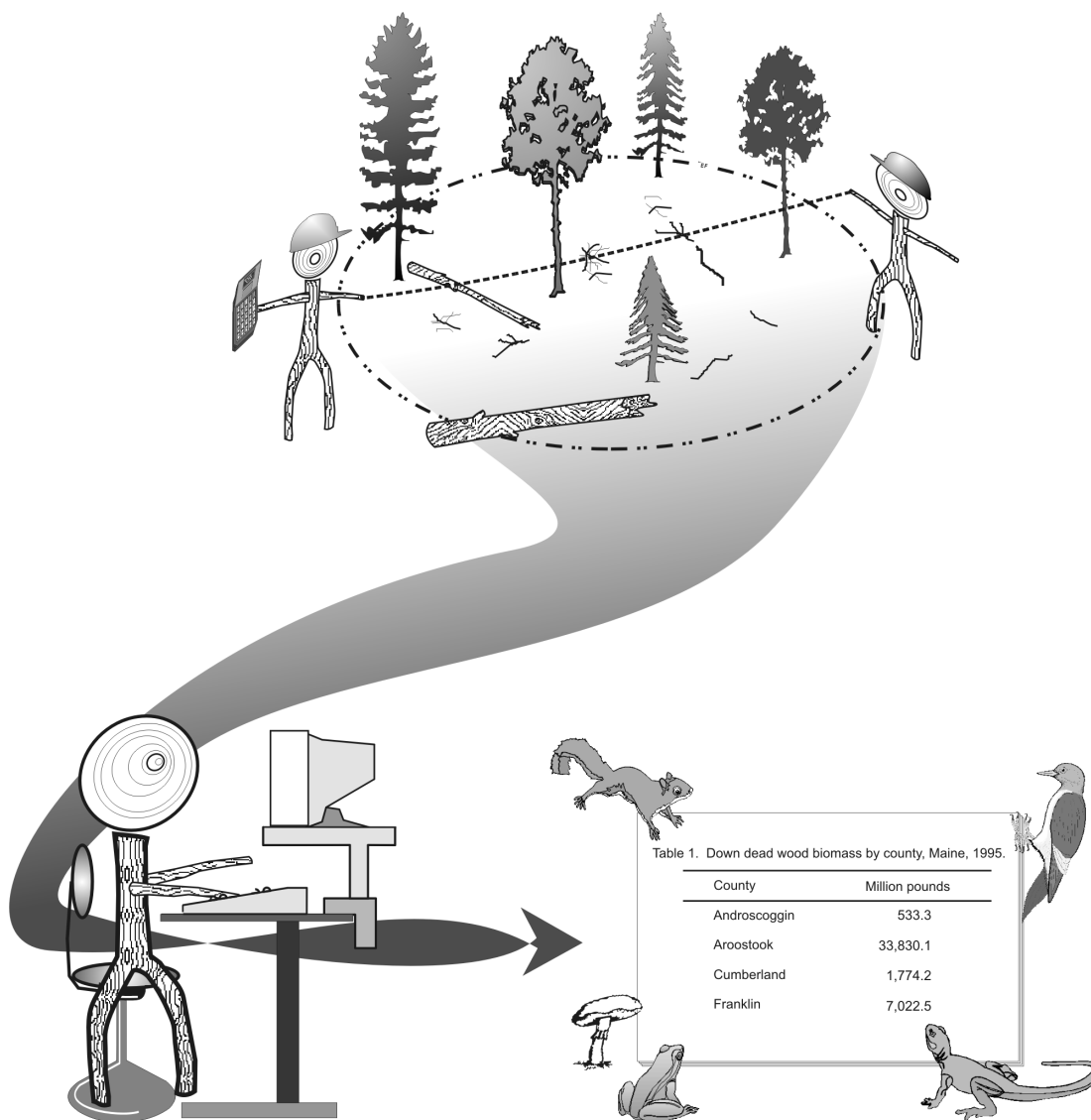




# Down Dead Wood Statistics for Maine Timberlands, 1995

Linda S. Heath  
David C. Chojnacky



## Abstract

Down dead wood (DDW) is important for its role in carbon and nutrient cycling, carbon sequestration, wildfire behavior, plant reproduction, and wildlife habitat. Down dead wood was measured for the first time during a forest survey of Maine by the USDA Forest Service in 1994-1996. Pieces greater than 3 feet long and greater than 3 inches in diameter at point of intersection were measured on line transects located on standard forest inventory plots. Large piles of DDW were sampled using the standard circular plot. Results are presented in 50 tables containing totals and by attributes such as forest type group, owner group, species, and diameter class. This inventory indicates Maine timberlands contain approximately  $7.2 \pm 3\%$  billion cubic feet in DDW pieces, and an additional  $1.6 \pm 28\%$  billion cubic feet in piles of DDW. Together these contain 68.9 billion pounds ( $\pm 8\%$ ) of carbon. This is equivalent to an average of approximately 8,030 pounds of DDW biomass per acre.

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Manuscript received for publication 8 September 2000

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Published by:

USDA FOREST SERVICE  
11 CAMPUS BLVD SUITE 200  
NEWTOWN SQUARE PA 19073-3294

January 2001

For additional copies:

USDA Forest Service  
Publications Distribution  
359 Main Road  
Delaware, OH 43015-8640  
Fax: (740) 368-0152

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## Introduction

Down dead wood (DDW), also known as downed coarse woody debris, is important for its role in carbon and nutrient cycling, carbon sequestration, wildfire behavior, stream channel morphology, plant reproduction, and wildlife habitat. Coarse woody debris and DDW decomposition have been characterized in selected forested areas of the eastern United States (see Gore and Patterson 1986; Mattson and others 1987; Arthur and others 1993; McCarthy and Bailey 1994; Tyrrell and Crow 1994; McGee and others 1999), but this is the first statistical report on the amount and distribution of DDW on a large scale. Large-scale estimates are needed to address regional and national issues such as increasing atmospheric concentrations of carbon dioxide, which may contribute to climate change. The purpose for the DDW inventory is to describe not only total DDW characteristics over the large survey area, but also to describe characteristics of DDW associated with individual plot data.

In this study, we present statistics of DDW on timberlands of the State of Maine. Two types of attributes are estimated, population or subpopulation totals and per area ratios where a total is divided by a corresponding area estimate. Each of these attributes is then categorized by plot-level classifications such as forest type or by piece-level classifications such as decay class. In some cases, attributes are categorized by both classifications. The ratio estimates are computed in lieu of means because sample means are not readily available from this study's double sampling design. Data were collected by the Forest Inventory and Analysis (FIA) of the USDA Forest Service's Northeastern Research Station from 1994 to 1996 in conjunction with the fourth periodic forest survey of Maine. See Griffith and Alerich (1996) for statistics of other forest attributes measured in this survey.

## Sampling Design and Measurement Procedures

### Sampling Design for Forest Inventory Plots

The sampling design for measuring DDW was superimposed on the existing forest inventory sampling design. The design used by FIA is double sampling for stratification (Cochran 1977). Land area is stratified by land use and timber volume class using classified points located on aerial photographs. A random subset of the photo points is selected for field measurement with sample size proportional to stratum size. The theory of sampling with partial replacement was adopted in this fourth successive survey of Maine to select a combination of previously measured and newly established ground plots. Thus, this survey consisted of remeasuring 2,192 ground plots that had been measured in the previous survey, and measuring 809 newly established ground plots.

The sample ground-plot design was a circular, 52.7 foot-radius (1/5-acre) plot. Distinct differences in land use, forest type, stand origin, or stand size on a plot were noted and mapped. The state of these four variables constituted a "condition". If a plot included more than one condition, each was appropriately weighted and handled as a "separate plot"

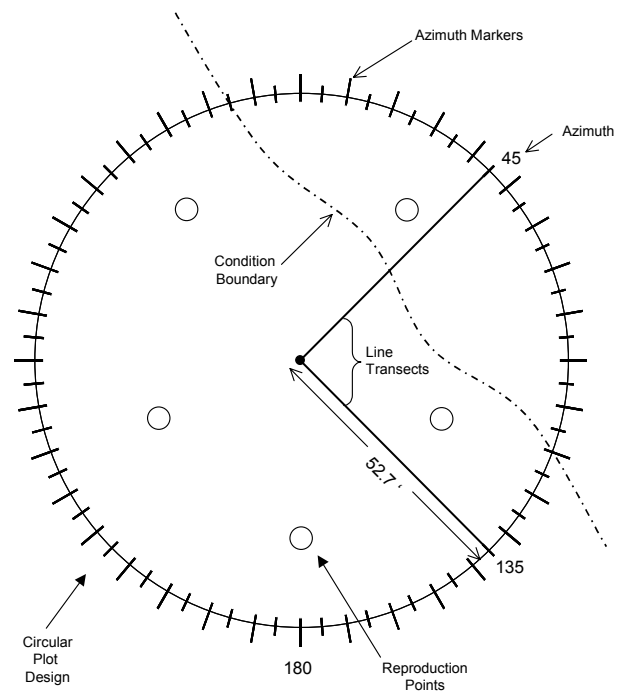


Figure 1.--Line transects and the fixed-radius forest inventory design for the fourth periodic inventory of Maine timberlands, 1994-1996.

in the analysis (Chojnacky 1998). Delineating the boundaries of these conditions determines the area of each condition on the plot. To qualify for measurement, the condition had to be at least 1 acre in size in the general vicinity of the plot. The mapped plot design is discussed in depth in Scott and Bechtold (1995), and further explored with respect to Maine in Arner (1998).

### Sampling Design for DDW Pieces

Pieces of DDW were measured on two line transects emanating from plot center of the circular plot at azimuth 45 and 135 degrees and extending 52.7 feet. The second transect was located at 90 degrees to the first transect to reduce the orientation bias that occurs when all DDW pieces are aligned in the same direction (Van Wagner 1968; Pickford and Hazard 1978; Hazard and Pickford 1986). Measuring at fixed azimuths also can produce orientation bias, but protocols to ensure the elimination of bias would have been difficult to implement in this inventory. Orientation bias usually occurs when physical features are not randomly oriented, such as for parallel mountain ridges or logs that are blown down in the same direction. Considering the scope of this study, it is doubtful that any bias that might result from the use of fixed azimuths would affect the results. The line transects and circular plot design are shown in Figure 1.

Figure 1 also illustrates the effect that identifying conditions have on plot measurements. Because stand conditions are different, each condition present on a plot must have recorded stand data, for example, age of stand, forest type, and stocking. The line transects can be split in different ways

across conditions; in some cases, transects may not cross all conditions on a plot. For example, Figure 1 shows about half of one transect providing information on DDW for one condition, while the other half plus the second transect provide DDW information for the second condition. Qualifying pieces that crossed condition classes were assigned to the condition class that contains the center of the length of the piece. Note that a portion of the qualifying piece may continue off the fixed-area ground plot. The piece is measured as usual because the DDW sample is determined by the line transect rather than the fixed-area ground plot. See Shiver and Borders (1996) for more information on line transect inventories and forest inventory techniques.

The aerial photo points are considered the primary sampling unit (1<sup>st</sup> phase sample of double sample design); the circular plots and the line transects each are considered a secondary sampling unit (2<sup>nd</sup> phase sample). The line transect sampling frame is not the same as the circular plot sampling frame; however, both the circular plots and line transects are providing a sample of similar forest conditions (of the 1<sup>st</sup> phase sample point) as they both emanate from the same plot center. Thus, data collected on the line transects are categorized and compared with data collected on the circular plots.

## Piece Measurements

DDW was tallied if it was intersected by the line intersect plane, was at least 3 inches in diameter, 3 feet long, and in decay class 1, 2, or 3 at the point of intersection. The decay classes and the characteristics of a piece by decay class are described in the Appendix. We measured piece length, diameter at the small and large end and point of intersection, and species. We also assigned a decay class and noted whether the piece was hollow, and if it was on the ground or above the forest floor, i.e., propped above the ground across large rocks.

A minimum transect diameter was chosen for several reasons. We were most interested in larger pieces that might take several years to decompose. We expected a large number of pieces of DDW in smaller diameter classes based on the results of Gore and Patterson (1986) in northern hardwoods in New Hampshire. Setting a minimum diameter allowed us to concentrate our resources on measuring pieces in our target population. Three inches was chosen as the minimum transect diameter because it corresponds to the lower measurement limit for the larger diameter classes (the 100-hour-fuel size class) in a traditional fuels inventory (see Brown 1974) to determine fuels loading for predicting fire behavior.

The small-end diameter was measured to ensure that the 3-inch limit was met; the large-end diameter was measured to provide a more accurate measure of volume (Pickford and Hazard 1978). Any part of the piece less than 3 inches in diameter was not measured; therefore the length of the piece only included that portion 3 inches or larger in diameter. Decay classes were assigned for use in estimating biomass and carbon. We ignored down wood that had lost its structure and shape (decay class 4) at the point of intersection because we were interested in pieces that would retain carbon for

several years. Thus, an additional amount of extremely decayed DDW was not measured in this inventory.

## Sampling and Measuring Piles of DDW

Occasionally, a great amount of DDW is found stacked systematically, for example, in residue piles from harvesting operations, beaver dams, and windrows. Measuring individually stacked pieces would be time consuming and physically impossible, so we measured the entire pile size. A pile included all of the pieces within the pile, regardless of the requirements for an individual piece. We measured all piles located on any portion of the 52.7-foot fixed-radius plot because these were expected to be rare events and because a pile usually is easy to see. A pile was determined to have one of four shapes: half-sphere, half-cylinder, one-half frustrum of a cone, or irregular solid. Length, width, and height were measured for the appropriate shape to estimate pile volume. The minimum measurement requirement for a pile was 1 foot.

## Compiling DDW Data

The first step in data compilation for the double sampling design is expression of sampled attributes on a per-unit-area basis. These are then summed for a population area and multiplied by the population's area to obtain an attribute total. The line transect formulas conveniently yield attribute

$$X = \frac{\pi}{2L} \sum_{i=1}^n \frac{x_i}{l_i}$$

where

- $X$  = per-unit-area population attribute estimate,
- $L$  = length of sample transect line,
- $x_i$  = measured or calculated attribute for piece  $i$ ,
- $l_i$  = length of piece  $i$ , and,
- $n$  = number of pieces intersecting with transect of length  $L$ .

(1)

estimates on a per-unit-area basis (see deVries 1986, p.273): The derivation of this formula is based on the assumption that the pieces are randomly oriented throughout the sample area. Pieces that fall to the ground due to harvesting, particularly cable logging, or because of windstorms often are positioned primarily in one direction. Warren and Olsen (1964) and Van Wagner (1968) suggested that the effect of orientation bias can be reduced by running sample line intersects in more than one direction. For the Maine survey, we chose two transects on each plot. They emanated from a common point and were located at right angles to each other. Both transects on a plot are considered as one line or as one 2<sup>nd</sup> phase sample unit. Sampling with replacement was assumed. A long piece that was crossed by both transects was counted as an independent sample on each transect.

## Volume per Acre

A number of formulas can be used to estimate cubic foot volume depending on the assumption of the shape of the piece. For instance, Van Wagner (1968) discussed a simplified formula/procedure for estimating the volume per

unit area that assumed the piece is shaped like a cylinder. We assumed that the shape of a piece can be characterized by the frustum of a paraboloid, and used Smalian's formula (Husch and others 1972) to estimate volume. This formula requires measurement of both the large- and small-end diameters. If diameter is measured in inches, individual piece volume (in cubic feet) can be calculated as

$$v_i = \frac{\pi}{8B} (d_i^2 + D_i^2) l_i \quad (2)$$

where  
 $v$  = volume of piece  $i$  (cubic feet),  
 $B = 144$ , factor to convert square inches to square feet,  
 $d_i$  = small-end diameter of piece  $i$  (inches),  
 $D_i$  = large-end diameter of piece  $i$  (inches), and  
 $l_i$  = length of piece  $i$  (feet)

Letting the attribute of interest,  $v$ , be volume of the individual piece in cubic feet, the estimator for volume per acre is:

$$V = \frac{A \pi}{2L} \sum_{i=1}^n \frac{v_i}{l_i} \quad (3)$$

where  
 $V$  = volume per acre (cubic feet/acre),  
 $A = 43,560$ , the number of square feet in an acre,  
 $L$  = length of sample transect line (feet),  
 $v_i$  = volume of piece  $i$  (cubic feet),  
 $l_i$  = length of piece  $i$  (feet), and  
 $n$  = number of pieces intersecting with transect of length  $L$ .

## Biomass and Carbon per Acre

Volume is converted to biomass by multiplying by specific gravity (density) of the wood. The estimator for biomass per acre follows directly from volume per acre:

$$B = \frac{A \pi}{2L} \sum_{i=1}^n S_i \left( \frac{v_i}{l_i} \right) \quad (4)$$

where  
 $B$  = biomass per acre (lb dry weight per acre),  
 $S_i$  = density of piece based on species and decay class of piece, and other variables as listed previously.

Specific gravity for individual species was compiled from several sources. Specific gravity decreases as the piece decays, so it was adjusted according to the decay class of a piece. The specific gravity of pieces in decay class 1 are thought to be 90 percent of that of a live tree, 70 percent in decay class 2, and 40% in decay class 3. These estimates are based on results of Arthur and others (1993) and unpublished data collected on the Penobscot Experimental Forest, Bradley, Maine. Since piece diameters also included bark (if any), the specific gravity of the bark was assumed to be the same as that of the wood.

In the Northeast, softwoods are approximately 52.1 percent carbon and hardwoods are 49.8 percent (Birdsey 1992). Carbon estimates were obtained by multiplying biomass by

these two conversion factors. Pieces of unknown type were treated as hardwoods.

## Number of Pieces per Acre

Using deVries' (1986: 258) equation for any attribute:

$$NP = \frac{A \pi}{2L} \sum_{i=1}^n \frac{x_i}{l_i} \quad (5)$$

where  
 $NP$  = number of pieces per acre,  
 $x_i$  = 1 for each piece, and other variables as listed previously

## Piles

Volume of a pile of dead wood was calculated using the equation associated with the appropriate shape (see Little 1982), and multiplied by the estimated proportion of the pile that falls on the plot. Piles of wood naturally contain air spaces because cylindrically shaped objects like logs and branches do not fit together exactly. Piles of increasingly larger pieces contain a higher proportion of air than piles of smaller pieces. Gross pile volume as estimated by shape volume (Little 1982) was multiplied by 0.348 to derive an estimated net volume. For estimates of biomass, the volume calculation was multiplied by the specific gravity for the estimated forest type of the circular plot. Decay class 2 was assumed. Carbon was calculated as 50 percent of biomass.

## Estimating Attributes Across the Landscape

At times we could not collect data on line transects because of deep snow or other factors. Of the 2,659 field plots on timberland measured for standard forest inventory data, only 2,493 were measured for DDW. Figure 2 shows the location of the plots and indicates which plots were not measured for DDW. Although some plots in all counties were not inventoried for DDW, three counties had noticeably fewer DDW plots than the total number inventoried. In Androscoggin, Knox, and York Counties, 61, 89, and 74 percent of the inventory plots were sampled for DDW, respectively. In other counties, more than 90 percent of the field plots were inventoried for DDW. We expect some bias due to missing plots, but the amount should be small for statewide statistics.

If all plots had been measured for DDW, we would have obtained the same acreage values as those calculated by FIA. Because of missing plots, we used a smaller 2<sup>nd</sup> phase sample size in double sampling calculations (Chojnacky 1998). This gave a Maine timberland area of 16.856 million acres, or 81,000 fewer acres than the FIA estimate. However, a 95 percent confidence interval for our estimate is  $\pm 168,000$  acres, so the two estimates are comparable.

DDW was calculated for each plot-condition on a per-acre basis using the length of line associated with each condition in the circular plot. Both transects within the plot were treated like one continuous transect and per-area estimates were calculated (see deVries 1986: 255). The per-unit-area estimates were treated as phase II samples and combined

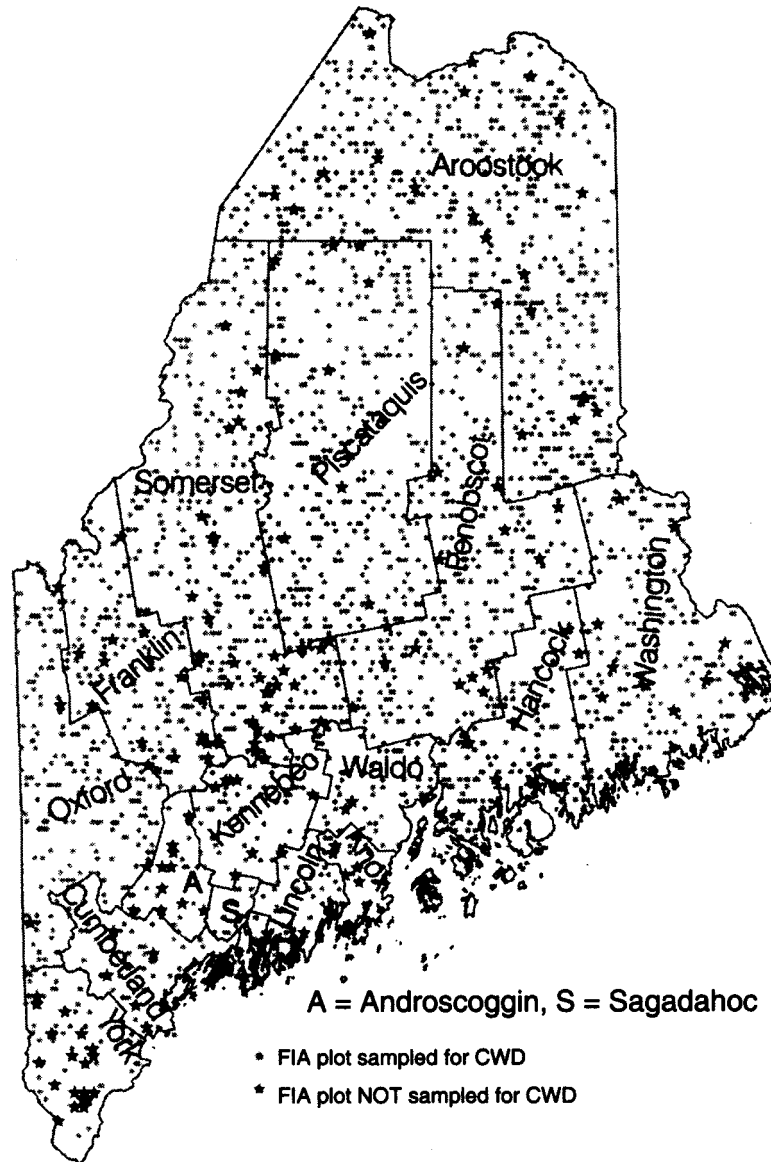


Figure 2.--Location of timberland field plots.

with phase I data in double sampling. Therefore, area and DDW attribute totals, including pile data, were produced according to double sampling for stratification formulas (Cochran 1977). Per-acre estimates were calculated by dividing the total of an attribute by the appropriate area. Area for plot-level estimates was a straightforward double sampling calculation. However, area associated with piece size or species group also was calculated by first partitioning plot area into species or size proportions. Thus, if a plot featured only one piece, the entire area of the plot was assigned to that piece and, therefore, to the species group of that piece.

A drawback with this method is that results cannot indicate the length of sample line on which the DDW estimates are based, so our estimates of precision do not necessarily reflect the length of the sample transects. Instead, the estimate of precision reflects the plot-condition area ratio and not the

transect length per plot-condition. Volume per acre can be calculated for a short transect length on a plot-condition, but the results show only the per-acre estimate, that is, they do not reflect the fact that there was less transect length on one of the plot-conditions.

### Reliability of the Estimates

Statistically-based data are valuable because they can provide an estimate of reliability. In the tables, sampling error, along with sample size, is presented for each estimate.

Sampling error is calculated as the square root of an attribute's variance (from double sampling), divided by the attribute estimate. This calculation is the same as that in FIA's in live tree and acreage tables (see Griffith and Alerich 1996). Sample size is presented as the number of ground

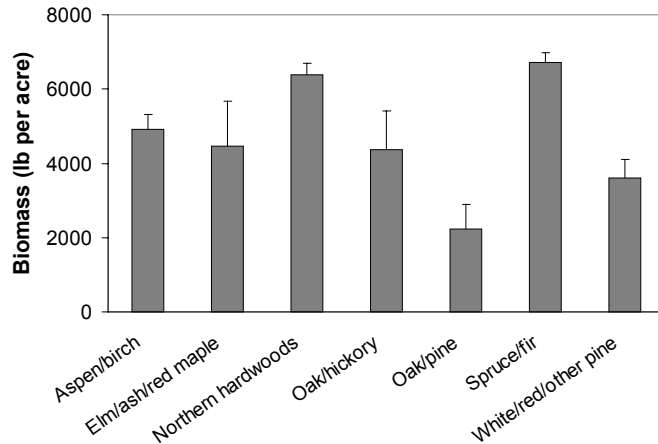


Figure 3.—Biomass per acre (dry weight) by forest type for DDW pieces for Maine timberlands, 1995. Error bars indicate the upper confidence interval for a confidence

plots sampled for DDW, or as the number of pieces. (This sample size is not strictly part of the double sampling calculations; it is included only as point of reference to indicate plots actually measured for an attribute estimate. For per-area-ratio estimates,  $n$  is generally the number of plots in the area estimate of the denominator.) Each ground plot represents a sample size of 1. When a plot has been identified as having more than one condition, each plot-condition is assigned a sample size equal to the ratio of the area of the plot-condition to the area of the entire plot. For example, a condition that occupies half the area in a plot has a sample size of 0.5. If the line transect crossed only part of the conditions on a plot, the DDW estimate only pertained to that portion of the plot, and only that portion of the plot was counted in the sample size. Thus, although 2,493 ground plots were sampled for DDW, some plot-conditions were not sampled for DDW. The sampled portion of the plot has a sample size of less than 1. Because of the missing plot-conditions, the total sample size—rounded to nearest whole plot—is 2,455.

Confidence limits at the 67 percent (1 standard deviation) confidence level can be estimated easily from the information in the tables. The upper limit is equal to the sampling error (in percent) multiplied by the attribute, and then added to the attribute. The lower limit also equals the sampling error multiplied by the attribute, but then is subtracted from the attribute. Limits for other confidence levels can be readily calculated using the information provided along with a table of the critical values of the  $t$  distribution.

The sampling error does not indicate the degree of confidence in the assumptions underlying the measurements or in the calculations used to estimate the attribute ( $X$  in Eq. 1) of each piece or pile. For instance, there is little information on the ratio of air to solid wood in the calculated volume of a pile of dead wood. A small change in this ratio can have a large effect on the amount of wood volume, biomass, or carbon in the piles.

## Using the Tables

Tables 1-50 include estimates of volume, biomass, carbon, and number of DDW pieces and piles. Total DDW is presented in Tables 1-3; totals of DDW pieces estimated for plot-level characteristics are presented in Tables 4-14, and totals estimated for piece-level characteristics are presented in Tables 15-23. Piles are tallied in Tables 24-26. The areas associated with DDW totals are presented in Tables 27-31. Dividing totals by the appropriate area estimate gives per-acre estimates. Some per-acre estimates, including sampling error and sample size, are presented in Tables 32-50.

An example of the use of per-acre data is given in Figure 3. Spruce-fir and northern hardwoods forest types have similar amounts of DDW biomass per acre—more than 6000 lb per acre each. The oak/pine forest type has the least amount of biomass per acre, about 2200 lb per acre.

By necessity, areas for tables featuring species group are calculated differently from those associated with other tables.

Attributes such as forest type or county occur over a particular area of land. Species apply only to individual trees and it is not known how much area an individual tree occupies. We estimate an area to associate with a species group by proportioning the plot area by species group in proportion to the biomass within the respective attribute (either diameter or decay class). Thus, per-acre estimates in the species group tables are based only on areas that featured that type of DDW. In other words, the estimate represents the average amount of DDW that would be expected to occur given that DDW is known to occur in that area. All other tables of per-acre estimates are based on area classifications that may or may not feature DDW.

This inventory indicates there are approximately 7.2 billion cubic feet ( $\pm 3$  percent) of volume in pieces of DDW. An additional 1.6 billion cubic feet (! 28 percent) are in piles of DDW. Together these contain 68.9 billion pounds (! 8%

percent) of carbon. This equates to an average of approximately 8,030 pounds of biomass per acre.

## Acknowledgments

We acknowledge the tremendous effort of the Forest Inventory and Analysis of the Northeastern Research Station in collecting the data and providing advice on their compilation methods. We also acknowledge the contributions of Neil McKay (retired), Karen Waddell, and Tim Max, Pacific Northwest Research Station. We thank Todd Caldwell, Phillip deMaynadier, Richard Dressler, Jeff Gove, Kenneth Lawson, Will McWilliams, Renee O'Brien, Dave Randall, Chip Scott, MaryEllen Wickett, and Sharon Woudenberg for their excellent review comments.

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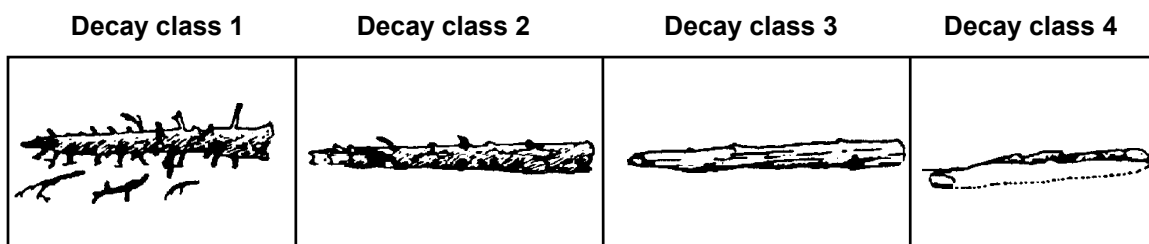
# Appendix

## Decay classes

The following information was adapted from protocols for determining decay class that were developed by Cline and others (1980) and those used by the Pacific Northwest Research Station's Inventory and Monitoring Program.

Do not kick or chop pieces to determine their decay class. First, determine whether a piece is in decay class 4 by probing it with a metal pin (the thumbnail on a diameter tape may work). If the piece is not penetrated through to the center, it is decay class 1, 2, or 3. Should a piece feature more than one decay class, record only the class at the point of intersection.

Use the following illustration and table as a guide. The illustration should be used in conjunction with the table particularly with respect to structural integrity and texture of rotten portions. Do NOT tally pieces in decay class 4 at the point of intersection. When tallying a piece, note that the portion sampled ends where decay class 4 begins.



### Characteristics of downed pieces by decay class

Decay class	Structural integrity	Texture of rotten portions	Bark	Remarks
1	Sound	Intact	Intact	Cannot penetrate wood with thumbnail
2	Sound to somewhat rotten; branch stubs attached firmly	Partly soft	On/off	
3	Rotten, branch stubs pull out	Soft, perhaps even squishy if moist	Sloughing or detached	Thumbnail penetrates easily; bark may be intact
4	None; branch stubs have rotted down	"Doughy" when wet, fluffy	Detached or absent	Bark on certain species may be intact

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Table 1. Total down dead wood (piece and pile) statistics by county, Maine, 1995

County	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb -	Number of piles - Thousands -	Area - Thousand acres -
Androscoggin	29.9 34%, n=16	533.3 39%, n=16	271.2 39%, n=16	0.0 -, n=16	184.5 9.1%, n=16
Aroostook	2,238.4 15%, n=568	33,830.1 21%, n=568	17,203.4 21%, n=568	0.4 39%, n=568	3,744.0 0.9%, n=568
Cumberland	98.4 31%, n=49	1,774.2 34%, n=49	908.1 35%, n=49	0.0 100%, n=49	364.7 4.2%, n=49
Franklin	465.0 9%, n=150	7,022.5 11%, n=150	3,569.9 11%, n=150	0.1 54%, n=150	969.7 2.5%, n=150
Hancock	244.9 14%, n=130	3,768.8 14%, n=130	1,931.6 14%, n=130	0.1 72%, n=130	849.8 2.8%, n=130
Kennebec	221.0 21%, n=51	3,154.6 22%, n=51	1,615.7 22%, n=51	0.1 72%, n=51	404.7 3.2%, n=51
Knox	17.3 31%, n=23	255.3 33%, n=23	130.5 32%, n=23	0.0 100%, n=23	166.9 6.5%, n=23
Lincoln	47.3 25%, n=34	751.4 29%, n=34	383.9 29%, n=34	0.0 100%, n=34	222.4 5.4%, n=34
Oxford	563.8 24%, n=177	10,153.3 31%, n=177	5,130.5 31%, n=177	0.1 71%, n=177	1,205.4 1.7%, n=177

(Continued)

Table 1. (Continued)

County	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb - SE, n	Number of piles - Thousands - SE, n	Area - Thousand acres - SE, n
Penobscot	604.7 14%, n=272	8,352.3 17%, n=272	4,251.6 17%, n=272	0.1 58%, n=272	1,838.3 1.3%, n=272
Piscataquis	1,732.0 8%, n=333	25,065.4 10%, n=333	12,835.5 10%, n=333	0.2 33%, n=333	2,209.8 0.8%, n=333
Sagadahoc	32.7 31%, n=18	518.0 35%, n=18	264.1 35%, n=18	0.0 -, n=18	123.4 6.5%, n=18
Somerset	1,636.2 12%, n=326	24,368.3 17%, n=326	12,408.5 16%, n=326	0.2 44%, n=326	2,343.9 0.8%, n=326
Waldo	122.0 16%, n=55	1,923.3 19%, n=55	982.1 19%, n=55	0.1 49%, n=55	372.9 2.8%, n=55
Washington	731.9 30%, n=207	12,316.2 39%, n=207	6,226.6 38%, n=207	0.2 62%, n=207	1,383.3 1.5%, n=207
York	97.1 26%, n=47	1,573.8 25%, n=47	805.8 25%, n=47	0.0 -, n=47	472.0 5.5%, n=47
Total	8,882.6 6%, n=2455	135,360.9 8%, n=2455	68,918.9 8%, n=2455	1.6 16%, n=2455	16,855.8 0.5%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 2. Total down dead wood (piece and pile) statistics by forest type group, Maine, 1995

Forest type group	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb - SE, n	Number of piles - Thousands - %	Area - Thousand acres - %
Aspen/birch	1,136.0 17%, n=331	17,154.2 21%, n=331	8,692.9 20%, n=331	0.3 39%, n=331	2,252.3 5.1%, n=331
Elm/ash/red maple	102.6 30%, n=45	1,433.0 31%, n=45	734.2 31%, n=45	0.0 -, n=45	320.6 14.9%, n=45
Northern hardwoods	3,847.1 12%, n=936	66,935.3 15%, n=936	33,803.2 15%, n=936	0.8 25%, n=936	6,433.4 2.4%, n=936
Oak/hickory	109.9 28%, n=59	1,964.6 27%, n=59	1,001.2 27%, n=59	0.0 -, n=59	450.3 12.7%, n=59
Oak/pine	21.8 39%, n=19	301.2 37%, n=19	154.0 38%, n=19	0.0 -, n=19	134.4 22.3%, n=19
Spruce/fir	3,338.5 5%, n=891	42,639.4 5%, n=891	21,997.5 5%, n=891	0.4 30%, n=891	5,986.2 2.4%, n=891
White/red/other pine	326.6 14%, n=175	4,933.1 16%, n=175	2,535.9 16%, n=175	0.1 51%, n=175	1,278.6 7.1%, n=175
Total	8,882.6 6%, n=2455	135,360.9 8%, n=2455	68,918.9 8%, n=2455	1.6 16%, n=2455	16,855.8 0.5%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 3. Total down dead wood (piece and pile) statistics by owner group, Maine, 1995

Owner group	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb - SE, n	Number of piles - Thousands -	Area - Thousand acres -
Forest industry	4,291.6 6%, n=1090	61,820.0 7%, n=1090	31,547.7 7%, n=1090	0.5 27%, n=1090	7,328.2 2.1%, n=1090
Other private	4,251.3 11%, n=1272	68,775.1 14%, n=1272	34,923.4 14%, n=1272	1.1 21%, n=1272	8,901.7 1.8%, n=1272
Public	339.7 18%, n=92	4,765.7 20%, n=92	2,447.8 20%, n=92	0.0 100%, n=92	625.9 10.1%, n=92
Total	8,882.6 6%, n=2455	135,360.9 8%, n=2455	68,918.9 8%, n=2455	1.6 16%, n=2455	16,855.8 0.5%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 4. Volume of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)					All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+	
	----- Million cubic feet -----					
	SE, n					
Aspen/birch	346.7 17%, n=107	110.2 24%, n=52	163.6 21%, n=73	137.9 18%, n=68	50.8 26%, n=31	809.1 9%, n=331
Elm/ash/red maple	18.9 58%, n=14	33.6 36%, n=16	25.6 83%, n=10	23.3 62%, n=4	1.2 -, n=1	102.6 30%, n=45
Northern hardwoods	402.3 14%, n=127	543.9 12%, n=180	942.5 9%, n=343	614.9 11%, n=225	203.5 19%, n=61	2,707.1 5%, n=936
Oak/hickory	0.0 -, n=0	51.2 49%, n=14	28.5 50%, n=22	15.9 35%, n=17	14.4 69%, n=6	109.9 28%, n=59
Oak/pine	2.0 72%, n=3	0.0 -, n=0	2.6 74%, n=3	10.5 52%, n=10	6.7 91%, n=3	21.8 39%, n=19
Spruce/fir	725.6 11%, n=160	559.5 13%, n=161	777.5 10%, n=220	598.8 10%, n=197	513.4 12%, n=153	3,174.9 4%, n=891
White/red/other pine	4.4 74%, n=3	33.6 32%, n=21	76.7 24%, n=42	107 31%, n=55	84.6 22%, n=54	306.3 14%, n=175
Total	1,499.9 7%, n=414	1,332.0 8%, n=444	2,016.8 6%, n=712	1,508.4 6%, n=575	874.6 9%, n=309	7,231.7 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 5. Volume of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			All owners
	Forest industry	Other private	Public	
	----- Million cubic feet ----- SE, n			
Aspen/birch	391.8 15%, n=120	395.2 13%, n=194	22.1 40%, n=17	809.1 9%, n=331
Elm/ash/red maple	24.7 52%, n=10	44.0 28%, n=32	33.9 73%, n=3	102.6 30%, n=45
Northern hardwoods	1,516.1 7%, n=469	1,070.9 8%, n=439	120.1 33%, n=28	2,707.1 5%, n=936
Oak/hickory	0.3 100%, n=2	108.8 28%, n=54	0.9 100%, n=3	109.9 28%, n=59
Oak/pine	0.0 -, n=1	21.8 39%, n=17	0.0 -, n=1	21.8 39%, n=19
Spruce/fir	1,832.3 6%, n=453	1,213.0 8%, n=402	129.6 24%, n=36	3,174.9 4%, n=891
White/red/other pine	74.8 21%, n=36	223.4 18%, n=135	8.1 72%, n=4	306.3 14%, n=175
Total	3,840.0 4%, n=1090	3,077.1 4%, n=1272	314.6 18%, n=92	7,231.7 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 6. Number of pieces of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)					All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+	
	----- Million pieces -----					
	SE, n					
Aspen/birch	183.2 14%, n=107	47.5 24%, n=52	82.1 19%, n=73	64.3 18%, n=68	28.8 23%, n=31	405.8 8%, n=331
Elm/ash/red maple	7.7 53%, n=14	18.5 31%, n=16	5.7 51%, n=10	5.8 52%, n=4	0.4 -, n=1	38.1 21%, n=45
Northern hardwoods	232.2 17%, n=127	236.6 11%, n=180	374.8 8%, n=343	204.4 10%, n=225	68.8 17%, n=61	1,116.7 5%, n=936
Oak/hickory	0.0 -, n=0	24.4 42%, n=14	12.2 38%, n=22	10.4 40%, n=17	4.1 68%, n=6	51.2 23%, n=59
Oak/pine	2.0 69%, n=3	0.0 -, n=0	1.1 85%, n=3	8.2 44%, n=10	6.7 83%, n=3	18 38%, n=19
Spruce/fir	340.9 11%, n=160	208 12%, n=161	327.8 10%, n=220	195.5 10%, n=197	187.3 11%, n=153	1,259.5 4%, n=891
White/red/other pine	3.6 80%, n=3	19.9 31%, n=21	37.0 21%, n=42	58.6 22%, n=55	33.9 20%, n=54	153.1 12%, n=175
Total	769.6 8%, n=414	554.9 7%, n=444	840.7 5%, n=712	547.3 6%, n=575	330.0 8%, n=309	3,042.5 2%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 7. Number of pieces of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			All owners
	Forest industry	Other private	Public	
	----- Million pieces ----- SE, n			
Aspen/birch	178.0 13%, n=120	208.5 12%, n=194	19.3 36%, n=17	405.8 8%, n=331
Elm/ash/red maple	9.3 49%, n=10	24.8 25%, n=32	4.1 72%, n=3	38.1 21%, n=45
Northern hardwoods	591.5 8%, n=469	490.6 7%, n=439	34.6 28%, n=28	1,116.7 5%, n=936
Oak/hickory	0.2 100%, n=2	50.2 23%, n=54	0.8 100%, n=3	51.2 23%, n=59
Oak/pine	0.0 -, n=1	18.0 38%, n=17	0.0 -, n=1	18.0 38%, n=19
Spruce/fir	701.2 6%, n=453	513.7 8%, n=402	44.6 26%, n=36	1,259.5 4%, n=891
White/red/other pine	30.2 21%, n=36	119.3 14%, n=135	3.6 60%, n=4	153.1 12%, n=175
Total	1,510.3 4%, n=1090	1,425.1 4%, n=1272	107.1 16%, n=92	3,042.5 2%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 8. Quadratic mean large-end diameter of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)					All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+	
	----- Inches -----					
	SE, n					
Aspen/birch	6.4 9%, n=107	6.2 10%, n=52	6.1 8%, n=73	6.6 12%, n=68	5.5 13%, n=31	6.3 5%, n=331
Elm/ash/red maple	6.9 11%, n=14	6.1 17%, n=16	7.3 25%, n=10	8.2 19%, n=4	6.5 -, n=1	6.8 11%, n=45
Northern hardwoods	6.3 6%, n=127	6.9 7%, n=180	6.9 4%, n=343	7.1 6%, n=225	7.0 10%, n=61	6.8 3%, n=936
Oak/hickory	0.0 -, n=0	6.4 12%, n=14	6.5 19%, n=22	5.2 10%, n=17	9.8 19%, n=6	6.5 12%, n=59
Oak/pine	4.8 18%, n=3	0.0 -, n=0	6.4 14%, n=3	5.4 28%, n=10	6.3 10%, n=3	5.7 16%, n=19
Spruce/fir	6.6 6%, n=160	6.6 6%, n=161	6.6 5%, n=220	7.2 6%, n=197	6.6 5%, n=153	6.7 3%, n=891
White/red/other pine	5.7 42%, n=3	5.8 15%, n=21	6.0 11%, n=42	5.7 12%, n=55	6.5 14%, n=54	6.0 7%, n=175
Total	6.5 4%, n=414	6.6 4%, n=444	6.6 3%, n=712	6.9 4%, n=575	6.7 4%, n=309	6.6 2%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 9. Quadratic mean large-end diameter of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			Inches SE, n	All owners
	Forest industry	Other private	Public		
Aspen/birch	6.4 7%, n=120	6.3 8%, n=194	5.4 15%, n=17	6.3 5%, n=331	6.3 5%, n=331
Elm/ash/red maple	7.1 8%, n=10	6.2 13%, n=32	9.5 8%, n=3	6.8 11%, n=45	6.8 11%, n=45
Northern hardwoods	6.9 4%, n=469	6.6 5%, n=439	7.2 14%, n=28	6.8 3%, n=936	6.8 3%, n=936
Oak/hickory	4.0 0%, n=2	6.6 12%, n=54	5.7 0%, n=3	6.5 12%, n=59	6.5 12%, n=59
Oak/pine	0.0 -, n=1	5.7 16%, n=17	0.0 -, n=1	5.7 16%, n=19	5.7 16%, n=19
Spruce/fir	6.8 4%, n=453	6.6 4%, n=402	6.8 12%, n=36	6.7 3%, n=891	6.7 3%, n=891
White/red/other pine	6.5 9%, n=36	5.8 8%, n=135	7.1 40%, n=4	6.0 7%, n=175	6.0 7%, n=175
Total	6.8 2%, n=1090	6.5 3%, n=1272	6.8 8%, n=92	6.6 2%, n=2455	6.6 2%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 10. Biomass (dry weight) of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)					All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+	
	----- Million pounds -----					
	SE, n					
Aspen/birch	4,971.9 17%, n=107	1,445.7 23%, n=52	2,098.7 20%, n=73	1,867 18%, n=68	706.3 26%, n=31	11,089.5 10%, n=331
Elm/ash/red maple	316.5 61%, n=14	447.1 37%, n=16	369.7 85%, n=10	276.3 64%, n=4	23.4 -, n=1	1,433.0 31%, n=45
Northern hardwoods	6,391.8 15%, n=127	8,313.8 13%, n=180	13,691.4 9%, n=343	9,171.4 11%, n=225	3,491.4 22%, n=61	41,059.7 5%, n=936
Oak/hickory	0.0 -, n=0	860.8 45%, n=14	561.2 51%, n=22	269.9 37%, n=17	272.6 77%, n=6	1,964.6 27%, n=59
Oak/pine	30.3 67%, n=3	0.0 -, n=0	45.3 78%, n=3	152.5 54%, n=10	73.1 90%, n=3	301.2 37%, n=19
Spruce/fir	9,643.2 11%, n=160	7,218.9 13%, n=161	9,585.6 10%, n=220	7,514.5 11%, n=197	6,185.9 12%, n=153	40,148.1 5%, n=891
White/red/other pine	96.1 79%, n=3	442.2 31%, n=21	1,098.5 25%, n=42	1,764.3 33%, n=55	1,202.7 23%, n=54	4,603.9 15%, n=175
Total	21,449.8 8%, n=414	18,728.5 8%, n=444	27,450.5 6%, n=712	21,015.9 7%, n=575	11,955.4 9%, n=309	100,600.0 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 11. Biomass (dry weight) of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			All owners
	Forest industry	Other private	Public	
	----- Million pounds ----- SE, n			
Aspen/birch	5,230.2 15%, n=120	5,566.3 13%, n=194	293.1 39%, n=17	11,089.5 10%, n=331
Elm/ash/red maple	376.4 56%, n=10	580.7 29%, n=32	476.0 74%, n=3	1,433.0 31%, n=45
Northern hardwoods	23,070.0 7%, n=469	16,314.2 8%, n=439	1,675.6 29%, n=28	41,059.7 5%, n=936
Oak/hickory	4.6 100%, n=2	1,946.7 27%, n=54	13.2 100%, n=3	1,964.6 27%, n=59
Oak/pine	0.0 -, n=1	301.2 37%, n=17	0.0 -, n=1	301.2 37%, n=19
Spruce/fir	22,645.8 7%, n=453	15,914.5 8%, n=402	1,587.8 25%, n=36	40,148.1 5%, n=891
White/red/other pine	977.9 21%, n=36	3,516.3 19%, n=135	109.7 75%, n=4	4,603.9 15%, n=175
Total	52,304.8 4%, n=1090	44,139.9 5%, n=1272	4,155.4 18%, n=92	100,600.0 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 12. Biomass (dry weight) of down dead wood by forest type group, owner group, and decay class, Maine, 1995<sup>a</sup>

Forest type group	Owner group	Plots with no DDW	Decay class				All classes
			1	2	3		
-- Number --			Million pounds SE, n				
Aspen/birch	Forest industry	23	1,004.2 31%, n=20	2,286.9 16%, n=63	1,939.1 17%, n=77	5,230.2 15%, n=120	
	Other private	50	722.0 25%, n=25	3,000.9 16%, n=89	1,843.5 15%, n=103	5,566.3 13%, n=194	
	Public	6	72.8 76%, n=3	109.8 54%, n=7	110.5 45%, n=9	293.1 39%, n=17	
Elm/ash/red maple	Forest industry	3	0.0 -, n=0	272.8 69%, n=5	103.6 82%, n=3	376.4 56%, n=10	
	Other private	10	144.4 60%, n=4	158.7 31%, n=13	277.5 33%, n=16	580.7 29%, n=32	
	Public	1	135.8 100%, n=1	179.6 82%, n=2	160.6 80%, n=2	476.0 74%, n=3	
Northern hardwoods	Forest industry	91	4,628.8 15%, n=102	10,098 10%, n=230	8,343.3 7%, n=289	23,070.0 7%, n=469	
	Other private	100	2,982.0 17%, n=84	7,614.6 13%, n=203	5,717.6 10%, n=226	16,314.2 8%, n=439	
	Public	6	363.2 51%, n=9	614.6 38%, n=14	697.8 45%, n=11	1,675.6 29%, n=28	

(Continued)

Table 12. (Continued)

Forest type group	Owner group	Plots with no DDW	Decay class				All classes
			1	2	3		
-- Number --			Million pounds SE, n				
Oak/hickory	Forest industry	1	0.0 -%, n=0	4.6 100%, n=1	0.0 -%, n=0	4.6 100%, n=2	
	Other private	19	414.1 38%, n=13	1,202.2 32%, n=23	330.4 30%, n=19	1,946.7 27%, n=54	
	Public	2	0.0 -%, n=0	13.2 100%, n=1	0.0 -%, n=0	13.2 100%, n=3	
Oak/pine	Forest industry	1	0.0 -%, n=0	0.0 -%, n=0	0.0 -%, n=0	0.0 -%, n=1	
	Other private	2	19.1 59%, n=3	190.1 49%, n=7	92.0 42%, n=8	301.2 37%, n=17	
	Public	1	0.0 -%, n=0	0.0 -%, n=0	0.0 -%, n=0	0.0 -%, n=1	
Spruce/fir	Forest industry	58	2,998.0 15%, n=81	10,527.2 9%, n=262	9,120.7 7%, n=330	22,645.8 7%, n=453	
	Other private	102	3,638.3 14%, n=82	6,984.3 11%, n=188	5,291.9 9%, n=233	15,914.5 8%, n=402	
	Public	7	234.4 55%, n=5	774.6 28%, n=20	578.8 26%, n=21	1,587.8 25%, n=36	

(Continued)

Table 12. (Continued)

Forest type group	Owner group	Plots with no DDW	Decay class				All classes
			1	2	3		
		-- Number --	----- Million pounds -----				
			SE, n				
White/red/other pine	Forest industry	5	99.2 44%, n=7	435.5 29%, n=14	443.2 28%, n=23	977.9 21%, n=36	
	Other private	49	1,158.8 45%, n=24	1,938.0 19%, n=64	419.5 22%, n=42	3,516.3 19%, n=135	
	Public	1	16.5 100%, n=1	72.1 77%, n=2	21.1 65%, n=3	109.7 75%, n=4	
All	Forest industry	182	8,730.1 10%, n=209	23,624.9 6%, n=575	19,949.8 5%, n=722	52,304.8 4%, n=1090	
	Other private	332	9,078.7 10%, n=234	21,088.8 7%, n=587	13,972.4 6%, n=647	44,139.9 5%, n=1272	
	Public	24	822.7 33%, n=19	1,764.0 20%, n=46	1,568.7 24%, n=46	4,155.4 18%, n=92	
	Total	538	18,631.5 7%, n=462	46,477.7 4%, n=1207	35,490.9 3%, n=1415	100,600.0 3%, n=2455	

<sup>a</sup> This table is a plot-level (forest type group, owner group) – species-level (decay class) combination; it is listed as a plot-level classification for convenience. Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 13. Carbon of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)					All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+	
	----- Million pounds -----					
	SE, n					
Aspen/birch	2,557.8 17%, n=107	732.1 23%, n=52	1,066.1 20%, n=73	947.7 18%, n=68	356.8 26%, n=31	5,660.6 10%, n=331
Elm/ash/red maple	161.6 61%, n=14	227.9 37%, n=16	190.4 86%, n=10	142 64%, n=4	12.2 -, n=1	734.2 31%, n=45
Northern hardwoods	3,251 15%, n=127	4,223.4 13%, n=180	6,957.1 9%, n=343	4,659.1 11%, n=225	1,774.7 22%, n=61	20,865.4 5%, n=936
Oak/hickory	0.0 -, n=0	441.1 45%, n=14	285.3 52%, n=22	137.6 37%, n=17	137.2 77%, n=6	1,001.2 27%, n=59
Oak/pine	15.3 68%, n=3	0.0 -, n=0	22.9 77%, n=3	78.2 54%, n=10	37.6 90%, n=3	154 38%, n=19
Spruce/fir	4,984.8 11%, n=160	3,731.1 13%, n=161	4,953.7 10%, n=220	3,883.2 11%, n=197	3,199.1 12%, n=153	20,751.9 5%, n=891
White/red/other pine	48.4 78%, n=3	226.4 31%, n=21	566.3 25%, n=42	910.7 34%, n=55	619.4 23%, n=54	2,371.3 16%, n=175
Total	11,019.0 7%, n=414	9,581.9 8%, n=444	14,041.9 6%, n=712	10,758.6 7%, n=575	6,137.1 9%, n=309	51,538.5 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 14. Carbon of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			All owners
	Forest industry	Other private	Public	
	----- Million pounds ----- SE, n			
Aspen/birch	2,678.6 15%, n=120	2,832.7 13%, n=194	149.3 40%, n=17	5,660.6 10%, n=331
Elm/ash/red maple	191.1 56%, n=10	296.8 29%, n=32	246.3 74%, n=3	734.2 31%, n=45
Northern hardwoods	11,711.7 7%, n=469	8,289.8 8%, n=439	863.9 29%, n=28	20,865.4 5%, n=936
Oak/hickory	2.3 100%, n=2	992.2 27%, n=54	6.8 100%, n=3	1,001.2 27%, n=59
Oak/pine	0.0 -, n=1	154.0 38%, n=17	0.0 -, n=1	154.0 38%, n=19
Spruce/fir	11,704.5 7%, n=453	8,228.1 8%, n=402	819.2 25%, n=36	20,751.9 5%, n=891
White/red/other pine	501.9 21%, n=36	1,812.2 19%, n=135	57.2 75%, n=4	2,371.3 16%, n=175
Total	26,790.1 4%, n=1090	22,605.8 5%, n=1272	2,142.6 18%, n=92	51,538.5 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 15. Volume of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Million cubic feet -----					
	SE, n					
Balsam fir	341.1 5%, n=533	706.7 5%, n=526	808.8 6%, n=314	41.2 29%, n=12	16.0 71%, n=2	1,913.7 4%, n=933
Black/white spruce	25.3 18%, n=44	55.7 18%, n=46	54.9 20%, n=29	6.2 71%, n=2	0.0 -, n=0	142.1 14%, n=86
Red spruce	171.5 8%, n=280	357.5 8%, n=294	436.5 8%, n=179	93.5 22%, n=22	15.6 78%, n=2	1,074.6 6%, n=537
White pine	35.7 17%, n=53	60.9 17%, n=46	118.7 19%, n=42	30.3 47%, n=5	110.5 41%, n=7	356.1 17%, n=113
Northern white-cedar	64.9 10%, n=131	217.0 9%, n=188	587.1 8%, n=203	145.3 18%, n=35	108.2 29%, n=13	1,122.5 7%, n=377
Hemlock	14.6 17%, n=38	31.6 19%, n=34	58.0 21%, n=28	9.4 71%, n=2	38.1 45%, n=5	151.8 17%, n=86
Other softwoods	16.2 19%, n=36	45.8 16%, n=47	70.5 22%, n=27	47.1 46%, n=7	14.9 72%, n=2	194.4 17%, n=101
Total softwoods	669.3 4%, n=907	1,475.2 4%, n=950	2,134.5 4%, n=684	373.0 12%, n=82	303.2 21%, n=29	4,955.2 3%, n=1472
Unknown	68.6 9%, n=156	123.4 10%, n=122	146.7 14%, n=60	49.7 35%, n=9	7.0 -, n=1	395.3 9%, n=298

(Continued)

Table 15. (Continued)

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Million cubic feet ----- SE, n					
Red maple	70.5 9%, n=149	130.3 10%, n=131	140.2 14%, n=62	24.7 43%, n=6	16.8 58%, n=3	382.3 9%, n=284
Sugar maple	18.2 17%, n=42	52.6 20%, n=48	97.8 18%, n=39	56.1 31%, n=11	19.6 60%, n=3	244.2 14%, n=109
Yellow birch	21.8 16%, n=55	46.2 15%, n=54	124.7 15%, n=51	48.7 36%, n=9	7.1 -, n=1	248.5 12%, n=143
Paper birch	81.0 9%, n=175	118.2 10%, n=119	102.2 15%, n=55	27.1 42%, n=6	7.3 -, n=1	335.8 8%, n=291
Beech	39.0 12%, n=87	71.9 14%, n=67	135.0 15%, n=56	27.3 42%, n=6	0.0 -, n=0	273.3 11%, n=158
Aspen	34.9 16%, n=64	72.6 14%, n=67	80.4 16%, n=43	14.4 50%, n=4	0.0 -, n=0	202.2 11%, n=134
Other hardwoods	28.7 36%, n=51	60.3 25%, n=47	77.7 21%, n=33	28.2 42%, n=6	0.0 -, n=0	194.9 17%, n=115
Total hardwoods	294.1 6%, n=538	552.0 5%, n=472	757.9 6%, n=309	226.5 16%, n=47	50.8 36%, n=8	1,881.2 4%, n=962
Total	1,032.0 3%, n=1325	2,150.6 3%, n=1307	3,039.1 3%, n=929	649.2 9%, n=135	360.9 19%, n=38	7,231.7 3%, n=194

Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 16. Volume of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Million cubic feet ----- SE, n			
Hardwoods	258.0 11%, n=202	766.6 7%, n=524	856.7 6%, n=514	1,881.2 4%, n=962
Softwoods	567.3 9%, n=314	1,868.7 5%, n=878	2,519.2 4%, n=1057	4,955.2 3%, n=1472
Unknown	15.7 25%, n=21	77.1 15%, n=96	302.6 11%, n=209	395.3 9%, n=298
Total	840.9 7%, n=472	2,712.4 4%, n=1226	3,678.4 3%, n=1435	7,231.7 3%, n=1948

Note: SE = sampling error, n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 17. Number of pieces of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Million pieces -----					
	SE, n					
Balsam fir	497.9 6%, n=533	273.6 5%, n=526	103.4 7%, n=314	1.3 30%, n=12	0.3 75%, n=2	876.6 4%, n=933
Black/white spruce	42.1 19%, n=44	21.8 19%, n=46	8.8 29%, n=29	0.2 72%, n=2	0.0 -, n=0	72.9 15%, n=86
Red spruce	239.9 9%, n=280	143.3 8%, n=294	52.4 10%, n=179	3.8 24%, n=22	0.2 71%, n=2	439.6 7%, n=537
White pine	77.9 17%, n=53	28.2 20%, n=46	16.4 19%, n=42	1.3 55%, n=5	3.2 45%, n=7	127.0 14%, n=113
Northern white-cedar	112.7 11%, n=131	99.2 9%, n=188	81.1 9%, n=203	6.9 19%, n=35	2.6 31%, n=13	302.6 7%, n=377
Hemlock	33.7 19%, n=38	17.3 22%, n=34	7.6 22%, n=28	0.3 72%, n=2	1.6 54%, n=5	60.4 14%, n=86
Other softwoods	33.9 19%, n=36	23.1 17%, n=47	10.8 26%, n=27	1.9 44%, n=7	0.6 78%, n=2	70.3 13%, n=101
Total softwoods	1,038.0 4%, n=907	606.5 4%, n=950	280.6 5%, n=684	15.6 13%, n=82	8.5 24%, n=29	1,949.3 3%, n=1472
Unknown	112.2 9%, n=156	59.4 12%, n=122	24.1 16%, n=60	2.5 38%, n=9	0.1 -, n=1	198.2 8%, n=298

(Continued)

Table 17. (Continued)

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Million pieces ----- SE, n					
Red maple	102.8 10%, n=149	52.8 10%, n=131	23.2 21%, n=62	1.4 45%, n=6	0.5 62%, n=3	180.6 8%, n=284
Sugar maple	32.0 18%, n=42	31.1 23%, n=48	15.4 18%, n=39	2.7 33%, n=11	0.4 59%, n=3	81.7 14%, n=109
Yellow birch	39.8 16%, n=55	28.3 17%, n=54	17.1 16%, n=51	2.4 36%, n=9	0.3 -%, n=1	87.9 11%, n=143
Paper birch	146.7 9%, n=175	52.7 11%, n=119	18.1 17%, n=55	2.3 53%, n=6	0.2 -%, n=1	220.0 8%, n=291
Beech	67.4 13%, n=87	32.6 16%, n=67	23.9 17%, n=56	1.1 43%, n=6	0.0 -%, n=0	125.0 11%, n=158
Aspen	52.8 16%, n=64	30.9 15%, n=67	11.4 19%, n=43	0.5 51%, n=4	0.0 -%, n=0	95.7 12%, n=134
Other hardwoods	46.8 22%, n=51	42.4 51%, n=47	13.6 24%, n=33	1.3 47%, n=6	0.0 -%, n=0	104.1 29%, n=115
Total hardwoods	488.4 5%, n=538	270.9 9%, n=472	122.7 7%, n=309	11.7 17%, n=47	1.3 37%, n=8	895.0 5%, n=962
Total	1,638.6 3%, n=1325	936.8 4%, n=1307	427.4 4%, n=929	29.8 10%, n=135	10.0 21%, n=38	3,042.5 2%, n=1948

Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 18. Number of pieces of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Million pieces ----- SE, n			
Hardwoods	118.7 10%, n=202	396.1 9%, n=524	380.2 6%, n=514	895.0 5%, n=962
Softwoods	191.9 11%, n=314	748.2 4%, n=878	1,009.2 4%, n=1057	1,949.3 3%, n=1472
Unknown	11.6 25%, n=21	53.3 13%, n=96	133.4 9%, n=209	198.2 8%, n=298
Total	322.1 8%, n=472	1,197.6 4%, n=1226	1,522.8 3%, n=1435	3,042.5 2%, n=1948

Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 19. Biomass (dry weight) of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Million pounds ----- SE, n					
Balsam fir	4,373.9 6%, n=533	8,385.6 5%, n=526	10,281.2 7%, n=314	560.0 31%, n=12	189.2 71%, n=2	23,789.9 4%, n=933
Black/white spruce	348.1 19%, n=44	798.9 18%, n=46	687.7 20%, n=29	76.8 75%, n=2	0.0 -, n=0	1,911.6 15%, n=86
Red spruce	2,520.4 8%, n=280	5,094.7 8%, n=294	6,042.5 9%, n=179	1,401.0 23%, n=22	198.9 82%, n=2	15,257.4 6%, n=537
White pine	515.2 17%, n=53	845.5 19%, n=46	1,418.5 18%, n=42	525.4 46%, n=5	1,935.7 42%, n=7	5,240.3 19%, n=113
Northern white-cedar	749.1 10%, n=131	2,529.4 9%, n=188	7,131.8 8%, n=203	1,716.3 19%, n=35	1,235.6 31%, n=13	13,362.1 7%, n=377
Hemlock	214.4 17%, n=38	464.8 20%, n=34	884.6 22%, n=28	142.9 71%, n=2	563.3 49%, n=5	2,270.1 18%, n=86
Other softwoods	206.4 19%, n=36	499.3 16%, n=47	936.2 23%, n=27	508.2 45%, n=7	132.1 71%, n=2	2,282.3 16%, n=101
Total softwoods	8,927.6 4%, n=907	18,618.2 4%, n=950	27,382.4 4%, n=684	4,930.6 12%, n=82	4,254.8 24%, n=29	64,113.6 3%, n=1472
Unknown	1,017.8 10%, n=156	1,707.1 11%, n=122	1,632.2 15%, n=60	470.2 36%, n=9	70.0 -, n=1	4,897.3 9%, n=298

(Continued)

Table 19. (Continued)

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Million pounds -----					
	SE, n					
Red maple	1,186.2 9%, n=149	2,237.3 10%, n=131	1,995.7 14%, n=62	497.6 46%, n=6	263.5 62%, n=3	6,180.3 9%, n=284
Sugar maple	345.0 17%, n=42	1,135.2 25%, n=48	1,650.3 18%, n=39	1,112.4 33%, n=11	400.4 58%, n=3	4,643.3 16%, n=109
Yellow birch	396.7 18%, n=55	847.8 16%, n=54	1,883.1 16%, n=51	633.6 36%, n=9	60.4 -, n=1	3,821.6 11%, n=143
Paper birch	1,285.0 9%, n=175	1,897.1 11%, n=119	1,447.7 15%, n=55	503.5 43%, n=6	62.2 -, n=1	5,195.5 9%, n=291
Beech	813.9 13%, n=87	1,505.6 15%, n=67	2,557.3 15%, n=56	585.3 43%, n=6	0.0 -, n=0	5,462.1 11%, n=158
Aspen	539.3 17%, n=64	951.2 14%, n=67	1,200.6 17%, n=43	194.0 52%, n=4	0.0 -, n=0	2,885.1 11%, n=134
Other hardwoods	537.2 40%, n=51	1,063.2 29%, n=47	1,330.4 23%, n=33	470.5 44%, n=6	0.0 -, n=0	3,401.2 19%, n=115
Total hardwoods	5,103.3 6%, n=538	9,637.4 6%, n=472	12,065.1 7%, n=309	3,996.9 17%, n=47	786.4 38%, n=8	31,589.1 5%, n=962
Total	15,048.7 3%, n=1325	29,962.8 3%, n=1307	41,079.7 4%, n=929	9,397.7 10%, n=135	5,111.2 21%, n=38	100,600.0 3%, n=1948

Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 20. Biomass (dry weight) of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Million pounds ----- SE, n			
Hardwoods	6,727.1 11%, n=202	15,267.9 7%, n=524	9,594.1 6%, n=514	31,589.1 5%, n=962
Softwoods	11,503.7 9%, n=314	29,773.6 5%, n=878	22,836.2 4%, n=1057	64,113.6 3%, n=1472
Unknown	400.7 26%, n=21	1,436.1 14%, n=96	3,060.5 11%, n=209	4,897.3 9%, n=298
Total	18,631.5 7%, n=472	46,477.7 4%, n=1226	35,490.9 3%, n=1435	100,600.0 3%, n=1948

Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 21. Biomass (dry weight) of down dead wood by large-end diameter class, owner group, and decay class, Maine, 1995<sup>a</sup>

Diameter class (inches)	Owner group	Plots with no DDW	Decay class				All classes
			1	2	3		
-- Number --			Million pounds SE, n				
3-4	Forest industry	--	1,043.2 12%, n=97	4,274.5 8%, n=350	2,234.5 6%, n=379	7,552.2 6%, n=619	
	Other private	--	1,399.5 13%, n=105	3,534.5 6%, n=361	2,079.2 6%, n=370	7,013.2 5%, n=646	
	Public	--	126.7 43%, n=9	268.8 28%, n=23	87.7 25%, n=20	483.2 22%, n=39	
5-8	Forest industry	--	2,594.8 14%, n=96	6,939.9 8%, n=303	5,745.6 5%, n=432	15,280.3 5%, n=629	
	Other private	--	2,777.2 11%, n=119	6,407.0 6%, n=327	4,254.0 6%, n=329	13,438.2 5%, n=605	
	Public	--	185.8 40%, n=7	575.0 26%, n=27	483.5 20%, n=35	1,244.3 17%, n=53	
9-14	Forest industry	--	3,519.4 13%, n=76	9,061.6 8%, n=221	8,918.6 6%, n=328	21,499.6 5%, n=496	
	Other private	--	3,538.6 14%, n=71	7,886.3 9%, n=177	6,170.3 8%, n=233	17,595.3 6%, n=389	
	Public	--	404.8 38%, n=9	884.0 23%, n=22	696.1 27%, n=24	1,984.9 20%, n=35	

(Continued)

Table 21. (Continued)

Diameter class (inches)	Owner group	Plots with no DDW	Decay class				All classes
			1	2	3		
			Million pounds SE, n				
-- Number --			-----				
15-19	Forest industry	--	1,051.5 30%, n=12	2,404.3 20%, n=30	2,083.4 16%, n=44	5,539.2 12%, n=85	
	Other private	--	660.7 36%, n=8	1,920.9 27%, n=18	1,135.4 24%, n=23	3,717.0 17%, n=48	
	Public	--	105.4 100%, n=1	36.2 100%, n=1	0.0 -%, n=0	141.6 100%, n=1	
20+	Forest industry	--	521.1 62%, n=3	944.7 46%, n=4	967.7 28%, n=14	2,433.5 26%, n=20	
	Other private	--	702.7 75%, n=2	1,340.2 46%, n=6	333.4 46%, n=5	2,376.3 35%, n=13	
	Public	--	0.0 -%, n=0	0.0 -%, n=0	301.4 63%, n=3	301.4 63%, n=3	

(Continued)

Table 21. (Continued)

Diameter class (inches)	Owner group	Plots with no DDW	Decay class				All classes
			1	2	3		
		-- Number --	----- Million pounds -----				
			SE, n				
All	Forest industry	182	8,730.1 10%, n=209	23,624.9 6%, n=575	19,949.8 5%, n=722	52,304.8 4%, n=1090	
	Other private	332	9,078.7 10%, n=234	21,088.8 7%, n=587	13,972.4 6%, n=647	44,139.9 5%, n=1272	
	Public	24	822.7 33%, n=19	1,764.0 20%, n=46	1,568.7 24%, n=46	4,155.4 18%, n=92	
	Total	538	18,631.5 7%, n=462	46,477.7 4%, n=1207	35,490.9 3%, n=1415	100,600.0 3%, n=2455	

<sup>a</sup>This table is a plot-level (owner group) –species-level (diameter class, decay class) combination; it is listed as a species -level classification for convenience.  
 Note: SE = sampling error; n = number of plots sampled for DDW; -- = not applicable; -% = SE does not exist.

Table 22. Carbon of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)						All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+		
	----- Million pounds -----						
	SE, n						
Balsam fir	2,278.8 6%, n=533	4,368.9 5%, n=526	5,356.5 7%, n=314	291.8 31%, n=12	98.6 71%, n=2	12,394.5 4%, n=933	
Black/white spruce	181.4 19%, n=44	416.2 18%, n=46	358.3 20%, n=29	40.0 75%, n=2	0.0 -, n=0	995.9 15%, n=86	
Red spruce	1,313.1 8%, n=280	2,654.3 8%, n=294	3,148.1 9%, n=179	729.9 23%, n=22	103.6 82%, n=2	7,949.1 6%, n=537	
White pine	268.4 17%, n=53	440.5 19%, n=46	739.0 18%, n=42	273.7 46%, n=5	1,008.5 42%, n=7	2,730.2 19%, n=113	
Northern white-cedar	390.3 10%, n=131	1,317.8 9%, n=188	3,715.7 8%, n=203	894.2 19%, n=35	643.8 31%, n=13	6,961.7 7%, n=377	
Hemlock	111.7 17%, n=38	242.2 20%, n=34	460.9 22%, n=28	74.5 71%, n=2	293.5 49%, n=5	1,182.7 18%, n=86	
Other softwoods	104.6 19%, n=36	251.5 16%, n=47	474.0 24%, n=27	258.2 45%, n=7	65.8 71%, n=2	1,154.1 17%, n=101	
Total softwoods	4,648.4 4%, n=907	9,691.4 4%, n=950	14,252.5 4%, n=684	2,562.3 12%, n=82	2,213.7 24%, n=29	33,368.3 3%, n=1472	
Unknown	506.8 10%, n=156	850.2 11%, n=122	812.8 15%, n=60	234.2 36%, n=9	34.9 -, n=1	2,438.8 9%, n=298	

(Continued)

Table 22. (Continued)

Species group	Diameter class (inches)						All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+		
	----- Million pounds -----						
	SE, n						
Red maple	590.7 9%, n=149	1,114.2 10%, n=131	993.9 14%, n=62	247.8 46%, n=6	131.2 62%, n=3	3,077.8 9%, n=284	
Sugar maple	171.8 17%, n=42	565.3 25%, n=48	821.8 18%, n=39	554.0 33%, n=11	199.4 58%, n=3	2,312.3 16%, n=109	
Yellow birch	197.6 18%, n=55	422.2 16%, n=54	937.8 16%, n=51	315.6 36%, n=9	30.1 -, n=1	1,903.2 11%, n=143	
Paper birch	639.9 9%, n=175	944.8 11%, n=119	721.0 15%, n=55	250.7 43%, n=6	31.0 -, n=1	2,587.4 9%, n=291	
Beech	405.3 13%, n=87	749.8 15%, n=67	1,273.6 15%, n=56	291.5 43%, n=6	0.0 -, n=0	2,720.1 11%, n=158	
Aspen	268.6 17%, n=64	473.7 14%, n=67	597.9 17%, n=43	96.6 52%, n=4	0.0 -, n=0	1,436.8 11%, n=134	
Other hardwoods	267.5 40%, n=51	529.5 29%, n=47	662.5 23%, n=33	234.3 44%, n=6	0.0 -, n=0	1,693.8 19%, n=115	
Total hardwoods	2,541.5 6%, n=538	4,799.4 6%, n=472	6,008.4 7%, n=309	1,990.5 17%, n=47	391.6 38%, n=8	15,731.4 5%, n=962	
Total	7,696.7 3%, n=1325	15,341.0 3%, n=1307	21,073.7 4%, n=929	4,786.9 10%, n=135	2,640.2 21%, n=38	51,538.5 3%, n=1948	

Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 23. Carbon of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Million pounds ----- SE, n			
Hardwoods	3,350.1 11%, n=202	7,603.4 7%, n=524	4,777.9 6%, n=514	1,5731.4 5%, n=962
Softwoods	5,993.4 9%, n=314	1,5504.7 5%, n=878	1,1870.1 4%, n=1057	3,3368.3 3%, n=1472
Unknown	199.5 26%, n=21	715.2 14%, n=96	1,524.1 11%, n=209	2,438.8 9%, n=298
Total	9,543.1 7%, n=472	2,3823.3 4%, n=1226	1,8172.1 3%, n=1435	51,538.5 3%, n=1948

Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 24. Down dead wood pile statistics by county, Maine, 1995

County	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb -	Number of piles - Thousands -	Area - Thousand acres -
Androscoggin	0.0 0%, n=16	0.0 0%, n=16	0.0 0%, n=16	0.0 0%, n=16	184.5 9%, n=16
Aroostook	555.6 58%, n=568	11,738.5 60%, n=568	5,869.3 60%, n=568	0.4 39%, n=568	3,744.0 %, n=568
Cumberland	2.2 100%, n=49	32.0 100%, n=49	16.0 100%, n=49	0.0 100%, n=49	364.7 4%, n=49
Franklin	27.7 63%, n=150	614.4 67%, n=150	307.2 67%, n=150	0.1 54%, n=150	969.7 3%, n=150
Hancock	6.6 74%, n=130	101.2 75%, n=130	50.6 75%, n=130	0.1 72%, n=130	849.8 3%, n=130
Kennebec	4.0 72%, n=51	64.5 71%, n=51	32.3 71%, n=51	0.1 72%, n=51	404.7 3%, n=51
Knox	2.1 100%, n=23	31.2 100%, n=23	15.6 100%, n=23	0.0 100%, n=23	166.9 7%, n=23
Lincoln	5.9 100%, n=34	125.5 100%, n=34	62.8 100%, n=34	0.0 100%, n=34	222.4 5%, n=34
Oxford	133.4 97%, n=177	3,229.6 97%, n=177	1,614.8 97%, n=177	0.1 71%, n=177	1,205.4 2%, n=177

(Continued)

Table 24. (Continued)

County	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb - SE, n	Number of piles - Thousands - SE, n	Area - Thousand acres - SE, n
Penobscot	100.5 75%, n=272	1,844.6 71%, n=272	922.3 71%, n=272	0.1 58%, n=272	1,838.3 1%, n=272
Piscataquis	199.7 53%, n=333	3,841.5 57%, n=333	1,920.8 57%, n=333	0.2 33%, n=333	2,209.8 1%, n=333
Sagadahoc	0.0 0%, n=18	0.0 0%, n=18	0.0 0%, n=18	0.0 0%, n=18	123.4 7%, n=18
Somerset	243.8 75%, n=326	5,264.5 74%, n=326	2,632.2 74%, n=326	0.2 44%, n=326	2,343.9 1%, n=326
Waldo	10.3 81%, n=55	241.7 83%, n=55	120.9 83%, n=55	0.1 49%, n=55	372.9 3%, n=55
Washington	359.3 61%, n=207	7,631.6 63%, n=207	3,815.8 63%, n=207	0.2 62%, n=207	1,383.3 2%, n=207
York	0.0 0%, n=47	0.0 0%, n=47	0.0 0%, n=47	0.0 0%, n=47	472.0 6%, n=47
<b>Total</b>	<b>1,650.9</b> 28%, n=2455	<b>34,760.8</b> 29%, n=2455	<b>17,380.4</b> 29%, n=2455	<b>1.6</b> 16%, n=2455	<b>16,855.8</b> 0.5%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 25. Down dead wood pile statistics by forest type group, Maine, 1995

Forest type group	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb - SE, n	Number of piles - Thousands -	Area - Thousand acres -
Aspen/birch	326.8 52%, n=331	6,064.6 56%, n=331	3,032.3 56%, n=331	0.3 39%, n=331	2,252.3 5%, n=331
Elm/ash/red maple	0.0 0%, n=45	0.0 0%, n=45	0.0 0%, n=45	0.0 0%, n=45	320.6 15%, n=45
Northern hardwoods	1,140.1 38%, n=936	25,875.6 37%, n=936	12,937.8 37%, n=936	0.8 25%, n=936	6,433.4 2%, n=936
Oak/hickory	0.0 0%, n=59	0.0 0%, n=59	0.0 0%, n=59	0.0 0%, n=59	450.3 13%, n=59
Oak/pine	0.0 0%, n=19	0.0 0%, n=19	0.0 0%, n=19	0.0 0%, n=19	134.4 22%, n=19
Spruce/fir	163.7 42%, n=891	2,491.4 41%, n=891	1,245.7 41%, n=891	0.4 30%, n=891	5,986.2 2%, n=891
White/red/other pine	20.3 72%, n=175	329.2 74%, n=175	164.6 74%, n=175	0.1 51%, n=175	1,278.6 7%, n=175
Total	1,650.9 28%, n=2455	34,760.8 29%, n=2455	17,380.4 29%, n=2455	1.6 16%, n=2455	16,855.8 0.5%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 26. Down dead wood pile statistics by owner group, Maine, 1995

Owner group	Attribute				
	Volume - Million cubic feet - SE, n	Biomass - Million lb - SE, n	Carbon - Million lb - SE, n	Number of piles - Thousands - SE, n	Area - Thousand acres - SE, n
Forest industry	451.6 41%, n=1090	9,515.2 43%, n=1090	4,757.6 43%, n=1090	0.5 27%, n=1090	7,328.2 2%, n=1090
Other private	1,174.2 37%, n=1272	24,635.2 38%, n=1272	12,317.6 38%, n=1272	1.1 21%, n=1272	8,901.7 2%, n=1272
Public	25.1 100%, n=92	610.4 100%, n=92	305.2 100%, n=92	0.0 100%, n=92	625.9 10%, n=92
Total	1,650.9 28%, n=2455	34,760.8 29%, n=2455	17,380.4 29%, n=2455	1.6 16%, n=2455	16,855.8 0.5%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 27. Estimated timberland area by forest type group and basal area class using only the field plots sampled for down dead wood, Maine, 1995<sup>a</sup>

Forest type group	Basal area class (square feet)						All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+		
	----- Thousand acres -----						
	SE, n						
Aspen/birch	712.2 9%, n=107	370.5 14%, n=52	501.2 12%, n=73	460.4 12%, n=68	208.0 18%, n=31	2,252.3 5%, n=331	
Elm/ash/red maple	95.0 26%, n=14	117.1 25%, n=16	73.2 32%, n=10	29.0 50%, n=4	6.2 -, n=1	320.6 15%, n=45	
Northern hardwoods	868.1 8%, n=127	1,247.7 7%, n=180	2,343.9 5%, n=343	1,550.4 6%, n=225	423.3 13%, n=61	6,433.4 2%, n=936	
Oak/hickory	2.4 -, n=0	107.5 27%, n=14	165.9 22%, n=22	130.9 25%, n=17	43.6 41%, n=6	450.3 13%, n=59	
Oak/pine	19.4 54%, n=3	0.0 -, n=0	22.1 58%, n=3	69.8 32%, n=10	23.2 59%, n=3	134.4 22%, n=19	
Spruce/fir	1,072.2 7%, n=160	1,088.9 7%, n=161	1,475.7 6%, n=220	1,321.4 7%, n=197	1,028.1 8%, n=153	5,986.2 2%, n=891	
White/red/other pine	21.7 49%, n=3	143.5 22%, n=21	291.4 15%, n=42	414.7 13%, n=55	407.3 14%, n=54	1,278.6 7%, n=175	
Total	2,791.0 4%, n=414	3,075.2 4%, n=444	4,873.3 3%, n=712	3,976.6 4%, n=575	2,139.7 5%, n=309	16,855.8 0.5%, n=2455	

<sup>a</sup>Because some field plots were not measured for DDW, these area estimates differ from area estimates in the fourth Maine inventory (Griffith and Alerich 1996) due to the estimation procedures in double sampling. However, the difference is slight (0.48 percent).  
 Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 28. Estimated timberland area by forest type group and owner group using only field plots sampled for down dead wood, Maine, 1995<sup>a</sup>

Forest type group	Owner group			All owners
	Forest industry	Other private	Public	
	----- Thousand acres ----- SE, n			
Aspen/birch	789.4 9%, n=120	1,348.6 7%, n=194	114.3 23%, n=17	2,252.3 5%, n=331
Elm/ash/red maple	68.1 32%, n=10	232.8 18%, n=32	19.7 58%, n=3	320.6 15%, n=45
Northern hardwoods	3,156.6 4%, n=469	3,085.1 4%, n=439	191.7 19%, n=28	6,433.4 2%, n=936
Oak/hickory	12.4 71%, n=2	416.7 13%, n=54	21.1 58%, n=3	450.3 13%, n=59
Oak/pine	6.5 -%, n=1	120.1 24%, n=17	7.9 -%, n=1	134.4 22%, n=19
Spruce/fir	3,049.7 4%, n=453	2,692.5 4%, n=402	244.0 16%, n=36	5,986.2 2%, n=891
White/red/other pine	245.5 16%, n=36	1,005.8 8%, n=135	27.2 50%, n=4	1,278.6 7%, n=175
Total	7,328.2 2%, n=1090	8,901.7 2%, n=1272	625.9 10%, n=92	16,855.8 0.5%, n=2455

<sup>a</sup>Because some field plots were not measured for DDW, these area estimates differ from area estimates in the fourth Maine inventory (Griffith and Alerich 1996) due to the estimation procedures in double sampling. However, the difference is slight (0.48 percent).

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 29. Estimated timberland area by county and owner group using only the field plots sampled for down dead wood, Maine, 1995<sup>a</sup>

County	Owner group			All owners
	Forest industry	Other private	Public	
	----- Thousand acres -----			
	SE, n			
Androscoggin	0.0 -%, n=0	184.5 9%, n=16	0.0 -%, n=0	184.5 9%, n=16
Aroostook	2,304.6 3%, n=351	1,292.0 6%, n=195	147.4 21%, n=22	3,744.0 1%, n=568
Cumberland	8.9 -%, n=1	340.5 6%, n=46	15.3 71%, n=2	364.7 4%, n=49
Franklin	461.5 9%, n=71	501.2 8%, n=78	7.1 -%, n=1	969.7 2%, n=150
Hancock	233.6 15%, n=36	596.4 7%, n=91	19.8 58%, n=3	849.8 3%, n=130
Kennebec	7.8 -%, n=1	389.2 4%, n=49	7.8 -%, n=1	404.7 3%, n=51
Knox	0.0 -%, n=0	166.9 7%, n=23	0.0 -%, n=0	166.9 7%, n=23
Lincoln	0.0 -%, n=0	216.0 6%, n=33	6.4 -%, n=1	222.4 5%, n=34
Oxford	305.6 13%, n=45	799.4 6%, n=117	100.4 24%, n=15	1,205.4 2%, n=177

(Continued)

Table 29. (Continued)

County	Owner group				All owners
	Forest industry	Other private	Public		
	Thousand acres				
	SE, n				
Penobscot	624.5 9%, n=93	1,185.0 5%, n=175	28.8 45%, n=4	1,838.3 1%, n=272	
Piscataquis	1,222.1 5%, n=185	829.1 7%, n=124	158.6 20%, n=24	2,209.8 1%, n=333	
Sagadahoc	0.0 -%, n=0	123.4 7%, n=18	0.0 -%, n=0	123.4 7%, n=18	
Somerset	1,495.8 4%, n=209	773.6 8%, n=107	74.5 32%, n=10	2,343.9 1%, n=326	
Waldo	0.0 -%, n=0	359.5 4%, n=53	13.4 71%, n=2	372.9 3%, n=55	
Washington	663.7 7%, n=99	672.9 7%, n=101	46.6 36%, n=7	1,383.3 2%, n=207	
York	0.0 -%, n=0	472.0 5%, n=47	0.0 -%, n=0	472.0 5%, n=47	
Total	7,328.2 2%, n=1090	8,901.7 2%, n=1272	625.9 10%, n=92	16,855.8 0.5%, n=2455	

<sup>a</sup>Because some field plots were not measured for DDW, these area estimates differ from area estimates in the fourth Maine inventory (Griffith and Alerich 1996) due to the estimation procedures in double sampling. However, the difference is slight (0.48 percent).  
 Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 30. Estimated timberland area associated with pieces of down dead wood by species group and large-end diameter class, Maine, 1995<sup>a</sup>

Species group	Diameter class (inches)						All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+		
	----- Thousand acres -----						
	SE, n						
Balsam fir	995.4 6%, n=146	1,331.5 5%, n=198	998.3 6%, n=147	40.9 31%, n=6	6.0 -%, n=1	3,372.2 3%, n=498	
Black/white spruce	92.3 22%, n=14	139.0 18%, n=21	90.5 22%, n=13	6.8 -%, n=1	0.0 -%, n=0	328.6 13%, n=49	
Red spruce	408.9 9%, n=61	680.1 7%, n=101	508.4 8%, n=76	68.6 23%, n=10	11.4 71%, n=2	1,677.4 5%, n=250	
White pine	213.5 18%, n=27	154.0 19%, n=21	150.5 18%, n=20	33.4 47%, n=4	36.3 39%, n=5	587.6 10%, n=76	
Northern white-cedar	211.0 13%, n=32	423.0 9%, n=63	660.0 7%, n=99	90.5 18%, n=14	43.9 28%, n=6	1,428.4 5%, n=213	
Hemlock	83.9 24%, n=12	111.8 20%, n=16	116.3 23%, n=15	6.3 -%, n=1	17.0 50%, n=3	335.4 13%, n=46	
Other softwoods	51.1 29%, n=7	99.9 19%, n=14	80.0 23%, n=11	24.3 42%, n=3	3.2 -%, n=0	258.6 13%, n=37	
Total softwoods	2,056.0 4%, n=299	2,939.3 3%, n=433	2,604.1 4%, n=381	270.9 12%, n=39	117.9 20%, n=17	7,988.2 2%, n=1169	
Unknown	378.1 11%, n=54	345.0 11%, n=50	216.8 15%, n=31	37.7 37%, n=6	5.5 -%, n=1	983.0 7%, n=142	

(Continued)

Table 30. (Continued)

Species group	Diameter class (inches)						All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+		
	----- Thousand acres -----						
	SE, n						
Red maple	349.9 12%, n=48	365.2 11%, n=51	195.2 15%, n=27	23.3 44%, n=3	13.6 63%, n=2	947.1 7%, n=133	
Sugar maple	83.8 22%, n=13	119.3 18%, n=18	117.0 18%, n=17	49.8 31%, n=7	10.5 61%, n=2	380.4 11%, n=57	
Yellow birch	93.3 21%, n=14	116.8 17%, n=17	157.9 16%, n=24	36.5 36%, n=5	1.3 -, n=0	405.9 10%, n=61	
Paper birch	411.5 10%, n=59	302.3 12%, n=44	153.8 16%, n=23	18.2 42%, n=3	6.0 -, n=1	891.9 7%, n=130	
Beech	223.4 15%, n=33	188.9 15%, n=28	229.6 15%, n=34	27.8 44%, n=4	0.0 -, n=0	669.7 9%, n=100	
Aspen	155.1 16%, n=23	184.4 16%, n=27	137.9 17%, n=20	21.2 51%, n=3	0.0 -, n=0	498.6 10%, n=72	
Other hardwoods	97.5 20%, n=14	153.3 18%, n=21	110.6 19%, n=16	18.8 45%, n=3	0.0 -, n=0	380.1 11%, n=54	
Total hardwoods	1,414.5 6%, n=204	1,430.2 5%, n=207	1,102.0 6%, n=161	195.7 15%, n=29	31.3 39%, n=5	4,173.7 3%, n=606	
Plots with no DDW	--	--	--	--	--	3,710.9 4%, n=538	
Total	3,848.6 3%, n=557	4,714.5 3%, n=690	3,922.8 3%, n=574	504.3 9%, n=73	154.7 17%, n=23	16,855.8 0.5%, n=2455	

<sup>a</sup>To estimate area associated with a piece, the plot area is partitioned by species group in proportion to biomass within the large-end diameter class.  
Note: SE = sampling error; n = number of plots sampled for DDW; -- = not applicable; -% = SE does not exist.

Table 31. Estimated timberland area associated with pieces of down dead wood by species type and decay class, Maine, 1995<sup>a</sup>

Species type	Decay class			All classes
	1	2	3	
	----- Thousand acres ----- SE, n			
Hardwoods	633.9 8%, n=93	1,826.4 5%, n=263	1,713.4 5%, n=249	4,173.7 3%, n=606
Softwoods	1,008.0 7%, n=146	3,150.0 3%, n=459	3,830.2 3%, n=564	7,988.2 2%, n=1169
Unknown	59.1 29%, n=8	282.9 13%, n=41	641.0 9%, n=93	983.0 7%, n=142
Plots with no DDW	-- -%, n=0	-- -%, n=0	-- -%, n=0	3,710.9 4%, n=538
Total	1,701.0 5%, n=248	5,259.3 3%, n=763	6,184.6 2%, n=907	16,855.8 0.5%, n=2455

<sup>a</sup>To estimate area associated with a piece, the plot area is partitioned by species type in proportion to biomass within the decay class.

Note: SE = sampling error; n = number of plots sampled for DDW; -- = not applicable; -% = SE does not exist.

Table 32. Volume per acre of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)					All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+	
	----- Cubic feet per acre ----- SE, n					
Aspen/birch	486.7 13%, n=107	297.4 20%, n=52	326.4 18%, n=73	299.5 14%, n=68	244.1 19%, n=31	359.2 8%, n=331
Elm/ash/red maple	198.4 52%, n=14	287.1 27%, n=16	349.7 79%, n=10	804.4 38%, n=4	194.7 -, n=1	320.1 26%, n=45
Northern hardwoods	463.5 11%, n=127	435.9 10%, n=180	402.1 7%, n=343	396.6 9%, n=225	480.8 14%, n=61	420.8 4%, n=936
Oak/hickory	0.0 -, n=0	476.2 37%, n=14	171.6 45%, n=22	121.4 26%, n=17	329.1 57%, n=6	244.1 25%, n=59
Oak/pine	101.5 30%, n=3	0.0 -, n=0	116.3 47%, n=3	150.5 39%, n=10	290.4 77%, n=3	162.0 31%, n=19
Spruce/fir	676.8 7%, n=160	513.9 10%, n=161	526.8 8%, n=220	453.2 8%, n=197	499.4 9%, n=153	530.4 4%, n=891
White/red/other pine	205.2 44%, n=3	234.4 24%, n=21	263.1 18%, n=42	258.0 28%, n=55	207.6 17%, n=54	239.6 12%, n=175
Total	537.4 6%, n=414	433.2 6%, n=444	413.9 5%, n=712	379.3 5%, n=575	408.7 7%, n=309	429.0 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 33. Volume per acre of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			Cubic feet per acre SE, n	All owners
	Forest industry	Other private	Public		
Aspen/birch	496.3 11%, n=120	293.1 11%, n=194	193.3 31%, n=17	359.2 8%, n=331	
Elm/ash/red maple	363.1 43%, n=10	189.2 22%, n=32	1,718.2 47%, n=3	320.1 26%, n=45	
Northern hardwoods	480.3 5%, n=469	347.1 7%, n=439	626.2 28%, n=28	420.8 4%, n=936	
Oak/hickory	21.1 74%, n=2	261.0 25%, n=54	42.2 86%, n=3	244.1 25%, n=59	
Oak/pine	0.0 -, n=1	181.4 30%, n=17	0.0 -, n=1	162.0 31%, n=19	
Spruce/fir	600.8 5%, n=453	450.5 6%, n=402	531.3 17%, n=36	530.4 4%, n=891	
White/red/other pine	304.8 13%, n=36	222.1 16%, n=135	297.4 53%, n=4	239.6 12%, n=175	
Total	524.0 3%, n=1090	345.7 4%, n=1272	502.7 15%, n=92	429.0 3%, n=2455	

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 34. Number of pieces per acre of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)					All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+	
	----- Pieces per acre -----					
	SE, n					
Aspen/birch	257.2 11%, n=107	128.2 20%, n=52	163.7 15%, n=73	139.7 14%, n=68	138.3 14%, n=31	180.2 7%, n=331
Elm/ash/red maple	81.2 46%, n=14	158.0 18%, n=16	78.1 43%, n=10	199.7 14%, n=4	66.6 -, n=1	119.0 16%, n=45
Northern hardwoods	267.5 15%, n=127	189.6 8%, n=180	159.9 6%, n=343	131.9 8%, n=225	162.4 11%, n=61	173.6 4%, n=936
Oak/hickory	0.0 -, n=0	227.1 30%, n=14	73.7 32%, n=22	79.5 32%, n=17	94.8 56%, n=6	113.7 19%, n=59
Oak/pine	104.4 35%, n=3	0.0 -, n=0	50.2 61%, n=3	117.7 30%, n=10	289.1 64%, n=3	134.2 29%, n=19
Spruce/fir	317.9 9%, n=160	191.0 9%, n=161	222.1 8%, n=220	148.0 8%, n=197	182.2 8%, n=153	210.4 4%, n=891
White/red/other pine	166.9 54%, n=3	138.9 21%, n=21	127.0 14%, n=42	141.4 19%, n=55	83.2 14%, n=54	119.7 9%, n=175
Total	275.7 7%, n=414	180.5 5%, n=444	172.5 4%, n=712	137.6 5%, n=575	154.2 6%, n=309	180.5 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 35. Number of pieces per acre of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			All owners
	Forest industry	Other private	Public	
	----- Pieces per acre ----- SE, n			
Aspen/birch	225.5 10%, n=120	154.6 10%, n=194	169.2 28%, n=17	180.2 7%, n=331
Elm/ash/red maple	136.0 39%, n=10	106.4 17%, n=32	209.2 45%, n=3	119.0 16%, n=45
Northern hardwoods	187.4 7%, n=469	159.0 6%, n=439	180.6 21%, n=28	173.6 4%, n=936
Oak/hickory	15.5 74%, n=2	120.4 20%, n=54	38.5 86%, n=3	113.7 19%, n=59
Oak/pine	0.0 -, n=1	150.3 29%, n=17	0.0 -, n=1	134.2 29%, n=19
Spruce/fir	229.9 5%, n=453	190.8 7%, n=402	182.9 20%, n=36	210.4 4%, n=891
White/red/other pine	123.0 14%, n=36	118.6 11%, n=135	132.4 32%, n=4	119.7 9%, n=175
Total	206.1 4%, n=1090	160.1 4%, n=1272	171.2 12%, n=92	180.5 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 36. Biomass per acre (dry weight) of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)						All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+		
	----- Pounds per acre -----						
	SE, n						
Aspen/birch	6,980.7 14%, n=107	3,902.2 19%, n=52	4,187.7 16%, n=73	4,054.7 14%, n=68	3,395.8 20%, n=31	4,923.6 8%, n=331	
Elm/ash/red maple	3,330.8 56%, n=14	3,817.8 26%, n=16	5,048.9 82%, n=10	9,521.9 41%, n=4	3,778.1 -, n=1	4,470.1 27%, n=45	
Northern hardwoods	7,363.2 13%, n=127	6,663.1 11%, n=180	5,841.3 7%, n=343	5,915.7 9%, n=225	8,247.6 18%, n=61	6,382.3 5%, n=936	
Oak/hickory	0.0 -, n=0	8,007.4 32%, n=14	3,383.6 47%, n=22	2,062.9 30%, n=17	6,248.2 68%, n=6	4,363.0 24%, n=59	
Oak/pine	1,560.3 32%, n=3	0.0 -, n=0	2,056.0 52%, n=3	2,184.7 42%, n=10	3,152.3 75%, n=3	2,240.3 29%, n=19	
Spruce/fir	8,994.2 9%, n=160	6,629.8 11%, n=161	6,495.6 8%, n=220	5,686.7 8%, n=197	6,016.9 10%, n=153	6,706.7 4%, n=891	
White/red/other pine	4,437.5 51%, n=3	3,081.8 21%, n=21	3,770.1 19%, n=42	4,254.2 32%, n=55	2,952.9 18%, n=54	3,600.8 14%, n=175	
Total	7,685.4 7%, n=414	6,090.2 7%, n=444	5,632.9 5%, n=712	5,284.9 6%, n=575	5,587.4 8%, n=309	5,968.3 3%, n=2455	

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 37. Biomass per acre (dry weight) of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			Pounds per acre SE, n	-----
	Forest industry	Other private	Public		
Aspen/birch	6,625.8 12%, n=120	4,127.4 11%, n=194	2,563.7 33%, n=17	4,923.6 8%, n=331	
Elm/ash/red maple	5,529.1 47%, n=10	2,494.2 22%, n=32	24,148.7 50%, n=3	4,470.1 27%, n=45	
Northern hardwoods	7,308.5 6%, n=469	5,288.1 7%, n=439	8,740.0 23%, n=28	6,382.3 5%, n=936	
Oak/hickory	370.9 74%, n=2	4,671.3 24%, n=54	627.0 86%, n=3	4,363.0 24%, n=59	
Oak/pine	0.0 -, n=1	2,508.8 28%, n=17	0.0 -, n=1	2,240.3 29%, n=19	
Spruce/fir	7,425.6 5%, n=453	5,910.6 7%, n=402	6,507.7 19%, n=36	6,706.7 4%, n=891	
White/red/other pine	3,982.5 13%, n=36	3,496.0 18%, n=135	4,032.3 56%, n=4	3,600.8 14%, n=175	
Total	7,137.5 4%, n=1090	4,958.6 4%, n=1272	6,638.9 15%, n=92	5,968.3 3%, n=2455	

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 38. Biomass per acre (dry weight) of down dead wood by forest type group, owner group, and decay class, Maine, 1995<sup>a</sup>

Forest type group	Owner group	Decay class				All classes
		1	2	3		
		----- Pounds per acre ----- SE, n				
Aspen/birch	Forest industry	1,272.1 30%, n=120	2,897.2 13%, n=120	2,456.5 14%, n=120	6,625.8 12%, n=120	
	Other private	535.3 24%, n=194	2,225.1 15%, n=194	1,366.9 13%, n=194	4,127.4 11%, n=194	
	Public	636.7 72%, n=17	960.5 48%, n=17	966.5 42%, n=17	2,563.7 33%, n=17	
Elm/ash/red maple	Forest industry	0.0 -%, n=10	4,007.0 63%, n=10	1,522.0 76%, n=10	5,529.1 47%, n=10	
	Other private	620.2 55%, n=32	681.8 24%, n=32	1,192.2 29%, n=32	2,494.2 22%, n=32	
Northern hardwoods	Public	6,890.8 86%, n=3	9,112.8 62%, n=3	8,145.1 54%, n=3	24,148.7 50%, n=3	
	Forest industry	1,466.4 15%, n=469	3,199.0 9%, n=469	2,643.1 6%, n=469	7,308.5 6%, n=469	
	Other private	966.6 17%, n=439	2,468.2 12%, n=439	1,853.3 9%, n=439	5,288.1 7%, n=439	
	Public	1,894.5 48%, n=28	3,205.6 34%, n=28	3,639.9 41%, n=28	8,740.0 23%, n=28	

(Continued)

Table 38. (Continued)

Forest type group	Owner group	Decay class				All classes
		1	2	3		
----- Pounds per acre ----- SE, n						
Oak/hickory	Forest industry	0.0 -, n=2	370.9 74%, n=2	0.0 -, n=2	370.9 74%, n=2	
	Other private	993.8 36%, n=54	2,884.7 29%, n=54	792.8 27%, n=54	4671.3 24%, n=54	
	Public	0.0 -, n=3	627.0 86%, n=3	0.0 -, n=3	627.0 86%, n=3	
Oak/pine	Forest industry	0.0 -, n=1	0.0 -, n=1	0.0 -, n=1	0.0 -, n=1	
	Other private	159.5 55%, n=17	1,583.2 41%, n=17	766.1 36%, n=17	2,508.8 28%, n=17	
	Public	0.0 -, n=1	0.0 -, n=1	0.0 -, n=1	0.0 -, n=1	
Spruce/fir	Forest industry	983.0 15%, n=453	3,451.9 8%, n=453	2,990.7 6%, n=453	7,425.6 5%, n=453	
	Other private	1,351.3 14%, n=402	2,593.9 10%, n=402	1,965.4 8%, n=402	5,910.6 7%, n=402	
	Public	960.5 52%, n=36	3174.9 23%, n=36	2372.3 20%, n=36	6507.7 19%, n=36	

(Continued)

Table 38. (Continued)

Forest type group	Owner group	Decay class			All classes
		1	2	3	
----- Pounds per acre ----- SE, n					
White/red/other pine	Forest industry	404.0 41%, n=36	1,773.6 24%, n=36	1,805 22%, n=36	3,982.5 13%, n=36
	Other private	1,152.1 44%, n=135	1,926.8 17%, n=135	417.1 21%, n=135	3,496 18%, n=135
	Public	606.4 87%, n=4	2,651.3 59%, n=4	774.6 42%, n=4	4032.3 56%, n=4
All	Forest industry	1,191.3 10%, n=1090	3,223.8 6%, n=1090	2,722.3 4%, n=1090	7,137.5 4%, n=1090
	Other private	1,019.9 10%, n=1272	2,369.1 6%, n=1272	1,569.6 5%, n=1272	4,958.6 4%, n=1272
	Public	1,314.4 31%, n=92	2,818.2 18%, n=92	2,506.3 22%, n=92	6,638.9 15%, n=92
Total		1,105.3 7%, n=2455	2,757.4 4%, n=2455	2,105.6 3%, n=2455	5,968.3 3%, n=2455

<sup>a</sup>This table is a plot-level (forest type group, owner group) – species-level (decay class) combination; it is listed as a plot-level classification for convenience. Biomass in each decay class is averaged by all the area in the respective owner group of a forest type group.  
 Note: SE = sampling error; n = number of plots featuring DDW in the category; 0.0 = none found

Table 39. Carbon per acre of down dead wood by forest type group and basal area class, Maine, 1995

Forest type group	Basal area class (square feet)						All classes
	0 - 49	50 - 99	100 - 149	150 - 199	200+		
	----- Pounds per acre -----						
	SE, n						
Aspen/birch	3,591.3 14%, n=107	1,976.0 19%, n=52	2,127.3 16%, n=73	2,058.3 14%, n=68	1,715.6 19%, n=31	2,513.3 8%, n=331	
Elm/ash/red maple	1,700.3 56%, n=14	1,945.9 26%, n=16	2,600.5 82%, n=10	4,895.9 41%, n=4	1,968.4 -, n=1	2,290.0 28%, n=45	
Northern hardwoods	3,745.1 13%, n=127	3,384.8 11%, n=180	2,968.2 7%, n=343	3,005.2 9%, n=225	4,192.4 18%, n=61	3,243.3 5%, n=936	
Oak/hickory	0.0 -, n=0	4,103.4 33%, n=14	1,720.2 48%, n=22	1,051.5 30%, n=17	3,145.0 67%, n=6	2,223.6 24%, n=59	
Oak/pine	790.2 32%, n=3	0.0 -, n=0	1,036.9 51%, n=3	1,120.0 42%, n=10	1,621.1 75%, n=3	1,145.2 29%, n=19	
Spruce/fir	4,649.3 9%, n=160	3,426.6 11%, n=161	3,356.8 8%, n=220	2,938.7 8%, n=197	3,111.7 10%, n=153	3,466.6 4%, n=891	
White/red/other pine	2,236.2 50%, n=3	1,577.7 22%, n=21	1,943.7 19%, n=42	2,196.0 32%, n=55	1,520.7 18%, n=54	1,854.7 14%, n=175	
Total	3,948.1 7%, n=414	3,115.9 7%, n=444	2,881.4 5%, n=712	2,705.5 6%, n=575	2,868.2 8%, n=309	3,057.6 3%, n=2455	

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 40. Carbon per acre of down dead wood by forest type group and owner group, Maine, 1995

Forest type group	Owner group			Pounds per acre SE, n
	Forest industry	Other private	Public	
Aspen/birch	3,393.4 12%, n=120	2,100.4 11%, n=194	1,306.2 33%, n=17	2,513.3 8%, n=331
Elm/ash/red maple	2,806.7 47%, n=10	1,275.0 22%, n=32	12,494.1 50%, n=3	2,290.0 28%, n=45
Northern hardwoods	3,710.2 6%, n=469	2,687.0 7%, n=439	4,506.3 23%, n=28	3,243.3 5%, n=936
Oak/hickory	184.7 74%, n=2	2,380.9 24%, n=54	320.4 86%, n=3	2,223.6 24%, n=59
Oak/pine	0.0 -%, n=1	1,282.4 28%, n=17	0.0 -%, n=1	1,145.2 29%, n=19
Spruce/fir	3,837.9 5%, n=453	3,055.9 7%, n=402	3,357.6 19%, n=36	3,466.6 4%, n=891
White/red/other pine	2,044.1 13%, n=36	1,801.8 18%, n=135	2,100.8 56%, n=4	1,854.7 14%, n=175
Total	3,655.8 4%, n=1090	2,539.5 4%, n=1272	3,423.2 15%, n=92	3,057.6 3%, n=2455

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 41. Carbon per acre of down dead wood by county and owner group, Maine, 1995

County	Owner group			Pounds per acre SE, n
	Forest industry	Other private	Public	
Androscoggin	0.0 -%, n=0	1,469.6 39%, n=16	0.0 -%, n=0	1,469.6 39%, n=16
Aroostook	3,182.1 7%, n=351	2,904.7 9%, n=195	1,681.7 27%, n=22	3,027.3 6%, n=568
Cumberland	0.0 -%, n=1	2,577.3 36%, n=46	945.3 73%, n=2	2,445.9 36%, n=49
Franklin	3,361.9 11%, n=71	3,270.9 15%, n=78	10,162.7 -%, n=1	3,364.6 9%, n=150
Hancock	2,849.5 24%, n=36	2,029.7 17%, n=91	240.9 80%, n=3	2,213.5 14%, n=130
Kennebec	352.2 -%, n=1	4,061.8 21%, n=49	0.0 -%, n=1	3,912.3 22%, n=51
Knox	0.0 -%, n=0	688.1 29%, n=23	0.0 -%, n=0	688.1 29%, n=23
Lincoln	0.0 -%, n=0	1,455.0 29%, n=33	1,061.6 -%, n=1	1,443.7 28%, n=34
Oxford	3,200.2 14%, n=45	2,651.5 13%, n=117	4,164.9 33%, n=15	2,916.7 10%, n=177

(Continued)

Table 41. (Continued)

County	Owner group			Pounds per acre SE, n	All owners
	Forest industry	Other private	Public		
Penobscot	2,567.7 12%, n=93	1,442.6 11%, n=175	563.7 58%, n=4	1,811.1 8%, n=272	
Piscataquis	4,777.4 9%, n=185	5,003.3 11%, n=124	5,850.5 24%, n=24	4,939.2 6%, n=333	
Sagadahoc	0.0 -, n=0	2,140.0 35%, n=18	0.0 -, n=0	2,140.0 35%, n=18	
Somerset	4,975.0 7%, n=209	2,552.1 12%, n=107	4,837.0 26%, n=10	4,171.0 6%, n=326	
Waldo	0.0 -, n=0	2,364.8 19%, n=53	828.7 29%, n=2	2,309.6 19%, n=55	
Washington	2,071.2 11%, n=99	1,445.3 15%, n=101	1,360.7 48%, n=7	1,742.8 9%, n=207	
York	0.0 -, n=0	1,707.2 24%, n=47	0.0 -, n=0	1,707.2 24%, n=47	
Total	3,655.8 4%, n=1090	2,539.5 4%, n=1272	3,423.2 15%, n=92	3,057.6 3%, n=2455	

Note: SE = sampling error; n = number of plots sampled for DDW; -% = SE does not exist.

Table 42. Volume per acre<sup>a</sup> of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Cubic feet per acre ----- SE, n					
Balsam fir	96.2 4%, n=533	201.7 3%, n=526	384.3 4%, n=314	520.4 5%, n=12	1,220.2 8%, n=2	307.9 3%, n=933
Black/white spruce	87.6 11%, n=44	189.7 11%, n=46	287.9 9%, n=29	470.5 9%, n=2	0.0 -, n=0	255.6 10%, n=86
Red spruce	93.1 6%, n=280	182.3 5%, n=294	366.9 4%, n=179	629.4 7%, n=22	1,257.1 24%, n=2	301.5 5%, n=537
White pine	89.8 10%, n=53	183.3 9%, n=46	386.7 11%, n=42	646.5 9%, n=5	2,516.6 17%, n=7	423.4 14%, n=113
Northern white-cedar	74.6 5%, n=131	173.1 5%, n=188	436.6 5%, n=203	630.5 7%, n=35	1,255.2 10%, n=13	447.9 6%, n=377
Hemlock	54.7 7%, n=38	133.4 7%, n=34	287.4 8%, n=28	748.5 7%, n=2	1,311.6 13%, n=5	252.8 13%, n=86
Other softwoods	65.1 9%, n=36	145.3 7%, n=47	361.2 10%, n=27	977.0 26%, n=7	1,121.7 15%, n=2	281.1 14%, n=101
Total softwoods	109.9 3%, n=907	232.0 3%, n=950	463.0 3%, n=684	665.5 5%, n=82	1,639.8 11%, n=29	500.0 3%, n=1472
Unknown	64.5 5%, n=156	151.2 5%, n=122	358.2 7%, n=60	829.6 13%, n=9	1,035.7 -, n=1	197.1 8%, n=298

(Continued)

Table 42. (Continued)

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Cubic feet per acre ----- SE, n					
Red maple	67.7 4%, n=149	144.5 5%, n=131	319.0 7%, n=62	670.5 23%, n=6	834.5 7%, n=3	193.6 7%, n=284
Sugar maple	64.5 8%, n=42	162.4 14%, n=48	378.4 8%, n=39	757.7 9%, n=11	1,045.6 14%, n=3	335.4 11%, n=109
Yellow birch	59.6 9%, n=55	129.9 7%, n=54	367.0 7%, n=51	787.5 12%, n=9	1,161.4 -, n=1	262.0 9%, n=143
Paper birch	68.4 5%, n=175	147.5 5%, n=119	277.2 7%, n=55	712.9 11%, n=6	1,033.9 -, n=1	171.1 6%, n=291
Beech	66.8 6%, n=87	158.5 7%, n=67	359.4 7%, n=56	669.8 9%, n=6	0.0 -, n=0	257.5 8%, n=158
Aspen	81.9 11%, n=64	162.4 7%, n=67	280.5 5%, n=43	521.9 5%, n=4	0.0 -, n=0	224.6 7%, n=134
Other hardwoods	85.1 35%, n=51	182.4 22%, n=47	337.8 11%, n=33	668.8 12%, n=6	0.0 -, n=0	248.3 14%, n=115
Total hardwoods	80.5 4%, n=538	172.4 4%, n=472	361.4 3%, n=309	718.8 6%, n=47	976.1 7%, n=8	288.4 4%, n=962
Total	115.4 3%, n=1325	244.9 2%, n=1307	484.1 2%, n=929	711.0 4%, n=135	1,481.4 10%, n=38	550.2 2%, n=1948

<sup>a</sup>Only area of plots having an occurrence of DDW in the respective species group and diameter class category included.  
 Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 43. Volume per acre<sup>a</sup> of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Cubic feet per acre ----- SE, n			
Hardwoods	191.2 8%, n=202	215.2 6%, n=524	245.6 4%, n=514	288.4 4%, n=962
Softwoods	270 7%, n=314	316.5 4%, n=878	355.8 3%, n=1057	500 3%, n=1472
Unknown	104.3 12%, n=21	119.3 11%, n=96	215.7 9%, n=209	197.1 8%, n=298
Total	265.8 6%, n=472	327.5 4%, n=1226	381.7 3%, n=1435	550.2 2%, n=1948

<sup>a</sup>Only area of plots having an occurrence of DDW in the respective species type and decay class category included.  
Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 44. Number of pieces per acre<sup>a</sup> of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Pieces per acre -----					
	SE, n					
Balsam fir	140.5 5%, n=533	78.1 4%, n=526	49.1 4%, n=314	16.8 8%, n=12	26.7 25%, n=2	141.0 4%, n=933
Black/white spruce	145.6 12%, n=44	74.2 13%, n=46	46.1 22%, n=29	16.1 13%, n=2	0.0 -, n=0	131.1 11%, n=86
Red spruce	130.3 7%, n=280	73.1 6%, n=294	44.1 6%, n=179	25.3 11%, n=22	14.8 10%, n=2	123.4 5%, n=537
White pine	196.1 12%, n=53	85.0 13%, n=46	53.5 12%, n=42	26.8 26%, n=5	72.3 25%, n=7	151.0 11%, n=113
Northern white-cedar	129.6 7%, n=131	79.2 6%, n=188	60.3 6%, n=203	29.9 8%, n=35	30.5 15%, n=13	120.8 5%, n=377
Hemlock	125.9 10%, n=38	72.8 14%, n=34	37.7 10%, n=28	23.3 24%, n=2	53.8 37%, n=5	100.7 9%, n=86
Other softwoods	136.0 10%, n=36	73.1 9%, n=47	55.4 18%, n=27	39.0 26%, n=7	48.0 35%, n=2	101.6 9%, n=101
Total softwoods	170.4 4%, n=907	95.4 3%, n=950	60.9 3%, n=684	27.9 6%, n=82	46.2 15%, n=29	196.7 3%, n=1472
Unknown	105.6 5%, n=156	72.8 7%, n=122	58.8 10%, n=60	41.2 18%, n=9	16.2 -, n=1	98.8 5%, n=298

(Continued)

Table 44. (Continued)

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Pieces per acre -----					
	SE, n					
Red maple	98.7 6%, n=149	58.5 6%, n=131	52.8 17%, n=62	38.4 29%, n=6	23.0 23%, n=3	91.5 6%, n=284
Sugar maple	113.7 10%, n=42	96.2 18%, n=48	59.6 9%, n=39	36.1 12%, n=11	22.3 14%, n=3	112.2 10%, n=109
Yellow birch	108.8 9%, n=55	79.6 10%, n=54	50.4 9%, n=51	38.6 15%, n=9	43.3 -, n=1	92.7 7%, n=143
Paper birch	123.8 6%, n=175	65.8 7%, n=119	49.1 11%, n=55	60.9 33%, n=6	27.0 -, n=1	112.1 6%, n=291
Beech	115.5 8%, n=87	71.7 10%, n=67	63.6 10%, n=56	27.1 13%, n=6	0.0 -, n=0	117.8 7%, n=158
Aspen	123.9 10%, n=64	69.2 10%, n=67	39.8 11%, n=43	19.0 10%, n=4	0.0 -, n=0	106.3 9%, n=134
Other hardwoods	138.6 19%, n=51	128.2 51%, n=47	59.0 17%, n=33	31.3 26%, n=6	0.0 -, n=0	132.6 29%, n=115
Total hardwoods	133.7 4%, n=538	84.6 9%, n=472	58.5 5%, n=309	37.2 10%, n=47	25.7 13%, n=8	137.2 4%, n=962
Total	183.2 3%, n=1325	106.7 3%, n=1307	68.1 3%, n=929	32.7 6%, n=135	41.0 14%, n=38	231.5 2%, n=1948

<sup>a</sup>Only area of plots having an occurrence of DDW in the respective species group and large-end diameter class category included.  
 Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 45. Number of pieces per acre<sup>a</sup> of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Pieces per acre ----- SE, n			
Hardwoods	87.9 8%, n=202	111.2 8%, n=524	109.0 4%, n=514	137.2 4%, n=962
Softwoods	91.3 11%, n=314	126.7 4%, n=878	142.6 3%, n=1057	196.7 3%, n=1472
Unknown	76.9 11%, n=21	82.5 8%, n=96	95.1 6%, n=209	98.8 5%, n=298
Total	101.8 7%, n=472	144.6 4%, n=1226	158.0 2%, n=1435	231.5 2%, n=1948

<sup>a</sup>Only area of plots having an occurrence of DDW in the respective species type and decay class category included.  
 Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 46. Biomass per acre<sup>a</sup> (dry weight) of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Pounds per acre ----- SE, n					
Balsam fir	1,234.1 5%, n=533	2,393.4 3%, n=526	4,884.8 5%, n=314	7,072.9 11%, n=12	14,452.3 8%, n=2	3,827.9 4%, n=933
Black/white spruce	1,204.7 11%, n=44	2,721.0 11%, n=46	3,608.4 9%, n=29	5,816.8 24%, n=2	0.0 -, n=0	3,438.9 11%, n=86
Red spruce	1,368.9 6%, n=280	2,597.4 6%, n=294	5,078.9 6%, n=179	9,426.8 9%, n=22	16,047.7 34%, n=2	4,281.3 5%, n=537
White pine	1,297.0 11%, n=53	2,545.6 10%, n=46	4,621.8 9%, n=42	11,210.3 6%, n=5	44,084.9 20%, n=7	6,230.9 17%, n=113
Northern white-cedar	860.9 5%, n=131	2,018.2 5%, n=188	5,303.0 6%, n=203	7,447.4 9%, n=35	14,341.0 16%, n=13	5,332.2 6%, n=377
Hemlock	801.7 7%, n=38	1,960.5 9%, n=34	4,379.0 10%, n=28	11,406.1 13%, n=2	19,398.2 27%, n=5	3,782.1 15%, n=86
Other softwoods	828.8 10%, n=36	1,583.3 6%, n=47	4,799.7 13%, n=27	10,549.8 23%, n=7	9,970.2 11%, n=2	3,300.0 13%, n=101
Total softwoods	1,465.2 3%, n=907	2,928.2 3%, n=950	5,939.6 3%, n=684	8,796.9 5%, n=82	23,014.2 15%, n=29	6,469.8 3%, n=1472
Unknown	958.0 6%, n=156	2,092.9 6%, n=122	3,985.6 8%, n=60	7,847.4 15%, n=9	10,417.7 -, n=1	2,441.3 7%, n=298

(Continued)

Table 46. (Continued)

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Pounds per acre -----					
	SE, n					
Red maple	1,138.9 5%, n=149	2,482.5 5%, n=131	4,542.8 6%, n=62	13,520.8 29%, n=6	13,113.0 23%, n=3	3,130.1 7%, n=284
Sugar maple	1,224.5 8%, n=42	3,507.1 20%, n=48	6,385.2 9%, n=39	15,020.9 15%, n=11	21,376.5 5%, n=3	6,376.9 13%, n=109
Yellow birch	1,084.1 12%, n=55	2,382.6 8%, n=54	5,544.0 9%, n=51	10,240.3 13%, n=9	9,855.8 -, n=1	4,028.3 8%, n=143
Paper birch	1,085.1 6%, n=175	2,368.0 6%, n=119	3,928.0 7%, n=55	13,241.4 12%, n=6	8,774.1 -, n=1	2,648.0 7%, n=291
Beech	1,394.2 7%, n=87	3,317.9 9%, n=67	6,805.7 8%, n=56	14,378.6 12%, n=6	0.0 -, n=0	5,147.3 9%, n=158
Aspen	1,266.2 11%, n=64	2,128.1 8%, n=67	4,190.1 7%, n=43	7,040.0 14%, n=4	0.0 -, n=0	3,205.1 8%, n=134
Other hardwoods	1,590.4 40%, n=51	3,216.2 27%, n=47	5,784.8 16%, n=33	11,146.4 15%, n=6	0.0 -, n=0	4,332.1 17%, n=115
Total hardwoods	1,396.7 5%, n=538	3,010.2 5%, n=472	5,753.4 4%, n=309	12,683.7 9%, n=47	15,113.3 14%, n=8	4,843.2 4%, n=962
Total	1,682.8 3%, n=1325	3,412.3 3%, n=1307	6,543.3 3%, n=929	10,292.6 5%, n=135	20,979.3 13%, n=38	7,653.2 3%, n=1948

<sup>a</sup>Only area of plots having an occurrence of DDW in the respective species group and large-end diameter class category included.  
 Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 47. Biomass per acre<sup>a</sup> (dry weight) of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Pounds per acre SE, n -----			
Hardwoods	4,985.8 9%, n=202	4,285.1 6%, n=524	2,750.3 5%, n=514	4,843.2 4%, n=962
Softwoods	5,475.7 7%, n=314	5,043.1 4%, n=878	3,225.7 3%, n=1057	6,469.8 3%, n=1472
Unknown	2,665.9 13%, n=21	2,224.3 10%, n=96	2,181.5 9%, n=209	2,441.3 7%, n=298
Total	5,890 6%, n=472	5,612.4 4%, n=1226	3,682.4 3%, n=1435	7,653.2 3%, n=1948

<sup>a</sup>Only area of plots having an occurrence of DDW in the respective species type and decay class category included.  
 Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 48. Biomass per acre (dry weight) of down dead wood by large-end diameter class, owner group, and decay class, Maine, 1995<sup>a</sup>

Diameter class (inches)	Owner Group	Decay class				All classes
		1	2	3		
		Pounds per acre				
		SE, n				
3-4	Forest industry	142.4 11%, n=1090	583.3 8%, n=1090	304.9 6%, n=1090	1,030.6 5%, n=1090	
	Other private	157.2 13%, n=1272	397.1 6%, n=1272	233.6 6%, n=1272	787.9 4%, n=1272	
	Public	202.4 42%, n=92	429.4 27%, n=92	140.1 23%, n=92	772.0 20%, n=92	
5-8	Forest industry	354.1 13%, n=1090	947.0 7%, n=1090	784.0 5%, n=1090	2,085.1 5%, n=1090	
	Other private	312.0 11%, n=1272	719.7 6%, n=1272	477.9 6%, n=1272	1,509.6 4%, n=1272	
9-14	Public	296.8 39%, n=92	918.7 24%, n=92	772.5 17%, n=92	1,987.9 14%, n=92	
	Forest industry	480.3 13%, n=1090	1,236.5 8%, n=1090	1,217.0 6%, n=1090	2,933.8 5%, n=1090	
	Other private	397.5 13%, n=1272	885.9 9%, n=1272	693.2 8%, n=1272	1,976.6 6%, n=1272	
	Public	646.8 37%, n=92	1,412.3 21%, n=92	1,112.1 25%, n=92	3,171.1 17%, n=92	

(Continued)

Table 48. (Continued)

Diameter class (inches)	Owner group	Decay class				All classes
		1	2	3		
		Pounds per acre SE, n				
15-19	Forest industry	143.5 30%, n=1090	328.1 19%, n=1090	284.3 16%, n=1090	755.9 12%, n=1090	
	Other private	74.2 36%, n=1272	215.8 27%, n=1272	127.6 24%, n=1272	417.6 17%, n=1272	
	Public	168.4 100%, n=92	57.8 100%, n=92	0.0 -, n=92	226.2 100%, n=92	
20+	Forest industry	71.1 62%, n=1090	128.9 46%, n=1090	132.0 28%, n=1090	332.1 26%, n=1090	
	Other private	78.9 75%, n=1272	150.6 46%, n=1272	37.5 46%, n=1272	266.9 35%, n=1272	
	Public	0.0 -, n=92	0.0 -, n=92	481.5 62%, n=92	481.5 62%, n=92	

(Continued)

Table 48. (Continued)

Diameter class (inches)	Owner group	Decay class			
		1	2	3	All classes
		Pounds per acre SE, n			
All	Forest industry	1,191.3 10%, n=1090	3,223.8 6%, n=1090	2,722.3 4%, n=1090	7,137.5 4%, n=1090
	Other private	1,019.9 10%, n=1272	2,369.1 6%, n=1272	1,569.6 5%, n=1272	4,958.6 4%, n=1272
	Public	1,314.4 31%, n=92	2,818.2 18%, n=92	2,506.3 22%, n=92	6,638.9 15%, n=92
	Total	1,105.3 7%, n=2455	2,757.4 4%, n=2455	2,105.6 3%, n=2455	5,968.3 3%, n=2455

<sup>a</sup>This table is a plot-level (owner group) –species-level (diameter class, decay class) combination; it is listed as a species-level classification for convenience. Biomass in each decay class is averaged by all the area in the respective owner group.

Note: SE = sampling error; n= number of plots featuring DDW in the category; 0.0 = none found

Table 49. Carbon per acre<sup>a</sup> of down dead wood by species group and large-end diameter class, Maine, 1995

Species group	Diameter class (inches)					All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+	
	----- Pounds per acre -----					
	SE, n					
Balsam fir	643.0 5%, n=533	1,247.0 3%, n=526	2,545.0 5%, n=314	3,685.0 11%, n=12	7,529.7 8%, n=2	1,994.3 4%, n=933
Black/white spruce	627.6 11%, n=44	1,417.6 11%, n=46	1,880.0 9%, n=29	3,030.6 24%, n=2	0.0 -, n=0	1,791.7 11%, n=86
Red spruce	713.2 6%, n=280	1,353.3 6%, n=294	2,646.1 6%, n=179	4,911.4 9%, n=22	8,360.8 34%, n=2	2,230.6 5%, n=537
White pine	675.7 11%, n=53	1,326.3 10%, n=46	2,408.0 9%, n=42	5,840.6 6%, n=5	22,968.2 20%, n=7	3,246.3 17%, n=113
Northern white-cedar	448.5 5%, n=131	1,051.5 5%, n=188	2,762.9 6%, n=203	3,880.1 9%, n=35	7,471.6 16%, n=13	2,778.1 6%, n=377
Hemlock	417.7 7%, n=38	1,021.4 9%, n=34	2,281.4 10%, n=28	5,942.6 13%, n=2	10,106.5 27%, n=5	1,970.5 15%, n=86
Other softwoods	420.1 10%, n=36	797.4 7%, n=47	2,430.2 13%, n=27	5,360.5 23%, n=7	4,965.2 11%, n=2	1,668.8 13%, n=101
Total softwoods	762.9 3%, n=907	1,524.2 3%, n=950	3,091.6 3%, n=684	4,571.5 5%, n=82	11,974.0 15%, n=29	3,367.2 3%, n=1472
Unknown	477.1 6%, n=156	1,042.2 6%, n=122	1,984.8 8%, n=60	3,908.0 15%, n=9	5,188.0 -, n=1	1,215.8 7%, n=298

(Continued)

Table 49. (Continued)

Species group	Diameter class (inches)						All classes
	3 - 4	5 - 8	9 - 14	15 - 19	20+		
	----- Pounds per acre -----						
	SE, n						
Red maple	567.1 5%, n=149	1,236.3 5%, n=131	2,262.3 6%, n=62	6,733.3 29%, n=6	6,530.3 23%, n=3	1,558.8 7%, n=284	
Sugar maple	609.8 8%, n=42	1,746.5 20%, n=48	3,179.8 9%, n=39	7,480.4 15%, n=11	10,645.5 5%, n=3	3,175.7 13%, n=109	
Yellow birch	539.9 12%, n=55	1,186.5 8%, n=54	2,760.9 9%, n=51	5,099.7 13%, n=9	4,908.2 -, n=1	2,006.1 8%, n=143	
Paper birch	540.4 6%, n=175	1,179.3 6%, n=119	1,956.2 7%, n=55	6,594.2 12%, n=6	4,369.5 -, n=1	1,318.7 7%, n=291	
Beech	694.3 7%, n=87	1,652.3 9%, n=67	3,389.3 8%, n=56	7,160.6 12%, n=6	0.0 -, n=0	2,563.4 9%, n=158	
Aspen	630.5 11%, n=64	1,059.8 8%, n=67	2,086.7 7%, n=43	3,505.9 14%, n=4	0.0 -, n=0	1,596.1 8%, n=134	
Other hardwoods	792.0 40%, n=51	1,601.7 27%, n=47	2,880.8 16%, n=33	5,550.9 15%, n=6	0.0 -, n=0	2,157.4 17%, n=115	
Total hardwoods	695.6 5%, n=538	1,499.1 5%, n=472	2,865.2 4%, n=309	6,316.5 9%, n=47	7,526.4 14%, n=8	2,411.9 4%, n=962	
Total	860.7 3%, n=1325	1,747.1 3%, n=1307	3,356.7 3%, n=929	5,242.7 5%, n=135	10,836.9 13%, n=38	3,920.8 3%, n=1948	

<sup>a</sup> Only area of plots having an occurrence of DDW in the respective species group and large-end diameter class category included.  
 Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Table 50. Carbon per acre<sup>a</sup> of down dead wood by species type and decay class, Maine, 1995

Species type	Decay class			All classes
	1	2	3	
	----- Pounds per acre SE, n -----			
Hardwoods	2,483 9%, n=202	2,134 6%, n=524	1,369.6 5%, n=514	2,411.9 4%, n=962
Softwoods	2,852.8 7%, n=314	2,626.2 4%, n=878	1,676.7 3%, n=1057	3,367.2 3%, n=1472
Unknown	1,327.6 13%, n=21	1,107.7 10%, n=96	1,086.4 9%, n=209	1,215.8 7%, n=298
Total	3,016.8 6%, n=472	2,876.8 4%, n=1226	1,885.5 3%, n=1435	3,920.8 3%, n=1948

<sup>a</sup>Only area of plots having an occurrence of DDW in the respective species type and decay class category included.  
 Note: SE = sampling error; n = number of plots on which at least one piece occurs; -% = SE does not exist.

Heath, Linda S.; Chojnacky, David C. 2001. **Down dead wood statistics for Maine timberlands, 1995**. Resource Bulletin NE-150. Newtown Square, PA: US Department of Agriculture, Forest Service, Northeastern Research Research Station. 80 p.

Down dead wood (DDW) is important for its role in carbon and nutrient cycling, carbon sequestration, wildfire behavior, plant reproduction, and wildlife habitat. Down dead wood was measured for the first time during a forest survey of Maine by the USDA Forest Service in 1994-1996. Pieces greater than 3 feet long and greater than 3 inches in diameter at point of intersection were measured on line transects located on standard forest inventory plots. Large piles of DDW were sampled using the standard circular plot. The amount of DDW is presented in terms of totals and per area estimates for volume, number of pieces, biomass, and carbon, summarized by attributes such as forest type group, owner group, species, and diameter class. This inventory indicates Maine's timberlands contain approximately 7.2 billion cubic feet ( $\pm 3\%$ ) in DDW pieces, and an additional 1.6 billion cubic feet ( $\pm 28\%$ ) in piles of DDW. DDW in piles and pieces contains 68.9 billion pounds ( $\pm 8\%$ ) of carbon. This is equivalent to an average of 8,030 pounds of DDW biomass per acre.

**Keywords:** Coarse woody debris (CWD), woody material, nontimber products, forest carbon