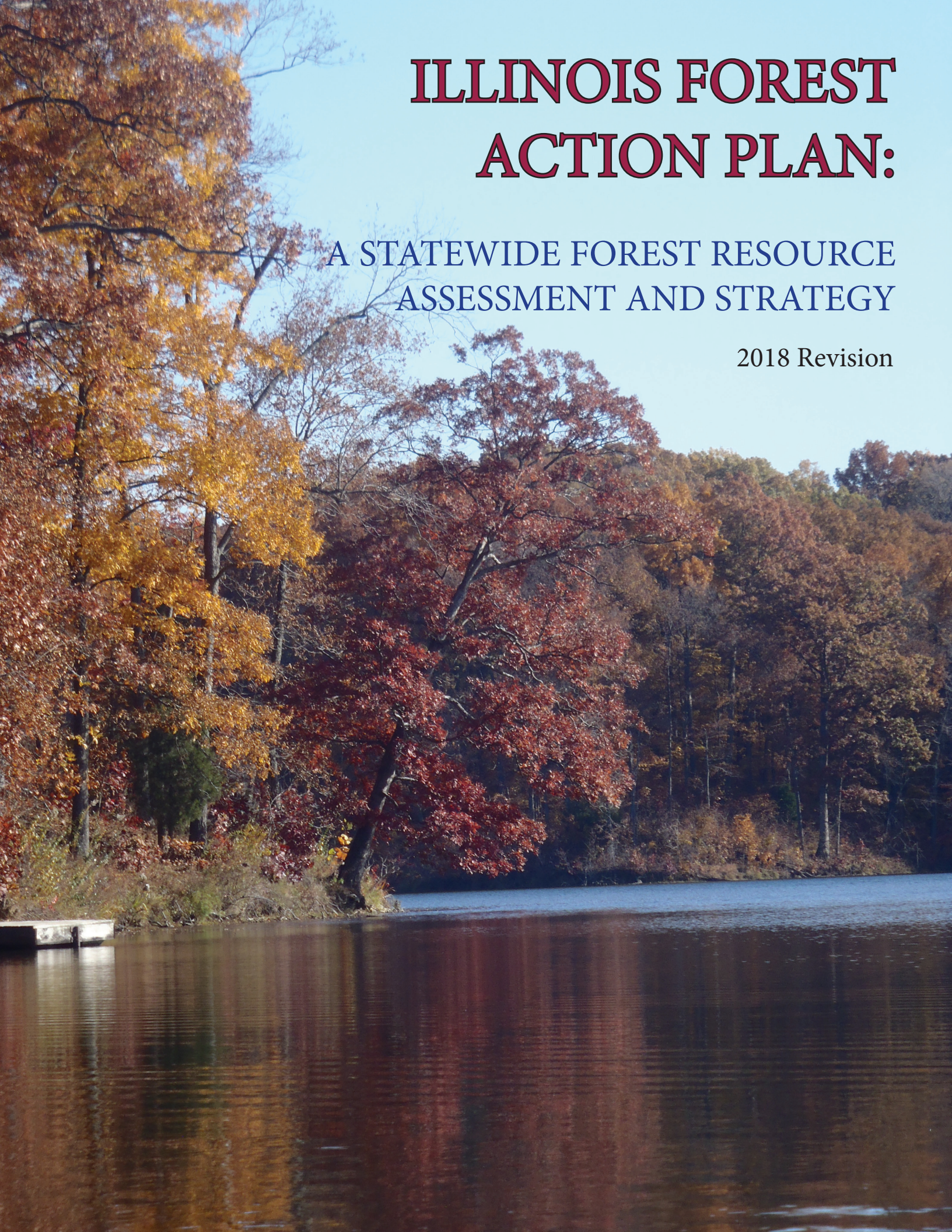

# ILLINOIS FOREST ACTION PLAN:

## A STATEWIDE FOREST RESOURCE ASSESSMENT AND STRATEGY

2018 Revision

Published by the authority of the State of Illinois — Bruce Rauner, Governor

In cooperation with the Illinois Department of Natural Resources — Wayne A. Rosenthal, Director — and the Illinois Forestry Development Council

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Illinois Forestry Development Council

# ILLINOIS FOREST ACTION PLAN:

## A STATEWIDE FOREST RESOURCE ASSESSMENT AND STRATEGY

as Prescribed by
the Food, Conservation, and
Energy Act of 2008 (2008 Farm Bill)

# Acknowledgments

We would like to acknowledge and sincerely thank the following for their assistance and participation in the content and assembly of this Illinois Forest Action Plan.

Thanks to the Illinois Forestry Development Council (IFDC) for their support, comments, and revisions of this Illinois Forest Action Plan. The IFDC consists of 29 members representing the Illinois General Assembly, the Governor's office, state and federal agencies, universities, and a host of organizations that have an interest or stake in Illinois forests, forestry, forest products, forest industry, urban and community forests, forestry education, or forestry-related natural resources. The IFDC is also represented with private forest landowners and farmers, the Shawnee National Forest supervisor, and the Illinois Department of Natural Resources (IDNR) State Forester. The IFDC originally met on April 30, 2010 to provide input, review, and approval of the state's first IFAP. The IFDC in 2012 authorized Urban Forestry and Forest Stewardship sub-committees to meet, review, and make significant updates and improvements to this plan coordinated through the IDNR statewide program managers and the USDA Forest Service.

Thanks to the Illinois Department of Natural Resources (IDNR), Division of Forest Resources (DFR) for their assistance and coordination of stakeholder groups to develop and review this plan. The review and input also included that of the Illinois DNR Division of Wildlife Resources, Division of Farm Programs, and the Division of Natural Heritage.

Thanks to the USDA Forest Service, State & Private Forestry Branch, which provided leadership and technical resources across all of the core forest resource issues and forestry disciplines of concern to state forestry agencies. This Illinois Forest Action Plan includes, as the first Appendix, the updated and current USDA Forest Service Forest Legacy Program, Illinois Assessment of Need to authorize, guide and continue to implement important forest conservation and easements.

We are also grateful for the review and support of the USDA Natural Resources Conservation Service, State Technical Committee for the current assessment and strategies plan.

Thanks to Eric Holzmueller, John Groninger and other faculty and staff of the Southern Illinois University, Department of Forestry, Carbondale, IL who authored the original Statewide Forest Resource Assessment and Strategy (May 20, 2010) document now referred to as the Illinois Forest Action Plan (IFAP). This IFAP update and expansion by the IFDC and the Illinois Division of Forest Resources is built on their original work.

Thanks to all Illinois active forestry leaders, active foresters, and authors of references cited in this plan. Significant portions of documents, research, and plans found as references were either directly incorporated or referred to in the making of this and the original IFAP. Documents listed as references are part of this plan as Appendices due to their importance and relevance. Please take the time to read the Appendices.

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# Introduction

Illinois' forests offer remarkable benefits to our residents. While the role trees play in providing materials for building homes and for wood products are readily apparent, forests also protect the soil and preserve the quality of our air and water. Trees, typically credited with a quality of life value in urban settings, are known to be essential tools for storm water management and carbon sequestration. The relationship between our forests and the preservation of biological diversity or presence of animals and birds is as equally important. Illinois forests facilitate and play a vital role in a wide variety of outdoor recreation and aesthetic pursuits throughout the state. These interactions of the forests of Illinois and other natural resources range from quite simple to extremely complex and require ongoing scientific efforts. Most Illinois forests can provide these commodity and conservation roles, functions, and outputs with care and management.

Forests occupy about 15% of the state's surface area. Illinois' forests are home to 61% of the native flora and 75% of the state's wildlife habitat. Forestry, the science and skill of analyzing, nurturing, tending and protecting forests, is actively practiced by degreed foresters within Illinois among state, private, federal, academic, and other organizations or businesses. Southern Illinois University at Carbondale offers an undergraduate B.S. degree in forestry accredited by the Society of American Foresters. The University of Illinois and a number of other scientific and biological organizations promote the study and management of forests on state, private, and federal forestland in Illinois.
The historic, presettlement landcover in Illinois was once 40% forest! Forests ranged from dense mesic forests to open forests and savannahs and covered about 14 million acres. Settlement, farming, and land development eventually reduced Illinois' forests to a low of less than 3 million acres. Today, Illinois' forests have expanded and regrown to over 5 million acres — all of which are critical to people's health and well-being and essential to Illinois' natural environment.

This document takes a look at our current forest resources across Illinois. It identifies facts, trends and threats, as well as priorities, opportunities, and strategies for the future of Illinois forests. This document is critical in explaining the priceless forest resources that help balance human impacts and advances in this natural world. The document is inspired by the USDA Forest Service and state forestry departments throughout the U.S. The Illinois Forestry Development Council (IFDC), guided by the Illinois Department of Natural Resources (IDNR), serves as the state's Forest Stewardship Coordinating Committee. The IFDC and its committees have reviewed this document to assure it meets the purpose intended. The IDNR values the partnership and working relationship it shares with the USDA Forest Service and its State and Private Forestry branch as well as the IFDC's concerns for the forest resource across Illinois.

# Executive Summary

## INTRODUCTION

The historic, presettlement landcover in Illinois was once 40% forest! Forests ranged from dense mesic forests to open forests and savannahs and covered about 14 million acres. Illinois' forests now cover 5 million acres. This document takes a look at facts, trends, and threats, as well as priorities, opportunities, and strategies for the future of Illinois forests.

## SEVEN THREATS TO FOREST LANDS AND RESOURCES

1. **Oak-Hickory forests**: Oaks in our forests are affected by both ongoing biological processes or inhibited functions and by human or livestock practices initiated by landowners, resource managers, and government decisions. Decreases in the frequency of beneficial disturbances, including timber management and prescribed fire, have contributed to suppression of oak seedlings and an increase in the abundance of nonoak seedlings and saplings.

2. **Fragmentation of large forest blocks**: Some of the harmful consequences of fragmentation are a loss of biodiversity, increased populations of invasive and non-native species, and changes in biotic and abiotic conditions. The process of fragmentation is accelerated when more and more people seek to purchase tracts of forested land.

3. **Forest health threats are increasing**: Multiple factors affect forest health, particularly exotic invasive plants, insects, and pathogens. Damage from floods, ice storms, wind, or livestock grazing without remediation are also examples of forest health issues in Illinois.

4. **Forestry professionals are too few**: Early retirement and subsequent budget cuts to IDNR have reduced Forestry Division professional, technical, and clerical staff by as much as 86%. Strategic planning dating back to the 1990s, prior to staff loss, defined the need for additional districts and urban and traditional forestry field staff.

5. **Forest industries and mills are shrinking**: The number of sawmills within Illinois has decreased by 72% since 1961. This loss is partly attributed to higher workers compensation rates, utility rates, and business taxes compared to neighboring states.

6. **Urban and community forests face extreme pressures and challenges**: Since 1990, there has been approximately a 7% increase in municipal lands statewide. Increased urbanization is out pacing reforestation efforts and the ability of most communities to manage urban forests.

7. **Forestry funding and significant other threats**: Illinois has failed to generate or legislate permanent funding for forest and natural resources conservation and remains in great need of doing so.

## CURRENT CONDITIONS AND TRENDS

— Illinois' forestland began to increase in the 1960s and 1970s from a declining farm economy.

— Illinois biomass has been increasing since 1985. Live volume per acre of forestland has steadily increased and now totals an estimated 1,751 cubic feet per acre.

— Illinois' forests sequester 343 million tons of carbon. Live trees, which sequester 44% of total carbon, are the state's largest source of forest carbon.

— Illinois' forestland is predominantly held by private landowners. An estimated 206,000 families and individuals own a total of 3.5 million acres, or 77% of forestland.

— Since the 1960s, the rate of growing-stock mortality has continued to grow with each inventory. Increasing mortality reflects the growing maturity of Illinois' forests.

## PRIORITY AREAS OF IDNR

**Forestry Division**: Forest resource priorities include forest health, forest planning, forest inventory and analysis, state forests, forest products, forest management, forest fire, urban and community forests, and forest protection.

**Midwest Region**: Illinois is a part of several other regional forestry priority areas in the Midwest. Within the Upper Mississippi Watershed of the Midwest region, several sub-watersheds have been classified as high priority by the Upper Mississippi River Partnership and the USFS Northeastern Area State and Private Forestry. One-third of the multi-state priorities identified are ***issues*** that could benefit from collaboration among multiple states.

**National**: Forest Action Plans focus on three national priorities established by the USDA Forest Service, State, and Private Forestry section:

1. Conserve and manage working forest landscapes for multiple values and uses,

2. Protect forests from threats,

3. Enhance public benefits from trees and forests.

## SEVEN FOREST RESOURCE STRATEGIES AND ACTIONS

1. Save and expand oak-hickory forests

2. Create more forest blocks of 500 or more acres

3. Mitigate forest health threats

4. Hire more forestry professionals

5. Focus on Illinois forestry industry

6. Expand urban and community forests

7. Realize other unmet forest resource needs

## PRIORITIZING FOREST RESOURCE STRATEGIES AND ACTIONS

Critical mass for widespread support, for stable, ample funding and for initiating forest resource strategies is absent in Illinois.

The primary year-in, year-out priorities for the Division of Forest Resources are often only those activities that meet the focus or requirements for federally supported "programs," such as Forest Stewardship or Urban and Community Forestry.

Significant partnerships that supply material, physical, and financial assistance and projects that accomplish goals of more than one state entity are therefore prioritized. In order to best address the seven Illinois Forest Resource Strategies and Actions, the Division of Forest Resources will need to continue to seek assistance through various government, public, and private partnerships that can share in the material, physical, and financial needs of the program. These types of partnerships are vital opportunities that will be prioritized to help accomplish Illinois forestry goals.

# Primary Partners for Forestry and Illinois Forests

Association of Consulting Foresters (ACF)
Chicago Wilderness (CW)
City of Chicago, Department of Forestry
Chicago Region Trees Initiative
Great Lakes Commission
Headwaters Invasive Plant Partnership (HIPP)
Illinois Arborist Association (IAA)
Illinois Association of Soil & Water Conservation Districts (IASWCD)
Illinois Audubon Society
Illinois Consulting Foresters (ICF)
Illinois Department of Agriculture
Illinois Department of Natural Resources (IDNR)
- IDNR Office of Lands & Education
- IDNR Office of Resource Conservation (ORC)
  - Division of Forest Resources
  - Division of Wildlife
  - Division of Farm Programs
  - Division of Natural Heritage
  - Division of Fisheries

Illinois Environmental Protection Agency (IEPA)
Illinois Farm Bureau (IFB)
Illinois Forestry Association (IFA)
Illinois Forestry Development Council (IFDC)
Illinois Green Industry Association (IGIA)
Illinois Invasive Species Council (IIPSC)
Illinois Landscape Contractors Association (ILCA)
Illinois Nature Preserves Commission (INPC)
Illinois Tree Farm System (TF)
Illinois Walnut Council (IWC)
Illinois Wildlife Society
International Society of Arboriculture (ISA)
Kaskaskia River Stakeholders
National Wild Turkey Federation (NWTF)
Natureserve
Northwest Illinois Forestry Association (NIFA)
Openlands
River to River Cooperative Weed Management Area (CWMA)
Society of American Foresters (SAF)
Society of Municipal Arborists (SMA)
Southern Illinois Prescribed Burn Association (SIPBA)
Southern Illinois University, Department of Forestry
The Morton Arboretum
The Nature Conservancy (TNC)
Tree Care Industry Association (TCIA)
Trees Forever
University of Illinois, Department of Forestry
University of Illinois, Extension Service (UI Extension)
US Army Corps of Engineers
USDA Animal & Plant Health Inspection Service (APHIS)
USDA Forest Service (FS)
USDA Natural Resources Conservation Service (NRCS)

# Threats to Forest Lands and Resources

At present (2017), there exist a number of significant threats to forests and critical forest resources in Illinois. Discussed throughout this document are seven issues that are considered serious threats to the resource and its social and economic functions. The Illinois Wildlife Action Plan of the Division of Wildlife Resources (Appendix D) also identifies a number of common threats and challenges facing forests.

The threats to Illinois's forest resources were identified by natural resource leaders, researchers, practitioners, industry owners, land owners, and scientists through stakeholder activities sponsored by the IFDC over the last 30 years. Forest assessment factors, trends, and concerns were also identified by IDNR and the Division of Forest Resources, statewide forestry stakeholders, and partners. Significant stakeholders and partners include the Illinois Forestry Association, Forestry Extension, forestry schools and universities, the USDA Forest Service and Natural Resources Conservation Service, soil and water conservation districts, the American Tree Farm System, the state's Urban and Community Forestry Committee, county governments, arboretums, and scores of individual Professional Foresters as well as other conservation organizations, foundations, and committees statewide.

It is important for the state's future forest health and sustainability to promptly mitigate or reverse the seven threats summarized below. Addressing all seven threats simultaneously is an optimal strategy for the State of Illinois and its citizens, economy, and 5 million acres of forest resources. Historically, opportunities to apply solutions to any one of these threats have been rare. Opportunities to address threats are not frequent and not always predictable, and so any chance to address one or multiple threats is considered a priority. The seven threats are:

1. Oak-Hickory forests are threatened!
2. Large forest blocks are disappearing!
3. Forest health threats are increasing!
4. Forestry professionals are too few!
5. Forest industries and mills are shrinking!
6. Urban and community forests face extreme pressures and challenges!
7. Forestry funding and significant other threats exist!

**Oak-Hickory Forests Are Threatened** (Threat #1)

Oak/hickory forests are the predominant forest type on the Illinois landscape. The broad range of tree species and the structural variation within these forests contribute to their importance as a reservoir for biological diversity. Home to a number of mast-producing trees, many wildlife species are dependent on oak/hickory forests for the food and habitat they provide.

With an average of fewer than 45 seedlings per acre of forest land, oaks represent a small component (7%) of the understory (Fig. 1) of our forests statewide. Of all oak species, white and black oak seedlings are the most abundant, occurring over three times more often than red oak seedlings. Elm, ash, and maple have substantially more seedlings per acre than oaks. Similarly, oak saplings (which average fewer than seven saplings per acre of forest land) are far less abundant than other hardwood species. Regeneration of oak within oak forests is poor (Fig. 2). On average, the ratio of oak to nonoak species is 1 to 13, respectively, for both seedlings and saplings.

Illinois' oak resource is characterized by numerous large, mature trees and a comparatively small sapling/seedling component. Decreases in the frequency of beneficial disturbances, including timber management and prescribed fire, have contributed to suppression of oak seedlings and an increase in the abundance of nonoak seedlings and saplings. With an understory dominated by nonoak species such as sugar maple and with relatively few oak saplings available to move into the medium-diameter classes, it is likely that there will be a successional change in species dominance. Oak stands may eventually be dominated by more shade-tolerant species such as maples. With a largely mature oak resource, the future of oak in Illinois is uncertain. Maintaining a healthy oak resource will be dependent on successful seedling regeneration and sapling development, processes presently not functioning adequately across most forest acreage.

Many of the oak-dominated forest types are presently in decline due to a legacy of management that emphasized little disturbance and either no timber removal or highly selective removal of valuable timber. Reintroduction of fire into Illinois forests is increasingly gaining recognition as a key component of maintaining desired ecosystems. However, additional disturbances are also necessary under

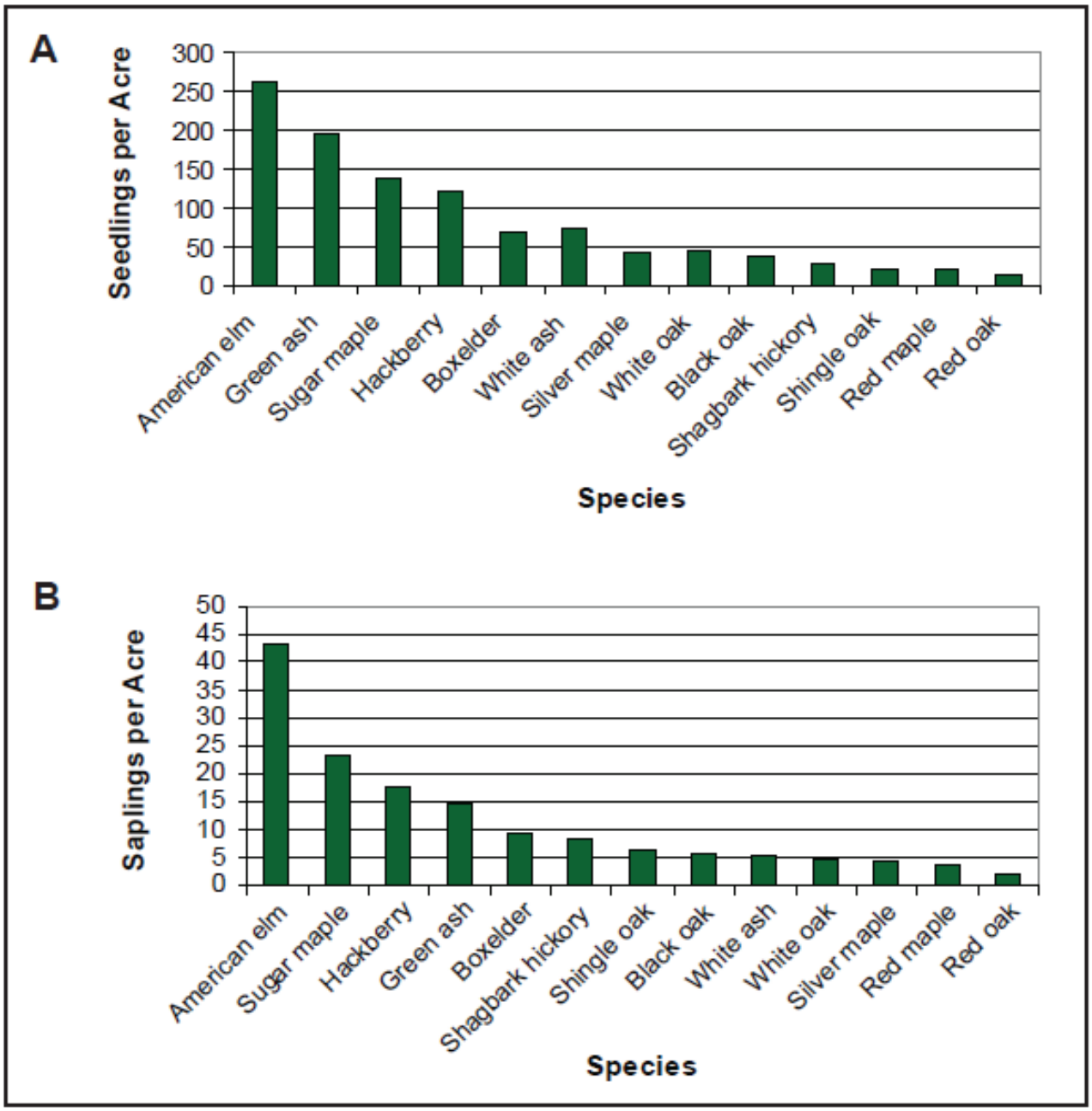


Figure 1. Number of seedlings (A) and saplings (B) per acre of forestland, Illinois, 2005.

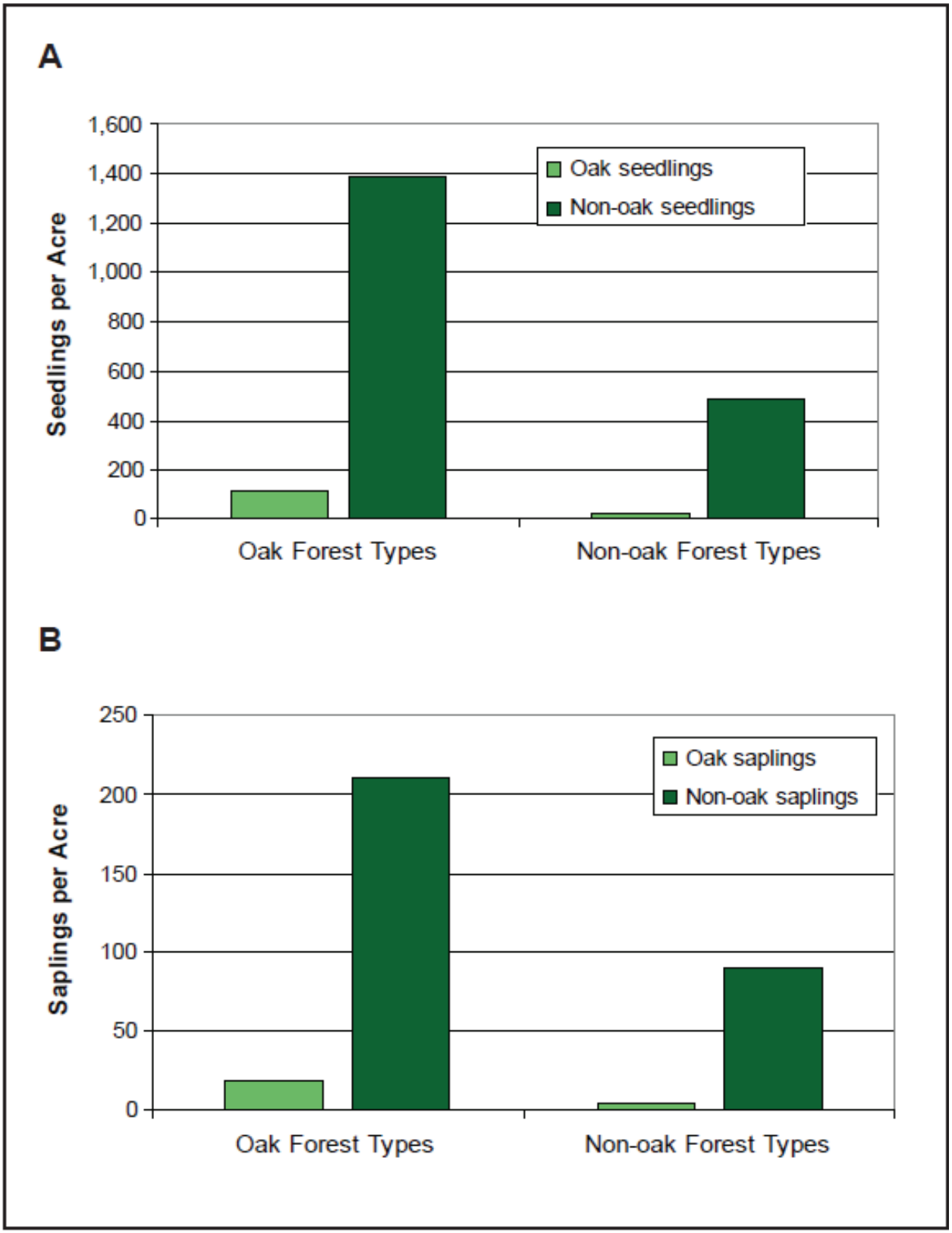


Figure 2. Number of seedlings (A) and saplings (B) per acre for oak and nonoak species on oak and nonoak forest types, Illinois, 2005.

many circumstances. Any meaningful statewide strategies geared toward addressing declining tree species diversity must implement prescribed canopy, sub-canopy, and understory disturbances by foresters and land managers.

Another factor inhibiting successional processes are statewide and localized invasions of exotic species of certain trees, shrubs, and plants. Invasive-exotic species affecting woodlands are a number one concern of state foresters from the eastern US; north, or south. The presence of European buckthorn, bush-honeysuckles, tree-of-heaven, privet, stilt grass, and kudzu are only a few examples of species that occupy and/or shade an understory, inhibiting the survival of oak seedling individuals or seedling cohorts. Bush-honeysuckle appears to be the iconic invasive species for Illinois due to its quick take over and persistence in forest understories once it is established. Publications and lists discussing exotics are available to forest managers and the public. Most invasive-exotic species reported in current forestry/conservation publications are important factors to oak. The elimination or control of invasive-exotic species must occur to sustain and promote oak.

A long history of excellent markets for quality white oak and black walnut logs has contributed significantly to the reduced presence of oak in a majority of forest stands due to unplanned and unregulated harvesting favoring cutting only the best trees or the most valuable species. White oak trees are much more difficult to regenerate naturally than walnut and require many years of seed crops of acorns from ample numbers of mature seed trees. Landowners who do not consult a professional forester to designate proper harvest trees for cutting are likely to experience a timber buyer or cutter removing only or all of the best trees. Prevailing forestry silviculture dictates that cutting all of the worst specimens and poor species each time a harvest occurs yields a continuous higher quality, healthier, and more profitable forest, which can be sustainable over generations. The IDNR Division of Forest Resources estimates only 25% of timber sold involves professional foresters, while 75% of sales and harvests of timber on private lands lack professional consultation.

Oaks in our forests are affected by both ongoing biological processes or inhibited functions and by human or livestock practices initiated by landowners, resource managers, and government decisions.

**Large Forest Blocks Are Disappearing** (Threat #2)

Forman (1995) defines fragmentation as "the breaking up of large habitat or land areas into smaller parcels." This results in a loss of interior forest and an increase in edge habitat, which has many negative effects on the remaining vegetation and wildlife. Some of the harmful consequences of fragmentation are a loss of biodiversity, increased populations of invasive and non-native species, and changes in biotic and abiotic conditions (Haynes, 2003).

Fragmentation occurs naturally from disturbances such as wildfire, wind, and flooding, or as the result of human activities such as conversion to agriculture or urban development/sprawl (Haynes, 2003). Analysis of fragmentation within Illinois classified 81% of the state as nonforest, 17% as forested, and the remaining 2% were identified as "water/barren land." Further breakdown of forested areas shows that 7% were classified as interior forest, 7% as edge, and 3% as patch, implying that forestland in Illinois is heavily fragmented. The majority of interior forestland is concentrated in the southern tip of the state or in riparian areas along rivers. The remaining landscape contains a high proportion of edge habitat and many small, isolated patches of forestland. This type of fragmented landscape lacks the continuous forest habitat required by many species of plants and wildlife, and can result in loss of biodiversity and even extinction (Forman, 1995). While edge habitat may benefit certain species, it also has many negative effects, such as increased predation of bird nests and prey species (Heske et. al., 1999), and declines in native plant and wildlife populations (Collinge, 1996). Short-term forestry practices such as a regeneration opening or a silvicultural clear-cut are not fragmentation if a forest canopy of new growth replaces the older canopy.

The process of fragmentation is accelerated when more and more people seek to purchase tracts of forested land. Greater numbers of people owning ever smaller tracts of land leads to a condition called "parcelization." The average forested land holding covers 21.5 acres; 68.6% of landowners own less than 15 acres. Research shows that owners of smaller parcels are typically less aware of traditional forestry extension programs and less likely to manage their woodlands. While these small woodlots can certainly be attractive to live on, they are often too small to manage effectively and can be too small and too isolated to function as a healthy forest ecosystem. Urban areas within Illinois also progressively grow larger as each

year passes, significantly affecting adjacent natural resources. Growing, expanding urban areas is a phenomenon known as "urban sprawl."

Collins and Buhnerkempe (1991) identified only 40 large forest blocks over 500 acres in size across Illinois. They are mapped on the IDNR biotic database. That size block is the threshold wildlife biologists often use. Protecting these forest blocks and creating new ones remains an objective in the Illinois Wildlife Action Plan. Those 40 blocks remain in the IDNR database, but there is no mechanism for regular confirmation of tract quality or status.

**Forest Health Threats Are Increasing** (Threat #3)

Multiple factors affect forest health, particularly exotic invasive plants, insects, and pathogens. Additionally, biotic and abiotic factors may interact to negatively impact forests in ways that are difficult to predict; and these effects may occur as a result of landscape-level patterns. Dense, over-stocked forest stands and grazed forest stands, for example, have poor growth and low vigor and thus low productivity, making them highly susceptible to secondary stressors such as insects or disease. Damage from floods, ice storms, wind, or livestock grazing without remediation are also examples of forest health issues in Illinois. It is noteworthy that many statewide non-native, invasive tree species problems (and many tree diseases) are first introduced in urban areas, threatening both the urban forest and eventually spreading to rural forests (American Forests, 2016). The forest health threat from just bush honeysuckle (*Lonicera* spp.), once a horticultural favorite, is enough to degrade the health status of vast amounts of functioning, healthy forestland.

Exotic invasive plants are a major concern because they alter natural plant communities and processes, threaten biodiversity, and contribute to decreases in sustainability, productivity, and wildlife habitat. Preliminary data from FIA plots show that exotic invasive plants are widely distributed across Illinois. Aggressive shrub species, such as bush honeysuckle (*Lonicera* spp.; Amur, Morrow's, Bell's, and Tatarian honeysuckle), autumn olive (*Eleagnus umbellata*), and multiflora rose (*Rosa multiflora*) are just a few of the many common invasive shrubs in Illinois forests. The familiar woody vine, Japanese honeysuckle (*Lonicera japonica*), while valued by some as deer browse, replaces native plants in all forest types over a wide range of sites. Exotic insects and pathogens can often cause greater mortality than native insects and pathogens because some plants do not have any natural defense mechanisms to protect themselves from attack.

Many current and active forest health conditions in Illinois serve as good examples of serious threats to our forests. Three of the biggest potentially harmful exotic insects include Gypsy moth, (*Lymantira dispar*), Asian long-horned beetle (*Anoplophora glabripennis*), and Emerald ash borer (EAB; *Agrilus planipennis*).

Currently, gypsy moth, which was first reported in Illinois in 1973, has only become established in the northeastern counties of Illinois, and there was little discernible defoliation between 2001 and 2005. Asian long-horned beetle, which was reported in 1998 also in northeastern Illinois, is believed to have been eradicated from Illinois in 2008. EAB was detected in Michigan in 2002, followed by Indiana then Illinois in 2006, Missouri in 2008, and in areas throughout the United States and Canada. Ash trees attacked by EAB show no resistance to the insect and typically die within three to five years after attack. Ash is an important component of Illinois' forest resources and an abundant species in woodland and riparian forests. Ash was also historically widely planted in urban and suburban streets, parks, and areas until 2010. At that point, Illinois contained approximately 170 million ash trees in the forests and rural landscapes plus another 30 million trees in cities and towns. The entirety of Illinois' ash resource faces imminent mortality from EAB (Fig. 3).

Sudden Oak Death (SOD) affecting oak species and Thousand Cankers Disease (TCD) affecting walnut are disease complexes originally found in the western U.S. but now potentially threatening Illinois. If these two diseases increase to epidemic levels, the forest health threat and imminent changes will be significant. Currently, SOD is rare and probably not present in Illinois. Sudden Oak Death is caused by the fungal-like pathogen, *Phytophthora ramorum*. Susceptible species include a variety of oaks, Douglas fir, and *rhododendron* spp. (O'Brien et al., 2002). Established populations of SOD are known to occur only on the West Coast; however, transportation of infected nursery stock has introduced the pathogen to nurseries in a number of eastern and southern states. All Illinois samples collected during the survey period tested negative for SOD. Thousand Cankers Disease has been found in the Midwest and its actual affect in Illinois forests is yet to be determined. The value of existing walnut as well as the normal regeneration of

walnut for future use will be in jeopardy. The Illinois Department of Agriculture has established a walnut quarantine restricting imports of raw walnut wood and other regulated materials into Illinois.

Previously established diseases caused by pathogens that still persist include Oak Wilt and Dutch Elm Disease (DED). The need for monitoring, assessing, and managing forest health threats in Illinois has never been greater. Oak Wilt, caused by the fungus *Ceratocystis fagacearum*, continues to be an important source of oak mortality in Illinois. All species of oak are susceptible to Oak Wilt, but the disease occurs more frequently and progresses more rapidly in red oak species. The incidence of DED continues to increase each year. Forty-five counties in Illinois reported moderate to heavy elm mortality in 2005. The IDNR and its forestry division remain in need of a full-time forest health specialist to direct an active statewide forest health program to benefit all forests and all people of Illinois.

**Forestry Professionals Are Too Few** (Threat #4)

Trained forestry professionals and technical staff of the IDNR Division of Forest Resources are responsible for the bulk of the state's forestry expertise and outreach to landowners, for tree nursery operations, for providing information and assistance to communities managing urban forests, and others needing their technical and practical advice. Lack of access to state forestry professionals seriously affects Illinois residents who own forested property within the state, for those who enjoy and visit Illinois' forests and natural areas, and industries that rely on a steady flow of raw wood material. The critical issue at hand is that the State of Illinois lacks a sufficient number of qualified experienced professional staff within the IDNR to meet the forest management needs of its citizens and of the state.

In fiscal year 2006, the Illinois state appropriation to the IDNR represented a 22% reduction from FY 2004 and a 28% reduction from FY 2002. Staff reductions have been exacerbated by retirements. Early retirements in 2002 and subsequent budget cuts to IDNR over the past several years have reduced the Forestry Division's professional, technical, and clerical staff by 39%, 67%, and 86%, respectively. In the early 2000s, five regional forester positions had foresters staffed and today, in 2016, only one regional forester exists. Currently, there are only 16 district foresters maintaining and operating field offices with virtually no clerical assistance. Two of those field office foresters have additional administrative and executive duties not allowing full attention to landowners, forests, or

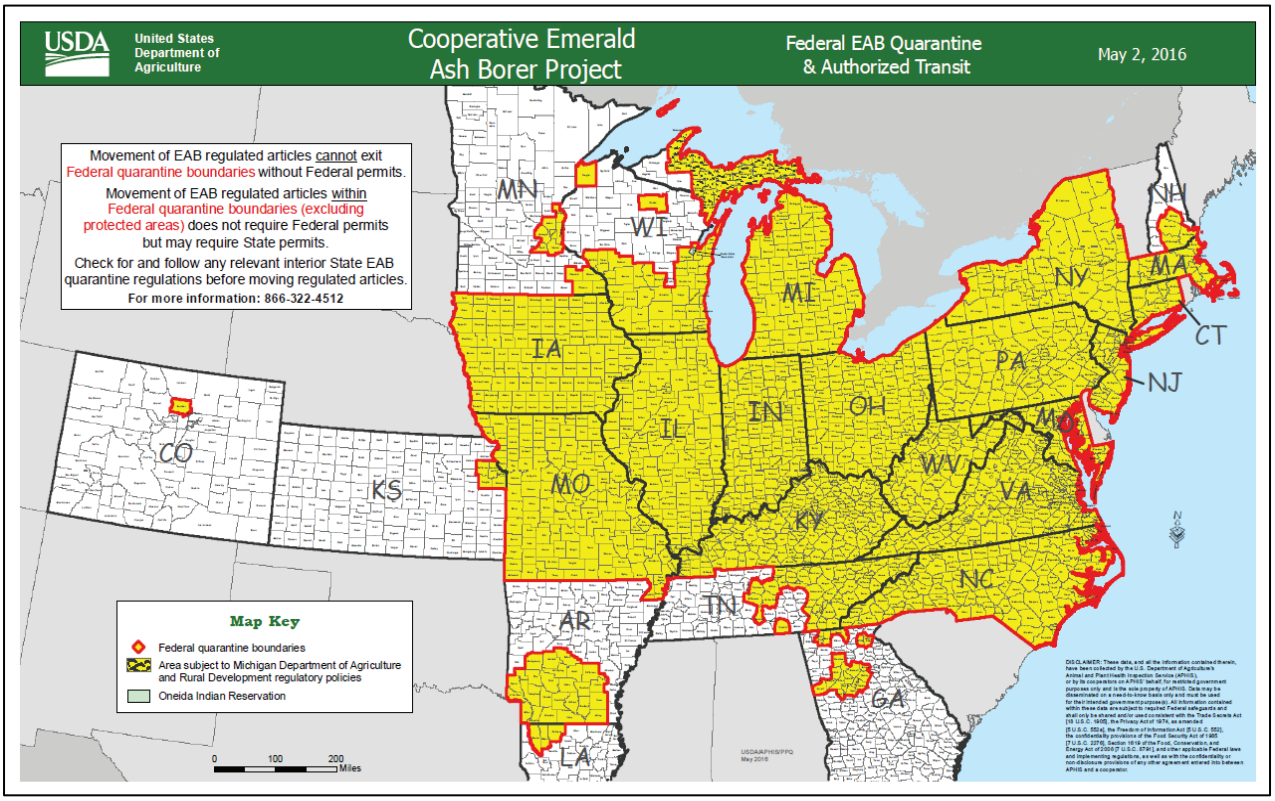


Figure 3. The federal quarantine boundaries of the emerald ash borer (EAB) as of May 2, 2016.

the active consultants. Only one urban forester, who is an administrative program manager, is staffed for the entire state. Strategic planning dating back to the 1990s called for additional districts to the historic 22 field districts and urban forestry field staff.

Illinois' Division of Forest Resources foresters are required to support consultants in approving management plans, management practices, and other critical habitat in addition to mandated environmental projects. Consultants for prescribed burning, timber stand improvement (TSI), and management plans are at times not available or not interested due to low rates, or inconsistent monetary incentives of the IDNR Forestry Division. It is essential that state IDNR foresters are in place to support the activity of consultants and to help consultants serve the forests in the best interests of the resources and those landowners who control 90% of the resource. The IDNR Office of Resource Conservation Farm Programs Division administers three other significant statewide conservation programs significantly tied directly to forestry. Those programs are the Illinois Recreational Access Program (IRAP), Illinois Conservation Reserve Enhancement Program (CREP), and the Illinois Conservation Stewardship Program (CSP). These programs employ two foresters and a number of biologists, yet they too are under-staffed and are in need of additional field staff and foresters to meet landowner needs.

Illinois ranks fifth in the nation in terms of population, ranks number one in the nation for local units of government with 6,963, and is one of the top states for number of municipalities. Illinois has over 1,300 municipalities in 102 counties. Yet the Illinois Urban and Community Forestry Program has only one dedicated full time equivalent administrative position. Surrounding states with fewer local units of government, municipalities, and citizens have had from five to 10 dedicated urban and community forestry staff for the last couple of decades. In the central United States, the state average is four dedicated State Urban and Community Forestry foresters. Illinois, where 88% of the citizens live in municipal areas, will require increased dedicated urban and community forestry field staffing. Efforts need to be made to increase the staffing level of the State Urban and Community Forestry Program and thereby strengthen program delivery opportunities to the local levels.

**Forest Industries and Mills Are Shrinking** (Threat #5)

Forest product producers and manufacturing firms comprise a small but important part of the state's economy, particularly in rural counties. The U.S. Bureau of Economic Analysis reports that the relative contribution of paper and wood products manufacturing to the 2003 Illinois Gross State Product has followed national trends in the manufacturing sector and declined 0.5% ($2.5 billion current dollars). The 2004 Illinois Statistical Abstract reports that in 2002, Illinois forestry, logging, wood and paper manufacturing employed over 40,000 people, while agriculture and forestry activities support over 12,000, and furniture and related products manufacturing support over 20,000 people. The forestry, logging, wood and paper manufacturing categories combined, had a total annual personal income and earnings value of $2.1 billion in 2002. A 2012 economic impact study authorized by the IFDC and conducted by Mississippi State University showed forestry and forest products in Illinois represent $23 billion dollars in annual value.

Nearly all of the primary wood-processing facilities in Illinois are sawmills using state-grown logs. Wood processing facilities and sawmills in the surrounding states of Wisconsin, Iowa, Missouri, Kentucky, and Indiana also process a significant amount of Illinois-grown logs. Collectively, the mills offer Illinois woodland owners an outlet to sell timber and provide jobs in some of our state's rural areas. The demand for wood products is likely to increase, placing a greater demand on the state's forest resource. An important consideration for the economy of Illinois is that Illinois' primary wood-product markets, industries, and mills retain and expand their ability to process the industrial logs and round-wood harvested, leading to value-added production within this state. Currently, almost one-third of the industrial round-wood harvested in Illinois is sent to other states for processing, providing much less benefit to the Illinois economy. Additionally, there is currently no market for standing small-diameter timber (less than 10-inch trees) and few economically feasible options to collect this material if harvested in thinning operations. Current forest management practices, which often prescribe removing the small diameter trees from a forest stand in thinning scenarios, assume the prescribed trees will be culled without removal from the forest.

Overall, the number of sawmills within Illinois has decreased by 72% since 1961. This loss is partly attributed to higher workers-compensation rates, utility rates, and business taxes compared to neighboring states. According to the Illinois Sawmill Survey of 2005, there were 150 working sawmills compared to eight

years later, in 2013, when only 75 existed. This 50% reduction in mills over eight years is estimated to be closely related to the recession that began in 2007 and from which this country is still recovering. A fact that exemplifies the need for more Illinois forest industries is that during the closing and idling of half of the Illinois mills in the last decade, the amount of timber harvested from Illinois forests has remained constant and at the date of this publication is increasing.

## Urban and Community Forests Face Extreme Pressures and Challenges (Threat #6)

Urban and community forests occur in nearly all communities throughout the Northeast and Midwest, from the most urban to very rural. The benefits of trees, forests, and other green infrastructure contribute to the quality of life in all Illinois communities. In an integrated approach, most states' [urban and community forestry programs] seek to help protect and maintain existing tree cover; implement best management practices; and engage local officials and the public in planning, sustaining, and improving forest resources in and around cities, suburbs, and towns (NASF, 2016).

The quality and quantity of Illinois urban forests is in jeopardy. Since 1990, there has been approximately a 7% increase in municipal lands statewide. Increased urbanization is outpacing reforestation efforts and most communities' ability to manage urban forests. There is a substantial need to further practices and policies, which can sustain and improve urban forests. The urban and community forest itself has multiple ownerships, multiple stakeholders, as well as neighbors. These interests need to be coordinated to mobilize effective forest management responses during natural disasters, emergencies, or insect and disease epidemics. Management strategies for urban forestry desperately need to be integrated at all levels—state and local government, regional planning, environmental organizations, and citizen-based groups.

Our urban forests face pressure and challenges from four separate but intertwined threats: a shortage of technical staff and financial assistance for communities, invasive species impacting the urban forest canopy, low levels of species diversity, and a lack of statewide inventory information and analysis:

*Shortage of Technical Staff and Financial Assistance for Communities*

Illinois has the most local units of government, 6963, of any state in the nation and is ranked among the top states for the number of municipalities with over 1300 in 102 counties. Illinois also ranks fifth in the nation among states for state residents. However, Illinois' current community and forestry program has only one dedicated full time equivalent administrative position. By comparison, surrounding states with fewer local units of government and citizens have between 5 to 10 times the dedicated urban and community forestry staff to meet program demands.

Since 1991, IDNR has provided funding to cities, villages, and towns through the 50/50 cost-share Urban and Community Forestry Assistance Act Grant Program. These cost-share funds helped countless communities develop tree ordinances, establish local programs, inventory trees, and develop management plans. The results of the inventories helped local municipal managers and foresters fight for better budgets, sustain a safe tree environment for citizens, and manage healthy, sustainable forests. These funds have also been used for tornado re-leaf projects with tree planting and other reforestation projects in our communities. The state uses the USDA Forest Service Federal Urban and Community Funds provided as state core funding for this grant program. Since the state does not allocate or authorize the flow of those funds, the grant program is currently not getting funds to the local level. Since community forest canopies have thinned and the health and integrity of our municipal forests have been compromised, the lack of forestry funding remains a great concern.

In addition, there is a discrepancy between the growth and development of local urban and community forestry programs in the northern part of the state compared with those in the southern part. "Northeastern and Central Illinois seemed to have greater growth in the areas of dedicated staff, the number of positions, and formal education or training. It is apparent that smaller communities and especially nonTree City USA communities are still struggling to get educational and technical information to manage their local forest resources" (Sass, 2010). Fifteen percent of Illinois communities are Tree City USA (TCU) accredited. With over 180 communities, Illinois is third in the nation for TCU participation; however, more communities could be reached if there were dedicated urban forestry field staff. Illinois uses federal funding for this program and lacks dedicated state funding for financial and technical outreach to local units of government for urban forestry program delivery. As our rural areas are converted to urban areas, the need for staffing to as-

sist municipalities in sustaining the existing trees and integrating protected green spaces into a built environment also becomes greater.

*Impacts of Invasive Species on the Urban Forest Canopy*

In an ever-expanding global environment, our local urban forests are being exposed to new invasive species in the form of insects, pathogens, and plants. These pests can have a significant impact on the urban forest in a number of different ways from impacting tree health potentially leading to death, crowding out preferred species in natural areas, or redirecting limited resources to control measures. The latest in a long line of invasive species is EAB, a forestry pest imported accidently from Asia. It provides an excellent current example.

EAB is currently a significant and eminent threat as a pest, causing communities to treat, remove, and replant trees, thus increasing the need for funding (Hauer and Peterson, 2016). Many communities have limited forestry budgets and because of the EAB epidemic they are now diverting their spending from tree planting and tree care to ash tree removal. According to Hauer and Peterson (2016), "In places with EAB, the tree and stump removal rate was 32% compared to 20% in states without EAB. Budgets for tree watering, public education, safety training, and fertilization also declined in response to budgets allocated for EAB." Those urban and community forests not getting a full management regime, annual tree care, or needed reforestation during the intense tree removal of ash, are in jeopardy. The safety of our citizens becomes at risk due to cut backs in tree trimming budgets, which reduce tree risk and increase tree health and integrity in the forest.

*Need for Improved Species Diversity*

One of the simplest and most cost effective means to a sustainable healthy urban forest is to diversify the species of trees planted there. Unfortunately, when funding for urban forestry programs needs to be redirected for other crisis management, often one of the first items cut or reduced is funding for tree replacement. In these cases, replacement can be left in the hands of untrained professionals. The result can be that the overall health of the urban and community forest is not usually considered when urban trees are sold or planted. "The future of our urban and community forests is dependent upon what is being grown today by our nursery industry. If the nursery industry is not diversifying their stock or is not watching for invasive species, the future of our urban forest is compromised. Our future urban forests are what the nursery industry is growing today" (Hildebrandt, 2016 a&b). Dialogue is critical to educating and changing consumer behavior as incentive for nurseries to grow a more diverse population of trees while at the same time still sustaining their business. Without continued education and outreach targeting the green industry, municipal leaders, and citizens, our communities' urban forests will be at risk of another epidemic of similar proportions to DED or EAB. Lack of species diversity seriously impacts our existing and future urban forests and rural forests that surround them.

*Lack of Statewide Inventory Information and Analysis*

There currently is not a detailed statewide urban forestry inventory and assessment of the tree canopy and tree resources within the municipal forests of Illinois. It is essential to establish this baseline data in order to create urban and community forest goals and management strategies for those cities, towns, and villages. A statewide inventory is desperately needed since most of the research we have conducted is only in the Chicago region. The establishment of the new Urban Forest Inventory and Analysis (Urban FIA), implemented by the USDA Forest Service across the nation, focuses on only the Chicago and St. Louis regions. Due to the geography and demographics of Illinois, urban and community inventory plots are specifically needed in the central and southern areas of the state.

## **Forestry Funding and Significant other Threats Exist** (Threat #7)

The last primary, significant threat is *a group* of important, historically documented critical concerns to the Illinois forest resource that are difficult to categorize individually. The lack of permanent forestry funding (Threat 7a) summarized below is among the most significant of all the seven statewide threats within this action plan and the most significant within this group.

*7a. Lack of Permanent Forestry Funding*

Illinois has failed to generate or legislate permanent funding for forest and natural resources conservation and remains in great need of doing so. Forests are critical to the environment, quality of life, and the state and national economy. A specific legislative or voter-backed funding mechanism is needed to guarantee the critical funding required by the state forestry division

within the IDNR to support the protection and sustainable management of all forests within Illinois. Lack of investment in forestry agencies, forest resources management, and other forest resource conservation protection negatively affects all forestry sectors including mills, forest landowners, professional services, and the universities' forestry programs. The forestry outputs and services from Illinois forests are currently estimated to be very low relative to the amount of forested land having technical management plans. The forestry outputs and services from our forests are also currently estimated to be very low relative to the total amount of forested land existing in Illinois. Seventy-five percent of forested ownerships in Illinois over 10 acres in size are neither managed nor have professional technical recommendations (Fig. 4). Twenty-five percent of owners having 10 forested acres or more do not have a professionally written technical plan, and too few landowners with management plans are fully and actively engaged in full implementation of their plans. Forestry division managers and foresters estimate only 30% of ownerships having formal plans make reasonable efforts or are actively working toward full implementation. There are not enough state service foresters, state program foresters, or consulting foresters to assure all existing technical forest management plans are implemented. The lack of permanent dedicated forestry funding remains one of the most significant threats to the forest resources of Illinois. Permanent funding for forestry could dramatically increase the output of rich, functioning wildlife habitat, the distribution of forest products into the economy, the preservation of clean water and soil resources, the availability of recreational opportunities, as well as all other services and benefits forestry provides to the citizens of Illinois and beyond.

*7b. Need for Reforestation and Afforestation*

Reforestation and afforestation in Illinois have always been important, based on the fact that the state once contained 14 million acres of forest but today has only 5 million acres. The remaining 9 million acres of once-forested land are in various uses today, and some are permanently "developed." Relative to the excellent production and yield on most of Illinois farmland, less productive soils are often referred to as "marginal" in that they can produce better, more profitable alternate crops such as timber, orchards, small grains, or grasses than corn and soybeans. Hundreds of thousands of acres of "marginal" agricultural fields with relatively poor corn and bean yields continue to be farmed, and much of this acreage would be better suited for forest establishment and management. Additionally, some rich farmlands that once were forested remain environmentally sensitive. These exist mostly along the larger river systems throughout Illinois and continue to be farmed. For purposes of soil and water conservation and environmental quality, these sensitive acreages should be reforested. The CREP program estimated there are nearly 250,000 acres of sensitive riverine land in the Illinois River watershed alone. Approximately 400,000 acres of historic natural forests remain grazed and degraded. Those lands are in need of livestock restriction, as well as reforestation and restoration. The Illinois Wildlife Action Plan notes that a critical need of state wildlife is the statewide reforestation of over 300,000 acres. The significant need for additional reforestation for wildlife habitat; soil, water, and atmospheric conservation; recreation and timber production; and a host of other functions, is not being met and continues to be a threat to the forests of Illinois.

*7 c. Alternate Forest Management Objectives*

Farm and nonfarm forest owners most often fail to assign realistic value to the timber in their woodlands. Historic and current surveys show timber proceeds and timber management is not a top reason most forest owners hold their land. Yet, owners of most tracts do actually harvest timber at some point. These owners fail to understand, in general, that timber and most all other forest management are inter-related. Realizing the objectives of management for aesthetics, wildlife, the environment, or recreation, for example, are dependent on the same healthy, vigorous forest that produces the eventual timber income (Fig. 5). The lack of an integrated management plan poses a threat to the forest resource, as landowners who have nontimber ownership and management objectives often do not seek out a forester for assistance. Professional foresters are equipped to deliver any desired future condition for almost any landowner. A wide range of alternate forest management objectives are very commonly heard by foresters who continue to work closely with other natural resource specialists to address a wide range of desired conditions, such as habitat requirements for managed species, forest health, and various environmental outputs of particular forests. The results of unrealized management needs by landowners can be seen in the high percentage of unmanaged and degrading forests. Both alternate and traditional management of Illinois forests need to be channeled through

professional foresters to manage individual forests and achieve robust, stand- and landscape-level outputs.

*7d. Lack of Support for IDNR-owned Nurseries*

The IDNR Forestry Division's Nursery Production Program sources, integrates, and produces native genetic materials for tree planting and reforestation. The program also provides stock for urban forest and other land covers such as prairies, savannahs, and wetlands. The need for native plant materials for restoration and reforestation is currently threatened by a pending shutdown of the IDNR Forest Nursery Program due to current statewide budgetary constraints. A nursery shutdown would threaten critical and mandated reforestation and habitat restoration projects and potentially impede financial revenue resources to IDNR's Forestry Division. The Illinois State Nursery has huge potential, due to prudent planning and actions of the nursery staff and leadership, to expand production of high-demand materials, such as native herbaceous plants, prairie grasses, and pollinator species, as well as native genome stock for the robust Illinois nursery industry. When fully operational, the IDNR Forest Nursery Program can grow 6 million hardwood tree seedlings annually, which can stock 12,000 acres of land to new, young forest stands each spring with the guidance of a professional forester or contractor. A desired healthy Illinois landscape ensuring quality forests requires the state nursery to continue to produce high-quality, genetically sound stock to a level that supports annual reforestation, habitat restoration, and establishment of native plant species throughout Illinois.

*7e. High-grading and Degrading Forests with Unplanned Harvests*

Excellent markets for Illinois white oak, black walnut, and other fine hardwood logs have contributed significantly to degraded forest stands because unplanned and unregulated harvesting favors cutting only the best trees or the most valuable species. Landowners who do not consult a professional forester to specify which harvest trees to cut are likely to experience a timber buyer or cutter who removes the best trees, negatively impacting forest health and productivity. Often, unscrupulous timber buyers misrepresent themselves as forestry professionals to make a deal favoring themselves. In most cases where woodlands are degraded, a landowner agrees to a timber cutting deal without the knowledge of which trees should be cut and what the trees are worth. Removal of the best trees or species often results in lack of suitable seed stock for future natural regeneration of the native hardwood forest. Wildlife habitat is also degraded when too many seed bearing hard mast (nut) trees are removed.

Prevailing silviculture dictates that cutting the worst trees (less those needed for specific habitats), each time a harvest occurs, yields a continuous higher-quality, healthier, and more profitable forest, which can be sustainable over generations. Professional consulting foresters are available statewide and work only for landowners; they do not have interests or ownership in mills, markets, log sales, or industry businesses. The IDNR District Foresters are also available to give unbiased science-based recommendations and harvest advice to all landowners owning 10 acres of forest or more. The IDNR Division of Forest Resources estimates 75% of sales and harvests of timber on private lands do not involve professional assessment. High-grading timber stands means future harvests yield diminished returns or often are nonmarketable. In some cases, many decades of repair and restoration may be required to return a high-graded forest to a full stocking of healthy, desirable hardwood tree species.

USDA

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## Family Forest Ownerships with 10+ Acres in Illinois, 2011-2013

The U.S. Forest Service, Forest Inventory and Analysis program conducts the National Woodland Owner Survey in order to better understand: who owns America's forests, why they own it, what they have done with it in the past, and what they intend to do with it in the future. This document summarizes data on family forest ownerships with 10+ acres in Illinois. These summaries are based on responses from randomly selected landowners from across Illinois collected between 2011 and 2013 (n=177). For explanations of the numbers and figures below, underlying summary tables, additional results, definitions, and methods see supplementary information at http://dx.doi.org/10.2737/NRS-RN-205 or visit www.fia.fs.fed.us/nwos.

### General Forest Ownership Information[1]

Table 1.–Forest land in Illinois by ownership category

| Ownership Category | Area | Standard Error (SE) |
|---|---|---|
| | *Acres (millions)* | |
| Family | 3.7 | <0.1 |
| Corporate | 0.3 | <0.1 |
| Other private | <0.1 | <0.1 |
| Federal | 0.4 | <0.1 |
| State | 0.2 | <0.1 |
| Local | 0.2 | <0.1 |
| Total | 4.9 | 0.1 |

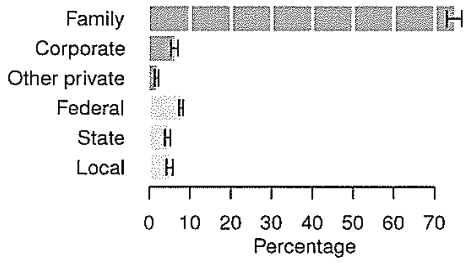


Figure 1.–Percentage of forest land in Illinois by ownership category.[2]

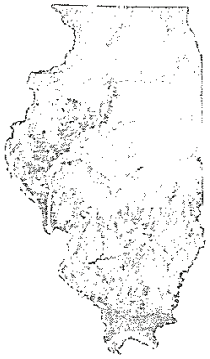

Figure 2.–Private (■) and public (■) forest land across Illinois. Source: http://dx.doi.org/10.2737/RDS-2014-0002 (Hewes et al. 2014b).

### Characteristics of Family Forest Ownerships with 10+ Acres in Illinois

- Area owned: 3,435,000 acres[3] (SE=108,000)
- Number of ownerships: 76,000 (SE=6,000)

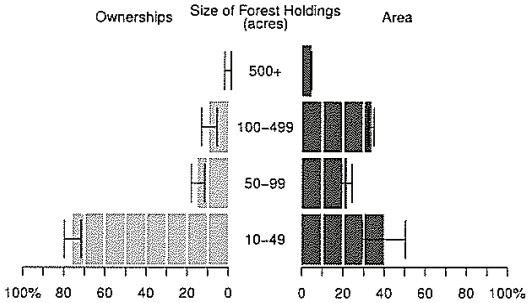


Figure 3.–Size of forest holdings.

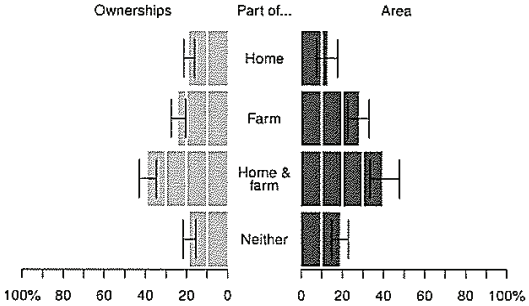


Figure 4.–Forest land is part of home or farm.

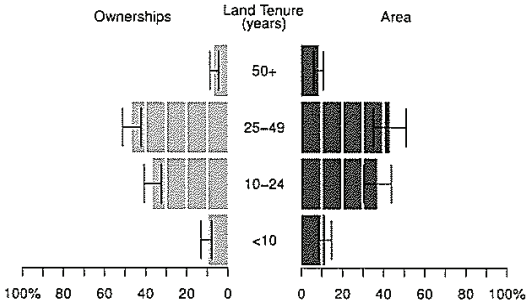


Figure 5.–Forest land tenure.

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Figure 4. A summary of family forest ownerships in Illinois (see Fig. 5 for explanation of superscript notations).

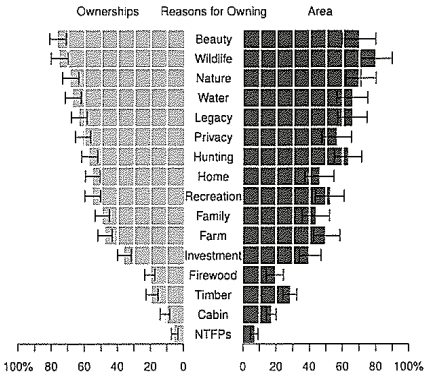


Figure 6.–Reasons for owning.[4,5]

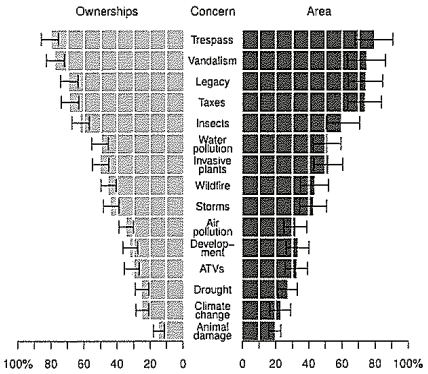


Figure 7.–Landowner concerns.[4]

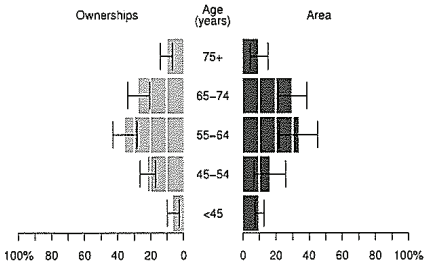


Figure 8.–Landowner age.

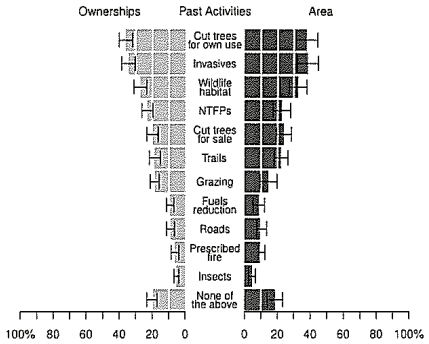


Figure 9.–Activities in the *past* 5 years.[5]

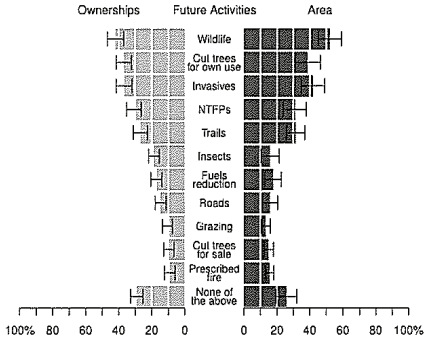


Figure 10.–Likely activities in the *next* 5 years.[e]

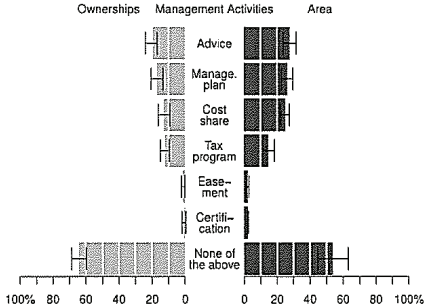


Figure 11.–Management activities.

[1] Values in this section are based on Forest Inventory and Analaysis (www.fia.fs.fed.us) data collected between 2008 and 2012.
[2] Error bars on all figures represent a 68 percent confidence interval around the value depicted.
[3] This value does not equal the value in Table 1 because it excludes ownerships with 1-9 acres of forest land.
[4] Excluding, where applicable, the "none of the above" option, respondents could select multiple options.
[5] NTFPs = nontimber forest products.
See the Supplemental Information document (http://dx.doi.org/10.2737-NRS-RN-205) for details on data sources and graphics.

**Suggested citation:** Butler, Brett J.; Butler, Sarah M. 2016. **Family forest ownerships with 10+ acres in Illinois, 2011-2013.** Res. Note NRS-213. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 2 p. http://dx.doi.org/10.2737/NRS-RN-213.

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Figure 5. A summary showing family forest ownerships in Illinois.

# Current Conditions and Trends of Illinois Forests

## Ecological Provinces of Illinois

Illinois spans three ecological provinces: The Eastern Broadleaf Forest, the Prairie Parkland, and the Lower Mississippi Riverine Forest (Fig. 6). The rolling hills and flat expanses of the Eastern Broadleaf Forest Province are dominated by a diverse mixture of broadleaf deciduous species. Relatively low precipitation in the area favors the drought resistance of the oak/hickory forest-type group (Bailey, 1995). Major species include: white oak, red oak, black oak, shagbark hickory, and bitternut hickory. Maple, beech, and basswood increase in dominance in the northern portions of the province. In this area, sugar maple and American basswood dominate the maple/basswood forest type (Bailey, 1995).

The Prairie Parkland Province is characterized by an alternating pattern of prairie and deciduous forest. Forested portions of the province consist of uplands dominated by oak and hickory, moist slopes dominated by oak and central hardwoods, and floodplains where eastern cottonwood and American elm are common species. Grasses and forbs are the predominant vegetation in prairies (Bailey, 1995).

Broad floodplains and low terraces typify the landform of the Lower Mississippi Riverine Forest Province (Bailey, 1995). Vegetation is classified as bottomland deciduous forest and the primary forest-type groups are oak/gum/cypress and oak/hickory. Major species include Nuttall oak, water oak, cherrybark oak, cottonwood, sycamore, and bald cypress in the oak/gum/cypress group, and post oak, bur oak, and northern red oak in the oak/hickory group. Pecan, green ash, sweetgum, and water tupelo are also present (Bailey, 1995; McNab and Avers, 1996).

The greatest percentage of Illinois' forested land is in southern Illinois, much of which is in the Shawnee National Forest (Fig. 7). There is also significant forest area in the western portion of the state along the borders of the Illinois and Mississippi rivers.

## Distribution of Forest Land by Forest Type and Stand Size

Occupying 65% of forestland, oak/hickory is the predominant forest-type group in Illinois (Fig. 2). Though oak/hickory is found throughout the state, this forest-type group is highly concentrated in west-central and southern Illinois. Elm/ash/cottonwood, which makes up 23% of forestland, is the second largest forest-type group.

Forestland in Illinois consists largely of stands with sawtimber-size trees. Sawtimber occupies 3.3 million acres, or 72% of forestland. Twenty percent of forest-

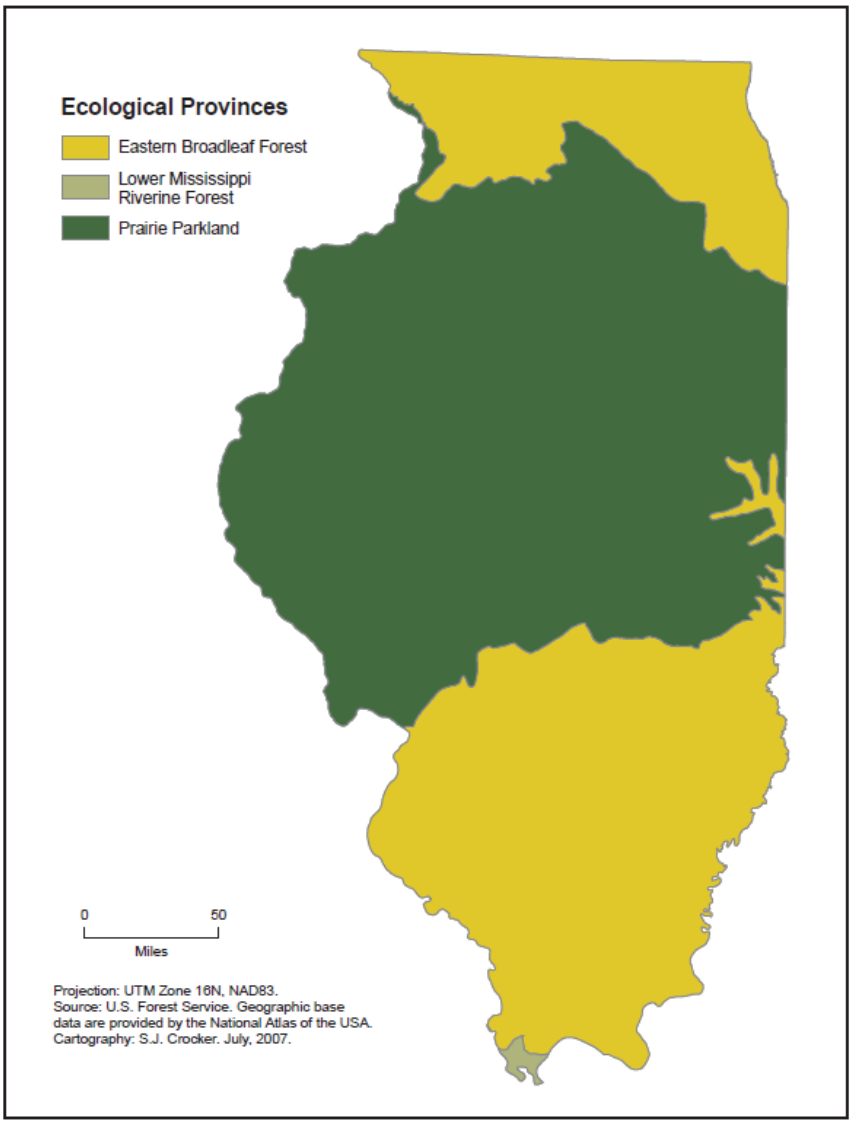



Figure 6. Ecological provinces of Illinois (Bailey, 1995)

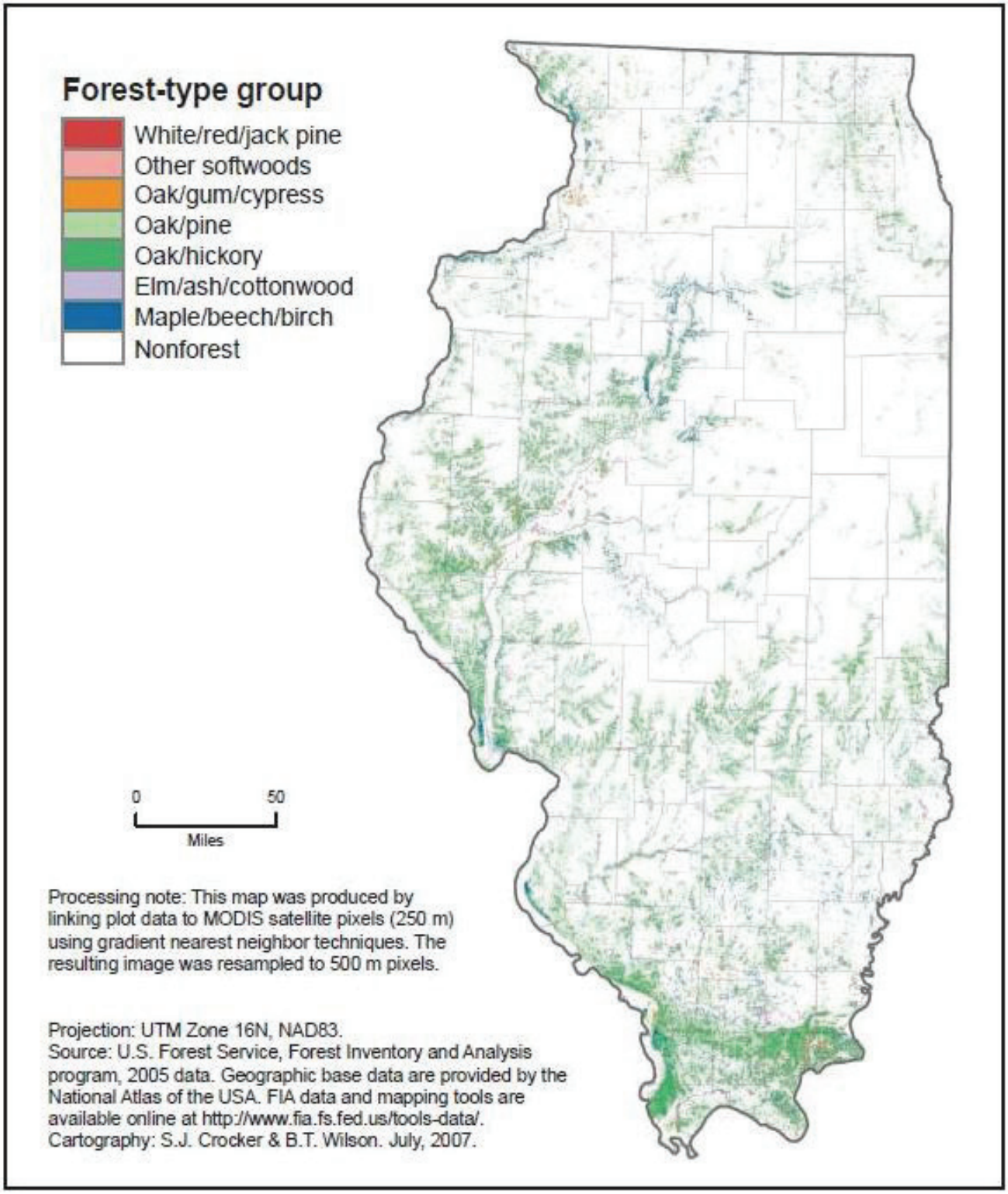



Figure 7. Distribution of forestland by forest-type group, Illinois, 2005.

land is made up of poletimber and 8% contains sapling/seedlings. Mature oak/hickory stands are the most prominent trees of Illinois forests.

Please see *Illinois Forest Resources, 2010* (linked below) for further information on the statistics and facts about Illinois forests pertaining to this and other sections of this IFAP. This plan uses primarily 2005 data from previous forest inventory and analysis reports.

http://www.nrs.fs.fed.us/pubs/rn/rn_nrs120.pdf (Snapshot Report)
http://www.fs.fed.us/nrs/pubs/ru/ru_fs39.pdf (Full Report)

**Forest Area**

In the early 1800s, prior to European settlement, tallgrass prairie and eastern deciduous forests were the dominant features on the Illinois landscape (Illinois State Nat. Survey Div., 1960). Forests during this period spanned an estimated 13.8 million acres, approximately 40% of the total land area. For nearly 120 years, from 1800 to the 1920s, the Illinois forests declined and in 1924 reached the lowest point with only 3 million acres of forest land (Telford, 1926). A survey of Illinois' forest resources in 1948 revealed an increase to 4 million acres. Since 1948, forest land has steadily risen and is currently an estimated 4.5 million acres (Fig. 8).

Illinois' forestland began to increase in the 1960s and 1970s as a result of a declining farm economy. The reduced need for agricultural land fueled a reversion of pastures and marginal agricultural lands to forests.

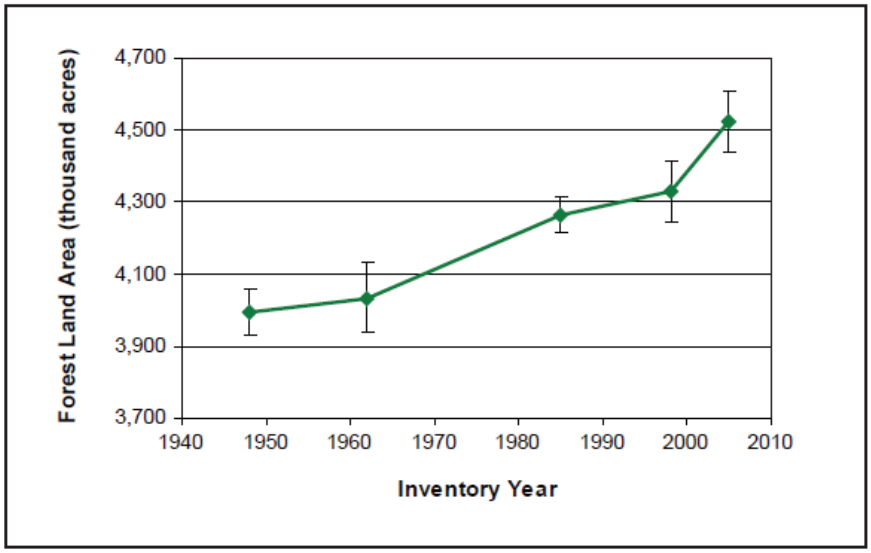



Figure 8. Area of forestland by inventory year, Illinois, 2005 (error bars represent a 66% confidence interval).

A second increase in forest area occurred during the latter half of the 1980s. This was due in large part to the success of state and national programs designed to promote well-managed forests and forest regeneration. Since the Illinois Forestry Development Act of 1983, which granted cost-share assistance and favorable tax treatment for timber-producing forested lands having forest management plans, the annual rate of increase in forest area has nearly doubled from 0.2% between 1948 and 1985 to 0.3% between 1985 and 2005. The greatest increase occurred between 1998 and 2005, when the annual rate of increase was 0.6%.

Nonforested land with trees accounts for 2% of Illinois' total land base (Fig. 9). The greatest percentages of nonforest land with trees are within the northern and southern tiers of the state. There are several classes of nonforest land that contain trees. In Illinois, the urban and other with trees class has the largest area of nonforest land with trees. However, a substantial portion is also found in pasture and rangeland with trees, and in narrow wooded strips lacking interior forest values. Nonforest land with trees adds an additional 858,900 acres of land to the total area of land with tree cover, or the area of treed land. Thus, nonforest land with trees and forest land form a combined total 5.3 million acres of treed land, which is equivalent to 15% of the total land area in the state. Even with the addition of nonforest land with trees, the southern tier remains the most heavily treed portion of Illinois.

**Biomass**

Illinois biomass has been increasing since 1985 (Fig. 10). Currently estimated at 210.6 million dry tons, an average of 48 dry tons per acre, the distribution of biomass is similar to that of forest area. The majority of biomass is found in the southern tier of the state, primarily within or near the purchase areas of the Shawnee National Forest. Biomass on private forestland is currently about five times greater than biomass on public forestland; however, public forestland contains more biomass per acre (Fig. 10). Growing-stock trees contain 84% of biomass; 11% is in other trees, and 5% is in saplings.

Illinois' forests sequester 343 million tons of carbon. Live trees, which sequester 44% of total carbon, are the state's largest source of forest carbon. Soil is another

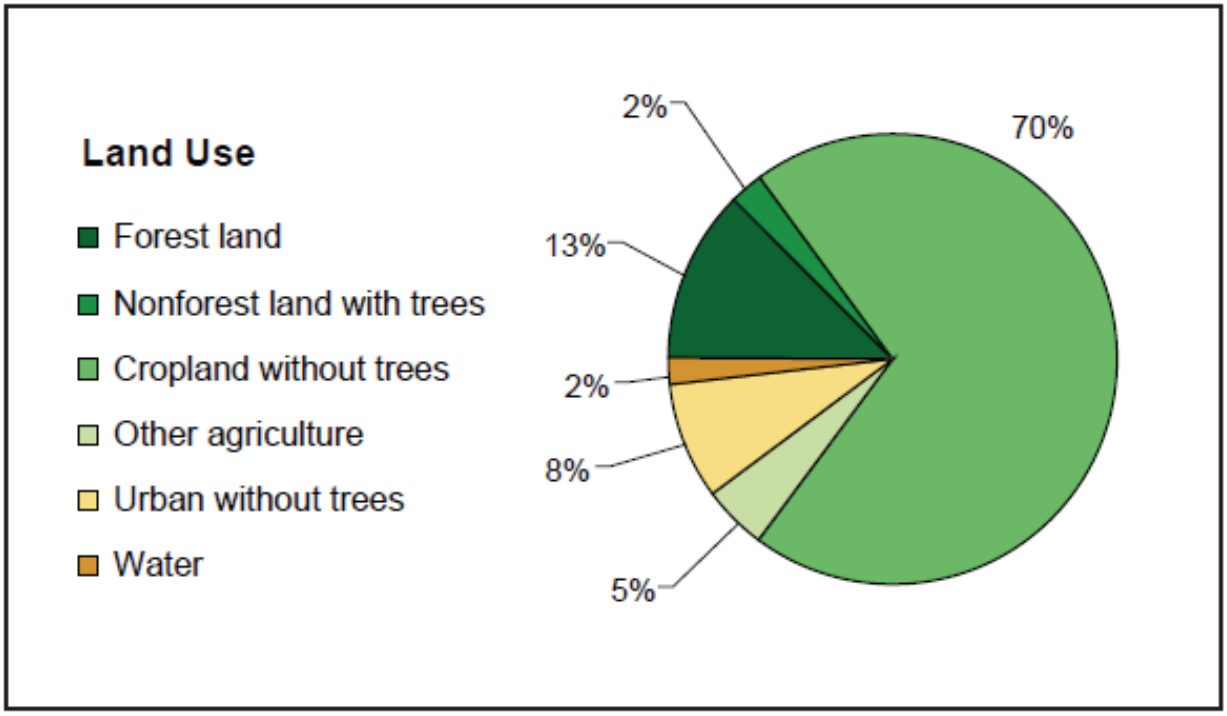



Figure 9. Distribution of total land area by land use, Illinois, 2005.

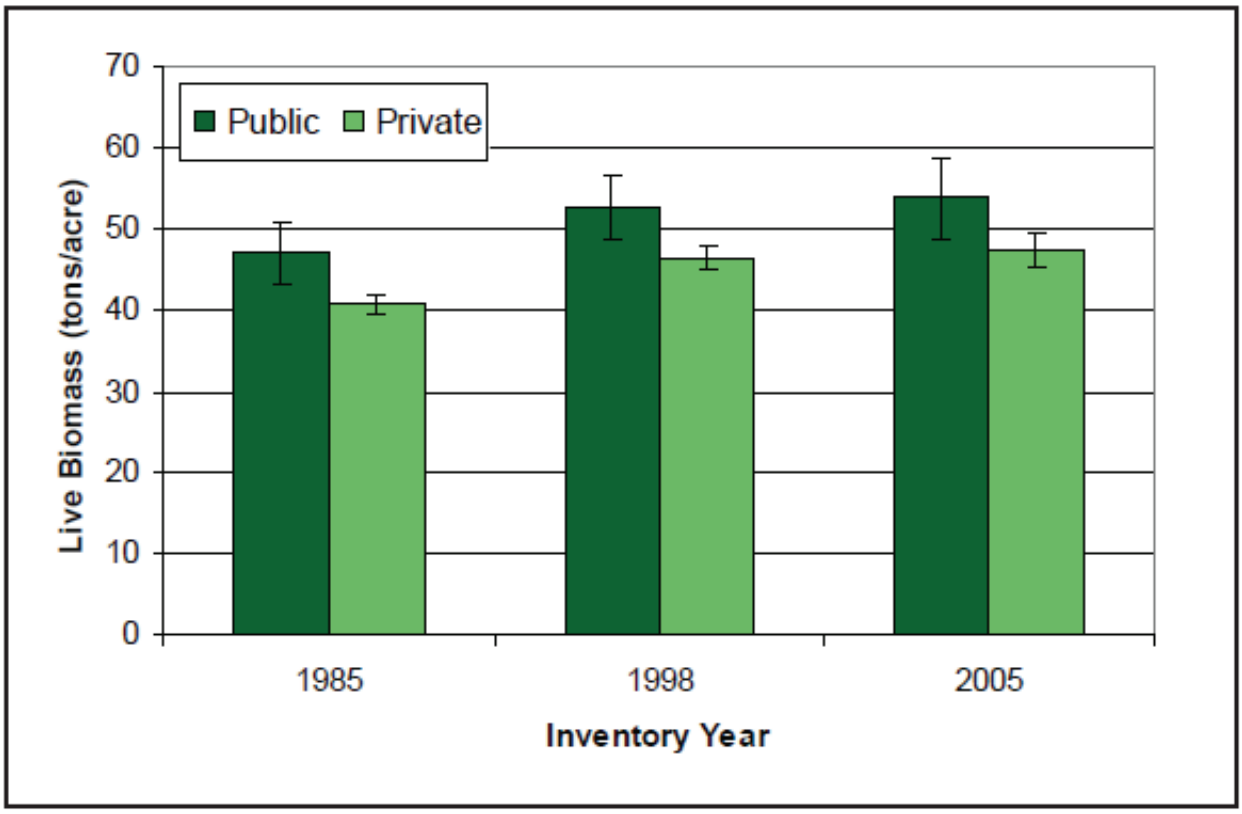



Figure 10. Live biomass per acre of forest land by ownership and inventory year, Illinois, 1985 –2005 (error bars represent a 66% confidence interval).

substantial carbon pool (33%). Additional carbon pools include live trees, below ground (8%); the forest floor (7%); down and dead wood (4%); standing dead trees (3%); and understory vegetation (1%).

**Species Composition**

Illinois' forest land contains just over 2 billion trees (greater than 1 inch in dbh) from nearly 100 different species. This number represents a 25% decrease in the number of trees between 1998 and 2005, consistent with a maturing forest resource, equivalent to a reduction of about a half billion trees. American elm, sugar maple, and black cherry are the most abundant species by number (Fig. 11).

Live volume on forestland is an estimated 8 billion cubic feet. Most of this volume is found in the large-diameter size classes (Fig. 12). White oak remains the most dominant species (Fig. 13). Between 1998 and 2005, there were significant volume increases in silver maple, green ash, and American elm and a significant decrease in black oak volume.

Illinois' forests are composed of a diverse array of tree species. White oak, black oak, northern red oak, and silver maple are the most voluminous species in the state. The most abundant species, in terms of total number, are American elm and sugar maple, along with a host of predominantly understory species. While this is a reflection of variation in ecological roles, where species such as hackberry, eastern hophornbeam, and flowering dogwood are typically understory species and oaks and maples are dominant overstory species, it is also a sign of changing understory dynamics. Disturbance, particularly from harvesting and fire management, promotes oak regeneration. The absence of such disturbance has allowed shade-tolerant species to out-compete understory oaks. Thus, although oaks are fewer in number, their dominance in volume is due to high numbers of mature trees in the overstory. As these oaks continue to senesce, oak mortality will create gaps in the overstory that will likely be filled by maples and elms that now represent the majority of understory species. In the absence of wide-scale intervention, nonoaks will replace oaks as the dominant species within Illinois forests.

**Forest Density**

An average acre of Illinois forestland contains 459 trees. Live volume per acre of forestland has steadily increased since 1985 and now totals an estimated 1,751 cubic feet per acre (Fig. 14). Most of Illinois forestland is fully (40%) or moderately stocked (44%). Overstocked stands, which represent 3% of forestland, contain too many trees to support adequate tree growth and development. Poorly stocked stands that do not contain enough trees to fully utilize a site represent 12% of forestland area. All stands containing ash species will experience lighter canopy stocking over a short time period, to the degree ash is present. Mortality of all ash, due to EAB, is expected sometime over the next 15 years, depending on the geographical locations of stands.

Illinois' overstory is currently dominated by oak, maple, hickory, and ash sawtimber (Table 1a). As a group, oaks make up the largest percentage of sawtimber density (28%), but represent only 7% of sapling/poletimber density. In comparison, maple species make up a smaller percentage of sawtimber density (14%) and a larger portion of sapling/poletimber density (12%). Overall, there is much higher density in the smaller sapling and poletimber trees. American elm, sugar maple, black cherry, hackberry, and green ash have the highest sapling/poletimber densities.

For the past 20 years, oaks have made up a large portion of the overstory. Presently, the density of American elm, silver maple, shagbark hickory, and green ash (where EAB is not present) sawtimber is increasing, while the density of oak sawtimber is decreasing (Table 1a). Individually, the density of most oak saplings and poletimber has remained fairly constant. Black oak, whose sapling/poletimber density dramatically fell between 1998 and 2005, is a major exception (Table 1b). As a group, the density of oak saplings and poletimber has slightly decreased over time.

The decrease in the number of trees per acre and the increase in live volume per acre are indicative of mature stands with adequate spacing and good growth. This is a result of the increased availability of growing space following a reduction in the overall number of trees. The stems that remain then face less competition for growing space and are able to grow more quickly. The existence of quality growth conditions is mirrored in the current levels of stocking, which show that the growing space available for tree development is fully utilized on the majority of forest acreage.

Evidence of possible transition to maple forest types is reflected in the changes in forest density among

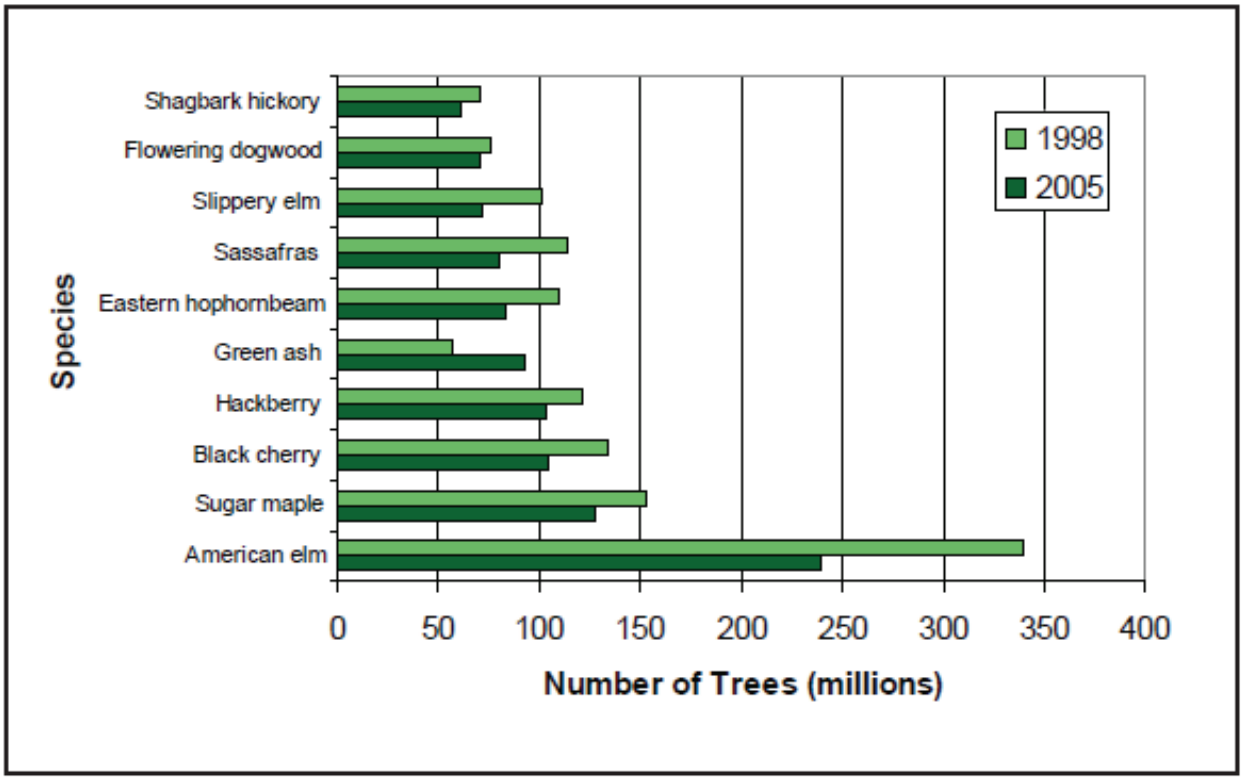



Figure 11. Top 10 species on forestland by number of live trees, Illinois, 1998–2005.

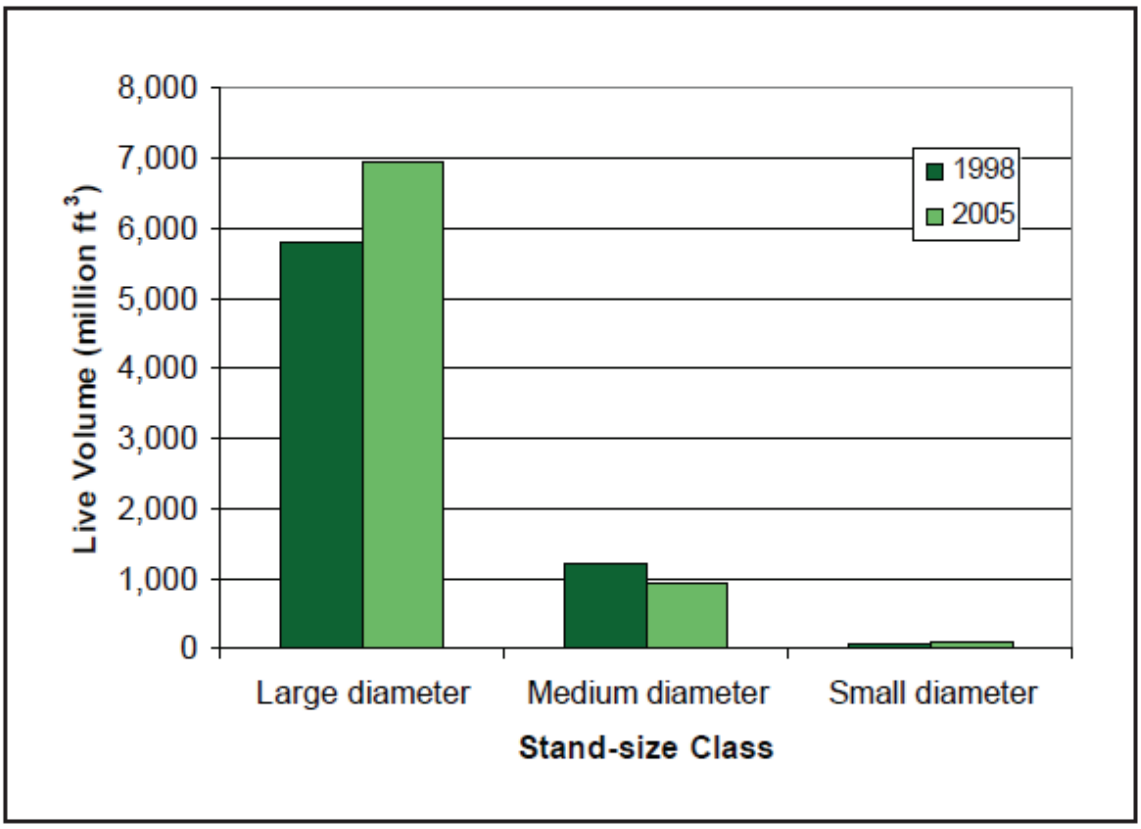



Figure 12. Live volume on forestland by stand-size class and inventory year, Illinois, 1998–2005.

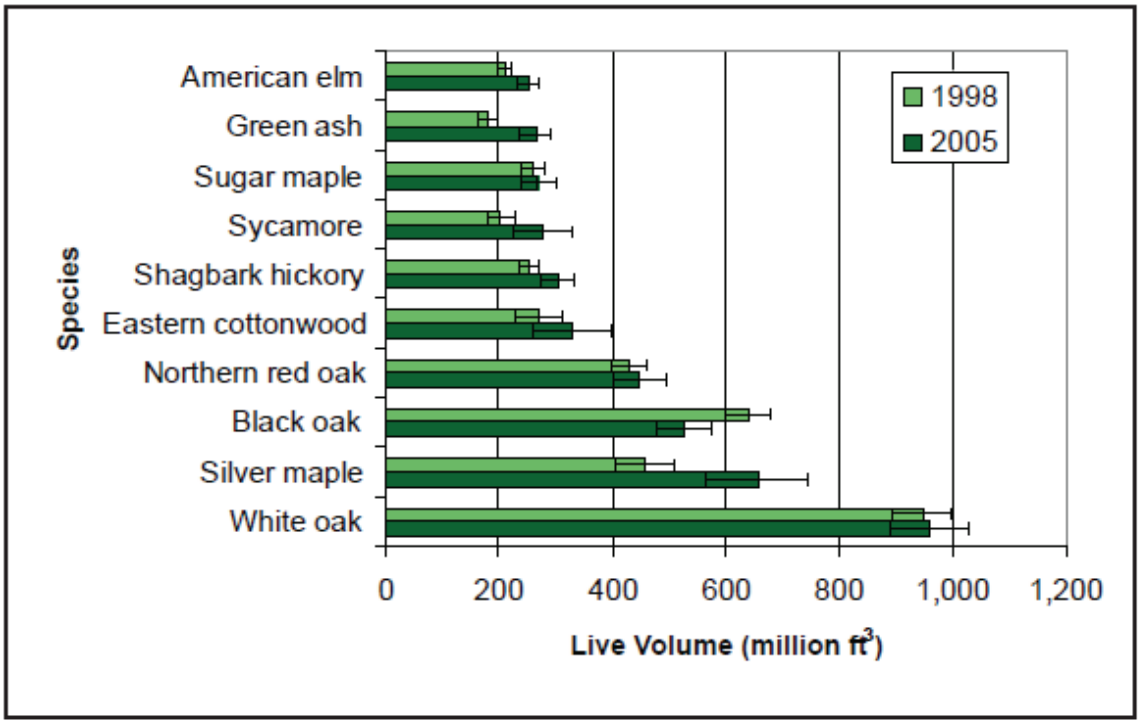



Figure 13. Live volume on forestland for the 10 most voluminous species, Illinois, 1998–2005 (error bars represent a 66% confidence interval).

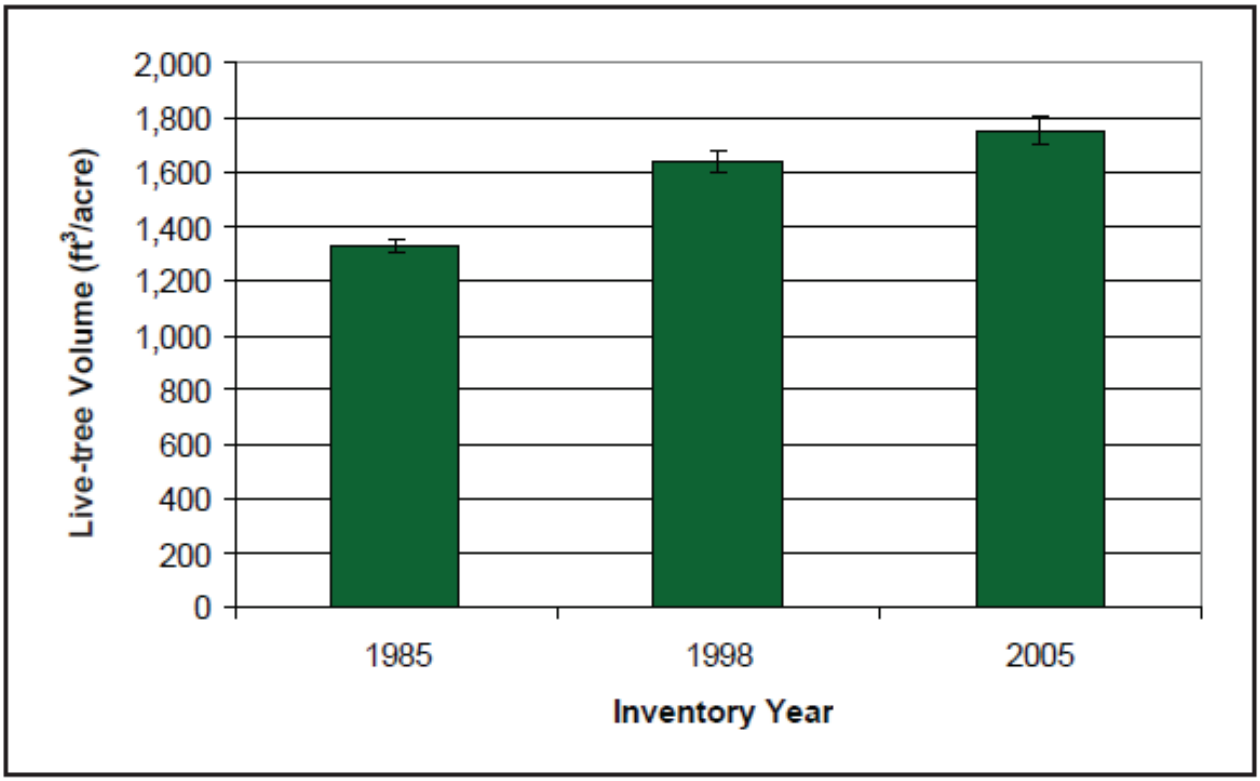



Figure 14. Live volume per acre of forestland by inventory year, Illinois, 1985–2005 (error bars represent a 66% confidence interval).

Table 1A. Sawtimber density, expressed as number of live trees per acre on forestland, by inventory year, Illinois, 1985–2005 (Sampling errors [SE] represent a 66% confidence interval. Sawtimber density estimates for a given species are not significantly different from one another if followed by the same letter). †Sawtimber trees must be greater than 9 inches dbh. for softwoods and greater than 11 inches dbh. for hardwoods.

| | Sawtimber density† | | | | | |
|---|---|---|---|---|---|---|
| | 1985 | | 1998 | | 2005 | |
| Species | estimate | SE | estimate | SE | estimate | SE |
| Boxelder | 0.5 a | ± 0.08 | 0.6 ab | ± 0.10 | 0.9 b | ± 0.14 |
| Red maple | 0.4 a | ± 0.07 | 0.7 b | ± 0.11 | 0.5 b | ± 0.12 |
| Silver maple | 1.4 a | ± 0.16 | 2.2 b | ± 0.24 | 3.0 c | ± 0.39 |
| Sugar maple | 0.9 a | ± 0.09 | 1.2 b | ± 0.11 | 1.2 ab | ± 0.15 |
| Pignut hickory | 0.8 a | ± 0.07 | 1.1 b | ± 0.10 | 1.3 b | ± 0.14 |
| Shagbark hickory | 1.0 a | ± 0.08 | 1.3 b | ± 0.10 | 1.6 c | ± 0.16 |
| Mockernut hickory | 0.6 a | ± 0.06 | 0.8 b | ± 0.08 | 0.4 c | ± 0.08 |
| Hackberry | 0.5 a | ± 0.07 | 0.8 b | ± 0.09 | 1.2 c | ± 0.13 |
| White ash | 0.9 a | ± 0.08 | 1.1 b | ± 0.10 | 0.8 a | ± 0.12 |
| Green ash | 0.6 a | ± 0.08 | 1.0 b | ± 0.10 | 1.5 c | ± 0.17 |
| E. hophornbeam | 0.0 a | n/a | 0.0 a | n/a | 0.0 a | n/a |
| Black cherry | 0.5 a | ± 0.05 | 0.8 b | ± 0.08 | 1.0 c | ± 0.12 |
| White oak | 4.1 a | ± 0.22 | 5.0 b | ± 0.27 | 4.8 b | ± 0.36 |
| Shingle oak | 0.4 a | ± 0.05 | 0.8 b | ± 0.08 | 0.9 b | ± 0.12 |
| Bur oak | 0.6 a | ± 0.08 | 0.7 a | ± 0.10 | 0.8 b | ± 0.14 |
| Northern red oak | 1.6 a | ± 0.11 | 2.1 b | ± 0.15 | 1.9 b | ± 0.19 |
| Black oak | 3.0 a | ± 0.19 | 3.5 b | ± 0.22 | 2.9 a | ± 0.25 |
| Sassafras | 0.1 a | ± 0.03 | 0.2 ab | ± 0.04 | 0.3 b | ± 0.06 |
| American elm | 0.7 a | ± 0.06 | 1.0 b | ± 0.08 | 1.2 c | ± 0.13 |
| Slippery elm | 0.4 a | ± 0.04 | 0.4 a | ± 0.05 | 0.5 a | ± 0.08 |
| All other species | 9.4 a | ± 0.38 | 12.2 b | ± 0.49 | 13.6 c | ± 0.71 |
| **Total** | **29.5 a** | **± 0.53** | **37.5 b** | **± 0.63** | **40.1 c** | **± 0.87** |

Illinois' saplings, poletimber, and sawtimber trees. The density of oak sawtimber appears to be leveling off and it does not appear that oak will replace itself in the overstory. A lack of increasing oak density in the sapling/poletimber size classes, coupled with decreasing oak sawtimber density and high maple sapling/poletimber density, is an indication that future stands may include fewer oaks and more maples.

## Ownership

Illinois' forestland is predominantly held by private landowners. An estimated 206,000 families and individuals own a total of 3.5 million acres, or 77% of forestland. An additional 265,000 acres are owned by other private groups (e.g., corporations, associations, etc.). Collectively, private owners hold 82% of the state's forests. Family forest owners generally own less than 10 acres of forestland (Fig. 15). However, family forest owners with landholdings greater than 10 acres own more than 55% of private forestland. The most common reasons for owning forestland are related to beauty and scenery, forest land as part of a farm, privacy, and as a family asset or legacy to pass on to heirs. Timber has been harvested on 11% of privately owned forestland in the past five years. Four percent of family forest owners reported having a written forest management plan and 15% have sought management advice. Trespassing was rated as a significant concern by 46% of family forest owners. Other prevalent concerns were related to vandalism, dumping, property taxes, and owners' abilities to keep their land intact for heirs. One in 10 acres of forestland is owned by someone who plans to transfer or sell it

Table 1B. Sapling/poletimber density, expressed as number of live trees per acre on forest land, by inventory year, Illinois, 1985–2005 (Sampling errors [SE] represent a 66% confidence interval. Sapling/poletimber density estimates for a given species are not significantly different from one another if followed by the same letter). †Sapling/poletimber trees range from 1.0 to 8.9 inches dbh. for softwoods and from 1.0 to 10.9 inches dbh. for hardwoods.

| | Sapling/poletimber density† | | | | | |
|---|---|---|---|---|---|---|
| | 1985 | | 1998 | | 2005 | |
| Species | estimate | SE | estimate | SE | estimate | SE |
| Boxelder | 13.5 a | ± 1.30 | 18.0 b | ± 2.84 | 12.1 a | ± 2.30 |
| Red maple | 7.9 a | ± 1.30 | 10.2 a | ± 3.40 | 4.6 b | ± 0.96 |
| Silver maple | 12.8 a | ± 1.41 | 7.9 b | ± 1.52 | 7.3 b | ± 1.28 |
| Sugar maple | 28.0 a | ± 2.13 | 32.0 a | ± 4.20 | 26.6 a | ± 3.00 |
| Pignut hickory | 15.1 a | ± 1.05 | 12.0 ab | ± 2.92 | 9.5 b | ± 1.13 |
| Shagbark hickory | 8.5 a | ± 0.93 | 15.7 b | ± 1.98 | 12.1 c | ± 1.28 |
| Mockernut hickory | 11.0 a | ± 1.07 | 8.2 b | ± 1.70 | 3.8 c | ± 0.68 |
| Hackberry | 15.6 a | ± 1.18 | 28.6 b | ± 3.49 | 22.3 c | ± 2.22 |
| White ash | 15.2 a | ± 1.14 | 16.9 a | ± 2.19 | 7.7 b | ± 1.15 |
| Green ash | 11.0 a | ± 1.21 | 12.0 a | ± 1.95 | 18.6 b | ± 2.18 |
| E. hophornbeam | 18.1 a | ± 1.58 | 25.0 b | ± 3.53 | 19.0 ab | ± 2.60 |
| Black cherry | 16.0 a | ± 1.34 | 29.4 b | ± 3.30 | 22.1 c | ± 2.02 |
| White oak | 12.4 a | ± 0.92 | 9.1 b | ± 1.07 | 7.1 b | ± 0.84 |
| Shingle oak | 7.1 a | ± 0.72 | 15.7 b | ± 3.90 | 8.1 a | ± 1.36 |
| Bur oak | 1.1 a | ± 0.22 | 1.6 ab | ± 0.86 | 1.8 b | ± 0.46 |
| Northern red oak | 4.1 a | ± 0.47 | 3.6 a | ± 0.81 | 3.2 a | ± 0.50 |
| Black oak | 12.4 a | ± 1.01 | 15.1 a | ± 2.19 | 7.7 b | ± 1.07 |
| Sassafras | 22.4 a | ± 1.62 | 26.9 a | ± 3.73 | 17.7 b | ± 1.91 |
| American elm | 50.0 a | ± 2.38 | 78.5 b | ± 6.23 | 51.3 a | ± 3.59 |
| Slippery elm | 28.0 a | ± 1.55 | 23.5 a | ± 2.94 | 15.3 b | ± 1.69 |
| All other species | 140.3 a | ± 4.28 | 159.3 b | ± 9.46 | 129.5 c | ± 6.36 |
| **Total** | **450.3 a** | **± 6.93** | **549.4 b** | **± 20.99** | **407.4 c** | **± 10.71** |

within the next five years. This is related, in part, to age; 49% of family forestland is owned by people 65 or older.

Cooperating Illinois Forestry Development Act (FDA) forest landowners having a 10-year forest management plan represent about one in eight eligible forest landowners, or 13%, who own 10 acres or more of forestland. Those FDA landowners manage over 600,000 acres of the 3.1 million privately held Illinois forest acres, which equates to 20% of private forestland parcels 10 acres or larger. Forest parcels 10 acres in size happen to be the general minimum operational threshold for a timber buyer seeking standing timber. Not having a written or FDA-approved plan does not mean owners do not work with a professional forester.

Consulting foresters help landowners manage forests of all sizes everyday regardless if they have a written plan or are enrolled in the FDA as a cooperator. The best estimate from DFR forestry staff is about 25% of landowners owning 10 acres or more of timber have a plan written by a professional forester and/or work with a professional forester.

### Riparian Forests

Riparian forests total an estimated 992,500 acres and account for 22% of Illinois' forestland. A mapped distribution of riparian forests using U.S. Fish and Wildlife Service's National Wetlands Inventory data shows that much of these forests are concentrated along rivers and streams in the southern tier of Illinois.

FIA data indicate that 74% of riparian forestland is in narrow floodplains and bottomlands that are less than a quarter-mile wide. Illinois' riparian forests currently contain an estimated 352.3 million live trees, an average of 355 trees per acre. Nearly 70 tree species were identified; the most commonly observed species were American elm, green ash, silver maple, hackberry, and boxelder (Fig. 16). These five species account for half of the total number of trees on riparian forestland.

Estimates show that riparian forests contain 2.1 billion cubic feet of volume, or 26% of the state's total live volume of forestland. Silver maple (29% of total riparian volume), eastern cottonwood (9%), green ash (7%), hackberry and sycamore (5% each) have the greatest percentage of volume in riparian forests. Thirty-eight percent of total mortality of growing stock on forestland occurs in riparian forests. Species with considerable mortality include: red maple (6.3 million cubic feet), silver maple (3.6 million cubic feet), American elm (3.3 million cubic feet), hackberry (2 million cubic feet), green ash (1.3 million cubic feet), and pin oak (474,500 cubic feet).

**Average Annual Growth**

Since 1962, average annual net growth of growing stock has been on the rise. Net growth averaged 327 million cubic feet per year between 1998 and 2005. Nearly all of that growth (98%) was in hardwoods. Silver maple had the highest growth rate, followed by eastern cottonwood, white oak, and northern red oak (Fig. 17). Collectively, Illinois' major oak species (white, northern red, bur, and black oak) account for 23% of total growth. Ninety-four percent of net growth in white, northern red, bur and black oaks was in large-diameter stands.

Illinois' forests are growing at their highest rates since 1962. The preponderance of this growth is occurring within large-diameter stands, which indicates that mature trees are continuing to increase in volume. While sustained growth of large-diameter oak increases its availability for commercial wood products, growth of other species in a variety of size classes suggests that in the future oak may not be as dominant as it is today.

**Average Annual Removals**

Growing-stock removal rates began a rapid climb during the 1960s, reaching a peak in the early 1980s (Fig. 18). Since 1985, the rate at which growing stock was removed from forestland has decreased. Currently, growing stock is removed at an average of 60.6 million cubic feet per year. Eighty-seven percent of growing-stock removals occurred on private land. Hardwoods account for virtually all of total removals; softwood removals total 43,000 cubic feet per year and represent less than 0.1% of total removals. White oak

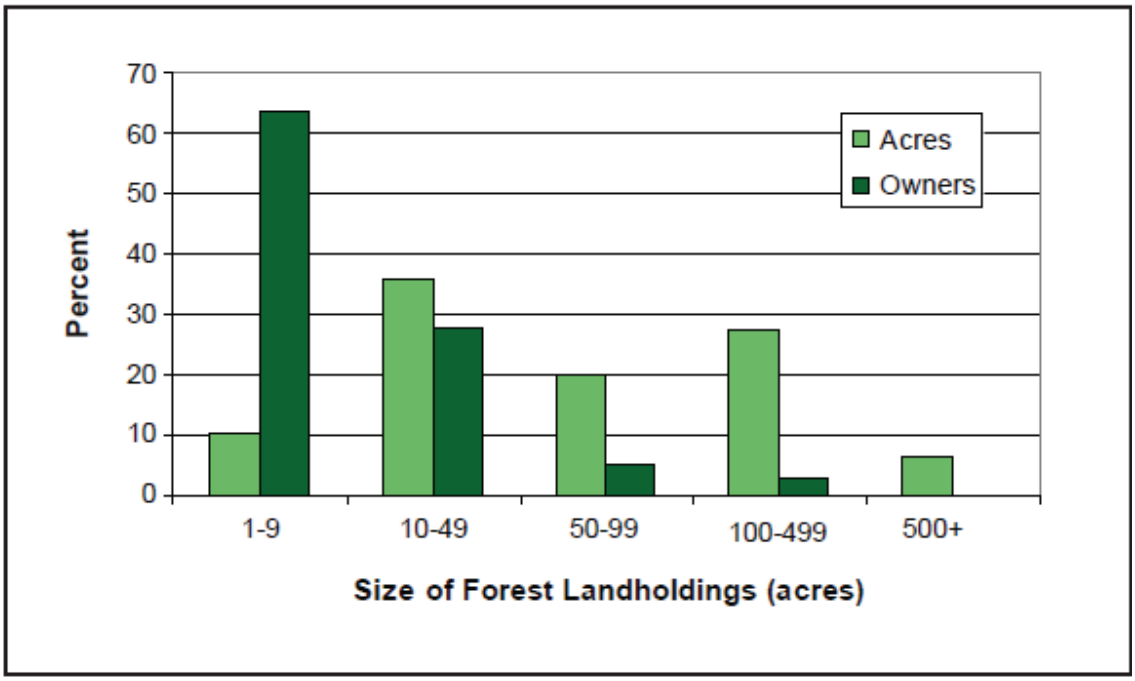



Figure 15. (above) Area of family owned forests and number of family forest owners by size of landholdings, Illinois, 2002–2004.

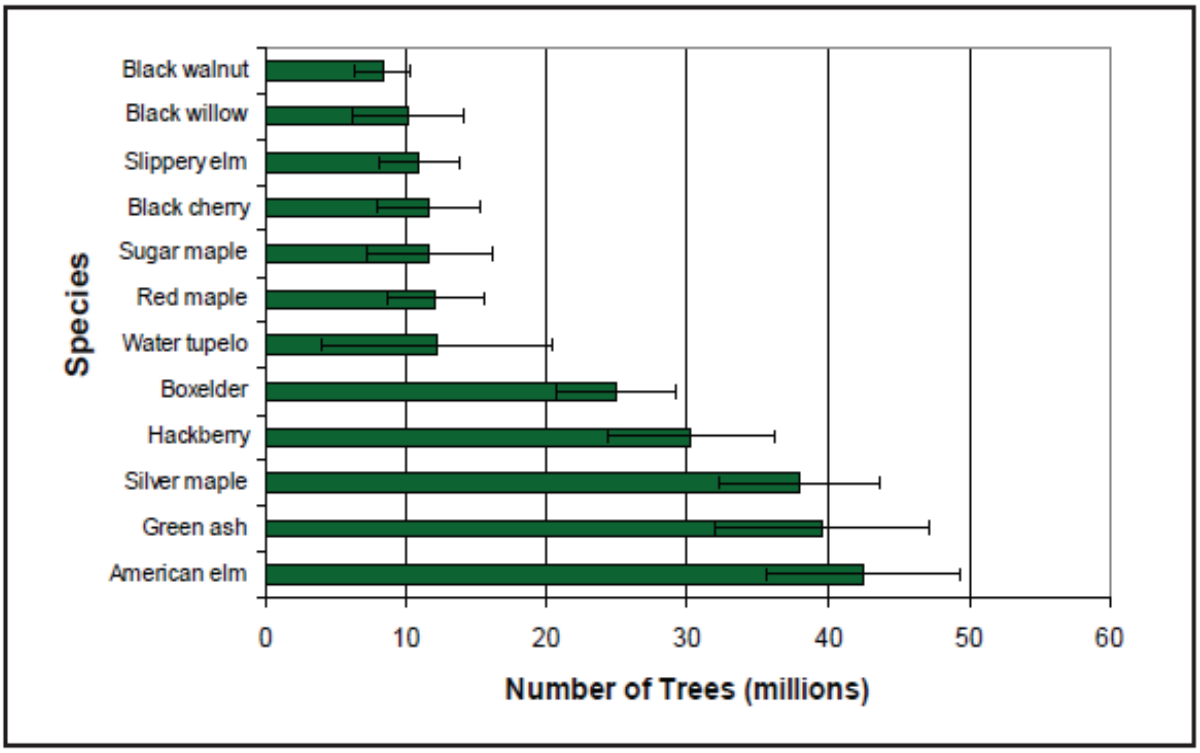



Figure 16. (above) Top 12 species, by number of trees, in riparian physiographic classes on forestland, Illinois, 2005 (error bars represent a 66% confidence interval).

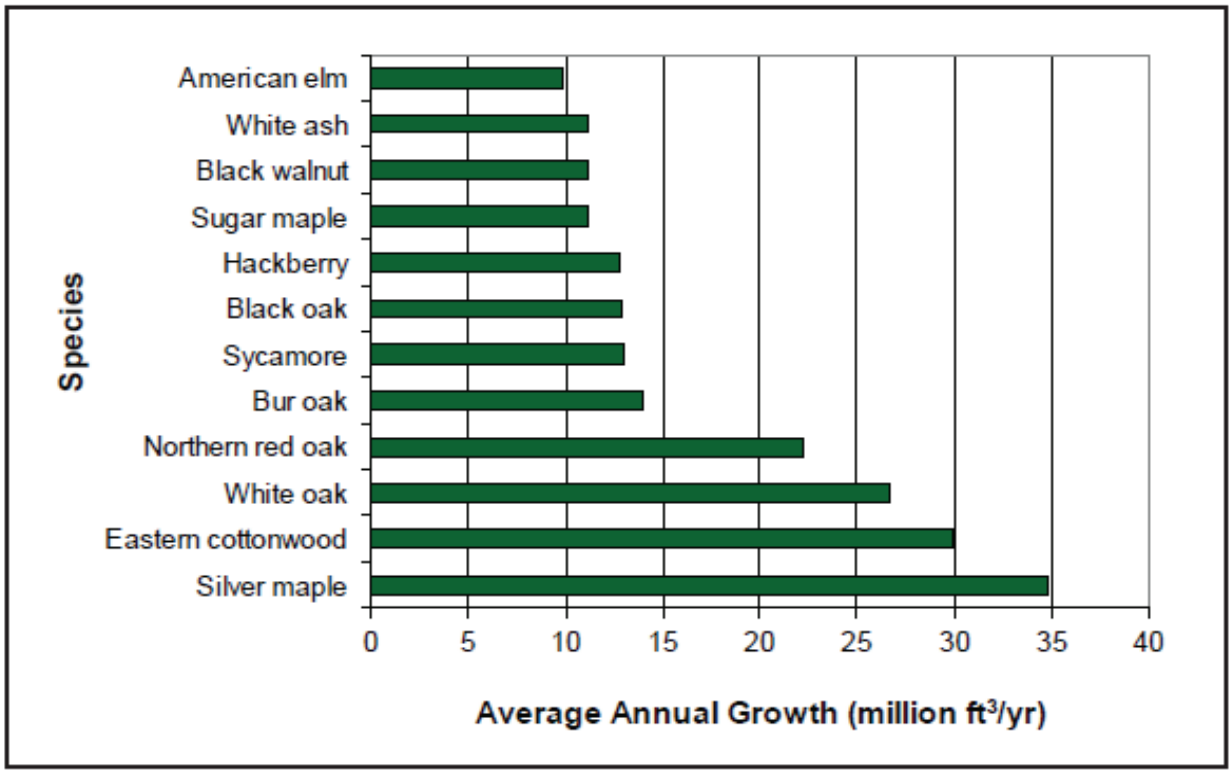



Figure 17. Average annual net growth of growing stock on forestland for the top 12 species, Illinois, 1998–2005.

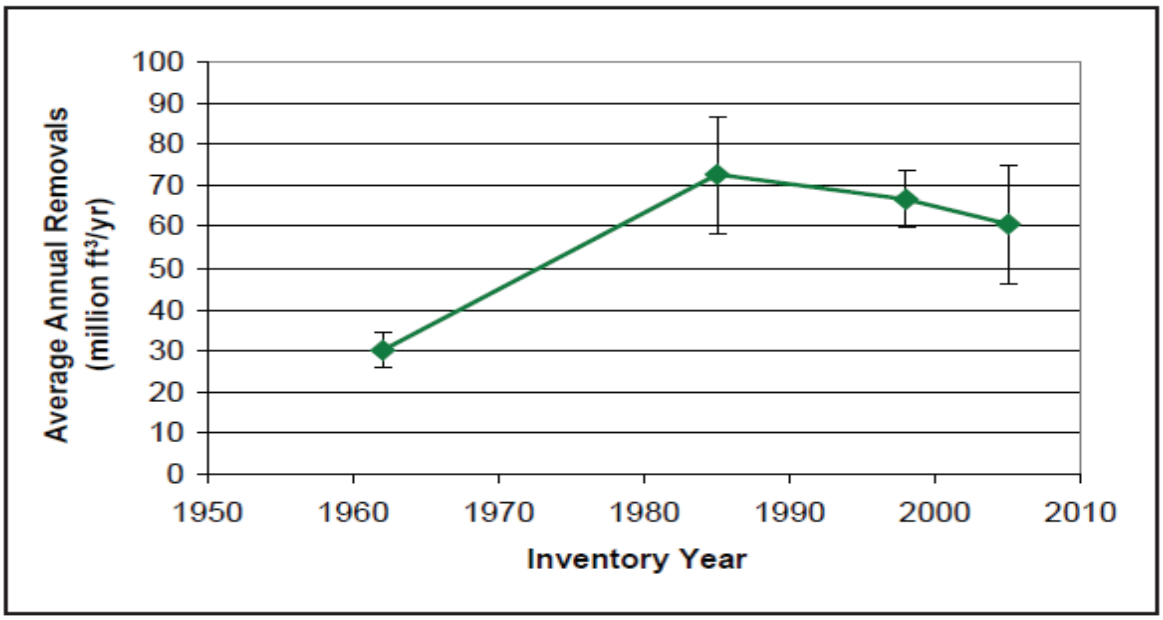



Figure 18. Average annual removals of growing stock on forestland by inventory year, Illinois, 1962–2005 (error bars represent a 66% confidence interval).

and eastern cottonwood had the highest annual removals, each averaging 8.9 million cubic feet per year. Oak species account for 36% of annual removals.

Wood products represent an important industry in Illinois. Changing market demands and market values can influence the rate of tree removals and the species being removed. Black oak was the only species to show a significant change (decrease) in removals between inventory cycles. Perhaps the most important trend is an apparent change in which species are being removed. Illinois' forest products market often indicates declining utilization of oak and other hard hardwoods while demand for cottonwood, silver maple, and other lighter hardwoods is increasing. Hickory demand is increasing. Ash demand and removals due to rapid mortality from EAB are increasing. Black walnut continues to be in steady, high demand partially due to continued premium pricing.

**Average Annual Mortality**

Since the 1960s, the rate of growing-stock mortality has continued to grow with each inventory (Fig. 19). Average annual mortality of growing stock on forestland is currently an estimated 86.7 million cubic feet per year, roughly 1.3% of total growing stock volume. American elm, black oak, and red maple have the highest rates of mortality; all three species experienced significant increases in mortality since 1998 (Fig. 20). A closer look at elm mortality shows that 27% of elms were infected with disease; 72% of elm mortality was unknown.

Increasing mortality reflects the growing maturity of Illinois' forests. As the bulk of the state's forests are made up of large-diameter stands, much of the mortality may be the result of senescence. However, elm mortality is largely due to the continued spread of Dutch Elm Disease (DED). Black oak mortality is related to Oak Wilt and old age. As oak is a major forest component and does not appear to be replacing itself in the overstory, oak mortality has implications for the future composition of Illinois' forests. As American elm and maples now occupy the majority of the pole-timber density, high elm mortality makes maples likely candidates to replace oaks in the overstory. All ash species are currently affected by the EAB and mortality of all mature ash is evident now (as of 2016) in northeastern Illinois and imminent for the remainder of the state over the next 10 years. Most ash, now mixed in Illinois upland forests and a significant component of many riparian forests, will become standing dead or fallen snags during this period. It is uncertain what the long-term prospects are for native ash through continuous, sporadic resprouting from existing root systems and already present seedlings. Dying trees do bear ample seed that is viable for one season.

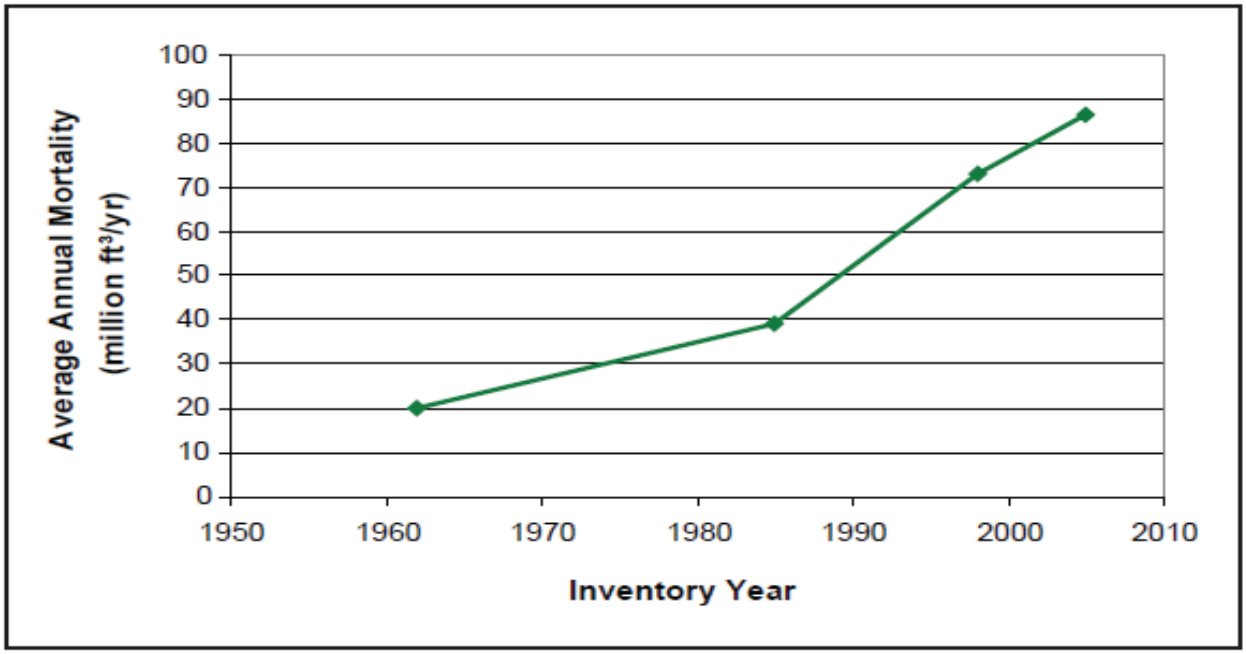



Figure 19. Average annual mortality of growing stock on forestland by inventory year, Illinois, 1962–2005.

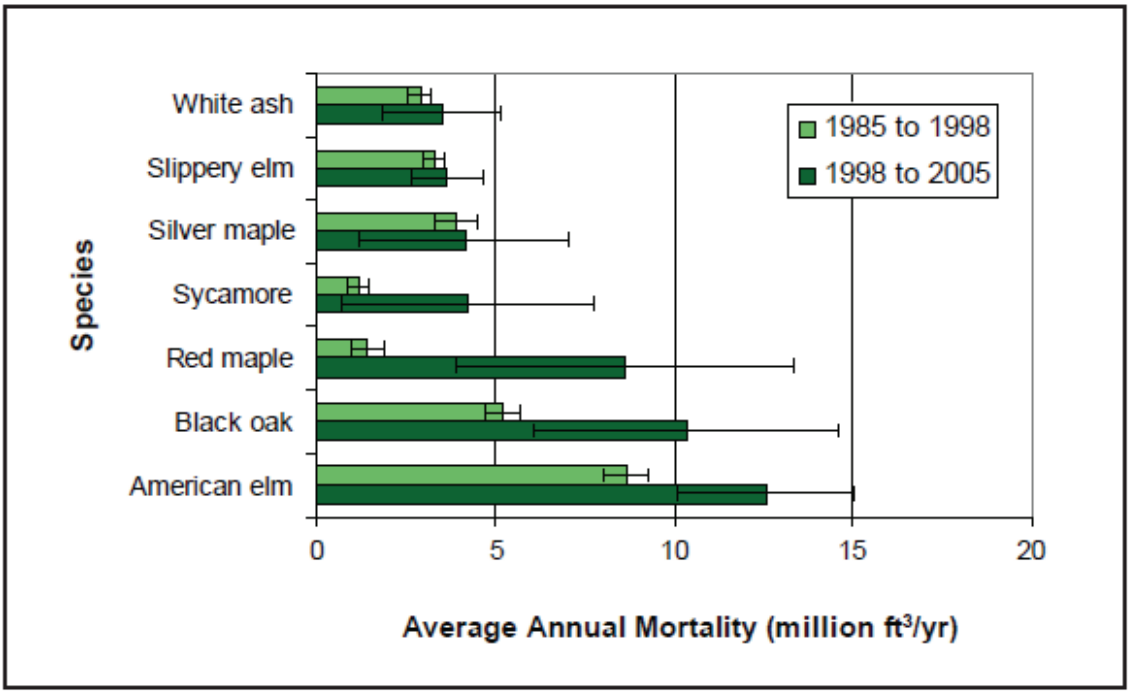



Figure 20. Average annual mortality of growing stock on forestland for the top seven species by inventory year, Illinois, 1985–2005 (error bars represent a 66% confidence interval).

**Urban Forests**

Urban forests are exposed to more man-made disturbances than their rural counterparts, which can negatively affect their health, growth, and ability to survive and yield benefits (American Forests, 2016). The compelling reasons trees growing throughout urban forest areas have critical importance to the health and wellbeing of Illinois citizens is outlined by David Nowak et. al. in a series of urban forestry research articles recently published at: https://www.nrs.fs.fed.us/people/dnowak (click on "Publications and Products" to access articles).

*Urban and Community Forest Resources*

According to the 2010 United States Census, 88% of Illinois residents live in urban areas; in and around community forests. Trees in our urban areas and towns are located where people sit, stand, walk, run, bicycle, and drive their vehicles. These areas include trees along sidewalks, streets, rights of ways, parks, parking lots, backyards, natural areas, waterways, and any other place trees grow in our communities. The trees in these urban and community forests provide significant economic, health, social, psychological, and environmental benefits to humans and wildlife (Coder, 1996). Trees are an appreciating asset with quantifiable value. Mature, properly placed trees provide multiple, important economic benefits and services to the environment and residents. Illinois has an estimated 77 million trees, which store about 14.7 million metric tons of carbon ($335.2 million), and annually remove about 484,000 metric tons of carbon ($11 million) and 13,560 metric tons of air pollution ($107.9 million) from the environment (Nowak et al, 2010).

Stormwater infrastructure and management continues to be an expensive investment for communities. Absorption of rainwater by trees remains the least expensive approach for mitigating stormwater runoff. For every 5% of tree cover added to a community, storm water runoff is reduced by approximately 2%. (Coder, 1996). According to the American Planning Association, "The Federal Clean Water Act provides one of the clearest examples of an external mandate impacting local government, and urban forestry and other elements of green infrastructure can be effective tools in meeting its requirements. Stormwater engineering solutions or "best management practices" can be expensive. Green infrastructure and trees can play a major role in reducing those costs, particularly when strategically located in stream buffers and floodplains where it also helps to minimize soil erosion."

Illinois urban and community forests comprise both publically and privately owned land and trees interfaced with patches of natural forest across a wide range of land uses. The urban forest has multiple owners including municipalities, park districts, forest preserve districts, water or sanitation districts, townships, corporations, organizations, private citizens, and others. The complexity of owners and infrastructure constraints makes growing and sustaining trees in our urban forest one of the most challenging tasks in forestry. To manage an urban or community forest today takes targeted actions, based on sound science and knowledge of tree physiology, tree insects and diseases, tree care standards, tree planting standards, local tree care policy, demographics, social dynamics, politics, and other factors. To fully affect urban forestry, the ecological, climatic, urban, political, and cultural conditions that foster or inhibit the growth and survival of trees must all be considered (Schwab, 2009).

Illinois urban and community forests provide both environmental and economic benefits to Illinois citizens. Tree canopy cover is directly related to positive tree benefits. Tree canopy cover, canopy green space, and tree cover per capita varied among communities, county subdivisions, and counties. Nowak et al. (2009) and others found that Illinois averages 12.1% canopy cover with 96.7% total green space, 12.5% green space, and 1,397.9 square meters of canopy cover per capita. When Illinois is compared nationally for the urban canopy per person, it ranks in the lower quadrants—especially versus the Northeast and southern United States. Illinois also ranks in the lower quadrant for urban canopy per square foot per person. Please see the Nowak et al., 2010 report, *Sustaining America's Urban Trees and Forests*.

Urban or community land use in Illinois continues to increase in acreage as more land continues to be annexed for development. The urban and community areas comprised about 8.7% of the state land area in 2000, an increase from 7.5% in 1990. It is projected that Illinois will loose from 250,001 to 500,000 acres or 10–20% of the contiguous forest cover due to urban development by 2050 (Nowak et al., 2010). With increasing urbanization, urban forest management will likely take on a relatively higher regional and national importance. As rural and ex-urban forest areas decline, the services of the remaining urban and nonurban forests will become even more critical to regional and national populations (Nowak et al., 2010).

Illinois has been through two major insect and disease epidemics—the DED era of the 1950s through the 1970s and the EAB epidemic of 2000 to current times. Illinois communities listened to the post-DED message to not plant monocultures of trees. However, at that point in time, only five to six easy-to-grow, intermediate/fast growing trees were available in the local nurseries. This meant that many communities still ended up with a high density of the same species, albeit less than the previous era of elm monocultures. The well-managed city forests improved their tree species diversification since the DED era, saving those communities significant dollars today during severe storms and insect and disease epidemics. In some cases, those well-managed, diversified, and maintained urban forests helped to pay for the entire forestry department expenditures to manage the municipal forest (Hildebrandt, 2008). As the USDA Forest Service and the State of Illinois provide leadership and assistance, more communities will create local municipal forestry programs with proper tree care and tree planting protocols.

Economic impacts for the U.S. green industry in 2002 were estimated at $147.8 billion in output, 1,964,339 jobs, $95 billion value-added spending, $64.3 in labor income, and $6.9 in direct business taxes. For the horticultural services sectors of landscape services and landscape architects, the impacts were $57.8 billion in outputs and 753,557 jobs. "Illinois had 6.897 million in output impacts, 75,110 jobs with $4.3 billion in value added impacts" and "for every dollar spent locally on trees by taxpayers received $4 back in public benefits" (Hall, 2005).

*Urban and Community Forest Management*

Urban and community forestry is generally defined as the art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society.

Our urban and community forests face a myriad of current management challenges, (Nowak et al., 2010). These challenges include insect and diseases; natural catastrophic events such as floods, ice storms, high winds and snow events; invasive plants; environmental impacts such as pollution, road salts or chemicals; development pressures; climate change; and socioeconomic impacts such as changing budgets.

Since 1991, the USDA Forest Service has provided funding for federal, state, local, urban and community forestry programs. This funding has allowed state, regional, and local partners to integrate trees into sound planning practices to improve the environment and provide for connectivity of fragmented landscapes. Relative to the years preceding 1990, the state's urban and community forestry programs have grown and expanded tremendously.

The Tree City USA Program has been the core program for getting communities involved in urban and community forestry management. In Illinois, Tree City USA (TCU) communities spent over $94 million in 2016 on their local forestry programs (Hildebrandt, 2016a). These program expenditures include $20 million for tree planting, trimming and removal; $26 million for in-house staffing; $7 million for EAB management; and $6 million for utility clearance, volunteer input, and other various costs (Hildebrandt, 2016b). Since TCU communities represent only a sample of Illinois communities, the actual annual expenditures are greater for the entire state.

TCU is a national technical assistance and recognition program that helps communities create viable local forestry programs. It is a national partnership administered by the National Arbor Day Foundation in cooperation with the USDA Forest Service, the National Association of State Foresters, and the Illinois Department of Natural Resources Urban and Community Forestry Program. According to Sass, et al. (2010), when compared to nonTCU communities, the Illinois TCU communities:

- Held more positive attitudes about the benefits of their trees
- Had historic data on their trees
- Had staff with higher levels of education
- Were more likely to have cost-share programs on public lands with a few also having a cost-share program on private lands
- Included tree care and tree planting standards in their tree ordinances
- 75% had at least a basic tree inventory and were more likely to have a management plan.

The combination of TCU recognition and an active state grant program has helped to grow participation in urban and community forestry in Illinois. From 1992 to 2002 the Urban and Community Forestry

Grant Program was funded at the level of $100,000 to $400,000 annually and during that period the number of TCU communities doubled. Those grants have helped to develop over 27 successful tree boards/committees, 31 different municipal tree ordinances, 60 urban forest management plans, 100 street tree inventories, 79 tree planting projects, 48 educational outreach projects, and 42 forestry staff development projects.

Tree diversity is extremely important in sustainable urban and community forest management. Illinois has been successful for the most part in diversifying the urban and community forests since the DED days. The current "industry standard" of professional urban foresters for insuring tree diversification is known as the "30-20-10 rule" (or the stricter 20-10-5 rule). That standard means any tree family, genus, or species should not exceed 30%, 20%, or 10%, respectively, of the total urban forest.

Species selection is critical to the sustainability of our urban and community forests. Matching species to site is another key concept in reforestation efforts. Nursery growers, tree suppliers, and local decision makers all need to plan for the diversity of soil conditions and site types that exist in our municipal areas. The IDNR Urban and Community Forestry Program has compiled and posted resources online including "Tree Selection and Planting Guidelines." The challenge is to get these tools into the hands of the practitioners and decision makers. Statewide partnerships are valued and greatly assist the IDNR Urban and Community Forestry Program with producing and sharing resources.

*Urban and Community Forest Socio-economic and Political Issues*

In spite of the many complex political, social, developmental, and environmental pressures of our urban and community forests, Illinois is fortunate to have a group of strongly dedicated urban and community foresters at all levels. The American Planning Association identified multiple tiers of stakeholders as: 1) forestry and park professionals who are often degreed foresters, landscape architects, or horticulturalist or International Society of Arboriculture Certified Arborists; 2) allied professionals providing programmatic support such as state and federal forestry agencies, plant health professionals, and regional planners; 3) public, developers and elected officials; and 4) other advocacy groups. In a successful program, all of these people are involved at different levels, and all bring something vital and necessary to the process (Schwab, 2009). Forestry professionals and practitioners face many individual groups who prefer to create with concrete, wood, and steel or prefer increased impervious surfaces in our urban areas for a perceived ease of maintenance. These facts solidify the important role for public education and outreach for green infrastructure as well as continued professional development opportunities.

Politics is a constant in our world and in urban forest management as well. When bad things happen to good programs in local government, it is most often because the public or its elected officials, or both, do not fully appreciate the program's value and benefits. Public works managers have the daunting task of balancing the recommendations of experts, the wishes of council members and other elected officials, the needs of citizens, the pressures of local economics, the concerns for liability issues, the physical aspects of trees, the forces of nature and severe weather events, and the desire for all of these factors to be met simultaneously (American Public Works Association, 2014). Often there is no advocacy group available to assist the tree and forestry professionals with securing adequate budgets and staffing.

There are considerable socio-economic differences among and within communities in various parts of this state. Past research has focused on environmental injustice as indicated by the fact that there were fewer trees in low-income areas. Some biologists fear that global urbanization causes an "extinction of experience" in which, as the biodiversity in cities diminishes, so too does our appreciation for and connection with nature (Pyle, 1978; Turner et al., 2004). This can have far-reaching negative consequences for both biodiversity conservation and human quality of life. From a conservation perspective, people who experience less biodiversity may have lowered expectations about environmental quality and be apathetic about the natural world, which can in turn lead to even more environmental degradation (Miller, 2005). On the other hand, local biodiversity has the potential to foster conservation awareness in urban residents (Miller and Hobbs, 2002). From a human quality of life perspective, people often experience physical and mental benefits from natural environments (Ulrich, 1984; Kuo, 2001) and diversity of wildlife (Fuller et al., 2007). Therefore, if certain socio-economic groups are less exposed to biodiversity, then a self-reinforcing feedback loop may occur wherein individuals from a group become more and more detached from nature and are thus benefiting less. It is critically important to manage the complex socio-economic and political nature of urban and community forestry issues so we can add to the sustainability of the forest and not distract from it.

# Priority Forestry Areas of the Illinois Department of Natural Resources, Division of Forest Resources

Priority Forestry Areas for the Division of Forest Resources (DFR) are in part determined by the natural resources themselves as well as mandates from Illinois conservation law and cooperative program agreements with federal partners. The forestry division also aligns its priorities with the other resource conservation priorities of the allied IDNR resource conservation divisions. Implementing forest campaign goals and objectives of the Illinois Wildlife Action Plan (IWAP) cannot be understated as is the case for most northeastern states partnering their efforts and common forest resource objectives among the wildlife and the forest action plans. The IWAP is Appendix D to this forest action plan document. The IWAP is a required reference and guidance for developing wildlife habitat sections and considerations within all forestry plans initiated by USDA Forest Service, USDA Natural Resource Conservation Service, American Tree Farm System, and the IDNR Forestry Development Act.

Division of Forest Resources programs that are core, ongoing forest resource priorities include forest health, forest planning, forest inventory and analysis, state forests, forest products, forest management, forest fire, urban and community forests, and forest protection. In general, these ongoing core priority programs are all statewide in nature and have no particular specific prioritization, geography, or conditions. Some specific programs within the DFR core programs do have high priority and are governed by specific resource types, specific geography, or specific conditions. These are Forest Stewardship (management), Wild and Prescribed Fire (fire), Urban and Community Forests (u&cf), Forest Legacy (protection), and the State Forests.

**Forest Stewardship**

Forest Stewardship priority areas within Illinois were classified by the IFDC using the USDA Forest Service State and Private Forestry (S&PF) Forest Stewardship Program's Spatial Analysis Project methodology. The GIS layering resulted in a map of the state shown below (Fig. 21). The prioritization was based on 12 core data layers, representing important aspects and outputs of forest resource conservation, using a weighted ranking system for each data layer (Tables 2 a&b). As a primary example, the low amount of forestland remaining after significant losses of Illinois' forests over the past centuries resulted in all intact, original forest area as a high priority area. The map (Fig. 21) shows both water and urban/developed areas as white. Though the subtleties of layering weighted priorities are not seen from the panned-out view, High Priority Stewardship areas are, in general; "all the existing forest in Illinois" plus "forestland that was once forest cleared for agriculture and having forest soils."

Table 2A. Layer and corresponding weight used to develop original Stewardship Priority areas.

| Layer | Weight (%) |
|---|---|
| Private Forest | 15.32 |
| Riparian Corridors | 12.73 |
| Forest Patches | 11.31 |
| Wetlands | 9.60 |
| Priority Watersheds | 9.09 |
| Developmental Pressure | 8.59 |
| T & E Species | 6.97 |
| Drinking Water Supply | 6.87 |
| Proximity to Public Land | 6.67 |
| Forest Health | 6.46 |
| Topographic Slope | 5.45 |
| Fire Risk | 0.91 |
| | 100.0 |

Table 2B. The spatial analysis tool layers and weights were relayered in 2013 and the priority areas simplified to be either High Priority Stewardship or Priority Stewardship for Illinois's forest stewardship efforts. The four Forest Legacy Areas were overlain as High Priority. Participation in the USDA Forest Service grants to help fund the Illinois Forest Stewardship Program recognizes only the High Priority (dark green) Stewardship areas.

| Layer | Orig. Weight (%) | Revised Weight 2013 |
|---|---|---|
| Fire Risk | 0.91 | 1.01 |
| Topographic Slope | 5.45 | 5.85 |
| Forest Health | 6.46 | 6.94 |
| Proximity to Public Lands | 6.67 | 7.16 |
| Drinking Water Supply | 6.87 | |
| T&E Species | 6.97 | 7.48 |
| Development Pressure | 8.59 | 9.22 |
| Priority Watersheds | 9.09 | 9.76 |
| Wetlands | 9.60 | 10.31 |
| Forest Patches | 11.31 | 12.14 |
| Riparian Corridors | 12.73 | 13.67 |
| Private Forest 1 | 5.32 | 16.45 |
| Total | 100.00 | 100.00 |

The IDNR Urban and Community Forestry (ilUCF) Program is a part of a nearly 5 billion-dollar economic engine in Illinois. The program mission is to provide leadership to create and enhance self-sustaining local urban and community forestry programs that preserve, plant, and manage forest ecosystems for public safety, benefits, and quality of life. With 87.8% of Illinois citizens living in urban and community areas, this program seeks to initiate public understanding concerning the important amenity values of the local forest ecosystems. These ecosystems provide important environmental services including improved energy conservation, air quality, economic activity and vitality, reductions in storm water runoff, carbon sequestration, and psychological benefits/stress reduction.

The ilUCF is funded in part through the USDA Forest Service Urban and Community Forestry Program as authorized by the amended Cooperative Forestry Assistance Act of 1978, Public Law 95-313. That federal program provides 1/3 to 1/2 million dollars annually to ilUCF as core funding. In order to receive these funds, the state must meet the muster of the law which includes having: 1) a full time State Urban Forestry Program Administrator; 2) an urban and community forestry council (IFDC—Urban & Community Forestry Committee); 3) a strategic plan (see Appendix A ); and 4) volunteer capacity (typically contractual in Illinois). The ilUCF Program is authorized by the Illinois Forestry Development Act (525 ILCS 15/; from Ch. 96 1/2, par. 9101). There is only one professional staff with a full-time assignment to this program, serving as the federally required State Urban Forestry Program Administrator.

The ilUCF Program priority areas include: 1) technical assistance and training for communities and tree care professionals; 2) financial assistance to communities and nonprofits; 3) public education in support of planting trees in urban environments; and 4) volunteer coordination assistance to encourage participation at the local level. Central to the ilUCF Program services is a partnership between IDNR and the Arbor Day Foundation in administering the national TCU Technical Assistance and Recognition Program. The TCU program has four standards for sutainable local community forestry programs: 1) designating a tree authority; 2) developing a tree care ordinance that addresses tree authority and tree care standards; 3) spending $2 per capita; and 4) holding a public Arbor Day/tree planting event where the mayor signs an Arbor Day proclamation. The ilUCF services include: helping Illinois municipalities to develop local municipal programs through the TCU standards; creating local management programs with management plans based on tree inventories; sustaining municipal forests through reforestation and insect and disease mitigation such as DED, gypsy moth and EAB; and developing volunteer capacity.

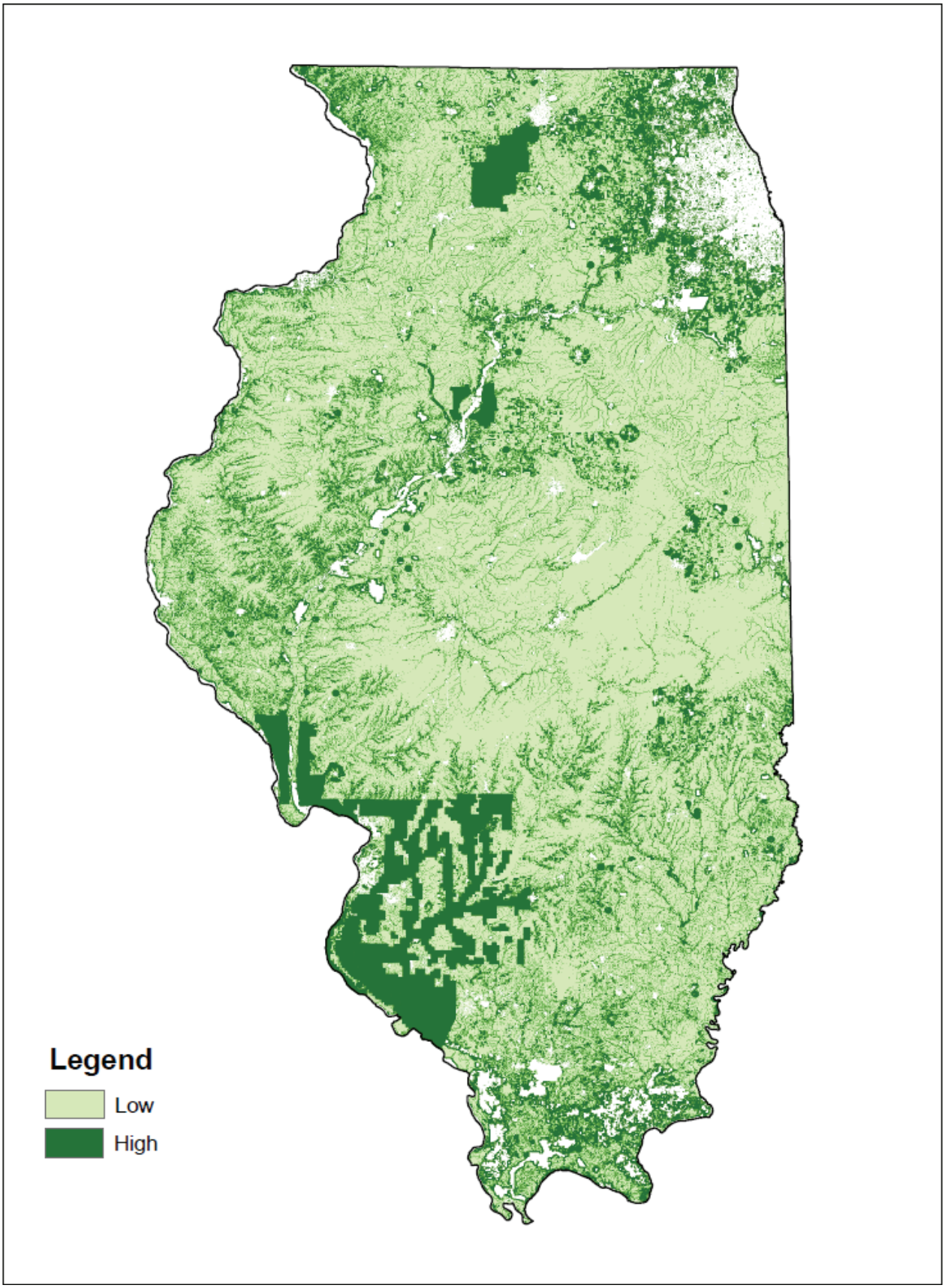



Figure 21. Priority areas within Illinois as determined by the IFDC and the Illinois DFR. Dark green is High Priority Stewardship; Light green is Priority Stewardship.

Throughout history, the ilUCF Program has employed several strategies for technical outreach to constituents. These strategies include the TCU Program annual conferences; an extensive IDNR website, the *TCU Newsbits* (Formerly *Prairie Tree Companion Newsletter*); regional urban forestry council assistance; plus educational outreach through training and workshops. Annual funding for educational sessions at the Illinois Arborist Association Annual Conference has also been provided. Program delivery for volunteer capacity has been contracted over the years with organizations such as the Illinois Arborist Association, University of Illinois, Southern Illinois University, Southwestern Illinois Resource Conservation and Development Area (now Heartlands Conservancy), Morton Arboretum, Openlands, and Trees Forever. These contracts serve to provide assistance regionally to municipalities, forestry professionals, arborists, and citizens concerning the trees in their neighborhoods. Recently, there is a growing demand for natural disaster assistance in the form of the new Urban and Community Forestry Strike Team. That team can assist in identifying high risk trees as a part of the response process, conducting tree inventories after storms, assisting with tree planting efforts, and creating programs to increase community preparedness for future natural disasters.

The State of Illinois has legislation authorizing the Urban and Community Forestry Grant Program through (30 ILCS 735/) the Urban and Community Forestry Assistance Act. The Urban and Community Gant Program funding has led to more effective and efficient management of urban and community forests. During the period of 1991 to 2002, due in part to the Urban and Community Forestry Grant Program, the number of Tree City USA communities doubled. As detailed earlier in this action plan, ilUCF helped local units of government develop successful tree boards/committees, ordinances, management plans, inventories, tree planting projects, educational outreach projects, and staff development projects. Since 2000, ilUCF grant cycles have been reduced to periodically every three to five years. In lieu of the grant program cycles since the year 2000, communities were instead provided tree inventory services through a program called "Trees Count!" To date, the combination of both the Tree City USA Program and the IDNR Urban Grant Program have helped grow participation in local urban and community forestry programs in Illinois.

Urban and community forestry often affects natural forests within the state. In order to preserve at least remnants of our native, rural forests near population centers, we need to actively advocate for protecting or preserving these areas as a part of our future living environment. The ilUCF Program supports and assists local units of government in ecosystem planning, natural resource management, and education to create healthy urban and community forests to enhance the quality of life for Illinois citizens.

**Wild and Prescribed Fire**

Overall, Illinois has a relatively low wildfire risk, and this is reflected in the weighted ranking system for high priority areas analyzed for forest stewardship. Nevertheless, IDNR favors local wildfire protection planning. Many local governments and communities have begun to assess wildfire risk through the development of community wildfire protection plans (Fig. 22).

Makanda Township in Jackson County, Illinois, was the first area with a community wildfire protection plan; and currently, other areas are considering plan development in southern Illinois. The Chicago Wilderness organization developed a similar plan to Makanda's for the seven collar counties of the Chicago area in 2012. Prescribed fire is used frequently in those Chicago collar counties to manage public and private lands and forests. Counties, districts, and other localities having a recognized wildfire protection plan are a priority for participation in some IDNR fire funding opportunities and other grants. The development of Forest Fire Prevention Plans remains an ongoing priority for IDNR fire programs and is encouraged for any and all township and county wildfire protection districts.

The Illinois Forest Fire Prevention Districts Act affects all of Illinois by law. By proclamation of the IDNR, during certain drought-fire risk conditions, the seven southern counties of Jackson, Pope, Hardin, Johnson, Union, Alexander, and Pulaski can require burn permits for any and all open burning which are to be issued by a fire warden designated by the IDNR. The peak fire hazard months of February, March, April, October, and November are the usual months that fire wardens and permits would be instituted. The seven counties mentioned in the state act are a priority for INDR forest fire prevention programs.

IDNR fire programs require approved prescribed burn plans, approved and implemented by a Certified Burn Boss. IDNR issues the Burn Boss certifications and, together with other agencies, restricts prescribed

fire burning to "burn seasons" when natural fuels are most combustible and smoke is minimal. The prescribed fire plan and Burn Boss programs do not carry internal or external priorities and are offered statewide.

**Forest Legacy**

Then original recently amended Illinois Forest Legacy Program Assessment of Needs is found as Appendix B. The Assessment of Needs outlines the basis and necessity for the Forest Legacy Program in Illinois and identifies four Forest Legacy Areas (Fig. 23) where permanent forestry conservation easements or critical fee- simple acquisitions may be purchased and owned by the IDNR. The Forest Legacy Program exists between IDNR, via the Division of Forest Resources, and the USDA Forest Service, State and Private Forestry section.

Acquisitions of permanent conservation easements and critical fee-simple purchases of lands may only be targeted by the DFR through the Forest Legacy Program if the land is within one of the four Forest Legacy Areas designated cooperatively by the IDNR Division of Forest Resources, conservation groups and constituents, the IFDC, and the USDA Forest Service, as well as the local public via public meetings.

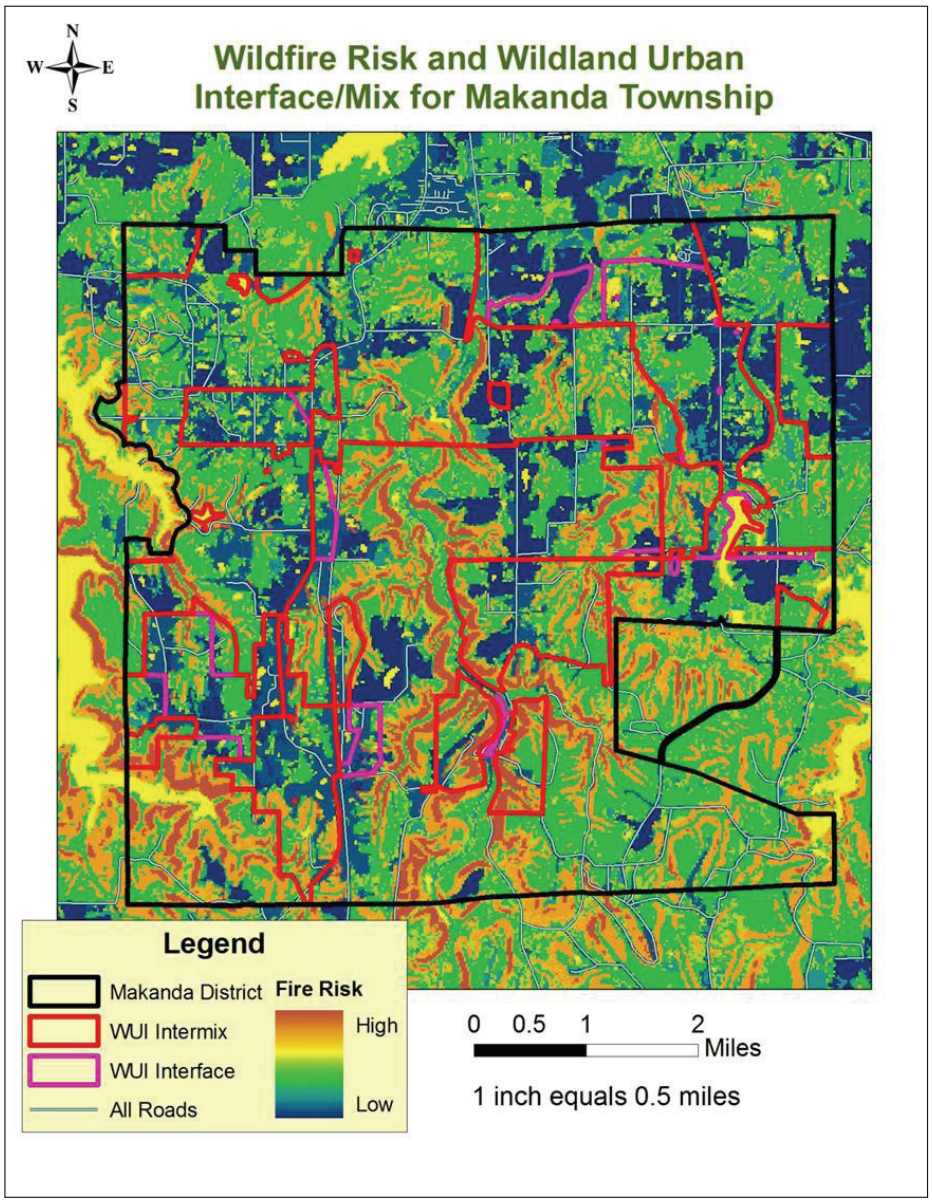



Figure 22. Map of Makanda Township Wildfire Protection Plan. The color red represents areas with the greatest fire risk.

Historically, since 1993, the Forest Legacy Program has been available in Illinois with four initial Forest Legacy Areas. Nationally, since that period, the program has conserved over 1 million acres of important, strategic, and threatened working forests. The amended Assessment of Needs for Illinois adds one new Forest Legacy Area in the lower Kaskaskia River known as the Southwestern Illinois Lower Kaskaskia Forest Legacy Area. New Forest Legacy Areas can be added or the existing areas removed, reduced, or expanded by consensus of the IDNR Forestry Division, the State Forest Stewardship Coordinating Committee, the public, and the USDA Forest Service.

The current Forest Legacy Areas are the priority of the IDNR for important permanent easements or strategic fee-simple acquisitions of working forestlands. Existing committees of the IFDC (the group comprising the Forest Stewardship Coordinating Committee) and forestry program managers favor future prioritization for two additional Forest Legacy Areas to be designated for Forest Legacy Eligibility. Designation requires a public process and the consensus of all parties—the Illinois Forestry Development Council last discussed FLAs for the Illinois "Driftless Area" (Carroll County) and the greater Shawnee National Forest areas (Williamson County).

**State Forests**

Illinois's seven State Forests have been designated by law (525 ILCS 40) and mandated to be operational as

forest management and demonstration areas to exhibit the sciences of forestry and the application of silviculture. State Forests total 22,000 acres and represent 8% of state-owned lands and ½ of 1% of the total forestland in Illinois. Annual management affects about 1% or less of State Forest acreage and 1/200th of 1% of total forestland in Illinois. Forest management will yield commercial forest products at an occasional frequency available for procurement by Illinois' family and small businesses in the primary wood market. In keeping with the mission of the IDNR, the Office of Resource Conservation and the Division of Forest Resources, the State Forests will integrate managing timber with wildlife habitats, site ecology, soil and water resources, outdoor recreation, aesthetics, and forest health.

All seven State Forests share oak and central hardwood forest types with similar ranges of forest conditions, including some aging, planted pine stands. Forest management and silvicultural options for managing and regenerating healthy, sustainable native forests will be employed over time to achieve sustainable, high-quality oak-hickory forests of both old growth and new young growth. The physical forest resources themselves dictate annual and near-term forest planning options as well as considerations 50 years into the future. Each forest will use best management and adaptive management approaches and will include resource inventories, applied research, and monitoring. Forest management outputs will include longer lived high-quality oak stands, young oak-hickory regeneration, favorable forest tree composition, increases in native forest plants and groundcover habitats, important vertical roosting, nesting, and feeding habitats, protected water quality, improved hunting and recreation, and income from sale of forest products. The State Forests outlined below remain a high priority for the IDNR and the Division of Forest Resources.

*Big River State Forest (2900 acres)—Henderson Co.*

Big River Forest sites are largely sandy soils growing hardwood stands containing mostly blackjack oak with associate central hardwoods including ash, bur oak, black oak, black cherry, walnut, and others. Small acreages of Mississippi River bottomland forest contain mostly silver maple and cottonwood. Older stands of planted pines exist in areas subject to past and present wind erosion. Hunting and equestrian recreation use is moderate to high and a designated Natural Area exists.

*Hidden Springs State Forest (1200 acres)— Shelby Co.*

Hidden Springs Forest sites contain a range of soils growing upland hardwood stands containing many species of native oak, hickories, and black walnut with other central hardwoods. Hundreds of acres of established pine forest and are now being thinned. Bottomland forests are also extensive throughout the forest. Fishing, camping, and hiking recreation use is low to moderate.

*Lowden-Miller State Forest (2400 acres)—Ogle Co.*

Lowden-Miller Forest sites contain a variety of quality forest soils and extensive oak-hickory and central hardwood forest containing white, red, and black oak with shagbark hickory as well as elm, ash, cherry, walnut, and many others. Hundreds of acres of pine plantations, a recently abandoned Christmas tree field, and some bottomland forest also exist. Hunting, fishing, hiking/skiing, and equestrian use is moderate to high. A Boy Scout camp and Castle Rock State Park are adjacent to the forest.

*Sand Ridge State Forest (7200 acres)—Mason Co.*

Sand Ridge Forest sites are all sand-based soils growing thousands of acres of black oak-dominated, oak-hickory forest needing regeneration and an equal acreage of planted pine forests needing thinning and management. Most oak stands are over-mature and of low-quality timber. Hunting, hiking, fishing, horseback riding, camping, and recreation use is moderate. Designated Natural Areas exist.

*Spoon River State Forest (1680 acres)—Knox Co.*

Spoon River Forest sites are rich, heavy forest soils growing oak-hickory and mesic central hardwood species. Fourteen hundred acres of hardwood forest with a history of forest management harvests exist. No pine stands exist. Spoon River has no camping or picnic areas. Hiking, hunting, fishing, and boating use is low to moderate.

*Trail of Tears State Forest (5200 acres)—Union Co.*

Tail of Tears Forest sites have soils growing high-quality oak-hickory forests dominated by white and

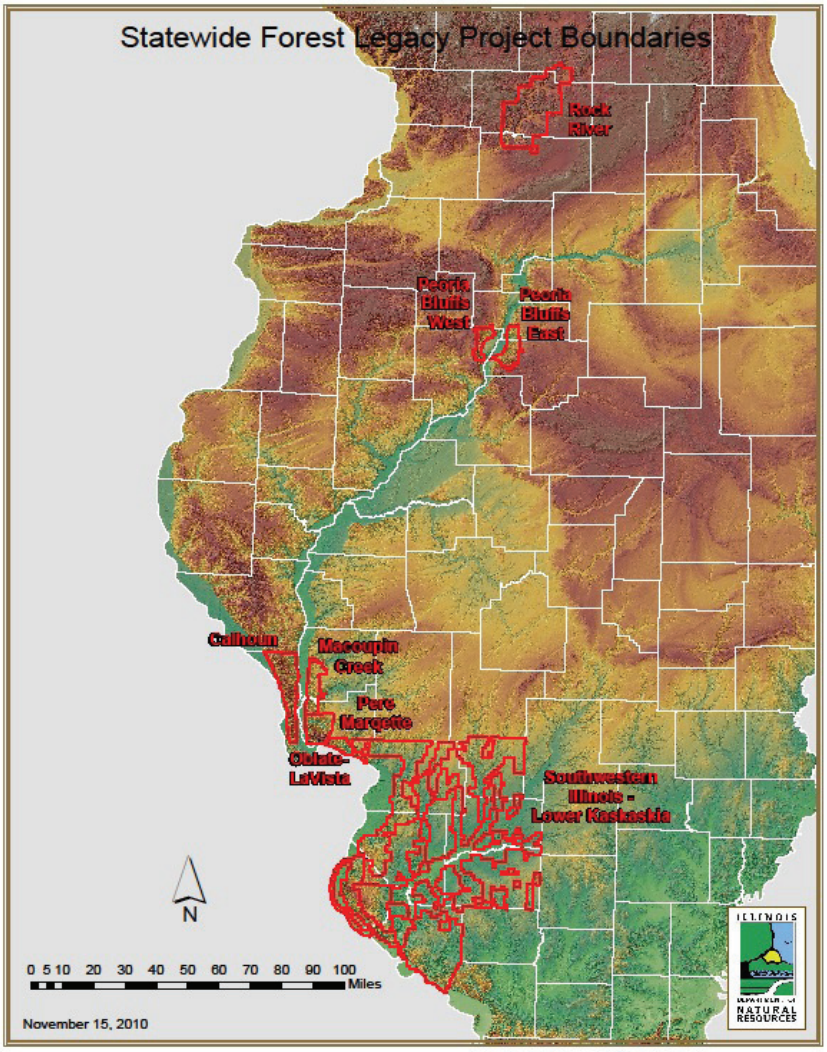



Figure 23. Designated Forest Legacy Areas for Illinois.

black oak and associate central hardwood species. Small acreages of maturing planted southern pines exist. Hunting, camping, and equestrian recreation use is low to moderate. The 222-acre Trail of Tears Forest contains Ozark Hills Nature Preserve with Union State Nursery occupying 120 acres of the forest.

*Wildcat Hollow State Forest (700 acres)—Effingham Co.*

Wildcat Hollow Forest sites are rich soils growing high-quality oak-hickory forests dominated with white oak and associated central hardwood forest species. The oak-dominated, hardwood forests lack the necessary oak regeneration and recruitment to assure future forests of oak. Hunting and recreation use is moderate to high and a designated Natural Area exists.

**Forest Health**

Forest Health is a priority program itself that affects and is intertwined with all core forestry programs and priority programs in Illinois. Forest Health is also funded cooperative program with the USDA Forest Service. Illinois currently contracts most state obligations tied to the grant funding to university-based entomologists and pathologists via contracts with the IDNR. The priority for this program is to hire the IDNR permanent position of forest health specialist; a program manager within the Office of Resource Conservation Forestry Division. That degreed professional is required to be a division employee according to the federal grant for Forest Health to Illinois. That specialist will be more effective than contracted minimum surveys since they can interact directly with the IDNR foresters, biologists, and staffs who are each seeing thousands of acres of private forest annually.

# Priorities Areas (and Partnering) in the Midwest

Illinois is a part of several other regional forestry priority areas in the Midwest. Regional considerations can result in projects benefitting Illinois forests and forestry. States can partner to accomplish mutual goals or compete for funding. Border areas of most states do have similar issues and usually share biological and geographical similarities.

Table 3 lists overlapping state-level forestry priorities identified by state planners in webinars held continually since 2010. For example, within the Upper Mississippi Watershed of the Midwest region, several subwatersheds have been classified as high priority by the Upper Mississippi River Partnership and the USFS Northeastern Area State and Private Forestry. These watersheds were selected because they showcase needed forest stewardship practices that improve water quality and wildlife habitat important to neighboring states and river conservation. In Illinois, the Cache and Lower Illinois-Lake Chautauqua watersheds were ranked at the highest priority level, while the Apple Plum and Cahokia-Joachim were ranked at the second highest priority level (Fig. 24). The 2008 Farm Bill (PL 110-246) required State Forest Action Plans to include "any multistate areas that are a regional priority." As requested by state foresters, the USDA Forest Service, Northeastern Area, State and Private Forestry facilitated a process to help states identify and share all northeastern multistate priority areas and issues. There were just over 70 unique multistate priorities identified by the 20 states and the District of Columbia. Over half of these priorities are existing efforts though the detail about multistate priorities varied widely. For example, some states included a simple

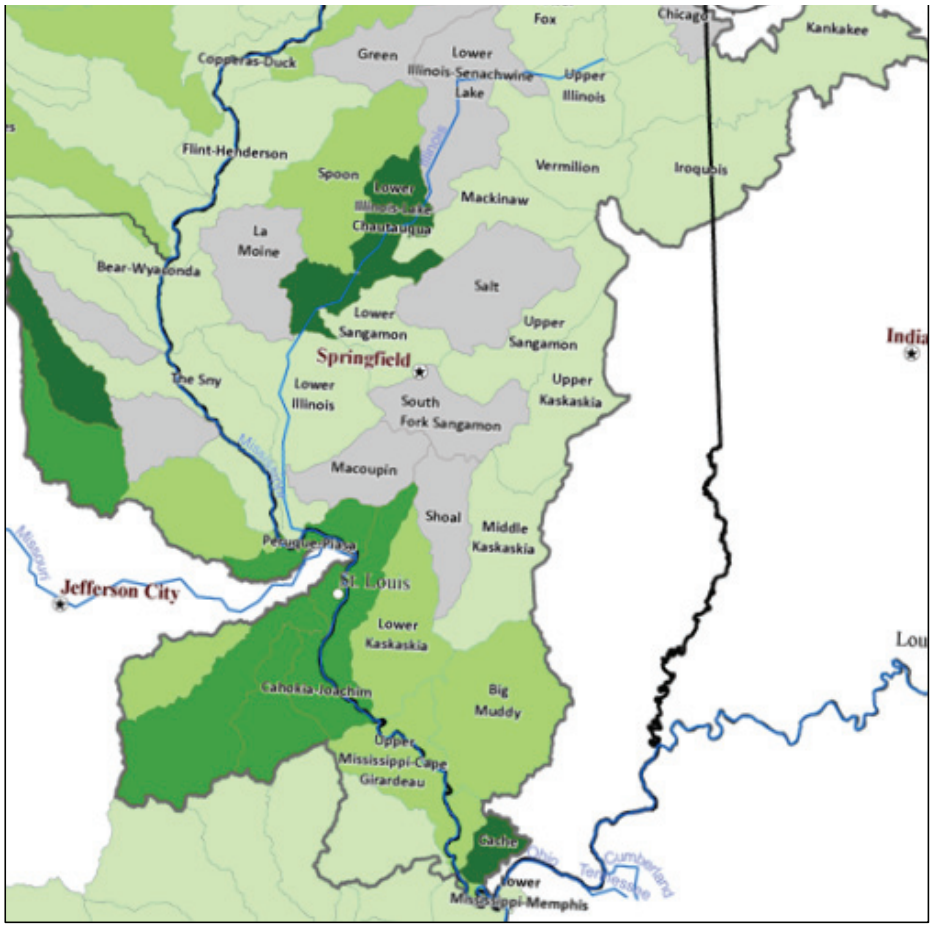



Figure 24. Priority areas within the Upper Mississippi Watershed as determined by the Upper Mississippi River Partnership and the USFS Northeastern Area State and Private Forestry.

Table 3. Regional priority areas and priority issues associated with Illinois identified by forest planners during a series of webinars held in spring of 2010.

| Name | States | Issue/Description |
|---|---|---|
| Climate change | IL, IN, IA, MI, MN, MO, WI | How will potential changes in climate affect forests resources in the future? |
| Driftless area | IL, IA, MN, WI | Unique ecology & forest resource — heavy development pressure. |
| Ecosystem services | IL, IN, IA, MI, MN, MO, WI | Ecosystem services often lack a formal market and these natural assets are traditionally absent from society's balance sheet; their critical contributions are often overlooked in public, corporate, and individual decision making. |
| Wildfire risk | IL, IN, IA, MI, MN, MO, WI | Where wildfire risk is identified as a critical issue, planning and management are needed to reduce a relatively high risk of wildfire. |
| Forestation/ reforestation | IL, IN, IA, MI, MN, MO, WI | Many forest types are becoming increasingly harder to maintain and/or regenerate due to a variety of factors including climate, disease, insect activity, deer herbivory, and invasive plants, to name a few. |
| Invasive species | IL, IN, IA, MI, MN, MO, WI | Non-native invasive species have the potential to reduce forest diversity and cause huge economic and ecological damage to forests. |
| Great Lakes Regional Collaborative (GLRC) | IL, IN, IA, MI, MN, MO, NY, OH, PA, WI | GLRC was assembled as a collective group of stakeholders to develop a strategic plan for the restoration, protection, and sustainable use of the Great Lakes. |
| Karst topography | IL, IA, IN, MO, KY | Porous landscape can lead to poor water quality. |
| Upper Mississippi | IL, IN, IA, MN, MO, WI | Water pollution, loss of migratory bird habitat, forest loss, and fragmentation. |
| Major watersheds that cross state boundaries | IL, IN, IA, MI, | All units of governments—federal to local—ultimately implement programs at a state or local level, so addressing resource concerns that cross state boundaries are challenging. |
| Promoting sustainable active private forest management | IL, IN, IA, MI, MN, MO, WI | The vast majority of private forestlands are unmanaged, undermanaged, or mismanaged, representing an untapped resource of timber, fiber, and associated forest-related employment opportunities. |
| Sustaining forest industry and markets | IL, IN, IA, MI, MN, MO, WI | The loss of forest products industries and markets constrains opportunities to manage forests and diminishes options for the production and enhancement of an array of ecosystem services. |

list of "potential" multistate priorities while others provided detailed information about each multistate priority they intend to pursue.

One-third of the multi-state priorities identified are ***issues*** that could benefit from collaboration among multiple states. Two-thirds of the multi-state priorities are specific landscape areas such as the Mississippi River watershed or the Chesapeake Bay watershed. The multi-state priorities listed here can be considered for focused projects and collaboration to further the regional, landscape-scale conservation approach (Tables 4 and 5; www.na.fs.fed.us/stewardship). It is important to recognize that there are landscape-scale areas that are located fully within one state. It is also important to recognize there may be issues impacting landscape-scale conservation that are best addressed by states individually. In addition, these tables do not necessarily include every area, issue, or effort that states might address or coordinate individually or together.

Table 4. All Multi-state Priority Issues identified by Illinois and regional neighbor states; in order of most-to-least states.

| Multistate Issue | States Naming | Description |
|---|---|---|
| Insects, diseases, and invasive plants that threaten forest health. | CT, IL, IN, IA, MD, MI, MN, MO, NJ, OH, VT, WI, WV (KY, KS, MS, NC, ND, SD, TN, VA) | Invasive non-native and native insects, diseases, and plant species have the potential to reduce forest diversity and cause huge economic and ecological damage to forests.<br>**Insect species specifically referenced for multi-state efforts include:**<br>• Asian long-horned beetle (IA, IN, MI, MN, MO, WI)<br>• Emerald Ash borer (IA, IN, KY, KS, MD, MI, MN, MO, MS, ND, NJ, TN, VA, WI)<br>• Gypsy Moth Slow the Spread effort (IA, KY, MO, MN, OH, TN, WI, WV)<br>• Hemlock Woolly Adelgid (GA, KY, MD, NC, NJ, TN)<br>• Sirex Wood Wasp (MD)<br>• Southern Pine Beetle (NJ, MD, MS, TN, TX, VA)<br><br>**Diseases specifically referenced for potential multi-state efforts include:** Beech Bark Disease (IA, MN, MO, WI), Butternut Canker (IA), Dutch Elm Disease (IA, MN, MO, WI), Hickory Mortality (IA), Sudden Oak Death (IA, MN, MO, WI), and White Pine Blister Rust (IA, MN, MO, WI)<br><br>**Examples of invasive plants** of concern include European buckthorn, garlic mustard, Japanese stilt grass and reed canary grass. Objectives for combating invasive plants include prevention and eradiation strategies and involved efforts within multiple Cooperative Weed Management Areas. There is a Midwestern Invasive Plant Network that is a regional organization of land managers, resource professionals, landowners, and private citizens who are dedicated to reducing the impact of invasive plant species in the Midwest. |
| Sustain forest industry and diversify markets | IL, IA, MI, MN, MO, PA, RI, VT, WV, WI (AL, FL, KY, NC, SC, TX) | The ability to effectively maintain and manage the region's forests and sustain rural forest-based communities is based in part on sustaining and diversifying forest product markets. Without this, it will be extremely difficult to manage forests in a sound, scientific manner. This issue also includes consideration of markets for utilizing urban wood waste. |

Table 4, continues on next page

Table 4 continued

| Multistate Issue | States Naming | Description |
|---|---|---|
| Reduce wildfire risk | IL, IN, MD, MI, MN, MO, OH, PA, WI, WV (AL, AR, FL, GA, LA, NC, SC) | Threats to forests and public safety from wildfire are addressed by individual compacts listed in the priority areas section, including: Big Rivers Forest Fire Management Compact, Great Lakes Forest Fire Compact, and the Mid-Atlantic Fire Compact. There is also a Fire Activity and Emissions Tracking System effort under way by several mid-Atlantic and southern states. |
| Promote sustainable, active private forest management and "Call Before You Cut" programs | IL, IA, IN, MI, MN, MO, OH, VT, WI, WV | A significant amount of private forestlands across the region may be unmanaged or undermanaged. Promoting sustainable active management of private forestlands can help to off-set the rising costs of forest ownership while contributing to the health, resiliency, and productivity of the region's forests. "Call Before You Cut" (listed by IN, MN, MO, OH, WI, and WV) programs provide information to landowners about proper timber sale contracts, encourage private landowners to contact professional foresters for advice/assistance with timber harvesting and forest management activities, and advise landowners to seek reputable loggers for timber sales. |
| Forestation, reforestation and diminished species restoration | IL, IA, MD, MN, MO, NJ, WI (AK, AR, NC, OK, TN, VA) | Healthy forests are essential for providing a broad range of ecosystem goods and services. Forestation and reforestation involves maintaining a balance of the many forest types within the landscape and is increasingly difficult due to the many interests of various forestland owners and managers. Also, many forest types are becoming increasingly difficult to maintain or regenerate due to factors such as climate change, disease, insect outbreaks, lack of fire disturbance, deer browsing, and invasive plants. Diminished species restoration was cited for certain tree species, including those below, which include nursery efforts for restoration of tree species under threat, such as ash seed banking. |
| Ecosystem services | IL, IA, MI, MN, MO, WI | Ecosystem services, as a conservation framework, recognize forest ecosystems as natural assets with economic and social value that can be used to promote more responsible decision making. The ability to communicate and capture the financial value of ecosystem services may help landowners—who currently do not benefit from the true value of their land and all of the public goods and services forests provide—keep their forests forested. One example effort is the Working Forest Carbon Offset project by the states of MI and IL and the Delta Institute. |

Table 4 continued

| Multistate Issue | States Naming | Description |
|---|---|---|
| Climate change | IL, MN, MO, NJ, WI (AL, FL, MS, NC, TX) | Important questions exist about the impact that potential changes in climate will have on forest resources. Many natural resource agencies within the region are interested in collaborating and sharing information in order to produce assessments that will provide managers and policy makers with the information needed to decide how to respond to climate change impacts. The Wisconsin Initiative on Climate Change Impacts (WICCI) is an example that could be expanded further. The Regional Greenhouse Gas Initiative (RGGI) was also referenced. |
| Water quality and forested watersheds | CT, IL, MI, MN, VT (NC) | Protecting and managing forested watersheds is essential to providing clean water. This issue is complex since units of government, from local to federal, and public and private forest landowners along the urban and rural continuum are all critical for addressing water quality issues in forested watersheds that cross state boundaries. Examples referenced include watersheds along the I-95 corridor, Lake Superior Basin, St. Lawrence Basin Water Resources Compact, Western Lake Erie Partnership, and several additional watersheds listed in the multistate priority areas section. |

Table 5. All Multistate Priority Areas identified by Illinois and regional neighbor states; in order of east to west Midwest. Illinois overlaps many areas but does not identify all areas as priority.

| Multistate Area | States Covered | States Naming | Description |
|---|---|---|---|
| Ohio River Basin and Wabash River Valley | IL, IN, OH, PA, WV, KY, TN | IN, OH, PA, WV | The Ohio River is 981 miles long, starting at the confluence of the Allegheny and the Monongahela rivers in Pittsburgh, Pennsylvania, and ending in Cairo, Illinois, where it flows into the Mississippi River and eventually the Gulf of Mexico. It is a direct source of drinking water for more than 3 million people. There is a growing recognition that conservation efforts to address water quality and urbanization issues in the states bordering the Ohio River would highly benefit the environment along this major national waterway. Forestry would be a major part of any such wide-scale effort. There are several efforts underway including an Ohio River basin study by the US Army Corps of Engineers; efforts around the Wabash River, which flows over 475 miles through Indiana, draining two-thirds of 92 counties (over 33,000 square miles) at its confluence with the Ohio below Mount Vernon, Ilinois. |
| Great Lakes Basin | IL, IN, MI, MN, NY, OH, PA, WI; Ontario Province | IL, IN, MI, MN, NY,OH, PA, WI | The Great Lakes (Superior, Michigan, Huron, Erie, and Ontario) contain 18% of the world's fresh surface water. The Great Lakes provide approximately 4.2% of all US drinking water. They are essential to commerce, trade, wildlife, and transportation of goods. The Nature Conservancy had identified the Great Lakes region as "critical" to the hundreds of millions of birds that migrate through North America each year. The collaborative initiatives listed below are currently active in the Great Lakes Region. Table 5, continue on next page |

Table 5 continued

| Multistate Area | States Covered | States Naming | Description |
|---|---|---|---|
| Great Lakes Forest Fire Compact | IL, IN, IA, MI, MN, WI; Ontario & Manitoba Provinces | MI, MN, WI | The Great Lakes Forest Fire Compact is an association that promotes effective prevention, suppression, and control of forest fires in the Great Lakes Region of the US and adjacent areas of Canada. |
| Great Lakes Regional Collaboration and Strategy | IL, IN, MI, MN, NY, OH, PA, WI | IL, IN, MN, NY, WI | Formed with input from the federal Great Lakes Interagency Task Force, the Council of Great Lakes Governors, the Great Lakes and St. Lawrence Cities Initiative, Great Lakes tribes (represented by the Great Lakes Indian Fish and Wildlife Commission), and the Great Lakes Congressional Task Force moved to convene a group now known as the Great Lakes Regional Collaboration (GLRC). This is a wide-ranging, cooperative effort to design and implement a strategy for the restoration, protection, and sustainable use of the Great Lakes. Several plans have been created to respond to the GLRC strategy including the Great Lakes Restoration Initiative, Lake Erie Protection and Restoration Plan, Michigan Great Lakes Plan, and Wisconsin Great Lakes Strategy. |
| Great Lakes Restoration Initiative | IL, IN, MI, MN, NY, OH, PA, WI | MI, MN, NY, WI | This initiative, led by the Environmental Protection Agency, targets the most significant problems in the region, including invasive aquatic species, nonpoint source pollution, and contaminated sediment. The EPA and its federal partners are coordinating with state, tribal, local, and forestry industry entities to protect, maintain, and restore the chemical, biological, and physical integrity of the Great Lakes. |
| Upper Midwest and Great Lakes Landscape Conservation Cooperative | IL, IN, IA, MI, MN, NY, OH, PA, VT, WI | IN, MN, WI | Landscape Conservation Cooperatives are Department of the Interior-led management-science partnerships that inform integrated resource management actions addressing climate change and other stressors within and across landscapes. This area includes unparalleled deep-water habitats, beaches, coastal wetlands, more than 35,000 islands, major river systems, boreal forests, and prairie hardwood transition zones. |
| Upper Mississippi Watershed | IL, IN, IA, MN, MO, WI | IL, IA, MN, MO, WI | Some issues in this watershed are water pollution, loss of migratory bird habitat, and forest loss and fragmentation. There are many overlapping initiatives and opportunities for partnership. |
| Moraine Forest | IL, IN, MI, WI, | IN | The Valparaiso Moraine is a terminal moraine around the Lake Michigan basin. It is a band of high, hilly terrain made up of glacial till and sand that reaches an elevation of nearly 300 feet above the level of Lake Michigan at its maximum height and 17 miles wide at its maximum width in Indiana. |
| Central Hardwoods Bird Conservation Region and Joint Venture | AL, AR, IL, IN, KY, MO, OK, TN | IN, MO | Members of the Central Hardwoods Joint Venture formed a partnership, beginning in 2000, to enhance bird conservation within the Central Hardwoods Bird Conservation Region. The partnership works to maintain native bird populations and implement the conservation objectives of the various national and international bird conservation plans under the North American Bird Conservation Initiative. |
| Chicago Wilderness | IL, IN | IN | Chicago Wilderness is a regional alliance active in Chicago and Gary, Indiana, that connects people and nature. The partnership includes more than 250 organizations that work together to restore natural resources, protect the region's lands and waters, and to improve the quality of life for people. |
| Big Rivers Forest Fire Management Compact | IL, IN, IA, MO | IL, IN, MO | This compact encompasses the major rivers found in Illinois, Indiana, Iowa, and Missouri. Members of the compact share information about wildfire prevention and the *Firewise* programs, as well as operations, training, and mutual aid information. |

Table 5 continued

| Multistate Area | States Covered | States Naming | Description |
|---|---|---|---|
| Karst Topography Areas | IL, IN, IA, MI, MN, MO, SD, NE | IL, IN, IA, MN, MO | The Karst areas have a geology of limestone or other soluble rock that is characterized by caves, sinkholes, and sinking streams. These areas are important for native bat populations. |
| Driftless Area Initiative | IL, IA, MI, MN, WI | IL, IA, MN, WI | The Driftless Area Initiative is a partnership of six RC&D Areas in four states. The area is characterized by karst topography with shallow limestone bedrock, caves, and sinkholes. Several watersheds in the area have been designated as priority watersheds for the Upper Mississippi Forest Partnership. Maintaining a high-quality forest resource is a priority for the Initiative. |
| Midwest Glacial Lakes Partnership | IL, IN, IA, MI, MN, WI, ND, SD | MN | The Midwest Glacial Lakes Partnership works to protect, rehabilitate, and enhance sustainable fish habitats in glacial lakes greater than 10 acres in size. The goals are to protect and maintain intact and healthy lake systems; prevent further degradation of fish habitats that have been adversely affected; reverse declines in the quality and quantity of aquatic habitats in lakes to improve the overall health of fish and other aquatic organisms; and increase the quality and quantity of fish habitats in lakes that support a broad natural diversity of aquatic species. |
| Lower Mississippi Bottomland Areas | IL, MO, KY, TN | MO (KY) | This partnership reserves bottomland forests and forest fragmentation with restoration potential. One example is the River Bends Conservation Opportunity Area that spans Missouri and Kentucky. |
| Missouri and Mississippi Rivers Confluence | IL, MO | MO | Habitat restoration and recreational opportunities are important in this area. |
| St. Louis Metro Urban Area | IL, MO | MO | Emphasis is on urban areas that transcend state lines. |

# National Priorities and Priority Areas (USFS)

## Illinois Forest Action Plan Successes Aligned with USFS National Priorities:

The 2008 Farm Bill amended the Cooperative Forestry Assistance Act of 1978 to require each state and territory to develop a long-term, statewide assessment and strategies of their forest resources. These assessments and strategies are referred to as Forest Action Plans and they focus on three national priorities established by the USDA Forest Service, State and Private Forestry section:

1. Conserve and manage working forest landscapes for multiple values and uses.
2. Protect forests from threats.
3. Enhance public benefits from trees and forests.

**Projects in Illinois awarded competitive funding grants from northeastern area state and private forestry since the Illinois Forest Action Plan**

The Illinois Forest Action Plan (IFAP) and its assessments have been noticed and remain a partial focus of most significant forestry partner organizations in Illinois. Each year Illinois has been awarded one or more competitive Northeastern Area State and Private Forestry Grant project(s) based on their forestry merit and their alignment with the assessments and/or strategies of the IFAP. Grants have included a good mix of urban and community projects, fire, forest health, and stewardship-based private forest management. All grants have been aligned with the assessments and Illinois's five priority concerns outlined in the IFAP. A list of these projects and those from other states and organizations can be found on the USDA Forest Service Northeastern Area State and Private Forestry website.

**Universal Illinois Forest Management Plan cements commitment to wildlife habitat**

The Illinois Forest Management Plan (IFMP) was greatly influenced by the IFAP assessments and the historical commitment to expanding forestry and wildlife habitat by the Division of Forest Resources. In 2010, the IDNR Forestry Stewardship Forester, the Illinois Extension Forester, the Illinois Tree Farm Director, and USDA NRCS State Forester tasked themselves with developing, outlining, and approving universal forest management plan standards that all Illinois forest management plans will follow so that each meets all the standards of the Tree Farm System, USDA NRCS EQIP 106, Forest Stewardship, and the Illinois Forestry Development Act (tax-law) programs. Making the management plan universal allows consultants to write more and better plans and allows IDNR to be efficient in their review and implementation of Forest Stewardship and other plans. Illinois plans, since the winter of 2011/2012, now require wildlife habitat considerations and alignment with the principles found within the Illinois Wildlife Action Plan.

**IFDA — IFA Partnership: Forestry Communication Initiative**

Each year the Illinois Forestry Development Council manages a budget authorized under the Illinois Forestry Development Act (IFDA) to forward and promote forestry across Illinois. In Illinois fiscal year 2015, the IFDC awarded a project grant to the Illinois Forestry Association (IFA) as a forestry communication initiative. This project collects and builds an email database "group" for real-time forestry communication in Illinois that will be used by both the association, to email information, news, or issues; or by the forestry division, to email business and communications. In the past, important communication on a forestry issue or opportunity was done by inefficient, time-consuming word of mouth, phone calls, and US mail and was so burdensome the effort was rarely undertaken. The initial target is the 11,000 landowners already participating in Illinois's IFDA Private Land Forestry Management Program. A planned continuation of this partnership is expected in the Council's 2016 and 2017 budget years. Thousands more forestry-minded landowners—especially those participating in other IDNR land management programs—will hopefully be added. There are approximately 200,000 nonindustrial private forest landowners in Illinois. The forestry communications email group will not be limited to forest landowners and can include anyone with an interest in forestry or forestry issues. Ultimately, this type of forestry communication in Illinois results in connecting the IFAP itself and all related current issues to landowners, stakeholders, and citizens at large.

**Wood Utilization and Marketing Program Forester**

The IFAP noted the decline of the forest industry and lack of professional foresters in Illinois as huge concerns. Our State Forester was, appropriately, one of the first persons to take action on the IFAP to address these two concerns and in 2011 began the efforts which resulted in hiring in 2013 a Wood Utilization and Marketing Forester position at IDNR headquarters that had been vacant since year 2000. A number of positive effects have resulted in the two-year period since hiring that forester, with many essential and important projects ahead. Because the IDNR has less than 20 professional foresters within the division, each head-count added or replaced is significant to our operations and our responsibilities.

**Fire Program and Prescribed Burn Associations**

The IFAP documented the changing dynamics and loss of the Illinois oak-hickory forests due to lack of disturbances. Fire and harvesting are the primary stand and landscape disturbances that promote oak-hickory forest types in Illinois. The Illinois IDNR Fire Program, which is two-faceted, has grown in response. The staff of IDNR and other related divisions outside and inside IDNR are now required to have minimum annual classwork, physically pass an annual refresher, and carry a Prescribed Burn Managers card. The IDNR Forestry Program Manager has expanded the Illinois fire program to train hundreds of rural fire district personnel and more division foresters. The fire program also maintains an entire Illinois crew of re-carded firefighters available for NWCG fire duty and has been, for the last decade, active every season. The prescribed burn and wild land fire training programs and grants have expanded the capacity for the IDNR, its partners, and allied agencies to be better geared and more efficient in their expanded use of fire on the landscape. Noteworthy is a prescribed fire project partially funded by a competitive Northeastern Area State and Private Forestry Grant. The Southern Illinois Prescribed Burn Association (SIPBA; www.sipba.org), a multiple county burn association, functions like a cooperative to deliver prescribe fire to mostly private forestland in Illinois's most important forest region in southern Illinois. The association was formed in 2006. The organization conducts prescribed burns to restore over 1,000 acres of habitat each year, with the partnership of IDNR, Southern Illinois University, the National Wild Turkey Federation, University of Illinois Extension, and the Shawnee Resource Conservation and Development Area.

**Cooperative Weed Management Areas (CWMAs) and Invasive Plant Partnerships**

There are three nonprofit organizations across Illinois, which organize invasive plant initiatives in cooperation with state, federal, and other nonprofit organizations to work with the public across jurisdictional boundaries. The first of these, The River to River Cooperative Weed Management Area (CWMA; www.rtrcwma.org) in southern Illinois was established in 2006 to coordinate invasive species control across the southernmost 11 counties in Illinois. The CWMA was inspired by the IFAP assessment, and received a Northeastern Area State and Private Forestry Grant to survey and map bush honeysuckle, Illinois's worst forest understory invader between the Ohio and Mississippi rivers. The mapping project was successful and the CWMA remains active in battling the invasion of this unwanted forest shrub, as well as coordinating many other invasive species control and outreach projects. The Northeastern Illinois Invasive Plant Partnership (NIIPP; www.niipp.net) organizes invasive plant control and outreach projects across the northeastern 18 counties in Illinois. The newest nonprofit organization, the Headwaters Invasive Plant Partnership (HIPP; www.ilhipp.org), was established in 2015, and includes 11 counties in east-central Illinois, where the headwaters of the watersheds of the Embarras, Kaskaskia, Little Vermillion, Mackinaw, Sangamon, and Vermillion rivers are located. These organizations seek to supplement the ongoing efforts of their partners in protecting forest resources from invasion.

**IL CREP 1400 Conservation Easements and Required Timber Harvest Plans**

The State of Illinois Conservation Reserve Enhancement Program (CREP) has developed approximately 1,400 permanent conservation easements with private landowners owning forest and nonforestland in river bottoms and directly adjacent lands across Illinois' two biggest watersheds. Owners in the Illinois and Kaskaskia River basins are eligible if they have active federal CRP or CREP contracts in or adjacent to a floodplain and after detailed property inspection and an internal technical review. The IFAP illustrated how important the need for professional foresters is across Illinois, and so CREP program managers are now working with the forestry division to approve timber harvest plans for any CREP easement landowners who wish to cut timber on their easement. Approval of a harvest involves either a qualified forestry consultant and/or a state service forester to review, further develop, and/or

approve timber harvest plans, assuring each addresses silvicultural management and forest regeneration principles.

**Tree City USA Builds Healthy Resilient Communities**

Tree City USA and its companion Growth Award are a significant part of the statewide IDNR Urban and Community Forestry Program. Tree City USA, et al. is sponsored by the USDA Forest Service, National Arbor Day Foundation, and the National Association of State Foresters. Nearly 7.5 million people live in a Tree City USA designated community. Since the 2005 Illinois Forest Action Plan, the Tree City USA participation, administered by IDNR Urban and Community Forestry Program staff, has been sustained with participation going from 173 to 184 in 2016. With other states adding professionally dedicated urban and community forestry staff, Illinois' ranking of third in the nation (for community participation) gets harder to sustain each year. This program provides IDNR with an opportunity to provide technical outreach directly to communities and has remained a primary responsibility of the IDNR Urban and Community Forestry Program.

**Urban and Community Forestry Partnerships Enhance Services; Protect Our Local Forests**

Strong urban and community forestry education, action, and partnerships have been established in Illinois. These partnerships have always been used to create positive energy, projects, and progress throughout the state. Active stakeholders assist IDNR on the important Urban and Community Forestry goals and objectives as outlined in the Forest Action Plan and use the document as guide for some of their actions and initiatives. As a collective effort, the Forestry Development Urban and Community Forestry Committee compiled and synthesized previous work to create the current Addendum 1.0 to the IFAP (2014). The Urban and Community Forestry Committee continues to meet regularly to monitor, assess, and strategize on that work and on current issues, which will be included in the updated 2016 IFAP. Significant partners to the IDNR Division of Forest Resources Urban Program include the USDA Forest Service, National Arbor Day Foundation, the Illinois Arborist Association/International Society of Arboriculture, Trees Forever, Morton Arboretum, Openlands, U of I Extension, Heartland Conservancy, and Illinois Association of Soil and Water Conservation Districts.

**Urban Forestry STRIKE-TEAM Helps Natural Disaster-impacted Communities**

A new initiative since the development of the Forest Action Plan is technical assistance through the Urban and Community Forestry Strike Team. This initiative has gained momentum through a partnership with the USDA Forest Service and Trees Forever. A strong tornado impacting Ottawa and Naplate, Illinois, recently gave IDNR the opportunity to deploy the highly trained USDA Forest Service-certified team of Illinois arborists, urban foresters, and municipal leaders called the Illinois Strike Team Specialist. Their goal was to assess the residual tree risk after the initial debris was removed from the communities. These actions help to protect citizens from hidden damages and also conserve the communities remaining forests when they pose no visible threat. After the rapid tree risk assessment that uses FEMA guidelines, Trees Forever, working with IDNR, provides additional technical assistance to build a more resilient community forest for the future. This was the first state model in the northeastern USA and serves as a positive solution across all interests for other states and regions in providing assistance when urgent needs arises from natural disasters or storms.

**Be a Hero Transport Zero Campaign**

The Illinois Division of Fisheries has been working with the Illinois-Indiana Sea Grant Program on the aquatic message of the "Be a Hero" campaign since 2014. The grant team asked IDNR for volunteers to develop a companion land message to address primarily, invasive, and exotic plants and insects. Due to the IFAP, and it confirming the threat of changing forest dynamics and forest health issues, the Stewardship Forester of the Illinois Division of Forest Resources volunteered to assist. The IDNR Invasive Species Coordinator (also a forester) volunteered as a second. Both worked with sea grant specialists on a message and main points to create a parallel icon for terrestrial land threats and invaders affecting forests.

For more information visit TransportZero.org and ReleaseZero.org. To learn more about becoming a Be a Hero partner, contact Pat Charlebois at charlebo@illinois.edu.

*Illinois's Forest Action Plan threats and strategies align with USFS National Priorities:*

PARTNER WITH THE
BE A HERO
CAMPAIGN
AND HELP ILLINOIS FIGHT INVASIVE SPECIES

The 2017 Illinois Forest Action Plan identifies seven main threats and strategies concerning forest resources. The following state and private forestry objectives, listed and numbered under each federal forestry concern (in bold), are all addressed in Illinois.

**Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
Identify and conserve high priority forest ecosystems and landscapes (Objective 1.1).
Actively and sustainably manage forests (Objective 1.2).

**Protect Forests from Threats**
Restore fire-adapted lands and reduce risk of wildfire impacts (Objective 2.1).
Identify, manage, and reduce threats to forest and ecosystem health (Objective 2.2).

**Enhance Public Benefits from Trees and Forests**
Protect and enhance water quality and quantity (Objective 3.1).
Improve air quality and conserve energy (Objective 3.2).
Assist communities in planning for and reducing forest health risks (Objective 3.3).
Maintain and enhance the economic benefits and values of trees and forests (Objective 3.4).
Protect, conserve, and enhance wildlife and fish habitat (Objective 3.5).
Connect people to trees and forests; engage them in environmental stewardship activities (Objective 3.6).
Manage trees and forests to mitigate and adapt to global climate change (Objective 3.7).

The following seven Illinois forest resource threats, and the strategies to address them, align with each state and private forestry concern (in **bold)** and the State and Private Forestry (SPF) objectives listed.

1. *Oak-Hickory Forests*
   - **Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
   - **Protect Forests from Threats**
   - **Enhance Public Benefits from Trees and Forests**

SPF Objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7

2. *Large Forest Blocks*
   - **Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
   - **Protect Forests from Threats**
   - **Enhance Public Benefits from Trees and Forests**

SPF Objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7

3. *Forest Health Threats*
   - **Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
   - **Protect Forests from Threats**
   - **Enhance Public Benefits from Trees and Forests**

SPF Objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7

4. *Forestry Professionals*
   - **Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
   - **Protect Forests from Threats**
   - **Enhance Public Benefits from Trees and Forests**

SPF Objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7

5. *Illinois Forest Industry*
   - **Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
   - **Protect Forests from Threats**
   - **Enhance Public Benefits from Trees and Forests**

SPF Objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7

6. *Urban and Community Forests*
   - **Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
   - **Protect Forests from Threats**
   - **Enhance Public Benefits from Trees and Forests**

SPF Objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7

7. *Other Threats*
   - **Conserve and Manage Working Forest Landscapes for Multiple Values and Uses**
   - **Protect Forests from Threats**
   - **Enhance Public Benefits from Trees and Forests**

SPF Objectives 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7

Because of present and future threats to Illinois forests, key stakeholders as well as a diverse range of conservation specialists conclude the strategies listed below are the most important priorities for Illinois forests and forest resources. Many of the strategic forest resource actions, and the threats that necessitate these strategies and actions, were derived from the original research and assembly of the 2010 Illinois Forest Action Plan. In addition, many goals and action items from the 1999 IFDC publication Realizing the Forests' Full Potential: Assessment and Long-range Action Plan for Forest Resources in Illinois are included in the strategies that follow. The 1999 planning document continues to be relevant and is found as Appendix F It is available on the IFDC website http://ifdc.nres.illinois.edu/reports .

These statewide forest resource strategies must ultimately be addressed if Illinois is to achieve and sustain long-term health and productivity of forests. Illinois forests are environmentally and socially important. Addressing threats by employing these core strategies will yield healthy, productive future forests which are of critical importance.

These seven strategies are not in priority order—they are numbered and lettered for reference only. Implementing each of these equally important strategies is much more important than prioritizing them in advance. Prioritization of forestry actions is discussed in the section following this Strategies and Actions section.

# Illinois Forest Resource Strategies and Actions

**Strategy 1. Save and Expand Oak-Hickory Forests**

A. Intensify canopy disturbances, mid-story control, and reintroduce fire into the forest system.

B. Forest disturbances of canopy, subcanopy, and understory that address declining tree species diversity must be front and center of our efforts.

C. Timber stand improvement (TSI) practices are necessary to favor bottomland and upland oak forests.

D. Favor impacted oak species through forest disturbance. Forest disturbance also benefits shortleaf pine and other desirable native hardwood species.

E. Full funding of forestry incentive programs is needed to encourage private landowners to undertake TSI, prescribed burning, and other beneficial stewardship activities.

F. Funds collected from the 4% state timber fees must be made available to cooperating forest landowners.

G. Pioneer cooperative efforts, such as the Southeastern Illinois Prescribed Burn Association, among nonindustrial private forest landowners and state agencies to help reverse declines in plant biodiversity.

H. Enhance tree biodiversity and oak dominance for the benefit of wildlife habitat management.

I. Strengthen markets for small, poorly formed, or decadent trees that interfere with regeneration to benefit development of oak species in forest understories.

J. IDNR should serve as a statewide leader by demonstrating stewardship practices that enhance biodiversity in state forest lands and other IDNR land.

K. Develop educational programs on the essential role of disturbance, including fire, in Illinois forest ecosystems that target private forest landowners. Emphasize the importance of disturbance in the maintenance and restoration of desired forest traits.

L. Incorporate a full appreciation in education curricula at all levels for the legacy of human activities on forest ecosystem function and composition.

M. Partner and co-develop wildlife and forestry efforts to keep oak as critical wildlife habitat.

N. Convert marginal farmland to forests having a mix of oak, native forest, and timber species.

O. Practice active oak forest management in state forests.

P. Fund and implement invasive species control especially for bush honeysuckle on all forestland. Early control prior to reaching epidemic levels is most effective.

Q. More oaks should be planted in city, state, county parks, and open spaces.

**Strategy 2. Save Existing and Create More Forest Blocks of 500 Acres or Greater**

A. Programs geared toward encouraging voluntary coordinated management across ownerships could increase the positive impacts of forest management.

B. Property tax and zoning policies that encourage good forest stewardship need to be developed and propagated to encourage sound utilization and stewardship practices in critical areas to keep more forest in “forest” land type.

C. In urbanizing areas, preserve and enhance amenity values of forests through regional land-use planning that encourages conservation of greenways, riparian areas, and, where appropriate, wildlife travel corridors.

D. Strengthen the forest products industry to maintain forestry as a preferred land use and to reduce fragmentation.

E. Expand outreach programs to respond to the evolving interests and priorities of the land ownership base.

F. Conserve, expand, and connect working forest landscapes to retain all existing Illinois forests, improve their management, and convert 300,000 acres of marginal cropland to forest-cover.

G. Connect forests via reforestation to create 500-acre and larger contiguous forestlands.

H. State tree nurseries must remain open to produce genetically sound planting stock.

**Strategy 3. Mitigate Forest Health Threats**

A. Invasive species management is a concern among natural heritage, wildlife, and forestry interests. Cooperative weed management programs like the River to River Cooperative Weed Management Area should be replicated throughout the state.

B. Invasive plant species management will go hand in hand with other forest management practices.

C. Prevent further invasions by continued early detection and intervention efforts including information dissemination to public employees, private enterprises, and the public.

D. Research, educational materials, and volunteer coordination by Illinois Natural History Survey scientists play critical roles in this effort. Adequate funding and staffing must continue for the interdisciplinary IDNR Invasive Species Working Group.

E. Integrate approaches to exotic species control tailored to local conditions.

F. Landowners who harvest timber should be able to recoup severance tax payments to support invasive species management practices in situations where both exotic and native invasive species threaten the long-term sustainability of timber production.

G. Eradicate, control, and prevent the introduction of invasive exotic species to new areas.

H. Manage trees and forests to mitigate and adapt to global climate change.

**Strategy 4. Hire More Forestry Professionals**

A. As awareness of forest stewardship and incentive programs grow, the demand for a professional state support system will be greater than ever.

B. Retain professionals for informational, educational, and outreach programs that explain forest importance and forestry outputs such as oak regeneration, prescribed burning, habitat fragmentation, water quality relationships, ecosystem services, or enrollment in private forestry management programs.

C. Increasing the number of state forestry professionals and technical personnel must be the first step in reestablishing a win-win relationship that ensures the vitality and productivity of Illinois forests. Without adequate levels of staffing, forest resource conservation in our state will suffer serious setbacks.

D. The Illinois Forestry Association has advocated for full staffing of IDNR district forestry personnel, increased support for forestry extension, and improved collaboration among state, local, and federal natural resources management agencies and organizations.

E. Initiatives to encourage partnerships among agencies and organizations within the forestry community will be necessary to address this need and prevent duplication of effort.

F. State support for university-based outreach and extension efforts, such as the Illinois Virtual Forest, must be maintained because educated citizens become land stewards. By educating Illinois citizens about forest health and sound management practices, we protect both market

and nonmarket values of Illinois forests for citizens, communities, and the state now and in the future.

G. Illinois forest landowners would benefit from an expanded pool of knowledgeable individuals to provide forest management services to effectively undertake active stewardship and its attendant economic benefits.

H. Illinois' increasing number of private forest landowners has also created a situation in which many landowners are unaware of the value of their timber and how, with a professionally prepared management plan, it can be harvested in an environmentally responsible manner.

I. Pursue cooperation with other land management agencies and interests and promote education programs such as the American Forest Foundation's Project Learning Tree should to broaden public understanding of forest management.

J. Expand cooperation among state, other public lands, and private owners to demonstrate good land stewardship practices as a key resource for private landowners.

**Strategy 5. Statewide Focus on Illinois Forest Industry**

A. Illinois is forfeiting most of its forest-generated wealth to adjacent states by discouraging the development of a vibrant wood products sector. Legal and institutional supports are needed in order to develop an industry that matches the quality of the resource.

B. The number of primary wood-using firms in Illinois has sharply declined due to comparatively high workers' compensation and unemployment insurance rates, as well as energy and transportation costs—all equaling an unfavorable business climate for wood products.

C. Institutional technological and marketing support for the forest products industry is at an all-time low from the failure to replace retired wood products faculty in the forestry programs at University of Illinois and Southern Illinois University.

D. Many Illinois secondary wood-using firms remain unaware that quality Illinois hardwoods are available and no central market exists to bring buyer and seller together.

E. State and county economic development programs should increase support for forest-based industries. Assistance to increase marketing capacity, improve access to financing and capital, and revised taxation formulas will be necessary to stimulate entrepreneurial business development in the Illinois forest products industry.

F. To add value to material once regarded as waste, Illinois will need to investigate new technologies and markets for waste wood, including urban wood waste, as a commercial/institutional heating fuel.

G. Initiate partnering with public agencies, private enterprises, and university researchers to demonstrate the potential of portable band sawmills and dehumidification dry kilns to produce high grade lumber from trees removed from urban forests.

H. Public-private partnerships and state or regional integrated waste management programs will be needed to increase the rate of waste wood recovery, including urban trees as versatile assets, and bring them to market in Illinois.

I. Improve and expand the capacity and marketing potential of Illinois wood-products industries so that the available forest resources can be used most effectively and the increased demand for forest products can be met.

**Strategy 6. Expand Urban and Community Forests and Forestry**

A. There is a need to understand the composition of the urban forest and the operations capacity of those who own and manage the forest. With appropriate data and analysis, landowners and managers across the state will

be able to make informed decisions for urban forest management. See Appendix A for additional information.

B. A sustainable Illinois urban forest promotes trees as part of urban infrastructure delivering many benefits. Work to integrate adaptation strategies into maintenance practices, improved species lists based on environmental impacts, and infrastructure features will help to support the urban forest in a time of change. See Appendix A for additional information.

C. Increase the number of credentialed individuals performing work in Illinois along with supporting and adding incentives for additional tangential training for Best Management Practices, American National Standards, regultory issues and building program capacity. Additionally, engage elected officials to build awareness and advocacy potential of state forestry goals and educate and engage developers, contractors, and utilities professionals who construct or manage facilities in the urban forest. Providing and expanding opportunities for youth education and engagement prepares this demographic to become forestry professionals and advocates. See Appendix A for additional information.

D. Invasive pests, plants, and diseases threaten the health of Illinois' urban trees. Ongoing education and outreach to professionals and residents must be provided to ensure the highest level of awareness and engagement statewide. See Appendix A for additional information.

E. Public and private sector partnerships throughout Illinois are needed to develop statewide urban and community forestry needs. Partnerships provide research, development, and dissemination of urban and community forestry information and promote best management practices. See Appendix A for additional information.

F. Key to success of urban and community forestry in Illinois is recognition of the importance and benefits of urban trees to the state and its citizens. Urban and commnity forestry needs to receive support and assistance from state legislators and policy makers. See Appendix A for additional information.

G. The Urban and Community Forestry Committee and the IFDC should work with the IDNR to identify dedicated funding for the State Urban and Community Forestry Program and to support continued funding from the U.S. Forest Service. See Appendix A for additional information.

H. It is critical for the continued success of the state Urban and Community Forestry Program that additional dedicated Urban and Community Forestry field staff be hired. See Appendix A for additional information.

**Strategy 7. Realize Other Unmet Critical Forest Resource Needs**

A. Initiate legislation for permanent forestry and forest conservation funding (like the State of Missouri and others have). This is one of the most critical strategies for Illinois.

B. Ensure solid funding for the Illinois Forestry Development Council (IFDC).

C. Maintain six regular meetings and full attendance to IFDC meetings annually.

D. Strengthen and expand conservation education programs that instill a stewardship and forest management ethic that results in economic, productive, attractive, and healthful forests throughout the state.

E. Update and amend ginseng conservation laws and improve reporting systems.

F. Disseminate proven information about how increased water quality and water conservation benefit from actively managed forestland.

G. Contact all new Illinois forest landowners of 10 acres or more via assessors and/or real estate lawyers.

H. Actively engage with all stakeholders to reduce the incidence of timber harvests that remove all or only the best trees or best species in a forest, a practice known as "high-grading."

# Prioritizing Forest Resource Strategies and Actions

While the magnitude of Illinois forestry professionals, forestry funding, and forestry activity support pale in comparison to the more heavily forested states and territories; the quality, experience, expertise, and longevity of forest resource professionals here in both the private and public sector is outstanding. Forestry funding is often scarce or unstable in Illinois. Funds generated by the Division of Forest Resources to support IDNR professional foresters and forestry programs are about 10% of the division's annual expenditures (at the current staffing level and assuming annual forestry cost-share spending). Though forestry support and partnering is slowly expanding statewide, critical mass for widespread support, for stable, ample funding and for initiating forest resource strategies is absent in Illinois.

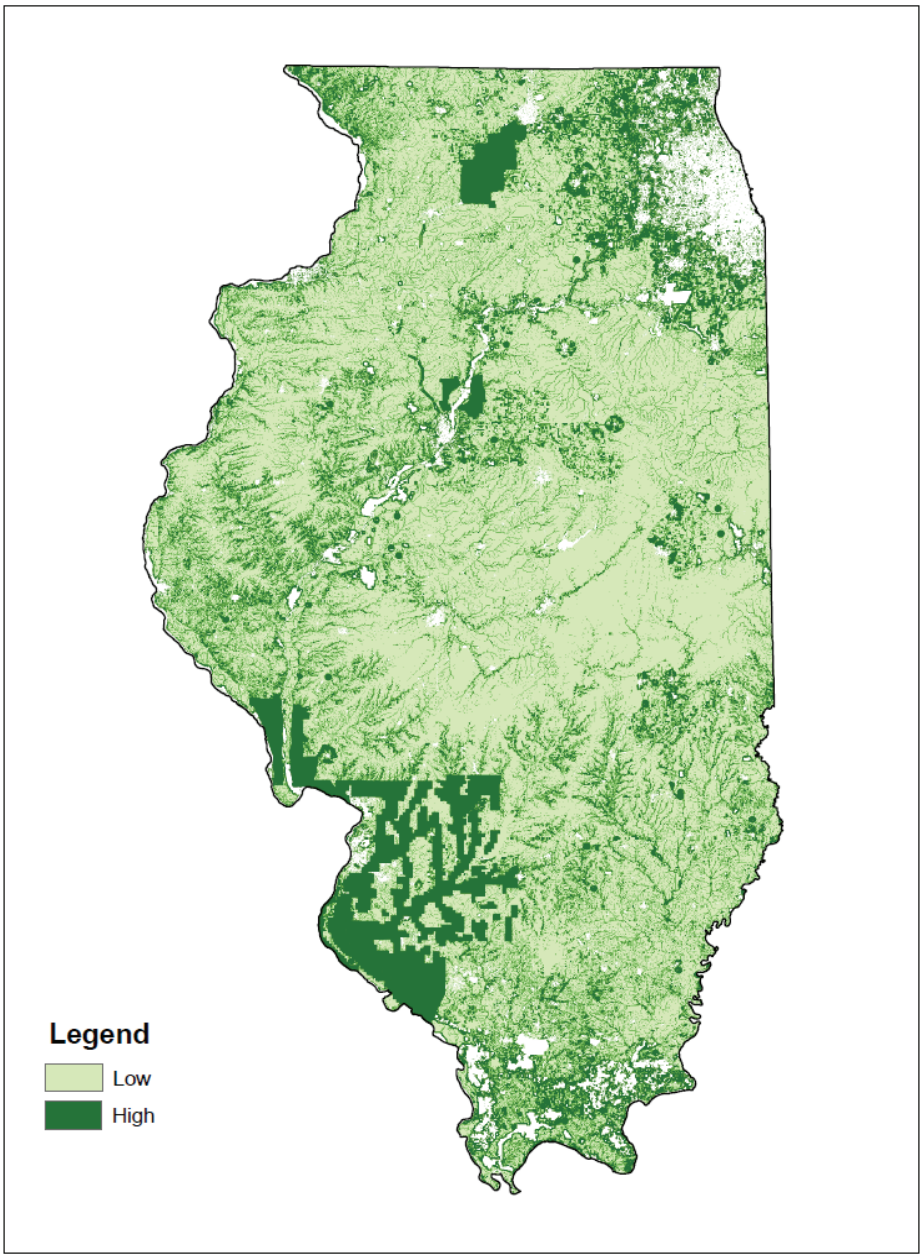
To date, leveraging on grants and partnering forest dollars on mutual or urgent concerns have had some success in addressing Illinois priority forest resource concerns. Priority projects and actions usually occur infrequently and at a slow pace. Partnering of multiple organizations and forestry dollars on priority environmental concerns has become a common federal, state, and local practice. The Division of Forest Resources has, due to fiscal necessity, trended toward prioritizing only projects that have funding mechanisms or leveraged dollars. The division currently barely meets its vital State of Illinois missions and mandates.

The **primary year-in, year-out priorities** for the Division of Forest Resources are often only those activities that meet the focus or requirements for federally supported programs such as Forest Stewardship or Urban and Community Forestry, without the luxury of additional or expanded initiatives. Some of the statewide forestry division needs and priority areas are, for example: that township and community plans are needed most in the southern seven counties; that urban and community forest plans are needed in the populated, established, village, cities, and towns; that forest management incentives and programs should occur in the forested and historically forested areas (Fig. 21; dark green High Priority areas) and that Forest Legacy Program easements are only forwarded if they occur in a designated Forest Legacy Area (Fig. 23).

**Secondary priorities** (for the Division of Forest Resources or IDNR) are the measure of material or financial support of active, significant partners. A simple measure of how many significant partners materially, physically, or financially participate should gauge decisions between projects and efforts that would otherwise have similar priorities. Since so many important strategies exist beyond the federally supported programs and state mandates, the forestry division and the resource itself need significant funding and partners to initiate additional strategies.

**Tertiary priorities** exist from a broad range of interests and exist at different scales. When a project or an effort is also of significance to important conservation and forestry partners, such as the IDNR Division of Wildlife, the USDA, a neighboring state government or significant forestry organization; then the tertiary priority is higher.

For example, if a project is in a Light Green Priority Stewardship Area (see next page), it is ranked as a low priority. If project is in a Dark Green, High Priority Stewardship Area (see next page), it is ranked as a high priority. If a project has active/significant partners, the project ranking will increase. The more partners, the higher the ranking and higher weight a project has for tie-breaker situations.




**EXAMPLE**: State Agency Initiated Rural Forest Management Project

**Primary:** If this project is in the white area on the Stewardship priority map (above); then the rank is low and the project would not be initiated. If this is in a light green priority Stewardship area, it is a normal priority and rank is moderate. If this is in a dark green high priority Stewardship area, it is determined to be a high priority project and the rank is high.

**Secondary:** The project has two additional financially participating partners. The higher the number of participating significant partners, the higher a priority it is to initiate the project.

**Tertiary:** This example has one shared important state issue with the Illinois Wildlife Action Plan, two shared priorities with neighboring state forestry agencies, and meets three USDA Forest Service State and Private Forestry objectives. The higher the number of shared issues or areas, the higher priority the project should be.

Table 6. Strategic matrix of Illinois Forest Resources.

| Threat to Forest Resources | Strategies to Mitigate Threats | Resources Required | National Objective |
|---|---|---|---|
| Oak Forests Threatened | TSI and Disturbance | Federal Funding, IDNR Forestry Funding | Objective 1.1<br>Objective 1.2<br>Objective 2.1<br>Objective 3.5 |
| Large Forest Blocks Now Critical | Tax Relief for Forest Landowners, Reforestation | Federal Funding, IDNR Forestry Funding | Objective 1.1<br>Objective 3.1<br>Objective 3.5 |
| Forest Health Threats High | Cooperative Weed Management Programs, Forest Monitoring | Federal Funding, IDNR Forestry Funding | Objective 2.2 |
| Forestry Professionals Disappearing | Increase IDNR Forestry Hiring, Incentivize professional consultants | Federal Funding, IDNR Forestry Funding | Objective 3.6 |
| Illinois Forest Industry Decline | Lower Tax Rates & Workman Compensation, Research and Applied Technology | New Legislation | Objective 3.4 |
| Urban and Community Forest Very Important | Increase IDNR Forestry Funding Incentives for U&CF | Federal Funding, IDNR Forestry Funding | Objectives 3.1-3.7<br>Objectives 1.1, 2.2 |
| Historic, Critical Forest Resource Needs Still Exist | Re-evaluate Past Long-range Plans | Council and IDNR Forestry Critique | Objective 1.2<br>Objective 3.1<br>Objective 3.2 |

Table 7. Challenges of the IDNR according to the 2017 draft Forest and Woodlands Campaign of the Illinois Comprehensive Wildlife Conservation Plan and Strategy.

The actions included within the forest/woodlands campaign section are provided to help guide the next 10 years of implementation. While other actions may be needed and larger goals could be set, the campaign prioritizes the actions below as realistic, achievable, and most needed to aid in reaching the overarching goals of for Illinois forest and woodland wildlife resources:

1. Establish desired number and distribution of viable populations for each Species of Greatest Conservation Need (SGCN).

2. Manage habitats through promoting natural processes, desired structure, and disturbance regimes for the benefit of native species.

3. Develop resiliency and connectedness into habitats so species can adjust to landscape and environmental changes.

Table 8. Goals for improving forest habitat according to the 2017 draft Forest and Woodlands Campaign of the Illinois Comprehensive Wildlife Conservation Plan and Strategy.

1. Implement sustainable forestry practices, including forest stand improvement, prescribed fire, timber havesting, and invasive species control to enhance oak dominance and maintain understory and herbceous layer diversity on 1 million acres of forest and savanna/barren/open woodland habitat. Restore and manage small woodlots as open woodlands/savannas as appropriate.

2. Increase statewide forest and woodland acreage by 350,000 acres, emphasizing restoration of floodplains and riparian corridors, increasing ecological connectivity among forests and other habitat patches, and reducing fragmentation of forests 500 acres and larger.

3. Develop high-quality examples of all forest communities, including all Grade A & B Illinois Natural Areas Inventory sites, restored and managed within all natural divisions in which they occur.

4. Manage healthy and well-maintained urban forests and woodlands.

Table 9. State and Private Forestry National Priorities and Objectives, USDA Forest Service and National Association of State Foresters, September 2008; September 2012.

**1. Conserve Working Forest Landscapes**

1.1. Identify and conserve high priority forest ecosystems and landscapes.
1.2. Actively and sustainably manage forests.

**2. Protect Forests from Harm**

2.1. Restore fire-adapted lands and reduce risk of wildfire impacts.
2.2. Identify, manage, and reduce threats to forest and ecosystem health.

**3. Enhance Public Benefits from Trees and Forests**

3.1. Protect and enhance water quality and quantity.
3.2. Improve air quality and conserve energy.
3.3. Assist communities in planning for and reducing wildfire risks.
3.4. Maintain and enhance the economic benefits and values of trees and forests.
3.5. Protect, conserve, and enhance wildlife and fish habitat.
3.6. Connect people to trees and forests and engage them in environmental stewardship activities.
3.7. Manage and restore trees and forests to mitigate and adapt to global climate change.

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# Appendices

## Appendix A

### Urban & Community Forestry State Committee 2014 U&CF Strategies and Action Items:

**1.0 Improve and Expand Forest Composition and Health**

1.1 Conduct an Assessment of the Illinois Urban Forest—State and Local

1.1.A. Conduct a state urban forest assessment including the use of LIDAR or other imagery, which will allow a complete understanding of the species matrix, age classifications, locations, and planting opportunities and their changes over time. Make this information accessible to state, regional, and local forestry managers to develop a strategy for the management, planting, and protection of the urban forest at all scales, utilizing cloud-based technology for information sharing wherever possible.

1.1.B. Identify key areas in the state where canopy enhancement is needed.

1.1.C. Identify gaps in local and regional inventory data. Work with the local homeowners and landowners to complete the tree inventory.

1.1.D. Work with communities who have a public property tree inventory to conduct a stratified sample of private property trees to determine community-wide forest composition and health. Utilize this information to:

i. educate property owners on maintenance, diversity, risks, etc.

ii. educate the public about tree trails, tree history, the benefits of trees.

iii develop or improve tree protection ordinances.

iv. bring awareness of and protection to important trees in the community such as witness trees, trees of significant size, trees of historical significance, memorials, etc.

1.1.E. Collect data from all public and quasi-public agencies such as park districts, forest preserve districts, arboreta, golf courses, educational properties, corporate campuses, hunt clubs.

1.1.F. Monitor the long-term health and integrity of Illinois urban and community forests by establishing a mandate for a statewide urban forest assessment every 10 year. Correlate the data with water quality, flood potential, air quality, wildlife, and other ecosystem services that provide habitat and improved quality of life.

1.2 Enhance the Urban Forest Canopy

1.2.A. Identify opportunities to integrate trees as part of green infrastructure in replacement or augmentation of gray infrastructure. Consider urban trees as opportunities to reduce fragmentation and improve environmental conditions and habitat.

1.2.B. Utilize the inventory to improve forest species diversity, understand management issues related to age diversity, identify public tree risks, and the value and importance of establishing regular maintenance, management, and planting strategies.

1.2.C. Promote a goal to achieve over-time a state wide standard for improved species diversity. Good example = no more than 30% of any one family; 20% of any one genus; 10% of any one species; or 5% of any one cultivar.

1.2.D. Support community tree planting programs where diversity is encouraged. Provide opportunities and collaborative examples for public and private lands. Include in these planting opportunities, species, and age diversity. Encourage annual tree planting programs that will sustain our forests by creating a range of tree age classifications.

1.2.E. Prioritize key canopy areas and develop a long-term strategy to plant trees in key areas.

1.2.F. Work with state agencies that impact the urban forest canopy to improve canopy cover, species, and age diversity in their management strategies. Disseminate specifications, based on industry standards, to these agencies to properly select, grow, plant, maintain, and protect trees.

1.2.G. Work with state partners to assist in communication between nurseries and tree purchasers to ensure availability and quality of diverse species for public and private urban landowners. Look for collaborative opportunities to assist the nursery industry in forecasting future diversity needs.

1.2.H. Identify and recommend incentives for landowners who actively work to improve their tree canopy (including diversity, age, and species). These could include tax credits, funding assistance,

etc. This might also include looking at how other states, counties, regions, or local governments provide credits for stormwater fees, green infrastructure improvements, etc. Identify local resources as well as those of the regional and state.

1.2.I. Create a state statute and integrate it into regional and local governments for assessing urban tree damage and penalties. Provide information and resource materials for county and local entities on how to prevent malicious damage to trees and penalties.

1.3 Identify and Quantify the Benefits of Trees

1.3.A. Provide up-to-date data on the benefits of trees to public and private landowners, land managers, foresters, developers, contractors, designers, planners, elected officials, and decision makers. These could include:

i. enhanced property values,
ii. improved economic development,
iii. reduced crime,
iv. improved public health,
v. improved wildlife habitat,
vi. improved water quality,
vii. improved air quality,
viii. carbon sequestration and storage,
ix. reduced gray infrastructure costs,
x. reduced erosion,
xi. provide oxygen,
xii. beautification of public spaces creating a sense of place.

1.3.B. Recommend incentives and resources for those who integrate the benefits of trees to improve the environment and quality of life, e.g., stormwater reduction, energy reduction, etc., at the local and regional levels.

1.3.C. Utilize the statewide urban forest assessment and regional and local tree inventory data to quantify the economic, social, health, and environmental benefits of urban trees. Share this information with state officials, elected officials, and decision makers. Teach the regions and communities how to calculate this information and assist them in messaging this information to their constituents.

1.3.D. Develop a statewide marketing campaign directed to multiple audiences on the benefits of trees. Include in this campaign outreach materials that are easily downloadable. This would include brochures, articles, promotional materials, and educational materials, both hard copies and electronic files for websites.

**2.0 Achieve Widespread Illinois Urban Forestry Sustainability and Management**

2.1 Support and increase state and local staffing for urban forestry.

A well-funded and represented program is needed to support goals statewide.

2.1. A Establish a funding formula to support the hiring of urban forestry field staff. Field staff should be available to communities within two hours of their location or based on a population formula. We recommend that no less than six urban forestry field staff be hired.

2.1.B. Encourage communities and public and private land managers to utilize professionally trained or educated forestry staff to oversee administration and management of the urban forest.

2.2 Best Management Practices

Best management practices are those which are the best means, methods, processes or activities for the care, management, planting, or selection of trees. Many of these practices are detailed in International Society of Arboriculture (ISA) manuals and are a refinement to the latest versions of American National Standards Institute resources on forestry, American Nurseryman Association standards, NRCS Urban Manual, and ILCA standards.

2.2.A. Enhance the production and performance of nursery stock for community selection and planting based on the latest version of American Standard for Nursery Stock, ANSI Z60.1.

2.2.B. Provide guidelines and best management practices for selection, planting, preventative and routine tree care on the state website and in other approved forestry sponsored resources to assist urban forestry professionals, nonprofessionals, and tree owners.

2.2.C. Review industry "Best Management Practices" to continually update those practices as new information becomes available.

2.3 Trees Are Critical Infrastructure.

Trees as green infrastructure provide important ecological services and are the only component of a community's infrastructure that appreciates in value over time. The benefits provided by trees are not always recognized until it is too late. Due to the current infestation, mortality, and removals of ash trees, it will become evident to citizens of Illinois that trees provide critical infrastructure. These infrastructure benefits include reducing heating and cooling costs, increasing property values, improving air quality, and reducing stormwater runoff and flooding. In urban areas,

trees reduce the amount of runoff and protect surface waters from sediment and nutrient loading. Leverage partnerships to support green infrastructure.

2.3.A. Build interdisciplinary partnerships and collaboration for the integration and care and planting of trees as part of the design process of the urban environment (ecosystem). Recognize the partnerships that benefit green and gray infrastructure.

2.3.B. Build volunteer support (Forest Watch, Tree-Keepers, Tree Stewards, youth training programs) for trees and an understanding of their green infra structure services.

2.3.C. Provide planned and integrated support for tree planting to improve the environment and provide for connectivity to fragmented landscapes.

2.3.D. Support efforts to provide credits for trees in stormwater and carbon offset programs.

2.3.E. Support efforts to integrate tree BMPs into the stormwater regulatory framework. This would include credits for BMP implementation, clear design standards for engineers and designers, addressing trees in municipal stormwater manuals and all levels and programs MS4, TMDLs, watersheds, city ordinances, IL/DOT.

2.4 Climate Adaptation

Recognize the increased frequency and severity of storm events, droughts, and flooding. Integrate adaptation strategies into maintenance practices, improved species lists based on environmental impacts, and infrastructure features which will support the urban forest in a time of change. Trees in the urban setting, during times of drought, increased flooding, increased wind and ice, or other climate related issues will require the best possible growing conditions and care.

2.4.A. Improve specifications to provide optimal soil content and volume for trees. Include design features that include adequate space in planting pits, suspended pavement, root paths, and connected infrastructure to improve growing conditions.

2.4.B. Review and recommend tree species that perform well in a changing climate. This would include review of species recommendations at the southern end of their range that might be removed and/or at the northern end that could be added. Review and recommend how some possible invasive trees could be utilized or should be avoided in the urban ecosystem.

2.4.C. Recommend stormwater management strategies which will include trees placed in designs that improve access to water and soil conditions for extended periods of inundation and drought. Promote the establishment of increased canopy to offset the installation of impermeable surfaces.

2.4.D. Recommend assessments and management practices to reduce risk. Coalesce the different resources which might be provide assistance for these issues in the urban setting.

**3.0 Education and Training for Professionals and Nonprofessionals**

3.1 Increase the number of certified or credentialed individuals in the area of urban and community forestry.

Increase the number of individuals taught proper forestry skills and management practices to more effectively manage the urban forest. Individuals who care for trees in communities (government, land managers, landscape contractors, etc.) may not have sufficient training or background for the forestry work they are performing. Provide education and training for these individuals so that they will become certified and credentialed urban forest managers and caretakers.

3.1.A. Increase program content, locations, and number of opportunities for arborist training leading to certification and for continuing education units to maintain certification.

3.1.B. Provide funding opportunities for individuals interested in becoming certified arborists who may not have the means to pay for the training.

3.1.C. Provide incentives and/or assistance to encourage every community or land management organization to have at least one certified or credentialed professional on staff or on retainer in urban and community forestry.

3.1.D. Increase opportunities for partnerships among agencies, organizations, not-for-profits, and governmental entities to facilitate cross-profession training. This training will expand the use of best management practices, address state, regional, and local goals and encourage arborist or professional certification. Within a community provide training for land managers, volunteers, public works, park district, and other individuals on forestry with the goal to encourage further urban forestry training.

3.1.E. Hire forestry interns to assist with program implementation.

3.1.F. Train volunteer coordinators to develop volunteer organizations.

3.2 Educate and Train Landscapers and Nursery Industry Field Staff

Appendix A continued

There is a diverse audience of landscape and nursery workers who could benefit from increased training in arboriculture. The challenge is reaching this diverse audience.

3.2.A. Expand Spanish arboriculture training and opportunities for certification. Provide information in a physical, visual, and audio format toto educate those who may not read.

3.2.B. Provide communities with training information for contractors.

3.2.C. Develop incentives to encourage best management practices.

3.2.D. Collaborate with the Illinois Landscape Contractors Association, the Illinois Green Industry Association, and other organizations to offer basic arboriculture training and workshops. Offer grants or scholarships to allow training. Encourage training sessions and outreach to noncertified participants in these fields to encourage early participation and eventual certification.

3.2.E. Provide educational opportunities to urban forestry personnel on the basic best management practices of nursery production and landscape installation. These materials should be directed to different audiences—the general public, schools, governmental entities, elected officials, and land managers, developers, contractors, etc.

3.3 Educate and Engage Stewards and Volunteers

One of Illinois's greatest assets is its people. Individuals wanting to learn about trees and help support their community by volunteering their time and talents have a significant impact on the health and management of the urban forest.

3.3.A. Train communities, landowners, and managers on how to develop strong urban forest stewards. This would include training municipal foresters to utilize volunteers effectively so that they can expand their resources.

3.3.B. Provide training and access to urban forestry volunteer opportunities. Partner with existing tree advocacy programs to expand exposure and participation. Provide incentives for communities that have strong volunteer forestry programs.

3.3.C. Provide training and resources for tree boards and commissions.

3.4 Educate and Engage Youth

Youth are a tremendous resource for future forestry advocacy. Many youths do not have opportunities to participate in nature-based programs or activities. It is important to engage youth in activities that may inspire them to become forestry professionals or be advocates for the urban forest in the future.

3.4.A. Work with local schools and youth organizations to teach youth about career opportunities and job skills in forestry. These programs may be part of traditional curriculum, after school programs, or content for youth organizations.

3.4.B. Provide volunteer and training opportunities for youth in arboriculture. These opportunities should be available to youth within their communities and in support of their local urban forest. These opportunities may include community service.

3.4.C. Work with colleges and universities to incorporate forestry into their appropriate programs. Look for opportunities to partner with organizations, agencies, or communities for internships and other learning opportunities.

3.5 Educate and Engage the General Public

Community forestry staff, land managers, landscape contractors, and landowners, as basic service to their constituents, need to teach their constituents about the importance of the urban forest, the need to manage the forest professionally and to engage these residents in volunteering and advocacy for trees including Right Tree—Right Place.

3.5.A. Provide education and outreach on the benefits of trees

3.5.B. Provide education and outreach on all levels of tree care. Customize existing resources such as the Forest Service Tree Owners Guide for Illinois. Update the "Under The Canopy" poster.

i. how to select the appropriate plant for the appropriate space,

ii. what to look for in the nursery,

iii. how to plant correctly,

iv. how to water,

v. how to care for the tree through maturity.

3.5.C. Strengthen the connection between community forestry staff and trained volunteers to build community volunteer tree programs and advocacy for urban trees.

3.6 Educate and Engage Elected Officials

Elected officials represent the values and priorities of their constituents by developing and enforcing state and local laws. They prioritize state and local programming and allocate funding to support those programs. It is critical that officials are supported for their public service and provided

the necessary tools to act on behalf of the individuals whom they serve.

3.6.A. Provide information to elected officials and decision makers on the value and benefits of trees to protect our environment, natural resources, wildlife, and our quality of life.

3.6.B. Provide elected officials with information on how trees protect property values, improve business activity, and are a vital part of urban economies.

3.6.C. Provide education on the significance of proactive tree management and the financial benefits of maintaining healthy trees including the value of tree inventories in budget projections, tree management plans, and routine regular maintenance and planting for a diverse age and species forest.

3.6.D. Educate on the importance of a forestry professional managing the urban forest — a valuable and substantial asset.

3.6.E. Provide examples and templates for communities on forestry management plans, tree inventories, and budgets.

3.6.F. Advocate to the state and local governments the importance of trees and the need to fund urban tree care and planting as is done in other states.

3.6.G. Promote enactment of tree protection ordinances on public property and encourage protection of trees on private property.

3.7 Educate and Engage Developers, Contractors, and Utilities

Educate professionals who construct or manage facilities in the urban forest on how to reduce negative impacts and protect the forest by focusing on Right Tree—Right Place principles.

3.7.A. Provide, as part of the permitting process at state, regional and local levels, education and outreach materials packet that will teach the developer, contractor, and/or utility how to reduce negative impacts to trees. Provide examples of municipal specifications that carry intense inspection and penalties for violations. Show the benefits of preventative care and standards and examples of cost savings from implementing tree friendly practices.

3.7.B. Work with professional associations to build partnerships and incentives for proper tree care and develop an incentive program that will encourage forest preservation and tree protection.

3.7.C. Develop a subcommittee within the Urban Forestry Committee to monitor actions taken by utility companies and departments of transportation concerning ROW and utility line clearance.

3.7.D Strengthen local cooperative agreements between municipalities and utilities or DOTs with respect to arboricultural specifications (e.g., tree trimming).

**4.0 Urban Forest Plants, Insect, and Disease Invasive Species Awareness and Management**

4.1 Emerald Ash Borer (EAB)

Emerald ash borer infestation is a significant problem for the urban forest, resulting in the loss of millions of ash trees and is a prime example of exotic pests compromising native ecosystems due to poor cultural practices. It is extremely important that Illinois communities maintain a diverse tree population. The role of the State Urban Forestry Program needs to be a recognized resource to local community forestry program development and outreach to address this type of issue.

4.1.A. Work with property owners and managers to understand there are options for EAB. Provide information on options for addressing EAB and assist in educating constituents about management options.

4.1.B. A diverse urban forest is the best approach to reducing the impact of future invasive pests. Support the development and distribution of a diverse urban species list to landowners and managers to create a more sustainable forest.

4.1.C. Biomass created by EAB, should be repurposed where possible and information on wood processing and utilization for higher purposing of ash wood utilization should be encouraged. Connections between sawyers and potential ash resources need to be further developed.

4.1.D. Encourage land/homeowners and managers to develop EAB management plans. Develop templates to provide guidance.

4.1.E. Assist land/homeowners in identifying qualifications for forestry personnel, including land managers, so that these landowners are aware of "professional forestry" credentials, which will help to ensure they receive the appropriate forestry services. Assist these landowners in identifying things to be watchful of so that they are not scammed or provided fraudulent service.

4.1.F. Encourage collaboration, group rates, or including small landowners in larger contracts for tree care related to EAB to provide for economies of scale.

4.1.G. Identify and designate state and/or federal funds to assist communities in reforestation after EAB losses.

4.2 New Invaders

It is important to be aware of new invaders that might impact the urban forest in Illinois. This requires collaboration with the USDA and surrounding states. Emphasis should be on transportation facilities and corridors and distribution centers for import of new invaders.

4.2.A. Provide education and outreach to landowners and managers on potential new invaders. Include in this education early detection rapid response training.

4.2.B. Partner with organizations that can be an extension of state, regional, and local personnel in early detection and rapid response, such as local birding, hiking, restoration, biking, picnicking, boating, and other groups that may be able to assist in quick identification of potential new invaders.

4.2.C.Distribute new invaders information to professionals and nonprofessionals---including home owners.

4.3 Woody and Other Invasive Plant Species

The presence of woody invasive plant species in our urban areas costs millions of dollars every year to control. These species inhibit the ability of more desirable species to grow and thrive.

4.3.A. Work with landowners and managers to identify, remove, control, and replace invasive woody species with species that will not adversely impact other plants and wildlife.

4.3.B. Develop species lists to assist landowners and managers in replacing invasive woody species with species which will provide similar screening and other aesthetics.

4.3.C. Evaluate woodlands where woody invasive species are present for regeneration of other tree species. Manage sites for opportunities for natural regeneration and/or planting to encourage replacement species.

4.3.D. Collaborate with invasive species organizations to develop and distribute a statewide awareness initiative on woody and other invasive species that impact the urban forest. Work collaboratively with landscape architects, nurseries, researchers, landowners, and land managers to track characteristics and plants that should be monitored and identified as possible threats for colonization to natural areas.

4.3.E. Provide support to protect unique and natural areas. Reduce possible impacts from governmentally identified invasive species that might impair the ecological function and resiliency of these important areas. Recognize and support the need for buffers between diverse urban areas where some woody species may pose a threat to unique and natural areas.

4.4 Diseases

It is important to be aware of diseases that might impact the urban forest in Illinois. This requires a collaborative effort with resources, inside and outside the state, which can help identify potential threats and treatment options.

4.4.A. Provide education and outreach to landowners and managers on typical diseases and potential new diseases. Include early detection rapid response training.

4.4.B. Partner with organizations that can be an extension of state, regional, and local personnel in early detection and rapid response, including local birding, hiking, restoration, biking, picnicking, boating, and other groups.

**5.0 Nurture Urban Forestry Partnerships**

5.1 Develop partnerships throughout the state to meet statewide urban and community forestry needs.

The State Urban Forestry Committee will continue to make a concerted effort to bring together all perspectives and sectors of the state in a unified effort to support urban forestry.

5.1.A. Provide opportunities for information sharing and networking to enhance unification of the State Urban Forestry Program. Coordinate state-wide campaigns to distribute information and development a collaborative alliance that will strengthen the overall urban forest resource.

5.1.B. Encourage mentoring programs that share resources with underserved and under resourced communities.

5.1.C. Support partnerships for statewide problems such as EAB, wood utilization, storm mitigation and response, etc.

5.1.D. Seek opportunities for partnerships among urban and community forestry professionals and education to build awareness of career opportunities.

5.1.E. Encourage the funding of collaborative partnerships on regional landscape initiatives that promote urban and community forests.

5.1.F. Partner with and provide information to state and regional organizations and programs that

integrate trees and ecosystems within urban and community settings, e.g., the State Wildlife Action Plan.

5.2 Researchers and Scientists

Coordinate with scientists to determine forest research needs of urban and community forestry practitioners. Facilitate the distribution and collaboration of urban forestry research to the practitioner to promote best management practices and understanding of the urban forest ecosystem.

5.2.A. Develop partnerships with researchers and urban foresters to share the latest research results and forecasts of urban forestry issues.

5.2.B. Assist in the education, distribution, and integration of the latest urban forestry research into best management practices.

5.2.C. Solicit and support state, federal, and other funding opportunities for research.

**6.0 Expand and Support Advocacy**

6.1 Legislation

Recognition of the benefits of urban trees to the state is key to the success of a state urban forestry program and support and assistance from legislators and policy makers.

6.1.A.Track legislation and policy at the state and federal levels to identify urban forestry issues that should receive support and issues that might require legislative education to correct potential negative urban forestry policy.

6.1.B. Advocate and protect utility tree trimming law (Public Act 92-0214) from changes that harm urban trees and/or property rights.

6.1.C. Host an annual legislative meeting with elected officials to present the urban forest strategy and discuss issues related to the protection of the urban forest.

6.1.D. Encourage partnerships and collaboration with major urban forestry organizations for info sharing and to strengthen urban forestry opportunities in a cost-effective manner.

6.1.E. Promote Illinois efforts and successes at national conferences and events to increase funding and recognition.

6.1.F. Coordinate official support from tree and stewardship groups across the state to promote urban forestry awareness to key agencies and legislative and executive offices in Springfield.

6.1.G. The Forestry Development Council should work with the Urban Forestry Committee to develop the State Annual Council Report to legislators.

6.2 Local Advocacy

The majority of land within the state is owned by citizens. Decision makers, public and private, need to be in a position to make the best possible decisions for the urban forest within their communities. Education and outreach to these officials, landowners, and decision makers on the value and proper care of the urban forest should be readily available and relevant for their needs.

6.2.A. Resources should be developed and available for use by decision makers, which will enable them to more effectively protect and care for their urban and community forest.

6.2.B. Decision makers should be educated and guided to the benefits and use of green infrastructure, specifically trees, as replacement for, or augmentation of, more traditional infrastructure.

6.2.C. Communities and landowners should be encouraged to work together to protect the interconnectedness of the urban forest ecosystems.

6.2.D. Communities should provide education and resources to assist private landowners in maintaining, planting, and protecting trees for the benefit of the urban forest.

6.2.E. Municipalities should increase the proportion of employees with forestry backgrounds in order to foster awareness and knowledge of urban forestry practices. Educational programs should be offered to employees with minimal forestry backgrounds.

6.2.F. One of the most effective management tools available to local communities is the municipal ordinance, every community should be encouraged to implement the ordinances necessary to preserve, protect, and enhance their urban forestry resources.

**7.0 Increase Funding for Urban and Community Forestry**

7.1 State Capacity

The council should work with the IDNR to identify dedicated funding for the State Urban Forestry Program. This funding should include resources for state, regional, and local government units to protect and maintain the health of the urban forest and to provide outreach and education on the important benefits of the urban forest.

7.1.A. Encourage increased sustainable funding for the State Urban Forestry Program and the Urban and Community Forestry Assistance Act.

7.1.B. Continue to utilize state and federal urban forestry funding to provide technical assistance and funding for the purchase and establishment of trees to counties and communities throughout the state.

7.1.C. Significant funds are needed to provide statewide assistance for urban forestry management related to insects and diseases, e.g., EAB, etc.

7.2 U.S. Forest Service Funding

The U.S. Forest Service has been a strong traditional resource for urban forestry funding. Efforts need to continue to support this funding and to increase the capacity of the state through local urban forestry programs and within organizations that make this funding possible.

7.2.A. Work with all municipalities in the state that are not currently Tree City USA communities to educate them about the program and engage them to become Tree City USA communities.

7.2.B. Coordinate USFS funding opportunities with IDNR to get needed funds into the hands of practitioners.

7.2.C. Facilitate the process of proposal requests to enable NGOs and partners at all resource levels to be able to apply for funding opportunities.

7.2.D. Provide grant writing education and assistance to enable communities at all resource levels to apply for needed funding.

7.2.E. Requests for proposals should ensure that program funding meets state urban forestry goals as established by the council.

7.2.F. The Urban and Community Forestry Committee should assist in the review and administration of funding opportunities.

**8.0 Increase State Urban Forestry Staffing**

8.1 Staff for Urban and Community Forestry Progam

Provide dedicated staff to the Urban and Community Forestry Program throughout the state since Ilinois has more local units of government than most other states in the U.S. Municipalities need access to state urban forestry representatives to help develop local urban and community forestry programs.

8.1.A. State Urban and Community Forestry staff should work with partners to increase the presence and understanding of urban forestry issues at the state, regional, and local levels.

8.1.B. A multi-agency request should be made for six urban and community forestry district or regional administrators to be added to support statewide urban forestry efforts.

8.1.C. Provide access to trained community foresters on inventories, ordinances, tree management plans, storm mitigation, tree utility conflict resolution, and other important urban and community forestry issues.

**Appendix B.**

***Illinois Forest Legacy Program. Assessment of Need 1994, 2017.***

The Illinois Forest Legacy Program had until now been implemented according to the current Assessment of Need approved on November 29, 1994. A copy of the IDNR designation letter, the previous Assessment of Need, and the current approval letter are housed at the IDNR headquarters in Springfield, Illinois.

**Appendix C.**

***Illinois Forest Resources 2010***

**http://www.nrs.fs.fed.us/pubs/rn/rn_nrs120.pdf**

**http://www.fs.fed.us/nrs/pubs/ru/ru_fs39.pdf**

**Appendix D.**

***Illinois Wildlife Action Plan _ Implementation Guide & Woodland Campaign***

**http://www.dnr.illinois.gov/conservation/IWAP/Documents/FinalDraft2015_FINAL_Revision%204-18-16.pdf**

**Appendix E.**

***Illinois Silvics Manual***

**http://mypage.siu.edu/eholzmue/index_files/ilbmp.htm**

**Appendix F.**

***Realizing the Forests' Full Potential: Assessment and Long-Range Action Plan for Forest Resources in Illinois*, 1999.**

**http://ifdc.nres.illinois.edu/wp-content/uploads/2013/10/ifdc_assessment-and-long-range-action-plan_1999.pdf**

**Appendix G.**

***Illinois Consulting Foresters Directory***

***http://www.ilforestry.org/resources/Documents/Publications/tfb-nres-202-16.pdf***

**Appendix H.**

***Additional Endorsed References***

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