



Idaho* Forest Biomass Supply Estimate by County[†]

Philip S. Cook and Jay O'Laughlin[‡]

January 24, 2011

* Similar estimates are available for other western states, and a final project report cited often herein provides details on methods and assumptions that were used by U.S. Forest Service and University of Idaho researchers to develop these estimates (see Cook and O'Laughlin 2011, in **References Cited** section on page 6).

[†] Estimates for sustainable supplies of forest biomass (i.e., forest health or fire hazard reduction thinning and logging residues) for public and private lands at roadside prices of \$10 to \$40 per dry ton by \$5 increments, plus unused mill residues. This information was originally prepared in December 2009 by the University of Idaho's College of Natural Resources for the Western Governors' Association in fulfillment of Contract #20108-0840.

[‡] Philip S. Cook is Research Associate, Policy Analysis Group, College of Natural Resources, University of Idaho, Moscow; Jay O'Laughlin is Professor of Forestry and Policy Sciences, and Director, Policy Analysis Group, College of Natural Resources, University of Idaho, Moscow. Dr. O'Laughlin is co-chair of the Woody Biomass Utilization and Energy Production Subcommittee for the Western Governors' Forest Health Advisory Committee. He also chairs the Forestry Task Force for the Idaho Strategic Energy Alliance and is a member of its Carbon Issues Task Force.

Contact authors by phone (208) 885-5776 or e-mail at pag@uidaho.edu

Introduction

County-level forest biomass* estimates can help states develop wood bioenergy policies and work with local government officials to plan new wood bioenergy facilities. The U.S. Forest Service continues its efforts to improve the forest biomass supply estimates first made available in the “Billion-ton Supply” report (Perlack et al. 2005), and an update is expected in the near future. Meanwhile the forest biomass estimates herein (**Table 1**) fill an information gap and are likely accurate enough for planning purposes. These estimates could be used to supplement U.S. Forest Service CROP (Coordinated Resource Offering Protocol, see USFS 2011) project assessments of near-term supply plans from public lands where such information exists.

Table 1. Forest biomass supply for western states at roadside prices from \$10 to \$40 per dry ton.

<i>State</i>	<i>\$10</i>	<i>\$15</i>	<i>\$20</i>	<i>\$25</i>	<i>\$30</i>	<i>\$35</i>	<i>\$40</i>
AZ	75,829	145,672	170,010	222,846	230,036	231,423	231,601
CA	1,904,370	2,733,657	3,155,708	3,425,863	3,538,764	3,569,309	3,602,018
CO	100,120	123,366	197,806	228,948	274,847	300,161	312,104
ID	796,410	853,887	992,527	1,208,995	1,338,801	1,395,282	1,429,463
KS	8,720	8,720	8,720	8,720	8,720	8,720	8,720
MT	646,769	729,152	1,030,913	1,272,212	1,417,237	1,477,018	1,533,464
NE	4,971	4,971	4,971	4,971	4,971	4,971	4,971
NV	4,799	7,791	7,791	7,871	7,871	7,943	7,943
NM	78,314	90,450	143,710	213,109	279,713	292,336	301,716
ND	265	265	265	265	265	265	265
OR	1,339,728	1,466,478	1,541,285	1,585,410	1,611,490	1,618,589	1,648,377
SD	95,407	95,407	97,729	103,466	108,020	108,020	108,020
TX	3,022	3,022	3,022	3,022	3,022	3,022	3,022
UT	37,927	42,887	50,736	77,294	98,360	104,654	116,094
WA	1,152,105	1,274,302	1,360,558	1,467,007	1,517,302	1,550,350	1,606,562
WY	83,644	105,728	126,208	156,919	183,664	196,388	197,171
Total	6,332,399	7,685,757	8,891,960	9,986,918	10,623,082	10,868,450	11,111,511

As illustrated in **Table 1**, west-wide forest biomass supply increases from about 6.3 million dry tons per year at a roadside price of \$10 per dry ton to 11.1 million dry tons at a price of \$40 per ton. Five states contribute most of the available forest biomass: California, Oregon, Washington, Montana, and Idaho. The tables in this report, starting on page 7, provide county-level estimates of forest biomass supply for one of the states in **Table 1**.

* Forest biomass is a category of woody biomass that includes three components: [1] forest thinning (removal of small-diameter trees or brush to reduce hazardous fuels and/or improve forest health conditions), [2] forest residues (logging slash), and [3] mill residues.

Limitations

Before using the county-level tables that begin on page 7, one should know what they do not include. These results are based on U.S. Forest Service assumptions and models that in addition to “sustainability screens” excluded lodgepole pine and spruce-fir forest types from fire hazard thinning because stand-replacing fire is considered the norm in these forest types. Furthermore, moist forests west of the Cascade Range in Oregon and Washington received pre-commercial thinning rather than fire hazard reduction thinning. Further explanation is provided in the **Methods** section below, and in our final project report document (Cook and O’Laughlin 2011).

Background

For several years researchers have been developing and refining estimates of forest biomass supply in the western United States. In 2006, the Biomass Task Force for the Western Governors’ Association (WGA) Clean and Diversified Energy project refined a national estimate of biomass supply from the U.S. Departments of Energy and Agriculture “Billion-ton Supply” report (Perlack et al. 2005) to obtain a west-wide estimate (WGA 2006). In 2008, the 2006 west-wide estimate was refined further to provide state-level supply estimates for western states (WGA 2008). These estimates were compiled from county-level estimates that were not published.

Objective

The objective of this project was to further refine the state-level forest biomass supply estimates for western states (WGA 2008) to county-level estimates, similar to published estimates for Idaho (see O’Laughlin 2009), and make county-level data available to interested parties. The county-level estimates of forest biomass supply are in easily-read tabular format and are reported for public and private lands at roadside prices of \$10 to \$40 per dry ton in \$5 increments. This report is one of several made available by the Western Governors’ Association for individual western states.

Methods

Although WGA (2008) estimates of biomass supply were reported at the state level, the model used to derive the estimates was based on county-level data provided from a U.S. Forest Service (USFS) Forest Inventory and Analysis (FIA) project. We obtained the unpublished, county-level data and spreadsheet model from Dr. Ken Skog of the U.S. Forest Service (Skog et al. 2007). Our county-level forest biomass estimates are derived from the same data using the same methods, models, and results from which the state-level estimates reported by the WGA (2008) were developed. We describe those methods briefly in the following paragraphs. Due to numerous complexities and assumptions of the modeling process used to create both the 2008 and 2006 WGA forest biomass supply estimates, the appropriate sections of each of those reports were appended to the final project report so users of this information would know exactly what they had (see Cook and O’Laughlin 2011, Appendices A and B).

The most important of these assumptions is that biomass removal is a byproduct, or secondary output, of other forest management objectives including forest health treatment, fire hazard reduction work, or the treatment of fuels after logging (see Cook and O’Laughlin 2011, Appendix A, p. 9). In the earlier WGA (2006) study, it was assumed that 50% off the removals would be used for higher-valued products and 50% available for use as fuel (see Cook and O’Laughlin 2011, Appendix B, pp. 16-17).

The later WGA (2008) study allocated a higher proportion of removals to higher-valued products (30 million dry tons ÷ 43 million dry tons = 70%; see Cook and O’Laughlin 2011, Appendix A, p. 10). It should be noted that previous estimation efforts by the WGA (2006) established “sustainability screens” that imposed constraints on forest management activities in order to protect soil productivity, wildlife habitat, biodiversity maintenance, and water quality. These screens reduced the “Billion-ton Supply” estimates for western states by about one-third. In addition, lodgepole pine and spruce-fir forest types were excluded from fire hazard thinning because stand-replacing fire is considered to be the norm in such forest types, and moist forests west of the Cascade Range in Oregon and Washington pre-commercially thinned instead of fire hazard reduction treatment (see Cook and O’Laughlin 2011, Appendix A, pp. 10-13).

Skog et al. (2007) used the USFS’s Forest Inventory and Analysis (FIA) and Timber Products Output (TPO) databases to model forest biomass supply for western states.* In general, forest biomass in the model comes from four sources: [1] thinning of timberland with high fire hazard, [2] logging residue left behind after anticipated logging operations for conventional products, [3] general thinning on private woodlands, and [4] unused mill residue.†

Skog et al. (2007) modeled fire hazard thinnings using two tools developed by U.S. Forest Service researchers. First they used the Fuel Treatment Evaluator 3.0 (Skog and Miles 2006), applying several screens and treatments (see Cook and O’Laughlin 2011, Appendix A). Then they used the Fuel Reduction Cost Simulator (Fight et al. 2006) to estimate forest hazard thinning biomass quantities that would be available at various prices. Fire hazard thinning treatments were not applied to national forest timberlands in counties in western Oregon and Washington; instead a pre-commercial thinning treatment was applied.

We used the same supply assumptions that Skog et al. (2007) used in their Base Case estimates (WGA 2008; see Cook and O’Laughlin 2011, Appendix A). Fire hazard thinning

* Western states include: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

† Skog et al. (2007) also included biomass from treatment of pinyon-juniper woodlands. However, it is excluded in our analysis because the price at which it enters the model (\$60 per dry ton) is above our range of analysis (\$10 to \$40 per dry ton).

volumes are harvested over a period of 22 years, while private timberland thinning volumes for various purposes are harvested over a period of 30 years. Stumpage prices for fire hazard thinnings and logging residues are \$0 and \$2 per dry ton on public and private lands, respectively, while the cost of chipping biomass is \$8 per dry ton for both public and private lands. There is no cost (\$0) for unused mill residues.

Difference in modeling method for logging residue. One assumption used in estimating the amount of logging residue in the model is that as thinning to reduce fire hazard increases and general thinning on private land increases (including harvesting biomass for fuels) then the extent of traditional timber harvesting operations will decrease along with associated logging residue. Both the WGA 2008 estimates and our estimates account for this reduction in volume by decreasing logging residue used for fuels by one-quarter unit for each unit increase in biomass for fuels coming from new thinnings (WGA 2008, p. 16). However, the method by which we decrease logging residue is different than the way Skog et al. (2007) did, and our method results in slightly different estimates.

The model used by Skog et al. (2007) model divides biomass from thinnings and logging residue into two land ownership categories: public and private. They computed the reduction in logging residue by subtracting one-quarter unit for each new unit of thinning regardless of land ownership. We compute the reduction for public and private land ownerships separately. Despite the differences in computation, our results aggregated at the state level did not differ by more than 4% from the results attained by Skog et al. (2007).

Dividing “public” categories into federal and state categories. Both fire hazard thinning volumes and logging residue volumes are computed and reported by public and private land categories based on model results by Skog et al. (2007). It was our desire to further divide the public category into federal and state categories. We hypothesize that there are differences in the availability of forest biomass based on land ownership. Federal lands contain a greater proportion of public timberlands and timber volumes in western states than state lands do (Smith et al. 2004). However, federal timberlands tend to be managed under objectives and laws that are more restrictive of biomass removal (e.g., timber harvesting) compared to state trust timberlands that generally are managed for revenue production (Cook and O’Laughlin 2000).

Current forest conditions also may make a difference in biomass availability. Because state trust timberlands tend to be actively managed for revenue production, we hypothesize that there is less need to conduct fire hazard thinning operations on state lands compared to federal lands, which tend to be less actively managed (Koontz 1997). An informal survey of state forest land managers generally confirmed this hypothesis. Both of the above hypotheses led us to attempt to divide the “public” estimates into federal and state categories. Our attempts were unsuccessful for a variety of reasons (see Cook and O’Laughlin 2011, Appendix C); therefore, we report the results herein using only “public” and “private” categories.

References Cited

- Cook, P.S., and J. O'Laughlin. 2000. *Toward Sustainable Forest Management: Part II - The Role and Effects of Timber Harvesting in Idaho*. Report No. 19, Policy Analysis Group, College of Natural Resources, University of Idaho, Moscow. 174 p. Available online at <http://www.cnrhome.uidaho.edu/default.aspx?pid=69353>
- Cook, P.S., and J. O'Laughlin. 2011 (revised). *Forest Biomass Supply Analysis for Western States by County: Final Report to the Western Governors' Association*. Policy Analysis Group, College of Natural Resources, University of Idaho, Moscow. 23 p. Available online at http://www.nationalbiomassutilization.org/western-states_forest-biomass-supply-analysis.pdf
- Fight, R.D., B.R. Hartsough, and P. Noordijk. 2006. *Users Guide for FRCS: Fuel Reduction Cost Simulator Software*. General Technical Report PNW-GTR-668. U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR. 23 p. Available online at <http://www.treeseearch.fs.fed.us/pubs/21806>
- Koontz, T. 1997. Differences between state and federal public forest management: the importance of rules. *Publius: The Journal of Federalism* 27(1): 15-37.
- O'Laughlin, J. 2009. *Wood Bioenergy: Homegrown Baseload Energy for Idaho*. Report of the Forestry Task Force, Idaho Strategic Energy Alliance, Boise, ID. 95 p. + transmittal letter. Available online at http://www.energy.idaho.gov/energyalliance/d/forest_packet.pdf
- Perlack, R.D., L.L. Wright, A.F. Turhollow, R.L. Graham, B.J. Stokes, and D.C. Erbach. 2005. *Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-ton Annual Supply*. Technical Report DOE/GO-102005-2135. U.S. Dept. of Energy, Oak Ridge National Laboratory, Oak Ridge, TN. 59 p. Available online at http://feedstockreview.ornl.gov/pdf/billion_ton_vision.pdf
- Skog, K., et al. 2007. Spreadsheet: Summary WGA 07 July 31 2007 revised 3-2-09.xls. U.S. Dept. of Agriculture, Forest Service, Forest Products Laboratory, Madison, WI. On file with Policy Analysis Group, College of Natural Resources, University of Idaho, Moscow.
- Skog, K., and P.D. Miles. 2006. Fuel Treatment Evaluator 3.0. Techline Issued 06/06, U.S. Dept. of Agriculture, Forest Service, Forest Products Laboratory, Madison, WI. 2 p. Publication is available online at <http://www.fpl.fs.fed.us/documnts/techline/fuel-treatment-evaluator.pdf> however the web-based application tool referenced therein is no longer available.
- Smith, W.B., P.D. Miles, J.S. Vissage, and S.A. Pugh. 2004. *Forest Resources of the United States, 2002*. General Tech. Report NC-241. U.S. Dept. of Agriculture, Forest Service, North Central Research Station, St. Paul, MN. 137 p. http://nrs.fs.fed.us/pubs/gtr/gtr_nc241.pdf
- U.S. Forest Service (USFS). 2011. Coordinated Resource Offering Protocol (CROP) Description, Evaluations, and Results [website]. U.S. Dept. of Agriculture, Forest Service, Washington, D.C. http://www.forestsandrangelands.gov/Woody_Biomass/supply/CROP/index.shtml
- Western Governors' Association (WGA). 2006. *Biomass Task Force Report: Supply Addendum*. Clean and Diversified Energy Initiative, Western Governors' Association, Denver, CO. 50 p. http://www.westgov.org/index.php?option=com_joomdoc&task=doc_download&gid=93&Itemid=
- _____. 2008. *Strategic Assessment of Bioenergy Development in the West: Biomass Resource Assessment and Supply Analysis for the WGA Region*. Transportation Fuels Initiative, Western Governors' Association, Denver, CO. 38 p. Available online at http://www.westgov.org/index.php?option=com_joomdoc&task=doc_download&gid=213&Itemid=

Forest biomass supply at roadside price of **\$10** per dry ton

County	Fire hazard thinning		Private land thinning	Logging residue		Unused mill residues	TOTAL
	Public	Private		Public	Private		
Idaho							
Ada	0	0	0	0	6,714	0	6,714
Adams	6,739	0	1,479	1,835	11,609	0	21,663
Bannock	0	0	0	11	416	0	427
Bear Lake	0	0	841	30	483	0	1,355
Benewah	0	0	1,436	7,938	62,909	264	72,546
Bingham	0	0	0	0	1,110	0	1,110
Blaine	1,404	1,234	0	0	0	0	2,638
Boise	647	34	0	20,460	15,028	0	36,169
Bonner	0	0	1,907	22,026	72,324	170	96,426
Bonneville	130	0	0	451	322	0	904
Boundary	0	0	3,219	14,393	21,618	610	39,840
Butte	0	0	0	229	0	0	229
Camas	0	722	0	69	0	0	791
Canyon	0	0	0	0	223	0	223
Caribou	0	0	0	739	198	0	937
Cassia	0	0	0	459	56	0	515
Clark	0	0	0	0	82	0	82
Clearwater	0	0	0	36,911	81,667	42	118,619
Custer	460	0	0	3,031	0	0	3,491
Elmore	825	21	0	6,908	5,021	0	12,775
Franklin	0	0	0	30	113	0	143
Fremont	0	0	0	240	210	0	450
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	0	1,969	4,394	20,116	36,973	122	63,574
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	0	0	0	9,393	70,924	3,936	84,254
Latah	116	240	0	7,675	52,819	0	60,849
Lemhi	0	0	0	1,343	131	0	1,474
Lewis	0	0	0	0	14,027	0	14,027
Lincoln	0	0	0	0	0	0	0
Madison	0	0	0	0	0	0	0
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	0	0	0	0	0	0	0
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	0	0	0	0	317	0	317
Shoshone	0	0	1,496	21,953	85,496	0	108,946
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0

Valley	2,365	168	359	16,640	11,455	488	31,474
Washington	0	0	0	861	1,652	0	2,513
TOTAL	12,686	4,389	19,058	193,884	560,387	6,005	796,410

Forest biomass supply at roadside price of **\$15** per dry ton

County	Fire hazard thinning		Private land thinning	Logging residue		Unused mill residues	TOTAL
	Public	Private		Public	Private		
Idaho							
Ada	0	0	0	0	6,714	0	6,714
Adams	6,739	0	1,479	1,835	11,609	0	21,663
Bannock	0	0	0	11	416	0	427
Bear Lake	0	0	841	30	483	0	1,355
Benewah	0	0	10,276	7,938	60,699	264	79,176
Bingham	0	0	0	0	1,110	0	1,110
Blaine	1,404	1,234	0	0	0	0	2,638
Boise	6,793	34	0	18,923	15,028	0	40,779
Bonner	0	0	6,784	22,026	71,105	170	100,084
Bonneville	5,446	0	0	0	322	0	5,768
Boundary	0	0	3,219	14,393	21,618	610	39,840
Butte	5,350	0	0	0	0	0	5,350
Camas	876	722	0	0	0	0	1,598
Canyon	0	0	0	0	223	0	223
Caribou	1,576	0	0	345	198	0	2,119
Cassia	0	0	0	459	56	0	515
Clark	0	0	0	0	82	0	82
Clearwater	0	0	0	36,911	81,667	42	118,619
Custer	460	0	0	3,031	0	0	3,491
Elmore	1,031	21	0	6,856	5,021	0	12,929
Franklin	666	0	0	0	113	0	779
Fremont	1,846	0	0	0	210	0	2,056
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	2,176	8,538	4,394	19,572	35,331	122	70,133
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	0	1,151	0	9,393	70,636	3,936	85,117
Latah	116	240	0	7,675	52,819	0	60,849
Lemhi	0	0	0	1,343	131	0	1,474
Lewis	0	988	2,575	0	13,136	0	16,700
Lincoln	0	0	0	0	0	0	0
Madison	0	0	0	0	0	0	0
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	0	0	0	0	0	0	0
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	0	0	0	0	317	0	317
Shoshone	0	0	1,496	21,953	85,496	0	108,946
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0

Valley	2,862	168	359	16,515	11,455	488	31,847
Washington	18,602	0	0	0	1,652	0	20,253
TOTAL	55,943	13,097	35,351	189,353	554,137	6,005	853,887

Forest biomass supply at roadside price of **\$20** per dry ton

County	Fire hazard thinning			Logging residue		Unused mill residues	TOTAL
	Public	Private	Private land thinning	Public	Private		
Idaho							
Ada	0	0	0	0	6,714	0	6,714
Adams	9,471	0	1,479	1,152	11,609	0	23,712
Bannock	4,020	0	0	0	416	0	4,436
Bear Lake	0	0	841	30	483	0	1,355
Benewah	0	10,970	10,276	7,938	57,956	264	87,404
Bingham	0	0	0	0	1,110	0	1,110
Blaine	2,219	1,234	0	0	0	0	3,454
Boise	8,096	52	0	18,598	15,023	0	41,769
Bonner	4,812	851	6,784	20,823	70,892	170	104,332
Bonneville	5,446	0	0	0	322	0	5,768
Boundary	8,703	980	3,219	12,217	21,373	610	47,103
Butte	5,350	0	0	0	0	0	5,350
Camas	876	848	0	0	0	0	1,723
Canyon	0	0	0	0	223	0	223
Caribou	1,576	0	0	345	198	0	2,119
Cassia	0	0	0	459	56	0	515
Clark	20,022	0	0	0	82	0	20,104
Clearwater	11,705	5,925	0	33,984	80,186	42	131,842
Custer	8,675	0	0	977	0	0	9,652
Elmore	1,448	1,535	0	6,752	4,642	0	14,378
Franklin	666	0	0	0	113	0	779
Fremont	7,662	510	0	0	83	0	8,254
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	2,176	8,538	4,394	19,572	35,331	122	70,133
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	30,178	9,814	5,684	1,849	67,050	3,936	118,510
Latah	494	20,238	8,189	7,580	45,772	0	82,274
Lemhi	0	0	0	1,343	131	0	1,474
Lewis	0	988	2,575	0	13,136	0	16,700
Lincoln	0	0	0	0	0	0	0
Madison	1,218	0	0	0	0	0	1,218
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	1,413	0	0	0	0	0	1,413
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	0	0	0	0	317	0	317
Shoshone	2,370	1,164	1,496	21,361	85,205	0	111,596
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0

Valley	7,003	168	359	15,480	11,455	488	34,953
Washington	19,256	0	0	0	1,652	0	20,908
TOTAL	164,858	63,815	49,224	170,604	538,021	6,005	992,527

Forest biomass supply at roadside price of **\$25** per dry ton

County	Fire hazard thinning			Logging residue		Unused mill residues	TOTAL
	Public	Private	Private land thinning	Public	Private		
Idaho							
Ada	0	0	0	0	6,714	0	6,714
Adams	9,471	0	1,479	1,152	11,609	0	23,712
Bannock	4,020	0	0	0	416	0	4,436
Bear Lake	0	0	841	30	483	0	1,355
Benewah	4,332	10,970	10,276	6,855	57,956	264	90,653
Bingham	0	0	0	0	1,110	0	1,110
Blaine	6,809	1,234	0	0	0	0	8,044
Boise	8,096	52	0	18,598	15,023	0	41,769
Bonner	4,812	25,119	6,784	20,823	64,825	170	122,532
Bonneville	5,446	0	0	0	322	0	5,768
Boundary	8,703	980	3,219	12,217	21,373	610	47,103
Butte	6,188	0	0	0	0	0	6,188
Camas	876	848	0	0	0	0	1,723
Canyon	0	0	0	0	223	0	223
Caribou	9,661	0	0	0	198	0	9,859
Cassia	0	0	0	459	56	0	515
Clark	20,379	0	0	0	82	0	20,461
Clearwater	43,459	20,010	0	26,046	76,664	42	166,221
Custer	8,675	0	0	977	0	0	9,652
Elmore	1,448	1,711	0	6,752	4,598	0	14,510
Franklin	666	0	0	0	113	0	779
Fremont	7,662	510	0	0	83	0	8,254
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	64,578	8,538	4,394	3,971	35,331	122	116,935
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	30,178	12,809	5,684	1,849	66,301	3,936	120,757
Latah	9,663	20,842	8,189	5,288	45,621	0	89,603
Lemhi	0	0	0	1,343	131	0	1,474
Lewis	0	988	2,575	0	13,136	0	16,700
Lincoln	0	0	0	0	0	0	0
Madison	2,906	0	0	0	0	0	2,906
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	1,413	0	0	0	0	0	1,413
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	5,752	0	2,359	0	0	0	8,111
Shoshone	74,236	36,101	1,496	3,394	76,470	0	191,698
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0

Valley	7,003	1,029	359	15,480	11,240	488	35,598
Washington	19,633	0	0	0	1,652	0	21,284
TOTAL	366,067	141,740	51,583	125,378	518,222	6,005	1,208,995

Forest biomass supply at roadside price of **\$30** per dry ton

County	Fire hazard thinning			Logging residue		Unused mill residues	TOTAL
	Public	Private	Private land thinning	Public	Private		
Idaho							
Ada	0	0	0	0	6,714	0	6,714
Adams	9,575	0	1,479	1,126	11,609	0	23,790
Bannock	4,020	0	0	0	416	0	4,436
Bear Lake	0	0	841	30	483	0	1,355
Benewah	4,332	10,970	10,276	6,855	57,956	264	90,653
Bingham	0	0	0	0	1,110	0	1,110
Blaine	6,809	1,234	0	0	0	0	8,044
Boise	8,096	1,092	2,034	18,598	14,255	0	44,075
Bonner	101,828	25,119	6,784	0	64,825	170	198,725
Bonneville	5,446	0	0	0	322	0	5,768
Boundary	29,120	2,790	3,219	7,113	20,921	610	63,772
Butte	6,188	0	0	0	0	0	6,188
Camas	2,154	1,410	0	0	0	0	3,564
Canyon	0	0	0	0	223	0	223
Caribou	9,661	0	0	0	198	0	9,859
Cassia	0	0	0	459	56	0	515
Clark	26,414	0	0	0	82	0	26,496
Clearwater	60,010	26,869	0	21,908	74,950	42	183,779
Custer	17,110	0	0	0	0	0	17,110
Elmore	1,448	1,711	0	6,752	4,598	0	14,510
Franklin	666	0	0	0	113	0	779
Fremont	8,140	510	0	0	83	0	8,732
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	64,578	8,538	4,394	3,971	35,331	122	116,935
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	30,178	12,809	5,684	1,849	66,301	3,936	120,757
Latah	9,663	20,842	8,189	5,288	45,621	0	89,603
Lemhi	0	0	0	1,343	131	0	1,474
Lewis	0	988	2,575	0	13,136	0	16,700
Lincoln	0	0	0	0	0	0	0
Madison	2,906	0	0	0	0	0	2,906
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	1,413	0	0	0	0	0	1,413
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	5,752	0	2,359	0	0	0	8,111
Shoshone	74,236	36,101	2,267	3,394	76,278	0	192,276
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0

Valley	7,003	1,029	359	15,480	11,240	488	35,598
Washington	20,245	0	0	0	1,652	0	21,897
TOTAL	516,992	152,012	54,388	94,310	515,094	6,005	1,338,801

Forest biomass supply at roadside price of **\$35** per dry ton

County	Fire hazard thinning			Logging residue		Unused mill residues	TOTAL
	Public	Private	Private land thinning	Public	Private		
Idaho							
Ada	0	0	0	0	6,714	0	6,714
Adams	9,793	0	1,479	1,072	11,609	0	23,953
Bannock	4,020	0	0	0	416	0	4,436
Bear Lake	0	0	841	30	483	0	1,355
Benewah	4,332	13,884	10,276	6,855	57,228	264	92,839
Bingham	0	0	0	0	1,110	0	1,110
Blaine	6,809	1,234	0	0	0	0	8,044
Boise	8,096	1,092	2,034	18,598	14,255	0	44,075
Bonner	101,828	35,258	6,784	0	62,290	170	206,329
Bonneville	8,315	0	0	0	322	0	8,637
Boundary	29,120	2,790	3,219	7,113	20,921	610	63,772
Butte	6,188	0	0	0	0	0	6,188
Camas	2,154	1,410	0	0	0	0	3,564
Canyon	0	0	0	0	223	0	223
Caribou	12,023	1,700	0	0	0	0	13,723
Cassia	0	0	0	459	56	0	515
Clark	27,629	0	0	0	82	0	27,711
Clearwater	60,010	26,869	0	21,908	74,950	42	183,779
Custer	17,110	0	0	0	0	0	17,110
Elmore	1,448	1,711	0	6,752	4,598	0	14,510
Franklin	666	0	0	0	113	0	779
Fremont	8,140	1,625	0	0	0	0	9,765
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	64,578	9,262	4,394	3,971	35,150	122	117,477
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	31,766	15,273	5,684	1,452	65,685	3,936	123,796
Latah	9,663	20,842	8,189	5,288	45,621	0	89,603
Lemhi	3,177	0	0	549	131	0	3,857
Lewis	0	4,092	2,575	0	12,361	0	19,028
Lincoln	0	0	0	0	0	0	0
Madison	2,906	0	0	0	0	0	2,906
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	1,413	0	0	0	0	0	1,413
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	5,752	0	2,359	0	0	0	8,111
Shoshone	97,692	47,828	2,267	0	73,346	0	221,134
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0

Valley	7,003	1,560	359	15,480	11,107	488	35,996
Washington	20,245	0	0	0	1,652	0	21,897
TOTAL	551,877	186,429	54,388	89,670	506,913	6,005	1,395,282

Forest biomass supply at roadside price of **\$40** per dry ton

County	Fire hazard thinning			Logging residue		Unused mill residues	TOTAL
	Public	Private	Private land thinning	Public	Private		
Idaho							
Ada	0	0	0	0	6,714	0	6,714
Adams	9,793	0	1,479	1,072	11,609	0	23,953
Bannock	4,020	0	0	0	416	0	4,436
Bear Lake	0	0	841	30	483	0	1,355
Benewah	6,537	15,007	10,276	6,304	56,947	264	95,334
Bingham	0	0	0	0	1,110	0	1,110
Blaine	6,809	1,234	0	0	0	0	8,044
Boise	8,096	1,092	2,034	18,598	14,255	0	44,075
Bonner	113,514	37,935	6,784	0	61,621	170	220,024
Bonneville	8,315	0	0	0	322	0	8,637
Boundary	38,350	3,118	3,219	4,806	20,839	610	70,941
Butte	6,188	0	0	0	0	0	6,188
Camas	2,154	1,410	0	0	0	0	3,564
Canyon	0	0	0	0	223	0	223
Caribou	12,023	1,700	0	0	0	0	13,723
Cassia	0	0	0	459	56	0	515
Clark	27,629	0	0	0	82	0	27,711
Clearwater	60,010	26,869	0	21,908	74,950	42	183,779
Custer	18,438	0	0	0	0	0	18,438
Elmore	1,448	1,711	0	6,752	4,598	0	14,510
Franklin	666	0	0	0	113	0	779
Fremont	8,140	1,625	0	0	0	0	9,765
Gem	0	0	0	12	0	360	372
Gooding	0	0	0	0	603	13	616
Idaho	64,578	9,262	4,394	3,971	35,150	122	117,477
Jefferson	0	0	0	0	5	0	5
Jerome	0	0	0	0	0	0	0
Kootenai	37,654	15,273	5,684	0	65,685	3,936	128,232
Latah	9,663	22,968	8,189	5,288	45,089	0	91,198
Lemhi	3,177	0	0	549	131	0	3,857
Lewis	0	4,092	2,575	0	12,361	0	19,028
Lincoln	0	0	0	0	0	0	0
Madison	2,906	0	0	0	0	0	2,906
Minidoka	0	0	0	0	0	0	0
Nez Perce	0	0	3,928	0	3,148	0	7,076
Oneida	1,413	0	0	0	0	0	1,413
Owyhee	0	0	0	0	2,654	0	2,654
Payette	0	0	0	0	0	0	0
Power	5,752	0	2,359	0	0	0	8,111
Shoshone	97,692	52,061	2,267	0	72,288	0	224,308
Teton	0	0	0	131	82	0	213
Twin Falls	0	0	0	0	0	0	0

Valley	7,388	1,560	359	15,384	11,107	488	36,285
Washington	20,245	0	0	0	1,652	0	21,897
TOTAL	582,598	196,917	54,388	85,263	504,291	6,005	1,429,463