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Agriculture

Forest Service

Northeastern Area
State and Private
Forestry

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Forests of Indiana: A 1998 Overview



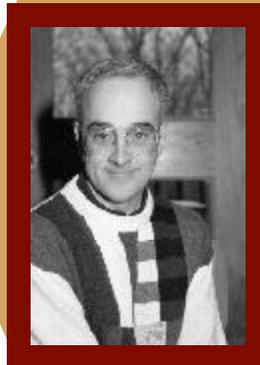
Barbara Tormoehlen
Joey Gallion
Thomas L. Schmidt

State Forester's Welcome

Greetings! On behalf of the Indiana Department of Natural Resources and the USDA Forest Service, I am pleased to provide you with a snapshot of our state's great forest resources. This booklet will answer many frequently asked questions about Indiana's forestland.

Indiana's forests are among the most diverse and productive in the country. Almost 200 years ago, forests covered 85 percent of the state. By 1860, most forestland disappeared to make room for farms, industry, infrastructure, and the growing number of Hoosiers. We're extremely pleased that Indiana has added over 400,000 forested acres since 1967. Forests now comprise 4.5 million acres (almost 20 percent) of the state. This valuable land provides homes and food for wildlife; cleans our water and air; protects soil that would otherwise disappear due to erosion; and provides fine hardwoods to Hoosiers, Americans, and the world.

The information you are about to read was collected during the 1998 inventory of Indiana's forest resources by the USDA Forest Service's Forest Inventory and Analysis (FIA) research unit. FIAs are part of a nationwide effort to determine the owners, age, amount and condition of the nation's forests. Many congressional mandates, including the Renewable Resources Research Act of 1978, require periodic FIA inventories. This was only the fourth time Indiana's forests have undergone an analysis of this magnitude. Previous forest inventories were conducted in 1950, 1967, and 1986.



How we care for, manage, and sustain our forests will determine the future of this important resource. I invite you to take a few minutes and become acquainted with the highlights of Indiana's forestland. I hope you enjoy reading the information and, as a result, become more interested in our state's forests.

A handwritten signature in black ink that reads "Burnell C. Fischer".

Burnell C. Fischer
Indiana State Forester

This booklet provides highlights of the 1998 Indiana FIA inventory. Additional information pertaining to this inventory is available in a statistical report, "Indiana's Forests in 1998," published by the USDA Forest Service - North Central Research Station, on a CD-ROM or through a table generator on the North Central Research Station's Internet page. For more information, please contact the FIA manager at North Central Research Station at (651) 649-5139 or contact Joey Gallion, Forest Products Specialist at (812) 358-2160.

Before you begin...

Forest Inventory and Analysis (FIA) is a USDA Forest Service program that monitors the condition of forest resources in the United States. FIA uses a two-phase procedure that samples a portion of a state's forests. Samples are designed to provide reliable statistics on a statewide basis and within each survey unit. The reported figures provide reliable and statistically significant estimates of Indiana's forests.

During the first FIA inventory in 1950, the state was divided into four "survey units": Northern, Upland Flats, Knobs, and Lower Wabash units. In order for results to be tracked from one inventory to the next, these survey units remain consistent. Each unit contains roughly one-fourth of the state's forestland. The units and counties included in each are shown on Map 1. For greater reliability, most information in this report is presented at the unit level rather than the county level.

Phase 1 of the FIA process uses aerial photography and satellite imagery of a large network of sample locations across the state, to examine land and determine forest area. Phase 2 builds upon the information collected in Phase 1, by providing a closer look at the sample areas in the state. Foresters gather additional information regarding the trees and other vegetation by visiting cross-sections of forested areas or those areas that might be forested. A cluster of ground sample plots is established. To provide a clearer understanding of forest conditions, several measurements are taken:

- The health, condition, age, and size of sample trees and shrubs;
- The nature of the vegetative community associated with the sample plants; and
- The physical characteristics of the site and the supporting community of forest vegetation (hill or flat, direction and steepness of the hill, wet or dry area, and soil conditions).

Each plot is around 1 acre and represents approximately 6,000 acres of forest. These permanent plots will be remeasured in later inventories.

Analysis of the measurements helps determine available wildlife habitat and food, amount and condition of forests within a watershed (drainage area), amount and quality of forest products (such as timber, firewood, syrup potential), land-use like urban sprawl and forest fragmentation, forest fire danger, and threat of insects and disease.

FIA uses two terms that are sometimes erroneously interchanged— "forestland" and "timberland." **Forestland** (4.5 million total acres in 1998) is all land in Indiana at least 1 acre in area, 120 feet wide, and 10 percent covered by trees of any size. **Timberland** (4.3 million acres total in 1998) is forestland that:

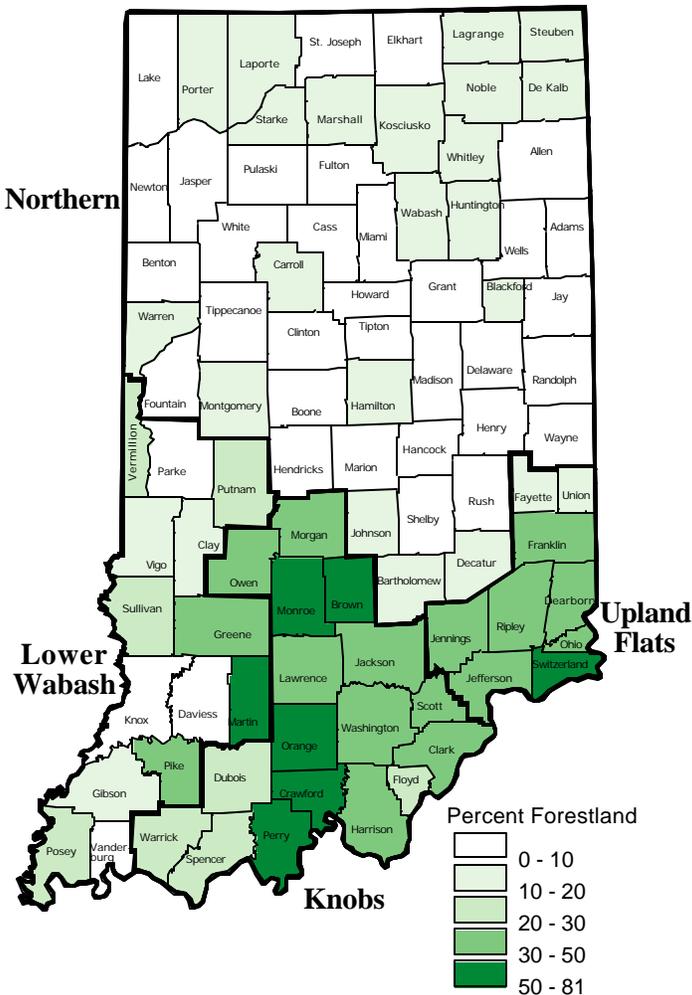
- Produces (or is capable of producing) more than 20 cubic feet per acre of industrial wood crops each year under natural conditions;
- Is not withdrawn from timber use; and
- Is not associated with urban or rural development.

Major Indiana land-holdings included in forestland but excluded from timberland are national and state parks, nature preserves, wilderness areas, and urban forests (such as cemeteries and city parks).

How much of Indiana is forestland? Where is it located?

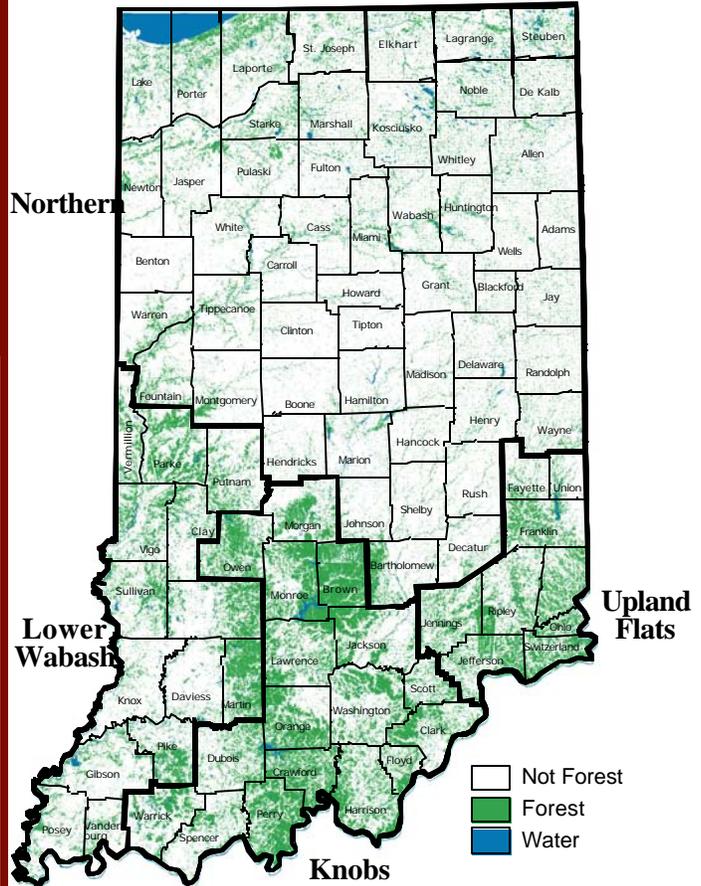
Approximately 20 percent of Indiana is forested. Of Indiana's nearly 23 million acres, 4.5 million are forestland. Most forests are located in the southern half of the state. The satellite map (Map 1) shows the distribution of forest and nonforestland. This map, along with Map 2, provides a clearer picture of the volume and location of forestland within the state.

MAP 2
Percent Forestland by County 1998



Source: NC-FIA Indiana 1998

MAP 1
Indiana Forests



Source:
Indiana Land Cover produced by a cooperative project between the U.S. Geological Survey and the U.S. Environmental Protection Agency based on Landsat TM5 Imagery acquired by the Multi-resolution Land Characterization (MRLC) Consortium. The images date from 1989 to 1993. Classes 41-43 and 91 were used to represent Indiana's forests.

It is important to note the location of the Northern, Upland Flats, Knobs, and Lower Wabash survey units, as they are referenced throughout this report. As previously noted, analyzing survey units (as opposed to counties) increases statistical reliability.

The *Northern Unit*, the largest unit, comprises approximately 60 percent of the state. This section of Indiana, part of the nation’s “bread-basket,” has the lowest percentage (less than 10 percent) of forestland in the state (Figure 1). The Northern Unit extends from Lake Michigan and the Michigan border south to Indianapolis and Richmond before dipping further south to Columbus (Ind.).

Northern - Land Use 1998

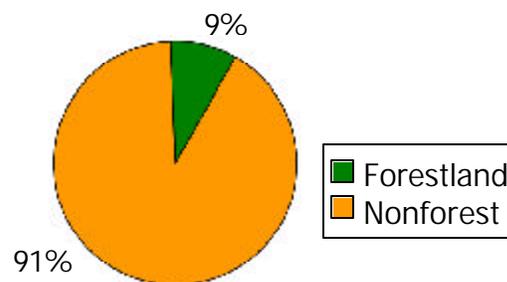


FIGURE 1

Upland Flats - Land Use, 1998

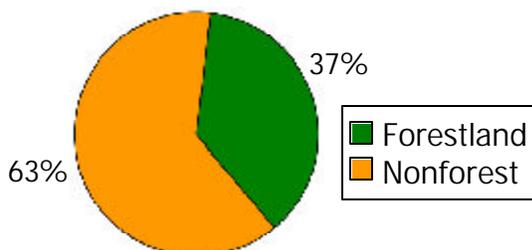


FIGURE 2

The *Upland Flats Unit*, located in the southeast corner of the state, has the second highest concentration of forestland (Figure 2). Over one-third of the area is forested. The unit includes the towns of Madison, Versailles, North Vernon, and Lawrenceburg.

The *Knobs Unit*, in south-central Indiana, has the state’s highest concentration of forestland (Figure 3). This unit has large, continuous tracts of forests that provide some of the best woodland habitat. This land also filters and cleans much of the state’s water and air, while providing a sustainable resource for forest products. The Knobs Unit includes the towns of Bloomington, New Albany, Tell City, and Seymour.

Knobs - Land Use, 1998

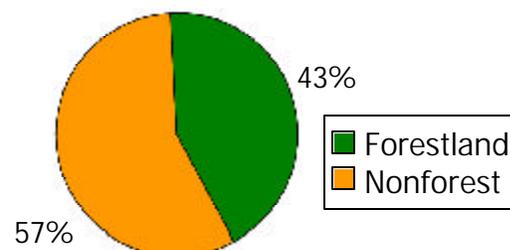


FIGURE 3

Lower Wabash - Land use, 1998

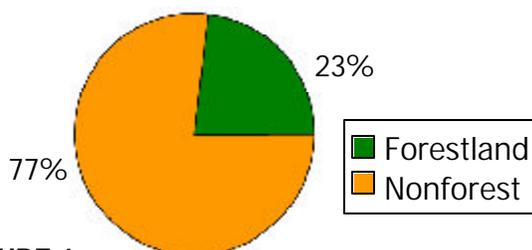


FIGURE 4

The *Lower Wabash Unit*, in the southwestern part of Indiana, is anchored by Evansville to the south, Terre Haute to the north, and Vincennes in the middle. The area has pockets of both dense and sparse forestland (Figure 4).

Forestland increases from the predominantly agricultural flat land in the north, along the Michigan border, southward to the hills of the Ohio River Valley. Due to glacial forces, Indiana’s northern sections have rich soil—perfect for agriculture. As a result, most of the forests are concentrated on the state’s southern hills and ravines. In comparison with other states, Indiana forest soils are richer than most, despite their hilly terrain. This rich soil, coupled with good growing conditions, results in Indiana’s hardwood trees being among the best in the world!

What is the history of Indiana's forests?

It is impossible to discuss the history of Indiana's forests without exploring the history of its people. No official inventories of Indiana's forested landscape exist prior to the mid-1900s. However, accounts from Native Americans, settlers, and the Government Land Office show that Indiana was over 85 percent forestland as recently as 200 years ago. Land that lacked trees included grasslands in the northwestern part of the state, very wet areas in the southwestern part, and very dry areas in south-central Indiana.

Forests were, by far, the best lands for farming, as other lands were considered either too wet or too dry. By 1860, approximately half of the state's forests were burned, cleared, farmed, and some abandoned after the soil's nutrients were depleted.

Indiana's population grew from 20,000 Native Americans in the 1700s to almost 1.5 million people in 1860. By 1900, Indiana was the nation's leading producer of forest products. Forests comprised approximately 1.5 million acres, or about 7 percent of the original amount of forestland in the state.

What happened to the forests during the 20th century? FIA results provide a very accurate picture of the growth and changes Indiana's forests have undergone since 1950. The good news is that the forests have continued to grow along with increases in human population in Indiana. Almost one out of every five acres in the state is wooded, and nearly 6 million people now make Indiana home.

Indiana - Timberland Area, 1950 to 1998

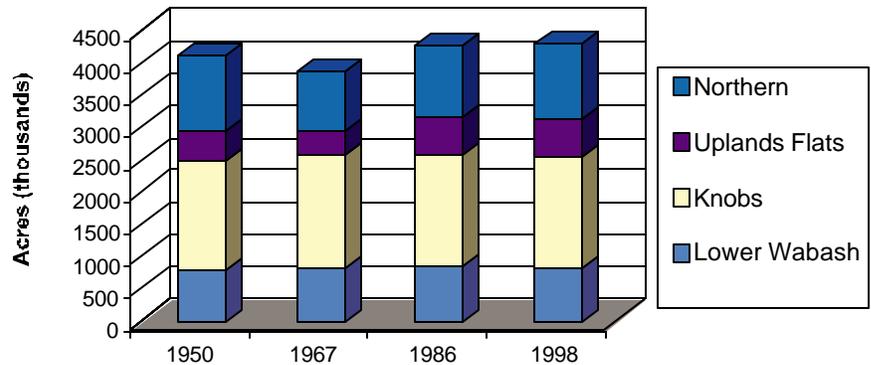


FIGURE 5



In 1950, Indiana timberland totaled 4.1 million acres (Figure 5). By 1998, the amount of timberland increased by 200,000 acres to slightly more than 4.3 million acres. The state total decreased from 1950 to 1967, although the amount of timberland in southern Indiana increased. The loss, which was concentrated in the north-central part of the state (Figure 6, Northern Unit), may be attributed to increased farming and the evolution from small family-run farms to larger agricultural operations. The statewide increase in timberland area between 1967 and 1998 (Figure 5) is proof that conservation programs and measures are affecting the extent and quality of Indiana's forests!

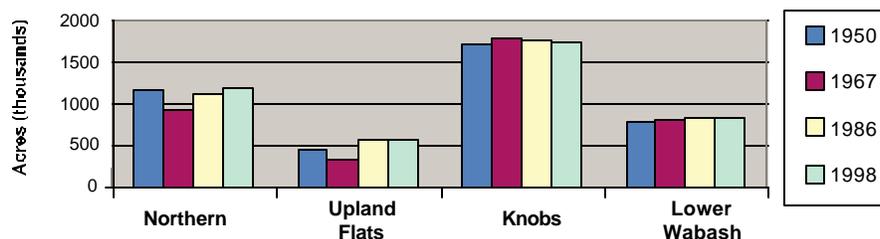
Between 1967 and 1986 timberland decreased in southern Indiana. This trend of timberland loss continued between 1986 and 1998 (Figure 6, Knobs Unit). Clearing forests for agricultural purposes leveled or declined in the north; however, clearing forests for residential and commercial use continued, especially in southern Indiana. This trend will likely continue as more people decide to settle in the rural, wooded areas that lay within commuting distance of nearby cities.



What does this mean? Increases in northern Indiana forestland are promising. This trend has continued for two inventory periods. It appears that forestland is rebounding and new forested habitat is being developed for wildlife. More streams and riversides are becoming forested in the north, helping to filter and clean the state's water. Through time, resources for forest products in northern Indiana will increase.

Conversely, southern Indiana has the most continuous forests in the state. Wildlife habitats will be affected should these forests continue to decline or to be parceled into smaller sections. Smaller and separate pieces of forestland are less likely to support animals that require large, forested areas. Managing resources for forest products will also become more challenging. In addition, road construction could rise due to the increased demand and need to reach the more numerous, smaller, and separate forests.

Timberland by Survey Unit, 1950 - 1998



Who owns Indiana's timberland?

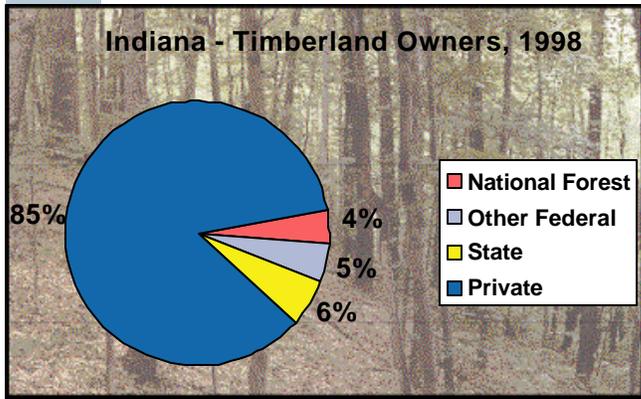


FIGURE 7

Each private landholder owns timberland for a unique reason. This makes it difficult to explain and predict how landowners will manage their forest resources. When private owners were asked what they expect from their forests over the next decade, most expected visual enjoyment of their forests. Other less important benefits include farm and home use, recreation, income from timber, increasing land values, and firewood (Birch, 1996).

Public timberland is owned by the State of Indiana, counties, municipalities, or the U.S. government. In Figure 7, "State" ownership includes a small amount of county and municipal land. Federal timberland in Indiana consists of one national forest (Hoosier National Forest), several wildlife refuges, and military grounds. Unlike forestlands, timberlands exclude areas such as state parks, nature preserves, national parks, and the Charles C. Deam Wilderness within Hoosier National Forest—the only congressionally designated wilderness area in Indiana.

Map 3 illustrates all public lands in Indiana. The majority of public lands are wooded (see Map 1 for distribution of forestland). Exceptions include, but are not limited to, reservoirs owned by the State of Indiana or the federal government that are managed by the Army Corps of Engineers. Hoosier National Forest and several state forests are

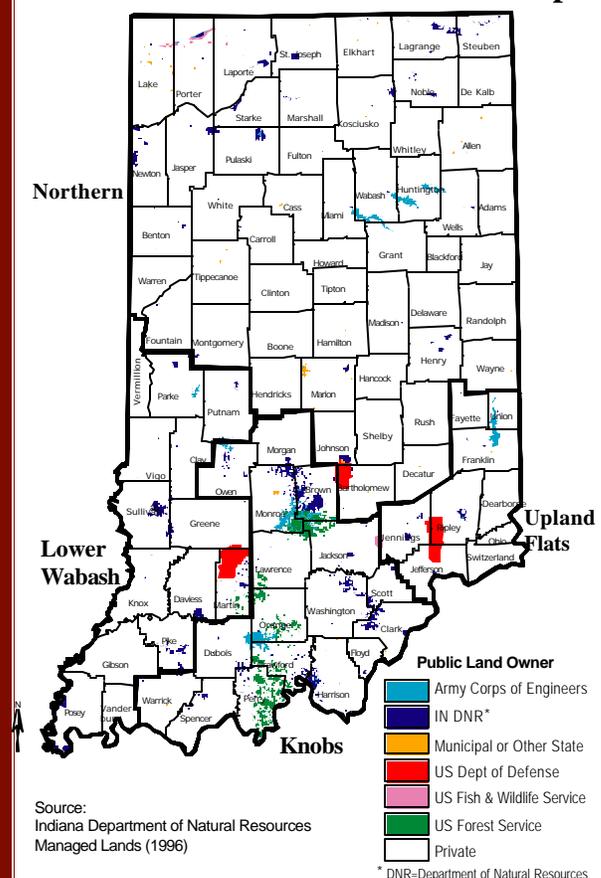
Private landowners own 85 percent of the timberland in Indiana (Figure 7). As of 1994, more than 150,000 private forest landowners owned over 3.7 million acres (Birch, 1996). Interestingly in 1978, there were only about 50,000 forest landowners. In that 16-year period, the number of Indiana's private timberland owners tripled; however, the amount of private timberland increased by only 30,000 acres.

located in the Knobs Unit. Major U.S. military properties are located primarily outside the Knobs unit.

Regional differences in ownership characteristics across the state are evident when contrasting timberland owners in the Northern Unit (Figure 8) with those in the Knobs Unit (Figure 9). The Northern Unit has the greatest proportion of private owners. Just like public land agencies, each private owner has a unique plan for their woods.

MAP 3

Indiana Public Land Ownership



Management strategies vary across and within the public land management agencies. Variables include forest resources, access to the public property, goals and management objectives of the agency, the interests of the public, and how much private land surrounds the public land.

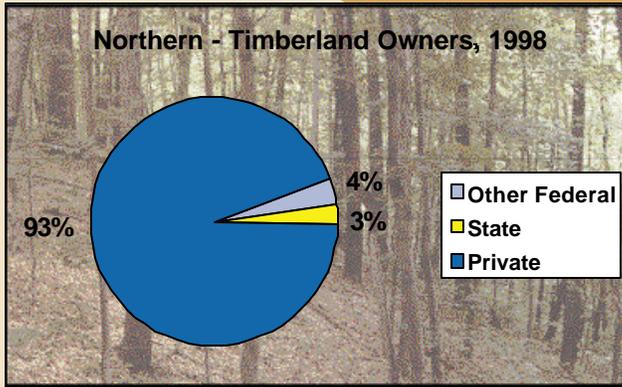


FIGURE 8

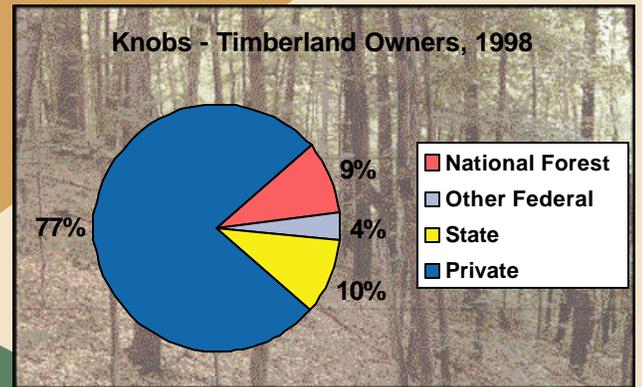
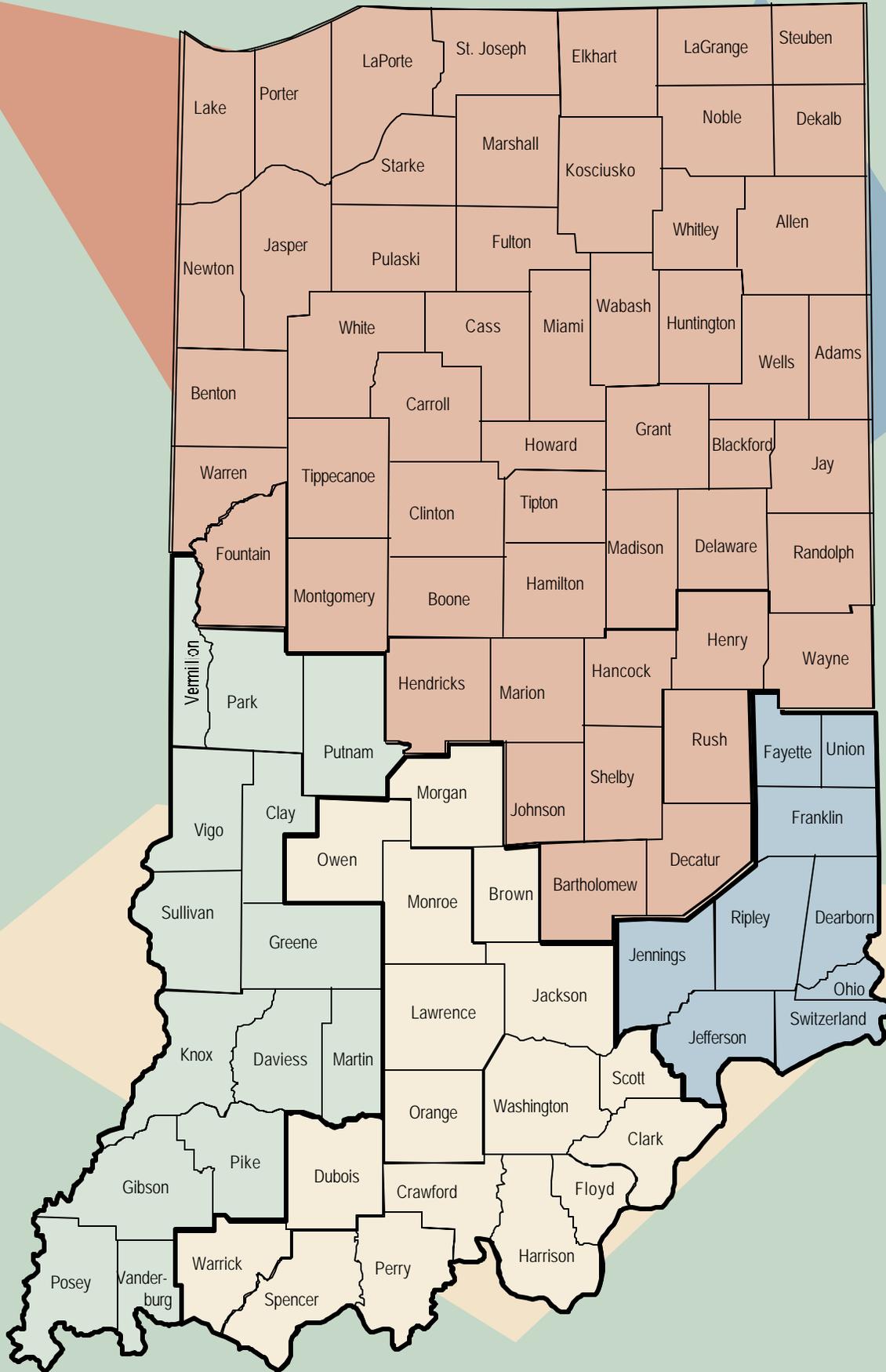


FIGURE 9

do different ownership factors impact Indiana's timberland? Interaction between public and private interests is high in the Knobs Unit, due to the high amount of public ownership and percentage of timberland. It is important to strive for a balance between these stakeholders. In the other three units, the concerns and interests are oriented more toward private timberland owners. It is important to consider these differences when evaluating recreational opportunities and limitations, wildlife habitat possibilities, and forest product (timber) uses.



What types of trees grow in Indiana? (county map)



What types of trees grow in Indiana?



How many different types of trees grow in Indiana? FIA investigates and measures all trees on each inventory site (plot). More detailed information is gathered on trees larger than saplings or with a trunk measuring greater than 5 inches in diameter at 4½ feet above the ground, also called diameter at breast height (DBH). They must be healthy, sound, and reasonably straight. These larger trees are considered “growing stock.” More than 85 different types of trees grow among the growing stock found in inventory plots throughout Indiana.

Some trees only grow in the wettest of soils, like the baldcypress, eastern cottonwood, and river birch; others prefer very dry soil conditions, such as scarlet oak, blackjack oak, and chestnut oak. Most tree species grow on soils that are not necessarily too wet or too dry; however, each species has specific needs that, when met, allow them to flourish. Soil depth, the direction the hillside faces, the hill’s incline, and the position of the tree on the hill determine the types and growth potential of trees located on the site.

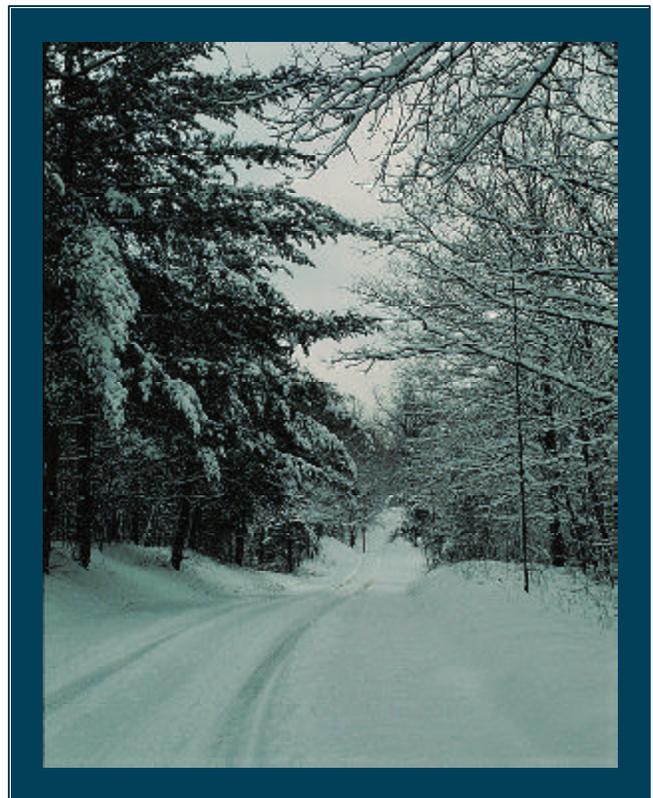




Figure 10 illustrates the most abundant trees and the number found within each survey unit. Each full tree in the figure corresponds to 2 million trees. Tree species underscore each cluster of trees. The size of each tree is proportional to the number of trees it represents. Tree quantities less than 400,000 are not represented. Each unit has its own suite of trees due to the unit's general characteristics.



FIGURE 10

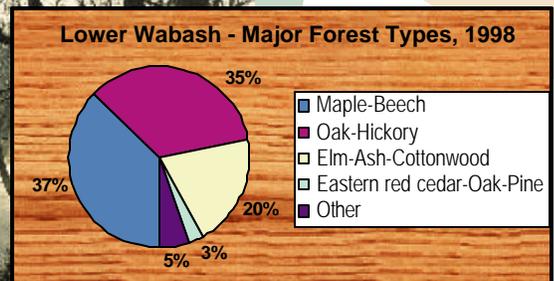
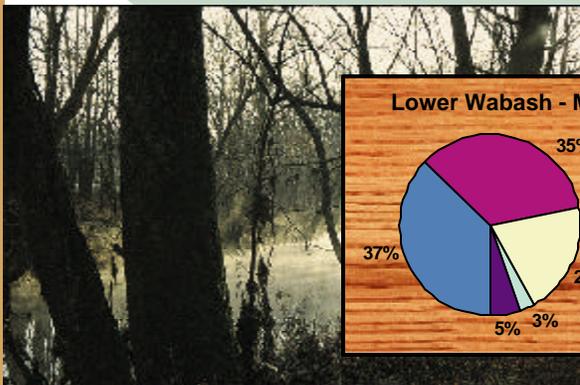
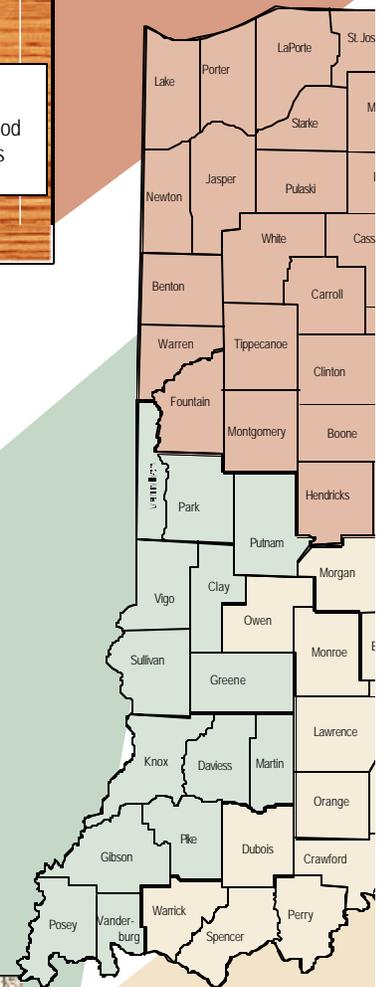
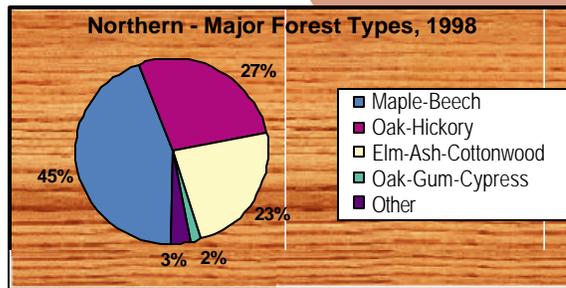
The **Northern Unit** includes many different types of growing conditions due to its large area (approximately 60 percent of the state). Tree communities along Lake Michigan prefer sandy soil and cooler climates. Trees located within the northern lakes region of northeast Indiana and in the mid-section of the state grow on rich, glaciated soils. Of the inventoried plots, only pumpkin ash is unique to the Northern Unit. All other northern species inventoried are also located in the other survey units (photo in Figure 11).

The **Upland Flats Unit** closely resembles the Bluegrass Region of Kentucky. Most of the unit has rich, moderately moist sites that support many different species of trees along its rolling hills and ravines. Of the inventoried plots, yellow buckeye was found only in the Upland Flats Unit. This species is more typical in Ohio than in Indiana forests (photo in Figure 11).

The **Knobs Unit** contains some of the hilliest country in Indiana. As a result, the area supports trees that prefer very dry sites and ridgetops, as well as those that prefer very wet sites, ravines, or “bottomland.” Tree types unique to the unit include blackjack oak and swamp tupelo. Part of the unit stands on sandstone bedrock; other areas developed over limestone. This difference accommodates a variety of trees and their associated flowering plants and shrubs. The Knobs Unit contains the highest number of trees in state (photo in Figure 11).



FIGURE 11
Printer friendly full page printout of county map on 1st page of this pdf document.



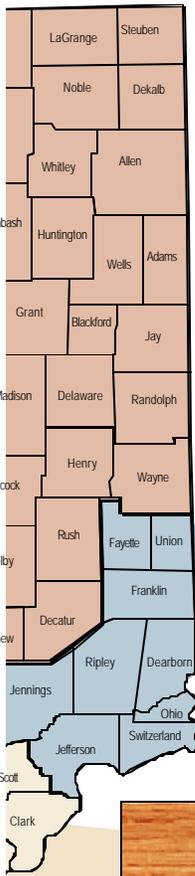
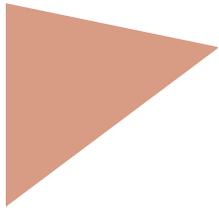
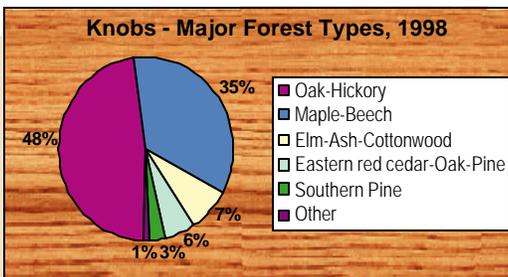
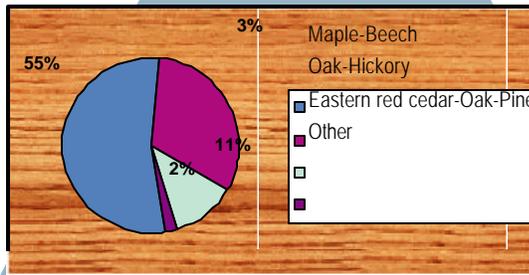


Lower Wabash Flats - Major Forest

The **Lower Wabash Unit** contains many wet sites and “bottomlands” due to the convergence of the Ohio and Wabash Rivers. The unit’s environment resembles that of the Gulf Coast rather than the Great Lakes. As a result, some vegetation and animal life have responded to this environment in a like manner (Jackson, 1997). Trees such as the baldcypress and swamp cottonwood are naturally more abundant here than in other parts of the state. The higher, drier portions of the unit provide growing sites for most of the common tree species found in the other parts of Indiana (photo in Figure 11).

Trees are often found in associations called “forest types.” Major Indiana forest types are consistent throughout the survey units. They contain primarily hardwood trees with deciduous leaves. Trees of this type have broad leaves that bud each spring, change color in fall, and drop before winter arrives. There are very few natural softwood, conifer (cone bearing), or evergreen trees in Indiana. Eastern redcedar is by far the most abundant evergreen native to Indiana. However, areas of native Virginia pine are found in southern Indiana; eastern white pine in northern Indiana.

Major forest types include maple-beech, oak-hickory, elm-ash-cottonwood, aspen-birch and eastern redcedar-oak-pine. Maple-beech includes black cherry, black walnut, and yellow birch. Oak-hickory includes yellow poplar. Figure 11 shows the percentage of the major forest types by survey unit. In the Northern, Upland Flats, and Lower Wabash units, maple-beech is the most abundant forest type. Knobs is the only unit where oak-hickory is more abundant than the maple-beech forest type.



How old (or young) are Indiana's trees?

There are very few, if any, isolated areas of Indiana forestland where trees have never been cut. Most of these areas are recognized as small treasures and preserved in state parks, nature preserves, and the Pioneer Mothers Memorial Forest within Hoosier National Forest. Most trees we see today have been growing since 1900. There were as few as 1.5 million acres of forest in Indiana at that time, compared with 4.5 million acres in 1998.

Like all living organisms trees begin life, grow and die. Some tree species are relatively short-lived.

For example, aspen and cottonwood have an average life span of 60 to 90 years. Most hardwood trees found in Indiana grow for 100 to 150 years. Some trees, such as white oak, can grow and flourish well beyond 150 years.

The state's timberland age is displayed three different ways: by **forest type** (trees that are normally associated with one another), by **timberland owner**, and by **survey unit**. Trees selected to

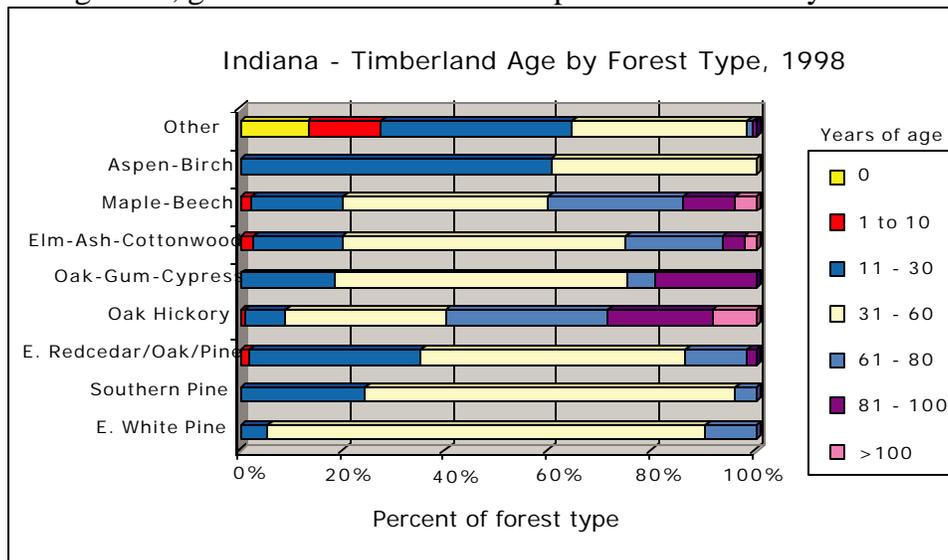
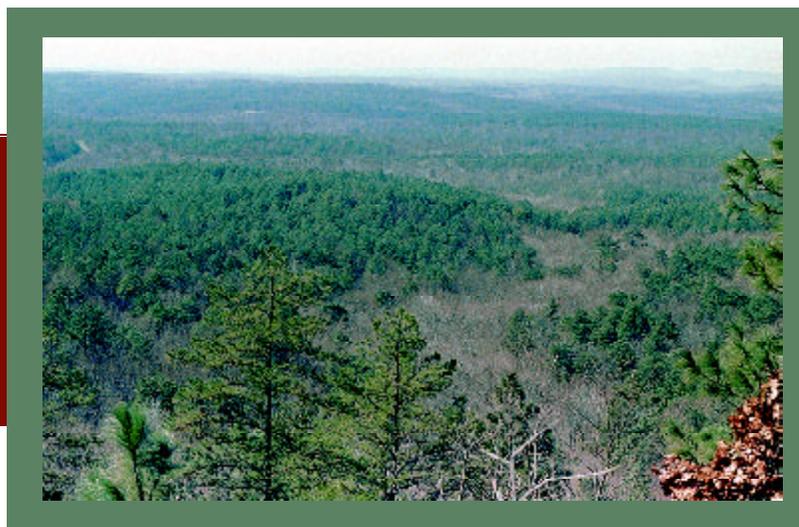


FIGURE 12

determine age are those that can freely grow without competition for sunlight or soil.

In general, the oldest trees in Indiana are oaks and hickories. Figure 12 shows that most of the state's trees in the oak-hickory forest type are more than 60 years old. Indiana's oldest measured trees (156, 151 and 140 years old) are black oaks and chestnut oaks. In contrast, all measured trees in the aspen-birch forest type are less than 60 years old.

It is interesting to note that pines are mostly between 30 and 60 years old. These trees were planted from the 1930s to the 1960s in an effort to stabilize soil depleted by poor farming practices. Indiana's soil is in better condition now than it has been in decades and supports native tree species such as oak, ash, and black cherry. In areas originally planted with pines, hardwood trees are again beginning to take root and grow. This is a true success story!



In general, each of the four survey units has about the same proportion of age groups (Figure 13). The older

In general, each of the four survey units has about the same proportion of age groups (Figure 13). The Northern Unit contains a variety of ages that closely resembles the entire state. The Knobs Unit tends to have slightly older trees, probably due to the larger amount of public timberland compared with other units. Each unit has some trees older than 100 years; however, across all units, the largest proportion of trees is between 31 and 60 years old. The next largest proportion of trees is 61 to 80 years old, except in the Upland Flats Unit. Figure 14 illustrates the area in acres that each age group occupies within the survey units.

Private individuals and corporations own more of Indiana's timberland than other entities do. When comparing the ages of privately owned timberland (Figure 15) to those statewide (Figure 13), the two are very close in distribution. Most privately owned trees are also between 31 and 60 years old; however, there is a wide variety of tree ages on private land.

Public timberland, owned either by the state, counties, or the federal government (national forest and other federal land) is generally comprised of land no one wanted. Many of these lands were burdened with high taxes and eroded soil that was no longer suitable for farming.

Much of the land that became the Hoosier National Forest was already reverting to forestland when the federal government began purchasing it in the mid-1930s. The government continues to acquire additional land for the Hoosier National Forest, to a limited degree, to provide recreational access, and to protect and enhance special natural resource features. Very few national forest trees are over 100 years old. Most timber is now between 31 and 80 years old—a testament to the forgiving nature of

Timberland Age by Percent of Survey Unit, 1998

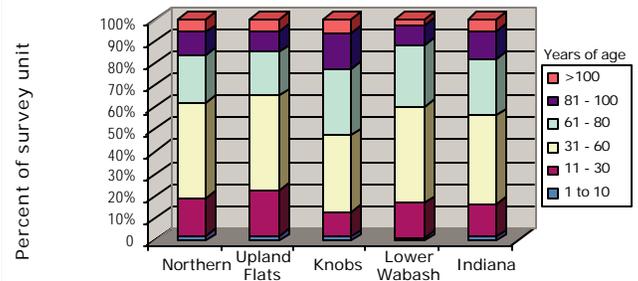


FIGURE 13

Timberland Age by Acres in Survey Unit, 1998

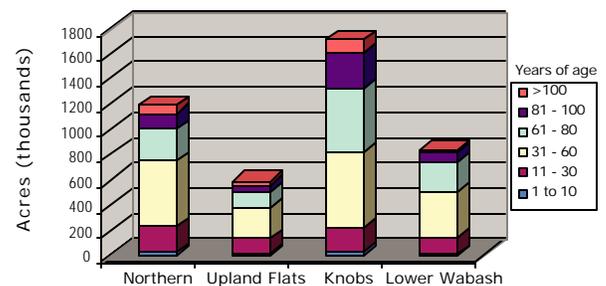


FIGURE 14

Hoosier land. The area has recovered from over-used, eroded soils, and now produces fine forest communities.

Other federal timberland in Indiana consists of federal wildlife refuges and military properties. On wildlife refuge property, trees are actively managed to achieve desired wildlife habitat conditions. Where possible on military lands, trees are managed for multiple resource benefits. Over 50 percent of other federal timberland is less than 60 years old (Figure 15). Overall, federal timberlands have a good distribution of tree ages despite this relatively young age.

There are more old trees on state-owned timberland than on timberland owned by other groups (Figure 15). State-owned land also provides the most evenly distributed or balanced age groups of trees. Other than a slight amount of county and municipal timberland included in this owner group, state-owned timberland areas are primarily managed as state forests and state wildlife management areas.

Indiana Timberland Age by Owner, 1998

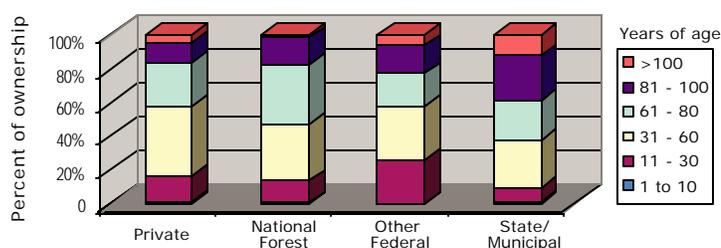
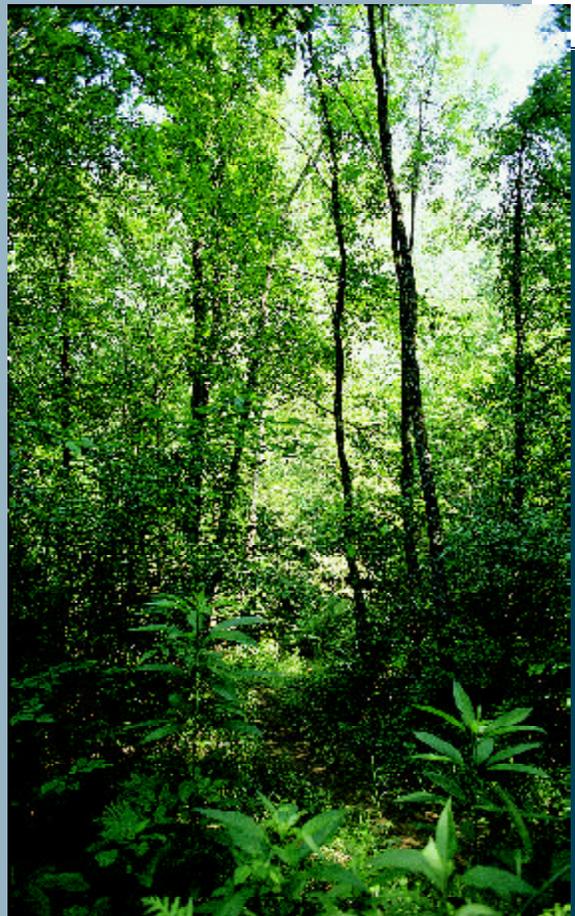


FIGURE 15

Does age matter? Yes. A range of tree ages is good for the health of Indiana's forests. Insects and disease, sometimes both, often attack either a certain age or type of trees. By maintaining a variety of ages and types, timberland is unlikely to be completely devastated by any one organism. This speaks well for the future of our forests.

In addition, different ages of trees provide various habitats for animals. Young forests teem with insects and many species of birds due to the variety of vegetation in the area (such as wild berries and sumac). Older, mature forests provide a different mix of habitat required by other animals.

Different ages and sizes of trees provide a variety of forest products, from firewood and pallets (young and small trees) to fine hardwood veneer and lumber for furniture and cabinets (large and old trees). It is also important to maintain a good distribution of tree ages to provide products and habitat now and in the future.



How fast are Indiana's trees growing, dying and being removed?

How much did Indiana's trees grow from 1986 to 1997? Are Indiana's trees dying and being cut at a faster rate than they are growing? The good news is that the trees are growing faster than they are being cut and are dying, combined.

This section compares two different sets of data gathered during the past two inventories (1986 and 1998), by comparing growth, removal, and mortality rates. Because the data for the 1998 inventory were collected from 1996 to 1998, all associated numbers are dated 1997.

Tree growth, death (mortality), and how much is removed (cut) are measured by total volume of trees. The volume of a tree is difficult to determine, as wood is wrapped in the bark of the tree. Volume is measured in cubic feet (1 cubic foot = 1 foot high x 1 foot wide x 1 foot deep). All volumes are based on timberland and on growing stock.

Growth is the annual average change in the volume of solid wood contained in living trees 5 inches DBH and greater *plus* the volume of trees that achieved at least 5 inches DBH since the last measurement.

Removal is the sum of the yearly average volume removed for roundwood forest products (harvesting), the volume of logging residues (tops of trees), and the volume of other removals (such as firewood cutting, thinning, specialty products), plus all land-use changes that permanently remove volume from the timberland base (for example, timberland that becomes reserved forest land or is permanently converted to nonforest use).

Mortality (death) is the yearly average volume of trees that died of natural causes. Natural causes include old age, death due to insect or disease stress, and environmental stresses such as drought and fire.

Total Volume 100%

Gross Growth 4%

Mortality 0.9%

Removals 1.3%

FIGURE 16

Figure 16 illustrates the total volume of wood present, total growth, removal and mortality rates in 1997. Figure 17 shows that the volume of growth greatly outweighed the volume lost due to removal and mortality from 1986 to 1997. The Northern Unit lost more volume resulting from mortality (natural causes) than from removal (human causes).

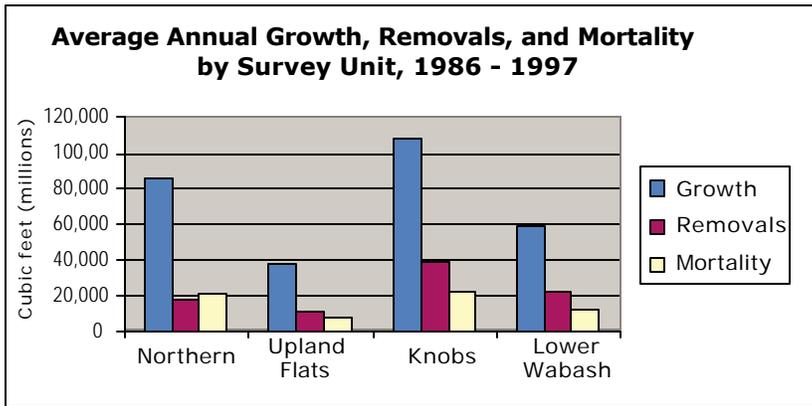


FIGURE 17

Another perspective can be gained by comparing the net growth (growth minus mortality) to removal. A net growth-to-removal ratio of 1.00 indicates that the volume of growth equals that being removed. A ratio of 2.00 means that twice as much volume is growing than is being removed. On average, Indiana trees are growing in volume more than 2½ times the amount being removed. The Lower Wabash and Knobs survey units grow more than twice the volume removed (Figure 18). The Upland Flats Unit grows nearly three times as many trees as those dying or being cut. The Northern Unit is approaching four times more growth than removal!

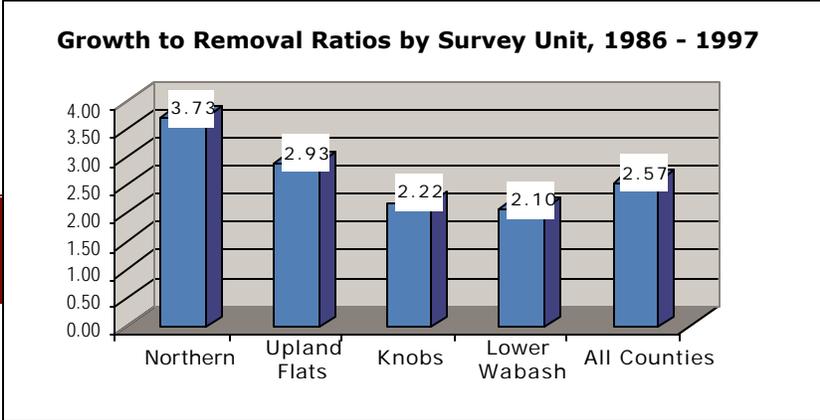


FIGURE 18

Another way to look at growth compared with removal is by analyzing major ownership classes. As shown in Figure 19, the Hoosier National Forest volume growth, excluding the Charles C. Deam Wilderness Area, was nearly 10 times greater than removals, and State lands volume growth, excluding state parks and nature preserves, was nearly 7½ times greater than removals. If forestlands excluded from the timberland base (wilderness, parks, nature preserves and other lands set aside by law from timber management) were added, these ratios would be even higher!

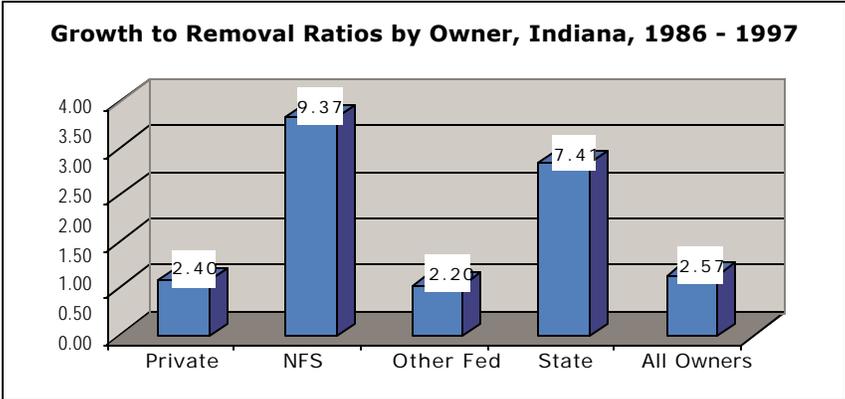


FIGURE 19



Proper forest management works! Indiana has long been a major, worldwide supplier of quality wood products (something every Hoosier can take pride in). The forest products industry drives many rural community economies and is Indiana’s fifth largest manufacturing industry.

It is crucial that Indiana maintains balance in its timberlands. While the state provides the world with fine hardwoods, it also cares for and sustains the forests for domestic values such as recreation and environmental quality. With continued professional management of woodlands, Indiana forests will continue to provide high-quality wood products while growing at more than twice the utilization rate.

A not-so-final thought on the future of Indiana forests...

YOU play a vital part in what happens to Indiana's forests!

Each day people make decisions about where and how to live, what to buy, and how to have fun. These decisions, conscious or not, affect our forests; the products they provide; the quality of our air and water, and the animals who depend on the forests to live.

Despite large population increases throughout the past century, Hoosiers have worked to care for and improve the forests while deriving its many benefits. The most recent inventory shows Indiana progressing towards balancing forest interests and uses. Data suggests Indiana's trees are healthy and grow much faster than they are dying or being harvested.



FIA information is being analyzed to examine more forest issues than ever before. This booklet is the first in a series of reports that examines and evaluates FIA information to address forest resource issues. In the past, inventory results focused on forest products and the effects on the forest industry. Forest products are very important, and are still very much a part of reporting the results.

However, professional foresters and land managers now analyze all aspects of the information to identify trends, respond to forestry-related issues, and identify land-use pattern changes.

The USDA Forest Service, Indiana Division of Forestry, and other organizations will continue to look to the past and stay focused on the future! Forest Inventory and Analysis (FIA) in Indiana will keep yearly records of how our forests fare in the future. In the past, FIA took only one snapshot of the forests every 10 to 20 years. Beginning in 1999, FIA began to measure a portion of the permanent inventory sites (plots) annually. Approximately one-fifth of the permanent plots will be visited and remeasured each year. The additional information will allow for a faster response at times when forests are threatened.

Thank you for taking the time to become more acquainted with one of Indiana's special natural resources.

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