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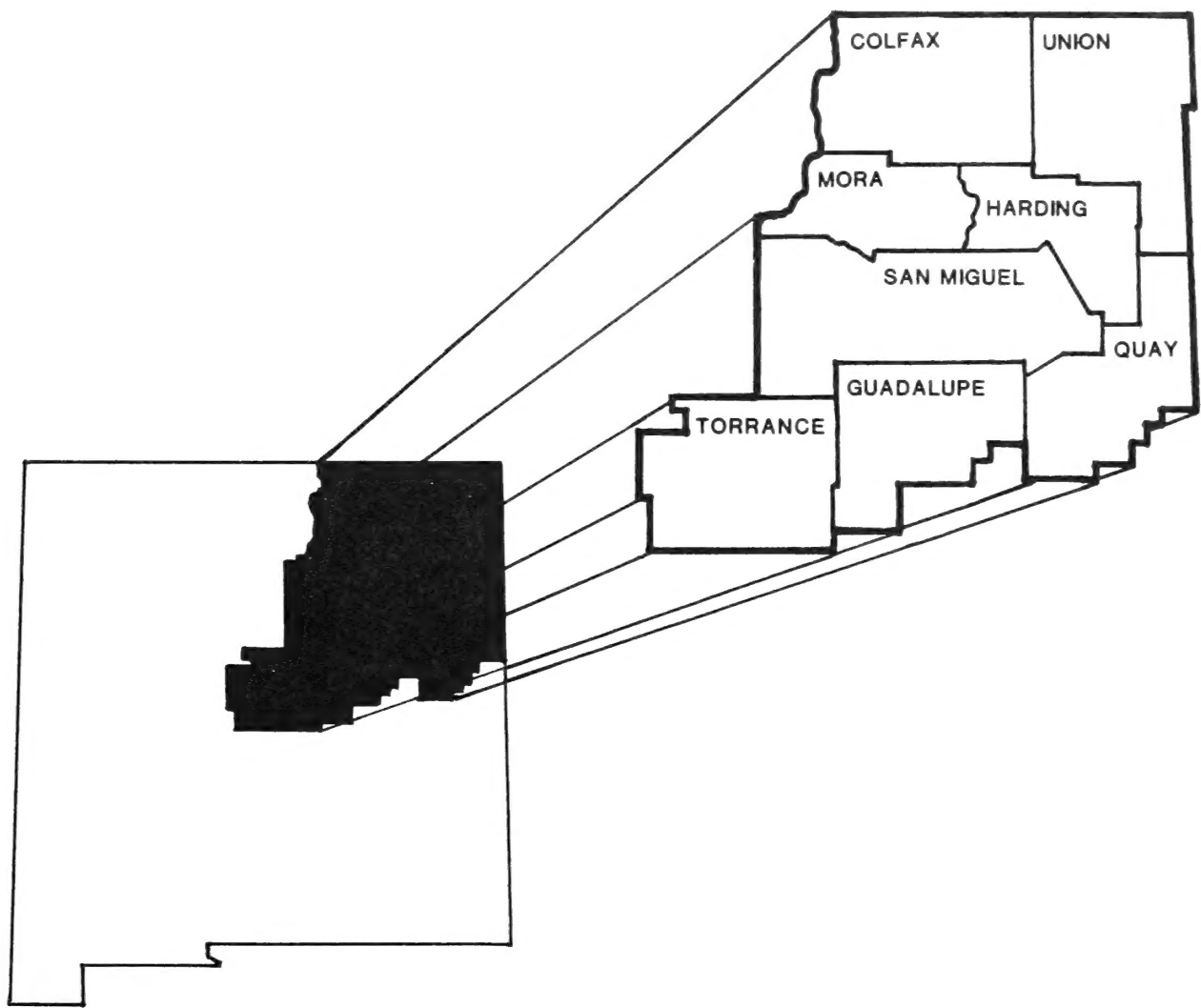
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# Timberland and Woodland Resources Outside National Forests in Northeastern New Mexico, 1987

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## ACKNOWLEDGMENTS

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## RESEARCH SUMMARY

The forest land base outside the National Forests in northeastern New Mexico totals more than 2 million acres. Private individuals or companies own 1,795,000 acres of these forests. Acres supporting stands of timber species total 820,000, while the woodland resource, typified by stands of pinyon-juniper, accounts for more than 1.2 million acres. These areas contain wood volumes of 735 million cubic feet and 507 million cubic feet, respectively. This report presents additional information on the land base, timberland and woodland area, and associated inventory volume, growth, and mortality.

## PREFACE

The primary objective of Forest Survey—a continuing, nationwide undertaking of the Forest Service, U.S. Department of Agriculture—is to provide an assessment of the renewable resources for the forest lands of the Nation. Fundamental to the accomplishment of the objective are the periodic State-by-State resource inventories. Originally, Forest Survey was authorized by the McSweeney-McNary Act of 1928. The current authorization is through the Renewable Resources Research Act of 1978.

The Intermountain Research Station with headquarters in Ogden, UT, conducts the forest resource inventories for the Rocky Mountain States of Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming. These inventories provide information on the extent and condition of the forests—its volume of wood and stand dynamics as expressed by growth, removals, and mortality for State,

privately owned, and most other forest lands not in the National Forest System. These data, when combined with similar information on National Forest lands, provide a basis for forming forest policies and programs and for the orderly development and use of the resources.

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# Timberland and Woodland Resources Outside National Forests in Northeastern New Mexico, 1987

Dwane D. Van Hooser

## INTRODUCTION

This report presents the principal findings of the most recent Forest Survey of the timberland and woodland resources outside the National Forests in northeastern New Mexico (fig. 1). Phase I of the survey began in 1985 with the collection and reconciliation of area information and aerial photo interpretation. The field phase began in early March 1987 and was completed in mid-November of the same year.

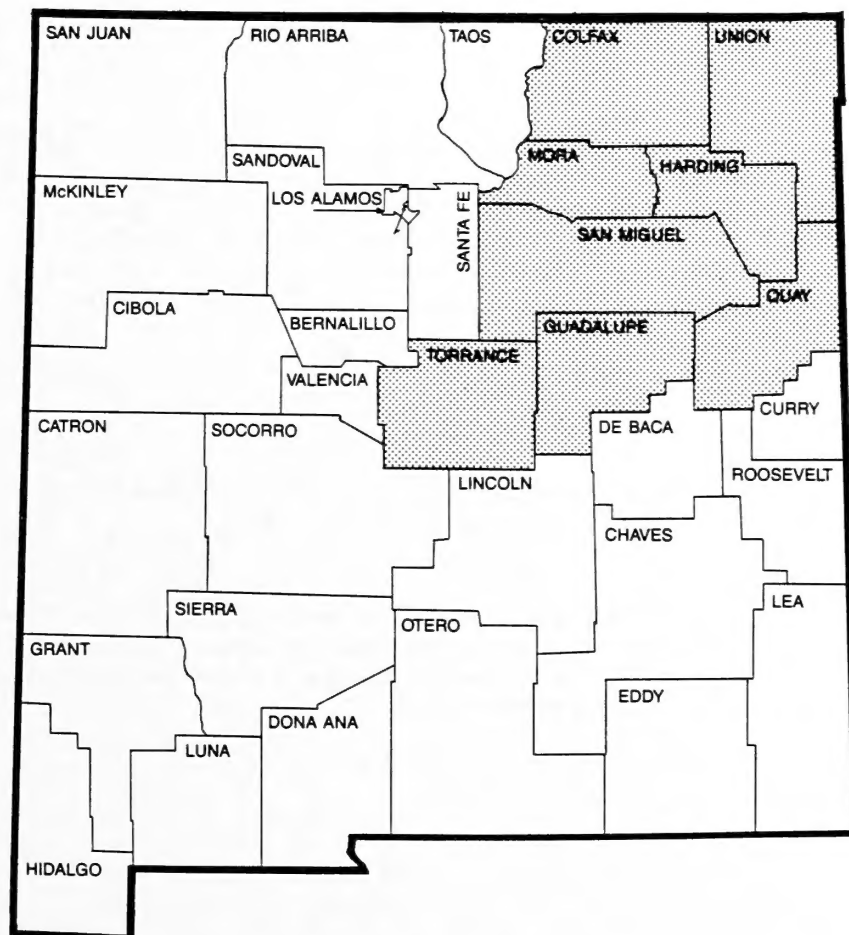


Figure 1—Northeastern New Mexico counties.

The resource statistics in this report include estimates for those lands in private ownership and those public lands administered by the Bureau of Land Management, U.S. Department of the Interior, other Federal agencies, the State of New Mexico, and county and municipal governments. Reserved areas, such as those lands administered by the National Park Service, USDI, are not field sampled but are included in the total area summaries (table 1). Area estimates for those lands administered by the National Forest System, Forest Service, U.S. Department of Agriculture, are also included in table 1. However, associated resource estimates are not included in this report but will be combined with the estimates presented here and in other survey unit reports to form the basis for a comprehensive statewide analysis of New Mexico's forest resource situation.

## HIGHLIGHTS

### Area

The eight counties that compose northeastern New Mexico contain 16.4 million acres. A substantial portion of the area—more than 80 percent—is owned by private individuals and firms (fig. 2), while public agencies such as the Bureau of Land Management and the State of New Mexico administer just over 3 million acres.

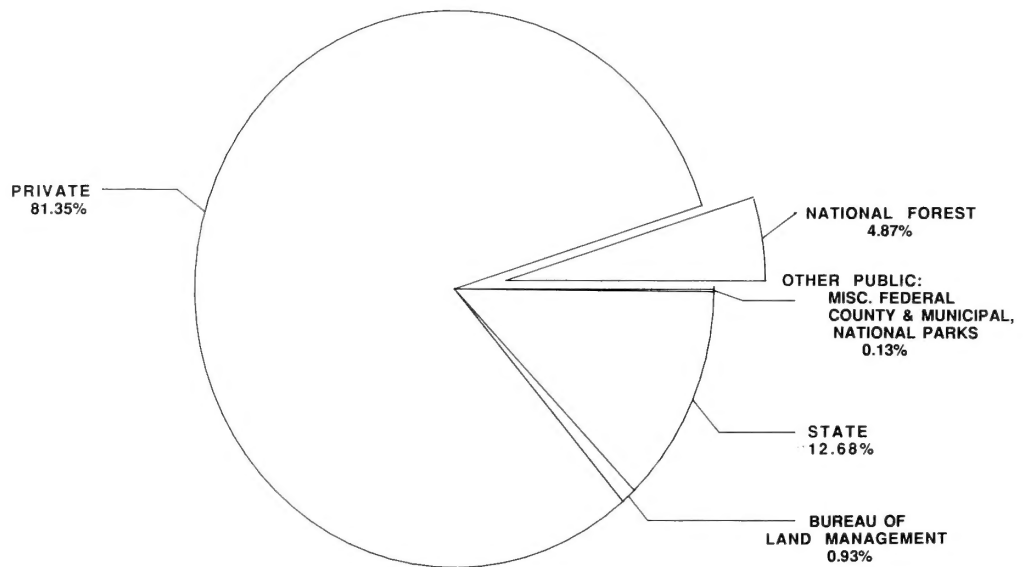
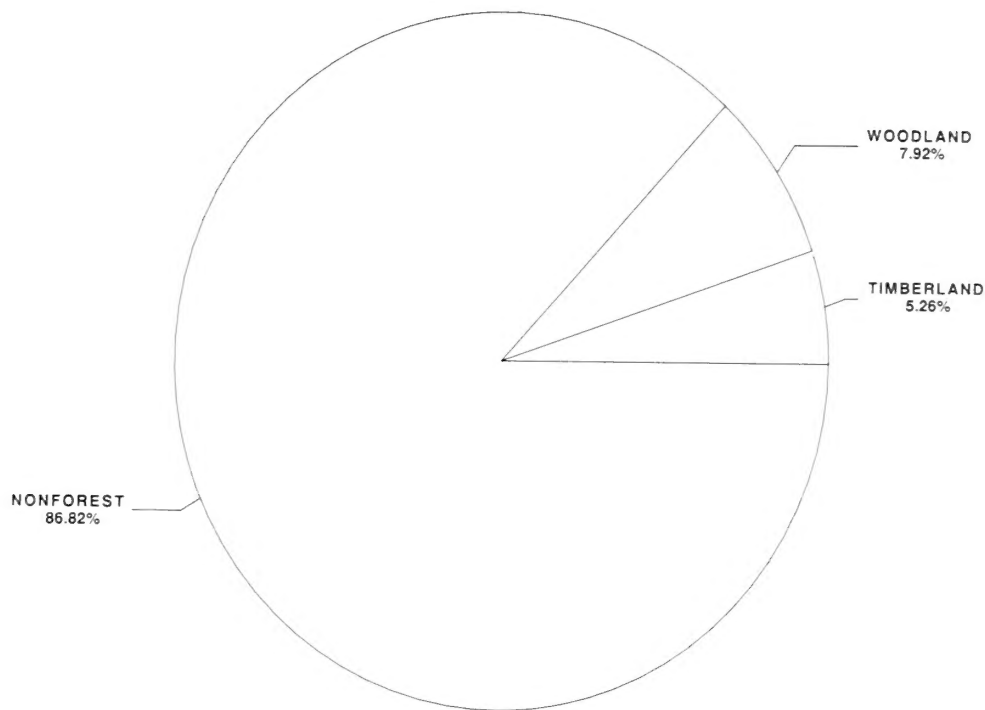


Figure 2—Distribution of land by ownership in northeastern New Mexico, 1987.

Of the 15.6 million acres of land outside the National Forests in northeastern New Mexico more than 2 million meet minimum stocking requirements to be classified as forest land. Over 800,000 acres are stocked with timber species while more than 1.2 million acres are classified as woodland (fig. 3).

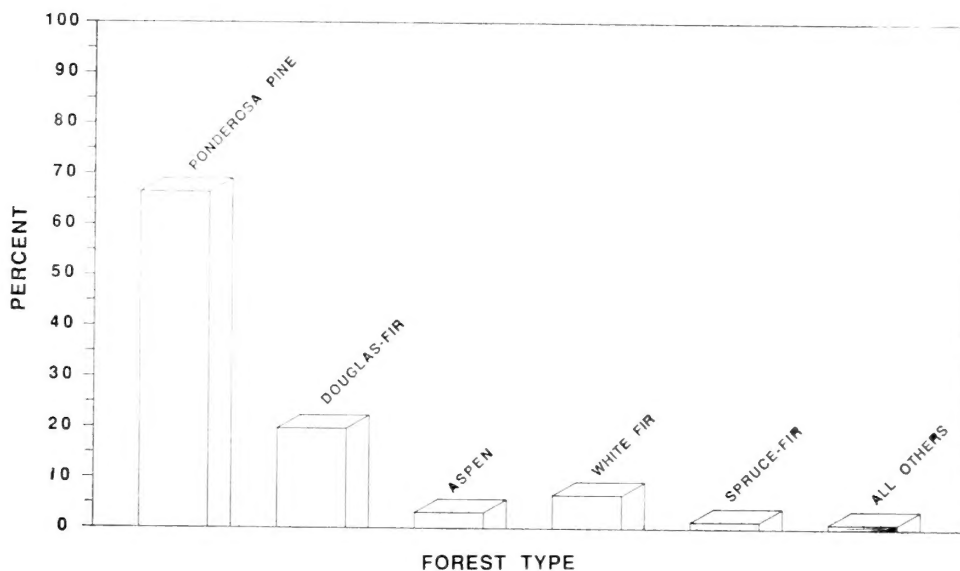




**Figure 3**—Distribution of land outside National Forests by type of land in northeastern New Mexico, 1987.

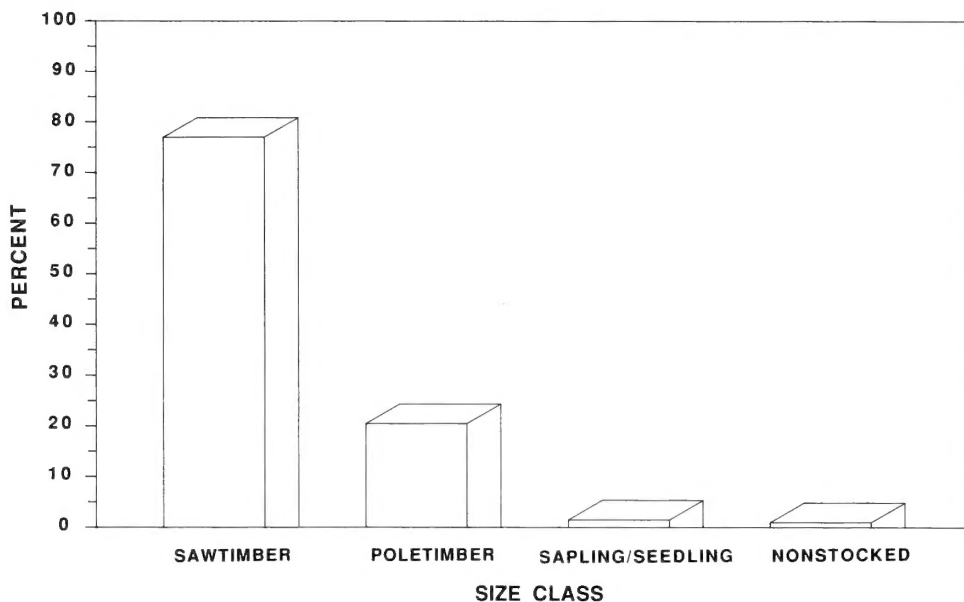
## Timberland

**Area**—Most of the 765,000 acres of timberland in private holdings are potentially available for harvesting. Of the 7 percent of the timberland base administered by public agencies, only 388 acres are reserved. Stands in which ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*) predominate constitute more than four-fifths of the timberland area (fig. 4). The other coniferous types, which include spruce-fir, white fir, and spruce, account for more than 85,000 acres of timberland. And aspen (*Populus tremuloides*) is predominant on 3 percent of the timberland acres.



**Figure 4**—Distribution of timberland outside National Forests by forest type in northeastern New Mexico, 1987.

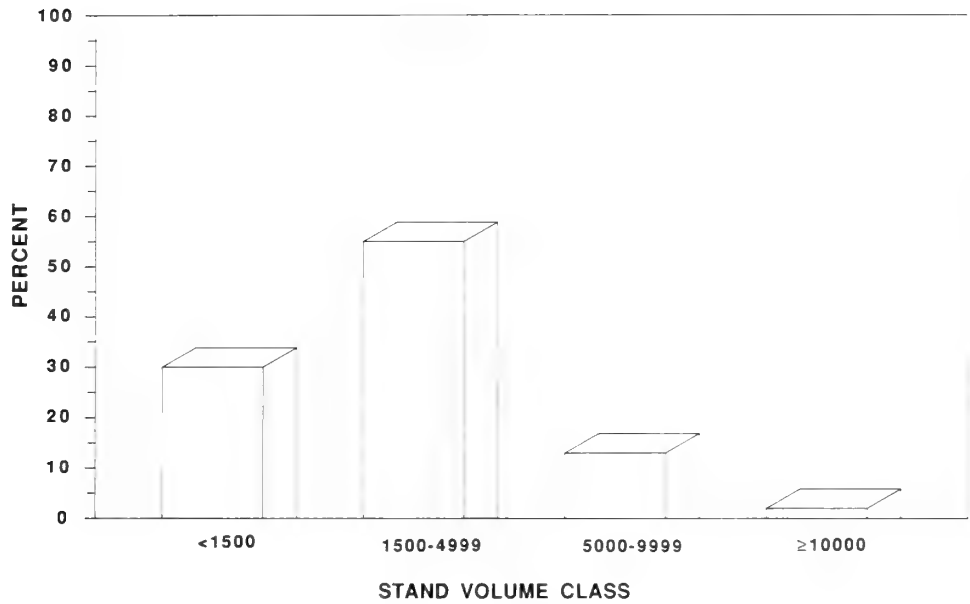
Sawtimber-size stands occupy over three-quarters of the timberland area (fig. 5). A total of 20 percent is in the less mature poletimber category, while only a small amount—some 19,000 acres—is in seedling/sapling stands or is nonstocked.



**Figure 5**—Distribution of timberland outside National Forests by stand-size class in northeastern New Mexico, 1987.

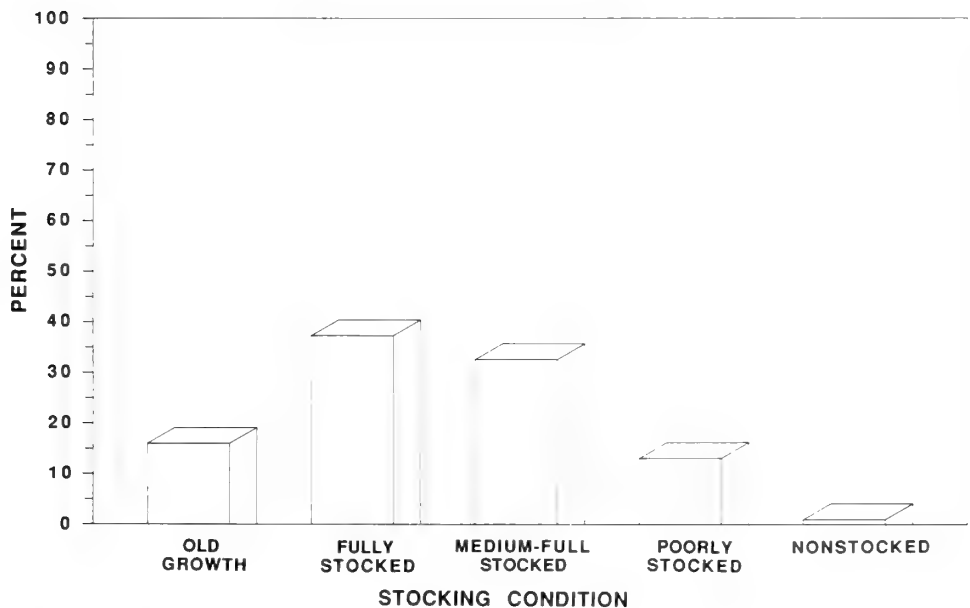
All of the timberland acres are capable of producing 20 cubic feet or more per acre on an annual basis. However, less than 2 percent of the area has the inherent natural ability to produce more than 85 cubic feet per acre per year. Altogether the average annual growth that could be attained under natural conditions for northeastern New Mexico timberlands is just under 40 cubic feet per acre.

The majority of the timberland acres support stands containing up to 5,000 board feet per acre (fig. 6). Nearly 30 percent of the timberland area contains less than 1,500 board feet per acre, while less than 2 percent support stands containing more than 10,000 board feet per acre.



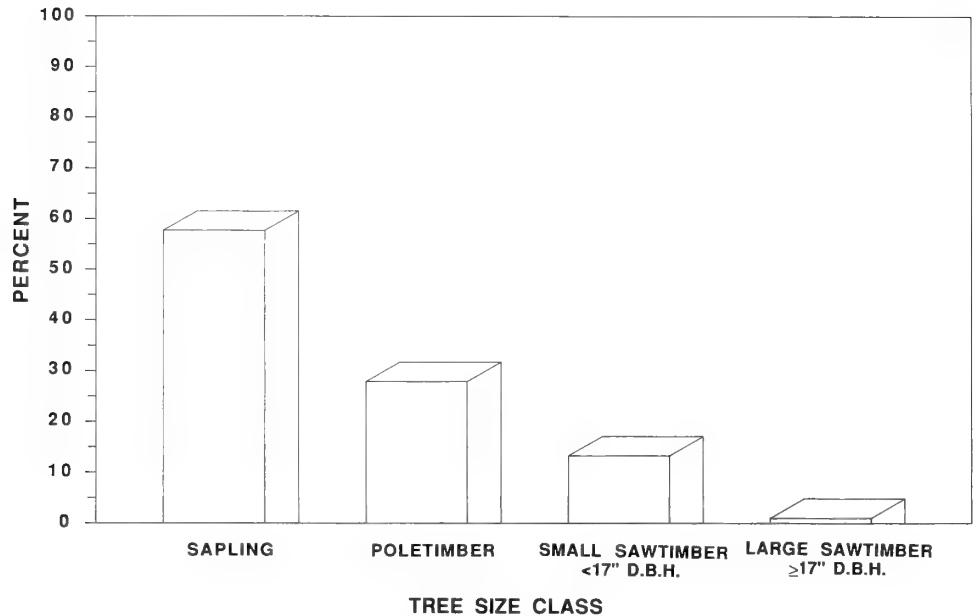
**Figure 6**—Distribution of timberland outside National Forests by stand-volume class in northeastern New Mexico, 1987.

Nearly 63 percent of the timberland acres are less than fully stocked (fig. 7). Moreover, the 294,000 acres that are classified as fully stocked contain only a small component of stocking in trees that would be featured in a structured management regimen. At the opposite ends of the stocking spectrum there are 129,000 acres in old growth stands, that is, those in excess of 100 years of age; and nearly 8,000 acres that are in a nonstocked condition.



**Figure 7**—Distribution of timberland outside National Forests by stocking condition in northeastern New Mexico, 1987.

The timberlands of northeastern New Mexico support more than 291 million growing-stock trees. Most are coniferous species, and just under 10 percent are aspen. Some 58 percent of trees are under 5.0 inches in diameter at breast height (d.b.h.) (fig. 8). More than one-fourth are classed as poletimber, and of those of sufficient size to be labeled sawtimber, just under 3 million or 1 percent of the population exceed 17.0 inches d.b.h. In addition to the growing-stock trees, timberland stands contain nearly 1 million cull trees, and they are about equally divided between rough culls and trees with more than two-thirds of their volume in rotten or missing wood. There are another 10 million trees that are dead but still sufficiently sound to meet minimum merchantability standards. Nearly all of the rough and rotten cull and salvable dead trees occur on private holdings.



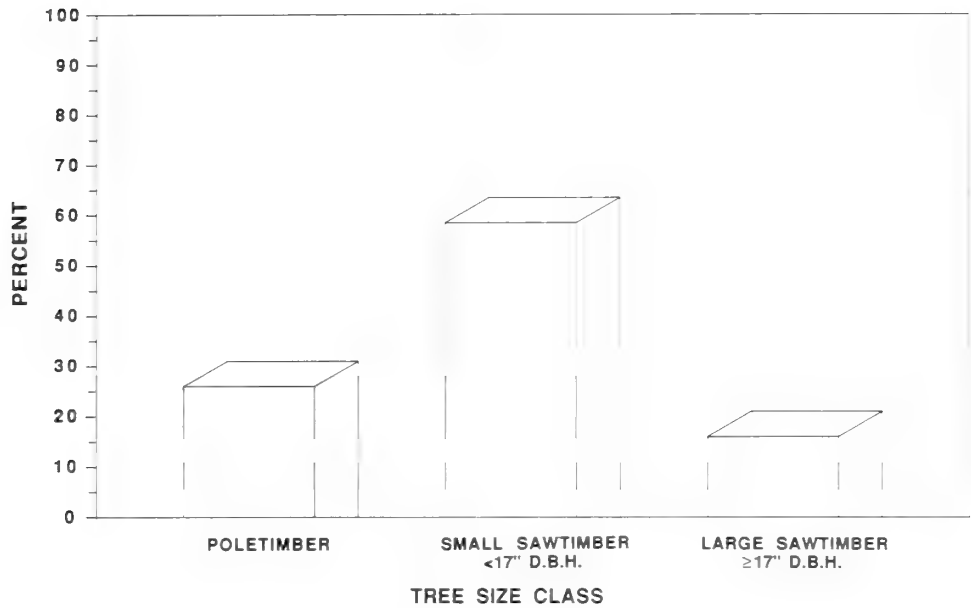
**Figure 8**—Distribution of growing-stock trees on timberland outside National Forests by tree size class in northeastern New Mexico, 1987.

**Volume**—The timberland acres support 735 million cubic feet of growing stock, including 2.5 billion board feet (International 1/4-inch rule) of sawtimber. The volume in cull trees—both rough and rotten—and salvable dead trees add an additional 46 million cubic feet to the timberland “wood pile.”

Assuming an equivalent distribution of growing stock, cull, and dead volume, sawtimber stands contain more than 80 percent of the volume on timberland. The remainder is in poletimber stands. The 7,600 acres classed as nonstocked truly are and do not contain any volume. Moreover, seedling/sapling stands contain a relatively minor amount of growing-stock volume and are completely void of any board-foot volume.

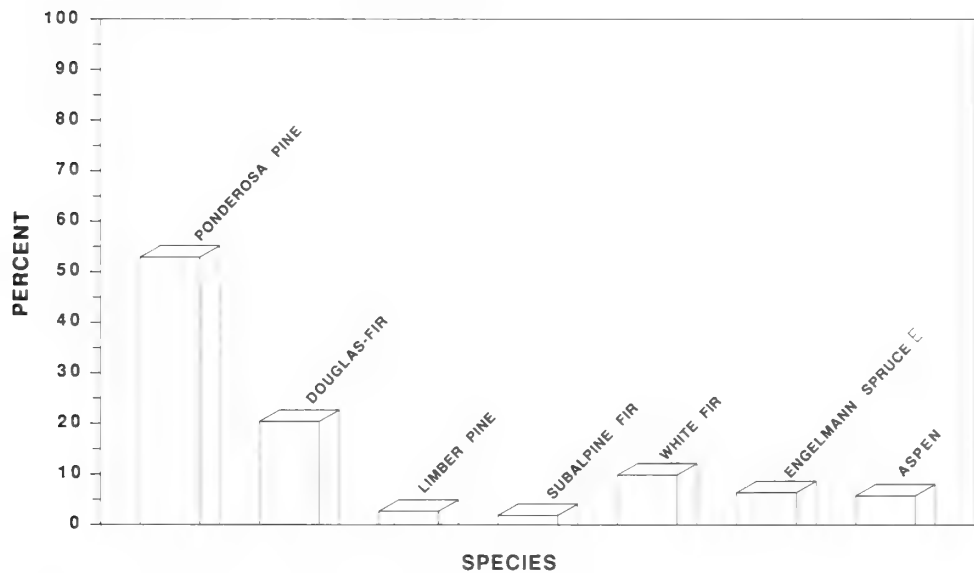
As with timberland area, the bulk of the growing-stock and sawtimber volume—93 and 92 percent, respectively—is found on private land.

The distribution of growing-stock volume bodes well for the future. About 26 percent is in poletimber size trees, nearly 60 percent is in sawtimber size trees under 17.0 inches d.b.h., and trees over 17.0 inches d.b.h. account for the remaining 15 percent (fig. 9). More than three-fourths of the board foot volume is contained in trees less than 17.0 inches d.b.h.



**Figure 9**—Distribution of growing-stock volume on timberland outside National Forests by tree size class in northeastern New Mexico, 1987.

One species—ponderosa pine—singly accounts for more than half of the growing-stock and sawtimber volume (fig. 10). Douglas-fir accounts for about one-fifth of the total growing-stock and sawtimber volume. Aspen, the only western hardwood encountered, contributes 42 million cubic feet to the growing-stock inventory. The other coniferous species tallied include white fir (*Abies concolor*), Engelmann spruce (*Picea engelmannii*), limber pine (*Pinus flexilis*), and subalpine fir (*Abies lasiocarpa*). Together they account for some 154 million cubic feet or 21 percent of the inventory.



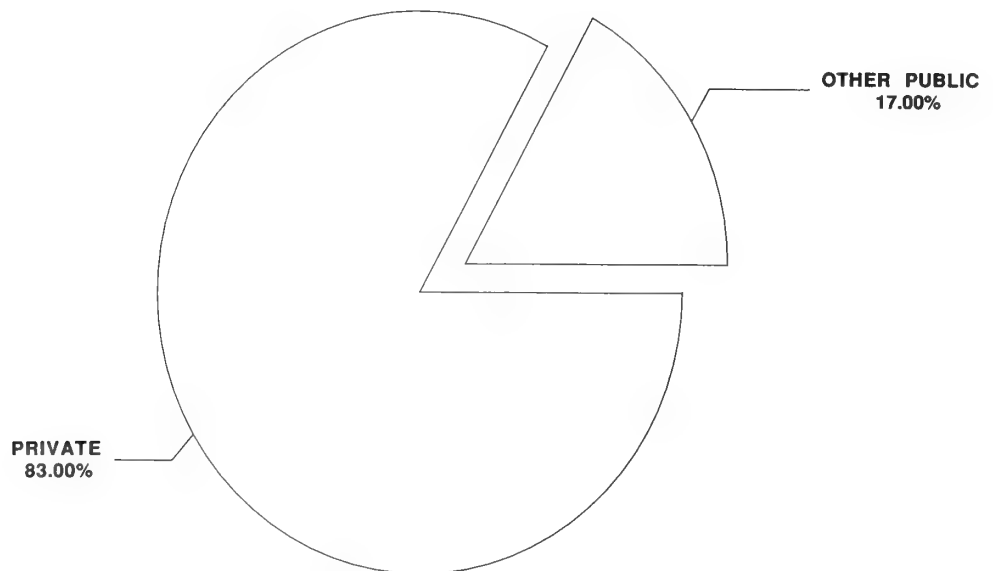
**Figure 10**—Distribution of growing-stock volume on timberland outside National Forests by species in northeastern New Mexico, 1987.

**Components of Change**—While the average acre of timberland has the inherent ability to produce nearly 40 cubic feet per acre per year, the actual gross growth per acre is 28 cubic feet, 70 percent of potential. After deducting mortality from gross growth, the net annual increase is 22 cubic feet per acre, and this represents an annual “interest” rate of about 2.4 percent. Thus, in total the timberlands in northeastern New Mexico are accruing some 22 million cubic feet per year, and mortality is taking 4.4 million cubic feet per year for a net annual gain to inventory, in the absence of harvest, of more than 17 million cubic feet.

The Douglas-fir component of the growing-stock inventory is being depleted at an annual rate of 2.7 percent, due primarily to insect infestations on poletimber and small sawtimber-sized trees.

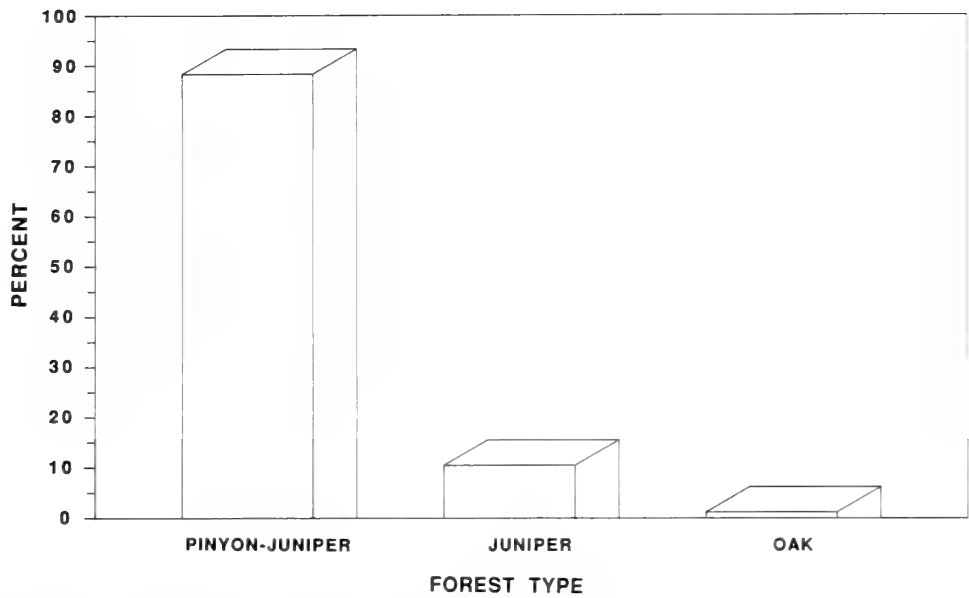
## Woodland

**Area**—Woodland types occupy some 1.2 million acres in northeastern New Mexico, and most of it—more than 80 percent—is privately owned (fig. 11). Of those agencies administering woodlands, the New Mexico Natural Resource Department manages more than 177,000 acres, while the Bureau of Land Management, other miscellaneous Federal agencies, and county and municipal governments exercise control over a combined total of 26,000 acres.



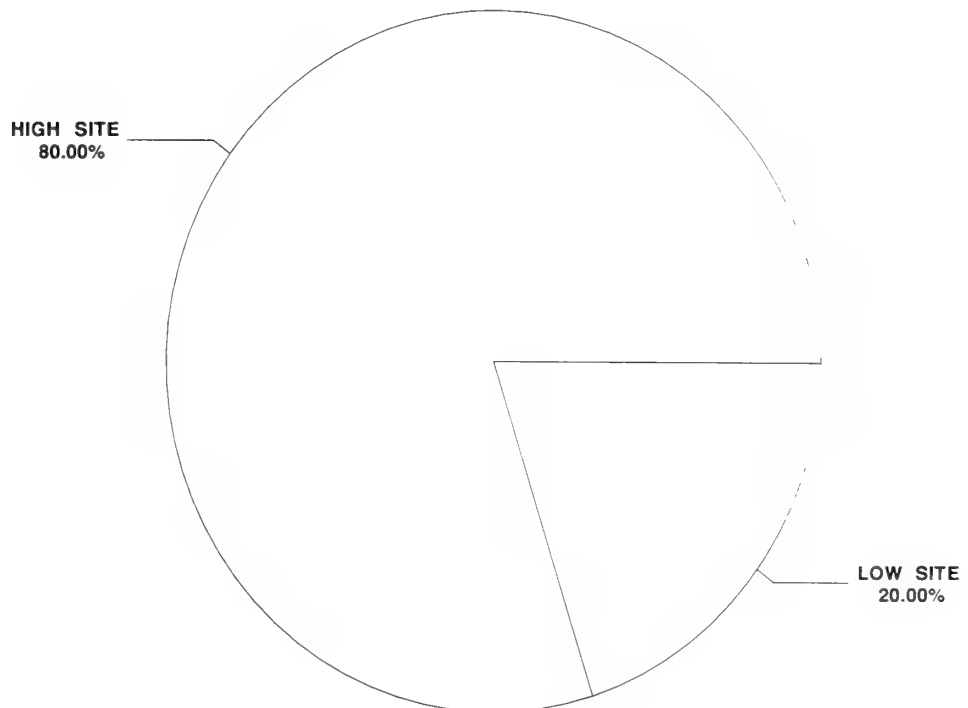
**Figure 11**—Distribution of woodland outside National Forests by ownership in northeastern New Mexico, 1987.

The most dominant woodland type is the pinyon-juniper complex (P-J) (fig. 12). Those stands, which are made up of pinyon (*Pinus edulis*) and juniper species (*Juniperus scopulorum*, *J. osteosperma*, *J. monosperma*), predominate on 1.1 million acres. Pure juniper stands and stands composed of Gambel oak (*Quercus gambelii*) constitute the remainder of the woodland area.



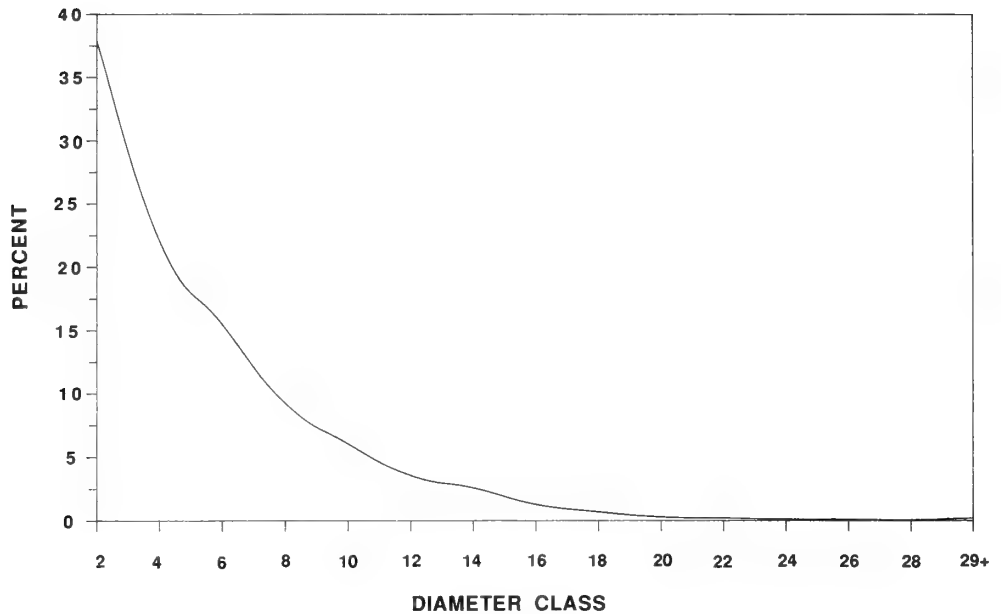
**Figure 12**—Distribution of woodland outside National Forests by forest type in northeastern New Mexico, 1987.

In an attempt to classify woodlands into productivity or management categories, criteria were developed to describe the acres in terms of their ability to produce products on a sustained basis, their accessibility, and their stockability. Those areas that are considered high site have the following qualities: (1) they have the potential to produce more or less sustained crops of woodland products—fence posts, Christmas trees, and fuelwood; (2) they are reasonably accessible—less than 30 percent slope, and (3) they can be expected to regenerate naturally. Those that do not meet these criteria are assigned the low site classification. In northeastern New Mexico 980,000 acres meet or exceed the criteria for high site lands (fig. 13). Most of the acres are in private ownership and are classified as P-J.



**Figure 13**—Distribution of woodland outside National Forests by productivity class in northeastern New Mexico, 1987.

Altogether there are more than 343 million trees represented by those sampled during the field inventory. Almost all are either pinyon or the juniper species, at 48 and 43 percent, respectively. Nearly 38 percent of the trees are sapling size, that is, less than 3.0 inches diameter at root collar (d.r.c.), and nearly 85 percent are less than 9.0 inches d.r.c. (fig. 14). Most of the pinyon are less than 15.0 inches d.r.c. While the juniper species tend to cluster around the small end of the diameter spectrum, samples were encountered within each diameter class.

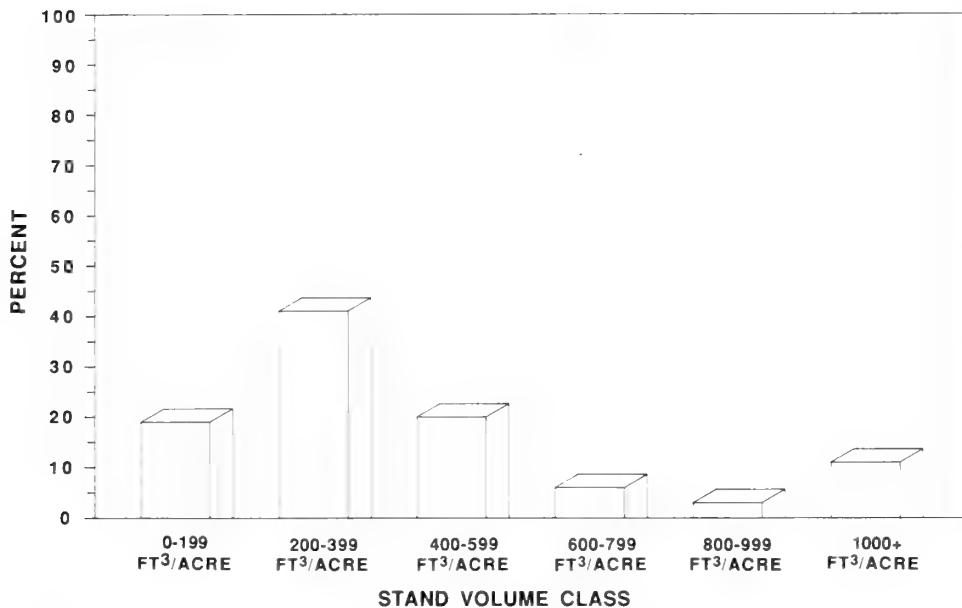


**Figure 14**—Distribution of trees on woodland outside National Forests by diameter at root collar class in northeastern New Mexico, 1987.

**Volume**—Northeastern New Mexico’s woodlands support 506.8 million cubic feet of volume. Some 58 percent of this volume is contained in juniper stems and 38 percent in pinyon. The oaks account for just under 1 percent. In addition to the woodland species there is an additional 13.6 million cubic feet of Douglas-fir and ponderosa pine growing on the woodland areas.

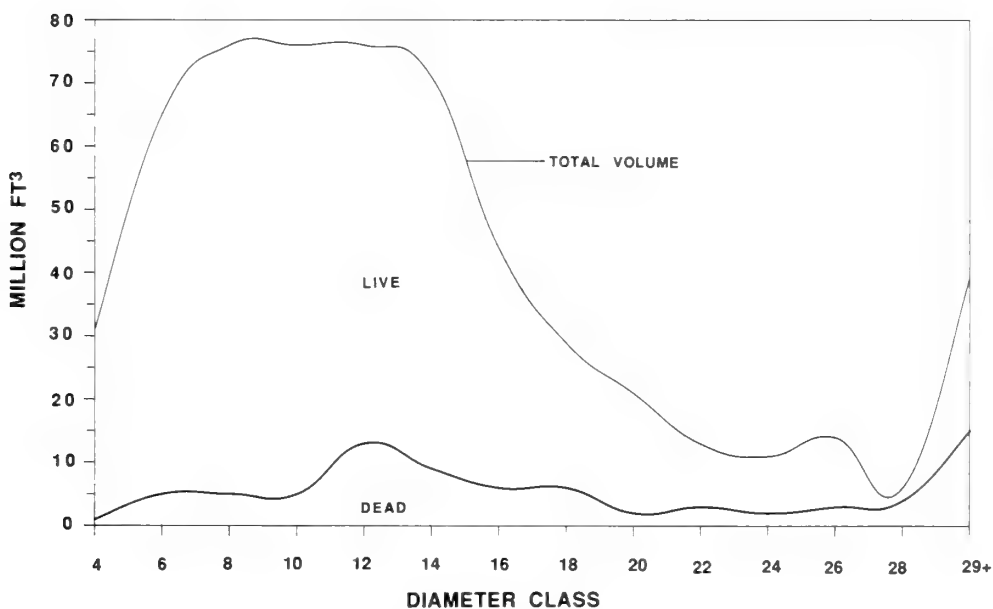
The average woodland acre supports 412 cubic feet, and 127,600 acres support stands with more than 1,000 cubic feet to the acre (fig. 15). Most of the high volume stands are in the P-J complex, and most of the oak stands support low volume per acre.





**Figure 15**—Distribution of woodland area outside National Forests by stand volume class in northeastern New Mexico, 1987.

Unlike their timber counterparts, the only merchantability standard that applies to woodland species is the ability of given users to convert standing trees into products that have utility for them. Thus, all of the material is potentially usable. In addition to the 506 million cubic feet of live material potentially available, there is an additional 79 million cubic feet present in the form of dead wood (fig. 16). And all of it would qualify as fuelwood. Ironically, most of this dead material is contained in live trees, and more than half is in stands that support more than 1,000 cubic feet—about 12 cords—of dead material per acre.



**Figure 16**—Distribution of cubic foot volume on woodland outside National Forests by diameter at root collar class in northeastern New Mexico, 1987.

One product that commonly comes from pinyon is Christmas trees. Criteria have been developed, based on height and form, for classifying pinyon into various Christmas-tree grades, and these standards were applied to each pinyon tallied. Of the 168 million pinyon trees in the inventory, nearly 30 million met the minimum standards for Christmas trees. Most of these—some 25 million—were utility grade. Slightly more than 4 million trees met the specifications for the more desirable standard grade, and just 112,000 made the premium class, which is the most desirable. Assuming an average price of \$2 on the stump, these trees represent a total value of nearly \$60 million to the private landowners of northeastern New Mexico.

A common product generated from the juniper and oak species is fenceposts. Two classes are generally recognized—line and corner. Altogether an estimated 26.9 million fenceposts could be harvested from the woodland acres. About two-thirds of these are line posts, while 8.8 million are the more valuable corner variety.

**Components of Change**—Net annual growth per acre amounts to 5.4 cubic feet. This amounts to an annual increase of 6.7 million cubic feet in woodland inventory. The most productive woodland sites are those on which oak predominates, and they are growing 6.8 cubic feet per acre per year. The P-J complex is producing about 5.7 cubic feet per acre per year, while the juniper species are adding 2.8 cubic feet per acre annually. In total, the woodland inventory is increasing at a net annual rate of 1.3 percent.

## HOW THE INVENTORY WAS CONDUCTED

The inventory was designed to provide reliable statistics primarily at the State and survey unit levels.

### Prefield

Initial area estimates were based on the classification of 62,829 sample points systematically placed on the latest aerial photographs available. The sample points were summarized and grouped into strata for subsequent field sampling. The photo points, adjusted to meet known land areas, were used to compute area expansion factors for the sampling strata means.

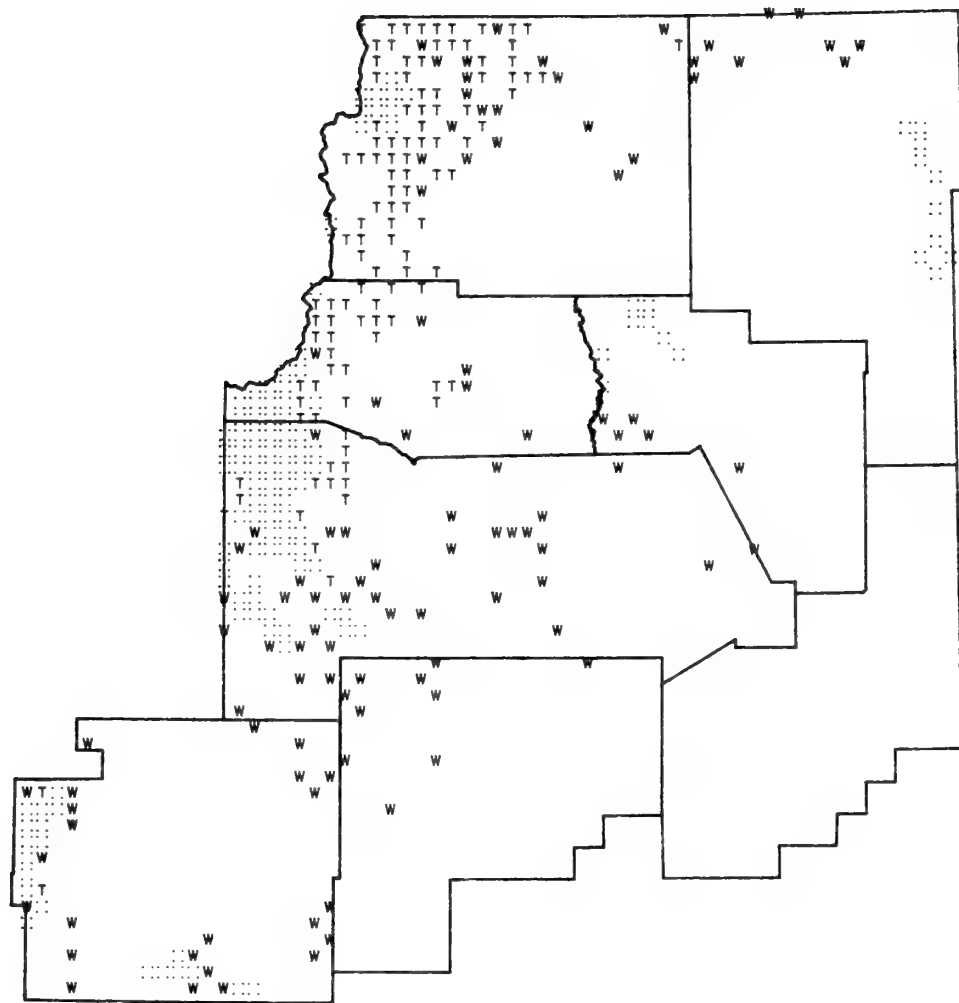
### Field

Land classification and estimates for timberland and woodland characteristics and volume were based on observations and measurements recorded at 1,320 field sample locations, of which 223 were forested (fig. 17).

Sample trees for timberland were selected using a 5-point cluster. Trees less than 5.0 inches d.b.h. were measured on a  $\frac{1}{300}$ -acre fixed radius plot. Trees 5.0 inches d.b.h. or larger were selected using a variable radius plot. A 20 basal area factor was used for ponderosa pine locations. Other timberland locations were measured using a 40 basal area factor. Sample trees for woodland were selected using a  $\frac{1}{10}$ -acre or a  $\frac{1}{5}$ -acre fixed radius plot for trees 3.0 inches d.r.c. and larger. Trees less than 3.0 inches d.r.c. were tallied on  $\frac{1}{300}$ -acre subplots.

### Compilation

The photo and field data are encoded for subsequent computer manipulation to assure accuracy and consistency of codes and to produce quality control summaries. Final estimates from these data were based on statistical summaries, a portion of which is included in this bulletin. Volume and defect were computed using the most appropriate equations, including those developed by Chojnacky (1985), Hann and Bare (1978), and Edminster (1977).



T = TIMBERLAND W = WOODLAND ∴ = NATIONAL FOREST

**Figure 17**—Distribution of timberland and woodland field locations outside National Forests in northeastern New Mexico, 1987.

## DATA RELIABILITY

Individual cells within tables should be used with caution. Some are based on small sample sizes, which may result in high sampling errors. The standard error percentages shown in tables 2 and 3 were calculated at the 67 percent confidence level.

## TERMINOLOGY

*Acceptable trees*—Growing-stock trees meeting specified standards of size and quality but not qualifying as desirable trees.

*Area condition class*—A classification of timberland reflecting the degree to which the site is being utilized by growing-stock trees and other conditions affecting current and prospective timber growth (see *Stocking*):

Class 10—Areas fully stocked with desirable trees and not overstocked.

Class 20—Areas fully stocked with desirable trees but overstocked with all live trees.

Class 30—Areas medium to fully stocked with desirable trees and with less than 30 percent of the area controlled by other trees, or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees, or both.

- Class 40—Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees, or conditions that ordinarily prevent occupancy by desirable trees, or both.
- Class 50—Areas poorly stocked with desirable trees but fully stocked with growing-stock trees.
- Class 60—Areas poorly stocked with desirable trees but with medium to full stocking of growing-stock trees.
- Class 70—Areas nonstocked or poorly stocked with desirable trees and poorly stocked with growing-stock trees.
- Class 80—Low-risk old-growth stands.
- Class 90—High-risk old-growth stands.
- Nonstocked—Areas less than 10 percent stocked with growing-stock trees.
- Basal area*—The cross-sectional area of a tree expressed in square feet. For timber species the calculation is based on diameter at breast height (d.b.h.); for woodland species it is based on diameter at root collar (d.r.c.).
- Christmas-tree grade*—Pinyon species are classified as Christmas trees using the following guidelines:
- Premium—Excellent conical form with no gaps in branches and a straight bole.
  - Standard—Good conical form with small gaps in branches and bole slightly malformed.
  - Utility—Conical in form with branches missing and bole bent or malformed.
  - Cull—Not meeting one of the above classifications or over 12 feet in height.
- Cord*—A pile of stacked wood equivalent to 128 cubic feet of wood and air space having standard dimensions of 4 by 4 by 8 feet.
- Cull trees*—Live trees that are unmerchantable now or prospectively (see Rough trees and Rotten trees).
- Cull volume*—Portions of a tree's volume that are not usable for wood products because of rot, missing or dead material, or other cubic-foot defect.
- Deferred forest land*—Forest lands within the National Forest System that are under study for possible inclusion in the Wilderness System.
- Desirable trees*—Growing-stock trees (1) having no serious defect in quality to limit present or prospective use for timber products, (2) of relatively high vigor, and (3) containing no pathogens that may result in death or serious deterioration within the next decade.
- Diameter at breast height (d.b.h.)*—Diameter of the stem measured at 4.5 feet above the ground.
- Diameter at root collar (d.r.c.)*—Diameter equivalent at the point nearest the ground line that represents the basal area of the tree stem or stems.
- Diameter classes*—Tree diameters, either d.b.h. or d.r.c., grouped into 2-inch classes labeled by the midpoint of the class.
- Farmer / rancher-owned lands*—Lands owned by a person who operates a farm or a ranch and who either does the work or directly supervises the work.
- Fenceposts*—Juniper and oak species are evaluated for post potential using the following criteria:
- Line post—A 7-foot minimum length with 5 to 7 inches diameter at the butt, 2.5 inch minimum small end diameter, and reasonably straight and solid.
  - Corner post—An 8-foot minimum length with 7 to 9 inches diameter at the butt, 2.5 inch minimum small end diameter, and reasonably straight and solid.
- Forest industry lands*—Lands owned by companies or individuals operating a primary wood-processing plant.
- Forest lands*—Lands at least 10 percent stocked by forest trees of any size, including lands that formerly had such tree cover and that will be naturally or artificially regenerated. The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width at least 120 feet wide to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if less than 120 feet wide.
- Forest trees*—Woody plants having a well-developed stem or stems, usually more than 12 feet in height at maturity, with a generally well-defined crown.
- Forest type*—A classification of forest land based upon and named for the tree species presently forming a plurality of live-tree stocking.
- Gross annual growth*—The average annual increase in the net volume of trees during a specified period.
- Growing-stock trees*—Live sawtimber trees, poletimber trees, saplings, and seedlings of timber species meeting specified standards of quality and vigor; excludes cull trees.

**Growing-stock volume**—Net cubic-foot volume in live poletimber-size and sawtimber-size growing-stock trees from a 1-foot stump to a minimum 4-inch top (of central stem) outside bark or to the point where the central stem breaks into limbs.

**Growth**—See definition for Net annual growth.

**Hardwood trees**—Dicotyledonous trees, usually broad-leaved and deciduous.

**High-risk old-growth stands**—Timber stands over 100 years old in which the majority of the trees are not expected to survive more than 10 years.

**Indian lands**—Indian lands held in trust by the Federal Government.

**Industrial wood**—All commercial roundwood products except fuelwood.

**Land area**—The area of dry land and land temporarily or partially covered by water such as marshes, swamps, and river flood plains, streams, sloughs, estuaries, and canals less than 120 feet wide; and lakes, reservoirs, and ponds less than 1 acre in size.

**Logging residues**—The unused portions of growing-stock trees cut or killed by logging.

**Low-risk old-growth stands**—Timber stands over 100 years old in which the majority of the trees are expected to survive more than 10 years.

**Miscellaneous Federal lands**—Lands administered by Federal agencies other than the U.S. Department of Agriculture, Forest Service, or U.S. Department of the Interior, Bureau of Land Management.

**Mortality**—The net volume of growing-stock trees that have died from natural causes during a specified period.

**National Forest lands**—Public lands administered by the U.S. Department of Agriculture, Forest Service.

**National Resource lands**—Public lands administered by the U.S. Department of the Interior, Bureau of Land Management.

**Net annual growth**—Gross annual growth minus average annual mortality.

**Net dead volume**—Total net volume of dead trees plus the net volume of dead material in live trees.

**Net volume in board feet**—The gross board-foot volume in the sawlog portion of growing-stock trees, less deductions for cull volume.

**Net volume in cubic feet**—Gross cubic-foot volume in the merchantable portion of trees less deductions for cull volume. For timber species, volume is computed for the merchantable stem from a 1-foot stump to a minimum 4-inch top diameter outside bark (d.o.b.), or to the point where the central stem breaks into limbs. For woodland species, volume is computed outside bark (o.b.) for all woody material above d.r.c. that is larger than 1.5 inches d.o.b.

**Nonforest lands**—Lands that do not currently qualify as forest land.

**Nonindustrial private**—All private ownerships except forest industry.

**Nonstocked areas**—Forest land less than 10 percent stocked with live trees.

**Old-growth stands**—Stands of timber species over 100 years old.

**Other private lands**—Privately owned lands other than forest industry or farmer-owned.

**Other public lands**—Public lands administered by agencies other than the U.S. Department of Agriculture, Forest Service.

**Other removals**—The net volume of growing-stock trees removed from the inventory by cultural operations such as timber-stand improvement, by land clearing, and by changes in land use, such as a shift to wilderness.

**Poletimber stands**—Stands at least 10 percent stocked with growing-stock trees, in which half or more of the stocking is sawtimber or poletimber trees or both, with poletimber stocking exceeding that of sawtimber (see definition for Stocking).

**Poletimber trees**—Live trees of timber species at least 5 inches d.b.h. but smaller than sawtimber size.

**Potential growth**—The average net annual cubic-foot growth per acre at culmination of mean annual growth attainable in fully stocked natural stands.

**Primary wood-processing plants**—Plants using roundwood products such as sawlogs, pulpwood bolts, veneer logs, and so forth.

**Productivity class**—A classification of forest land that reflects biological potential. For timberlands the index used is the potential net annual growth at culmination of mean annual increment in fully stocked natural stands. For woodland, characteristics that affect the land's ability to produce wood, such as soil depth and aspect, are used. Furthermore, woodland is classified as high site where sustained wood production is likely, or low site where the continuous production of wood is unlikely.

**Removals**—The net volume of growing-stock trees removed from the inventory by harvesting, cultural operations, land clearings, or changes in land use.

*Reserved forest land*—Forest land withdrawn from tree utilization through statute or administrative designation.

*Residues:*

- Coarse residues—Plant residues suitable for chipping, such as slabs, edgings, and ends.
- Fine residues—Plant residues not suitable for chipping, such as sawdust, shavings, and veneer clippings.
- Plant residues—Wood materials from primary manufacturing plants that are not used for any product.

*Rotten trees*—Live poletimber or sawtimber trees with more than 67 percent of their total volume cull (cubic-foot) and with more than half of the cull volume attributable to rotten or missing material.

*Rough trees*—Live poletimber or sawtimber trees with more than 67 percent of their total volume cull (cubic-foot) and with less than half of the cull volume attributable to rotten or missing material.

*Roundwood*—Logs, bolts, or other round sections cut from trees.

*Salvable dead trees*—Standing or down dead trees that are currently merchantable by regional standards.

*Saplings*—Live trees of timber species 1 to 4.9 inches d.b.h. or woodland species 1 to 2.9 inches d.r.c.

*Sapling and seedling stands*—Timberland stands at least 10 percent stocked on which more than half of the stocking is saplings or seedlings or both.

*Sawlog portion*—That part of the bole of sawtimber trees between a 1-foot stump and the sawlog top.

*Sawlog top*—The point on the bole of sawtimber trees above which a sawlog cannot be produced. The minimum sawlog top is 7 inches d.o.b. for softwoods and 9 inches d.o.b. for hardwoods.

*Sawtimber stands*—Stands at least 10 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

*Sawtimber trees*—Live trees of timber species meeting regional size and defect specifications. Softwood trees must be at least 9 inches d.b.h. and hardwood trees 11 inches d.b.h.

*Sawtimber volume*—Net volume in board feet of the sawlog portion of live sawtimber trees.

*Seedlings*—Established live trees of timber species less than 1 inch d.b.h. or woodland species less than 1 inch d.r.c.

*Softwood trees*—Monocotyledonous trees, usually evergreen, having needle or scalelike leaves.

*Standard error*—An expression of the degree of confidence that can be placed on an estimated total or average obtained by statistical sampling methods. Standard errors do not include technique errors that could occur in photo classification of areas, field measurements, or compilation of data.

*Stand-size classes*—A classification of forest land based on the predominant size of trees present (see Sawtimber stands, Poletimber stands, and Sapling and seedling stands).

*State, county, and municipal lands*—Lands administered by States, counties, and local public agencies, or lands leased by these governmental units for more than 50 years.

*Stocking*—An expression of the extent to which growing space is effectively utilized by present or potential growing-stock trees of timber species.

*Timberland*—Forest land where timber species make up at least 10 percent stocking.

*Timber species*—Tree species traditionally used for industrial wood products. In the Rocky Mountain States, these include aspen and cottonwood hardwood species and all softwood species except pinyon and juniper.

*Timber stand improvement*—Treatments such as thinning, pruning, release cutting, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

*Upper-stem portion*—That part of the main stem or fork of sawtimber trees above the sawlog top to a minimum top diameter of 4 inches outside bark or to the point where the main stem or fork breaks into limbs.

*Water*—Streams, sloughs, estuaries, and canals more than 120 feet wide, and lakes, reservoirs, and ponds more than 1 acre in size at mean high water level.

*Wilderness*—An area of undeveloped land currently included in the Wilderness System, managed so as to preserve its natural conditions and retain its primeval character and influence.

*Woodland*—Forest land where timber species make up less than 10 percent stocking.  
*Woodland species*—Tree species not usually converted into industrial wood products. Common uses are fuelwood, fenceposts, and Christmas trees.

## REFERENCES

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- Hann, David W.; Bare, Bruce B. 1978. Comprehensive tree volume equations for major species of New Mexico and Arizona: II. Tables for unforked trees. Res. Pap. INT-210. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 127 p.

# FOREST SURVEY TABLES

Table 1--Total land and water area by ownership class  
in northeastern New Mexico, 1987

Ownership class	Area
	- - <u>Acres</u> - -
Land:	
Public:	
National Forest	800,461
Other public:	
Bureau of Land Management	153,517
National Parks <sup>1</sup>	2,560
Miscellaneous federal	14,561
State	2,082,000
County and municipal	<u>3,931</u>
Total other public	<u>2,256,569</u>
Total public	<u><u>3,057,030</u></u>
Private:	
Indian	16,300
Other private	<u>13,318,898</u>
Total private	<u>13,335,198</u>
Total land area	<u><u>16,392,228</u></u>
Census water	<u>28,170</u>
Total land and water <sup>2</sup>	<u>16,420,398</u>

<sup>1</sup>Not included with miscellaneous Federal, a component of other public, for purpose of clarity. These lands are reserved and are included in tables 1, 2, and 4 only.

<sup>2</sup>U.S. Department of Commerce, Bureau of Census. Area measurement reports, GE-20 No. 1, 22 p., 1970, updated to account for changes in inland water estimates obtained from the USDA Soil Conservation Service's National Resource Inventory, 1982.



Table 2--Area of forest land outside National Forests with percent standard error in northeastern New Mexico, 1987

Item	Acres	Percent standard error
Timberland	789,062	=6.5
Woodland	1,230,704	=7.7
Reserved forest land: <sup>1</sup>		
Timberland	30,888	
Woodland	4,319	
Total forest land <sup>2</sup>	2,054,973	

<sup>1</sup>Reserved land areas are estimated from aerial photos without field verification; therefore, standard errors are not calculated.

<sup>2</sup>On this and all following tables, totals may vary due to rounding.

Table 3--Net volume, net annual growth, and annual mortality of growing stock and sawtimber on forest land outside National Forests with percent standard error in northeastern New Mexico

Forest land	Item	All species	
		Volume	Percent standard error
Timberland:	Net volume, 1987:		
	Growing stock (M cubic feet)	734,663	±9.1
	Sawtimber <sup>1</sup> (M board feet)	2,529,066	±10.0
	Sawtimber <sup>2</sup> (M board feet)	2,055,363	±10.0
	Net annual growth, 1986:		
	Growing stock (M cubic feet)	17,748	±23.4
	Sawtimber <sup>1</sup> (M board feet)	81,117	±21.5
	Sawtimber <sup>2</sup> (M board feet)	64,703	±19.4
	Annual mortality, 1986:		
	Growing stock (M cubic feet)	4,397	±78.7
Sawtimber <sup>1</sup> (M board feet)	12,142	±79.2	
Sawtimber <sup>2</sup> (M board feet)	9,204	±77.7	
Woodland:	Volume, 1987	506,751	±10.9
	Growth, 1986	6,685	±11.1
	Mortality, 1986	--	

<sup>1</sup>International ¼-inch rule.

<sup>2</sup>Scribner rule.

Table 4--Total land area outside National Forests by major land class and ownership class in northeastern New Mexico, 1987

Land class	Ownership class		
	Other public	Private	Total
	----- Acres -----		
Timberland:			
Reserved	388	30,500	30,888
Nonreserved	54,252	734,810	789,062
Total	54,640	765,310	819,950
Woodland:			
Reserved	1,064	3,255	4,319
Nonreserved	203,774	1,026,930	1,230,704
Total	204,838	1,030,185	1,235,023
Total forest land:			
Reserved	1,452	33,755	35,207
Nonreserved	258,026	1,761,740	2,019,766
Total	259,478	1,795,495	2,054,973
Nonforest land	1,997,091	11,539,703	13,536,794
Total land area	2,256,569	13,335,198	15,591,767

# TIMBERLAND TABLES

Table 5--Area of timberland outside National Forests by forest type, stand-size class, and productivity class in northeastern New Mexico, 1987

Forest type and stand-size class	Productivity class				Total acres
	85-119	50-84	20-49	0-19	
----- Acres -----					
Douglas-fir:					
Sawtimber	--	21,783	84,683	--	106,466
Poletimber	--	6,747	34,376	--	41,123
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	7,575	--	7,575
Total	--	28,530	126,634	--	155,164
Ponderosa pine:					
Sawtimber	--	6,632	406,364	--	412,996
Poletimber	--	--	111,182	--	111,182
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	6,632	517,546	--	524,178
Spruce-fir:					
Sawtimber	--	6,632	--	--	6,632
Poletimber	--	--	4,249	--	4,249
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	6,632	4,249	--	10,881
White fir:					
Sawtimber	6,632	29,338	15,899	--	51,869
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	6,632	29,338	15,899	--	51,869
Spruce:					
Sawtimber	--	15,151	--	--	15,151
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	15,151	--	--	15,151

(con.)

Table 5 (Con.)

Forest type and stand-size class	Productivity class				Total acres
	85-119	50-84	20-49	0-19	
	----- Acres -----				
Other softwoods:					
Sawtimber	--	--	7,575	--	7,575
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	7,575	--	7,575
Aspen:					
Sawtimber	--	--	7,576	--	7,576
Poletimber	5,018	--	--	--	5,018
Sapling and seedling	--	5,018	6,632	--	11,650
Nonstocked	--	--	--	--	--
Total	5,018	5,018	14,208	--	24,244
All types:					
Sawtimber	6,632	79,536	522,097	--	608,265
Poletimber	5,018	6,747	149,807	--	161,572
Sapling and seedling	--	5,018	6,632	--	11,650
Nonstocked	--	--	7,575	--	7,575
Total	11,650	91,301	686,111	--	789,062

Table 6--Area of other publicly owned timberland by forest type, stand-size class, and productivity class in northeastern New Mexico, 1987

Forest type and stand-size class	Productivity class				Total acres
	85-119	50-84	20-49	0-19	
- - - - - Acres - - - - -					
Douglas-fir:					
Sawtimber	--	--	4,249	--	4,249
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	4,249	--	4,249
Ponderosa pine:					
Sawtimber	--	--	33,006	--	33,006
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	33,006	--	33,006
Spruce-fir:					
Sawtimber	--	--	--	--	--
Poletimber	--	--	4,249	--	4,249
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	4,249	--	4,249
White fir:					
Sawtimber	--	8,499	4,249	--	12,748
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	8,499	4,249	--	12,748
Spruce:					
Sawtimber	--	--	--	--	--
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	--	--

(con.)

Table 6 (Con.)

Forest type and stand-size class	Productivity class				Total acres
	85-119	50-84	20-49	0-19	
- - - - - Acres - - - - -					
Other softwoods:					
Sawtimber	--	--	--	--	--
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	--	--
Aspen:					
Sawtimber	--	--	--	--	--
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	--	--
All types:					
Sawtimber	--	8,499	41,504	--	50,003
Poletimber	--	--	4,249	--	4,249
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	8,499	45,753	--	54,252

Table 7--Area of privately owned timberland by forest type, stand-size class, and productivity class in northeastern New Mexico, 1987

Forest type and stand-size class	Productivity class				Total acres
	85-119	50-84	20-49	0-19	
- - - - - Acres - - - - -					
Douglas-fir:					
Sawtimber	--	21,783	80,434	--	102,217
Poletimber	--	6,747	34,376	--	41,123
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	7,575	--	7,575
Total	--	28,530	122,385	--	150,915
Ponderosa pine:					
Sawtimber	--	6,632	373,358	--	379,990
Poletimber	--	--	111,182	--	111,182
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	6,632	484,540	--	491,172
Spruce-fir:					
Sawtimber	--	6,632	--	--	6,632
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	6,632	--	--	6,632
White fir:					
Sawtimber	6,632	20,839	11,650	--	39,121
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	6,632	20,839	11,650	--	39,121
Spruce:					
Sawtimber	--	15,151	--	--	15,151
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	15,151	--	--	15,151

(con.)



Table 7 (Con.)

Forest type and stand-size class	Productivity class				Total acres
	85-119	50-84	20-49	0-19	
	- - - - - Acres - - - - -				
Other softwoods:					
Sawtimber	--	--	7,575	--	7,575
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	7,575	--	7,575
Aspen:					
Sawtimber	--	--	7,576	--	7,576
Poletimber	5,018	--	--	--	5,018
Sapling and seedling	--	5,018	6,632	--	11,650
Nonstocked	--	--	--	--	--
Total	5,018	5,018	14,208	--	24,244
All types:					
Sawtimber	6,632	71,037	480,593	--	558,262
Poletimber	5,018	6,747	145,558	--	157,323
Sapling and seedling	--	5,018	6,632	--	11,650
Nonstocked	--	--	7,575	--	7,575
Total	11,650	82,802	640,358	--	734,810

Table 8--Area of timberland outside National Forests by stand volume and ownership class in northeastern New Mexico, 1987

Stand volume per acre <sup>1</sup>	Ownership class			Total
	Other public	Private	Acres	
Less than 1,500 board feet	4,249	232,312	236,561	
1,500 to 4,999 board feet	45,754	387,648	433,402	
5,000 to 9,999 board feet	4,249	100,643	104,892	
10,000 board feet or more	--	14,207	14,207	
All classes	54,252	734,810	789,062	

<sup>1</sup>International 4-inch rule.

Table 9--Area of timberland outside National Forests by forest type and area condition class in northeastern New Mexico, 1987

Forest type	Area condition class											Nonstocked	All classes			
	10	20	30	40	50	60	70	80	90	90						
	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	7,575	49,358	35,990	30,302	--	24,364	24,364	7,575	155,164	155,164			
Douglas-fir	--	--	--	--	204,812	202,481	50,043	7,575	59,268	59,268	--	524,179	524,179			
Ponderosa pine	--	--	--	--	--	4,249	--	--	6,632	6,632	--	10,881	10,881			
Spruce-fir	--	--	--	--	15,130	6,632	6,632	7,576	15,899	15,899	--	51,869	51,869			
White fir	--	--	--	--	15,151	--	--	--	--	--	--	15,151	15,151			
Spruce	--	--	--	--	--	--	--	--	7,575	7,575	--	7,575	7,575			
Other softwoods	--	--	--	--	10,036	--	14,207	--	--	--	--	24,243	24,243			
Aspen	--	--	--	--	--	--	--	--	--	--	--	--	--			
All types	--	--	--	7,575	294,487	249,352	101,184	15,151	113,738	113,738	7,575	789,062	789,062			

Table 10--Number of growing-stock trees on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1987

Species	Diameter class (inches at breast height)														All classes	
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9		29.0+
	----- Thousand trees -----															
Douglas-fir	18,214	15,399	11,706	5,843	4,280	1,748	778	622	425	161	152	11	16	--	--	59,355
Ponderosa pine	34,041	32,896	25,888	18,208	11,334	6,351	3,628	1,897	819	328	139	34	50	26	6	135,645
Limber pine	3,240	1,892	1,489	1,605	548	364	232	45	32	--	--	20	--	--	--	9,467
Subalpine fir	2,373	2,271	2,299	1,413	332	63	--	--	--	--	--	--	--	--	--	8,751
White fir	22,503	6,150	3,742	886	1,746	771	447	309	298	165	126	--	--	16	25	37,184
Engelmann spruce	3,043	4,044	2,718	1,573	767	1,144	105	81	56	27	22	--	--	12	--	13,592
Total softwoods	83,414	62,652	47,842	29,528	19,007	10,441	5,190	2,954	1,630	681	439	65	66	54	31	263,994
Aspen	12,144	9,926	2,118	845	1,049	865	267	61	--	--	--	--	--	--	--	27,275
Total hardwoods	12,144	9,926	2,118	845	1,049	865	267	61	--	--	--	--	--	--	--	27,275
All species	95,558	72,578	49,960	30,373	20,056	11,306	5,457	3,015	1,630	681	439	65	66	54	31	291,269

Table 11--Number of cull and salvable dead trees on timberland outside National Forests by ownership class, and softwoods and hardwoods in northeastern New Mexico, 1987

Ownership class and species group	Cull trees			Salvable dead trees	Total
	Rough	Rotten	Total		
	----- Thousand trees -----				
Other public:					
Softwoods	--	28	28	494	522
Hardwoods	--	--	--	--	--
Total	--	28	28	494	522
Private:					
Softwoods	333	428	761	7,683	8,444
Hardwoods	133	33	166	1,899	2,065
Total	466	461	927	9,582	10,509
Total:					
Softwoods	333	456	789	8,177	8,966
Hardwoods	133	33	166	1,899	2,065
Total	466	489	955	10,076	11,031

Table 12--Net volume of growing stock on timberland outside National Forests by ownership class, forest type, and stand-size class in northeastern New Mexico, 1987

Ownership class	Forest type	Stand-size class					All classes
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked		
							Thousand cubic feet
<b>Other public:</b>							
	Douglas-fir	10,659	--	--	--	--	10,659
	Ponderosa pine	24,987	--	--	--	--	24,987
	Spruce-fir	--	3,318	--	--	--	3,318
	White fir	14,510	--	--	--	--	14,510
	Spruce	--	--	--	--	--	--
	Other softwoods	--	--	--	--	--	--
	Aspen	--	--	--	--	--	--
	All types	50,156	3,318	--	--	--	53,474
<b>Private:</b>							
	Douglas-fir	126,413	37,786	--	--	--	164,199
	Ponderosa pine	301,014	78,002	--	--	--	379,016
	Spruce-fir	6,038	--	--	--	--	6,038
	White fir	52,829	--	--	--	--	52,829
	Spruce	47,625	--	--	--	--	47,625
	Other softwoods	12,634	--	--	--	--	12,634
	Aspen	5,623	10,953	2,272	--	--	18,848
	All types	552,176	126,741	2,272	--	--	681,189
<b>Total:</b>							
	Douglas-fir	137,072	37,786	--	--	--	174,858
	Ponderosa pine	326,001	78,002	--	--	--	404,003
	Spruce-fir	6,038	3,318	--	--	--	9,356
	White fir	67,339	--	--	--	--	67,339
	Spruce	47,625	--	--	--	--	47,625
	Other softwoods	12,634	--	--	--	--	12,634
	Aspen	5,623	10,953	2,272	--	--	18,848
	All types	602,332	130,059	2,272	--	--	734,663

Table 13--Net volume of sawtimber (International 4-inch rule) on timberland outside National Forests by ownership class, forest type, and stand-size class in northeastern New Mexico, 1987

Ownership class	Forest type	Stand-size class					All classes
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked		
- - - - - Thousand board feet, International 4-inch rule - - - - -							
<b>Other public:</b>							
	Douglas-fir	42,459	--	--	--	--	42,459
	Ponderosa pine	109,798	--	--	--	--	109,798
	Spruce-fir	--	5,792	--	--	--	5,792
	White fir	42,577	--	--	--	--	42,577
	Spruce	--	--	--	--	--	--
	Other softwoods	--	--	--	--	--	--
	Aspen	--	--	--	--	--	--
	All types	194,834	5,792	--	--	--	200,626
<b>Private:</b>							
	Douglas-fir	447,337	62,422	--	--	--	509,759
	Ponderosa pine	1,199,741	139,659	--	--	--	1,339,400
	Spruce-fir	18,754	--	--	--	--	18,754
	White fir	226,603	--	--	--	--	226,603
	Spruce	155,291	--	--	--	--	155,291
	Other softwoods	37,751	--	--	--	--	37,751
	Aspen	14,589	26,293	--	--	--	40,882
	All types	2,100,066	228,374	--	--	--	2,328,440
<b>Total:</b>							
	Douglas-fir	489,796	62,422	--	--	--	552,218
	Ponderosa pine	1,309,539	139,659	--	--	--	1,449,198
	Spruce-fir	18,754	5,792	--	--	--	24,546
	White fir	269,180	--	--	--	--	269,180
	Spruce	155,291	--	--	--	--	155,291
	Other softwoods	37,751	--	--	--	--	37,751
	Aspen	14,589	26,293	--	--	--	40,882
	All types	2,294,900	234,166	--	--	--	2,529,066

Table 14--Net volume of sawtimber (Scribner rule) on timberland outside National Forests by ownership class, forest type, and stand-size class in northeastern New Mexico, 1987

Ownership class	Forest type	Stand-size class					All classes
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked		
----- Thousand board feet, Scribner rule -----							
<b>Other public:</b>							
	Douglas-fir	34,070	--	--	--	--	34,070
	Ponderosa pine	89,205	--	--	--	--	89,205
	Spruce-fir	--	4,556	--	--	--	4,556
	White fir	35,176	--	--	--	--	35,176
	Spruce	--	--	--	--	--	--
	Other softwoods	--	--	--	--	--	--
	Aspen	--	--	--	--	--	--
	All types	158,451	4,556	--	--	--	163,007
<b>Private:</b>							
	Douglas-fir	354,835	49,544	--	--	--	404,379
	Ponderosa pine	988,149	110,927	--	--	--	1,099,076
	Spruce-fir	15,080	--	--	--	--	15,080
	White fir	189,183	--	--	--	--	189,183
	Spruce	121,681	--	--	--	--	121,681
	Other softwoods	30,510	--	--	--	--	30,510
	Aspen	11,767	20,680	--	--	--	32,447
	All types	1,711,205	181,151	--	--	--	1,892,356
<b>Total:</b>							
	Douglas-fir	388,905	49,544	--	--	--	438,449
	Ponderosa pine	1,077,354	110,927	--	--	--	1,188,281
	Spruce-fir	15,080	4,556	--	--	--	19,636
	White fir	224,359	--	--	--	--	224,359
	Spruce	121,681	--	--	--	--	121,681
	Other softwoods	30,510	--	--	--	--	30,510
	Aspen	11,767	20,680	--	--	--	32,447
	All types	1,869,656	185,707	--	--	--	2,055,363



Table 15--Net volume of growing stock on timberland outside National Forests by species and ownership class in northeastern New Mexico, 1987

Species	Ownership class			Total
	Other public	Private		
			Thousand cubic feet	
Douglas-fir	13,108	136,690		149,798
Ponderosa pine	26,045	362,275		388,320
Limber pine	--	20,183		20,183
Subalpine fir	390	13,440		13,830
White fir	10,317	62,172		72,489
Engelmann spruce	3,614	43,851		47,465
Total softwoods	53,474	638,611		692,085
Aspen	--	42,578		42,578
Total hardwoods	--	42,578		42,578
All species	53,474	681,189		734,663

Table 16--Net volume of sawtimber (International 1/4-inch rule) on timberland outside National Forests by species and ownership class in northeastern New Mexico, 1987

Species	Ownership class		Total
	Other public	Private	
- Thousand board feet, International 1/4-inch rule -			
Douglas-fir	44,330	437,206	481,536
Ponderosa pine	111,377	1,309,676	1,421,053
Limber pine	--	53,996	53,996
Subalpine fir	--	11,036	11,036
White fir	37,123	234,858	271,981
Engelmann spruce	7,796	160,785	168,581
Total softwoods	200,626	2,207,557	2,408,183
Aspen	--	120,883	120,883
Total hardwoods	--	120,883	120,883
All species	200,626	2,328,440	2,529,066

Table 17--Net volume of sawtimber (Scribner rule) on timberland outside National Forests by species and ownership class in northeastern New Mexico, 1987

Species	Ownership class		Total
	Other public	Private	
- - - <u>Thousand board feet, Scribner rule</u> - - -			
Douglas-fir	34,567	339,113	373,680
Ponderosa pine	91,074	1,076,140	1,167,214
Limber pine	--	45,063	45,063
Subalpine fir	--	9,314	9,314
White fir	31,027	201,544	232,571
Engelmann spruce	6,339	126,942	133,281
Total softwoods	163,007	1,798,116	1,961,123
Aspen	--	94,240	94,240
Total hardwoods	--	94,240	94,240
All species	163,007	1,892,356	2,055,363

Table 18--Net volume of growing stock on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1987

Species	Diameter class (inches at breast height)														All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+		
	----- Thousand cubic feet -----														
Douglas-fir	17,895	25,194	30,945	20,692	13,312	14,334	13,271	5,522	7,068	650	916	--	--	--	149,799
Ponderosa pine	28,826	63,655	74,858	71,008	58,905	41,749	24,006	11,751	6,045	1,704	3,393	1,440	980	388,320	
Limber pine	2,525	4,919	3,662	4,016	2,675	1,046	685	--	--	655	--	--	--	20,183	
Subalpine fir	4,170	6,506	2,271	882	--	--	--	--	--	--	--	--	--	13,829	
White fir	4,368	3,246	12,576	8,450	8,980	7,683	9,682	6,902	6,657	--	--	1,021	2,924	72,489	
Engelmann spruce	5,236	6,539	7,214	17,358	2,196	2,673	2,021	1,325	1,102	--	--	1,801	--	47,465	
Total softwoods	63,020	110,059	131,526	122,406	86,068	67,485	49,665	25,500	20,872	3,009	4,309	4,262	3,904	692,085	
Aspen	3,100	5,583	11,526	14,121	6,475	1,773	--	--	--	--	--	--	--	42,578	
Total hardwoods	3,100	5,583	11,526	14,121	6,475	1,773	--	--	--	--	--	--	--	42,578	
All species	66,120	115,642	143,052	136,527	92,543	69,258	49,665	25,500	20,872	3,009	4,309	4,262	3,904	734,663	

Table 19--Net volume of sawtimber (International 4-inch rule) on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1987

Species	Diameter class (inches at breast height)												All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+		
	Thousand board feet, International 4-inch rule												
Douglas-fir	102,246	89,306	64,794	73,987	71,608	30,600	39,977	3,721	5,298	--	--	--	481,537
Ponderosa pine	256,073	325,069	311,038	235,166	139,713	70,899	36,136	10,489	21,535	8,496	6,437	--	1,421,051
Lumber pine	12,198	17,194	12,344	5,180	3,498	--	--	3,582	--	--	--	--	53,996
Subalpine fir	6,643	4,393	--	--	--	--	--	--	--	--	--	--	11,036
White fir	44,407	37,292	41,138	34,900	42,533	29,074	26,972	--	1	4,002	11,663	--	271,982
Engelmann spruce	26,073	84,737	11,322	13,875	10,470	6,840	5,711	--	--	9,553	--	--	168,581
Total softwoods	447,640	557,991	440,636	363,108	267,822	137,413	108,796	17,792	26,834	22,051	18,100	--	2,408,183
Aspen	XXXXX	74,711	36,185	9,987	--	--	--	--	--	--	--	--	120,883
Total hardwoods	XXXXX	74,711	36,185	9,987	--	--	--	--	--	--	--	--	120,883
All species	447,640	632,702	476,821	373,095	267,822	137,413	108,796	17,792	26,834	22,051	18,100	--	2,529,066

Table 20--Net volume of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1987

Species	Diameter class (inches at breast height)											All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	
	----- Thousand board feet, Scribner rule -----											
Douglas-fir	75,561	65,891	50,028	58,571	57,883	25,067	33,113	3,107	4,460	--	--	373,681
Ponderosa pine	195,339	254,427	257,187	200,861	122,459	62,988	32,161	9,336	19,166	7,561	5,729	1,167,214
Limber pine	10,205	13,945	10,222	4,430	3,073	--	--	3,188	--	--	--	45,063
Subalpine fir	5,912	3,402	--	--	--	--	--	--	--	--	--	9,314
White fir	36,515	29,864	34,597	30,144	37,627	25,875	24,005	--	--	3,562	10,380	232,569
Engelmann spruce	20,786	64,692	9,033	11,335	8,652	5,741	4,839	--	--	8,204	--	133,282
Total softwoods	344,318	432,221	361,067	305,341	229,694	119,671	94,118	15,631	23,626	19,327	16,109	1,961,123
Aspen	XXXXX	57,211	28,915	8,114	--	--	--	--	--	--	--	94,240
Total hardwoods	XXXXX	57,211	28,915	8,114	--	--	--	--	--	--	--	94,240
All species	344,318	489,432	389,982	313,455	229,694	119,671	94,118	15,631	23,626	19,327	16,109	2,055,363

Table 21--Net volume of timber on timberland outside National Forests by class of timber, and softwoods and hardwoods in northeastern New Mexico, 1987

Class of timber	Softwoods	Hardwoods	Total
	- - - - Thousand cubic feet - - - -		
Sawtimber trees:			
Sawlog portion	477,509	21,051	498,560
Upper-stem portion	41,499	1,319	42,818
Total	519,008	22,370	541,378
Poletimber trees	173,078	20,209	193,287
All growing-stock trees	692,086	42,579	734,665
Rough cull trees	3,372	693	4,065
Rotten cull trees	2,142	272	2,414
Salvable dead trees	35,872	4,257	40,129
All timber	733,472	47,801	781,273

Table 22--Net volume of growing stock on timberland outside National Forests by forest type and species in northeastern New Mexico, 1987

Forest type	Species									
	Douglas-fir	Ponderosa pine	Limber pine	Subalpine fir	White fir	Engelmann spruce	Total softwoods	Aspen	Total hardwoods	All species
	----- Thousand cubic feet -----									
Douglas-fir	106,085	17,061	10,548	606	19,633	14,030	167,963	6,895	6,895	174,858
Ponderosa pine	32,941	355,351	2,257	--	12,532	--	403,081	922	922	404,003
Spruce-fir	--	--	--	2,450	898	6,007	9,355	--	--	9,355
White fir	9,025	15,908	846	--	38,416	3,145	67,340	--	--	67,340
Spruce	--	--	--	8,444	--	19,378	27,822	19,803	19,803	47,625
Other softwoods	868	--	6,533	1,029	--	4,204	12,634	--	--	12,634
Aspen	879	--	--	1,300	1,010	701	3,890	14,958	14,958	18,848
All types	149,798	388,320	20,184	13,829	72,489	47,465	692,085	42,578	42,578	734,663



Table 23--Net volume of sawtimber (International 4-inch rule) on timberland outside National Forests by forest type and species in northeastern New Mexico, 1987

Forest type	Species									
	Douglas-fir	Ponderosa pine	Limber pine	Subalpine fir	White fir	Engelmann spruce	Total softwoods	Aspen	Total hardwoods	All species
	----- Thousand board feet, International 4-inch rule -----									
Douglas-fir	334,325	62,553	19,546	--	73,559	43,074	533,057	19,161	19,161	552,218
Ponderosa pine	107,561	1,290,181	9,824	--	41,632	--	1,449,198	--	--	1,449,198
Spruce-fir	--	--	--	4,393	3,789	16,365	24,547	--	--	24,547
White fir	32,136	68,318	3,806	--	148,392	16,527	269,179	--	--	269,179
Spruce	--	--	--	5,023	--	76,693	81,716	73,574	73,574	155,290
Other softwoods	3,066	--	20,820	--	--	13,864	37,750	--	--	37,750
Aspen	4,448	--	--	1,620	4,609	2,059	12,736	28,148	28,148	40,884
All types	481,536	1,421,052	53,996	11,036	271,981	168,582	2,408,183	120,883	120,883	2,529,066

Table 24--Net volume of sawtimber (Scribner rule) on timberland outside National Forests by forest type and species in northeastern New Mexico, 1987

Forest type	Species									
	Douglas- fir	Ponderosa pine	Limber pine	Subalpine fir	White fir	Engelmann spruce	Total softwoods	Aspen	Total hardwoods	All species
	- - - - - Thousand board feet, Scribner rule - - - - -									
Douglas-fir	260,106	50,889	16,431	--	61,967	33,790	423,183	15,266	15,266	438,449
Ponderosa pine	83,142	1,060,685	8,023	--	36,431	--	1,188,281	--	--	1,188,281
Spruce-fir	--	--	--	3,402	3,372	12,862	19,636	--	--	19,636
White fir	24,827	55,640	3,125	--	126,837	13,930	224,359	--	--	224,359
Spruce	--	--	--	4,470	--	59,957	64,427	57,254	57,254	121,681
Other softwoods	2,116	--	17,484	--	--	10,911	30,511	--	--	30,511
Aspen	3,490	--	--	1,442	3,963	1,832	10,727	21,719	21,719	32,446
All types	373,681	1,167,214	45,063	9,314	232,570	133,282	1,961,124	94,239	94,239	2,055,363

Table 25--Net annual growth of growing stock on timberland outside  
National Forests by species and ownership class in northeastern  
New Mexico, 1986

Species	Ownership class			Total
	Other public	Private		
			Thousand cubic feet	
Douglas-fir	148	119		267
Ponderosa pine	743	10,335		11,078
Limber pine	--	332		332
Subalpine fir	23	932		955
White fir	336	2,184		2,520
Engelmann spruce	154	1,534		1,688
Total softwoods	1,404	15,436		16,840
Aspen	--	908		908
Total hardwoods	--	908		908
All species	1,404	16,344		17,748

Table 26--Net annual growth of sawtimber (International ¼-inch rule) on timberland outside National Forests by species and ownership class in northeastern New Mexico, 1986

Species	Ownership class		
	Other public	Private	Total
- Thousand board feet, International ¼-inch rule -			
Douglas-fir	386	3,238	3,624
Ponderosa pine	12,119	46,488	58,607
Limber pine	--	858	858
Subalpine fir	--	363	363
White fir	1,627	8,049	9,676
Engelmann spruce	192	5,962	6,154
Total softwoods	14,324	64,958	79,282
Aspen	--	1,835	1,835
Total hardwoods	--	1,835	1,835
All species	14,324	66,793	81,117

Table 27--Net annual growth of sawtimber (Scribner rule) on timberland outside National Forests by species and ownership class in northeastern New Mexico, 1986

Species	Ownership class		
	Other public	Private	Total
- - - Thousand board feet, Scribner rule - - -			
Douglas-fir	371	2,510	2,881
Ponderosa pine	8,203	37,083	45,286
Limber pine	--	744	744
Subalpine fir	--	321	321
White fir	1,448	7,197	8,645
Engelmann spruce	159	5,091	5,250
Total softwoods	10,181	52,946	63,127
Aspen	--	1,576	1,576
Total hardwoods	--	1,576	1,576
All species	10,181	54,522	64,703

Table 28--Net annual growth of growing stock on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1986

Species	Diameter class (inches at breast height)													29.0+ classes	All classes
	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0+		
	----- Thousand cubic feet -----														
Douglas-fir	683	145	411	-786	-640	229	186	-28	54	4	9	--	--	267	
Ponderosa pine	2,517	2,447	2,296	1,572	946	744	308	125	64	17	29	8	5	11,078	
Limber pine	94	83	48	65	28	11	1	--	--	2	--	--	--	332	
Subalpine fir	627	210	108	10	--	--	--	--	--	--	--	--	--	955	
White fir	885	162	478	229	203	155	148	109	114	--	--	10	27	2,520	
Engelmann spruce	711	200	157	422	60	63	36	12	13	--	--	14	--	1,688	
Total softwoods	5,517	3,247	3,498	1,512	597	1,202	679	218	245	23	38	32	32	16,840	
Aspen	292	128	196	177	88	27	--	--	--	--	--	--	--	908	
Total hardwoods	292	128	196	177	88	27	--	--	--	--	--	--	--	908	
All species	5,809	3,375	3,694	1,689	685	1,229	679	218	245	23	38	32	32	17,748	

Table 29--Net annual growth of sawtimber (International 4-inch rule) on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1986

Species	Diameter class (inches at breast height)														All classes.
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+				
	----- Thousand board feet, International 4-inch rule -----														
Douglas-fir	5,980	-2,360	-2,790	1,374	1,123	-107	327	22	55	--	--	--	3,624		
Ponderosa pine	32,709	10,571	6,593	5,036	2,066	838	407	110	195	49	34	58,608			
Lumber pine	239	376	163	64	4	--	--	12	--	--	--	858			
Subalpine fir	308	55	--	--	--	--	--	--	--	--	--	363			
White fir	5,397	1,161	952	676	560	382	395	--	--	42	110	9,675			
Engelmann spruce	2,671	2,439	324	327	184	64	71	--	--	75	--	6,155			
Total softwoods	47,304	12,242	5,242	7,477	3,937	1,177	1,200	144	250	166	144	79,283			
Aspen	XXXX	1,151	529	154	--	--	--	--	--	--	--	1,834			
Total hardwoods	XXXX	1,151	529	154	--	--	--	--	--	--	--	1,834			
All species	47,304	13,393	5,771	7,631	3,937	1,177	1,200	144	250	166	144	81,117			

Table 30--Net annual growth of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1986

Species	Diameter class (inches at breast height)														All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	Thousand board feet, Scribner rule			
Douglas-fir	4,024	-1,481	-2,054	1,156	955	-67	281	19	47	--	--	--	--	2,880	
Ponderosa pine	22,243	9,100	5,941	4,614	1,920	761	362	98	173	44	31	44	44	45,287	
Limber pine	203	324	144	58	4	--	--	11	--	--	--	--	--	744	
Subalpine fir	274	47	--	--	--	--	--	--	--	--	--	--	--	321	
White fir	4,759	1,027	873	632	528	340	351	--	--	37	98	37	37	8,645	
Engelmann spruce	2,332	2,019	276	281	159	55	62	--	--	66	--	66	66	5,250	
Total softwoods	33,835	11,036	5,180	6,741	3,566	1,089	1,056	128	220	147	129	147	147	63,127	
Aspen	XXXXX	978	462	136	--	--	--	--	--	--	--	--	--	1,576	
Total hardwoods	XXXXX	978	462	136	--	--	--	--	--	--	--	--	--	1,576	
All species	33,835	12,014	5,642	6,877	3,566	1,089	1,056	128	220	147	129	147	147	64,703	



Table 31--Annual mortality of growing stock on timberland outside  
National Forests by species and ownership class in  
northeastern New Mexico, 1986

Species	Ownership class			Total
	Other public	Private		
			<u>Thousand cubic feet</u>	
Douglas-fir	225	3,802		4,027
Ponderosa pine	--	279		279
Lumber pine	--	--		--
Subalpine fir	--	--		--
White fir	--	--		--
Engelmann spruce	--	--		--
Total softwoods	225	4,081		4,306
Aspen	--	91		91
Total hardwoods	--	91		91
All species	225	4,172		4,397

Table 32--Annual mortality of sawtimber (International ¼-inch rule) on timberland outside National Forests by species and ownership class in northeastern New Mexico, 1986

Species	Ownership class		Total
	Other public	Private	
- Thousand board feet, International ¼-inch rule -			
Douglas-fir	988	10,088	11,076
Ponderosa pine	--	1,066	1,066
Limber pine	--	--	--
Subalpine fir	--	--	--
White fir	--	--	--
Engelmann spruce	--	--	--
Total softwoods	988	11,154	12,142
Aspen	--	--	--
Total hardwoods	--	--	--
All species	988	11,154	12,142

Table 33--Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and ownership class in northeastern New Mexico, 1986

Species	Ownership class		Total
	Other public	Private	
	- - - <u>Thousand board feet, Scribner rule</u> - - -		
Douglas-fir	745	7,581	8,326
Ponderosa pine	--	878	878
Limber pine	--	--	--
Subalpine fir	--	--	--
White fir	--	--	--
Engelmann spruce	--	--	--
Total softwoods	745	8,459	9,204
Aspen	--	--	--
Total hardwoods	--	--	--
All species	745	8,459	9,204

Table 34--Annual mortality of growing stock on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1986

Species	Diameter class (inches at breast height)											All classes	
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9		27.0-28.9
	----- Thousand cubic feet -----												
Douglas-fir	477	967	285	1,341	832	--	--	125	--	--	--	--	4,027
Ponderosa pine	--	53	--	105	121	--	--	--	--	--	--	--	279
Limber pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Subalpine fir	--	--	--	--	--	--	--	--	--	--	--	--	--
White fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Engelmann spruce	--	--	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	477	1,020	285	1,446	953	--	--	125	--	--	--	--	4,306
Aspen	91	--	--	--	--	--	--	--	--	--	--	--	91
Total hardwoods	91	--	--	--	--	--	--	--	--	--	--	--	91
All species	568	1,020	285	1,446	953	--	--	125	--	--	--	--	4,397

Table 35--Annual mortality of sawtimber (International 4-inch rule) on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1986

Species	Diameter class (inches at breast height)											All classes	
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+		
	----- Thousand board feet, International 4-inch rule -----												
Douglas-fir	844	5,599	3,943	--	--	--	690	--	--	--	--	--	11,076
Ponderosa pine	--	465	601	--	--	--	--	--	--	--	--	--	1,066
Limber pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Subalpine fir	--	--	--	--	--	--	--	--	--	--	--	--	--
White fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Engelmann spruce	--	--	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	844	6,064	4,544	--	--	690	--	--	--	--	--	--	12,142
Aspen	XXXXX	--	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	XXXXX	--	--	--	--	--	--	--	--	--	--	--	--
All species	844	6,064	4,544	--	--	690	--	--	--	--	--	--	12,142

Table 36--Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and diameter class in northeastern New Mexico, 1986

Species	Diameter class (inches at breast height)											All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	
	----- Thousand board feet, Scribner rule -----											
Douglas-fir	666	4,084	3,010	--	--	566	--	--	--	--	--	8,326
Ponderosa pine	--	372	506	--	--	--	--	--	--	--	--	878
Limber pine	--	--	--	--	--	--	--	--	--	--	--	--
Subalpine fir	--	--	--	--	--	--	--	--	--	--	--	--
White fir	--	--	--	--	--	--	--	--	--	--	--	--
Engelmann spruce	--	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	666	4,456	3,516	--	--	566	--	--	--	--	--	9,204
Aspen	XXXXX	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	XXXXX	--	--	--	--	--	--	--	--	--	--	--
All species	666	4,456	3,516	--	--	566	--	--	--	--	--	9,204

Table 37--Annual mortality of growing stock on timberland outside National Forests by species and cause of death in northeastern New Mexico, 1986

Species	Cause of death							Total				
	Insects	Disease	Fire	Animal	Weather	Suppression	Logging		Unknown <sup>1</sup>			
	--	--	--	--	--	--	--	--	--	--	--	--
					Thousand cubic feet							
Douglas-fir	3,669	358	--	--	--	--	--	--	--	--	--	4,027
Ponderosa pine	--	--	--	--	--	--	--	--	--	--	279	279
Lumber pine	--	--	--	--	--	--	--	--	--	--	--	--
Subalpine fir	--	--	--	--	--	--	--	--	--	--	--	--
White fir	--	--	--	--	--	--	--	--	--	--	--	--
Engelmann spruce	--	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	3,669	358	--	--	--	--	--	--	--	279	--	4,306
Aspen	--	--	--	--	--	--	--	--	--	91	--	91
Total hardwoods	--	--	--	--	--	--	--	--	--	91	--	91
All species	3,669	358	--	--	--	--	--	--	--	370	--	4,397

<sup>1</sup>Because many destructive agents often attack trees in concert or in succession, it is often difficult to identify the actual causal agent. When the primary cause of death cannot be precisely determined, it is listed as unknown.

Table 38--Annual mortality of sawtimber (International 1/4-inch rule) on timberland outside National Forests by species and cause of death in northeastern New Mexico, 1986

Species	Cause of death								Total	
	Insects	Disease	Fire	Animal	Weather	Suppression	Logging	Unknown		
	--	--	--	--	--	--	--	--	--	--
	----- Thousand board feet, International 1/4-inch rule -----									
Douglas-fir	10,530	546	--	--	--	--	--	--	--	11,076
Ponderosa pine	--	--	--	--	--	--	--	1,066	--	1,066
Limber pine	--	--	--	--	--	--	--	--	--	--
Subalpine fir	--	--	--	--	--	--	--	--	--	--
White fir	--	--	--	--	--	--	--	--	--	--
Engelmann spruce	--	--	--	--	--	--	--	--	--	--
Total softwoods	10,530	546	--	--	--	--	--	1,066	--	12,142
Aspen	--	--	--	--	--	--	--	--	--	--
Total hardwoods	--	--	--	--	--	--	--	--	--	--
All species	10,530	546	--	--	--	--	--	1,066	--	12,142



Table 39--Annual mortality of sawtimber (Scribner rule) on timberland outside National Forests by species and cause of death in northeastern New Mexico, 1986

Species	Cause of death							Total				
	Insects	Disease	Fire	Animal	Weather	Suppression	Logging		Unknown			
	--	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	<u>Thousand board feet, Scribner rule</u>				--	--	--	--	--
Douglas-fir	7,840	486	--	--	--	--	--	--	--	--	8,326	--
Ponderosa pine	--	--	--	--	--	--	--	--	--	878	878	--
Limber pine	--	--	--	--	--	--	--	--	--	--	--	--
Subalpine fir	--	--	--	--	--	--	--	--	--	--	--	--
White fir	--	--	--	--	--	--	--	--	--	--	--	--
Engelmann spruce	--	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	7,840	486	--	--	--	--	--	--	--	878	878	9,204
Aspen	--	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	--	--	--	--	--	--	--	--	--	--	--	--
All species	7,840	486	--	--	--	--	--	--	--	878	878	9,204

## WOODLAND TABLES

Table 40--Area of woodland outside National Forests by forest type and ownership class in northeastern New Mexico, 1987

Forest type	Ownership class		
	Other public	Private	Total
	- - - - - Acres - - - - -		
Pinyon-juniper	157,797	929,192	1,086,989
Juniper	45,977	83,416	129,393
Total woodland softwoods	203,774	1,012,608	1,216,382
Oak	--	14,322	14,322
Total woodland hardwoods	--	14,322	14,322
All types	203,774	1,026,930	1,230,704

Table 41--Area of woodland outside National Forests by ownership class, forest type, and productivity class in northeastern New Mexico, 1987

Ownership class	Forest type	Productivity class		
		High	Low	All classes
		- - - - - Acres - - - - -		
Other public:	Pinyon-juniper	123,356	34,441	157,797
	Juniper	28,757	17,220	45,977
	Oak	--	--	--
	Total	152,113	51,661	203,774
Private:	Pinyon-juniper	737,942	191,250	929,192
	Juniper	83,416	--	83,416
	Oak	6,747	7,575	14,322
	Total	828,105	198,825	1,026,930
Total:	Pinyon-juniper	861,298	225,691	1,086,989
	Juniper	112,173	17,220	129,393
	Oak	6,747	7,575	14,322
	Total	980,218	250,486	1,230,704

Table 42--Area of woodland outside National Forests by ownership class, forest type, and volume class in northeastern New Mexico, 1987

Ownership class	Forest type	Volume class							All classes
		0 - 199 cu ft/acre	200 - 399 cu ft/acre	400 - 599 cu ft/acre	600 - 799 cu ft/acre	800 - 999 cu ft/acre	1,000+ cu ft/acre	Acres	
Other public:	Pinyon-juniper	45,977	34,440	34,441	17,220	--	--	25,719	157,797
	Juniper	--	28,757	--	--	17,220	--	--	45,977
	Oak	--	--	--	--	--	--	--	--
	Total	45,977	63,197	34,441	17,220	17,220	25,719	203,774	
Private:	Pinyon-juniper	165,270	390,856	196,044	60,945	21,729	94,348	929,192	
	Juniper	12,772	50,501	12,568	--	--	7,575	83,416	
	Oak	7,575	--	6,747	--	--	--	14,322	
	Total	185,617	441,357	215,359	60,945	21,729	101,923	1,026,930	
Total:	Pinyon-juniper	211,247	425,296	230,485	78,165	21,729	120,067	1,086,989	
	Juniper	12,772	79,258	12,568	--	17,220	7,575	129,393	
	Oak	7,575	--	6,747	--	--	--	14,322	
	Total	231,594	504,554	249,800	78,165	38,949	127,642	1,230,704	

Table 43--Number of trees on woodland outside National Forests by ownership class, species, and diameter class in northeastern New Mexico, 1987

Ownership class and species	Diameter class (inches at root collar)													All classes		
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9		27.0-28.9	29.0+
----- Thousand trees -----																
Other public:																
Pinyon	6,776	5,905	2,663	1,633	772	257	--	--	--	--	--	--	--	--	--	--
Juniper	4,831	7,576	7,000	4,881	4,187	1,519	1,664	574	402	58	--	--	172	--	172	18,006
Oak	--	2,209	340	--	--	--	--	--	--	--	--	--	--	--	--	33,036
Total	11,607	15,690	10,003	6,514	4,959	1,776	1,664	574	402	58	--	--	172	--	172	53,591
Private:																
Pinyon	56,678	41,898	29,048	12,663	5,322	2,610	1,510	207	75	201	--	--	83	--	--	150,295
Juniper	45,608	11,115	13,530	12,736	10,516	8,045	5,895	3,738	1,914	937	531	427	183	203	376	115,754
Oak	15,997	7,282	653	178	--	--	--	--	--	--	--	--	--	--	--	24,110
Total	118,283	60,295	43,231	25,577	15,838	10,655	7,405	3,945	1,989	1,138	531	427	266	203	376	290,159
Total:																
Pinyon	63,454	47,803	31,711	14,296	6,094	2,867	1,510	207	75	201	--	--	83	--	--	168,301
Juniper	50,439	18,691	20,530	17,617	14,703	9,564	7,559	4,312	2,316	995	531	427	355	203	548	148,790
Oak	15,997	9,491	993	178	--	--	--	--	--	--	--	--	--	--	--	26,659
Total	129,890	75,985	53,234	32,091	20,797	12,431	9,069	4,519	2,391	1,196	531	427	438	203	548	343,750



Table 45--Net volume of woodland species on woodland outside National Forests by ownership class, species, and diameter class in northeastern New Mexico, 1987

Ownership class and species	Diameter class (inches at root collar)														All classes
	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	
	----- Thousand cubic feet -----														
Other public:															
Pinyon	3,301	4,533	7,156	5,118	2,855	--	--	--	--	--	--	--	--	--	22,963
Juniper	2,457	5,936	7,662	11,255	6,127	8,364	4,050	4,931	699	--	--	4,430	--	5,093	61,004
Oak	832	307	--	--	--	--	--	--	--	--	--	--	--	--	1,139
Total	6,590	10,776	14,818	16,373	8,982	8,364	4,050	4,931	699	--	--	4,430	--	5,093	85,106
Private:															
Pinyon	17,606	37,524	34,386	25,336	22,991	18,645	3,414	1,778	6,318	--	--	4,035	--	--	172,033
Juniper	3,465	11,278	21,200	28,734	31,163	34,009	30,366	17,078	12,640	9,850	8,774	2,913	2,242	19,139	232,851
Oak	2,180	624	349	--	--	--	--	--	--	--	--	--	--	--	3,153
Total	23,251	49,426	55,935	54,070	54,154	52,654	33,780	18,856	18,958	9,850	8,774	6,948	2,242	19,139	408,037
Total:															
Pinyon	20,907	42,057	41,542	30,454	25,846	18,645	3,414	1,778	6,318	--	--	4,035	--	--	194,996
Juniper	5,922	17,214	28,862	39,989	37,290	42,373	34,416	22,009	13,339	9,850	8,774	7,343	2,242	24,232	293,855
Oak	3,012	931	349	--	--	--	--	--	--	--	--	--	--	--	4,292
Total <sup>1</sup>	29,841	60,202	70,753	70,443	63,136	61,018	37,830	23,787	19,657	9,850	8,774	11,378	2,242	24,232	493,143

<sup>1</sup>Timberland species are not included in this table because of the difference between point of diameter measurement.

Table 46--Net volume on woodland outside National Forests by ownership class, forest type, and productivity class in northeastern New Mexico, 1987

Ownership class	Forest type	Productivity class		
		High	Low	All classes
-- -- -- Thousand cubic feet -- -- --				
Other public:	Pinyon-juniper	62,819	4,922	67,741
	Juniper	16,481	3,487	19,968
	Oak	--	--	--
	Total	79,300	8,409	87,709
Private:	Pinyon-juniper	319,800	47,071	366,871
	Juniper	48,217	--	48,217
	Oak	3,223	731	3,954
	Total	371,240	47,802	419,042
Total:	Pinyon-juniper	382,619	51,993	434,612
	Juniper	64,698	3,487	68,185
	Oak	3,223	731	3,954
	Total	450,540	56,211	506,751



Table 47--Net volume on woodland outside National Forests by ownership class, forest type, and volume class in northeastern New Mexico, 1987

Ownership class	Forest type	Volume class							All classes
		0 - 199 cu ft/acre	200 - 399 cu ft/acre	400 - 599 cu ft/acre	600 - 799 cu ft/acre	800 - 999 cu ft/acre	1,000+ cu ft/acre		
		----- Thousand cubic feet -----							
Other public:	Pinyon-juniper	5,442	9,130	12,122	12,363	--	28,684	67,741	
	Juniper	--	6,179	--	--	13,789	--	19,968	
	Oak	--	--	--	--	--	--	--	
	Total	5,442	15,309	12,122	12,363	13,789	28,684	87,709	
Private:	Pinyon-juniper	18,866	102,793	88,253	34,152	16,478	106,329	366,871	
	Juniper	1,119	14,786	5,057	--	--	27,255	48,217	
	Oak	731	--	3,223	--	--	--	3,954	
	Total	20,716	117,579	96,533	34,152	16,478	133,584	419,042	
Total:	Pinyon-juniper	24,308	111,923	100,375	46,515	16,478	135,013	434,612	
	Juniper	1,119	20,965	5,057	--	13,789	27,255	68,185	
	Oak	731	--	3,223	--	--	--	3,954	
	Total	26,158	132,888	108,655	46,515	30,267	162,268	506,751	

Table 48--Net dead volume of woodland species on woodland outside National Forests by ownership class, species, and diameter class in northeastern New Mexico, 1987

Ownership class and species	Diameter class (inches at root collar)													A11 classes		
	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9			
	----- Thousand cubic feet -----															
Other public:																
Pinyon	22	792	618	176	97	--	--	--	--	--	--	--	--	--	--	1,705
Juniper	169	502	783	526	3,995	1,561	1,362	921	--	--	--	591	--	--	599	11,009
Oak	70	68	301	--	--	--	--	--	--	--	--	--	--	--	--	439
Total	261	1,362	1,702	702	4,092	1,561	1,362	921	--	--	--	591	--	--	599	13,153
Private:																
Pinyon	778	2,141	1,477	2,414	4,442	3,209	2,161	1,476	217	--	--	538	--	--	--	18,853
Juniper	142	955	1,702	2,024	4,443	4,703	2,570	3,563	1,453	3,049	2,158	1,871	4,093	14,017	--	46,743
Oak	194	88	99	--	--	--	--	--	--	--	--	--	--	--	--	381
Total	1,114	3,184	3,278	4,438	8,885	7,912	4,731	5,039	1,670	3,049	2,158	2,409	4,093	14,017	--	65,977
Total:																
Pinyon	800	2,933	2,095	2,590	4,539	3,209	2,161	1,476	217	--	--	538	--	--	--	20,558
Juniper	311	1,457	2,485	2,550	8,438	6,264	3,932	4,484	1,453	3,049	2,158	2,462	4,093	14,616	--	57,752
Oak	264	156	400	--	--	--	--	--	--	--	--	--	--	--	--	820
Total	1,375	4,546	4,980	5,140	12,977	9,473	6,093	5,960	1,670	3,049	2,158	3,000	4,093	14,616	--	79,130

Table 49--Net dead volume of woodland species on woodland outside National Forests by ownership class, forest type, and productivity class in northeastern New Mexico, 1987

Ownership class	Forest type	Productivity class		
		High	Low	All classes
- - - - Thousand cubic feet - - - -				
Other public:	Pinyon-juniper	10,971	379	11,350
	Juniper	1,370	433	1,803
	Oak	--	--	--
	Total	12,341	812	13,153
Private:	Pinyon-juniper	51,236	7,740	58,976
	Juniper	6,900	--	6,900
	Oak	--	101	101
	Total	58,136	7,841	65,977
Total:	Pinyon-juniper	62,207	8,119	70,326
	Juniper	8,270	433	8,703
	Oak	--	101	101
	Total	70,477	8,653	79,130

Table 50--Net dead volume of woodland species on woodland outside National Forests by ownership class, forest type, and volume class in northeastern New Mexico, 1987

Ownership class	Forest type	Volume class							All classes
		0 - 199 cu ft/acre	200 - 399 cu ft/acre	400 - 599 cu ft/acre	600 - 799 cu ft/acre	800 - 999 cu ft/acre	1,000+ cu ft/acre	Thousand cubic feet	
Other public:	Pinyon-juniper	852	988	3,103	761	--	5,646	11,350	
	Juniper	--	453	--	--	1,350	--	1,803	
	Oak	--	--	--	--	--	--	--	
	Total	852	1,441	3,103	761	1,350	5,646	13,153	
Private:	Pinyon-juniper	1,277	8,969	6,972	6,898	2,979	31,882	58,977	
	Juniper	--	833	--	--	--	6,066	6,899	
	Oak	101	--	--	--	--	--	101	
	Total	1,378	9,802	6,972	6,898	2,979	37,948	65,977	
Total:	Pinyon-juniper	2,129	9,957	10,075	7,659	2,979	37,528	70,327	
	Juniper	--	1,286	--	--	1,350	6,066	8,702	
	Oak	101	--	--	--	--	--	101	
	Total	2,230	11,243	10,075	7,659	4,329	43,594	79,130	



Table 52--Net annual growth of woodland species on woodland outside National Forests by ownership class, species, and diameter class in northeastern New Mexico, 1986

Ownership class and species	Diameter class (inches at root collar)																All classes
	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+			
----- Thousand cubic feet -----																	
Other public:																	
Pinyon	124	91	107	66	32	--	--	--	--	--	--	--	--	--	--	420	
Juniper	97	104	97	115	51	55	24	24	4	--	--	13	--	12	--	596	
Oak	31	6	--	--	--	--	--	--	--	--	--	--	--	--	--	37	
Total	252	201	204	181	83	55	24	24	4	--	--	13	--	12	--	1,053	
Private:																	
Pinyon	922	848	583	330	248	161	28	7	23	--	--	10	--	--	--	3,160	
Juniper	157	199	270	290	260	233	181	94	58	35	27	9	5	29	--	1,847	
Oak	96	13	5	--	--	--	--	--	--	--	--	--	--	--	--	114	
Total	1,175	1,060	858	620	508	394	209	101	81	35	27	19	5	29	--	5,121	
Total:	1,046	939	690	396	280	161	28	7	23	--	--	10	--	--	--	3,580	
Pinyon	254	303	367	405	311	288	205	118	62	35	27	22	5	41	--	2,443	
Juniper	127	19	5	--	--	--	--	--	--	--	--	--	--	--	--	151	
Oak																	
Total <sup>1</sup>	1,427	1,261	1,062	801	591	449	233	125	85	35	27	32	5	41	--	6,174	

<sup>1</sup>Timberland species are not included in this table because of the difference between point of diameter measurement.

Table 53--Net annual growth on woodland outside National Forests by ownership class, forest type, and productivity class in northeastern New Mexico, 1986

Ownership class	Forest type	Productivity class			All classes
		High	Low		
- - - - - <u>Thousand cubic feet</u> - - - - -					
Other public:	Pinyon-juniper	907	76		983
	Juniper	82	36		118
	Oak	--	--		--
	Total	989	112		1,101
Private:	Pinyon-juniper	4,740	496		5,236
	Juniper	250	--		250
	Oak	70	28		98
	Total	5,060	524		5,584
Total:	Pinyon-juniper	5,647	572		6,219
	Juniper	332	36		368
	Oak	70	28		98
	Total	6,049	636		6,685

Table 54--Net annual growth on woodland outside National Forests by ownership class, forest type, and volume class in northeastern New Mexico, 1986

Ownership class	Forest type	Volume class							All classes
		0 - 199 cu ft/acre	200 - 399 cu ft/acre	400 - 599 cu ft/acre	600 - 799 cu ft/acre	800 - 999 cu ft/acre	1,000+ cu ft/acre	1,000+ cu ft/acre	
		----- Thousand cubic feet -----							
Other public:	Pinyon-juniper	86	122	175	181	--	418	982	
	Juniper	--	54	--	--	65	--	119	
	Oak	--	--	--	--	--	--	--	
	Total	86	176	175	181	65	418	1,101	
Private:	Pinyon-juniper	384	1,447	1,301	647	232	1,225	5,236	
	Juniper	17	119	42	--	--	72	250	
	Oak	28	--	70	--	--	--	98	
	Total	429	1,566	1,413	647	232	1,297	5,584	
Total:	Pinyon-juniper	470	1,569	1,476	828	232	1,643	6,218	
	Juniper	17	173	42	--	65	72	369	
	Oak	28	--	70	--	--	--	98	
	Total	515	1,742	1,588	828	297	1,715	6,685	



Table 55--Annual mortality on woodland outside National Forests by species and ownership class in northeastern New Mexico, 1986

Species	Ownership class			Total
	Other public	Private		
			Thousand cubic feet	
Douglas-fir	--	--	--	--
Ponderosa pine	--	--	--	--
Pinyon	--	--	--	--
Juniper	--	--	--	--
Oak	--	--	--	--
All species	--	--	--	--

Table 56--Number of pinyon Christmas trees on woodland outside National Forests by ownership class, grade, and height class in northeastern New Mexico, 1987

Ownership class	Christmas-tree grade	Height class			All classes
		0' - 5'	6' - 10'	11' - 12'	
- - - - - Thousand trees - - - - -					
Other public:	Premium	--	--	--	--
	Standard	--	--	--	--
	Utility	--	602	344	946
	Total	--	602	344	946
Private:	Premium	--	--	112	112
	Standard	506	3,450	120	4,076
	Utility	10,097	12,815	1,540	24,452
	Total	10,603	16,265	1,772	28,640
Total:	Premium	--	--	112	112
	Standard	506	3,450	120	4,076
	Utility	10,097	13,417	1,884	25,398
	Total	10,603	16,867	2,116	29,586

Table 57--Number of fenceposts on woodland outside National Forests  
by ownership class, species, and type of post in  
northeastern New Mexico, 1987

Ownership class	Species	Type of post		
		Line	Corner	Total
- - - - Thousand fenceposts - - - -				
Other public:	Juniper	4,640	1,660	6,300
	Oak	170	--	170
	Total	4,810	1,660	6,470
Private:	Juniper	13,052	7,126	20,178
	Oak	233	--	233
	Total	13,285	7,126	20,411
Total:	Juniper	17,692	8,786	26,478
	Oak	403	--	403
	Total	18,095	8,786	26,881

# COUNTY TABLES

Table 58--Area of timberland outside  
National Forests by county  
in northeastern New Mexico,  
1987

County	Area
	- - Acres - -
Colfax	456,111
Guadalupe	6,117
Harding	6,144
Mora	183,042
Quay	6,098
San Miguel	95,097
Torrance	23,428
Union	13,025
Total	789,062

Table 59--Net volume of growing stock and sawtimber on timberland outside National Forests by county in northeastern New Mexico, 1987

County	Growing stock		Sawtimber	
	Thousand cubic feet	Thousand board feet International 1/4-inch rule	Thousand board feet Scribner rule	
Colfax	427,632	1,403,361	1,133,397	
Guadalupe	2,741	8,222	6,713	
Harding	3,564	12,593	10,311	
Mora	173,852	705,228	583,659	
Quay	2,615	7,903	6,480	
San Miguel	95,066	295,310	237,212	
Torrance	20,416	67,107	53,773	
Union	8,777	29,342	23,818	
<b>Total</b>	<b>734,663</b>	<b>2,529,066</b>	<b>2,055,363</b>	

Table 60--Net annual growth of growing stock and sawtimber on timberland outside National Forests by county in northeastern New Mexico, 1986

County	Growing stock		Sawtimber	
	Thousand cubic feet	Thousand board feet International $\frac{1}{4}$ -inch rule	Thousand board feet Scribner rule	
Colfax	7,537	32,723	26,641	
Guadalupe	118	706	490	
Harding	118	961	672	
Mora	5,980	25,250	20,941	
Quay	114	676	469	
San Miguel	2,975	14,039	10,691	
Torrance	663	4,977	3,536	
Union	243	1,785	1,263	
Total	17,748	81,117	64,703	

Table 61--Annual mortality of growing stock and sawtimber on timberland outside National Forests by county in northeastern New Mexico, 1986

County	Growing stock		Sawtimber	
	Thousand cubic feet	Thousand board feet International 1/4-inch rule	Thousand board feet Scribner rule	
Colfax	4,278	11,725	8,888	
Guadalupe	--	--	--	
Harding	12	36	28	
Mora	11	48	37	
Quay	--	--	--	
San Miguel	38	166	125	
Torrance	--	--	--	
Union	58	167	126	
Total	4,397	12,142	9,204	

Table 62--Area, net volume, net annual growth, and annual mortality on woodland outside National Forests by county in northeastern New Mexico

County	Area (1987)	Net volume (1987)	Net annual growth (1986)	Annual mortality (1986)
	Acres		Thousand cubic feet	
Colfax	177,237	143,790	1,714	--
Guadalupe	99,149	25,476	311	--
Harding	76,628	21,988	366	--
Mora	85,439	33,751	493	--
Quay	52,816	15,501	205	--
San Miguel	411,671	149,539	2,064	--
Torrance	205,721	80,410	943	--
Union	122,043	36,296	589	--
Total	1,230,704	506,751	6,685	--



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Van Hooser, Dwane D. 1989. Timberland and woodland resources outside National Forests in northeastern New Mexico, 1987. Resour. Bull. INT-63. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 82 p.

Presents land area, timberland and woodland area, associated volume, and components of change for the forest lands outside the National Forests in northeastern New Mexico.

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**KEYWORDS:** forest survey, inventory, volume, pinyon-juniper

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## INTERMOUNTAIN RESEARCH STATION

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