USDA Forest Service, US Department of Agriculture
Northern Research Station

Iowa's Forest Resources, 2010

Research Note NRS-118

This publication provides an overview of forest resource attributes for Iowa based on an annual inventory (2006-2010) conducted by the Forest Inventory and Analysis (FIA) program of the U.S. Forest Service, Northern Research Station. These estimates, along with web-posted core tables, are updated annually. For more information please refer to page 4 of this report.

Table 1.—Annual estimates, sampling errors, and change, Iowa, 2006-2010.

	Estimate	Sampling error (%)	Change since 2005 (%)
Forest Land Estimates			
Area (1,000 acres)	3,026	2.2	5.1
Number of live trees 1-inch diameter or larger (1,000,000 trees)	1,142	3.8	4.2
Biomass of live trees 1-inch diameter or larger (1,000 tons)	119,000	3.3	8.3
Net volume of live trees (1,000,000 ft^3)	4,393	3.9	7.2
Annual net growth of live trees (1,000 ft^3/year)	118,625	7.7	-37.6
Annual mortality of live trees (1,000 ft^3/year)	70,230	8.1	51.2
Annual harvest removals of live trees (1,000 ft^3/year)	30,572	17.9	34.2
Annual other removals of live trees (1,000 ft^3/year)	25,241	33.1	276
Timberland Estimates			
Area (1,000 acres)	2,968	2.2	5.1
Number of live trees 1-inch diameter or larger (1,000,000 trees)	1,123	3.9	4.6
Biomass of live trees 1-inch diameter or larger (1,000 tons)	115,270	3.3	6.4
Net volume of live trees (1,000,000 ft^3)	4,238	3.9	4.8
Net volume of growing-stock trees (1,000,000 ft^3)	3,049	4.7	-2.1
Annual net growth of growing-stock trees (1,000 ft^3/year)	78,485	8.0	-44.6
Annual mortality of growing-stock trees (1,000 ft^3/year)	43,314	10.2	94
Annual harvest removals of growing-stock trees (1,000 ft^3/year)	21,719	21.3	42.1
Annual other removals of growing-stock trees (1,000 ft^3/year)	29,422	44.2	194.6

Note: Sampling errors and error bars shown in the tables and figures in this report represent 68% confidence intervals for the estimated values. Volumes are for 5-inch and larger diameter trees.

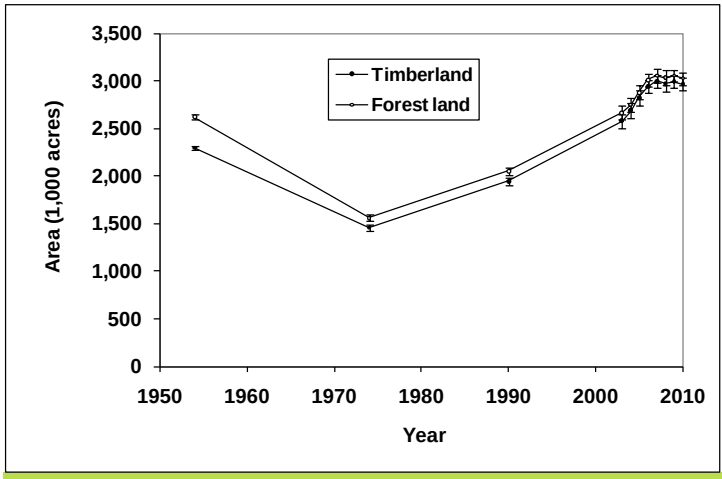

Figure 1.—Area of timberland and forest land in Iowa by year.

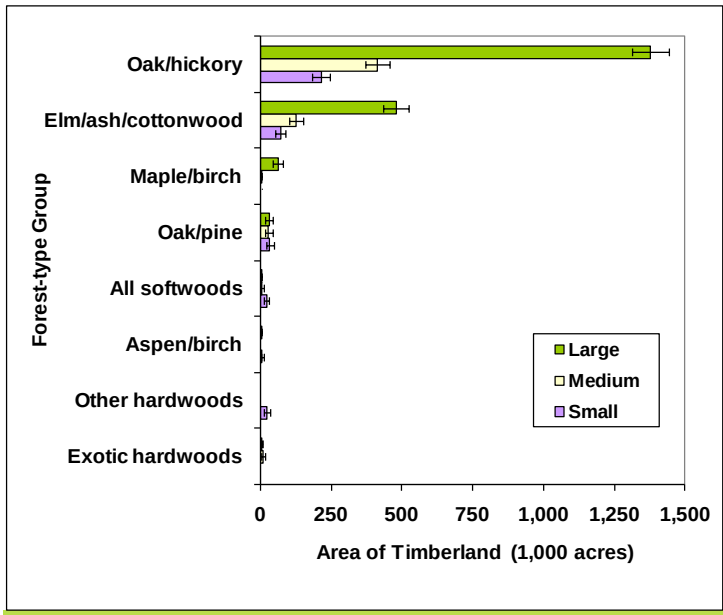

Figure 2.—Area of timberland by forest-type group and stand-size class, Iowa, 2006-2010.
Note: Forest type definitions have changed and may not be directly comparable with published estimates from previous years. Composition of forest-type groups varies geographically. Maple/beech/birch is referred to as 'Maple/birch' due to the absence of beech in Iowa, where basswood is actually a more predominant component. Large diameter trees are at least 11.0 inches diameter for hardwoods and at least 9.0 inches diameter for softwoods. Medium diameter trees are at least 5.0 inches diameter but smaller than large diameter trees. Small diameter trees are less than 5.0 inches diameter. Additional details are available in USDA Forest Service (2007).

Table 2.—Top 10 tree species by statewide volume estimates, Iowa, 2006-2010.

Rank	Species	Volume of live trees on forest land (1,000,000 ft^3)	Sampling error (%)	Change since 2005 (%)	Volume of sawtimber trees on timberland (1,000,000 board feet)	Sampling error (%)	Change since 2005 (%)
1	Silver maple	490.5	17.6	10.2	1,067.3	20.3	-11.6
2	Bur oak	459.4	11.2	-1.9	1,033.5	14.2	-14.5
3	Cottonwood	361.5	26.5	6.6	1,496.8	26.9	0.9
4	White oak	360.9	13.2	-2.3	1,217.9	14.6	-1.1
5	Black walnut	296.6	11.7	19.0	977.1	14.2	13.0
6	Northern red oak	282.8	13.9	3.7	1,108.7	15.6	3.6
7	American elm	208.8	7.6	-13.0	288.8	14.8	-24.1
8	Hackberry	206.7	12.7	11.7	551.9	15.7	16.9
9	American basswood	200.9	14.4	15.4	624.9	17.7	3.3
10	Shagbark hickory	170.2	11.5	4.9	464.7	14.7	11.9
	Other softwood species	57.1	14.8	29.2	63.3	30.1	-33.3
	Other hardwood species	1,297.6	4.6	12.9	2,472.7	7.7	5.3
	All species	4,393.1	3.9	7.2	11,367.5	5.5	-0.1

Issue Update: Standing Dead Trees

Standing dead trees (at least 5 inches diameter at breast height – d.b.h.) provide critical habitat features for many forest-associated wildlife species, and contain significantly more cavities per tree than occur in live trees. Standing dead trees large enough to meet habitat requirements for wildlife are referred to as 'snags' (typically at least 10 inches d.b.h.) (Fig. 3). Standing dead trees serve as important indicators not only of wildlife habitat, but also for past mortality events and carbon storage.

More than 36 million standing dead trees are present in Iowa, with a density of 12 standing dead trees per acre of forest land, estimated from a sample of 948 standing dead trees measured during 2006-2010. Seven species groups each contributed more than 1 million standing dead trees, with the top group, 'other eastern soft hardwoods' exceeding 20 million (Fig. 4). Relative to the total number of live trees in each species group, four species groups exceeded 5 standing dead trees per 100 live trees, with 'select and other white oaks' leading all groups with 7.0 standing dead trees per 100 live trees (Fig. 5).

Figure 3.—Standing dead tree with cavity. Photograph by Joseph O'Brien, USDA Forest Service, Bugwood.org.

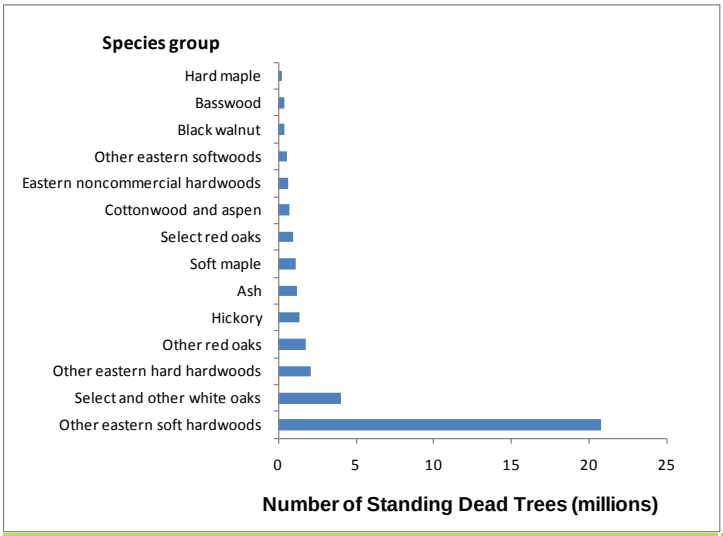

Figure 4.—Number of standing dead trees by species group, Iowa, 2006-2010.

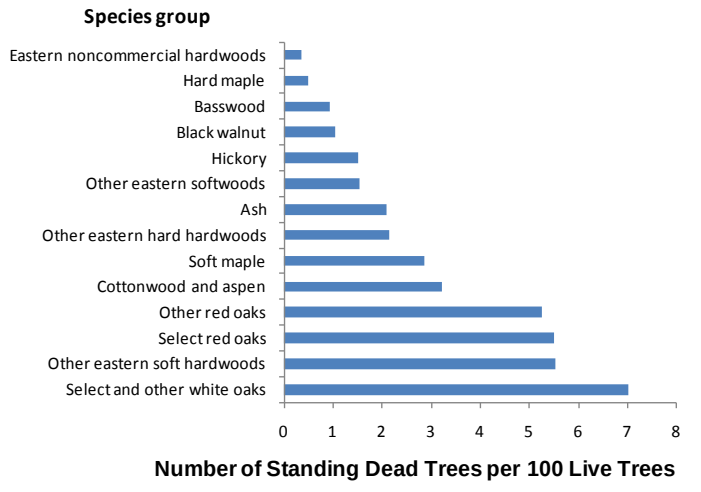

Figure 5.—Number of standing dead trees per 100 live trees, by species group, Iowa, 2006-2010.

More than 58 percent of all standing dead trees are smaller than 9.0 inches d.b.h., and fewer than 10 percent are at least 15 inches d.b.h (Fig. 6, Fig. 7). The greatest number of standing dead trees (35 percent) was estimated for the class of least decay (all limbs and branches present), with decreasing numbers for classes of more decay (Fig. 7).

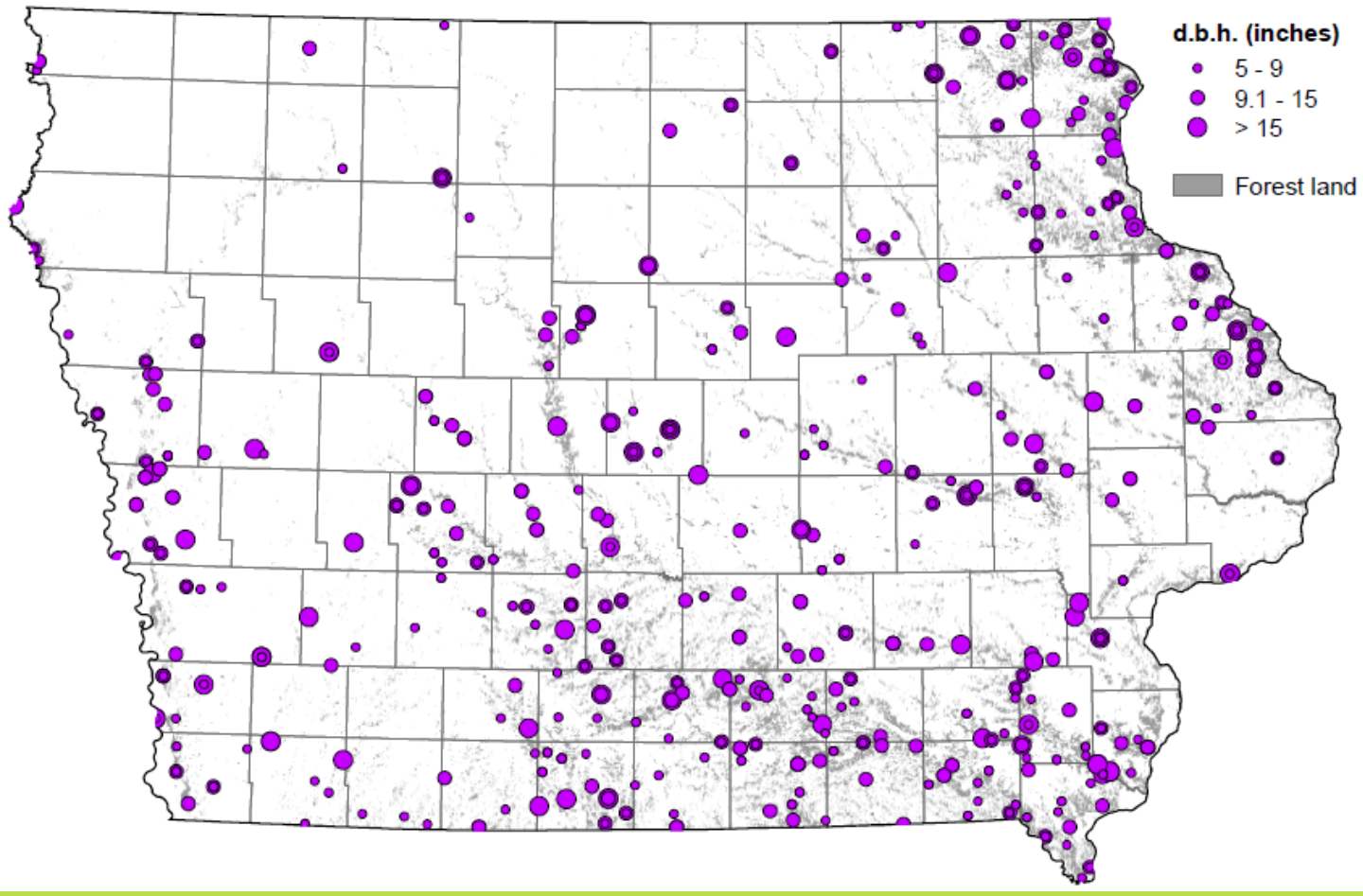

Figure 6.—Standing dead trees on forest land, by diameter class, Iowa, 2006-2010. Multiple symbols per plot represent observations of more than one standing dead tree. Depicted FIA plot locations are approximate.

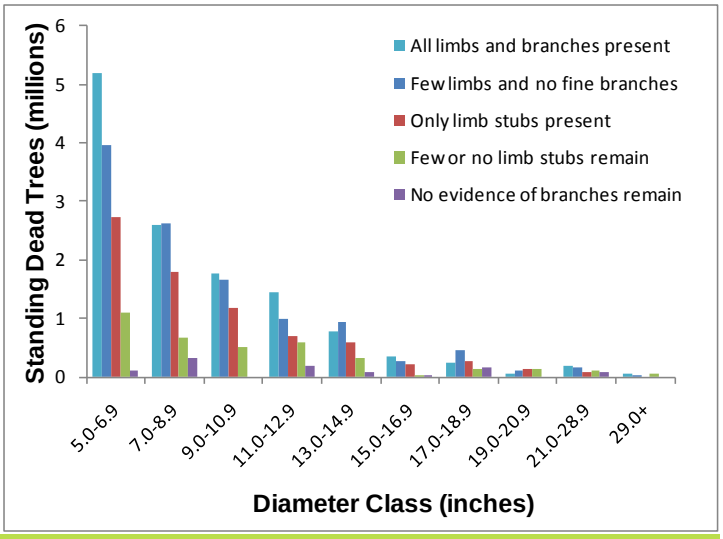

Figure 7.—Number of standing dead trees by diameter and decay class, Iowa, 2006-2010.

Standing dead trees result from a variety of potential causes, including diseases and insects, weather damage, fire, flooding, drought, competition, and other factors. More than 57 percent of all standing dead trees are in 'other eastern soft hardwoods' species group. Most (64 percent) of this group is comprised by American elm, a species which has been severely impacted by Dutch elm disease. In terms of number of standing dead trees per 100 live trees, three of the top species groups are comprised of oaks, likely due to slow rates of decay and longer persistence for these tree species. Standing dead trees provide areas for foraging, nesting, roosting, hunting perches, and cavity excavation for wildlife, ranging from primary colonizers such as insects, bacteria, and fungi to birds, mammals, and reptiles. The size distribution of standing dead trees in Iowa suggests that many are too small to support nesting or roosting for those wildlife species requiring larger cavities, e.g., wood ducks, owls. Providing a variety of forest structural stages and retaining specific habitat features on both private and public lands are ways that forest managers maintain abundance and quality of habitat for forest-associated wildlife species in Iowa.

Citation for this Publication

Nelson, M.D.; Brewer, M. 2011. Iowa's forest resources, 2010. Res. Note NRS-118. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p.

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Metadata

Information published in this report and in related tables is based on Forest Inventory and Analysis Database (FIADB), processed using field guide 4.01 and National Information Management System (NIMS) version 4.0 (patch 28), 18 January 2011. Due to periodic changes to NIMS and FIADB, trend analyses should be made using FIA's online estimation tools, not by comparing published reports or tables. FIA estimates, tabular data, and maps may be generated at http://fiatools.fs.fed.us

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