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Nebraska's Forest Resources: *Acreages and Ownership*

This guide describes the forest types found in Nebraska and lists acreages by ownerships.

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Nebraska's forest resources are very diverse and represent a unique combination of eastern hardwood, western coniferous, and northern boreal forests. Species in Nebraska hardwood forests include bur oak, red oak, silver maple, green ash, cottonwood, black willow, hackberry, black walnut, American basswood, boxelder, American elm, honeylocust, hickories and mulberry. In addition, eastern redcedar (a conifer) is found throughout the eastern hardwood forests. Conifer forests primarily contain ponderosa pine and Rocky Mountain juniper. The boreal forests contain a mixture of several of the above species and paper birch. All three of these forest ecosystems converge in the Niobrara River valley, the only such occurrence in the nation.

The three main forest types of Nebraska are elm-ash-cottonwood, oak-hickory, and ponderosa pine. *Figure 1* shows the distribution of the forest types. Deciduous species dominate in the east and conifers in the west. Hardwoods follow the major drainage systems from east to west. Conifers are found in the Pine Ridge area of northwest Nebraska. The Niobrara River valley contains both hardwoods and western conifers. Eastern redcedar is distributed across the state and can be found in all of the forest and nonforest land types.

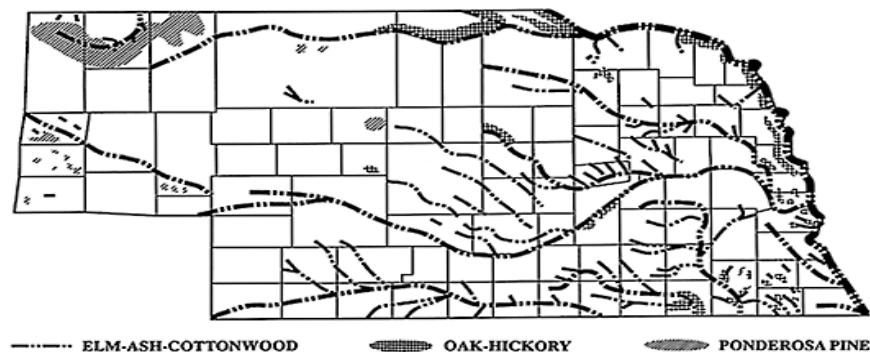


Figure 1. Major forest areas in Nebraska in 1983.

Forests represent only 3.7 percent of the state's total land area. However, they return many economic and non-economic benefits through wood products, wind protection, wildlife habitat, aesthetic values and outdoor recreation. Each acre of this scarce resource is valuable and makes a significant contribution to the "Good Life" of Nebraska.

The following information is based on results of the U.S. Forest Service's Forest Survey, "*Nebraska's Second Forest Inventory*," USFS Resource Bulletin NC-96 by Gerhard K. Raile. For further information please contact the Nebraska Forest Service or your Cooperative Extension office.

Highlights

In 1983, Nebraska had:

- Over 1,830,000 acres (3.7 percent of its land area) in trees.
- Over 718,300 acres of forest land and 1,111,700 acres of nonforest land with trees.
- Over 262,200 acres of land in wooded strips.
- Over 139,000 acres in windbreaks.
- An annual average loss of over 11,000 acres of land with trees since 1955.
- Cottonwood forests that accounted for over half of all land with trees (942,600 acres).
- Commercial forest land that was 88 percent privately owned.

Definitions

Nebraska's woodland resources include commercial forest, non-commercial forest, wooded strips, windbreaks, and nonforest land with trees. **Forest land** is defined as land at least 16.7 percent stocked with trees of any size, or formerly having had such tree cover, and available for timber harvesting. The minimum area for classification is one acre and at least 120 feet wide.

Commercial forest land is capable of producing more than 20 cubic feet per acre per year of tree growth and that is available timber harvesting. **Non-commercial forest** land is unproductive forest land (produces less than 20 cubic feet of growth per acre per year) or productive, reserved forest land (forest land not available for harvest such as a park or a wilderness area).

Wooded strips are contiguous areas of more than one acre and less than 120 feet wide with naturally occurring trees. **Windbreaks** are groups of trees less than 120 feet wide used for wind protection. **Nonforest land** with trees is land not managed for timber production and that does not meet the forest land qualifications. However, it does contain one or more trees per acre at least five inches in diameter at breast height (4-1/2 feet high).

Forest type is a classification of forest land based on the species that constitute the majority of the live trees. *Table I* lists the forest types in Nebraska.

Woodland Acreages

A previous inventory of Nebraska's forest resource was conducted in 1955. *Table II* reveals the changes in woodland acreages from 1955 to 1983. Acres of commercial and non-commercial forest land, windbreaks, and non-forest land with trees declined significantly during this period. Wooded strips increased in acreage, primarily when forest land was partially removed along drainages.

There was a 308,300 acre decrease in woodlands between the two inventories (an average yearly loss of

11,000 acres). The net 11,000 acre annual loss takes into account the 6,000 to 8,000 acres planted with trees or shrubs each year. Most of this decline in acreage occurred in eastern hardwood forests, where the greatest losses were in oak and cottonwood forest types. The lost woodlands have been converted primarily to cropland, improved pasture and housing developments.

The eastern redcedar-hardwood forest type accounted for 1.7 percent of all commercial forest land in 1955. However, by 1983 it had increased to 7.8 percent of all commercial forest land. Even greater increases in eastern redcedar acreage occurred in Nebraska's other woodland resource types. Eastern redcedar is an aggressive species that expanded its range due to the control of fires and seed being available from tree plantings. Most of this expansion occurred on rangeland.

Table I shows the Nebraska acreage in various forest types. Bottomland hardwoods (elm-ash-cottonwood, cottonwood and other lowland hardwoods) represent over one million acres, 58 percent of the total. Upland hardwoods (oak-hickory, bur oak and eastern redcedar-hardwoods) are found adjacent to drainages, on river bluffs, and along small streams. This forest type totals over 361,600 acres, approximately 20 percent of all woodland in Nebraska. Ponderosa pine, found on 368,400 acres in the Pine Ridge and along the Niobrara River, represents the largest contiguous block of woodlands in the state.

Nonstocked acreages represent land that was forested but where trees have been removed to a low stocking level. The land use for these acreages is still forestry.

Private landowners owned most of the woodland acreage in Nebraska (Table III). Approximately 88 percent of the commercial forest land, 97 percent of the wooded strips, and 91 percent of all woodlands were privately owned. Public ownership of Nebraska's woodlands was split between federal, state and local entities. State government was the second largest owner of woodlands in Nebraska, mostly in wildlife management areas, parks and School Lands (Board of Educational Lands and Funds).

Table IV lists acreages in various woodland types by county. Dawes County had 126,700 acres with trees, more than any other county. Sarpy County had the highest proportion of woodland, over 15 percent. Seven counties (Boyd, Dawes, Johnson, Keya Paha, Knox, Sarpy and Washington) had over 10 percent of their total land area in trees. In 15 counties, less than one percent of the total land area was in trees.

Table I - Acreages of woodlands in Nebraska, 1955 and 1983.						
Forest type	Acreage total	Com- mercial forest land	Noncom- mercial forest land	Wind- breaks	Wooded strips	Non-forest land with trees
Bottomland hardwoods						
Elm-ash-cottonwood	617,800	122,000	31,600	82,100	113,900	268,200
Cottonwood	324,800	82,800	46,800	25,300	68,900	101,000
Lowland hardwoods	116,500	76,500	10,800	3,500	10,200	15,500
Subtotal	1,059,100	281,300	89,200	110,900	193,000	384,700
Upland hardwoods						
Eastern redcedar-hardwoods	188,800	42,200	32,700	21,300	13,200	79,400
Bur oak	113,600	37,400	25,800	0	20,500	29,900
Oak-hickory	59,200	24,700	3,300	6,900	10,200	14,100
Subtotal	361,600	104,300	61,800	28,200	43,900	123,400

Ponderosa pine	368,400	146,100	29,500	0	25,300	167,500
Nonstocked	40,900	6,100	0	0	0	34,800
Total	1,830,000	537,800	180,500	139,100	262,200	710,400

Table II - Land area by forest type, Nebraska, 1983.

Land use	1955 acres	1983 acres	Difference (1955-1983)
Commercial forest land	714,700	537,800	-176,900
Non-commercial forest land	188,600	180,500	- 8,100
Subtotal -- forest land	903,300	718,300	-185,000
Wooded strips	261,000	262,200	+ 1,200
Windbreaks	152,000	139,100	- 12,900
Other non-forest land with trees	822,000	710,400	-111,600
Subtotal -- non-forest land with trees	1,235,000	1,111,700	-123,300
Total	2,138,300	1,830,000	-308,300

Table III - Ownership of Nebraska's woodland resources, 1983

Woodland ownership class	Acreage total	Commercial forest	Noncommercial forest	Wooded strips	Windbreaks*	Nonforest land with trees*
Private	1,664,400	472,600	140,100	255,200	127,700	668,800
State	76,500	21,800	28,300	3,400	7,500	15,500
Federal	63,600	30,800	8,200	3,600	1,900	19,100
Native American	12,800	8,800	3,500	0	0	500
County/Municipal	12,700	3,800	400	0	2,000	6,500
Total	1,830,000	537,800	180,500	262,200	139,100	710,400

* Estimates by the Nebraska Forest Service.

Table IV - Acreages of woodlands in Nebraska, by county, 1983.

County	Total land area	Total acres with trees	% of county land in trees	Commercial forest land	Non-commercial forest land	Non-forest land with trees
Adams	360,864	12,775	(3.5%)	2,285	407	10,083
Antelope	549,459	30,170	(5.5%)	9,889	3,028	17,253
Arthur	454,752	377	(0.1%)	323	0	54
Banner	478,208	17,041	(3.6%)	3,356	2,151	11,534
Blaine	457,235	4,476	(1.0%)	1,131	268	3,077
Boone	439,942	12,435	(2.8%)	2,567	387	9,481

Box Butte	689,280	196	(0.0%)	84	0	112
Boyd	340,666	36,967	(10.9%)	9,251	2,511	25,205
Brown	776,864	35,615	(4.6%)	10,398	4,284	20,933
Buffalo	605,062	14,787	(2.4%)	6,765	3,956	4,066
Burt	310,982	15,234	(4.9%)	4,856	1,170	9,208
Butler	373,888	6,580	(1.8%)	3,560	930	2,090
Cass	356,506	32,433	(9.1%)	12,390	3,971	16,072
Cedar	473,626	24,456	(5.2%)	5,793	2,122	16,541
Chase	571,853	3,698	(0.7%)	225	191	3,282
Cherry	3,815,309	50,315	(1.3%)	12,598	4,724	32,993
Cheyenne	765,370	9,812	(1.3%)	688	0	9,124
Clay	367,309	5,520	(1.5%)	1,678	360	3,482
Colfax	262,618	6,543	(2.5%)	3,507	1,222	1,814
Cumming	367,725	13,580	(3.7%)	5,473	964	7,143
Custer	1,645,619	68,610	(4.2%)	13,016	5,806	49,788
Dakota	164,864	15,098	(9.2%)	5,954	1,887	7,257
Dawes	894,266	126,778	(14.2%)	48,064	8,401	70,313
Dawson	628,429	22,600	(3.6%)	6,171	7,669	8,740
Deuel	279,853	680	(0.2%)	282	0	398
Dixon	303,494	21,824	(7.2%)	7,845	2,263	11,716
Dodge	341,779	22,398	(6.6%)	6,046	2,248	14,104
Douglas	212,941	18,656	(8.8%)	6,833	1,611	10,167
Dundy	588,941	6,225	(1.1%)	1,542	93	4,590
Fillmore	368,928	1,380	(0.4%)	742	182	456
Franklin	368,704	18,259	(5.0%)	3,487	603	14,169
Frontier	624,403	13,850	(2.2%)	1,430	2,402	10,018
Furnas	461,389	10,851	(2.4%)	3,329	1,908	5,614
Gage	549,139	44,038	(8.1%)	7,716	1,502	34,820
Garden	1,075,392	7,814	(0.7%)	748	75	6,991
Garfield	365,062	7,269	(2.0%)	1,556	407	5,306
Gosper	294,886	1,044	(0.4%)	477	220	347
Grant	495,898	0	(0.0%)	0	0	0
Greeley	365,062	4,195	(1.2%)	323	205	3,667
Hall	343,533	11,064	(3.2%)	3,698	1,573	5,793
Hamilton	347,264	5,185	(1.5%)	1,960	916	2,309
Harlan	355,277	5,607	(1.6%)	2,934	1,072	1,601
Hayes	456,518	4,917	(1.1%)	920	176	3,821

Hitchcock	453,702	11,484	(2.5%)	2,768	1,459	7,257
Holt	1,539,731	95,167	(6.2%)	20,461	6,702	68,004
Hooker	461,197	1,874	(0.4%)	781	154	939
Howard	361,075	24,733	(6.9%)	3,943	1,580	19,210
Jefferson	367,693	26,608	(7.2%)	10,775	2,946	12,887
Johnson	240,999	24,430	(10.1%)	7,373	2,361	14,696
Kearney	331,910	344	(0.1%)	152	72	120
Keith	665,037	12,017	(1.8%)	3,555	24	8,438
Keya Paha	491,898	55,431	(11.3%)	15,965	6,484	32,982
Kimball	609,254	6,193	(1.0%)	358	83	5,752
Knox	707,494	78,784	(11.1%)	21,353	7,277	50,154
Lancaster	536,973	32,291	(6.0%)	4,837	1,966	25,488
Lincoln	1,616,301	41,582	(2.6%)	9,159	3,040	29,383
Logan	365,523	1,861	(0.5%)	881	335	645
Loup	367,392	4,221	(1.2%)	618	284	3,319
Madison	368,224	10,932	(3.0%)	2,294	858	7,780
McPherson	549,984	564	(0.1%)	250	51	263
Merrick	305,971	16,916	(5.5%)	4,596	3,315	9,005
Morrill	899,174	20,831	(2.3%)	2,746	3,695	14,490
Nance	281,235	15,054	(5.4%)	7,673	2,586	4,795
Nemaha	261,453	22,553	(8.6%)	8,363	3,067	11,123
Nuckolls	368,429	11,509	(3.1%)	4,094	1,381	6,034
Otoe	393,843	25,117	(6.4%)	8,714	2,275	14,128
Pawnee	276,864	21,280	(7.7%)	6,851	2,845	11,584
Perkins	566,150	0	(0.0%)	0	0	0
Phelps	345,530	834	(0.2%)	461	71	302
Pierce	367,834	8,176	(2.2%)	1,931	1,116	5,129
Platte	428,314	7,227	(1.7%)	3,805	780	2,642
Polk	279,763	5,043	(1.8%)	2,406	1,154	1,484
Red Willow	459,712	5,794	(1.3%)	2,971	698	2,125
Richardson	353,734	22,086	(6.2%)	9,851	3,599	8,636
Rock	642,106	14,386	(2.2%)	4,305	1,366	8,715
Saline	368,307	14,247	(3.9%)	5,577	1,794	6,876
Sarpy	152,422	23,066	(15.1%)	6,688	1,885	14,493
Saunders	481,792	22,037	(4.6%)	7,167	3,357	11,513
Scottsbluff	464,115	30,395	(6.6%)	4,566	4,830	20,999
Seward	368,109	10,532	(2.9%)	4,287	1,106	5,139

Sheridan	1,569,773	84,165	(5.4%)	31,453	5,675	47,037
Sherman	360,640	23,074	(6.4%)	2,117	1,486	19,471
Sioux	1,324,518	83,417	(6.3%)	35,987	8,934	38,496
Stanton	275,712	16,478	(6.0%)	3,776	1,936	10,766
Thayer	368,026	7,574	(2.1%)	3,620	1,527	2,427
Thomas	456,576	22,585	(5.0%)	3,424	1,556	17,605
Thurston	250,003	21,628	(8.7%)	11,010	3,156	7,462
Valley	363,091	5,656	(1.6%)	1,037	512	4,107
Washington	247,174	28,252	(11.4%)	10,674	2,814	14,764
Wayne	283,622	5,623	(2.0%)	1,485	302	3,836
Webster	368,141	17,434	(4.7%)	5,910	1,113	10,411
Wheeler	367,955	11,780	(3.2%)	1,981	714	9,085
York	368,486	5,304	(1.4%)	898	284	4,122
Total	49,052,120	1,830,021	(3.7%)	537,837	180,470	1,111,714

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