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### G90-968 Nebraska's Forest Resources: Acreages and Ownership

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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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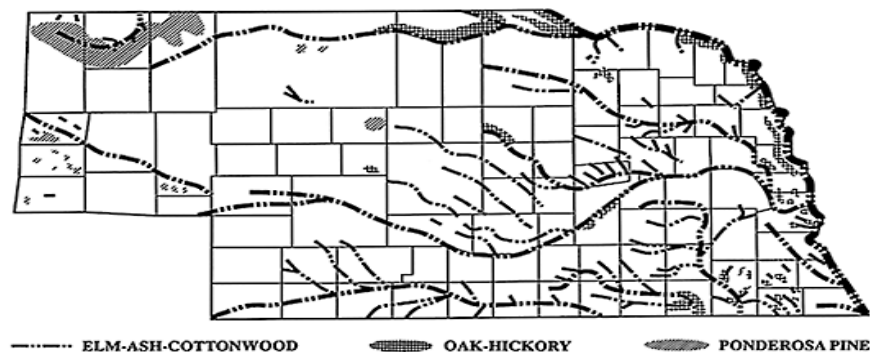
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Nebraska's forest resources are very diverse and represent a unique combination of eastern hardwood, western coniferous, and northern boreal forests. Species in Nebraska hardwood forests include bur oak, red oak, silver maple, green ash, cottonwood, 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.

| <b>Table I - Acreages of woodlands in Nebraska, 1955 and 1983.</b> |                      |   |  |                         |                          |   |
|--|----------------------|---|--|-------------------------|--------------------------|---|
| <b>Forest type</b>   | <b>Acreage total</b> | <b>Com-<br/>mercial<br/>forest<br/>land</b> | <b>Noncom-<br/>mercial<br/>forest<br/>land</b> | <b>Wind-<br/>breaks</b> | <b>Wooded<br/>strips</b> | <b>Non-forest<br/>land with<br/>trees</b> |
| <b>Bottomland hardwoods</b>  |                      |   |  |                         |                          |   |
| 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                                    |
| <b>Subtotal</b>  | <b>1,059,100</b>     | <b>281,300</b>                              | <b>89,200</b>                                  | <b>110,900</b>          | <b>193,000</b>           | <b>384,700</b>                            |
| <b>Upland hardwoods</b>  |                      |   |  |                         |                          |   |
| 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                                    |
| <b>Subtotal</b>  | <b>361,600</b>       | <b>104,300</b>                              | <b>61,800</b>                                  | <b>28,200</b>           | <b>43,900</b>            | <b>123,400</b>                            |
|  |                      |   |  |                         |                          |   |

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

**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                |
| <b>Subtotal -- forest land</b>                | <b>903,300</b>   | <b>718,300</b>   | <b>-185,000</b>        |
| 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               |
| <b>Subtotal -- non-forest land with trees</b> | <b>1,235,000</b> | <b>1,111,700</b> | <b>-123,300</b>        |
| <b>Total</b>                                  | <b>2,138,300</b> | <b>1,830,000</b> | <b>-308,300</b>        |

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

| Woodland ownership class | Acreage total    | Commercial forest | Noncommercial forest | Wooded strips  | Wind-breaks*   | 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                      |
| <b>Total</b>             | <b>1,830,000</b> | <b>537,800</b>    | <b>180,500</b>       | <b>262,200</b> | <b>139,100</b> | <b>710,400</b>             |

\* 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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***E-7, Miscellaneous***

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