

### **Regional Volume Models for the 45 Conterminous United States except California, Oregon and Washington<sup>1</sup>**

The appropriate reference document to use for all volume models in all states except California, Oregon and Washington can be found in:

- Woodall, Christopher W.; Heath, Linda S.; Domke, Grant M.; Nichols, Michael C. 2011. Methods and equations for estimating aboveground volume, biomass, and carbon for trees in the U.S. forest inventory, 2010. Gen. Tech. Rep. NRS-88. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 30 p.) [\[LINK\]](#)

Volume equations are identified in Woodall et al (2011) by state and region. For states that are in multiple regions a shape file of the states associated with the Woodall et al 2011 paper is provided on the ARB Forest Resources webpage [\[LINK\]](#). A database identified as “*Woodall 2011 Coefficients Database*” on the ARB Forest Resources webpage [\[LINK\]](#) provides all associated coefficients for gross and sound volume models.

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<sup>1</sup> For species located in California, Oregon and Washington, see the instructions on the ARB webpage for use of the regional volume models and biomass equations. [\[LINK\]](#)

<b>Northern Region</b>		
<p>The Northern Region is subdivided by the Lakes States, Central States, Northeastern States, and Plains States.</p> <p>The Northern Region includes the following states: Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, West Virginia, and Wisconsin.</p>		
<p>Each species has an associated volume model reference, which can be identified by region and by state. Refer to Woodall et al (2011) to obtain the appropriate volume model. Exceptions are noted in the table below and in Woodall et al (2011).</p>		
<b>Region<sup>2</sup></b>	<b>Associated States*</b>	<b>Dominant volume models</b>
All Species except 66	Iowa, Illinois, Indiana, Missouri	Hahn and Hansen (1991)
All Species except 66 and 122	Kansas, North Dakota, Nebraska, South Dakota	Hahn and Hansen (1991)
All species except Species 66	Wisconsin, Michigan, Minnesota	Hahn (1984)
Only Species 66	Iowa, Missouri, Illinois, Indiana, Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, Nebraska, Kansas	Chojnacky (1994)
Only Species 122	Kansas, North Dakota, Nebraska, South Dakota	Myers (1964b)
Northeast All Species	Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Washington DC, West Virginia	Scott (1981)

<sup>2</sup> Species numbers refer to the codes for each species used by FIA

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<b>Southern Region</b>		
The Southern Region includes the following states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia		
<b>Region<sup>3</sup></b>	<b>Associated States*</b>	<b>Dominant volume models</b>
All species except those listed below:	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia	Unpublished  Equation provided in Woodall et al 2011
Only Species 58, 59, 69, 106, 140, 141	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.	Chojnacky (1994)
Only Species 61, 63, 66, 303, 321, 755, 756, 758, 810, 843, 846, 867, 8513	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.	Chojnacky (1988)
Only for Species 122 and 202 <sup>4</sup>	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.	Hann and Bare (1978)

<sup>3</sup> Species numbers refer to the codes for each species used by FIA

<sup>4</sup> The volume models identified for species 122 and 202 are two different equations by the same authors. OPO/APDs must be careful in choosing the correct equation.

<b>Interior West - Rocky Mountain Region</b>		
<p>The Interior West Regions include the following states: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.</p> <p><i>Note: For listings with partial states, a GIS shape file is available from the ARB Forest Resources webpage to help OPO/APDs identify the precise locations in the table below.</i></p>		
Only Species 15, 17, 18, 19, 20, 21, 22, 93, 94, 96, 101, 102, 104, 108, 113, 114, 142, 202, 351, 352, 353, 374, 375, 746.	Arizona, New Mexico, Utah (South-West only)	Hann and Bare (1978)
Only Species 103	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.	Hann and Bare (1978)
Only Species 15, 17, 18, 19, 20, 21, 22, 93, 94, 96, 101, 102, 108, 113, 114, 142, 202, 351, 352, 353, 374, 375, 746	Colorado, Nevada, Utah (North-East only), Wyoming	Myers (1964a), Myers and Edminster (1972), Myers (1964b), Edminster et al. (1982)
Only Species 51, 112, 116, 118, 122, 135, 137, 231	Colorado (East), Montana (East), Wyoming (East)	Myers (1964a), Myers and Edminster (1972), Myers (1964b), Edminster et al. (1982)
Only Species 104	Colorado, Nevada, Wyoming	Myers (1964a), Myers and Edminster (1972), Myers (1964b), Edminster et al. (1982)
Only Species 15, 17, 20, 21, 22, 72, 73, 101, 102, 104, 108, 113, 114, 142, 202	Idaho, Montana	Moisen unpublished (1989)

Only Species 51, 112, 116, 118, 122, 135, 137, 231	Idaho, Montana (West)	Moisen unpublished (1989)
Only Species 117, 119	Arizona (South), Colorado (West), Idaho, Montana, New Mexico (South), Nevada, Wyoming (West)	Moisen unpublished (1989)
Only Species 18, 19, 81, 93, 94, 96, 351, 352, 353, 374, 375, 746	Idaho, Montana	Kemp (1956)
Only Species 242, 263, 264	Arizona (South), Colorado, Idaho, Montana, New Mexico (South), Utah, Wyoming	Kemp (1956)
Only Species 741, 742, 745, 747, 748, 749	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming	Kemp (1956)
Only Species 51, 112, 116, 118, 122, 135, 137, 231	Arizona, New Mexico, Utah (South-West)	Hann and Bare (1978)
Only Species 51, 112, 116, 118, 122, 135, 137, 231	Colorado (West), Nevada, Utah (North-East), Wyoming (West)	Edminster et al (1980)
Only Species 58, 59, 62, 63, 65, 66, 69, 106, 134, 140, 143	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming	Chojnacky (1994)
Only Species 64	Idaho, Montana, Nevada	Chittester and MacLean (1984)
Only Species 68, 130, 136, 313, 361, 362, 404, 461, 462, 492, 544, 547, 552, 602, 606, 732, 823, 826, 901, 972, 974	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming	Unknown
Only Species 133, 475	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming	Chojnacky (1985)
Only Species 322 and 814	Arizona, New Mexico	Chojnacky (1988)
Only Species 756, 757, 758, 803, 810, 829, 843, 846, 847	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.	Chojnacky (1988)

Only Species 322 and 814	Colorado, Idaho, Montana, Nevada, Utah, Wyoming	Chojnacky (1985)
Pacific Northwest	California, Oregon and Washington	Use Regional Volume and Biomass Equations provided on the ARB Forest Resources Webpage (LINK)

