	0.3	5.2	1618.3%	5	9	
		flowering dogwood	2.6	11.8	463.8%	47	72	
		hawthorn	0.3	2.6	877.1%	15	22	
		cockspur hawthorn	0.2	3.8	1996.7%	2	3	
		common persimmon	1.7	14.5	838.1%	20	27	
		American beech	5.0	50.5	1017.4%	7	15	
		white ash	9.3	48.3	518.5%	41	82	
		green ash	4.4	20.7	476.9%	40	74	
		waterlocust	0.4	9.8	2218.1%	1	3	
		honeylocust	2.4	26.2	1091.3%	9	18	
		American holly	8.9	42.4	475.8%	48	120	
		black walnut	5.0	71.4	1435.6%	4	4	
		sweetgum	110.5	192.2	174.0%	259	1,384	
		Osage-orange	6.4	74.5	1160.9%	9	41	
		southern magnolia	3.3	35.5	1083.6%	11	25	
		sweetbay	2.3	30.4	1334.5%	5	22	
		mulberry spp.	0.1	2.1	2218.1%	1	2	
		red mulberry	2.7	23.0	855.6%	17	23	
		blackgum	23.5	82.6	351.0%	78	210	
		swamp tupelo	0.1	1.6	2218.1%	1	2	
		eastern hophornbeam	14.3	87.7	613.9%	38	126	
		redbay	0.8	8.0	1051.9%	9	36	
		sycamore	1.3	18.4	1425.8%	6	9	
		cherry and plum spp.	0.3	5.7	1854.7%	2	4	
		black cherry	2.3	13.5	595.3%	28	38	
		wild plum	0.1	0.9	1603.8%	2	3	
		oak spp. -- deciduous	0.7	15.9	2185.5%	2	2	
		white oak	91.9	383.7	417.3%	77	212	
		southern red oak	234.4	778.4	332.1%	175	510	
		cherrybark oak	40.5	223.0	550.4%	58	120	
		laurel oak	36.6	304.7	832.7%	20	76	
		overcup oak	3.2	56.0	1733.4%	3	6	

blackjack oak	25.7	113.4	440.8%	54	116	
swamp chestnut oak	1.4	26.4	1867.0%	3	3	
water oak	236.4	630.0	266.5%	193	589	
Nuttall oak	3.5	61.1	1722.7%	4	6	
willow oak	51.2	311.7	608.5%	54	186	
Shumard oak	2.9	39.0	1358.4%	5	9	
post oak	410.6	715.5	174.2%	239	1,561	
Delta post oak	0.2	3.3	1573.4%	2	2	
black oak	21.5	232.5	1083.6%	15	36	
live oak	6.9	152.3	2218.1%	1	6	
dwarf post oak	0.3	6.1	2218.1%	1	1	
bluejack oak	7.2	44.2	615.2%	26	66	
black locust	0.0	0.1	2218.1%	1	1	
willow	0.4	7.3	1794.5%	3	7	
peachleaf willow	0.0	1.0	2218.1%	1	1	
black willow	0.5	7.8	1525.8%	4	4	
sassafras	2.7	14.5	535.0%	37	65	
American basswood	1.0	20.2	2112.7%	2	9	
Carolina basswood	1.4	17.5	1269.3%	4	7	
elm spp.	0.9	10.9	1188.2%	5	6	
winged elm	67.3	135.6	201.6%	239	757	
American elm	12.5	62.7	500.1%	44	74	
cedar elm	9.2	72.6	788.6%	19	39	
Siberian elm	0.2	4.8	2218.1%	1	1	
slippery elm	2.8	41.9	1498.4%	10	15	
chinaberry	2.1	20.3	947.2%	8	22	
Chinese tallowtree	4.5	33.8	758.9%	19	69	
<b>Total</b>	<b>1,902.9</b>	<b>1,740.2</b>	<b>91.4%</b>	<b>492</b>	<b>8,799</b>	
<b>O/G/C 6</b>						<b>Oak / Gum / Cypress</b>
eastern redcedar	14.2	161.8	1138.4%	9	23	
shortleaf pine	14.6	165.0	1133.5%	6	9	
loblolly pine	94.2	283.6	301.2%	34	70	
baldcypress	459.3	1,952.1	425.0%	22	216	
Florida maple	8.8	81.9	930.1%	9	14	
boxelder	0.8	9.4	1181.9%	3	4	
red maple	37.1	147.1	396.9%	51	103	
mimosa/silktree	0.0	0.0	1417.7%	1	1	
river birch	13.7	104.5	761.6%	8	34	
chittamwood,gum bumelia	1.2	10.6	866.8%	4	7	
American hornbeam,musclewood	25.3	63.7	251.6%	54	164	
hickory spp.	5.3	49.0	918.3%	5	8	
water hickory	51.8	299.9	578.7%	29	55	
bitternut hickory	0.9	8.8	1019.2%	2	3	
pignut hickory	1.7	14.8	883.5%	3	4	
pecan	6.8	39.3	574.0%	10	23	
shagbark hickory	0.2	2.7	1368.8%	2	2	
black hickory	17.1	136.0	797.4%	7	15	
mockernut hickory	7.6	60.3	798.4%	7	12	
sugarberry	26.9	100.8	375.2%	44	106	
hackberry	1.1	11.1	1021.4%	2	7	
eastern redbud	0.4	3.6	947.0%	3	5	
flowering dogwood	0.1	0.7	1262.4%	2	2	
hawthorn	0.7	4.6	673.8%	12	17	
cockspur hawthorn	0.3	4.2	1417.7%	1	2	
common persimmon	2.6	21.8	853.0%	9	15	
American beech	13.8	76.1	550.2%	9	21	
white ash	8.2	59.0	716.0%	8	16	
green ash	41.9	101.3	241.8%	61	299	
Carolina ash	1.1	10.3	938.6%	5	20	
waterlocust	1.4	14.6	1015.0%	2	4	
honeylocust	8.5	50.8	598.5%	11	17	
American holly	18.6	75.8	408.0%	32	98	
sweetgum	141.0	216.2	153.4%	124	602	
Osage-orange	1.9	18.7	965.0%	4	10	
magnolia spp.	0.4	5.6	1417.7%	1	3	
southern magnolia	13.8	77.4	559.5%	8	34	
sweetbay	16.1	83.7	520.3%	12	90	
red mulberry	3.3	27.1	833.3%	5	7	
water tupelo	43.9	309.5	704.6%	7	173	

blackgum	72.7	264.8	364.0%	56	185	
swamp tupelo	2.8	20.1	721.4%	6	35	
eastern hophornbeam	15.9	62.9	396.2%	21	49	
redbay	0.8	5.7	705.6%	7	10	
water-elm, planertree	3.5	25.6	724.1%	9	39	
sycamore	0.8	11.0	1417.7%	1	2	
cherry and plum spp.	0.4	5.5	1230.6%	2	2	
black cherry	2.2	13.0	602.8%	8	11	
oak spp. -- deciduous	0.8	11.7	1417.7%	1	1	
white oak	37.0	174.3	470.6%	18	31	
southern red oak	37.5	175.0	467.0%	29	47	
cherrybark oak	237.8	1,261.8	530.6%	35	82	
laurel oak	273.8	1,049.5	383.3%	28	166	
overcup oak	254.7	674.9	265.0%	47	150	
blackjack oak	0.6	8.6	1417.7%	1	1	
swamp chestnut oak	88.9	619.1	696.2%	17	35	
water oak	556.7	1,049.5	188.5%	105	444	
Nuttall oak	5.2	46.5	888.2%	5	10	
willow oak	429.0	1,082.1	252.2%	68	334	
Shumard oak	29.4	324.6	1103.4%	5	26	
post oak	36.4	172.6	474.1%	20	37	
live oak	0.6	9.1	1417.7%	1	1	
black locust	1.4	13.2	927.1%	3	4	
willow	0.5	4.9	1017.5%	2	3	
peachleaf willow	0.4	5.4	1417.7%	1	1	
black willow	1.1	8.4	771.0%	4	5	
sassafras	1.4	9.2	639.3%	8	13	
American basswood	4.2	38.3	904.7%	4	9	
Carolina basswood	1.1	11.8	1038.9%	3	4	
elm spp.	3.1	29.3	944.9%	3	12	
winged elm	33.6	84.2	250.2%	58	147	
American elm	34.7	104.6	301.1%	43	93	
cedar elm	22.7	96.0	422.4%	20	67	
Siberian elm	0.3	4.0	1417.7%	1	1	
slippery elm	16.5	101.1	613.3%	10	68	
chinaberry	2.0	28.1	1417.7%	1	3	
Chinese tallowtree	20.9	88.7	425.1%	32	134	
<b>Total</b>	<b>3,338.2</b>	<b>3,034.4</b>	<b>90.9%</b>	<b>201</b>	<b>4,577</b>	
<b>E/A/C 7</b>						<b>Elm / Ash / Cottonwood</b>
eastern redcedar	22.7	143.2	631.3%	6	13	
loblolly pine	12.5	72.5	581.5%	4	8	
baldcypress	38.5	355.5	922.3%	3	8	
Florida maple	14.8	97.9	661.0%	6	12	
boxelder	31.2	119.8	383.7%	20	80	
red maple	12.1	68.3	566.4%	6	16	
pawpaw	0.0	0.2	1044.0%	1	1	
river birch	71.2	223.8	314.2%	14	68	
chittamwood,gum bumelia	1.7	9.5	549.9%	4	4	
American hornbeam,musclewood	24.2	70.9	292.6%	17	78	
water hickory	36.3	212.1	583.7%	10	24	
bitternut hickory	25.3	147.0	580.4%	5	10	
pignut hickory	2.2	23.0	1028.4%	3	3	
pecan	145.9	699.5	479.5%	14	48	
shagbark hickory	7.2	69.2	966.9%	2	3	
black hickory	5.9	55.4	935.6%	2	3	
mockernut hickory	2.6	19.3	742.3%	2	2	
sugarberry	117.3	192.7	164.2%	59	254	
eastern redbud	0.6	4.4	730.0%	5	6	
flowering dogwood	1.8	11.6	653.5%	5	8	
hawthorn	8.3	45.5	545.3%	13	46	
downy hawthorn	0.4	3.8	1044.0%	1	1	
common persimmon	9.9	55.1	558.3%	8	11	
American beech	1.5	15.4	1044.0%	1	1	
white ash	3.0	22.6	756.7%	3	4	
green ash	49.5	115.1	232.3%	36	202	
Carolina ash	0.0	0.1	1044.0%	1	1	
waterlocust	11.0	80.1	729.8%	4	14	
honeylocust	10.9	54.1	494.6%	8	11	
American holly	7.1	33.7	472.6%	8	17	

black walnut	3.0	31.6	1044.0%	1	1
sweetgum	117.9	230.4	195.5%	39	253
Osage-orange	16.2	70.8	437.3%	7	29
sweetbay	0.4	4.4	1044.0%	1	1
mulberry spp.	0.3	3.3	1044.0%	1	1
red mulberry	3.5	20.2	572.1%	5	5
blackgum	5.1	23.8	466.7%	6	12
eastern hophornbeam	16.5	70.7	428.4%	11	23
sourwood	0.3	3.3	1044.0%	1	1
water-elm, planertree	5.6	39.1	694.0%	3	13
sycamore	19.0	100.4	528.5%	8	20
eastern cottonwood	49.2	356.2	724.5%	4	27
black cherry	1.1	6.8	642.0%	3	6
chokecherry	0.1	1.1	1044.0%	1	1
wild plum	0.1	1.5	1044.0%	1	1
oak spp. -- deciduous	0.1	0.6	1044.0%	1	1
white oak	0.1	0.8	944.6%	2	2
southern red oak	21.6	156.9	726.9%	4	7
cherrybark oak	11.6	62.8	539.1%	9	11
laurel oak	11.3	112.2	993.4%	2	2
overcup oak	42.4	220.1	518.6%	9	19
swamp chestnut oak	1.6	10.3	637.7%	3	3
water oak	181.3	611.1	337.0%	32	64
Nuttall oak	1.4	14.3	1044.0%	1	4
willow oak	92.2	425.1	461.0%	10	31
Shumard oak	1.1	7.5	683.7%	3	3
post oak	4.1	31.3	770.4%	2	3
black locust	2.9	25.3	873.1%	3	12
western soapberry	0.5	4.9	1044.0%	1	1
willow	5.8	40.1	695.4%	4	16
black willow	50.8	300.1	590.4%	8	62
sassafras	1.9	19.5	1044.0%	1	1
American basswood	4.1	42.7	1044.0%	1	4
winged elm	37.0	105.5	285.3%	30	74
American elm	56.3	118.6	210.5%	36	86
cedar elm	108.4	307.9	284.0%	27	142
slippery elm	28.1	107.2	381.1%	13	23
chinaberry	7.3	43.6	598.7%	6	11
Chinese tallowtree	25.7	109.4	425.9%	14	50
<b>Total</b>	<b>1,611.7</b>	<b>1,479.2</b>	<b>91.8%</b>	<b>109</b>	<b>1,983</b>
<b>OWH 8</b>					
screwbean mesquite	3.6	0.7	19.1%	2	4
<b>Total</b>	<b>3.6</b>	<b>0.7</b>	<b>19.1%</b>	<b>2</b>	<b>4</b>
<b>EH 9</b>					
southern redcedar	19.7	98.3	500.0%	1	2
loblolly pine	105.4	222.6	211.3%	8	16
red maple	16.6	69.1	415.2%	3	11
sugarberry	6.3	14.7	233.5%	5	6
hawthorn	3.5	13.2	371.3%	2	3
white ash	0.1	0.5	500.0%	1	1
green ash	6.2	23.1	371.9%	2	3
American holly	17.9	70.0	391.7%	3	4
sweetgum	50.5	90.4	179.2%	10	37
blackgum	29.4	83.3	283.0%	4	19
sycamore	28.5	91.6	321.6%	3	10
cottonwood and poplar spp.	16.6	83.1	500.0%	1	1
black cherry	2.4	11.9	500.0%	1	1
southern red oak	3.1	12.8	409.5%	2	2
laurel oak	15.4	41.1	267.0%	4	10
water oak	72.1	229.0	317.9%	5	25
willow oak	44.4	161.7	364.5%	3	4
live oak	8.1	40.4	500.0%	1	5
elm spp.	1.9	9.4	500.0%	1	1
winged elm	4.9	24.3	500.0%	1	1
American elm	11.5	38.6	335.4%	3	5
chinaberry	0.0	0.1	500.0%	1	1
Chinese tallowtree	412.4	666.7	161.7%	23	325
<b>Total</b>	<b>876.9</b>	<b>1,005.5</b>	<b>114.7%</b>	<b>25</b>	<b>493</b>
<b>Overall Total</b>	<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>

Table 9. -- Estimated leaf biomass by forest type and species group

		Leaf Biomass (kg/ha)						
Forest Type	Class Number	Species	Mean	Standard Error	Coefficient of Variation	Plot Number	Tree Number	Comments
L/SL P	1	Longleaf and slash pines	1,259.6	892.5	70.9%	28	463	<i>Longleaf / Slash Pine</i>
		Loblolly and shortleaf pines	441.3	592.2	134.2%	15	71	
		Select white oaks	15.4	37.6	243.4%	5	9	
		Other white oaks	1.8	8.9	496.8%	3	4	
		Other red oaks	130.4	240.3	184.2%	14	80	
		Hickory	5.6	26.8	476.0%	3	7	
		Soft maple	5.1	14.9	294.4%	3	13	
		Sweetgum	56.1	120.6	214.9%	16	78	
		Tupelo and blackgum	8.8	28.6	325.0%	6	9	
		Ash	0.0	0.2	529.2%	1	2	
		Other eastern soft hardwoods	27.2	92.9	342.0%	6	32	
		Other eastern hard hardwoods	1.2	4.3	358.0%	3	5	
		Eastern noncommercial hardwoods	11.4	56.0	489.8%	6	27	
		<b>Total</b>	<b>1,964.0</b>	<b>946.4</b>	<b>48.2%</b>	<b>109</b>	<b>800</b>	
L/SH P	2	Longleaf and slash pines	8.0	63.6	795.7%	38	111	<i>Loblolly / Shortleaf Pine</i>
		Loblolly and shortleaf pines	3,510.7	2,442.2	69.6%	700	15,584	
		Other yellow pines	0.9	9.7	1055.4%	8	8	
		Cypress	0.2	6.4	2694.4%	1	2	
		Other eastern softwoods	11.7	86.0	732.9%	40	76	
		Select white oaks	48.6	242.4	498.8%	107	242	
		Select red oaks	20.6	130.9	634.9%	67	112	
		Other white oaks	53.5	166.3	310.6%	177	489	
		Other red oaks	153.0	354.5	231.6%	399	1,286	
		Hickory	18.9	72.4	382.5%	113	195	
		Hard maple	0.3	4.1	1426.2%	7	11	
		Soft maple	9.9	40.6	411.3%	111	239	
		Beech	1.0	13.0	1343.7%	9	11	
		Sweetgum	64.0	123.8	193.3%	435	1,788	
		Tupelo and blackgum	13.0	71.3	546.7%	138	323	
		Ash	4.7	23.8	505.4%	81	135	
		Cottonwood and aspen	0.0	1.1	2694.4%	1	3	
		Basswood	0.0	0.6	2694.4%	1	1	
		Black walnut	1.9	32.9	1704.1%	3	8	
		Other eastern soft hardwoods	44.9	104.0	231.6%	335	923	
Other eastern hard hardwoods	8.9	42.7	477.2%	135	258			
Eastern noncommercial hardwoods	20.1	106.7	532.0%	153	495			
Western woodland hardwoods	0.2	2.7	1656.7%	3	4			
		<b>Total</b>	<b>3,995.3</b>	<b>2,532.7</b>	<b>63.4%</b>	<b>3,062</b>	<b>22,304</b>	
P/J	3	Loblolly and shortleaf pines	306.1	413.0	134.9%	4	12	<i>Pinyon / Juniper</i>
		Other eastern softwoods	2,369.4	1,962.2	82.8%	8	69	
		Other white oaks	42.0	81.4	193.9%	3	3	
		Other red oaks	96.6	188.9	195.4%	3	4	
		Sweetgum	9.2	25.5	278.2%	2	3	
		Ash	5.1	14.5	282.8%	1	1	
		Other eastern soft hardwoods	75.2	106.9	142.1%	7	13	
		Other eastern hard hardwoods	5.9	12.1	206.6%	3	6	
		<b>Total</b>	<b>2,909.5</b>	<b>2,144.7</b>	<b>73.7%</b>	<b>31</b>	<b>111</b>	
O/P	4	Longleaf and slash pines	13.1	114.7	875.0%	9	22	<i>Oak / Pine</i>
		Loblolly and shortleaf pines	1,290.2	1,160.4	89.9%	208	1,655	
		Other yellow pines	0.5	7.8	1529.7%	1	1	
		Cypress	6.9	104.9	1529.7%	1	4	
		Other eastern softwoods	40.9	235.2	575.7%	21	80	
		Western redcedar	0.2	2.4	1529.7%	1	1	
		Select white oaks	82.1	393.9	480.0%	40	97	
		Select red oaks	83.9	368.7	439.3%	35	82	
		Other white oaks	144.9	391.4	270.1%	71	235	
		Other red oaks	522.1	777.7	149.0%	164	837	
		Hickory	64.4	229.3	356.3%	57	127	
		Hard maple	2.3	20.6	883.3%	10	14	
		Soft maple	22.1	87.5	395.9%	44	117	
		Beech	10.2	76.4	748.6%	7	18	
		Sweetgum	109.9	158.6	144.4%	156	840	
		Tupelo and blackgum	31.8	137.6	432.3%	55	118	
		Ash	7.5	32.6	437.3%	33	51	
		Black walnut	0.6	9.7	1529.7%	1	2	
		Other eastern soft hardwoods	79.6	157.7	198.1%	136	471	

		Other eastern hard hardwoods	12.7	37.2	293.5%	57	104	
		Eastern noncommercial hardwoods	67.5	321.4	476.0%	63	292	
		Western woodland hardwoods	0.4	3.9	1091.6%	2	3	
		<b>Total</b>	<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>1,172</b>	<b>5,171</b>	
<b>O/H</b>	<b>5</b>	Loblolly and slash pines	2.2	30.1	1341.8%	4	19	<i>Oak / Hickory</i>
		Loblolly and shortleaf pines	224.2	413.3	184.3%	197	718	
		Other eastern softwoods	50.5	201.7	399.5%	77	203	
		Select white oaks	93.4	384.6	411.9%	79	215	
		Select red oaks	43.4	225.8	520.6%	63	129	
		Other white oaks	421.2	729.3	173.2%	240	1,576	
		Other red oaks	609.3	1,174.5	192.8%	334	1,519	
		Hickory	102.6	262.2	255.7%	162	420	
		Hard maple	1.4	13.3	938.2%	13	20	
		Soft maple	16.8	96.3	573.6%	75	211	
		Beech	5.0	50.5	1017.4%	7	15	
		Sweetgum	110.5	192.2	174.0%	259	1,384	
		Tupelo and blackgum	23.6	82.6	350.0%	78	212	
		Ash	13.7	52.3	382.6%	78	156	
		Basswood	2.3	26.7	1142.4%	6	16	
		Black walnut	5.0	71.4	1435.6%	4	4	
		Other eastern soft hardwoods	114.9	187.8	163.5%	328	1,197	
		Other eastern hard hardwoods	18.8	57.8	307.0%	130	266	
		Eastern noncommercial hardwoods	43.0	131.9	306.8%	148	510	
		Western woodland hardwoods	1.1	17.5	1540.5%	5	9	
		<b>Total</b>	<b>1,902.9</b>	<b>1,740.2</b>	<b>91.4%</b>	<b>2,287</b>	<b>8,799</b>	
<b>O/G/C</b>	<b>6</b>	Loblolly and shortleaf pines	108.7	324.8	298.8%	39	79	<i>Oak / Gum / Cypress</i>
		Cypress	459.3	1,952.1	425.0%	22	216	
		Other eastern softwoods	14.2	161.8	1138.4%	9	23	
		Select white oaks	126.0	638.7	507.0%	34	66	
		Select red oaks	267.2	1,308.9	489.8%	39	108	
		Other white oaks	291.7	683.8	234.4%	66	188	
		Other red oaks	1,302.8	1,706.0	131.0%	161	1,002	
		Hickory	91.4	337.0	368.8%	57	122	
		Hard maple	8.8	81.9	930.1%	9	14	
		Soft maple	37.1	147.1	396.9%	51	103	
		Beech	13.8	76.1	550.2%	9	21	
		Sweetgum	141.0	216.2	153.4%	124	602	
		Tupelo and blackgum	119.5	399.7	334.6%	68	393	
		Ash	51.2	114.5	223.4%	73	335	
		Basswood	5.4	40.0	744.2%	7	13	
		Other eastern soft hardwoods	190.0	279.5	147.1%	142	707	
		Other eastern hard hardwoods	35.8	98.2	274.3%	58	147	
		Eastern noncommercial hardwoods	72.9	151.0	207.0%	107	434	
		Western woodland hardwoods	1.3	12.7	966.8%	3	4	
		<b>Total</b>	<b>3,338.2</b>	<b>3,034.4</b>	<b>90.9%</b>	<b>1,078</b>	<b>4,577</b>	
<b>E/A/C</b>	<b>7</b>	Loblolly and shortleaf pines	12.5	72.5	581.5%	4	8	<i>Elm / Ash / Cottonwood</i>
		Cypress	38.5	355.5	922.3%	3	8	
		Other eastern softwoods	22.7	143.2	631.3%	6	13	
		Select white oaks	1.7	10.3	607.4%	5	5	
		Select red oaks	12.7	63.0	494.6%	12	14	
		Other white oaks	46.5	221.5	476.3%	11	22	
		Other red oaks	307.8	755.4	245.4%	42	108	
		Hickory	225.5	736.3	326.6%	33	93	
		Hard maple	14.8	97.9	661.0%	6	12	
		Soft maple	12.1	68.3	566.4%	6	16	
		Beech	1.5	15.4	1044.0%	1	1	
		Sweetgum	117.9	230.4	195.5%	39	253	
		Tupelo and blackgum	5.1	23.8	466.7%	6	12	
		Ash	52.5	116.1	221.0%	39	207	
		Cottonwood and aspen	49.2	356.2	724.5%	4	27	
		Basswood	4.1	42.7	1044.0%	1	4	
		Black walnut	3.0	31.6	1044.0%	1	1	
		Other eastern soft hardwoods	522.8	543.7	104.0%	97	817	
		Other eastern hard hardwoods	47.4	124.9	263.3%	32	79	
		Eastern noncommercial hardwoods	107.6	174.0	161.7%	60	266	
		Western woodland hardwoods	5.8	40.1	688.7%	5	17	
		<b>Total</b>	<b>1,611.7</b>	<b>1,479.2</b>	<b>91.8%</b>	<b>413</b>	<b>1,983</b>	
<b>OWH</b>	<b>8</b>	Western woodland hardwoods	3.6	0.7	19.1%	2	4	<i>Other Western Hardwoods</i>
		<b>Total</b>	<b>3.6</b>	<b>0.7</b>	<b>19.1%</b>	<b>2</b>	<b>4</b>	
<b>EH</b>	<b>9</b>	Loblolly and shortleaf pines	105.4	222.6	211.3%	8	16	<i>Exotic Hardwoods</i>
		Other eastern softwoods	19.7	98.3	500.0%	1	2	

Other white oaks	8.1	40.4	500.0%	1	5
Other red oaks	135.0	310.9	230.4%	8	41
Soft maple	16.6	69.1	415.2%	3	11
Sweetgum	50.5	90.4	179.2%	10	37
Tupelo and blackgum	29.4	83.3	283.0%	4	19
Ash	6.3	23.1	365.6%	3	4
Cottonwood and aspen	16.6	83.1	500.0%	1	1
Other eastern soft hardwoods	55.4	129.0	232.8%	8	24
Other eastern hard hardwoods	17.9	70.0	391.7%	3	4
Eastern noncommercial hardwoods	416.0	672.8	161.7%	24	329
<b>Total</b>	<b>876.9</b>	<b>1,005.5</b>	<b>114.7%</b>	<b>74</b>	<b>493</b>
<b>Overall Total</b>	<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

**Table 1. -- Number of forested plots and trees by county in East Texas**

<b>County Name</b>	<b>Number of Plots</b>	<b>Number of Trees</b>
Anderson	67	1,460
Angelina	53	1,328
Bowie	47	894
Camp	4	107
Cass	50	1,206
Chambers	8	158
Cherokee	52	1,250
Franklin	15	348
Gregg	15	382
Grimes	24	429
Hardin	75	2,309
Harris	39	661
Harrison	57	1,491
Henderson	29	541
Houston	56	1,242
Jasper	71	1,756
Jefferson	15	384
Leon	62	1,147
Liberty	68	1,869
Madison	18	221
Marion	31	871
Montgomery	78	1,604
Morris	11	324
Nacogdoches	61	1,502
Newton	78	1,950
Orange	22	519
Panola	47	1,158
Polk	80	2,094
Red River	51	1,232
Rusk	51	1,128
Sabine	39	1,367
San Augustine	41	1,297
San Jacinto	40	1,125
Shelby	51	1,178
Smith	39	765
Titus	16	377
Trinity	48	1,589
Tyler	74	2,134
Upshur	28	583
Van Zandt	23	406
Walker	50	1,073
Waller	10	143
Wood	31	640
<b>Total</b>	<b>1,825</b>	<b>44,242</b>

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
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**Table 2. -- Number of forested plots and trees by land cover type and Forest Type**

<b>Land Cover</b>	<b>Plot Number</b>	<b>Tree Number</b>	<b>Comment</b>
FDC32	5	52	Cold-deciduous Forest, EPA Level III ecoregion 32
FDC33	211	3,817	Cold-deciduous Forest, EPA Level III ecoregion 33
FDC34	39	633	Cold-deciduous Forest, EPA Level III ecoregion 34
FDC35	574	11,354	Cold-deciduous Forest, EPA Level III ecoregion 35
FEN	762	23,215	Evergreen Needleleaf Forest
MIX	234	5,171	Mixed Forest
<i>Total</i>	<i>1,825</i>	<i>44,242</i>	

<b>Forest Type</b>	<b>Plot Number</b>	<b>Tree Number</b>	<b>Comment</b>
L/SL P	28	800	Longleaf / Slash Pine
L/SH P	726	22,304	Loblolly / Shortleaf Pine
P/J	8	111	Pinyon / Juniper
O/P	234	5,171	Oak / Pine
O/H	492	8,799	Oak / Hickory
O/G/C	201	4,577	Oak / Gum / Cypress
E/A/C	109	1,983	Elm / Ash / Cottonwood
OWH	2	4	Other Western Hardwoods
EH	25	493	Exotic Hardwoods
<i>Total</i>	<i>1,825</i>	<i>44,242</i>	

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

**Table 3. -- Equations and parameters for diameter (DBH) & height-based leaf biomass estimates**

Species		Equation							
Code	Common Name	Form ID	a	b	c	d	e	f	R <sup>2</sup>
951	American basswood	2	0.0147	1.83	0				0.51
531	American beech	2	0.0452	1.5567	0				0.48
972	American elm	3	0.19128	0.91936	0.1769	0.92435			0.99
591	American holly	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
391	American hornbeam	2	0.0247	2.0056	0				0.95
994	Chinese tallowtree	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
828	Nuttall oak	3	0.1622	0.95348	0.14786	0.96117			0.99
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99
641	Osage-orange	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
834	Shumard oak	3	0.1622	0.95348	0.14786	0.96117			0.99
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99
221	baldcypress	2	0.1554	2.4021	-1.1043				0.73
402	bitternut hickory	3	0.18316	0.9503	0.16922	0.95583			0.99
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99
762	black cherry	2	0.1976	1.4421	-0.5264				0.55
408	black hickory	3	0.18316	0.9503	0.16922	0.95583			0.99
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99
837	black oak	3	0.13493	0.98969	0.13069	0.98979			0.99
		4	0.06771	1.13346	0.98969	0.06451	1.13699	0.98979	0.99
602	black walnut	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
922	black willow	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
693	blackgum	3	0.1617	0.92799	0.15457	0.93057			0.99
		4	0.06657	1.11305	0.92799	0.06419	1.11381	0.93057	0.99
824	blackjack oak	3	0.1622	0.95348	0.14786	0.96117			0.99
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99
842	bluejack oak	3	0.1622	0.95348	0.14786	0.96117			0.99
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99
313	boxelder	5	0.161	0.000757					0.81
973	cedar elm	3	0.19128	0.91936	0.1769	0.92435			0.98
813	cherrybark oak	3	0.1622	0.95348	0.14786	0.96117			0.99
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99
993	chinaberry	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
381	chittamwood	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
521	common persimmon	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
840	dwarf post oak	3	0.12835	0.9969	0.12487	0.9969			0.98
		4	0.14308	0.97425	0.9969	0.14035	0.97254	0.9969	0.98
701	eastern hophornbeam	2	0.0247	2.0056	0				0.95
471	eastern redbud	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
970	elm spp.	3	0.19128	0.91936	0.1769	0.92435			0.98
311	florida maple	3	0.19766	0.90302	0.17603	0.91317			0.99
		4	0.03697	1.25258	0.90302	0.04068	1.21861	0.91317	0.99
491	flowering dogwood	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
544	green ash	3	0.19954	0.89285	0.19022	0.89669			0.98

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

Species Code	Common Name	Min DBH	Max DBH	Min Height	Max Height	Sample Size	Diameter Unit	Height Unit	leaf biomass Unit (dry)
951	American basswood	3.7	54.8	3.8	26.1	80	cm	m	kg
531	American beech	1.8	46.3	2.9	26.5	177	cm	m	kg
972	American elm	1	11.2	13	77	16	in	ft	lb
591	American holly	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
391	American hornbeam	5.2	18.5	6.3	11.9	14	cm	m	kg
994	Chinese tallowtree	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
828	Nuttall oak	2.3	10	30	81	24	in	ft	lb
		11	18.8	68	88	24	in	ft	lb
641	Osage-orange	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
834	Shumard oak	2.3	10	30	81	24	in	ft	lb
		11	18.8	68	88	24	in	ft	lb
221	baldcypress	1.3	68.7	1.6	52.2	4859	cm	m	kg
402	bitternut hickory	1.5	10.8	17	68	12	in	ft	lb
		11.5	18.5	68	97	10	in	ft	lb
762	black cherry	0.9	49.6	2.1	25.9	78	cm	m	kg
408	black hickory	1.5	10.8	17	68	12	in	ft	lb
		11.5	18.5	68	97	10	in	ft	lb
837	black oak	2.1	10.5	15	76	71	in	ft	lb
		11.2	20.9	52	95	39	in	ft	lb
602	black walnut	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
922	black willow	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
693	blackgum	1	10.9	17	80	72	in	ft	lb
		11	19.5	50	101	63	in	ft	lb
824	blackjack oak	2.3	10	30	81	24	in	ft	lb
		11	18.8	68	88	24	in	ft	lb
842	bluejack oak	2.3	10	30	81	24	in	ft	lb
		11	18.8	68	88	24	in	ft	lb
313	boxelder	3.6	36.8	4	21.3	49	cm	m	kg
973	cedar elm	1	11.2	13	77	16	in	ft	lb
813	cherrybark oak	2.3	10	30	81	24	in	ft	lb
		11	18.8	68	88	24	in	ft	lb
993	chinaberry	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
381	chittamwood	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
521	common persimmon	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
840	dwarf post oak	5.1	10.2	33	66	14	in	ft	lb
		11.2	20.9	50	63	12	in	ft	lb
701	eastern hophornbeam	5.2	18.5	6.3	11.9	14	cm	m	kg
471	eastern redbud	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
970	elm spp.	1	11.2	13	77	16	in	ft	lb
311	florida maple	1	10.7	15	74	24	in	ft	lb
		11.2	15.9	72	80	8	in	ft	lb
491	flowering dogwood	1	10.9	12	90	238	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
544	green ash	1	10.9	13	93	148	in	ft	lb

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

Species		Source Notes	
Code	Common Name		
951	American basswood	1	Canadian forest service ENFOR database
531	American beech	1	Canadian forest service ENFOR database
972	American elm	2	Clark Piedmont Area
591	American holly	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
391	American hornbeam	1	Canadian forest service ENFOR database
994	Chinese tallowtree	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
828	Nuttall oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
641	Osage-orange	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
834	Shumard oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
221	baldcypress	1	Canadian forest service ENFOR database
402	bitternut hickory	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
762	black cherry	1	Canadian forest service ENFOR database
408	black hickory	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
837	black oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
602	black walnut	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
922	black willow	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
693	blackgum	3	Clark Gulf and Atlantic coastal Area dbh
		3	Clark Gulf and Atlantic coastal Area dbh
824	blackjack oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
842	bluejack oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
313	boxelder	5	mississippi delta area
973	cedar elm	2	Clark Piedmont Area
813	cherrybark oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
993	chinaberry	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
381	chittamwood	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
521	common persimmon	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
840	dwarf post oak	4	Clark Upland-South Area dbh <11 inch
		4	Clark Upland-South Area dbh >=11 inch
701	eastern hophornbeam	1	Canadian forest service ENFOR database
471	eastern redbud	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
970	elm spp.	2	Clark Piedmont Area
311	florida maple	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
491	flowering dogwood	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
544	green ash	3	Clark Gulf and Atlantic coastal Area

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

Species		Equation							
Code	Common Name	Form ID	a	b	c	d	e	f	R <sup>2</sup>
0	hard hardwoods	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
500	hawthorn	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
400	hickory spp.	3	0.18316	0.9503	0.16922	0.95583			0.99
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99
552	honeylocust	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
820	laurel oak	3	0.20494	0.94196	0.1785	0.95476			0.99
		4	0.07233	1.15911	0.94196	0.07226	1.14333	0.95476	0.99
131	loblolly pine	1	-2.5375	3.0096	-1.5756				0.84
		6	-4.2054	0.05515	0.49941	0.94595	2.93469	-1.1598	0.92
121	longleaf pine	7	-1.0619	1.00853	-1.1559	1.027			0.98
		7	-0.6573	0.88019	-0.7194	0.88503			0.95
409	mockernut hickory	3	0.18316	0.9503	0.16922	0.95583			0.99
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99
999	other, unknown	3	0.15769	0.938	0.14724	0.94275			0.98
		4	0.05216	1.16867	0.938	0.04964	1.16948	0.94275	0.98
822	overcup oak	3	0.13493	0.98969	0.13069	0.98979			0.99
		4	0.06771	1.13346	0.98969	0.06451	1.13699	0.98979	0.99
404	pecan	3	0.18316	0.9503	0.16922	0.95583			0.99
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99
403	pignut hickory	3	0.18316	0.9503	0.16922	0.95583			0.99
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99
835	post oak	3	0.12835	0.9969	0.12487	0.9969			0.98
		4	0.14308	0.97425	0.9969	0.14035	0.97254	0.9969	0.98
316	red maple	3	0.19766	0.90302	0.17603	0.91317			0.99
		4	0.03697	1.25258	0.90302	0.04068	1.21861	0.91317	0.99
682	red mulberry	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
721	redbay	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
68	redcedar	2	0.2575	2.5136	-1.5565				0.81
373	river birch	2	0.1683	1.2764	0				0.45
931	sassafras	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
110	shortleaf pine	6	-3.9642	0.05515	0.49941	0.94595	2.93469	-1.1598	0.92
111	slash pine	6	-3.9642	0.05515	0.49941	0.94595	2.93469	-1.1598	0.92
975	slippery elm	3	0.19128	0.91936	0.1769	0.92435			0.98
0	soft hardwoods	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
652	southern magnolia	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
812	southern red oak	3	0.1622	0.95348	0.14786	0.96117			0.99
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99
461	sugarberry	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
825	swamp chestnut oak	3	0.11665	0.99033	0.11122	0.99205			0.99
694	swamp tupelo	3	0.12557	0.92338	0.1223	0.92453			0.98
653	sweetbay	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
611	sweetgum	3	0.11357	0.94351	0.108	0.94648			0.99
		4	0.03107	1.2138	0.94351	0.02818	1.22662	0.94648	0.99
731	sycamore	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

Species Code	Common Name	Min DBH	Max DBH	Min Height	Max Height	Sample Size	Diameter Unit	Height Unit	leaf biomass Unit (dry)
0	hard hardwoods	11.1	18.1	12	90	10	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
500	hawthorn	11.1	18.1	12	90	10	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
400	hickory spp.	1.5	10.8	17	68	12	in	ft	lb
		11.5	18.5	68	97	10	in	ft	lb
552	honeylocust	11.1	18.1	12	90	10	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
820	laurel oak	1.1	10.5	19	61	35	in	ft	lb
		11.2	17.3	49	90	12	in	ft	lb
131	loblolly pine	13	43	14	29	112	cm	m	kg
		0.93	21.2	1.73	13.19	41	cm	m	kg
121	longleaf pine	5	21	36	83	87	in	ft	lb
		1	4.9	12	54	24	in	ft	lb
409	mockernut hickory	1.5	10.8	17	68	12	in	ft	lb
		11.5	18.5	68	97	10	in	ft	lb
999	other, unknown	1	10.9	12	96	549	in	ft	lb
		11	20.9	52	115	223	in	ft	lb
822	overcup oak	2.1	10.5	15	76	71	in	ft	lb
		11.2	20.9	52	95	39	in	ft	lb
404	pecan	1.5	10.8	17	68	12	in	ft	lb
		11.5	18.5	68	97	10	in	ft	lb
403	pignut hickory	1.5	10.8	17	68	12	in	ft	lb
		11.5	18.5	68	97	10	in	ft	lb
835	post oak	5.1	10.2	33	66	14	in	ft	lb
		11.2	20.9	50	63	12	in	ft	lb
316	red maple	1	10.7	15	74	24	in	ft	lb
		11.2	15.9	72	80	8	in	ft	lb
682	red mulberry	11.1	18.1	12	90	10	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
721	redbay	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
68	redcedar	2	38.2	2.7	12.8	33	cm	m	kg
373	river birch	0.8	70.3	2.7	25.6	280	cm	m	kg
931	sassafras	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
110	shortleaf pine	3.39	14.4	3.08	7.9	15	cm	m	kg
111	slash pine	3.39	14.4	3.08	7.9	15	cm	m	kg
975	slippery elm	1	11.2	13	77	16	in	ft	lb
0	soft hardwoods	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
652	southern magnolia	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
812	southern red oak	2.3	10	30	81	24	in	ft	lb
		11	18.8	68	88	24	in	ft	lb
461	sugarberry	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
825	swamp chestnut oak	1.2	14.6	12	70	37	in	ft	lb
694	swamp tupelo	1	19.9	15	70	79	in	ft	lb
653	sweetbay	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
611	sweetgum	1	10.8	13	96	180	in	ft	lb
		11.1	20.7	71	107	56	in	ft	lb
731	sycamore	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

Species		Source Notes	
Code	Common Name		
0	hard hardwoods	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
500	hawthorn	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
400	hickory spp.	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
552	honeylocust	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
820	laurel oak	3	Clark Gulf and Atlantic coastal Area dbh
		3	Clark Gulf and Atlantic coastal Area dbh
131	loblolly pine	6	Louisiana
		7	North Carolina
121	longleaf pine	8	West Gulf Region Louisiana Texas
		8	West Gulf Region Louisiana Texas
409	mockernut hickory	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
999	other, unknown	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
822	overcup oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
404	pecan	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
403	pignut hickory	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
835	post oak	4	Clark Upland-South Area dbh <11 inch
		4	Clark Upland-South Area dbh >=11 inch
316	red maple	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
682	red mulberry	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
721	redbay	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
68	redcedar	1	Canadian forest service ENFOR database
373	river birch	1	Canadian forest service ENFOR database
931	sassafras	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
110	shortleaf pine	7	North Carolina
111	slash pine	7	North Carolina
975	slippery elm	2	Clark Piedmont Area
0	soft hardwoods	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
652	southern magnolia	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
812	southern red oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
461	sugarberry	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
825	swamp chestnut oak	2	Clark Piedmont Area
694	swamp tupelo	3	Clark Gulf and Atlantic coastal Area
653	sweetbay	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
611	sweetgum	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
731	sycamore	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

Species		Equation							
Code	Common Name	Form ID	a	b	c	d	e	f	R <sup>2</sup>
401	water hickory	3	0.18316	0.9503	0.16922	0.95583			0.99
		4	0.05406	1.20474	0.9503	0.05168	1.20316	0.95583	0.99
827	water oak	3	0.23742	0.92299	0.20692	0.93496			0.99
		4	0.15568	1.01099	0.92299	0.14638	1.00713	0.93496	0.99
691	water tupelo	3	0.12557	0.92338	0.1223	0.92453			0.99
551	waterlocust	3	0.1732	0.95225	0.16065	0.95747			0.99
		4	0.04598	1.22878	0.95225	0.04467	1.22435	0.95747	0.99
541	white ash	2	0.0195	1.0509	0.7836				0.49
802	white oak	3	0.13493	0.98969	0.13069	0.98979			0.99
		4	0.06771	1.13346	0.98969	0.06451	1.13699	0.98979	0.99
920	willow	3	0.1349	0.93309	0.12693	0.93728			0.99
		4	0.05689	1.11312	0.93309	0.05332	1.11815	0.93728	0.99
831	willow oak	3	0.1622	0.95348	0.14786	0.96117			0.99
		4	0.06195	1.15418	0.95348	0.06106	1.14557	0.96117	0.99
971	winged elm	3	0.19128	0.91936	0.1769	0.92435			0.98

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<b>Species Code</b>	<b>Common Name</b>	<b>Min DBH</b>	<b>Max DBH</b>	<b>Min Height</b>	<b>Max Height</b>	<b>Sample Size</b>	<b>Diameter Unit</b>	<b>Height Unit</b>	<b>leaf biomass Unit (dry)</b>
401	water hickory	1.5	10.8	17	68	12	in	ft	lb
		11.5	18.5	68	97	10	in	ft	lb
827	water oak	1	10.7	15	93	79	in	ft	lb
		11.6	20	68	100	33	in	ft	lb
691	water tupelo	1	19.9	15	70	79	in	ft	lb
551	waterlocust	11.1	18.1	12	90	10	in	ft	lb
		11	20.9	52	97	99	in	ft	lb
541	white ash	2.4	53.7	3.9	26.9	109	cm	m	kg
802	white oak	2.1	10.5	15	76	71	in	ft	lb
		11.2	20.9	52	95	39	in	ft	lb
920	willow	1	10.9	12	96	311	in	ft	lb
		11	20.7	70	115	124	in	ft	lb
831	willow oak	2.3	10	30	81	24	in	ft	lb
		11	18.8	68	88	24	in	ft	lb
971	winged elm	1	11.2	13	77	16	in	ft	lb

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

<b>Species</b>		<b>Source Notes</b>	
<b>Code</b>	<b>Common Name</b>		
401	water hickory	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
827	water oak	3	Clark Gulf and Atlantic coastal Area dbh
		3	Clark Gulf and Atlantic coastal Area dbh
691	water tupelo	3	Clark Gulf and Atlantic coastal Area
551	waterlocust	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
541	white ash	1	Canadian forest service ENFOR database
802	white oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
920	willow	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
831	willow oak	2	Clark Piedmont Area dbh <11 inch
		2	Clark Piedmont Area dbh >=11 inch
971	winged elm	2	Clark Piedmont Area

CSR LAND SURFACE CHARACTERIZATION PROJECT FOR EASTERN TEXAS (H-55)  
 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

**Table 4. -- Equation form key**

Equation Form Description	Equation Form ID
$\ln \text{ biomass} = a + b * \ln(\text{dia}) + c * \ln(\text{ht})$	1
$\text{biomass} = a * (\text{dia} ^ b) * (\text{ht} ^ c)$	2
$\text{biomass} = a * ((\text{dia}^2 * \text{ht}) ^ b) - c * ((\text{dia}^2 * \text{ht}) ^ d)$	3
$\text{biomass} = a * ((\text{dia}^2) ^ b) * (\text{ht} ^ c) - d * ((\text{dia}^2) ^ e) * (\text{ht} ^ f)$	4
$\text{biomass} = a + b * (\text{dia}^2 * \text{ht})$	5
$\ln \text{ biomass} = a+b*\ln(\text{dia}+1)+c*(\ln(\text{dia}+1))^2+d*\ln(\text{cr}*\text{ht})+e*\ln(\text{ht})+f * (\ln(\text{ht}))^2$	6
$\ln \text{ biomass} = a + b * \ln(\text{dia}^2 * \text{ht}) - c - d * \ln(\text{dia}^2 * \text{ht})$	7

Note:

dia: tree diameter at breast height

ht: tree height

a-f are parameters

biomass: leaf biomass

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**Table 5. -- Citation information for equations and data referenced in Table 3**

Reference no.	Reference	Origin
1	Lambert, M.-C.; Ung, C.-H.; Raulier, F. 2005 <b>Canadian national tree aboveground biomass equations</b> . Can. J. For. Res. 35: 1996-2018.	Canada
2	Clark, A. I.; Phillips, D.; Frederick, D. 1986a. <b>Weight, volume, and physical properties of major hardwood species in the Piedmont</b> . Res. Pap. SE-255. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station.	Piedmont Area
3	Clark, A. I.; Phillips, D.; Frederick, D. 1985. <b>Weight, volume, and physical properties of major hardwood species in the Gulf and Atlantic Coastal Plains</b> . Res. Pap. SE-250. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station.	Gulf and Atlantic coastal Area
4	Clark, A. I.; Phillips, D.; Frederick, D. 1986b. <b>Weight, volume, and physical properties of major hardwood species in the Upland South</b> . Res. Pap. SE-257. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station.	Upland South
5	Schlaegel, B. E.1982. <b>Boxelder (Acer negundo L.) biomass component regression analysis for the Mississippi Delta</b> .Forest Science 28:355-358	
6	Baldwin, V.C.,Jr.1989. <b>Is sapwood area a better predictor of loblollypine crown biomass than bole diameter?</b> Biomass, 20: 177–185.	Louisiana
7	Nemeth,J.C.1973. <b>Dry matter production in young loblolly pine(Pinus taeda L.)and slash pine (Pinus elliotii Engelm.) plantations</b> . Ecological Monographs. 43: 21–41.	North Carolina
8	Baldwin, KC.; Jr. Saucier, JR 1983. <b>Above groundweight and volume of unthinned, planted longleaf pine onwest gulf forest sites</b> . Res. Pap. SO-191. New Orleans:U.S.Department of Agriculture, Forest Service, Southern Forest Experiment Station	West Gulf Region- Louisiana Texas

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Table 6. -- Estimated leaf biomass by land cover type and species

Land Cover	Class Number	Species	Leaf Biomass (kg/ha)					Comments
			Mean	Standard error	Coefficient of variation	Number of Plots	Number of Trees	
FEN	1	eastern redcedar	36.1	316.7	878.5%	48	145	Evergreen Needleleaf Forest
		shortleaf pine	165.6	623.0	376.2%	235	1,205	
		slash pine	53.1	295.8	557.6%	46	457	
		longleaf pine	0.8	6.2	733.2%	23	117	
		loblolly pine	3,198.7	2,495.8	78.0%	693	14,462	
		Virginia pine	0.9	9.5	1081.4%	8	8	
		baldcypress	0.2	6.2	2760.4%	1	2	
		Florida maple	0.3	4.0	1461.3%	7	11	
		boxelder	0.0	0.1	2760.4%	1	1	
		red maple	9.6	39.7	414.4%	114	252	
		mimosa/silktree	0.0	0.1	2118.1%	2	3	
		pawpaw	0.0	0.1	2760.4%	1	3	
		river birch	1.9	32.2	1736.6%	4	15	
		chittamwood	0.0	0.4	1949.2%	3	5	
		American hornbeam	4.5	73.1	1626.4%	32	76	
		hickory spp.	0.8	13.7	1773.2%	3	4	
		water hickory	0.0	0.0	2760.4%	1	1	
		bitternut hickory	0.8	11.5	1514.6%	6	8	
		pignut hickory	0.6	10.1	1677.7%	7	9	
		shagbark hickory	0.9	17.8	2003.4%	2	3	
		black hickory	8.2	53.7	652.2%	51	85	
		mockernut hickory	7.0	39.6	566.7%	54	92	
		sugarberry	1.5	10.8	706.4%	27	36	
		hackberry	0.1	3.2	2258.5%	2	5	
		eastern redbud	0.1	1.3	1752.2%	6	7	
		flowering dogwood	1.4	8.5	593.1%	59	81	
		hawthorn	0.4	4.5	1296.8%	27	61	
		cockspur hawthorn	0.0	0.3	1988.0%	2	3	
		downy hawthorn	0.0	0.1	2760.4%	1	2	
		common persimmon	1.1	24.8	2346.4%	19	26	
		American beech	0.9	12.7	1376.8%	9	11	
		white ash	3.8	22.8	596.8%	54	93	
		green ash	0.7	5.1	713.4%	30	45	
		waterlocust	0.0	1.1	2760.4%	1	1	
		honeylocust	0.1	2.3	1960.8%	2	7	
		American holly	5.6	31.3	558.9%	68	142	
		black walnut	1.8	32.1	1745.9%	3	8	
		sweetgum	63.2	123.1	194.8%	453	1,869	
		Osage-orange	0.1	1.0	2007.1%	2	4	
		magnolia spp.	0.0	0.7	2760.4%	1	1	
		southern magnolia	1.7	26.9	1557.1%	14	34	
		sweetbay	1.1	13.7	1282.1%	17	56	
		red mulberry	0.3	7.0	2116.6%	7	11	
		water tupelo	0.0	0.9	2760.4%	1	1	
		blackgum	12.7	69.8	548.8%	144	330	
		swamp tupelo	0.0	0.0	2760.4%	1	1	
		eastern hophornbeam	4.6	28.4	619.4%	38	90	
		redbay	0.5	8.0	1503.4%	25	54	
		sycamore	0.2	5.0	2213.6%	2	2	
		cottonwood and poplar spp.	0.0	1.1	2760.4%	1	3	
		black cherry	1.2	7.4	615.6%	31	35	
		wild plum	0.1	1.4	1671.0%	4	4	
		oak spp. -- deciduous	0.0	0.9	2760.4%	1	1	
		white oak	44.7	233.8	522.6%	107	236	
		southern red oak	61.9	240.9	389.3%	209	444	
		cherrybark oak	19.4	127.7	658.2%	66	109	
		turkey oak	0.0	0.2	2760.4%	1	2	
		laurel oak	10.0	85.0	846.6%	37	134	
		overcup oak	0.0	0.7	2760.4%	1	1	
		blackjack oak	3.5	37.9	1074.6%	29	44	

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swamp chestnut oak	1.2	29.5	2555.9%	6	8	
chinkapin oak	1.0	26.7	2760.4%	1	7	
water oak	62.4	185.5	297.0%	233	576	
Nuttall oak	0.1	1.9	2760.4%	1	2	
willow oak	12.8	111.7	871.7%	49	166	
northern red oak	0.2	6.3	2760.4%	1	1	
Shumard oak	0.0	0.4	2760.4%	1	2	
post oak	51.4	162.8	316.9%	179	486	
Delta post oak	0.1	2.8	2760.4%	1	1	
black oak	0.8	20.2	2476.9%	4	4	
live oak	0.0	0.1	2760.4%	1	1	
dwarf post oak	0.0	0.2	2760.4%	1	7	
bluejack oak	1.3	19.5	1456.6%	11	26	
black locust	0.0	0.9	2760.4%	1	1	
willow	0.1	2.5	2020.6%	2	3	
black willow	0.4	11.7	2614.9%	2	7	
white willow	0.0	0.0	2760.4%	1	1	
sassafras	1.0	8.3	790.7%	35	62	
basswood spp.	0.0	0.6	2760.4%	1	1	
elm spp.	0.0	1.1	2526.4%	2	2	
winged elm	29.3	78.0	265.9%	229	574	
American elm	3.9	34.3	875.5%	35	55	
cedar elm	0.5	10.5	1949.1%	3	6	
Siberian elm	0.1	2.0	2760.4%	1	1	
slippery elm	0.9	11.3	1287.0%	9	21	
chinaberry	0.3	6.0	1944.8%	4	6	
Chinese tallowtree	8.2	56.2	686.6%	48	230	
<b>Total</b>	<b>3,909.2</b>	<b>2,518.4</b>	<b>64.4%</b>	<b>762</b>	<b>23,215</b>	
<b>FDC-32 2</b>						
loblolly pine	3.0	6.7	223.6%	1	1	Cold-deciduous Forest,
water hickory	115.9	259.3	223.6%	1	2	EPA Level III ecoregion 32
sugarberry	4.1	9.3	223.6%	1	1	
white ash	54.3	103.1	189.9%	2	4	
honeylocust	93.5	209.0	223.6%	1	2	
Osage-orange	16.1	22.3	138.3%	2	4	
southern red oak	205.8	298.6	145.1%	2	3	
cherrybark oak	32.8	73.3	223.6%	1	4	
water oak	1,031.4	956.0	92.7%	3	18	
post oak	539.2	1,205.6	223.6%	1	3	
winged elm	81.4	164.3	201.8%	2	5	
cedar elm	65.3	144.5	221.2%	2	3	
slippery elm	1.3	2.9	223.6%	1	1	
Chinese tallowtree	1.4	3.0	223.6%	1	1	
<b>Total</b>	<b>2,245.4</b>	<b>1,234.9</b>	<b>55.0%</b>	<b>5</b>	<b>52</b>	
<b>FDC-33 3</b>						
eastern redcedar	91.7	309.5	337.6%	42	146	Cold-deciduous Forest,
shortleaf pine	3.5	28.4	806.7%	4	11	EPA Level III ecoregion 33
slash pine	1.2	18.0	1452.6%	1	1	
loblolly pine	31.6	193.6	612.0%	8	26	
boxelder	3.7	31.3	845.3%	7	12	
red maple	0.2	2.4	1166.2%	2	5	
Texas buckeye	0.0	0.0	1452.6%	1	1	
river birch	1.9	19.7	1036.5%	3	6	
chittamwood	3.7	22.9	620.2%	12	15	
American hornbeam	0.9	13.2	1452.6%	1	4	
hickory spp.	8.9	129.8	1452.6%	1	10	
water hickory	28.7	265.0	923.8%	8	28	
bitternut hickory	1.6	15.4	989.9%	4	4	
pignut hickory	16.7	129.5	775.3%	9	34	
pecan	32.3	226.7	702.2%	6	38	
shagbark hickory	0.7	6.8	1035.5%	2	3	
black hickory	54.3	200.0	368.3%	36	94	
mockernut hickory	30.8	128.2	416.2%	25	64	
sugarberry	27.0	73.8	273.2%	51	157	
hackberry	1.7	13.7	786.0%	4	11	
eastern redbud	0.4	3.8	898.1%	3	4	
flowering dogwood	1.9	12.3	647.4%	13	18	
hawthorn	1.3	8.4	658.7%	15	38	

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downy hawthorn	0.2	2.7	1452.6%	1	1
common persimmon	4.6	31.3	682.6%	14	18
white ash	12.8	71.1	554.4%	15	41
green ash	30.5	89.9	294.8%	49	255
waterlocust	0.2	2.9	1452.6%	1	1
honeylocust	6.9	41.2	595.6%	12	22
American holly	5.5	38.5	693.8%	8	20
sweetgum	59.7	163.8	274.2%	44	254
Osage-orange	19.8	120.2	606.6%	10	55
mulberry spp.	0.2	3.3	1452.6%	1	2
red mulberry	7.4	42.7	574.3%	9	11
blackgum	10.9	55.6	512.2%	14	36
swamp tupelo	0.2	2.5	1452.6%	1	2
eastern hophornbeam	3.0	33.1	1108.1%	4	6
screwbean mesquite	0.0	0.4	1034.0%	2	4
black cherry	0.8	8.6	1092.2%	2	4
chokecherry	0.1	0.8	1452.6%	1	1
wild plum	0.1	1.3	1039.2%	2	2
white oak	1.0	14.2	1452.6%	1	1
southern red oak	190.1	656.8	345.6%	49	167
cherrybark oak	49.6	301.5	607.4%	16	38
laurel oak	2.5	30.8	1232.5%	2	4
overcup oak	31.7	239.8	756.3%	10	37
blackjack oak	29.2	99.2	340.3%	32	69
water oak	266.5	735.1	275.8%	74	192
Nuttall oak	6.3	91.0	1452.6%	1	3
willow oak	116.7	490.0	419.8%	27	115
Shumard oak	5.4	55.0	1025.7%	5	9
post oak	563.5	838.1	148.7%	123	1,015
Delta post oak	0.2	3.3	1452.6%	1	1
black oak	2.8	25.9	913.1%	4	7
dwarf post oak	0.6	9.3	1452.6%	1	1
bluejack oak	11.7	58.2	499.4%	16	46
black locust	2.1	19.1	922.0%	6	15
western soapberry	0.2	3.5	1452.6%	1	1
willow	0.7	8.0	1133.0%	2	3
peachleaf willow	0.1	1.5	1452.6%	1	1
black willow	0.5	5.7	1169.1%	3	3
sassafras	2.3	14.1	619.6%	10	15
American basswood	2.1	30.7	1452.6%	1	4
Carolina basswood	1.8	15.9	882.2%	3	6
elm spp.	1.3	12.7	984.5%	4	4
winged elm	79.8	156.0	195.4%	115	406
American elm	20.0	91.4	456.0%	22	41
cedar elm	51.8	215.5	416.1%	29	130
slippery elm	1.5	18.6	1272.7%	2	11
chinaberry	1.0	9.7	921.4%	3	4
Chinese tallowtree	0.7	10.5	1452.6%	1	3
<b>Total</b>	<b>1,951.5</b>	<b>1,607.7</b>	<b>82.4%</b>	<b>211</b>	<b>3,817</b>
<b>FDC-34 4</b>					
southern redcedar	12.6	78.7	624.5%	1	2
loblolly pine	170.3	386.6	227.0%	11	15
baldcypress	66.6	415.7	624.5%	1	9
red maple	9.3	32.2	345.1%	4	10
chittamwood	1.1	6.6	624.5%	1	1
American hornbeam	3.8	14.4	377.0%	3	6
hickory spp.	1.4	8.7	624.5%	1	1
bitternut hickory	1.8	11.2	624.5%	1	1
pignut hickory	3.6	22.8	624.5%	1	1
pecan	223.0	1,061.6	476.0%	4	6
sugarberry	24.4	75.3	308.5%	9	29
hawthorn	1.6	10.0	616.4%	2	8
common persimmon	1.8	11.1	624.5%	1	2
white ash	0.5	2.5	542.2%	2	2
green ash	12.0	33.3	277.3%	9	18
Carolina ash	3.4	21.0	624.5%	1	15
American holly	9.8	56.2	570.3%	3	9

Cold-deciduous Forest,  
 EPA Level III ecoregion 34

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sweetgum	29.5	66.9	226.7%	12	42	
Osage-orange	9.3	58.4	624.5%	1	3	
magnolia spp.	2.0	12.8	624.5%	1	3	
blackgum	14.6	54.9	375.3%	5	9	
eastern hophornbeam	9.4	58.5	624.5%	1	1	
cherry and plum spp.	2.3	12.4	540.2%	2	2	
black cherry	3.7	13.2	356.7%	3	3	
southern red oak	10.7	50.4	470.1%	3	4	
cherrybark oak	62.3	389.1	624.5%	1	4	
laurel oak	275.3	1,131.2	410.9%	4	30	
overcup oak	37.6	234.7	624.5%	1	1	
swamp chestnut oak	56.3	324.3	575.7%	3	5	
water oak	248.6	506.8	203.8%	15	59	
Nuttall oak	3.4	21.2	624.5%	1	1	
willow oak	184.3	590.8	320.6%	6	51	
post oak	5.5	27.5	503.1%	2	2	
live oak	95.1	540.9	568.6%	3	12	
willow	0.6	4.0	624.5%	1	1	
black willow	1.0	6.5	624.5%	1	2	
elm spp.	1.2	7.5	624.5%	1	1	
American elm	6.1	21.0	343.9%	5	8	
cedar elm	4.4	17.2	387.5%	3	7	
slippery elm	1.2	6.8	564.3%	2	2	
chinaberry	4.3	20.1	463.1%	2	3	
Chinese tallowtree	200.4	252.9	126.2%	27	242	
<b>Total</b>	<b>1,816.4</b>	<b>2,266.8</b>	<b>124.8%</b>	<b>39</b>	<b>633</b>	
<b>FDC-35 5</b>						
eastern redcedar	18.9	108.0	572.4%	50	93	Cold-deciduous Forest,
shortleaf pine	33.8	142.8	423.1%	72	176	EPA Level III ecoregion 35
slash pine	1.4	25.5	1804.5%	3	13	
longleaf pine	0.1	1.3	2395.8%	1	5	
loblolly pine	178.9	377.8	211.1%	187	592	
baldcypress	163.6	1,178.8	720.3%	24	215	
Florida maple	7.1	65.7	924.0%	28	46	
boxelder	5.7	53.2	938.7%	19	77	
red maple	29.7	128.0	431.4%	129	326	
mimosa/silktree	0.1	1.0	1519.5%	4	7	
serviceberry	0.1	2.3	2395.8%	1	1	
pawpaw	0.0	0.1	2395.8%	1	1	
river birch	19.8	119.9	604.4%	27	114	
chittamwood	0.9	9.7	1106.1%	9	12	
American hornbeam	17.4	55.2	317.2%	104	352	
hickory spp.	3.6	39.1	1072.3%	9	18	
water hickory	15.6	126.5	813.2%	33	56	
bitternut hickory	4.8	64.3	1326.8%	8	16	
pignut hickory	4.1	47.1	1162.5%	8	13	
pecan	7.5	76.1	1018.1%	18	35	
shellbark hickory	0.3	7.6	2395.8%	1	3	
shagbark hickory	2.5	35.2	1391.5%	6	7	
black hickory	20.9	108.4	519.4%	41	80	
mockernut hickory	22.9	108.4	474.4%	60	121	
sugarberry	24.7	103.9	421.2%	88	257	
eastern redbud	0.4	5.1	1387.1%	10	16	
flowering dogwood	1.8	9.5	517.9%	41	64	
hawthorn	1.7	19.7	1192.2%	25	42	
cockspur hawthorn	0.3	4.3	1611.6%	3	5	
common persimmon	2.5	23.7	967.3%	22	33	
American beech	9.4	65.2	695.3%	17	37	
white ash	6.2	36.8	592.1%	34	56	
green ash	16.1	62.7	390.3%	81	305	
Carolina ash	0.2	2.7	1727.4%	5	6	
waterlocust	2.9	37.1	1283.4%	6	20	
honeylocust	3.8	32.6	867.7%	15	22	
American holly	13.6	56.8	418.5%	80	210	
black walnut	4.8	67.5	1395.3%	5	5	
sweetgum	144.7	214.6	148.3%	376	1,980	
Osage-orange	1.2	15.3	1275.9%	7	18	

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southern magnolia	7.7	56.5	737.9%	19	59
sweetbay	7.7	57.3	746.8%	18	113
mulberry spp.	0.1	1.4	2395.8%	1	1
red mulberry	1.4	10.3	751.2%	18	24
water tupelo	15.4	184.1	1196.5%	7	173
blackgum	42.9	172.8	402.6%	125	381
swamp tupelo	1.0	12.0	1224.6%	6	35
eastern hophornbeam	19.2	90.7	472.2%	65	191
sourwood	0.1	1.4	2395.8%	1	1
redbay	0.9	8.1	869.4%	16	46
water-elm, planertree	2.3	22.8	990.0%	12	52
sycamore	6.2	51.5	826.9%	18	41
cottonwood and poplar spp.	0.7	17.4	2395.8%	1	1
eastern cottonwood	9.3	155.9	1669.3%	4	27
cherry and plum spp.	0.3	5.3	2003.4%	2	4
black cherry	2.5	13.8	560.1%	35	49
wild plum	0.0	0.7	2395.8%	1	2
oak spp. -- deciduous	0.9	16.2	1761.0%	4	4
white oak	91.4	368.9	403.4%	96	244
southern red oak	145.9	623.2	427.2%	156	392
cherrybark oak	97.4	752.5	772.3%	84	167
laurel oak	110.4	625.6	566.5%	48	220
overcup oak	85.8	401.7	468.2%	48	137
blackjack oak	11.5	86.9	753.2%	23	48
swamp chestnut oak	28.8	359.4	1246.5%	20	36
water oak	311.3	776.0	249.3%	243	853
Nuttall oak	2.6	30.6	1173.9%	8	16
willow oak	158.2	672.4	425.1%	102	389
Shumard oak	11.0	192.8	1752.0%	8	29
post oak	153.3	428.8	279.8%	135	581
Delta post oak	0.1	2.4	2395.8%	1	1
black oak	17.3	214.8	1238.5%	11	29
bluejack oak	1.9	20.6	1097.5%	10	20
black locust	0.3	6.9	2395.8%	1	2
willow	1.3	18.4	1402.2%	6	22
peachleaf willow	0.1	3.2	2395.8%	1	1
black willow	10.2	132.0	1291.3%	12	66
sassafras	2.3	14.4	616.3%	36	64
American basswood	2.3	29.4	1276.4%	6	18
Carolina basswood	0.9	14.8	1610.5%	4	5
elm spp.	1.4	18.6	1325.3%	4	14
winged elm	46.6	105.9	227.1%	211	568
American elm	26.3	84.5	320.8%	99	209
cedar elm	16.5	98.0	593.0%	32	108
Siberian elm	0.3	5.0	1767.8%	2	2
slippery elm	12.9	84.8	658.5%	28	92
chinaberry	3.2	30.5	942.1%	11	30
Chinese tallowtree	20.1	157.8	786.2%	59	332
<b>Total</b>	<b>2,283.9</b>	<b>2,369.4</b>	<b>103.7%</b>	<b>574</b>	<b>11,354</b>
<b>FM 6</b>					
eastern redcedar	40.9	235.2	575.7%	21	80 Mixed Forest
shortleaf pine	120.2	287.0	238.8%	73	239
slash pine	13.0	114.7	882.3%	5	18
longleaf pine	0.1	0.8	760.1%	4	4
loblolly pine	1,170.0	1,174.7	100.4%	192	1,416
Virginia pine	0.5	7.8	1529.7%	1	1
baldcypress	6.9	104.9	1529.7%	1	4
Florida maple	2.3	20.6	883.3%	10	14
boxelder	0.1	1.4	1341.2%	2	4
red maple	22.1	87.5	395.9%	44	117
mimosa/silktree	0.1	2.0	1529.7%	1	1
river birch	1.7	25.4	1529.7%	1	1
chittamwood,gum bumelia	0.0	0.4	1529.7%	1	1
American hornbeam	7.2	37.5	518.0%	20	60
hickory spp.	0.2	3.0	1529.7%	1	1
water hickory	11.6	169.6	1467.6%	2	5
bitternut hickory	0.8	11.5	1500.2%	2	2

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pignut hickory	2.3	24.9	1073.9%	3	5
pecan	5.9	83.3	1401.1%	2	5
nutmeg hickory	2.3	34.8	1529.7%	1	1
shagbark hickory	1.5	19.5	1272.7%	3	3
black hickory	14.4	66.9	464.8%	18	38
mockernut hickory	25.4	108.8	429.1%	29	67
southern catalpa	19.4	274.7	1417.3%	2	3
sugarberry	5.4	33.5	617.7%	16	41
hackberry	0.4	6.4	1529.7%	1	5
eastern redbud	0.2	2.5	1019.3%	4	7
flowering dogwood	3.1	15.0	476.6%	23	38
hawthorn	0.4	4.5	1099.2%	6	11
cockspur hawthorn	0.1	1.7	1483.8%	2	2
common persimmon	0.0	0.2	805.0%	4	6
American beech	10.2	76.4	748.6%	7	18
white ash	5.4	30.4	567.4%	23	36
green ash	2.1	11.3	536.5%	11	15
honeylocust	0.3	4.7	1529.7%	1	1
American holly	7.0	29.7	425.8%	27	51
black walnut	0.6	9.7	1529.7%	1	2
sweetgum	109.9	158.6	144.4%	156	840
Osage-orange	1.8	28.0	1529.7%	1	4
southern magnolia	7.0	63.2	905.5%	7	19
sweetbay	4.4	35.6	805.0%	9	32
red mulberry	2.1	15.6	758.5%	6	7
water tupelo	0.1	1.9	1529.7%	1	1
blackgum	31.7	137.6	434.0%	54	117
eastern hophornbeam	10.7	66.7	622.7%	15	44
redbay	0.7	9.1	1221.4%	5	19
water-elm, planertree	0.3	4.0	1529.7%	1	1
sycamore	0.5	7.0	1292.9%	2	3
black cherry	3.2	16.2	509.2%	18	27
wild plum	0.1	1.9	1529.7%	1	1
white oak	54.6	252.4	461.8%	37	91
southern red oak	188.7	447.6	237.2%	99	277
cherrybark oak	74.8	342.8	458.5%	35	80
laurel oak	32.8	289.4	881.4%	14	32
overcup oak	16.5	138.0	834.2%	4	9
blackjack oak	8.7	51.6	590.2%	13	21
swamp chestnut oak	27.4	300.8	1096.8%	5	6
water oak	214.8	435.1	202.6%	109	383
willow oak	72.0	384.5	534.0%	22	121
Shumard oak	9.2	138.8	1516.1%	2	2
post oak	128.1	371.9	290.3%	67	214
black oak	5.0	61.9	1247.4%	3	3
dwarf post oak	0.3	4.2	1529.7%	1	12
dwarf live oak	0.2	2.4	1529.7%	1	1
bluejack oak	0.8	8.3	1053.0%	3	7
black locust	0.2	2.6	1529.7%	1	1
willow	0.4	3.9	1091.6%	2	3
sassafras	1.7	9.6	575.4%	18	28
elm spp.	2.4	27.8	1181.4%	3	9
winged elm	42.5	102.1	240.1%	89	242
American elm	7.6	42.3	555.1%	15	30
cedar elm	0.7	8.0	1076.6%	3	5
Siberian elm	0.7	11.4	1529.7%	1	1
slippery elm	0.5	6.6	1396.0%	3	5
chinaberry	3.0	30.2	1001.9%	4	9
Chinese tallowtree	23.2	146.8	632.4%	18	141
<b>Total</b>	<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>234</b>	<b>5,171</b>
<b>Overall Total</b>	<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>

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Table 7. -- Estimated leaf biomass by land cover type and species group

Land Cover	Class Number	Species	Leaf Biomass (kg/ha)			Number of Plots	Number of Trees	Comments
			Mean	Standard Error	Coefficient of Variation			
FEN	1	Longleaf and slash pines	53.9	296.0	549.3%	66	574	<i>Evergreen Needleleaf Forest</i>
		Loblolly and shortleaf pines	3,364.3	2,475.7	73.6%	719	15,667	
		Other yellow pines	0.9	9.5	1081.4%	8	8	
		Cypress	0.2	6.2	2760.4%	1	2	
		Other eastern softwoods	36.1	316.7	878.5%	48	145	
		Select white oaks	46.9	236.8	505.3%	112	251	
		Select red oaks	19.6	127.9	650.8%	67	112	
		Other white oaks	51.5	162.8	316.0%	183	496	
		Other red oaks	151.6	349.5	230.5%	416	1,370	
		Hickory	18.2	70.9	388.8%	116	202	
		Hard maple	0.3	4.0	1461.3%	7	11	
		Soft maple	9.6	39.7	414.4%	114	252	
		Beech	0.9	12.7	1376.8%	9	11	
		Sweetgum	63.2	123.1	194.8%	453	1,869	
		Tupelo and blackgum	12.8	69.9	547.6%	144	332	
		Ash	4.5	23.3	512.8%	83	138	
		Cottonwood and aspen	0.0	1.1	2760.4%	1	3	
		Basswood	0.0	0.6	2760.4%	1	1	
		Black walnut	1.8	32.1	1745.9%	3	8	
		Other eastern soft hardwoods	44.6	103.6	232.5%	348	968	
Other eastern hard hardwoods	8.6	41.7	483.4%	141	269			
Eastern noncommercial hardwoods	19.5	104.7	536.2%	159	522			
Western woodland hardwoods	0.2	2.6	1697.4%	3	4			
<b>Total</b>			<b>3,909.2</b>	<b>2,518.4</b>	<b>64.4%</b>	<b>762</b>	<b>23,215</b>	
FDC-32	2	Loblolly and shortleaf pines	3.0	6.7	223.6%	1	1	Cold-deciduous Forest, EPA Level III ecoregion 32
		Select red oaks	32.8	73.3	223.6%	1	4	
		Other white oaks	539.2	1,205.6	223.6%	1	3	
		Other red oaks	1,237.2	1,020.3	82.5%	4	21	
		Hickory	115.9	259.3	223.6%	1	2	
		Ash	54.3	103.1	189.9%	2	4	
		Other eastern soft hardwoods	152.1	305.5	200.8%	3	10	
		Other eastern hard hardwoods	93.5	209.0	223.6%	1	2	
		Eastern noncommercial hardwoods	17.5	21.3	121.5%	3	5	
		<b>Total</b>			<b>2,245.4</b>	<b>1,234.9</b>	<b>55.0%</b>	
FDC-33	3	Longleaf and slash pines	1.2	18.0	1452.6%	1	1	Cold-deciduous Forest, EPA Level III ecoregion 33
		Loblolly and shortleaf pines	35.2	195.1	554.9%	12	37	
		Other eastern softwoods	91.7	309.5	337.6%	42	146	
		Select white oaks	1.0	14.2	1452.6%	1	1	
		Select red oaks	55.0	305.6	555.7%	21	47	
		Other white oaks	596.1	852.0	142.9%	132	1,054	
		Other red oaks	614.0	1,177.5	191.8%	135	557	
		Hickory	174.0	440.1	253.0%	80	275	
		Soft maple	0.2	2.4	1166.2%	2	5	
		Sweetgum	59.7	163.8	274.2%	44	254	
		Tupelo and blackgum	11.0	55.7	505.1%	14	38	
		Ash	43.3	111.7	257.8%	62	296	
		Basswood	3.9	34.4	880.6%	4	10	
		Other eastern soft hardwoods	192.3	292.1	151.9%	165	801	
		Other eastern hard hardwoods	28.9	83.8	290.0%	55	107	
		Eastern noncommercial hardwoods	43.2	137.9	318.9%	62	181	
Western woodland hardwoods	0.7	8.0	1081.9%	4	7			
<b>Total</b>			<b>1,951.5</b>	<b>1,607.7</b>	<b>82.4%</b>	<b>211</b>	<b>3,817</b>	
FDC-34	4	Loblolly and shortleaf pines	170.3	386.6	227.0%	11	15	Cold-deciduous Forest, EPA Level III ecoregion 34
		Cypress	66.6	415.7	624.5%	1	9	
		Other eastern softwoods	12.6	78.7	624.5%	1	2	
		Select white oaks	56.3	324.3	575.7%	3	5	
		Select red oaks	62.3	389.1	624.5%	1	4	
		Other white oaks	138.2	582.7	421.7%	6	15	
		Other red oaks	722.3	1,353.5	187.4%	18	145	
		Hickory	229.9	1,060.7	461.4%	6	9	
		Soft maple	9.3	32.2	345.1%	4	10	
		Sweetgum	29.5	66.9	226.7%	12	42	
		Tupelo and blackgum	14.6	54.9	375.3%	5	9	

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	Ash	15.8	38.2	241.2%	12	35	
	Other eastern soft hardwoods	44.1	89.6	203.0%	17	55	
	Other eastern hard hardwoods	11.6	57.0	489.6%	4	11	
	Eastern noncommercial hardwoods	232.3	274.7	118.3%	30	266	
	Western woodland hardwoods	0.6	4.0	624.5%	1	1	
	<b>Total</b>	<b>1,816.4</b>	<b>2,266.8</b>	<b>124.8%</b>	<b>39</b>	<b>633</b>	
<b>FDC-35</b>	<b>5</b>						Cold-deciduous Forest, EPA Level III ecoregion 35
	Longleaf and slash pines	1.5	25.7	1749.5%	3	18	
	Loblolly and shortleaf pines	212.7	403.1	189.5%	224	768	
	Cypress	163.6	1,178.8	720.3%	24	215	
	Other eastern softwoods	18.9	108.0	572.4%	50	93	
	Select white oaks	120.3	510.4	424.3%	114	280	
	Select red oaks	108.4	782.1	721.2%	91	196	
	Other white oaks	239.2	565.9	236.6%	179	719	
	Other red oaks	757.2	1,357.7	179.3%	388	1,947	
	Hickory	82.1	233.8	284.7%	165	349	
	Hard maple	7.1	65.7	924.0%	28	46	
	Soft maple	29.7	128.0	431.4%	129	326	
	Beech	9.4	65.2	695.3%	17	37	
	Sweetgum	144.7	214.6	148.3%	376	1,980	
	Tupelo and blackgum	59.3	250.3	422.2%	137	589	
	Ash	22.4	71.5	318.6%	117	367	
	Cottonwood and aspen	10.1	156.8	1558.3%	5	28	
	Basswood	3.2	32.8	1019.4%	10	23	
	Black walnut	4.8	67.5	1395.3%	5	5	
	Other eastern soft hardwoods	191.7	326.8	170.5%	390	1,879	
	Other eastern hard hardwoods	26.2	80.0	304.8%	163	376	
	Eastern noncommercial hardwoods	69.1	199.0	287.9%	244	1,087	
	Western woodland hardwoods	2.2	24.5	1096.2%	10	26	
	<b>Total</b>	<b>2,283.9</b>	<b>2,369.4</b>	<b>103.7%</b>	<b>574</b>	<b>11,354</b>	
<b>FM</b>	<b>6</b>						Mixed Forest
	Longleaf and slash pines	13.1	114.7	875.0%	9	22	
	Loblolly and shortleaf pines	1,290.2	1,160.4	89.9%	208	1,655	
	Other yellow pines	0.5	7.8	1529.7%	1	1	
	Cypress	6.9	104.9	1529.7%	1	4	
	Other eastern softwoods	40.9	235.2	575.7%	21	80	
	Western redcedar	0.2	2.4	1529.7%	1	1	
	Select white oaks	82.1	393.9	480.0%	40	97	
	Select red oaks	83.9	368.7	439.3%	35	82	
	Other white oaks	144.9	391.4	270.1%	71	235	
	Other red oaks	522.1	777.7	149.0%	164	837	
	Hickory	64.4	229.3	356.3%	57	127	
	Hard maple	2.3	20.6	883.3%	10	14	
	Soft maple	22.1	87.5	395.9%	44	117	
	Beech	10.2	76.4	748.6%	7	18	
	Sweetgum	109.9	158.6	144.4%	156	840	
	Tupelo and blackgum	31.8	137.6	432.3%	55	118	
	Ash	7.5	32.6	437.3%	33	51	
	Black walnut	0.6	9.7	1529.7%	1	2	
	Other eastern soft hardwoods	79.6	157.7	198.1%	136	471	
	Other eastern hard hardwoods	12.7	37.2	293.5%	57	104	
	Eastern noncommercial hardwoods	67.5	321.4	476.0%	63	292	
	Western woodland hardwoods	0.4	3.9	1091.6%	2	3	
	<b>Total</b>	<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>234</b>	<b>5,171</b>	
	<b>Overall Total</b>	<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>	

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Table 8. -- Estimated leaf biomass by forest type and species

<i>Leaf Biomass (kg/ha)</i>								
Forest Type	Class Number	Species	Mean	Standard Error	Coefficient of Variation	Number of Plots	Number of Trees	Comments
L/SL P	1	shortleaf pine	21.5	47.5	220.4%	7	11	<i>Longleaf / Slash Pine</i>
		slash pine	1,247.9	906.4	72.6%	24	403	
		longleaf pine	11.7	24.8	212.3%	6	60	
		loblolly pine	419.7	578.3	137.8%	14	60	
		red maple	5.1	14.9	294.4%	3	13	
		bitternut hickory	0.3	1.7	529.2%	1	2	
		black hickory	5.3	26.8	503.9%	3	5	
		sugarberry	4.5	23.7	529.2%	1	1	
		flowering dogwood	0.8	3.8	452.1%	3	3	
		hawthorn	0.1	0.4	529.2%	1	1	
		green ash	0.0	0.2	529.2%	1	2	
		American holly	0.4	1.9	529.2%	1	2	
		sweetgum	56.1	120.6	214.9%	16	78	
		sweetbay	9.9	48.8	493.1%	2	13	
		blackgum	8.8	28.6	325.0%	6	9	
		redbay	7.5	39.2	522.0%	3	11	
		white oak	15.3	37.5	244.9%	5	8	
		southern red oak	71.8	190.7	265.6%	6	25	
		laurel oak	1.6	7.9	504.4%	2	2	
		blackjack oak	1.5	5.6	381.6%	3	3	
		swamp chestnut oak	0.1	0.6	529.2%	1	1	
		water oak	50.8	172.2	338.7%	6	23	
		willow oak	4.7	24.1	506.7%	2	27	
		post oak	1.7	8.9	512.4%	2	3	
live oak	0.1	0.3	529.2%	1	1			
sassafras	0.4	2.2	529.2%	1	3			
winged elm	1.4	7.2	529.2%	1	3			
American elm	3.5	18.6	529.2%	1	1			
Chinese tallowtree	11.4	56.1	492.9%	5	26			
<b>Total</b>			<b>1,964.0</b>	<b>946.4</b>	<b>48.2%</b>	<b>28</b>	<b>800</b>	
L/SH P	2	eastern redcedar	11.7	86.0	732.9%	40	76	<i>Loblolly / Shortleaf Pine</i>
		shortleaf pine	171.9	637.2	370.7%	226	1,187	
		slash pine	7.6	63.3	837.6%	22	54	
		longleaf pine	0.4	3.6	815.0%	17	57	
		loblolly pine	3,338.8	2,471.4	74.0%	675	14,397	
		Virginia pine	0.9	9.7	1055.4%	8	8	
		baldcypress	0.2	6.4	2694.4%	1	2	
		Florida maple	0.3	4.1	1426.2%	7	11	
		boxelder	0.0	0.1	2694.4%	1	1	
		red maple	9.9	40.6	411.3%	111	239	
		mimosa/silktree	0.0	0.1	2067.4%	2	3	
		pawpaw	0.0	0.1	2694.4%	1	3	
		river birch	1.9	33.0	1695.0%	4	15	
		chittamwood,gum bumelia	0.0	0.4	1902.6%	3	5	
		American hornbeam,musclewood	4.7	74.9	1587.4%	32	76	
		hickory spp.	0.8	14.0	1730.7%	3	4	
		water hickory	0.0	0.0	2694.4%	1	1	
		bitternut hickory	0.8	11.8	1500.8%	5	6	
		pignut hickory	0.6	10.3	1637.5%	7	9	
		shagbark hickory	0.9	18.2	1955.5%	2	3	
		black hickory	8.4	54.8	649.1%	48	80	
		mockernut hickory	7.3	40.5	552.7%	54	92	
		sugarberry	1.4	9.9	727.0%	24	33	
		hackberry	0.1	3.2	2204.5%	2	5	
		eastern redbud	0.1	1.4	1710.3%	6	7	
		flowering dogwood	1.5	8.7	590.3%	55	77	
		hawthorn	0.4	4.7	1274.8%	26	60	
		cockspur hawthorn	0.0	0.3	1940.4%	2	3	
		downy hawthorn	0.0	0.1	2694.4%	1	2	
		common persimmon	1.1	25.3	2389.6%	18	25	
		American beech	1.0	13.0	1343.7%	9	11	
		white ash	4.0	23.4	582.1%	54	93	
green ash	0.7	5.0	722.9%	28	42			
waterlocust	0.0	1.2	2694.4%	1	1			
honeylocust	0.1	2.3	1913.8%	2	7			
American holly	5.9	32.1	546.4%	67	140			

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black walnut	1.9	32.9	1704.1%	3	8
sweetgum	64.0	123.8	193.3%	435	1,788
Osage-orange	0.1	1.1	1959.0%	2	4
magnolia spp.	0.0	0.7	2694.4%	1	1
southern magnolia	1.8	27.5	1519.7%	14	34
sweetbay	0.7	10.2	1385.5%	15	43
red mulberry	0.3	7.2	2155.2%	6	7
water tupelo	0.0	0.9	2694.4%	1	1
blackgum	13.0	71.3	547.9%	138	321
swamp tupelo	0.0	0.0	2694.4%	1	1
eastern hophornbeam	4.8	29.1	604.2%	38	90
redbay	0.3	2.7	1026.6%	22	43
sycamore	0.2	5.1	2160.6%	2	2
cottonwood and poplar spp.	0.0	1.1	2694.4%	1	3
black cherry	1.3	7.5	600.6%	31	35
wild plum	0.1	1.5	1631.0%	4	4
oak spp. -- deciduous	0.0	0.9	2694.4%	1	1
white oak	46.4	239.3	516.1%	102	228
southern red oak	62.2	244.0	392.3%	203	419
cherrybark oak	20.4	130.8	642.1%	66	109
turkey oak	0.0	0.2	2694.4%	1	2
laurel oak	10.5	87.0	830.8%	35	132
overcup oak	0.0	0.7	2694.4%	1	1
blackjack oak	2.9	34.0	1153.6%	25	40
swamp chestnut oak	1.2	30.3	2504.0%	5	7
chinkapin oak	1.0	27.4	2694.4%	1	7
water oak	63.2	186.9	295.5%	225	550
Nuttall oak	0.1	2.0	2694.4%	1	2
willow oak	13.3	114.4	861.8%	47	139
northern red oak	0.2	6.5	2694.4%	1	1
Shumard oak	0.0	0.4	2694.4%	1	2
post oak	53.4	166.3	311.5%	174	480
Delta post oak	0.1	2.8	2694.4%	1	1
black oak	0.9	20.7	2417.6%	4	4
dwarf post oak	0.0	0.2	2694.4%	1	7
bluejack oak	1.4	20.0	1421.7%	11	26
black locust	0.0	0.9	2694.4%	1	1
willow	0.1	2.5	1972.2%	2	3
black willow	0.5	12.0	2552.4%	2	7
white willow	0.0	0.0	2694.4%	1	1
sassafras	1.0	8.2	818.1%	33	58
basswood spp.	0.0	0.6	2694.4%	1	1
elm spp.	0.0	1.2	2466.0%	2	2
winged elm	30.1	79.0	262.9%	223	561
American elm	4.0	35.0	879.0%	34	54
cedar elm	0.6	10.8	1902.4%	3	6
Siberian elm	0.1	2.0	2694.4%	1	1
slippery elm	0.9	11.6	1256.1%	9	21
chinaberry	0.3	6.2	1898.3%	4	6
Chinese tallowtree	8.1	56.5	693.6%	43	204
<b>Total</b>	<b>3,995.3</b>	<b>2,532.7</b>	<b>63.4%</b>	<b>726</b>	<b>22,304</b>
<b>P/J 3</b>					
eastern redcedar	2,369.4	1,962.2	82.8%	8	69
shortleaf pine	98.4	201.6	204.8%	2	7
loblolly pine	207.6	370.6	178.5%	4	5
sugarberry	6.4	17.3	271.6%	2	2
flowering dogwood	0.2	0.6	282.8%	1	1
common persimmon	4.3	12.1	282.8%	1	1
green ash	5.1	14.5	282.8%	1	1
sweetgum	9.2	25.5	278.2%	2	3
red mulberry	1.3	3.8	282.8%	1	4
blackjack oak	63.8	180.4	282.8%	1	1
water oak	32.9	89.0	270.9%	2	3
post oak	42.0	81.4	193.9%	3	3
sassafras	7.7	21.9	282.8%	1	1
winged elm	61.1	100.6	164.6%	5	10
<b>Total</b>	<b>2,909.5</b>	<b>2,144.7</b>	<b>73.7%</b>	<b>8</b>	<b>111</b>
<b>O/P 4</b>					
eastern redcedar	40.9	235.2	575.7%	21	80
shortleaf pine	120.2	287.0	238.8%	73	239
slash pine	13.0	114.7	882.3%	5	18
longleaf pine	0.1	0.8	760.1%	4	4
loblolly pine	1,170.0	1,174.7	100.4%	192	1,416
Virginia pine	0.5	7.8	1529.7%	1	1

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baldcypress	6.9	104.9	1529.7%	1	4			
Florida maple	2.3	20.6	883.3%	10	14			
boxelder	0.1	1.4	1341.2%	2	4			
red maple	22.1	87.5	395.9%	44	117			
mimosa/silktree	0.1	2.0	1529.7%	1	1			
river birch	1.7	25.4	1529.7%	1	1			
chittamwood,gum bumelia	0.0	0.4	1529.7%	1	1			
American hornbeam,musclewood	7.2	37.5	518.0%	20	60			
hickory spp.	0.2	3.0	1529.7%	1	1			
water hickory	11.6	169.6	1467.6%	2	5			
bitternut hickory	0.8	11.5	1500.2%	2	2			
pignut hickory	2.3	24.9	1073.9%	3	5			
pecan	5.9	83.3	1401.1%	2	5			
nutmeg hickory	2.3	34.8	1529.7%	1	1			
shagbark hickory	1.5	19.5	1272.7%	3	3			
black hickory	14.4	66.9	464.8%	18	38			
mockernut hickory	25.4	108.8	429.1%	29	67			
southern catalpa	19.4	274.7	1417.3%	2	3			
sugarberry	5.4	33.5	617.7%	16	41			
hackberry	0.4	6.4	1529.7%	1	5			
eastern redbud	0.2	2.5	1019.3%	4	7			
flowering dogwood	3.1	15.0	476.6%	23	38			
hawthorn	0.4	4.5	1099.2%	6	11			
cockspur hawthorn	0.1	1.7	1483.8%	2	2			
common persimmon	0.0	0.2	805.0%	4	6			
American beech	10.2	76.4	748.6%	7	18			
white ash	5.4	30.4	567.4%	23	36			
green ash	2.1	11.3	536.5%	11	15			
honeylocust	0.3	4.7	1529.7%	1	1			
American holly	7.0	29.7	425.8%	27	51			
black walnut	0.6	9.7	1529.7%	1	2			
sweetgum	109.9	158.6	144.4%	156	840			
Osage-orange	1.8	28.0	1529.7%	1	4			
southern magnolia	7.0	63.2	905.5%	7	19			
sweetbay	4.4	35.6	805.0%	9	32			
red mulberry	2.1	15.6	758.5%	6	7			
water tupelo	0.1	1.9	1529.7%	1	1			
blackgum	31.7	137.6	434.0%	54	117			
eastern hophornbeam	10.7	66.7	622.7%	15	44			
redbay	0.7	9.1	1221.4%	5	19			
water-elm, planertree	0.3	4.0	1529.7%	1	1			
sycamore	0.5	7.0	1292.9%	2	3			
black cherry	3.2	16.2	509.2%	18	27			
wild plum	0.1	1.9	1529.7%	1	1			
white oak	54.6	252.4	461.8%	37	91			
southern red oak	188.7	447.6	237.2%	99	277			
cherrybark oak	74.8	342.8	458.5%	35	80			
laurel oak	32.8	289.4	881.4%	14	32			
overcup oak	16.5	138.0	834.2%	4	9			
blackjack oak	8.7	51.6	590.2%	13	21			
swamp chestnut oak	27.4	300.8	1096.8%	5	6			
water oak	214.8	435.1	202.6%	109	383			
willow oak	72.0	384.5	534.0%	22	121			
Shumard oak	9.2	138.8	1516.1%	2	2			
post oak	128.1	371.9	290.3%	67	214			
black oak	5.0	61.9	1247.4%	3	3			
dwarf post oak	0.3	4.2	1529.7%	1	12			
dwarf live oak	0.2	2.4	1529.7%	1	1			
bluejack oak	0.8	8.3	1053.0%	3	7			
black locust	0.2	2.6	1529.7%	1	1			
willow	0.4	3.9	1091.6%	2	3			
sassafras	1.7	9.6	575.4%	18	28			
elm spp.	2.4	27.8	1181.4%	3	9			
winged elm	42.5	102.1	240.1%	89	242			
American elm	7.6	42.3	555.1%	15	30			
cedar elm	0.7	8.0	1076.6%	3	5			
Siberian elm	0.7	11.4	1529.7%	1	1			
slippery elm	0.5	6.6	1396.0%	3	5			
chinaberry	3.0	30.2	1001.9%	4	9			
Chinese tallowtree	23.2	146.8	632.4%	18	141			
<b>Total</b>	<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>234</b>	<b>5,171</b>			
<b>O/H</b>	<b>5</b>	<b>eastern redcedar</b>	<b>50.5</b>	<b>201.7</b>	<b>399.5%</b>	<b>77</b>	<b>203</b>	<b>Oak / Hickory</b>

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shortleaf pine	34.9	114.4	327.3%	70	178
slash pine	2.2	29.9	1373.0%	4	14
longleaf pine	0.1	1.4	2218.1%	1	5
loblolly pine	189.3	397.4	209.9%	161	540
Florida maple	1.4	13.3	938.2%	13	20
boxelder	1.0	18.8	1965.5%	3	5
red maple	16.8	96.3	573.6%	75	211
Texas buckeye	0.0	0.0	2218.1%	1	1
mimosa/silktree	0.1	1.1	1432.2%	3	6
serviceberry	0.1	2.5	2218.1%	1	1
river birch	2.6	26.9	1047.3%	8	18
chittamwood,gum bumelia	1.8	16.6	915.5%	14	17
American hornbeam,musclewood	5.3	28.7	542.8%	37	120
hickory spp.	6.0	89.5	1488.1%	6	21
water hickory	2.4	45.9	1906.3%	3	7
bitternut hickory	0.5	5.5	1123.0%	6	8
pignut hickory	11.0	98.1	891.5%	12	41
pecan	5.1	86.2	1678.6%	4	8
shellbark hickory	0.4	8.2	2218.1%	1	3
shagbark hickory	1.6	20.0	1280.4%	4	5
black hickory	39.3	150.6	382.9%	68	156
mockernut hickory	36.2	137.4	379.3%	76	171
sugarberry	5.1	27.2	538.5%	41	78
hackberry	0.3	5.5	1826.2%	2	4
eastern redbud	0.3	5.2	1618.3%	5	9
flowering dogwood	2.6	11.8	463.8%	47	72
hawthorn	0.3	2.6	877.1%	15	22
cockspur hawthorn	0.2	3.8	1996.7%	2	3
common persimmon	1.7	14.5	838.1%	20	27
American beech	5.0	50.5	1017.4%	7	15
white ash	9.3	48.3	518.5%	41	82
green ash	4.4	20.7	476.9%	40	74
waterlocust	0.4	9.8	2218.1%	1	3
honeylocust	2.4	26.2	1091.3%	9	18
American holly	8.9	42.4	475.8%	48	120
black walnut	5.0	71.4	1435.6%	4	4
sweetgum	110.5	192.2	174.0%	259	1,384
Osage-orange	6.4	74.5	1160.9%	9	41
southern magnolia	3.3	35.5	1083.6%	11	25
sweetbay	2.3	30.4	1334.5%	5	22
mulberry spp.	0.1	2.1	2218.1%	1	2
red mulberry	2.7	23.0	855.6%	17	23
blackgum	23.5	82.6	351.0%	78	210
swamp tupelo	0.1	1.6	2218.1%	1	2
eastern hophornbeam	14.3	87.7	613.9%	38	126
redbay	0.8	8.0	1051.9%	9	36
sycamore	1.3	18.4	1425.8%	6	9
cherry and plum spp.	0.3	5.7	1854.7%	2	4
black cherry	2.3	13.5	595.3%	28	38
wild plum	0.1	0.9	1603.8%	2	3
oak spp. -- deciduous	0.7	15.9	2185.5%	2	2
white oak	91.9	383.7	417.3%	77	212
southern red oak	234.4	778.4	332.1%	175	510
cherrybark oak	40.5	223.0	550.4%	58	120
laurel oak	36.6	304.7	832.7%	20	76
overcup oak	3.2	56.0	1733.4%	3	6
blackjack oak	25.7	113.4	440.8%	54	116
swamp chestnut oak	1.4	26.4	1867.0%	3	3
water oak	236.4	630.0	266.5%	193	589
Nuttall oak	3.5	61.1	1722.7%	4	6
willow oak	51.2	311.7	608.5%	54	186
Shumard oak	2.9	39.0	1358.4%	5	9
post oak	410.6	715.5	174.2%	239	1,561
Delta post oak	0.2	3.3	1573.4%	2	2
black oak	21.5	232.5	1083.6%	15	36
live oak	6.9	152.3	2218.1%	1	6
dwarf post oak	0.3	6.1	2218.1%	1	1
bluejack oak	7.2	44.2	615.2%	26	66
black locust	0.0	0.1	2218.1%	1	1
willow	0.4	7.3	1794.5%	3	7
peachleaf willow	0.0	1.0	2218.1%	1	1
black willow	0.5	7.8	1525.8%	4	4

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		sassafras	2.7	14.5	535.0%	37	65	
		American basswood	1.0	20.2	2112.7%	2	9	
		Carolina basswood	1.4	17.5	1269.3%	4	7	
		elm spp.	0.9	10.9	1188.2%	5	6	
		winged elm	67.3	135.6	201.6%	239	757	
		American elm	12.5	62.7	500.1%	44	74	
		cedar elm	9.2	72.6	788.6%	19	39	
		Siberian elm	0.2	4.8	2218.1%	1	1	
		slippery elm	2.8	41.9	1498.4%	10	15	
		chinaberry	2.1	20.3	947.2%	8	22	
		Chinese tallowtree	4.5	33.8	758.9%	19	69	
		<b>Total</b>	<b>1,902.9</b>	<b>1,740.2</b>	<b>91.4%</b>	<b>492</b>	<b>8,799</b>	
<b>O/G/C</b>	<b>6</b>	eastern redcedar	14.2	161.8	1138.4%	9	23	Oak / Gum / Cypress
		shortleaf pine	14.6	165.0	1133.5%	6	9	
		loblolly pine	94.2	283.6	301.2%	34	70	
		baldcypress	459.3	1,952.1	425.0%	22	216	
		Florida maple	8.8	81.9	930.1%	9	14	
		boxelder	0.8	9.4	1181.9%	3	4	
		red maple	37.1	147.1	396.9%	51	103	
		mimosa/silktree	0.0	0.0	1417.7%	1	1	
		river birch	13.7	104.5	761.6%	8	34	
		chittamwood,gum bumelia	1.2	10.6	866.8%	4	7	
		American hornbeam,musclewood	25.3	63.7	251.6%	54	164	
		hickory spp.	5.3	49.0	918.3%	5	8	
		water hickory	51.8	299.9	578.7%	29	55	
		bitternut hickory	0.9	8.8	1019.2%	2	3	
		pignut hickory	1.7	14.8	883.5%	3	4	
		pecan	6.8	39.3	574.0%	10	23	
		shagbark hickory	0.2	2.7	1368.8%	2	2	
		black hickory	17.1	136.0	797.4%	7	15	
		mockernut hickory	7.6	60.3	798.4%	7	12	
		sugarberry	26.9	100.8	375.2%	44	106	
		hackberry	1.1	11.1	1021.4%	2	7	
		eastern redbud	0.4	3.6	947.0%	3	5	
		flowering dogwood	0.1	0.7	1262.4%	2	2	
		hawthorn	0.7	4.6	673.8%	12	17	
		cockspur hawthorn	0.3	4.2	1417.7%	1	2	
		common persimmon	2.6	21.8	853.0%	9	15	
		American beech	13.8	76.1	550.2%	9	21	
		white ash	8.2	59.0	716.0%	8	16	
		green ash	41.9	101.3	241.8%	61	299	
		Carolina ash	1.1	10.3	938.6%	5	20	
		waterlocust	1.4	14.6	1015.0%	2	4	
		honeylocust	8.5	50.8	598.5%	11	17	
		American holly	18.6	75.8	408.0%	32	98	
		sweetgum	141.0	216.2	153.4%	124	602	
		Osage-orange	1.9	18.7	965.0%	4	10	
		magnolia spp.	0.4	5.6	1417.7%	1	3	
		southern magnolia	13.8	77.4	559.5%	8	34	
		sweetbay	16.1	83.7	520.3%	12	90	
		red mulberry	3.3	27.1	833.3%	5	7	
		water tupelo	43.9	309.5	704.6%	7	173	
		blackgum	72.7	264.8	364.0%	56	185	
		swamp tupelo	2.8	20.1	721.4%	6	35	
		eastern hophornbeam	15.9	62.9	396.2%	21	49	
		redbay	0.8	5.7	705.6%	7	10	
		water-elm, planertree	3.5	25.6	724.1%	9	39	
		sycamore	0.8	11.0	1417.7%	1	2	
		cherry and plum spp.	0.4	5.5	1230.6%	2	2	
		black cherry	2.2	13.0	602.8%	8	11	
		oak spp. -- deciduous	0.8	11.7	1417.7%	1	1	
		white oak	37.0	174.3	470.6%	18	31	
		southern red oak	37.5	175.0	467.0%	29	47	
		cherrybark oak	237.8	1,261.8	530.6%	35	82	
		laurel oak	273.8	1,049.5	383.3%	28	166	
		overcup oak	254.7	674.9	265.0%	47	150	
		blackjack oak	0.6	8.6	1417.7%	1	1	
		swamp chestnut oak	88.9	619.1	696.2%	17	35	
		water oak	556.7	1,049.5	188.5%	105	444	
		Nuttall oak	5.2	46.5	888.2%	5	10	
		willow oak	429.0	1,082.1	252.2%	68	334	
		Shumard oak	29.4	324.6	1103.4%	5	26	

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post oak		36.4	172.6	474.1%	20	37	
live oak		0.6	9.1	1417.7%	1	1	
black locust		1.4	13.2	927.1%	3	4	
willow		0.5	4.9	1017.5%	2	3	
peachleaf willow		0.4	5.4	1417.7%	1	1	
black willow		1.1	8.4	771.0%	4	5	
sassafras		1.4	9.2	639.3%	8	13	
American basswood		4.2	38.3	904.7%	4	9	
Carolina basswood		1.1	11.8	1038.9%	3	4	
elm spp.		3.1	29.3	944.9%	3	12	
winged elm		33.6	84.2	250.2%	58	147	
American elm		34.7	104.6	301.1%	43	93	
cedar elm		22.7	96.0	422.4%	20	67	
Siberian elm		0.3	4.0	1417.7%	1	1	
slippery elm		16.5	101.1	613.3%	10	68	
chinaberry		2.0	28.1	1417.7%	1	3	
Chinese tallowtree		20.9	88.7	425.1%	32	134	
<b>Total</b>		<b>3,338.2</b>	<b>3,034.4</b>	<b>90.9%</b>	<b>201</b>	<b>4,577</b>	
<b>E/A/C</b>	<b>7</b>						
eastern redcedar		22.7	143.2	631.3%	6	13	Elm / Ash / Cottonwood
loblolly pine		12.5	72.5	581.5%	4	8	
baldcypress		38.5	355.5	922.3%	3	8	
Florida maple		14.8	97.9	661.0%	6	12	
boxelder		31.2	119.8	383.7%	20	80	
red maple		12.1	68.3	566.4%	6	16	
pawpaw		0.0	0.2	1044.0%	1	1	
river birch		71.2	223.8	314.2%	14	68	
chittamwood,gum bumelia		1.7	9.5	549.9%	4	4	
American hornbeam,musclewood		24.2	70.9	292.6%	17	78	
water hickory		36.3	212.1	583.7%	10	24	
bitternut hickory		25.3	147.0	580.4%	5	10	
pignut hickory		2.2	23.0	1028.4%	3	3	
pecan		145.9	699.5	479.5%	14	48	
shagbark hickory		7.2	69.2	966.9%	2	3	
black hickory		5.9	55.4	935.6%	2	3	
mockernut hickory		2.6	19.3	742.3%	2	2	
sugarberry		117.3	192.7	164.2%	59	254	
eastern redbud		0.6	4.4	730.0%	5	6	
flowering dogwood		1.8	11.6	653.5%	5	8	
hawthorn		8.3	45.5	545.3%	13	46	
downy hawthorn		0.4	3.8	1044.0%	1	1	
common persimmon		9.9	55.1	558.3%	8	11	
American beech		1.5	15.4	1044.0%	1	1	
white ash		3.0	22.6	756.7%	3	4	
green ash		49.5	115.1	232.3%	36	202	
Carolina ash		0.0	0.1	1044.0%	1	1	
waterlocust		11.0	80.1	729.8%	4	14	
honeylocust		10.9	54.1	494.6%	8	11	
American holly		7.1	33.7	472.6%	8	17	
black walnut		3.0	31.6	1044.0%	1	1	
sweetgum		117.9	230.4	195.5%	39	253	
Osage-orange		16.2	70.8	437.3%	7	29	
sweetbay		0.4	4.4	1044.0%	1	1	
mulberry spp.		0.3	3.3	1044.0%	1	1	
red mulberry		3.5	20.2	572.1%	5	5	
blackgum		5.1	23.8	466.7%	6	12	
eastern hophornbeam		16.5	70.7	428.4%	11	23	
sourwood		0.3	3.3	1044.0%	1	1	
water-elm, planertree		5.6	39.1	694.0%	3	13	
sycamore		19.0	100.4	528.5%	8	20	
eastern cottonwood		49.2	356.2	724.5%	4	27	
black cherry		1.1	6.8	642.0%	3	6	
chokecherry		0.1	1.1	1044.0%	1	1	
wild plum		0.1	1.5	1044.0%	1	1	
oak spp. -- deciduous		0.1	0.6	1044.0%	1	1	
white oak		0.1	0.8	944.6%	2	2	
southern red oak		21.6	156.9	726.9%	4	7	
cherrybark oak		11.6	62.8	539.1%	9	11	
laurel oak		11.3	112.2	993.4%	2	2	
overcup oak		42.4	220.1	518.6%	9	19	
swamp chestnut oak		1.6	10.3	637.7%	3	3	
water oak		181.3	611.1	337.0%	32	64	
Nuttall oak		1.4	14.3	1044.0%	1	4	

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willow oak		92.2	425.1	461.0%	10	31	
Shumard oak		1.1	7.5	683.7%	3	3	
post oak		4.1	31.3	770.4%	2	3	
black locust		2.9	25.3	873.1%	3	12	
western soapberry		0.5	4.9	1044.0%	1	1	
willow		5.8	40.1	695.4%	4	16	
black willow		50.8	300.1	590.4%	8	62	
sassafras		1.9	19.5	1044.0%	1	1	
American basswood		4.1	42.7	1044.0%	1	4	
winged elm		37.0	105.5	285.3%	30	74	
American elm		56.3	118.6	210.5%	36	86	
cedar elm		108.4	307.9	284.0%	27	142	
slippery elm		28.1	107.2	381.1%	13	23	
chinaberry		7.3	43.6	598.7%	6	11	
Chinese tallowtree		25.7	109.4	425.9%	14	50	
<b>Total</b>		<b>1,611.7</b>	<b>1,479.2</b>	<b>91.8%</b>	<b>109</b>	<b>1,983</b>	
<b>OWH 8</b>							
screwbean mesquite		3.6	0.7	19.1%	2	4	Other Western Hardwoods
<b>Total</b>		<b>3.6</b>	<b>0.7</b>	<b>19.1%</b>	<b>2</b>	<b>4</b>	
<b>EH 9</b>							
southern redcedar		19.7	98.3	500.0%	1	2	Exotic Hardwoods
loblolly pine		105.4	222.6	211.3%	8	16	
red maple		16.6	69.1	415.2%	3	11	
sugarberry		6.3	14.7	233.5%	5	6	
hawthorn		3.5	13.2	371.3%	2	3	
white ash		0.1	0.5	500.0%	1	1	
green ash		6.2	23.1	371.9%	2	3	
American holly		17.9	70.0	391.7%	3	4	
sweetgum		50.5	90.4	179.2%	10	37	
blackgum		29.4	83.3	283.0%	4	19	
sycamore		28.5	91.6	321.6%	3	10	
cottonwood and poplar spp.		16.6	83.1	500.0%	1	1	
black cherry		2.4	11.9	500.0%	1	1	
southern red oak		3.1	12.8	409.5%	2	2	
laurel oak		15.4	41.1	267.0%	4	10	
water oak		72.1	229.0	317.9%	5	25	
willow oak		44.4	161.7	364.5%	3	4	
live oak		8.1	40.4	500.0%	1	5	
elm spp.		1.9	9.4	500.0%	1	1	
winged elm		4.9	24.3	500.0%	1	1	
American elm		11.5	38.6	335.4%	3	5	
chinaberry		0.0	0.1	500.0%	1	1	
Chinese tallowtree		412.4	666.7	161.7%	23	325	
<b>Total</b>		<b>876.9</b>	<b>1,005.5</b>	<b>114.7%</b>	<b>25</b>	<b>493</b>	
<b>Overall Total</b>		<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>	

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Table 9. -- Estimated leaf biomass by forest type and species group

		Leaf Biomass (kg/ha)						
Forest Type	Class Number	Species	Mean	Standard Error	Coefficient of Variation	Number of Plots	Number of Trees	Comments
L/SL P	1	Longleaf and slash pines	1,259.6	892.5	70.9%	28	463	<i>Longleaf / Slash Pine</i>
		Loblolly and shortleaf pines	441.3	592.2	134.2%	15	71	
		Select white oaks	15.4	37.6	243.4%	5	9	
		Other white oaks	1.8	8.9	496.8%	3	4	
		Other red oaks	130.4	240.3	184.2%	14	80	
		Hickory	5.6	26.8	476.0%	3	7	
		Soft maple	5.1	14.9	294.4%	3	13	
		Sweetgum	56.1	120.6	214.9%	16	78	
		Tupelo and blackgum	8.8	28.6	325.0%	6	9	
		Ash	0.0	0.2	529.2%	1	2	
		Other eastern soft hardwoods	27.2	92.9	342.0%	6	32	
		Other eastern hard hardwoods	1.2	4.3	358.0%	3	5	
		Eastern noncommercial hardwoods	11.4	56.0	489.8%	6	27	
		<b>Total</b>		<b>1,964.0</b>	<b>946.4</b>	<b>48.2%</b>	<b>109</b>	
L/SH P	2	Longleaf and slash pines	8.0	63.6	795.7%	38	111	<i>Loblolly / Shortleaf Pine</i>
		Loblolly and shortleaf pines	3,510.7	2,442.2	69.6%	700	15,584	
		Other yellow pines	0.9	9.7	1055.4%	8	8	
		Cypress	0.2	6.4	2694.4%	1	2	
		Other eastern softwoods	11.7	86.0	732.9%	40	76	
		Select white oaks	48.6	242.4	498.8%	107	242	
		Select red oaks	20.6	130.9	634.9%	67	112	
		Other white oaks	53.5	166.3	310.6%	177	489	
		Other red oaks	153.0	354.5	231.6%	399	1,286	
		Hickory	18.9	72.4	382.5%	113	195	
		Hard maple	0.3	4.1	1426.2%	7	11	
		Soft maple	9.9	40.6	411.3%	111	239	
		Beech	1.0	13.0	1343.7%	9	11	
		Sweetgum	64.0	123.8	193.3%	435	1,788	
		Tupelo and blackgum	13.0	71.3	546.7%	138	323	
		Ash	4.7	23.8	505.4%	81	135	
		Cottonwood and aspen	0.0	1.1	2694.4%	1	3	
		Basswood	0.0	0.6	2694.4%	1	1	
		Black walnut	1.9	32.9	1704.1%	3	8	
		Other eastern soft hardwoods	44.9	104.0	231.6%	335	923	
		Other eastern hard hardwoods	8.9	42.7	477.2%	135	258	
		Eastern noncommercial hardwoods	20.1	106.7	532.0%	153	495	
		Western woodland hardwoods	0.2	2.7	1656.7%	3	4	
<b>Total</b>		<b>3,995.3</b>	<b>2,532.7</b>	<b>63.4%</b>	<b>3,062</b>	<b>22,304</b>		
P/J	3	Loblolly and shortleaf pines	306.1	413.0	134.9%	4	12	<i>Pinyon / Juniper</i>
		Other eastern softwoods	2,369.4	1,962.2	82.8%	8	69	
		Other white oaks	42.0	81.4	193.9%	3	3	
		Other red oaks	96.6	188.9	195.4%	3	4	
		Sweetgum	9.2	25.5	278.2%	2	3	
		Ash	5.1	14.5	282.8%	1	1	
		Other eastern soft hardwoods	75.2	106.9	142.1%	7	13	
		Other eastern hard hardwoods	5.9	12.1	206.6%	3	6	
		<b>Total</b>		<b>2,909.5</b>	<b>2,144.7</b>	<b>73.7%</b>	<b>31</b>	
O/P	4	Longleaf and slash pines	13.1	114.7	875.0%	9	22	<i>Oak / Pine</i>
		Loblolly and shortleaf pines	1,290.2	1,160.4	89.9%	208	1,655	
		Other yellow pines	0.5	7.8	1529.7%	1	1	
		Cypress	6.9	104.9	1529.7%	1	4	
		Other eastern softwoods	40.9	235.2	575.7%	21	80	
		Western redcedar	0.2	2.4	1529.7%	1	1	
		Select white oaks	82.1	393.9	480.0%	40	97	
		Select red oaks	83.9	368.7	439.3%	35	82	
		Other white oaks	144.9	391.4	270.1%	71	235	
		Other red oaks	522.1	777.7	149.0%	164	837	
		Hickory	64.4	229.3	356.3%	57	127	
		Hard maple	2.3	20.6	883.3%	10	14	
		Soft maple	22.1	87.5	395.9%	44	117	
		Beech	10.2	76.4	748.6%	7	18	
		Sweetgum	109.9	158.6	144.4%	156	840	
		Tupelo and blackgum	31.8	137.6	432.3%	55	118	
		Ash	7.5	32.6	437.3%	33	51	
		Black walnut	0.6	9.7	1529.7%	1	2	
		Other eastern soft hardwoods	79.6	157.7	198.1%	136	471	
		Other eastern hard hardwoods	12.7	37.2	293.5%	57	104	
		Eastern noncommercial hardwoods	67.5	321.4	476.0%	63	292	
		Western woodland hardwoods	0.4	3.9	1091.6%	2	3	
		<b>Total</b>		<b>2,593.6</b>	<b>2,191.2</b>	<b>84.5%</b>	<b>1,172</b>	
O/H	5	Longleaf and slash pines	2.2	30.1	1341.8%	4	19	<i>Oak / Hickory</i>
		Loblolly and shortleaf pines	224.2	413.3	184.3%	197	718	

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 Estimation of Leaf Biomass for Tree Species in East Texas Using FIA Plot Data

		Other eastern softwoods	50.5	201.7	399.5%	77	203	
		Select white oaks	93.4	384.6	411.9%	79	215	
		Select red oaks	43.4	225.8	520.6%	63	129	
		Other white oaks	421.2	729.3	173.2%	240	1,576	
		Other red oaks	609.3	1,174.5	192.8%	334	1,519	
		Hickory	102.6	262.2	255.7%	162	420	
		Hard maple	1.4	13.3	938.2%	13	20	
		Soft maple	16.8	96.3	573.6%	75	211	
		Beech	5.0	50.5	1017.4%	7	15	
		Sweetgum	110.5	192.2	174.0%	259	1,384	
		Tupelo and blackgum	23.6	82.6	350.0%	78	212	
		Ash	13.7	52.3	382.6%	78	156	
		Basswood	2.3	26.7	1142.4%	6	16	
		Black walnut	5.0	71.4	1435.6%	4	4	
		Other eastern soft hardwoods	114.9	187.8	163.5%	328	1,197	
		Other eastern hard hardwoods	18.8	57.8	307.0%	130	266	
		Eastern noncommercial hardwoods	43.0	131.9	306.8%	148	510	
		Western woodland hardwoods	1.1	17.5	1540.5%	5	9	
		<b>Total</b>	<b>1,902.9</b>	<b>1,740.2</b>	<b>91.4%</b>	<b>2,287</b>	<b>8,799</b>	
<b>O/G/C</b>	<b>6</b>	Loblolly and shortleaf pines	108.7	324.8	298.8%	39	79	<i>Oak / Gum / Cypress</i>
		Cypress	459.3	1,952.1	425.0%	22	216	
		Other eastern softwoods	14.2	161.8	1138.4%	9	23	
		Select white oaks	126.0	638.7	507.0%	34	66	
		Select red oaks	267.2	1,308.9	489.8%	39	108	
		Other white oaks	291.7	683.8	234.4%	66	188	
		Other red oaks	1,302.8	1,706.0	131.0%	161	1,002	
		Hickory	91.4	337.0	368.8%	57	122	
		Hard maple	8.8	81.9	930.1%	9	14	
		Soft maple	37.1	147.1	396.9%	51	103	
		Beech	13.8	76.1	550.2%	9	21	
		Sweetgum	141.0	216.2	153.4%	124	602	
		Tupelo and blackgum	119.5	399.7	334.6%	68	393	
		Ash	51.2	114.5	223.4%	73	335	
		Basswood	5.4	40.0	744.2%	7	13	
		Other eastern soft hardwoods	190.0	279.5	147.1%	142	707	
		Other eastern hard hardwoods	35.8	98.2	274.3%	58	147	
		Eastern noncommercial hardwoods	72.9	151.0	207.0%	107	434	
		Western woodland hardwoods	1.3	12.7	966.8%	3	4	
		<b>Total</b>	<b>3,338.2</b>	<b>3,034.4</b>	<b>90.9%</b>	<b>1,078</b>	<b>4,577</b>	
<b>E/A/C</b>	<b>7</b>	Loblolly and shortleaf pines	12.5	72.5	581.5%	4	8	<i>Elm / Ash / Cottonwood</i>
		Cypress	38.5	355.5	922.3%	3	8	
		Other eastern softwoods	22.7	143.2	631.3%	6	13	
		Select white oaks	1.7	10.3	607.4%	5	5	
		Select red oaks	12.7	63.0	494.6%	12	14	
		Other white oaks	46.5	221.5	476.3%	11	22	
		Other red oaks	307.8	755.4	245.4%	42	108	
		Hickory	225.5	736.3	326.6%	33	93	
		Hard maple	14.8	97.9	661.0%	6	12	
		Soft maple	12.1	68.3	566.4%	6	16	
		Beech	1.5	15.4	1044.0%	1	1	
		Sweetgum	117.9	230.4	195.5%	39	253	
		Tupelo and blackgum	5.1	23.8	466.7%	6	12	
		Ash	52.5	116.1	221.0%	39	207	
		Cottonwood and aspen	49.2	356.2	724.5%	4	27	
		Basswood	4.1	42.7	1044.0%	1	4	
		Black walnut	3.0	31.6	1044.0%	1	1	
		Other eastern soft hardwoods	522.8	543.7	104.0%	97	817	
		Other eastern hard hardwoods	47.4	124.9	263.3%	32	79	
		Eastern noncommercial hardwoods	107.6	174.0	161.7%	60	266	
		Western woodland hardwoods	5.8	40.1	688.7%	5	17	
		<b>Total</b>	<b>1,611.7</b>	<b>1,479.2</b>	<b>91.8%</b>	<b>413</b>	<b>1,983</b>	
<b>OWH</b>	<b>8</b>	Western woodland hardwoods	3.6	0.7	19.1%	2	4	<i>Other Western Hardwoods</i>
		<b>Total</b>	<b>3.6</b>	<b>0.7</b>	<b>19.1%</b>	<b>2</b>	<b>4</b>	
<b>EH</b>	<b>9</b>	Loblolly and shortleaf pines	105.4	222.6	211.3%	8	16	<i>Exotic Hardwoods</i>
		Other eastern softwoods	19.7	98.3	500.0%	1	2	
		Other white oaks	8.1	40.4	500.0%	1	5	
		Other red oaks	135.0	310.9	230.4%	8	41	
		Soft maple	16.6	69.1	415.2%	3	11	
		Sweetgum	50.5	90.4	179.2%	10	37	
		Tupelo and blackgum	29.4	83.3	283.0%	4	19	
		Ash	6.3	23.1	365.6%	3	4	
		Cottonwood and aspen	16.6	83.1	500.0%	1	1	
		Other eastern soft hardwoods	55.4	129.0	232.8%	8	24	
		Other eastern hard hardwoods	17.9	70.0	391.7%	3	4	
		Eastern noncommercial hardwoods	416.0	672.8	161.7%	24	329	
		<b>Total</b>	<b>876.9</b>	<b>1,005.5</b>	<b>114.7%</b>	<b>74</b>	<b>493</b>	
		<b>Overall Total</b>	<b>2,953.7</b>	<b>2,472.9</b>	<b>83.7%</b>	<b>1,825</b>	<b>44,242</b>	