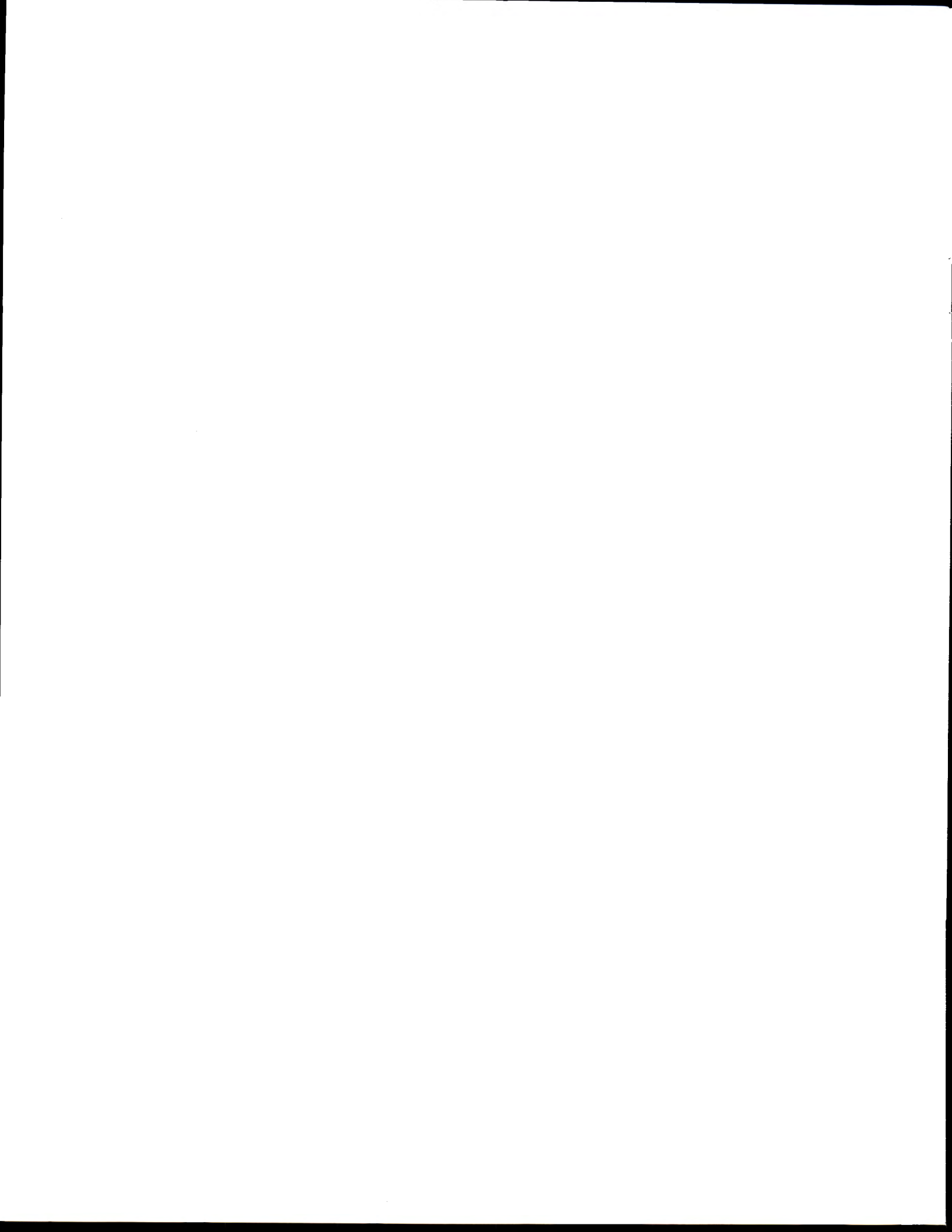


Realizing the Forests' Full Potential: Assessment and Long- Range Action Plan for Forest Resources in Illinois

Prepared by the Illinois
Forestry Development
Council





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

Prepared by the Illinois
Forestry Development
Council



Dedication

This publication is dedicated to the memory of Mr. Tim Huey.

Tim was a charter member of the Council and worked tirelessly for Illinois forestry. As an industry leader and CEO of Huey Forest Products, Tim brought a practical insight to Council activities that proved to be invaluable in successful pursuit of Council goals.

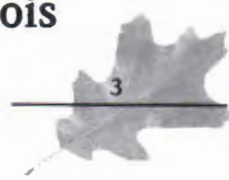
During the early years of the Council, Tim provided leadership for the economic development task group and helped lay the foundation for use of the four percent harvest fee to benefit and strengthen all segments of Illinois forestry.

Tim clearly recognized the value of a healthy and productive forestry for Illinois and was an early proponent of value-added returns through bringing secondary processing back into Illinois.

He also recognized and supported the great benefits of strong urban forestry programs.

More than an industry leader and friend of forestry, Tim was a fine human being—the kind of guy you could always count on. All of us in the forest community will truly miss Tim Huey.

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



Contents

Preface	4
Acknowledgments	6
Members of the Illinois Forestry Development Council	7
Task Group Members of the Illinois Forestry Development Council	8
Assessment of Illinois Forest Land Resources	10
Historical Changes	
Ownership Patterns of Illinois Forests	
Forest Plant Diversity	
Forest Animals and Wildlife Habitat	
Fisheries	
Insects and Diseases	
Conversion	
Urban and Community Forestry	
Natural Community Preservation	
Economics	
Illinois Forest Industry	
Recreation	
Key Concerns and Needs	32
Forest Land Stewardship	
Fragmentation	
Wildlife Diversity	
Forest Health	
Reforestation/Restoration	
Urban & Community Forestry	
Forest Industry	
Erosion and Water Quality	
Protection	
Sustainable Forestry	
Education	
Research	
Goals, Objectives, and Actions	42
Glossary	56
Critical Issues Forum on Illinois Forests	58

Preface

4

Illinois' forests offer remarkable benefits that may not be familiar to many of our citizens. While the role trees play in providing building materials for homes is readily apparent, most individuals do not understand the role that forests play in protecting the soil and preserving the quality of our air and water. In addition, many people fail to appreciate, let alone understand, the relationship between our forests and the preservation of biological diversity. While occupying only 12 percent of the state's surface area, Illinois' forests are home to 61 percent of the flora native to Illinois and 75 percent of the state's wildlife habitat.

Because of its rich soils and the capacity for crop production, much of the land in Illinois has been developed to accommodate row-crop agriculture, which yields a single, yet essential, social benefit—the production of food. The environmental costs of this development have been substantial: excessive erosion of the soil, deteriorating water quality, increased numbers of endangered and threatened species, and dwindling habitat for wildlife. Protection of existing forest land and the reforestation of converted



forests are important components in efforts to improve the state's environmental well-being. Diversification of Illinois' landscape will not be a simple task for two important reasons: (a) short-term economic pressures often run counter to long-term plans and needs and (b) Illinoisans are largely unaware of the role forests and other natural areas play in the quality of life for them and for future generations.

In 1983 the Illinois Forestry Development Act created the Illinois Commission on Forestry Development (later changed to the Illinois Forestry Development Council). Council



Photo: Michael Jeffords

members represent diverse groups: private citizens and forest landowners, and agencies, organizations, and industries related to the forests. An early, major task of the council was to assess our forest-related resources and programs. Its findings and recommendations were presented in committee reports and in the December 1986 publication titled "Forestry in Illinois: Opportunities for Action."

The council then developed a long-range plan to ensure that Illinois forestry develops efficiently and according to a realistic timetable. This comprehensive plan covered not only the forests themselves but also related resources.



Various organizations and agencies were integrated into the plan.

Both goal-driven and action-specific, this strategic plan of action was developed to do the following:

- Assess all forest-related resources in the state
- Identify policies that address specific short-term and long-term issues
- Determine whether these policies and programs are adequate and appropriate
- Project economic, environmental, and conservation benefits to the state that could be realized by developing our forest resources and the forest products industry
- Identify key concerns, needs, and opportunities and determine specific objectives to meet these goals
- Provide a general sense of long-term direction for forestry in Illinois



While occupying only 12 percent of the state's surface area, Illinois' forests are home to 61 percent of the flora native to Illinois and 75 percent of the state's wildlife habitat.

- Serve as a way of communicating this intended direction
- Encourage cooperation among the participants and thereby increase the likelihood of success
- Serve as a guide for monitoring the progress of implementation

This plan, now several years old, has been updated to address the current issues, concerns, and needs of forestry and forest resources in Illinois. We hope that this updated plan will continue to provide a comprehensive framework to maintain and enhance the forest resources of Illinois, so that they can be enjoyed by the citizens of Illinois in the years to come.

Acknowledgments



The Illinois Forestry Development Council is indebted to the following individuals and organizations for their work in developing the material that was used to assemble this update of the Council's long-range plan.

- Dr. Louis R. Iverson, for his work on *Forest Resources of Illinois: An Atlas and Analysis of Spatial and Temporal Trends*
- The members of the Illinois Forestry Development Council, for their early work in the development of committee reports and publications on the condition and status of forest resources in Illinois
- The Illinois Department of Natural Resources, for the use of material prepared for publications that assess the current condition of the state's natural resources
- The Illinois Forest Stewardship Committee, for development of the publication, *An Assessment of the Need for the Illinois Forest Legacy Program*, of which we have made extensive use in parts of this publication
- Ronald L. Hackett and John A. Sester, for their work on *Illinois Timber Industry—An Assessment of Timber Product Output and Use, 1996*

The Council also wishes to take this opportunity to acknowledge the work, which began in the 1920s and 1930s, of foresters and resource managers. The efforts and foresight of those early twentieth-century environmentalists has enabled generations—past, present, and future—to enjoy the many benefits derived from a healthy and viable forest resource: improved air quality, clean water, abundant wood products, wildlife habitat, and recreation.

We are especially indebted to Joyce Canaday, Dick Little, Al Mickelson, John Phelps, and Steve Tondini for their outstanding work in developing this important plan.



Members of the Illinois Forestry Development Council



President of the Senate Representative:
James "Pate" Philip
327 Statehouse
Springfield, IL 62706

Senate Minority Leader's Representative:
Senator William O'Daniel
1021 Stratton Building
Springfield, IL 62706

Speaker of the House's Representative:
Representative David Phelps
2088 Stratton Building
Springfield, IL 62706

House Minority Leader's Representative:
Representative Jay Ackerman
2015 Stratton Building
Springfield, IL 62706

Governor's Representative:
Room 100 Statehouse
Springfield, IL 62706

Mike Brunk
Public Works Department
706 S. Grover, Box 219
Urbana, IL 61801

Stan Curtis
Carbondale Veneer Co., Inc.
154 N. Dogwood Ridge Road
Carbondale, IL 62901

Jim Bray, Director
Rural Affairs Council
600 Stratton Office Building
Springfield, IL 62701

William J. Gradle
State Conservationist
USDA Natural Resources Conservation Service
1902 Fox Drive
Champaign, IL 61820

M. Miles Hartman, Jr.*
R.R. 1, Box 116
Mounds, IL 62964

Karol Jacobs*
Morton Arboretum
Route 53
Lisle, IL 60532

Rich Nichols
Illinois Department of Agriculture
State Fairgrounds
Springfield, IL 62706

Forest Starkey, Acting Supervisor
Shawnee National Forest
Highway Route 45, South
Harrisburg, IL 62946

Stewart Pequignot, Chief
Division of Forest Resources
Illinois Department of Natural Resources
524 S. Second
Springfield, IL 62701-1787

John Phelps, Chair
Department of Forestry, MC-4411
Southern Illinois University
Carbondale, IL 62901

Darrell Rich
Rich Lumber Co.
P.O. Box 317
Beardstown, IL 62618

Gary L. Rolfe, Head**
Department of Natural Resources & Environmental Sciences
University of Illinois
1301 Gregory Drive
Urbana, IL 61801

Michael Rueter*
The Nature Conservancy
416 Main Street, Suite 1600
Peoria, IL 61602

Stewart Schrodt
Illinois Department of Commerce & Community Affairs
620 E. Adams, Fl-6B
Springfield, IL 62701

Ruth Smith
AISWCD Forestry Committee
1319 Scott-Troy Road
Lebanon, IL 62254

Dave Thomas, Chief***
Illinois Natural History Survey
172 Natural Resources Building
607 Peabody Drive
Champaign, IL 61820

Marlin Throgmorton*
Rt. 2, box 375
Anna, IL 62906

Wayne Tipsword*
R.R. 2
Effingham, IL 62401

Beecher Williams*
Route 1, Box 28
Herod, IL 62947

Kevin Kaeningstein
Illinois Farm Development Authority
427 E. Monroe
Springfield, IL 62701

* Appointed by the Governor's Office

**Chair of the Illinois Council on Forestry Development

***Ex-officio member

List accurate as of 6/99.

Task Group Members of the Illinois Forestry Development Council

8

John Andresen
Department of NRES
University of Illinois
W-503 Turner Hall
1102 S. Goodwin Ave.
Urbana, IL 61801

Kathy Andrews
IDNR Division of
Education
524 S. Second Street,
Room 530
Springfield, IL 62701-
1787

Paul Appelt
Commonwealth Edison
500 Joliet Road
Willowbrook, IL 60521

Kent Austin
U.S. Forest Service
Shawnee National Forest
Highway Route 45, South
Harrisburg, IL 62946

Warren Bohnhoff
Northwest Illinois Forestry
Association
609 Diamond Court
P.O. Box 326
Morrison, IL 61270

Stephanie Brown
Illinois Forest Resource
Center
University of Illinois at
Dixon Springs
R.R. 1, Box 255
Simpson, IL 62985

Lisa Burban
U.S. Forest Service
NE Area State & Private
Forestry
1992 Folwell Avenue
St. Paul, MN 55108

John Burde
Department of Forestry,
MC-4411

Southern Illinois
University
Carbondale, IL 62901-
4411

Steve Bylina
Bureau of Forestry
Dept. of Streets &
Sanitation
320 Kedzie Avenue
Chicago, IL 60623

Randy Callison
2600 N. Jasper Street
Decatur, IL 62526

Tom Carper, Mayor
232 East Jackson
P.O. Box 377
Macomb, IL 61455-0377

Pat Cassidy, Executive
Director
Illinois Landscape
Contractors Association
2200 S. Main St., Suite
304
Lombard, IL 60148

Gina Childs
U.S. Forest Service
845 Chicago Avenue,
Suite 225
Evanston, IL 60202-2357

Poo Chow
Department of NRES
University of Illinois
W-503 Turner Hall
1102 South Goodwin
Avenue
Urbana, IL 61801

John Dwyer
U.S. Forest Service
845 Chicago Avenue,
Suite 225
Evanston, IL 60202-2357

Nick Giannettino
U.S. Forest Service
P.O. Box 37
Vienna, IL 62995

Dave Gillespie
IDNR, Division of Forest
Resources
600 N. Grand Ave. W.
P.O. Box 19225
Springfield, IL 62794-
9225

Tom Green
Agriculture Department
Western Illinois University
Macomb, IL 61455-1396

Lisa Groesch
Senate Minority Staff
Room 309 Capitol Bldg.
Springfield, IL 62706

Virginia Hayter
1900 Hassell Road
Hoffman Estates, IL 60195

Reinee Hildebrandt
IDNR, Division of Forest
Resources
600 N. Grand Ave. W.
P.O. Box 19225
Springfield, IL 62794-
9225

Tim Howe
Agriculture Department
Western Illinois University
Macomb, IL 61455-1396

Jim Johnson
U.S. Forest Service
Shawnee National Forest
Highway Route 45, South
Harrisburg, IL 62946

Deborah Jones
16910 Wood
Hazel Crest, IL 60429

Jim Kirkland
Southeastern Illinois
College
3575 College Road
Harrisburg, IL 62946

Elroy Limmer
Peoria Park District
2218 N. Prospect
Peoria, IL 61603





Dick Little
IDNR, Division of Forest
Resources
600 N. Grand Ave. W.
P.O. Box 19225
Springfield, IL 62794-
9225

Craig Malin
City Administrator
290 Evergreen Drive
Vernon Hills, IL 60061

Jean Mangun
Department of Forestry,
MC-4411
Southern Illinois
University
Carbondale, IL 62901-
4411

Mike Mason
IDNR, Division of Forest
Resources
600 N. Grand Ave. W.
Springfield, IL 62794-
9225

Glen Massie
101 Windsor Road, #6206
Urbana, IL 61801

Bill McClain
IDNR, Division of Natural
Heritage
600 N. Grand Ave. W.
P.O. Box 19225
Springfield, IL 62794-
9225

Al Mickelson
Box 506
Golconda, IL 62938

Bill Mitchell,
Superintendent of Parks
Belleville Parks &
Recreation
1105 Mascoutah
Belleville, IL 62220

Joe Newcomb
Newcomb Forestry Service
585 County Road 1050E
Norris City, IL 62869

Karen Nowacki
Department of Streets &
Sanitation
City of Chicago
121 N. LaSalle, Room 701
Chicago, IL 60602

Jim Raftis
IDNR-ORC
600 N. Grand Ave. W.
P.O. Box 19225
Springfield, IL 62794-
9225

Lee Rife
IDOA, Bureau of
Marketing & Promotion
State Fairgrounds
P.O. Box 19281
Springfield, IL 62794-
9281

Susan Romano
22760 N 1300 Road
Macomb, IL 61455

Monica Ross
U.S. Forest Service
Shawnee National Forest
Highway Route 45, South
Harrisburg, IL 62946



Dan Schmoker
IDNR, Division of Forest
Resources
600 N. Grand Ave. W.
P.O. Box 19225
Springfield, IL 62794-
9225

Paul Shelton
IDNR, Division of Wildlife
Resources
600 N. Grand Ave. W.
P.O. Box 19225
Springfield, IL 62794-
9225

Chuck Stewart, President
Urban Forest
Management, Inc.
960 Route 22, Suite 207
Fox River Grove, IL
60021

James Stier
Village Forester
510 Green Bay Road
Winnetka, IL 60093

Don Van Ormer
32 Orchard Road
Harrisburg, IL 62946

Randy Vogel
Illinois Nurserymen's
Association
1717 S. Fifth Street
Springfield, IL 62703

Lue Walters
USDA-NRCS
402 N. Kays Drive
Normal, IL 61761

George Ware
Morton Arboretum
4100 Illinois Route 53
Lisle, IL 60532

Grover Webb
R.R. #1 Box 271
Simpson, IL 62985

Gary Ziegler
Community Development
Coord.
232 East Jackson
P.O. Box 377
Macomb, IL 61455-0377

Assessment of Illinois Forest Land Resources

10

Historical Changes

Illinois was surveyed by the United States General Land Office between 1807 and 1844. The records and surveyor notes of these initial surveys provide a snapshot of Illinois forests for the period before 1820 and provide a framework for the massive disturbances that followed agri-

cultural settlement. Illinois forests have undergone drastic changes in the decades since these early settlements. In 1820, 13.8 million acres of forest existed in the state. Only 4.26 million acres (31 percent) of the 1820 forest area remained in 1985. Essentially all (except for about 11,600 acres) of the current forest is con-

Table 1: Illinois Forest Land by Region, 1820 to 1985
(in thousands of acres, as estimated by various organizations)

Region	NRI ¹ 1982	LUDA ² 1978	USFS ³ 1985	USFS ⁴ 1962	USFS ⁵ 1948	Telford ⁶ 1924	GLO ⁷ 1820
Northern	274.1 <i>Percent of 1820</i> <i>Percent of 1985</i>	274.8	304.3 <i>18</i> <i>100</i>	246.0 <i>15</i> <i>81</i>	258.0 <i>15</i> <i>85</i>	233.0 <i>14</i> <i>77</i>	1,692.1 <i>100</i> <i>556</i>
Grand Prairie	461.8 <i>Percent of 1820</i> <i>Percent of 1985</i>	426.2	586.0 <i>29</i> <i>100</i>	465.4 <i>23</i> <i>79</i>	498.0 <i>25</i> <i>85</i>	481.2 <i>24</i> <i>82</i>	2,001.0 <i>100</i> <i>341</i>
Western	978.4 <i>Percent of 1820</i> <i>Percent of 1985</i>	1,071.6	1,230.9 <i>37</i> <i>100</i>	1,036.4 <i>31</i> <i>84</i>	1,129.0 <i>34</i> <i>92</i>	718.6 <i>22</i> <i>58</i>	3,303.5 <i>100</i> <i>268</i>
South Central	1,364.1 <i>Percent of 1820</i> <i>Percent of 1985</i>	1,537.7	1,611.3 <i>29</i> <i>100</i>	1,767.6 <i>32</i> <i>110</i>	1,641.0 <i>30</i> <i>102</i>	1,252.4 <i>23</i> <i>78</i>	5,544.9 <i>100</i> <i>344</i>
Southern Unglaciaded	351.0 <i>Percent of 1820</i> <i>Percent of 1985</i>	454.2	530.6 <i>42</i> <i>100</i>	523.3 <i>41</i> <i>99</i>	470.0 <i>37</i> <i>89</i>	336.8 <i>27</i> <i>63</i>	1,263.1 <i>100</i> <i>238</i>
TOTAL	3,429.4 <i>Percent of 1820</i> <i>Percent of 1985</i>	3,764.5	4,263.1 <i>31</i> <i>100</i>	3,871.3 <i>28</i> <i>91</i>	3,996.0 <i>29</i> <i>94</i>	3,021.7 <i>22</i> <i>71</i>	13,804.6 <i>100</i> <i>324</i>

¹ U.S. Dept. of Agriculture, Soil Conservation Service, Natural Resource Inventory of 1982; the data base was generated primarily for soil erosion estimates and only nonfederal lands were inventoried. Estimates of percent change were not made because of the different methodologies involved.

² U.S. Geological Survey Land Use Data and Analysis, taken from aerial photography, 1972-1981 (Anderson, et al. 1976). Estimates of percent change were not made because of the different methodologies involved.

³ U.S. Forest Service Continuous Forest Inventory of 1985 (Hahn 1987), includes commercial and noncommercial forest land.

⁴ U.S. Forest Service Continuous Forest Inventory of 1962 (Essex and Gansner 1965), includes commercial and noncommercial forest land.

⁵ U.S. Forest Service Continuous Forest Inventory of 1948 (USFS 1949), includes commercial and noncommercial forest land.

⁶ Telford Inventory of 1924 (Telford 1926)

⁷ General Land Office original survey maps (Anderson 1970)

Source: Iverson et al. 1989

Table 2. Commercial Forest Land in Illinois by Forest Type, 1962-1985
(in thousands of acres)

Forest Type	1962 ¹	1985	Percent Change
White-red-jack pine	0.5	20.2	3,900
Loblolly-shortleaf pine	36.9	45.5	23
Oak-pine	12.8	13.3	4
Oak-hickory	2,361.7	2,025.0	(14)
Oak-gum-cypress	17.8	137.8	674
Elm-ash-soft maple ²	1,526.1	720.6	(53)
Maple-beech ³	24.8	1,046.4	4,119
Nonstocked	na	21.1	-----
TOTAL	3,980.5	4,029.9	1

¹ Adjusted from published 1962 data to account for changes in U.S. Forest Service definitions.

² Includes cottonwood type in 1962 and 1985.

³ Includes aspen-birch type in 1962.

Source: Hahn 1987

sidered to be secondary forest. Illinois, with only 11 percent of its original vegetation remaining, ranks 49th (Iowa is 50th) in the percentage of land retaining its original vegetation. The pattern and rate of deforestation during the latter part of the last century rivals, and even surpasses, that of tropical deforestation occurring today in other parts of the world.

Until 1830 forest land was the only source of agricultural land in Illinois. Axes accompanied settlers wherever they went. Soon farmers discovered that prairies also made good cropland. With the invention of the moldboard plow, prairies were converted to cropland at an astonishing rate that reached 3.3 percent a year.

More than 300,000 people settled the prairies during the decade of the 1830s. This burgeoning population created an enormous demand for housing material, fuel, and fenceposts. Railways were not yet in place to import lumber, and most of the timber in the prairie counties rapidly disappeared (see Table 1).

By 1860 a timber industry began to flourish. By 1870, 92 of the state's 102 counties had industries based on wood products. Forest land

dwindled to 6 million acres. During the 1880s, annual production of lumber exceeded 350 million board feet, more than twice the current production; and production continued to increase until 1900, when it began to decrease as the resource availability declined. By 1923 only 22,000 acres of the original 13.8 million acres of forest remained unlogged or otherwise disturbed by humans.

Recently, however, forest area has been increasing. The lowest estimate of forest area, made by Telford in the 1920s, estimated forest area to be 3.02 million acres. This compares to the U.S. Forest Service's estimates of 4.0 million acres in 1948; 4.04 million acres, 1962; and 4.26 million, 1985. Forest area increased by 10 percent from 1962 through 1985. This increase was attributed primarily to reduced cattle production in the state, with subsequent conversion of other agricultural land to secondary forest. Recent farm programs, such as the Conservation Reserve Program (CRP) and the Illinois Forestry Development Act (FDA), have provided incentives to convert additional, marginal acres to forest land.

The net volume of growing stock has increased in Illinois by 40 percent since 1962. This is a reversal of the trend from 1948 to 1962, when total volume declined by 3 percent. The volume of elms has continued to decline (possibly because of Dutch elm disease), as it did from 1948 to 1962, but volumes of white and red oak, along with black walnut, increased from 38 percent in 1962 to 54 percent in 1985 (see Table 5). Species showing the greatest increase in volume were pine, red cedar, oak, hickory, hard maple, basswood, yellow poplar, and tupelo. Only elm, sweetgum, beech, and aspen experienced a loss in growing stock volume statewide. The average growing stock volume per acre of commercial forest increased from 865 cubic feet in 1962 to 1,200 cubic feet in 1985. Illinois' forests, based on inventory data, are growing faster than the harvest.

When the state is evaluated according to five ecologically based regions (see Map 1), the changes in forest area since 1820 show similar patterns; major declines in forest area occurred between 1820 and 1924, with slow increases in area since 1924.

Map 1: Illinois Forest Resource Regions

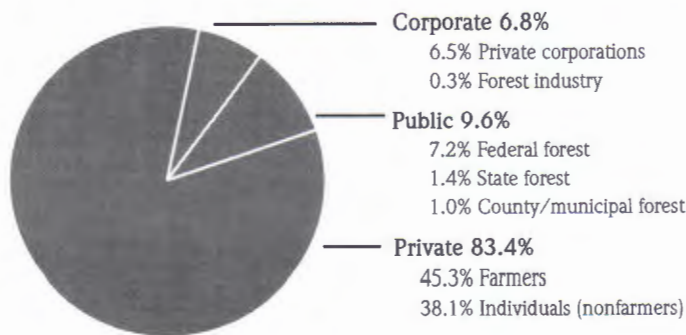


Ownership Patterns of Illinois Forests

More than 90 percent (3.64 million acres) of the commercial forest in Illinois is privately owned, mostly by individuals (see Figure 1). The remaining 10 percent is public, primarily the federal government's Shawnee National Forest (226,000 acres).

The Southern Unglaciated Region, which includes the Shawnee National Forest, averages 6.5 times as much publicly owned forest as the next highest region in the state. Nevertheless, a surprisingly high number of federally owned forest areas are found outside the counties com-

Figure 1. Ownership status of Illinois forests



Source: Hahn 1987



Table 3 also provides information on the age, income, education, and occupations of Illinois' private nonindustrial forest landowners.

The forests of Illinois are fragmented. Using the U.S. Geological Survey's LUDA program, 10,121 forested parcels 40 acres or larger were identified (40 acres was the resolution limit of the LUDA data). Of these, 44 percent are smaller than 100 acres and 10 percent are larger than 600 acres. Approximately 540 parcels exceed 1,110 acres. Across the state an average of 6.1 forest parcels exist per township equivalent (36 square miles). The statewide average per township equivalent ranges from 2.7 tracts smaller than 100 acres to 0.3 tracts larger than 1,100 acres. Approximately 69 percent of all tracts are 40-200 acres in size.



Forest Plant Diversity

The Illinois Plant Information Network (ILPIN) contains habitat and distribution data for Illinois flora. Using ILPIN, one can assess the distribution of forest vascular plant species. Mapping the number of forest plant species by county reveals that the areas of highest diversity are the Chicago region, western Illinois, and the very

Table 3: Survey of Private, Nonindustrial Forest Landowners in Illinois¹

Forest Owner								Reasons for owning forest (most to least important)
Age	%	Income	%	Education	%	Major Occupation	%	
<50	58	<10,000	9	<High school	31	Farming/agriculture	46	Providing wildlife habitat
40-50	23	\$10-20,000	27	High school degree	43	Skilled worker	18	Preservation of beauty
30-40	14	\$20-30,000	20	>High school	26	Professional	9	Heritage for future generations
		\$30-40,000	17			Laborer	6	Personal timber use
		\$40-50,000	27			Owner or manager	3	Family recreation
						Retired	12	Hunting
								Investment
								Home site
								Income from sale of timber

Forest Property					
Type	%	Size	%	Continuity	%
Upland forest	81	<20 acres	50	Continuous blocks	50
Bottomland forest	17	20-125 acres	45	Separate patches	43
Pine plantation	2	>125 acres	5	Windbreaks, streams, corridors, small patches	7
		(Average=39.4 acres)			

¹ The sample for this survey was taken from a list of farm owners and operators obtained from the Cooperative Extension Service of the U.S. Department of Agriculture

Source: Young et al. 1984

One additional pattern is noteworthy among these figures on the distribution of floral diversity in Illinois. There are a great many more nonnative species in any given region than there are threatened and endangered species. The exotic species problem may be larger than the threatened and endangered species problem with respect to (a) conserving biological diversity of native species and (b) negative effects on the structure and species composition of plant communities.

The composition of Illinois forests has changed dramatically over the past three decades. Today, about one-half of the commercial forest acreage is oak-hickory, one-fourth is maple-beech (almost exclusively sugar maple), and one-sixth is elm-ash-soft maple (see Table 2). Together, the remaining forest types (white-red-jack pine, loblolly-shortleaf pine, oak-pine, and oak-gum-cypress) account for less than 6 percent of the total commercial forest land. In 1962 there was much more acreage of oak-hickory and elm-ash-cottonwood and very little area dominated by the maple-beech type. Since 1962 the maples have increased by more than 4,000 per-

cent, whereas the oaks have been reduced by 14 percent and the elms reduced by 50 percent.

Examining mortality patterns by species shows that elm leads all species in mortality rates. Most of this mortality is the result of continued spread of Dutch elm disease in Illinois. Thus, it seems likely that the observed increase in the mortality rate from 1962 to 1985 may not be symptomatic of general forest decline but instead indicate a peak in mortality associated with a single disease spreading through the region. There appears to be no major differences in mortality rates of trees by ownership category.

Exotic plant species in Illinois can be defined in three contexts: broadly, narrowly, and legally. In a broad definition, exotic species are those that did not naturally occur in Illinois before European settlement. This includes species that are common in surrounding states but were formerly not found in Illinois. At present, exotic species make up 28 percent of the Illinois flora. From 1975 to 1992 the number of exotic species does not appear to have increased.

In narrow definition, exotic species are all plant species not native to North America. Seventy-eight percent of the exotic species in the Illinois flora are non-North American natives; these species thus constitute about 21 percent of the Illinois flora.

The legal definition of an exotic species in Illinois is provided by the Illinois Exotic Weed Act (IEWA) of 1988. It defines an exotic plant as "those plants not native to North American which, when planted, either spread vegetatively or naturalize and degrade natural communities, reduce the value of fish and wildlife habitat, or threaten an Illinois endangered species."



Photo: Michael Jeffords

Table 4. Exotic Species Posing Threats to Illinois Forests

Growth Habit	Common Name	Scientific Name
Herbs (8)	Garlic mustard	<i>Alliaria petiolata</i> Bieb. Cavara & Grande
	Air potato	<i>Dioscorea batatas</i> Dcne.
	Dame's rocket	<i>Hesperis matronalis</i> L.
	Sericea lespedeza	<i>Lespedeza cuneta</i> Dum.-Cours.
	Moneywort	<i>Lysimachia nummularia</i> L.
	Eulalia	<i>Microstegium vimineum</i> Trin.
	Beefsteak plant	<i>Perilla frutescens</i> L.
	Creeping smartweed	<i>Polygonum cespitosum</i> var. <i>longisetum</i> DeBruyn
Shrubs (10)	Japanese barberry	<i>Berberis thunbergii</i> DC.
	Autumn olive	<i>Elaeagnus umbellata</i> Thunb.
	Winged euonymous	<i>Euonymous alata</i> Thunb.
	Privet	<i>Ligustrum obtusifolium</i> Sieb. & Zucc.
	Amur honeysuckle	<i>Lonicera maackii</i> Rupr.
	Tartarian honeysuckle	<i>Lonicera tatarica</i> L.
	Common buckthorn	<i>Rhamnus cathartica</i> L.
	Glossy buckthorn	<i>Rhamnus frangula</i> L.
	Multiflora rose	<i>Rosa multiflora</i> Thunb.
European high bush cranberry	<i>Viburnum opulus</i> L.	
Trees (10)	Amur maple	<i>Acer ginnala</i> Maxim.
	Norway maple	<i>Acer platanoides</i> L.
	Tree-of-heaven	<i>Ailanthus altissima</i> (Mill.) Swingle
	Mimosa	<i>Albizia julibrissin</i> Durazz.
	Paper mulberry	<i>Broussonetia papyrifera</i> (L.) Vent.
	Goldenrain tree	<i>Koelreuteria paniculata</i> Laxum.
	White mulberry	<i>Morus alba</i> L.
	Paulownia	<i>Paulownia tomentosa</i> (Thunn.) Steud.
	White poplar	<i>Populus alba</i> L.
Siberian elm	<i>Ulmus pumila</i> L.	
Vines (4)	Round-leaved bittersweet	<i>Celastrus orbiculatus</i> Thunb.
	Climbing euonymous	<i>Euonymous fortunei</i> Turcz.
	Japanese honeysuckle	<i>Lonicera japonica</i> Thunb.
	Kudzu-vine	<i>Pueraria lobata</i> Willd.

Although many species fit this description, at present only three exotic species are covered by the IEWA: Japanese honeysuckle (*Lonicera japonica* Thunb.), multiflora rose (*Rosa multiflora* Thunb.), and purple loosestrife (*Lythrum salicaria* L.).

The definition of exotic species in the IEWA highlights some of the reasons exotic species are

considered undesirable components of the Illinois flora. These exotic weeds alter the structure, species composition, and diversity of native plant communities. Table 4 lists 32 of the species that pose the most serious threat in native Illinois forest communities.

Exotic weedy shrubs are currently the most serious threat to Illinois forest communities. Often these exotic shrubs were introduced intentionally by landowners and resource managers. The shrubs were easy to obtain, were relatively disease- and pest-free, and reproduced rapidly.

The second most serious threat to Illinois forest communities is woody vines. Table 4 lists the four vines causing the most problems. Japanese honeysuckle (*Lonicera japonica*), the most troublesome exotic weedy vine, was introduced into the United States as an ornamental and has been widely planted.

Herbaceous exotic weeds found in nearly all of the forests in Illinois include annual, biennial, and perennial herbs. Common chickweed (*Stellaria media*) has been found in all 102 counties in Illinois. It is garlic mustard (*Alliaria petiolata*), however, that appears to hold the greatest threat to Illinois forests. Introduced as a food or medicinal herb, it was first found in Cook County, Illinois, north of Chicago, in 1918. Garlic mustard readily spreads into high-quality old-growth forest and may now be found in at least 41 counties in Illinois.

Four problematic exotic weed trees in Illinois forests are amur maple (*Acer ginnala*), goldenrain tree (*Koelreuteria paniculata*), tree-of-heaven (*Ailanthus altissima*), and white mulberry (*Morus alba*).

Exotic weeds make up more than one-fifth of Illinois' flora, and they affect forest communities. Exotic weeds also alter the biodiversity of Illinois forests. Exotic weeds are a serious problem in Illinois forests, and recovery depends on appropriate actions being taken and enforced, such as those stated in the Illinois Exotic Weed Act.

Threatened and endangered plants make up 17 percent of native Illinois flora. The 1994 checklist lists 363 taxa as threatened or endangered under the Illinois Endangered Species Act. Of these taxa, 49 percent have been found in the forests of Illinois.

Of the 172 vascular plant families in the Illinois flora, 32 percent are represented by these threatened and endangered forest taxa. The sedge family (*Cyperaceae*) has the most taxa (22), followed by the grass family (*Poaceae*) with 14, and the aster (*Asteraceae*) and orchid (*Orchidaceae*) families with 10 each.

Forest Animals and Wildlife Habitat

Illinois forests provide the major habitat for more than 420 vertebrate species. Losses in the quality and quantity of that habitat severely affect wildlife populations. Of the vertebrates listed as occurring in Illinois, 82.5 percent of the mammals, 62.8 percent of the birds, and 79.7 percent of the amphibians and reptiles require forested habitat for a portion of their life cycle. Clearly forests are an important component of maintaining vertebrate diversity in Illinois.

Approximately 120 species of birds use Illinois forests for nesting. Forests are of special importance as bird habitat for 2 federally endangered species, 12 state endangered species, and 3 state threatened birds.

Of the mammals, 58 species utilized forest habitats. Forests are critical habitat for 2 federally endangered, 1 state endangered, and 4 state threatened mammals.

Using the habitat evaluation index devised by Graber and Graber, more than three-quarters of Illinois' wildlife habitat is derived from forests.



Forests are important habitat for many neotropical migrants. Based on the results of a comparison of a 1992 study with data developed by Dr. S. Charles Kendeigh over a fifty-year period (1920s–1970s), the number of breeding forest songbird species has not increased or decreased overall. Annual fluctuations were common, but for all species and for neotropical migrants the number of species did not decrease markedly. In fact, on the Trelease Woods study sites, the number of species increased during the 1950s and has remained comparatively high. These data confirm numerous other studies that report higher numbers of species of neotropical migrants within larger tracts of forests than within smaller tracts. While it appears that few, if any, species have been lost during the twentieth century, continued forest fragmentation has created a situation where a large group of species may be in trouble. If this situation continues, one-third to one-half of the species typical of Illinois' forests may disappear from many areas because of loss of suitable reproductive habitat.

Characteristics of a forest that determine its quality as a habitat for birds are age, size, tree species composition, and foliage density. Based

on these characteristics a significant decrease in wildlife habitat for birds has occurred in Illinois over the past several decades. Lowland forests typically support a greater number of bird species than do upland forests, but in both types of forest the number of bird species can be expected to increase tenfold as the forest size increases from less than 10 to approximately 100 acres in size.

Wildlife management has been very successful in the reestablishment of wild turkeys and white-tailed deer in Illinois. In fact, in some parts of the state deer populations exceed their carrying capacity. This has resulted in considerable damage to the forest resources and to agricultural crops.

More than 90 percent of Illinois forests are privately owned. While the management of these resources is highly variable, there appears to be consistency in the reason landowners own forest land. In study after study, providing wildlife habitat is the number one reason for owning forest land. This reason is usually followed by preserving natural beauty, providing a heritage to pass to future generations, harvesting timber, and family recreation or hunting.



Fisheries

Illinois supports a considerable variety of fish, mussels, and other aquatic life. From the deep, cold waters of Lake Michigan to the primeval swamps of the Cache River area, Illinois possesses a large diversity of aquatic habitats. As a result, nearly 200 species of fish (180 native species) are present to some degree in the state's waters.

Most of Illinois' native fishes are adapted to life in flowing streams (constructed lakes and ponds typically support few fish species, and natural lakes are limited to a handful of glacial lakes in northeastern Illinois). Most of Illinois' fish habitat is found in the 26,000 miles of rivers and streams located throughout the state. Much of this aquatic habitat has suffered degradation from a variety of cultural effects. Channelization, impoundment, riparian clearing, siltation, and flow alteration have greatly compromised the ability of our streams to support a healthy and diverse fish community.

Deforestation of watersheds has had a profound effect on Illinois' fisheries resources. Aside from the more obvious impacts (i.e., increased silt loads reaching lakes, higher water tempera-

tures experienced in unshaded stream channels), the loss of riparian forest land has played a more subtle role in the decline of many native Illinois fishes. Streams in deforested watersheds tend to have higher floods and longer periods of desiccation because the surrounding land is unable to hold and release water slowly. Also, the removal of bankside trees robs streams of in-stream habitat formed naturally by falling logs and rootwads.

Within a county area in south-central Illinois, more than 78 percent of the area's forest land exists within 1,000 feet of the streams. Approximately 22 percent of the forests are found within 100 feet of streams.

Clean water legislation over the last two decades has significantly improved Illinois' water quality. However, nonpoint pollution and habitat degradation still limit the recovery of the state's aquatic ecosystems. Much of this damage is the result of forest land conversion to incompatible uses. Illinois fishery habitat will be greatly improved if existing forest lands are protected and forests are reestablished in critical riparian areas alongside the state's rivers, lakes, and streams.



Insects and Diseases

Trees weakened by extended dry weather and poor soil or damaged by lightning, equipment, or change of environment are especially vulnerable to attacks by insects and diseases. Most insects are harmful in cycles: They are epidemic for a while and then decrease to normal levels.

At this time Illinois does not have the large, catastrophic forest insect and disease problems

that are prevalent in some western or northeastern states. The state does have some insect and disease problems that could become quite serious—particularly in exotic species that humans have introduced to the Illinois forest systems. The gypsy moth, which until recently was a problem only in the northeastern United States, is now found in alarming numbers in northeastern Illinois and in small pockets of central and southern Illinois. This insect was introduced to Illinois via household moves, recreational vehicles, and other carriers from the northeastern United States.

Another potentially dangerous problem is pine wilt disease, caused by the pine wood nematode. Discovered in 1979 in Illinois, the presence of the nematode and the resulting pine wilt disease have been confirmed in many counties across the state. The Scotch pine is the most susceptible tree species. Because of the extreme susceptibility of the Scotch pine Christmas tree, ornamental plantings of this species may also be in jeopardy. At present, there is no known cure for the disease. Sanitation measures alone are recommended for trees infected or killed by the disease. A great deal of research on the problem is now being undertaken in this country and in Japan, where the disease is epidemic.

Given the investment of today's nonindustrial forest landowners and the demand for high-quality forest products, an outbreak of a serious pest would be devastating to the forest economy.

Conversion

At present, about 1.6 million acres of forests are growing on soil classes that could be converted to cropland. In recent times, conversion



has been most rapid in bottomland forests. Half of the original soft maple-elm-ash bottomlands has disappeared. These bottomland types often support up to twice the number of bird species as upland sites do and perform important soil-erosion and sediment-reduction functions. Surface mining activities also affect several thousand acres each year; after mining, only about 80 percent of the affected lands are returned to forests.

The Illinois Farmland Assessment Act of 1977 was amended in 1981 to provide for an agricultural use-value of farmland on a net income-to-land basis. All farmland is thus taxed at the assessed value for each soil-productivity index. Permanent pasture is assessed at one-third of its productivity index. In the category of "other" farmland, which includes forest land, the land is assessed at one-sixth of the productivity

index. This adjustment should help ease the burden of real estate taxes for private forest landowners. The Illinois Forestry Development Act also ensures that forest land will be assessed properly under the one-sixth rule if the land is under an approved forest-management plan.

Urban and Community Forestry

Trees, which make our communities comfortable, are major capital assets in America's cities and towns. Just as streets and sidewalks, sewers, public buildings, and recreational facilities are a part of a community's infrastructure, so are publicly owned trees. Trees, collectively the urban forest, are important assets that require care and maintenance the same as any other public property.

Our urban forests play a decisive role in the health of our communities and the quality of life for Illinois' citizens. More than 80 percent of Illinoisans live in urban areas, and for many the urban forest is their only exposure to a natural environment. Without open space and trees, life in urban areas lacks the natural quality people inherently desire.

The diverse Illinois urban forest resource includes street trees, parks, forest preserves, arboreta gardens, and trees on private property. These valuable resources, owned by counties, municipalities, park districts, and the private sector, are all managed differently. Urban forests have benefits that reach beyond those normally associated with rural forests and contribute greatly to a community's quality of life. Benefits include energy conservation, climate modification, noise absorption, water-runoff reduction, property enhancement, tax-base stabilization, and psychological preferences.

It is estimated that the state's 6.5 million municipal street trees have a value of more than \$3 billion. Given that street trees represent only 10 percent of Illinois' urban trees population, the actual value of Illinois' urban forest could be estimated at \$30 billion. In spite of the benefits and enormous value of these trees, many communities lack the human and fiscal resources to maintain them adequately. Urban trees live in a harsh environment, and without adequate maintenance they can deteriorate into public hazards.

Some communities have completed tree inventories as a step toward managing their trees, but many others have not. Communities that have not assessed their urban forests' needs are not providing adequate care and are compounding future maintenance costs. Neglect results in an overall decline of a community's urban forest and ensures a reduction in future forest vigor, size, and value to the community. Currently urban forests form the basis of a \$300 million tree-care industry in Illinois. While more are needed, more than 3,000 people are



Photo: Dave Williams



Photo: Dave Williams

employed by approximately 500 tree-care businesses.

The economic impact of forest-related maintenance in the utility industry is often overlooked. According to a 1998 Illinois Forestry Development Council survey, \$27 million were spent in 1987 by Illinois utilities on forestry-related items; 95,000 miles of utility rights of way were maintained; and 612,000 trees were pruned and 118,000 removed in 1987. Urban and community forestry programs can work cooperatively with utilities to reduce utility costs and enhance uninterrupted service through public education (right tree, right place), community stewardship, and tree maintenance.

Protection and management of the urban and rural forest are important. Without adequate protection, many of our forests will succumb to development. Without management, forested areas decline, especially the stressed forests of populated urban areas.

Between 1970 and 1980, approximately 867 quarter-sections in the six-county Chicago metropolitan area were urbanized (population exceeded 1,000 per square mile). This urbanization trend continues across the state and is spreading to rural areas located within several

hours of incorporated city limits. Forested tracts are often selected as prime development sites for this kind of urban sprawl. Planning is imperative to ensure that these areas meet the needs of citizens and provide adequate-quality forest resources.

The state's urban and community forestry program provides guidance and assistance to citizen groups and communities in managing their urban resources. The Tree City USA program, the Urban and Community Forestry Grant program, and technical assistance provided by Division of Forest Resources field staff all address this issue. In 1997, 145 Illinois communities participated in the Tree City USA program. Tree City USA helps build the critical foundation needed to sustain local forestry-management programs. The Urban and Community Grant Program provides matching funds to units of local government and has had great success in encouraging local participation. These programs are invigorating Illinois urban forest resources, and at the same time making our neighborhoods a safer place to live.

These programs address needs by:

- Educating and assisting communities, local units of government, and community groups in comprehensive urban forestry-management programs
- Ensuring that ongoing tree maintenance is implemented, along with tree-planting programs
- Providing a vehicle for starting urban and community forestry programs
- Addressing in a limited way the shortage of financial resources, information, and trained personnel needed to manage Illinois' urban forests appropriately

Urban forestry programs not only enhance communities and the quality of life but also reduce long-term costs in utility line-tree conflict, flood and storm mitigation, and energy consumption. Investment in a high-quality urban forestry program is returned many times over in the benefits these programs provide.

Natural Community Preservation

Illinois' natural resource base has been eroding at a steady and often dramatic pace since the state was developed out of the wilderness and prairie. The tall grass prairies and forests that dominated the state's original landscape have been almost totally transformed into today's landscape of agricultural fields and cities.

Various methods are used to protect Illinois' forest and prairie communities and their biological diversity (e.g., state parks and nature preserves). One major concern regarding preservation of this diversity is undesired changes in community composition through time. Early settler records suggest that most northern and central Illinois upland forests were open mature forests dominated by oaks and hickories. The

abundance of oak-hickory forest was maintained through occasional fire. After European settlement, forests that were not logged began to change as a result of fire suppression. These changes continue today, as witnessed by the rapidly increasing amount of sugar maple and beech forest types within the state. This transition from oak-hickory forests to sugar maple forests has diminished the overall forest quality by reducing species diversity. From an economic perspective, this shift in community composition toward sugar maple is also viewed unfavorably because sugar maples provide lower-valued timber products than either oaks or hickories. Also, because of the dense shade produced by maples, under-story forbes and grasses die out, resulting in bare ground and subsequent sheet, rill, and gully erosion.

In the late 1970s a search for natural communities was undertaken throughout Illinois. Of the 1,089 natural areas that were identified, 392 (36 percent) contained forest land. A disconcerting finding, however, was the fact that only 149 of these forested natural areas—a mere 11,593 acres—were rated as relatively undisturbed or mildly disturbed. Sites that resemble Illinois' original natural conditions are few in number, small in area, and scattered throughout the state. Less than .07 of 1 percent is all that remains of the state's original presettlement landscape. This small remnant, however, includes great diversity, from prairies to bogs to cypress-tupelo swamps.

Natural communities protect species that may someday provide genetic material of great importance, and they also permit us to study organisms in the environment in which they



evolved and to which they are adapted. Such studies are no longer possible in most of the Illinois landscape.

The natural community classifications of forest in Illinois include many of the more open forest communities, which have become closed forests because of fire suppression and woody encroachment. Savannas were one of the most widespread communities in Illinois. Presettlement vegetation in Illinois was characterized as a continuum of treeless prairie grading into savanna and finally into closed forests. Many of the current dry upland forests are characterized by a savanna-like appearance with sparse oak-hickory canopies and prairie vegetation in the openings. Savanna or barrens also exist as habitats between forests and prairie in the lowlands. Much of the remaining forest land in central and northern Illinois is located in the bluff and lowland areas along rivers and streams. These forest lands often contain remnants of savanna and barren communities in the uplands. Closed mesic lowland forests and floodplain forests are located along the state's many rivers and streams.

An important component of these open forest areas are the prairies that exist or are being restored in the openings. Many of the hill prairies are found in slopes of open forest in the bluff areas along the Illinois and Mississippi rivers and contain state endangered and threatened plant species.

Economics

The total volume of growing stock in 1985 was 4.8 billion cubic feet, 40 percent greater than the 3.4 billion cubic feet reported for 1962 (see Table 5). The total volume of commercial forest land in Illinois is estimated at 17.5 billion board feet—enough wood to construct 1.3 million houses. Net volume estimates for 1985 showed the prominence of oak and hickory in commercial forests, with considerable amounts of ash, black walnut, cottonwood, elm, maple, and sycamore. The 1985 volumes averaged 47.4 million cubic feet per county or 1,200 cubic feet per acre of commercial forest land in the state.

The trends in volume, with the exception of elms, show a dramatic increase since 1962. Elms have declined because of bottomland conversion to agriculture and Dutch elm disease. White and red oak and black walnut had total volume decreases from 1948 to 1962 but showed increases in volume from 1962 to 1985. Other types (hickories, maples, and ashes) have increased in volume since 1948.

Net annual growth was estimated in 1985 at 96 million cubic feet of growing stock, or 437 million board feet of sawtimber. More than 42

Table 5. Net volume and annual growth of growing-stock on commercial forest land in Illinois, 1962 to 1985

Species	Net volume*		Percent change	Net annual growth*
	1962	1985		
Softwoods	25,100	117,500	368	3,224
Hardwoods	3,416,600	4,717,600	38	92,791
<i>Total all species</i>	<i>3,441,700</i>	<i>4,835,100</i>	<i>40</i>	<i>96,015</i>

* in thousand cubic feet

Source: Hahn 1987

percent of net annual sawtimber growth came from oaks, with another 10 percent from soft maple, 6.3 percent from ash, 3.7 percent from black cherry, 3.3 percent from hard maple, and 3.2 percent from black walnut. Only elm and black ash showed negative growth rates between 1962 and 1985 (as a result of Dutch elm disease and the clearing of bottomlands).

Compared to the 1985 data, the 1962 inventory showed a 30 percent higher level of annual growth (125 million cubic feet of growing stock). The lower annual growth and higher volumes in 1985 compared to 1962 indicate that growth has outstripped removals in the past several decades and that growth rates may be declining because of maturing forests. The trends in volume from 1962 to 1985, when evaluated by county, show large percentage increases for all northern and central counties (except Whiteside) but generally lower or even negative volume changes for south-central counties. The

U.S. Forest Service is currently conducting a statewide forest inventory. These statistics will be available in 1999.

Illinois ranks 5th in the nation in demand for wood and 32nd in the production of wood. Much of this wood is imported from other states. Of the wood harvested in Illinois, approximately 14 percent is processed in neighboring states. This processed wood is often then imported back into Illinois. Currently the annual growth of timber (96 million cubic feet) exceeds timber removals (48 million cubic feet, or 57 percent). Accumulation of volume statewide will thus continue, barring major harvest changes, into the near future. In 1996 the primary wood-using industry in Illinois processed nearly 30 million cubic feet of round wood, a decline of 8 percent or nearly 3 million cubic feet from 1983.

An enormous quantity of firewood, nearly 2 million cords per year, is harvested from Illinois forests. About 43 percent of the trees used (harvested or salvaged) in a given year in Illinois are used for firewood. The demand for firewood does not currently present a major threat to our forests, however, because 75 percent of the firewood cut is taken from dead trees. The major harvest of firewood takes place in the heavily populated northeastern counties. Trees cut for sawlogs, by contrast, are primarily found in the southern half of the state, with the major counties cutting sawlogs in 1996 being Alexander, Clay, Clinton, Effingham, Fayette, Franklin, Jackson, Macoupin, Marion, Pike, and Schuyler (with more than 6 million board feet per county).

Biomass and annual harvest have increased statewide during the past 23 years, while annual growth has decreased, possibly as a result of

Table 6. Active primary wood-using mills in Illinois, 1961 to 1996

Kind of Mill	1961	1983	1996
Sawmills			
Large ¹	2	14	21
Medium ²	37	27	20
Small ³	275	137	61
TOTAL	314	178	102
Pulpmills	8	--	--
Veneer mills	8	2	1
Other mills ⁴	25	5	4
<i>Total All Mills</i>	<i>355</i>	<i>185</i>	<i>107</i>

¹ Annual lumber production of 3 million board feet or more

² Annual lumber production of 1 to 2.9 million board feet or more

³ Annual lumber production of less than 1 million board feet

⁴ Includes cooperage mills, handle mills, and charcoal plants

maturing stands. Mortality rates during this period have increased dramatically. Although the sources of this mortality cannot be ascertained in many cases, the leading known causes of mortality are insect damage and pathogens, which account for 38 percent of the mortality. Most insect and pathogen mortality can be traced to two sources: (a) introduced pests spreading through the region, such as Dutch elm disease, and (b) decreased resistance to disease and herbivores as a result of environmental stress.

Illinois Forest Industry

The timber-harvesting industry includes both timber buyers, who purchase stumpage (standing timber) from forest landowners, and the loggers who harvest the trees. Since licensing began, there have been between 381 and 512 licensed timber buyers. More than 75 percent of these buyers are Illinois residents; the rest are from Indiana, Missouri, Iowa, Kentucky, and elsewhere. About 90 percent of the total volume harvested is sawlogs. Loggers harvested more than 214 million board feet of sawlogs from Illinois forests in 1996. That is one-third more (54 million board feet) than was reported in 1983.

The primary wood-using industries include sawmills, veneer mills, and enterprises that manufacture lumber and other unfinished products from logs (see Table 6). Sawmills make up 96 percent of all primary wood-using industries in Illinois. In 1996, 102 sawmills processed 27 million cubic feet of sawlogs.

Nearly two-thirds of the firms produce industrial-quality lumber. Slightly more than one-third produce pallet lumber, and nearly one-

fourth produce grade lumber. More than 10 percent of the firms produce railroad ties and mine timbers.

Secondary industries include all firms that use lumber or other primary industry products to produce such finished products as pallets and furniture. In 1983 some 1,750 Illinois firms, employing more than 31,000 people, used wood that could be produced by Illinois primary industries. In the same year these firms used 922 million board feet of lumber and 206 million square feet of wood. Lumber was the largest form of wood, with more than 559 million board feet used. Two-thirds of the lumber was hardwood, half of which was purchased from within Illinois.

The forest-related industries in Illinois employed approximately 65,000 people in manufacturing in 1995, with an annual average payroll of more than \$1.873 billion. About 1,100 of these employees were directly involved in wood processing during 1995. Most of the lumber was imported from other states, even though 90 percent of the hardwoods used by the secondary wood-using firms are species that grow in Illinois.



Photo: John Edgington

Illinois forest industries appear to be realizing only a fraction of their potential earnings. We import nearly 70 percent of primary forest products from other states, despite our capabilities for producing several times the current harvest.

Illinois forests can and do produce a large quantity of high-quality hardwood species. Unfortunately many secondary wood-using firms in the state are unaware of this and thus import hardwood and manufactured wood products from other states. Their raw materials and products could be purchased or manufactured in Illinois if the manufacturers were aware of local sources and if the efficiency and diversity of our forest-products industry were improved. Illinois has been unable to compete economically with existing or new secondary processing facilities outside the state, partly because processors are not fully aware of the available resources. The entire industry suffers from high taxes, high workers' compensation rates, and high transportation costs.

According to the latest Annual Survey of Manufacturers for 1995, forest-related industries employ about 65,000 people with a payroll of \$1.873 billion. Each year these firms contribute more than \$4.5 billion to the state's economy through value added by manufacture; furthermore, they annually invest more than \$190 million in capital improvements.

Forestry-related industries include the Standard Industrial Classification (SIC) code primary industry Forestry Services (SIC 07); and manufacturing industries Lumber and Wood products (SIC 24), Furniture and Fixtures (SIC 25), and

Paper and Allied Products (SIC 26). The 3-digit SIC code gives finer detail of the forestry-related industries.

Of the more than 13,000 employees in the lumber industry:

- 1,100 work in sawmills and planing mills (SIC 242)
- 6,200 work in millwork and plywood firms (SIC 243)
- 1,600 workers work in the wood container industry (SIC 244), e.g., boxes, pallets, skids, shooks

The remaining 3,400 workers are employed in the miscellaneous wood product industry segment (SIC 249).

In the furniture and fixtures industry, there are almost 17,000 workers in Illinois:

- 3,800 work in residential furniture firms (SIC 251)
- 2,300 work in the office furniture (SIC 252) segment of the furniture industry

The remaining 10,600 workers are employed in fixture firms or in miscellaneous furniture and fixture firms.

There are 35,000 workers in the paper industry in Illinois: About 17,000 work in the paperboard container and boxes industry (SIC 265), while the remaining workers are classified in the miscellaneous category.

There are more than 500 Christmas tree growers in Illinois. The vast majority of these growers are part-time producers. More than 250,000 Christmas trees are harvested in Illinois annually, and the retail value of these trees exceeds \$5 million.



Recreation

Outdoor recreation is inextricably linked to natural resources. Settings such as forests, lakes, wetlands, rivers, streams, and other natural areas are the key to opportunities for people to experience and interact with nature. Recreational quality and diversity correlate directly to the extent, quality, and diversity of natural resources. Fishing and boating depend on clean water; hunting depends on good habitat; picnicking and hiking depend on the scenic value of the landscape.

A 1991 survey conducted by the U.S. Fish and Wildlife Service showed that 4.8 million Illinois residents 15 years and older engaged in fishing (1.5 million), hunting (470,000), or non-consumptive nature activities (3.5 million). The main nonconsumptive activity was simple enjoyment of wildlife. In 1991 Illinois residents spent \$2.3 billion on wildlife-associated recreation.

Forest recreation is big business in Illinois. In addition to the recreation dollars spent by Illinois citizens, the recreation industry employs an estimated 150,000 workers. In 1985 almost \$580 million was spent by federal, state, and local agencies to provide recreation opportunities, and almost \$1.8 billion of tax revenues were directly attributable to recreation activities.

The state's land and water resources continue to face development pressures; and the need for recreation opportunities is already far greater than available resources, and will continue to grow as population and lifestyle changes occur. Illinois, like the rest of the nation, faces the challenge of conserving and protecting the natural resources that contribute greatly to the state's quality of life.

Forests offer opportunities for recreation that cannot be found in any other setting. In 1987 a total of 206 million days—nearly 19 days or partial days per resident—were spent in activities that took place on or near forest lands. Among these activities were picnicking, nature study, cross-country skiing, backpacking, hiking, camping, canoeing, snowmobiling, trapping, and hunting. Almost every citizen of the state realizes recreational benefits from our forests, and for some just knowing that the forests are there is important. The benefits of forests to health and well-being are great, and their aesthetic and restorative values cannot be denied. Not to be overlooked are the benefits of forest recreation to the state's economy. In 1987 approximately \$6.3 billion were spent by people pursuing outdoor recreation in Illinois.

Most of the 4,528 areas developed for recreation in Illinois are publicly owned, and the more

than 1 million acres available for outdoor recreation equal roughly 2.8 percent of the land and water area of the state. The per capita outdoor recreation acreage, however, is less than 0.1 acre. Illinois ranks an unenviable 46th among states in public open space per resident. That ranking unfortunately only tells part of the story, as most of the land available for recreation is located in the southern part of the state while most Illinoisans live in the northern part.

Forest Land Stewardship

If properly managed, Illinois' private and public forest lands could be of outstanding recreational, wildlife, and timber value. Yet despite an increase in total acreage, Illinois forests are growing at only about one-third of their potential. While net annual growth per acre has increased since 1962, poor harvesting practices, unmanaged livestock grazing, fragmentation, and lack of protection has decreased the capabilities of our forest lands.

More than one-third of the 4.26 million acres of current forest land has been damaged by unmanaged livestock grazing. In addition, the mortality of growing-stock trees averaged 1.4 percent of inventory in 1984 (66.6 million cubic feet), compared with 0.9 percent (29.8 million cubic feet) in 1961.

Large tracts of forest area have been fragmented and broken into small isolated woodlots, with severe negative implications on biological diversity and the long-term health of resident and migratory species and the forests themselves.

The privately owned forests have more of the sawtimber class, as well as a much greater



Photo: Michael Jeffords

nonstocked timberland (less than 10 percent stocked with growing-stock trees). Because privately owned lands tend to be managed less well, they cannot provide multiple benefits on a sustained basis without technical and financial assistance.

Forest management requires decades of stewardship by the landowner. Stability and planning are required for the long period necessary for proper stewardship. Many owners are not dependent on the forest for an income and instead manage their lands as a hobby, for secondary income, or for appreciation of the resource. Frequent ownership changes and the possibility of increased real estate taxes discourage many owners with an interest in effective forest management, even though their forest lands could provide recreation, wildlife habitat,

beauty, and other benefits. Two studies, in 1986 and 1984, indicate that more than 80 percent of private landowners have never begun management plans and that in southern Illinois only 6 percent have plans.

Recent studies have shown that public and private assistance programs are crucial in encouraging prudent forest management and stewardship by private landowners. Thus it seems likely that a mix of public and private programs must continue as the effective approach to increasing the many resource benefits.

Forest stewardship must be designed around individual landowners, the forest resources, and the environment quality of the state. The emphasis should include an outreach effort and expanding the availability of resources assistance. Currently it is estimated that 90 to 95 percent of all timber sales are conducted without the benefit of management plans and without assistance from a professional forester.

The areas of concern identified below were identified in the Council's original plan. While many positive steps have been accomplished, these areas are still of key concern.

Fragmented idle lands and abandoned agricultural properties, as well as "marginal" croplands, should be placed under permanent cover to protect soil and water resources, provide additional forest land (trees), and increase and improve the wildlife habitat and reverse the negative implications for biological diversity at many levels. Reforestation and restoration of these lands would provide such protection and diversity.

Of the estimated 4.26 million acres of forest land in Illinois, more than 2 million acres would benefit from improvement practices. Another 100,000 acres are in need of reinforcement plantings. Most of the best sites are regenerating to sugar maple, not to oak. This trend will have a deleterious effect on the timber economy, soil erosion, water quality, certain native plant and animal species, and throughout the ecosystem.

Education and incentives for landowners are needed to promote the proper stewardship and development toward more desirable forest conditions.

With increased interest in wildlife habitat but a decreasing habitat resource, the role of foresters in establishing and managing wildlife habitat should receive increased attention and support. Ongoing research suggests that previous habitat policies should be adjusted to provide for diverse wildlife needs in general. Emphasis should be placed to achieve richness and diversity.

The increase in urban sprawl onto small tracts of forest areas purchased for residential housing, as well as rural land management and use, is contributing to the fragmentation of forest areas. The species composition of flora and fauna is changing significantly.

Key Concerns and Needs

32

Fragmentation

The changing pattern of forest ownership and the impacts of this shift have become major concerns of forest planners. The division and sale of large forested tracts in Illinois threatens the forest ecosystem values and functions. The average forest parcel size in Illinois is approximately 20 acres. This average size will continue to decrease over time. Small parcels are more difficult to manage and present difficulties in maintaining the ecological processes associated with large forested tracts.

As average size decreases, the chance of these holdings being converted to nonforest uses increases. Many smaller forest tracts are becoming sites for single-family homes. The shift to home sites has a negative impact on wildlife populations and on the ability to produce future forest products and environmental benefits. In the late 1970s a search for natural communities identified 1,089 important natural areas. Of these areas 392 contained forest land. Only 149 of these forested natural areas—a mere 11,593 acres—were rated as relatively undisturbed or mildly disturbed.

The fragmentation and parcelization of our forest lands will have a negative impact on the state's economy; the ability to provide clean air and water; recreational opportunities; plant and animal diversity; and aesthetic values provided by our forests. While Illinois forests occupy only 12 percent of the state's area, they provide habitat for more than half of the botanical species native to the state. Forests are essential refuges for wildlife. If we are to protect this irreplaceable biological diversity, we must reduce fragmenta-

tion and restore the health and vitality of our forest communities.

Wildlife Diversity

While we have achieved stable populations of some wildlife species (e.g., deer, turkey), some other species still need protection and enhancement. Increasing emphasis is being placed on the management needs of nongame species, including rare, threatened, and endangered species and their habitats. As a given habitat declines, the number of animals capable of inhabiting the area also declines.

When large tracts of forest area are broken into smaller, isolated tracts, more forest edge is created and there is greater opportunity for edge-adapted species to usurp habitat from forest-interior species. In Illinois much of our remaining forests occur as one of two types:

- Very small isolated patches, where the edge-to-center ratio is very high
- Riparian zone forests, with practically no center and lots of edge

Both of these forest types are highly susceptible to the negative effects of habitat edges.

In addition, small forest tracts effectively reduce population size, a predictor of extinction probability. Disjunction of forest patches inhibits animals' movement among the isolated habitats. The resulting genetic isolation can be detrimental to the long-term health of resident populations because of inbreeding. Inbreeding erodes genetic variability and eventually reduces the viability of a given population.

Shifts in species composition from oak-hickory to hard maple and other soft mast species will have a negative impact on all wildlife species—especially neo-tropical birds—in their ability to find suitable food sources, breed, and maintain or increase population levels.

The variety, frequency, distribution, and health of Illinois' wildlife depend directly on the size, species, and distribution of forest tracts. Functional ecosystems depend on the contiguity and connectivity of forest tracts. Linkages or corridors between forest tracts will enable these forests to provide diverse ecological benefits for our state's game and nongame wildlife.

Forest Health

Illinois forests are experiencing damage from many sources, including insects (e.g., gypsy moth, Asian long horned beetle), diseases (e.g., oak wilt, dogwood anthracnose), deer, invasive exotic plants, floods, wildfires, wind, and drought. A healthy forest is a fully functioning community of plants and animals interacting in their physical environment. It is more than tree health and is reflected at the stand, landscape, and ecosystem levels. Fires, insects, and disease-causing organisms, at appropriate levels, can be components of healthy forests. Forest health is generally considered to include a balance of growth, mortality, and regeneration; and to offer appropriate biological diversity and the ability to withstand and recover from the impacts of various stressors, such as insect or disease outbreaks, adverse weather, and air pollution.

An example of a current forest health issue is the gypsy moth, an exotic species that causes

extreme defoliation of hardwoods. The gypsy moth feeds on leaves of more than 600 species of trees, shrubs, and vines. The Illinois Department of Agriculture has been watching and trapping this insect for years. Trapping helps to control the insect and is used to monitor the movement and population growth of the moth. The past year has seen a 1,322 percent increase in the number of moths trapped in northern portions of the state. We must continue to monitor the spread of this insect and determine effective means to stop its movement into other areas of the state.



Reforestation/Restoration

The Illinois Department of Natural Resources (IDNR) owns and operates two nurseries to supply plant materials for wildlife habitat, erosion control, energy conservation, prairie restoration, and general reforestation. Conifer and deciduous trees, shrubs, and prairie plant and forb seeds are produced. Because current demand exceeds production capabilities, the state's agenda cannot be completed. Needed plants cannot be produced consistently without increasing the personnel, changing line-item allocations, and improving current soil-management practices. Furthermore, the gap between the nurseries' production capabilities and current demand continues to widen because of ongoing state and federal programs and new initiatives, such as those described below.

Conservation Reserve Program (CRP), Conservation 2000, Conservation Reserve Enhancement Program (CREP), Wetland Reserve Program (WRP). These and other Federal Farm Bill programs provide funding and resources to meet the goals and objectives of various state and federal soil and water programs. These programs will convert one million acres of cropland to forest or other types of cover to reduce current levels of erosion. To meet the objectives of these programs, more than 4 million plants are needed annually.

Natural heritage. Demand for the native prairie grasses and forbs needed to restore native plant communities and habitat is expected to exceed 50,000 pounds of grass and forb seed and 1 million forb seedlings annually.

Wildlife habitat. The Division of Wildlife Resources' demand for plant materials is expected to exceed 6 million plants and 4,000 pounds of warm-season grasses annually.

Forestry Development Act. The Division of Forest Resources' demand for plant materials has increased by 2 million plants and is expected to continue.

Arbor Day program. Subject to availability, seedlings are provided to school for third-grade programs as part of an educational effort to teach conservation ethics.

DOT right-of-way planting program. In cooperation with DNR, the Department of Transportation (DOT) plants roadless property to trees to provide windbreaks, wildlife habitat, and the like; and restores miles of right-of-way to native grasses and forbs.

Windbreaks program. Landowners and residents are becoming aware of the important benefits and dollar savings that windbreaks and shelterbelts can provide. It is estimated that another 1 million plants are required annually to meet these needs.

Interest, concern, and the need for additional seedlings will be generated by statewide tree planting, stewardship, and other state and national programs such as the America the Beautiful program, Project Learning Tree, Global ReLeaf, Planting for the Planet, Trees Across America, and energy-credit programs.

These programs have heightened the participation and interest of private landowners. Farmers are seeking tree- and shrub-planting stock in an effort to diversify their income opportunities, restore their lands, and achieve compliance with

the mandates of state and federal erosion-control programs; but the demand far exceeds the supply available from existing private and public sources.

We must produce more than 13 million tree and shrub seedlings annually if we are to meet statewide conservation objectives. DNR facilities currently produce only 6 million plants annually. Production capacity for the nurseries was increased in the early 90s, and DNR has tried to secure plant material from private, commercial nurseries. Production must increase, however, to meet the long-term needs for seedlings, and additional funds must be allocated for that purpose.

Urban & Community Forestry

Urban areas are not well recognized for the opportunities they could provide in green space, wildlife habitat, recreation, and other benefits. Here green spaces do not compete with agricultural use but rather must be protected from development. Urban and community forests provide aesthetic and recreational benefits to residents and are often the only contact people have with their living heritage. In addition, trees help to save energy and reduce fossil fuel consumption, thus reducing the greenhouse effect.

The Illinois legislature has enacted the Urban and Community Forestry Assistance Act but not appropriated funding. If funded, the program would encourage local participation by providing matching grants.

Communities should be informed about the advantages of comprehensive urban forestry programs and assisted in realizing those advantages.

Today's communities need to plant and replace more trees and need ongoing maintenance programs. Educational efforts in this area must be greatly expanded.

At present there is a shortage of financial and technical resources, information, and trained personnel to help manage urban forests.

Many long-term problems, such as inadequate open space and water-resource degradation, are caused by short-term approaches. To compensate, communities and regional planners need to understand how to use forestry information and natural resource inventories to plan and integrate forestry considerations into other community programs.

Urban and community forestry programs not only help enhance communities and the quality of life but also reduce long-term costs in utility line-tree conflict, flood and storm mitigation, and energy consumption. The investment in high-quality urban and community forestry programs is returned many times over in the benefits these programs provide to our communities.

Forest Industry

Timber sales and the manufacture and sale of finished forestry products can stimulate owners to manage their forest properly and thus increase production and the overall benefits. Without doubt, a diverse forest-products industry can contribute to the economic health of the state, especially in rural areas.

To maintain and expand a successful wood-using industry in Illinois, five elements are required: (a) raw material, (b) a market for products, (c) efficient harvesting practices,

(d) improved production and utilization of the resources, and (e) revisions to the legislation now contributing to escalated operating costs (e.g., high truck-license fees, high workers' compensation and unemployment insurance rates).

Increasing fragmentation of the resource base, combined with a shorter tenure of ownership for forest land, have had a great impact on the timber industry in Illinois. Loggers and sawmillers face higher operating costs obtaining timber from smaller parcels of land (e.g., more expensive machinery, higher fuel and labor expenses). For the industry in general, comparatively high workers' compensation and unemployment insurance rates, high utility rates, high truck-license fees and transportation costs, and a shrinking labor pool have also increased costs for operators.

Many landowners are not aware of the value of the timber on their woodlands, and those that are may be reluctant to harvest timber.

Many secondary wood-using firms in the state are unaware that Illinois hardwoods are available and similar in quality to those purchased from other states. No central market exists to bring buyer and seller together. Landowners must have access to reliable information and estimates on the value of their timber.

The lack of an accessible marketing system has contributed to the present composition of the forest. The volume of locally grown high-quality hardwoods must be increased through better management.

Production capacity in the logging industry and primary wood-using industry must be stimu-

lated. Particular attention should be given to substantially increasing the number of lumber-drying and surfacing facilities. Illinois' present secondary wood industry could absorb much of any increased primary production.

Forest-related industries can be diversified. We must continue to explore opportunities to market wood wastes and residues, not only to meet local energy needs but also to reduce land-fill requirements and possibly to reduce the use of fossil fuels.

The foreign trade of Illinois' forest products, in the form of roundwood, lumber, and finished products, is an extremely complex subject that must be studied carefully. The key factor is to have value added to forest products in Illinois before they leave the state.

We must continue research to improve the use of low-grade wood products, wood residue, and underutilized species.

To address the need for marketing and promotion of Illinois forest products, the Illinois DNR marketing program must be further strengthened by employing professional staff members who have expertise in marketing, promotion, and industrial management.

A growing concern that will affect private forest landowners, their current management objectives, and the availability of timber for the forest-product industry is the reduction of timber that will come from the U.S. Forest Service lands. Coupled with this reduction in timber supply is a reduction of timber that will come from the lands owned by the forest-products industry itself. Demand for forest products shows no indication of decreasing. Therefore the

only source of raw material that potentially could be expanded is from the private forest landowner. As demand remains stable or increases, and as supply decreases from U.S. Forest Service lands and forest-industry lands, prices for privately owned timber will increase. As prices increase, more privately owned timber will be harvested.

Erosion and Water Quality

The best approach to protecting surface-water quality and reducing soil erosion is to minimize disturbance of vegetative cover adjacent to waterways, particularly on slopes. In urban areas, major disturbances resulting from development must be mitigated. And in rural areas, detrimental practices associated with agriculture, silviculture, and road building must be modified.

Planting and retaining "vegetative filter strips" and riparian forest buffers must be emphasized in the management of lands along streams in Illinois. Livestock access to streams should be limited.

Development should be designed to minimize sediment runoff into streams.

Nutrient and pesticide management and livestock-waste management must be improved to minimize runoff into streams and prevent contamination of water supplies.

Coordinated incentive programs and statutory protection that encourage retaining riparian and windbreak forests are needed.

Model county plans and ordinances that require retaining corridors of vegetation and establishing erosion controls must be formulated and promoted across the state.

The Conservation Reserve Program (CRP), Conservation 2000, and other state and federal programs have funds for "filter strips" and riparian forest buffers along streams. Restoration of windbreaks also qualifies for funding. With the conversion of acreage to CRP forest land, an estimated annual savings of 6.4 million tons of topsoil has been realized. Incentives must be in place to retain CRP lands after the initial contract period.

The Conservation Reserve Enhancement Program (CREP) is a joint federal and state incentive program to retire 232,000 acres of environmentally sensitive land in the Illinois River



Photo: John Edgington

Watershed. The main purpose of the program is to reduce sedimentation and siltation in the Illinois River. The federal incentive program consists of a continuous signup Conservation Reserve Program (CRP) with 15-year contracts within the selected watershed boundary, plus up to 50 percent cost-sharing to establish approved conservation practices that favor the restoration of wetlands and the establishment of riparian forest buffers and filter strips. State incentives include up to 50 percent cost-share reimbursement for the remaining cost to establish the approved conservation practices, a 15- or 35-year extension of the CRP contracts, or the purchase of a voluntary permanent conservation easement on the land covered by the CRP contract. The state can also accept additional, qualifying land not in CRP into the CREP under a permanent conservation easement.

The cost of treating surface-water supplies should decrease as water quality improves. Recreation and tourism, as well as public health and safety, will benefit from improved water quality. The use of trees and forestry practices such as filter strips, forest terraces, and buffer strips will help to prevent erosion and improve water quality by stabilizing banks and reducing runoff.

Protection

Illinois' forest and associated lands have been harmed in the past by both natural causes and human use or abuse. For example, controlled fires can be a beneficial management tool, especially for control of exotics, but uncontrolled fire is generally destructive to the forest and

related resources. The conversion of forest land to cropland, pasture, and developed areas, as well as improper harvesting practices, has contributed to the loss of another valuable natural resource, Illinois' fertile topsoil. The loss of forest cover has also adversely affected water quality throughout the state. Forest pests such as the gypsy moth are an emerging threat, and Dutch elm disease has removed many street trees in urban areas. Nearly 460,000 acres of our forest land are suffering from the effects of livestock grazing. Exotic species, which are invading Illinois forests and associated lands at an alarming rate, are negatively affecting native species.

Close evaluation of forest pesticides, treatment, and application is necessary to keep foresters, community leaders, and landowners informed about new developments.

Rural fire departments have shown increased interest in wildfire-suppression training over the years. With rural buildup of housing, business, and industry, these small rural fire departments are desperately in need of funding and additional technical and training assistance.

Improvements and expansion of Department of Natural Resources recreation facilities have also increased the need to fund and train rural fire agencies and Department of Natural Resources personnel.

Educational programs need to be expanded in both urban and rural areas to explain the consequences of indiscriminate use of off-road vehicles and to help citizens identify insect and disease problems and fire hazards. Protection education can be incorporated into existing programs such as Project Learning Tree, Tree City USA, and extension programs.

Technical assistance should be available to landowners and communities to assist with forest health.

Enhanced evaluation and monitoring of harvest practices to ensure environmental quality must be continued.

Sustainable Forestry

Sustainable forestry, sometimes called "ecosystem management," focuses on the retention, conservation, and health of the forest land so that our forests continue to provide the multiple benefits that citizens of Illinois expect. This includes maintaining a viable forest-products industry, sufficient economic incentive for landowners to retain and manage forest land, and attention to the protection and management of Illinois wildlife. It also involves the education of the 169,073 landowners who control the fate of our forests.

Forest sustainability requires decades of stewardship by current and future landowners. Planning and management activities over a long period of time are necessary to reach and maintain sustainability. Ownership patterns have changed. Landowners are no longer dependent on their forests for income but instead manage their lands as a hobby, as a secondary income, or simply for the appreciation of nature. Because of frequent ownership changes and the possibility of increased real estate taxes, many landowners are unwilling to implement forest-management practices that could increase recreational opportunities, wildlife habitat, and the many other benefits forests provide. Some federal and state programs are available to offset some of the management

costs that the landowners will bear during their ownership.

Sustainable forests can enhance forest productivity with respect to habitat, botanical/zoo-logical diversity, wood products, and recreation/aesthetic benefits while minimizing impact from forest insects and diseases, wind, and fire. Forest land is influenced by surrounding functions and processes (e.g. nutrient cycling, wildlife habitat, water flow). Sustainability will require landowners to consider the relationship of their property with surrounding ownerships. Forest ecosystems are not constrained by ownership or political boundaries.

Cooperation among the diverse groups who use the forest resource is vitally important to the goal of sustainable forestry. These groups include the forest industry, passive recreation users, wildlife managers and observers, watershed managers, foresters, forest landowners, hunters, anglers, and any other group that has an interest in maintaining a viable, healthy, and productive forest.

The Council and Conservation Congress are examples of these groups. Additional groups are needed to increase dialog, open communications, and reach compromises and solutions to our resource issues and problems.

Education

A comprehensive natural resource education program will act as a springboard for the forestry community's efforts to inform the general public of the value and need for Illinois' forests. This program will provide the education leadership in forest and native wild plant conservation while

striving to instill a stewardship ethic in the Illinois citizenry. Many people have never been exposed to basic ecological principles, and they are unaware that our survival depends on the health of the environment. How can people be expected to support the recommendations put forth in this publication, if they do not understand the urgency of doing so?

The average citizen does not perceive the many benefits of our forests and in fact may not even associate the tree in the backyard with the rural forests. These may be totally different ecosystems, but the basic ecological functions that all trees perform include watershed protections, wildlife habitat, and oxygen production. Trees also provide human and social benefits, including recreation, biomass, aesthetics, and noise and air filtration.

Until they are gone, trees in both the urban and rural environment are often perceived as only a backdrop for human activity. The timespan encompassed in the life of forests is another difficult concept. Our generation does not appreciate the perspective of our grandparents, who saw the evidence of forest exploitation in the nineteenth century and grew up with the "new forests."

In response to the Council's early recommendation for a comprehensive education program, the University of Illinois, Department of Forestry established the Illinois Forest Resource Center (IFRC) in southern Illinois. The IFRC serves as an information clearinghouse and assists in educational program development. Accessible to the public as well as to natural resource agencies, the IFRC emphasizes

improved landowner education through targeted information programs. The center combines the research, teaching, and extension functions of the University into a public service program designed to complement and enhance forest-education efforts throughout the state.

Over the past few years, the Department of Natural Resources has increased the partnerships and participation in the Project Learning Tree Education Project, expanded the Stewardship Week programs into northern and western parts of Illinois, and promoted Stewardship Days in Chicago in connection with the Chicago Park District. To further the education program, the Department developed the Illinois Tree Trunk Education Project to provide educators with hands-on materials. Conservation education is one of the most important tasks to enhance and conserve our Illinois forest resources.

About 25 percent of Illinois citizens attend schools where the basic concepts of ecology and conservation are not regularly taught or required. Environmental classes that include forestry concepts must be integrated into and required in public school programs. The principles of ecology and conservation should be incorporated into many of the traditional areas of study.

To ensure that future teachers of conservation are qualified, state colleges and universities should require coursework in conservation and the proper use of natural resources in order to obtain degrees in education.

Equally important is the need to educate the state's adult population, those whose decisions today will affect the natural environment for years to come. Ways must be found to more

effectively influence this group, which includes legislators, policymakers, the media, and citizens.

Additional professional forestry-education programs are needed to update professionals and to prepare managers for the future. We must also expand programs that emphasize safety, harvesting, utilization, and marketing information targeting the forestry industry.

Current natural-resource education programs need more funding. The several state and national programs can be further expanded for educational purposes without the expense of creating new programs. These programs and sources include the Illinois Environmental Education Association, Project Learning Tree, Illinois Regional Education Resource Centers, Cooperative Extension Service, and Department of Natural Resources educational programs.

Research

Clearly Illinois forests are not producing their potential benefits. Although the technology for many improvements is understood and available, many remaining problems require continued research efforts.

Requests for information from new and existing wood-related industries have outstripped our ability to provide adequate and current information. Department of Natural Resources inventories and studies need to be updated. And the transition from high-value oak-hickory forest types to lower-value maple and beech types must be addressed.

Research needs can be divided into two broad categories.

Illinois needs to continue research on management practices and a comprehensive forest data storage and retrieval system. Such information and data will enable forest landowners and manufacturers to make informed decisions and invest their time and funds in Illinois rather than elsewhere. These studies provide the information needed to further enhance, protect, and understand our natural resources and the complicated and dynamic ecosystems of forests. A wide range of interdisciplinary research should be undertaken with regard to:

- Woodlot productivity and alternative forest production systems
- Integrated agriculture, forestry, and fuelwood production systems for landowners
- The long-term effects of various management practices on forest and related resources
- The most appropriate silvicultural methods, tree species, and other management practices for different conditions and optimum combinations of benefits

Research on new, improved methods of harvesting and utilizing Illinois forests is needed to increase their overall resource production. Testing and genetic experiments could provide tree varieties that grow rapidly and are resistant to diseases, insects, and drought.

Global warming, water quality, soil erosion, ecosystem management, and related problems—all these demand our attention. Before we can increase the goods and services that flow from our forest and tree resources, we need to update our information about those resources and alternative stewardship and management options.

Goals, Objectives, and Actions

Important steps have already been taken to assess and improve the productivity of our forests and to integrate their many uses. We are encouraged by these first steps, but a great deal of work must still be done. The Illinois Forestry Development Council has therefore developed four goals so that Illinois can fully realize the value of its forest lands:

1. Retain the existing 4.26 million acres of Illinois forests and improve their management, and convert marginal lands to forest cover so that we can take advantage of its many benefits and enjoy the many values derived from forest resources.
2. 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.
3. Promote high-quality urban and community forestry management that will result in economic benefits and in attractive, healthful, and rewarding environments from urban forests for the people of Illinois.
4. Strengthen and expand conservation education programs that instill a stewardship/ management ethic that results in economic, productive, attractive, and healthful forests throughout the state.

In the section that follows, specific objectives and actions are set forth to ensure that we will achieve these important goals on a timely basis. For each action, the council has set a target date and has designated a lead agency (the first one listed) and other agencies as appropriate. Abbreviations for these agencies are presented in Table 7.

Table 7: Abbreviations

CES	Cooperative Extension Service	IRAC	Illinois Rural Affairs Council
Council	Illinois Forestry Development Council	ISAF	Society of American Foresters, Illinois Chapter
FSA	USDA Farm Services Agency	IWPA	Illinois Wood Products Association
FSR	Forest Service Research	NRCS	USDA Natural Resources Conservation Service
GOV	Illinois Governor's Office	RC&D	Resource Conservation & Development Councils
IAA	Illinois Arborist Association	RPA	Regional Planning Agency
IASWD	Illinois Association of Soil and Water Districts	SAF	Society of American Foresters
IDCCA	Illinois Department of Commerce and Community Affairs	SBOE	State Board of Education
IDNR	Illinois Department of Natural Resources	SWCD	Soil and water conservation districts
IDNR/FR	Illinois Department of Natural Resources/Division of Forest Resources	TNC	The Nature Conservancy
IDNR/NH	Illinois Department of Natural Resources/Division of Natural Heritage	Universities	University of Illinois at Urbana-Champaign Southern Illinois University at Carbondale
IDNR/NHS	Illinois Department of Natural Resources/Natural History Survey	USFS	U.S. Forest Service
IDOA	Illinois Department of Agriculture	USFS/NFS	U.S. Forest Service/National Forest System
IDOT	Illinois Department of Transportation	USFS/R	U.S. Forest Service/Research
IEC	Illinois Environmental Council	USFS/S&PF	U.S. Forest Service/State and Private Forestry
IFRC	Illinois Forest Resource Center	Wildlife Organizations	The entire wildlife community
INA	Illinois Nurseryman's Association		
Industry	Forest industry		

Goal 1: Retention and Conversion

Retain the existing 4.26 million acres of Illinois forests and improve their management, and convert marginal cropland to forest cover so that we can take advantage of its many benefits and enjoy the many values of forest land.

Objective 1

Strengthen the programs of various agencies and their ability to provide more landowner-oriented technical, stewardship, and management assistance.

■ Actions

- Increase Division of Forest Resources field staffing. At least 12 additional professional foresters are needed, and at least 1 technician and clerical should be available as support staff for each professional forester.
Council, IDNR, GOV
FY 99-2000
- Implement the recommendations passed by the 1995 Conservation Congress that address staffing to achieve expanded programs on private lands.
IDNR, Council, GOV
FY 99-2005
- Provide training and encourage the use of private consulting foresters to assist private landowners with forest stewardship activities.
IDNR, Council
Ongoing
- Accelerate the collection, interpretation, and dissemination of scientific information describing Illinois ecosystems and natural resources.
Universities, IDNR/NHS
FY 2000-05
- Increase support and operational funds for Division of Forest Resources personnel and programs.
IDNR, GOV
FY 99-2005

- Support and continue research on forest landowners' needs, motivations, and expectations.
IDNR, Universities, FSR
Ongoing
- Maintain an annual review of the long-term needs and opportunities of the Division of Forest Resources for staffing and programs.
Council, IDNR
Ongoing
- Facilitate and enhance coordination of forestry, wildlife, and agricultural programs of IDNR, SWCD, USFS, NRCS, CES, FSA, and others.
Council
Ongoing
- Support the continuation of existing, and provide financial and technical assistance for new, regional forest landowner organizations.
Council, Universities, IDNR, RC&D
FY 2000-05
- Expand development of partnerships with organizations and other agencies to develop common resource-management objectives.
Council, IDNR
Ongoing
- Support and encourage real estate tax incentives for private landowners who manage land for wildlife.
Council, Wildlife Organizations
FY 2001
- Utilize public lands for demonstrations of forest-stewardship practices.
USFS/NFS, IDNR, Universities
Ongoing



Photo: John Edgington

- Develop programs that will incorporate all stewardship values in the management of the forest.
Universities, USFS/R, IDNR/NHS, USFS/S&PF
FY 2001-02
- Actively support the forest-stewardship practices that are a part of Conservation 2000 and ecosystem-management programs.
Council, IDNR, IDOA
FY 99-2005
- Provide a forest-management scientist to act as a direct link among researchers, forest managers, and landowners.
Universities, IDNR, Industry, USFS/R, USFS/NFS
FY 2000
- Accelerate the collection, integration, and dissemination of scientific information describing Illinois ecosystems and natural resources.
Universities, IDNR, INHS
FY 2000
- Make real estate and income tax information available to private landowners and investors.
CES, IDNR, USFS/S&PF, SWCD, IDOA
Ongoing
- Continue to work with the Access Illinois program to promote the use and benefits of Illinois forests as a hunting and recreation resource.
Council, IDNR, IDOA, RC&D
Ongoing
- Support insect and disease research programs, with an emphasis on integrated pest management.
IDNR/NHS, USFS/R, Universities
Ongoing
- Establish standards for evaluating and monitoring ecosystems' health and the effectiveness of ecosystem-based management efforts.
IDNR, Council
FY 2000
- Continue to conduct insect and disease surveys. Distribute publications as appropriate and add this new information to computerized database.
USFS/R, USFS/S&PF, IDOA, IDNR/NHS, Universities, CES
Ongoing
- Increase public awareness of the use of prescribed fire as a management tool and vegetation-control technique and provide accelerated training to practitioners and volunteers.
IDNR, USFS/R, Universities, CES
FY 2000-05
- Continue the cooperation between the Department of Natural Resources and the Forest Service to provide fire protection in and around the Shawnee National Forest.
IDNR, USFS/NFS
Ongoing
- Continue the training of local rural fire departments in wildfire prevention and suppression.
IDNR, USFS/S&PF
Ongoing
- Establish a rural fire matching-grant program to help rural fire departments obtain the equipment and training needed.
Council, IDNR, GOV
FY 2001-02
- Continue wildfire reporting and use statistics to identify problem areas and monitor program effectiveness.
IDNR, USFS/S&PF
Ongoing
- Continue the Big River Fire Compact to coordinate fire activities in the four-state area.
IDNR
Ongoing

Objective 2

Enhance forest health through the protection of forests and associated land from the invasion of exotic insects and disease and from physical degradation.

■ Actions

- Increase involvement of the Division of Forest Resources by adding staff in forest protection; specifically, create new positions for fire protection, pest management, and forest-health monitoring.
IDNR
FY 2001

- Research and apply the most appropriate methods to control undesirable and exotic species and establish a monitoring system for the intrusion of exotic species.

IDNR/NH, IDNR/NHS, Universities
FY 2000-03

Objective 3

Increase understanding of complex and dynamic ecosystems of forests, including maintaining current data about forest resources.

■ Actions

- Seek and conduct a comprehensive statewide forest inventory (CFI) at regular 10-year intervals. Remeasure and establish new CFI plots on Trail of Tears Forest at 10-year intervals.

IDNR, IDNR/NHS, USFS/R
FY 2001-03

- Implement the 1998 Farm Bill as it relates to the annual Forest Inventory System.

USFS/R, IDNR, IDNR/NHS
FY 2000-03

- Develop and maintain accurate county-wide forest data, maps, and a computerized forest-resource database.

Council, IDNR, and Cooperators
Ongoing

- Implement the Forest Health Inventory Program for Illinois.

USFS/R, IDNR
FY 2000

- Compare the relative benefits of different management options, and determine how ecological and economic values can be considered in forest-management decision-making.

Universities, USFS/R
FY 2001-02

- Conduct research to determine the best silvicultural methods, tree species, and other forest-management techniques for different conditions and desired combinations of benefits.

Universities, USFS/R, IDNR/NHS
Ongoing

- Evaluate the long-term effects of different forest-management practices on all forest resources, and determine how differing landowner goals and objectives interact with the interests of commercial forestry.

Universities, USFS/R
FY 2001-02

- Expand research on forest productivity and alternative forest-production systems.

Universities, USFS/R
Ongoing

- Expand monitoring of the harvesting of ginseng in Illinois and include other commercially valuable native plant species.

IDNR
FY 2000

- Expand research and implement an agro-forestry system for private landowners.

Universities, USFS/R, IDNR/NHS, NRCS
Ongoing

- Study the implications of the "hard maple takeover" process in forest stand dominance and the techniques to maintain oak-hickory forests.

Universities, USFS/R, IDNR/NHS
FY 2002-03

- Continue the use of current research in genetics and tree improvement.

IDNR, Universities, USFS/R
Ongoing

Objective 4

Encourage long-range planning for public and private forest lands.

■ Actions

- Implement the short-term, long-range, and executive actions recommended in the Governor's Land and Water Task Force Reports, the reports of the Conservation Congress, and previous reports of the Council.

IDNR, Council
Ongoing

- Utilize stewardship concepts in the planning and management of both public and private forest land.
IDNR, USFS/NFS
Ongoing
- Develop vegetative management plans for state wildlife refuges and other public lands to increase wildlife production and botanical diversity by silvicultural systems.
IDNR
Ongoing
- Encourage and assist in the development of long-range land-management plans for all state-owned lands.
IDNR/DF, Council
FY 2000-05
- Encourage landowners with timber sales to have an approved management plan before a sale and to meet the requirements for FDA cost-share and other technical programs.
IDNR, Council, RC&D, IDOA
Ongoing
- Provide technical assistance in the development of forest-related uses for public lands.
IDNR
Ongoing
- Encourage other public agencies that control undeveloped land to coordinate similar long-range planning activities.
Council, IDNR, GOV, IRAC
Ongoing
- Revise every 5 years the Council's Long Range Plan for Illinois Forest Resources that encompasses both public and private lands.
Council, IDNR
Ongoing

Objective 5

Encourage forest landowners to cooperate in state programs that protect our natural resources.

■ Actions

- Encourage state or private organizations to purchase or obtain conservation easements on selected, high-priority sites identified in the Illinois Natural Areas inventory to ensure their preservation and management.
IDNR, TNC, GOV
Ongoing
- Continue to fund the Forest Legacy Program and acquire by easement those critical resource areas.
USFS/S&PF
FY 2000-05
- Continue ecological research to ensure maintenance of high-quality natural areas (e.g., control exotics, maintain threatened and endangered species).
IDNR/NHS, TNC
Ongoing
- Continue land-exchange programs or purchase natural areas for public ownership for greater protection.
USFS/NFS, IDNR, TNC
Ongoing

Objective 6

Increase the net growth and overall quality of the forest.

■ Actions

- Develop and apply silvicultural regimens that can improve the development, net growth, and quality of existing forest land.
IDNR, Universities, USFS/R
Ongoing
 - Develop growth models that accommodate timber-quality factors, economic values, and environmental considerations.
IDNR, Universities, USFS/R
Ongoing
-



- Collect soil site-index data for selected forest soils in counties as soil surveys are conducted.

NRCS, USFS/NFS
FY 2001-05

- Promote the farmland assessment provision as a prime incentive for landowner participation in wildlife-habitat programs.

IDNR, CES, SWCD, NRCS, IRAC
Ongoing

- Continue to provide no-cost seedlings to landowners with approved resource plans.

IDNR
Ongoing

- Work with nurseries to encourage production of the needed volume and desired types of planting stock.

IDNR, NRCS, Council, INA
Ongoing

- Provide adequate financial resources to maintain nursery operations and facilities.

IDNR
FY 2000

- Establish focused programs to promote the use of windbreaks, shelterbelts, and streambank protection, particularly in central Illinois and on critical soils. The benefits of plantings for wildlife habitat and other environmental enhancement should be stressed.

CES, SWCD, IDNR, USFS/S&PF, NRCS
FY 2001-05

- Encourage rural real estate appraisal certification bodies to develop criteria and provide guidance so that appraisers will give full value to forest lands and forest-management practices.

Council, CES, Universities
FY 2001

- Seek legislation to achieve a reduction of estate taxes on heirs if they retain and maintain forest land.

Council
FY 2000-01

Objective 7

Continue and improve incentives for encouraging the maintenance and active management of privately and publicly owned forest land and encourage private landowners to convert marginal cropland to forest cover.

■ Actions

- Continue the Forest Development (FDA) cost-share program.

IDNR
Ongoing

- Support the expansion and continuation of federally authorized forest-stewardship programs and its incentive program, SIP.

IDNR, Council, FSA, All Cooperators
FY 2000

- Review the 4 percent harvest fee collection procedure and other revenue sources for possible alternative funding for the cost-share program.

Council, IDNR
FY 2000

- Continue to support expansion of other federal forestry programs (e.g., WHIP, FIP).

Council, IDNR, All Cooperators
FY 2000-01

- Encourage private, tax-deductible contributions and donations to the Forestry Development Fund.

Council, IDNR
Ongoing

- Encourage and develop state legislation that will encourage property owners to improve wildlife habitat on lands not covered by the Forestry Development Act. Such legislation could include cost-sharing for wildlife habitats.

IDNR, Wildlife Organizations, Council
FY 2000-01

Goal 2: Meeting Product Demand

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.

Objective 1

Provide technical assistance to industry for the most efficient utilization and maintenance of the renewable timber resource in the state.

■ Actions

- Conduct workshops for forest-industry personnel that identify processing methods that improve the efficiency of the industry; identify value-added technologies that can be economically beneficial to Illinois wood industry; identify new markets for wood products produced in Illinois; and identify new markets for underutilized wood products and wood residue.
IDNR, CES, Universities
Ongoing
- Provide workshops on Best Management Practices (BMP) to landowners and the forest industry. Develop a handbook for such workshops.
IDNR, IFRC, CES, SWCD, USFS/S&PF
FY 2001-02
- Provide training in good forest management and proper harvesting practices for landowners, loggers, and timber-stand improvement crews.
IDNR, Universities, CES, IWPA, USFS/S&PF
Ongoing
- Provide formal training workshops for timber buyers and license applicants regarding their responsibilities when they purchase, harvest, and transport Illinois forest products.
Council, CES, IDNR
FY 2000-05

- Provide a forest-product technologist who will act as a direct link between the wood industries, university researchers, and other forest-related agencies.
IDNR, Universities, USFS/S&PF, Industry
FY 2001

Objective 2

Develop a strong marketing program for Illinois wood, wood waste, and wood products, including marketing and merchandising assistance at local, regional, national, and international levels.

■ Actions

- Develop an Illinois wood-use promotional program at local, regional, national, and international levels.
IRAC, IDNR, IDOA, IDCCA, WTC
FY 2002-05
- Identify and develop markets for low-grade and high-grade wood products.
IDNR, All Agencies
FY 2000-05
- Continue to organize and encourage the formation of Resource Conservation and Development councils (RC&Ds) throughout Illinois.
NRCS, IDNR, Council
Ongoing
- Develop forest-product marketing newsletters for landowners and all levels of the wood-using industry.
IDNR, CES, IDOA
FY 2001-05
- Create an IDNR forest-products marketing and promotion program.
IDNR
FY 2002
- Encourage the adoption of technologies and practices that reduce waste in harvesting, transportation, and storage of forest products.
IDNR, Council
FY 2000
- Market the potential use of timber bridges in rural applications.
IDNR, IDOA, IDOT, USFS/S&PF, IRAC
Ongoing



Photo: John Edgington

- Support nonhighway uses of wood in pedestrian and speciality transportation projects.
IDNR, IDOT, Council
Ongoing
 - Market and promote the use of wood biomass as a source of energy.
IDNR, IDOA, Council
Ongoing
 - Examine the effects of exportation of logs and lumber from Illinois.
IDNR, Universities
FY 2002
 - Develop a wood-exporting handbook.
IDNR, IDOA, IDCCA
FY 2004
 - Support forest-based travel and tourism projects that encourage cooperative efforts between responsible agencies.
USFS, IDNR
Ongoing
- Objective 3**
-
- Increase production and expand the capacity of the logging industry, the primary wood-using industry, and the secondary wood-processing industry.
- **Actions**
- Develop linkages to improve (tackle) the general adverse business climate in Illinois.
IWPA, Universities, IDNR, Council
FY 99-2002
 - Examine the production capacities of primary and secondary wood industries.
IWPA, Universities, IDNR
Ongoing
 - Identify methods to reduce workers' compensation rates and retain the same level of protection.
IDNR, IWPA
FY 2000-02
 - Simplify the Forest Products Transportation Act to include a log-truck registration system.
Council, IDNR
FY 2000-01
 - Increase the number of lumber-drying and surfacing facilities in Illinois.
IDCCA, IDNR
FY 2001-02
 - Develop an investment analysis and prospectus to explain the opportunities in Illinois forestry and forest products.
Council, IDNR, IDCCA, IDOA, Universities, CES
FY 2001
 - Promote wood as a fuel resource by providing information on wood-conversion methods, needs, and available resources.
IDNR, USFS/S&PF, Council, Universities
Ongoing
 - Study alternative financing and taxing strategies that will encourage potential forest-industry investors.
Council, IDNR
FY 2002-03
 - Develop and maintain a timber-supply base of high-quality hardwood sawtimber from Illinois public and private lands.
USFS/NFS, IDNR, CES, SWCD
Ongoing
 - Study the need for the establishment of a forest-certification program for the state resource.
Council
FY 2001-02

Objective 4

Develop a comprehensive incentive system to encourage the establishment of new wood-using industries, especially secondary wood-processing industries.

■ Actions

- Review and update existing forestry legislation, with input and participation from Illinois wood industries.

Council, IWPA, IDNR
FY 2001

- Study alternative financing and taxing strategies that will encourage potential forest-industry investors from outside Illinois.

Council, IWPA
FY 2001

- Promote the use of wood and wood products through educational activities such as art displays, museum shows, fairs, forestry and woodland expos, and related activities.

IDNR, Other Partners
Ongoing



Photo: Dave Williams

Goal 3: Urban Forestry

Promote high-quality urban and community forestry management that will result in economic benefits and in attractive, healthful, and rewarding environments from urban forests for the people of Illinois.

Objective 1

To encourage and enhance cooperation, networking, and partnerships between and within public and private agencies and organizations.

■ Actions

- Encourage and support Urban and Community Forestry programs at the federal, state, and local levels.

IDNR, CES, IAA, NRCS
Ongoing

- Develop and establish a program to provide stable funding for urban and community forestry programs.

Council, IDNR, IAA, INA, IASWD
Ongoing

- Develop an information and education program to improve: (a) public knowledge and awareness, (b) public support, and (c) interdepartmental and other agency coordination for urban and community forestry management.

Council, IDNR, CES, NRCS
FY 99-2001

- Develop a recognition program for urban partners.

IDNR, Council, CES, NRCS
FY 2000

- Encourage more interaction and cooperation between governmental agencies and nongovernmental organizations to identify common issues, develop strategies, and strengthen commitments to urban and community forestry.

Council, IDNR, CES, IAA
Ongoing



- Encourage and assist in the development of additional groups of diverse interests to discuss and achieve compromise and a balance of resource issues.

Council, Universities, IDNR
FY 2001-03

Objective 2

Promote high-quality urban and community forestry practices and management through technical assistance, education, technology transfer, and research.

■ Actions

- Promote development of statewide public policies that encourage and provide financial support for research and programs aimed at applying an ecological approach to urban forest-resource management and land-use decisions.

IDNR, Council, IAA, NRCS
FY 99-2005

- Promote training and development to expand the capabilities of urban and community forestry practitioners, related disciplines, and volunteer organizations.

Council, IDNR, IAA, CES
Ongoing

- Maintain current and secure additional state and federal assistance for urban and community forestry programs and projects.

Council, IDNR, IAA
FY 2000-05

- Support research for the improvement of urban and community forestry.

Council, IDNR, CES, NRCS, Universities
Ongoing

- Increase urban and community forestry staff within the CES in urban areas.

CES, Universities, Council
FY 2000-05

- Encourage units of government to implement acceptable tree-care practices and utilize professional urban foresters and arborists in their local tree maintenance, urban planning, and development programs.

Council, IDNR, IAA
Ongoing

- Expand current technical assistance to units of government by increasing Division of Forest Resources staff to include a minimum of 8 additional urban forestry field professional employees, plus support staff.

Council, IDNR, IAA, INA, Others
FY 99-2001

- Facilitate ecosystem-level management initiatives that increase linkages with programs associated with wood-waste reduction and recycling, timber supply, watershed management, management in the urban-wildland interface, and so forth.

IDNR, Universities, Council, NRCS, IAA, CES
Ongoing

Goal 4: Education

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

Objective 1

Coordinate a statewide information program to educate landowners about techniques and the improvement of active forestland stewardship in order to achieve multiple benefits.

■ Actions

- Encourage landowners to have a long-range plan prepared by a professional before a timber sale and utilize a written contract to implement the sale.

IDNR, Council, IDOA, Industry
Ongoing

- Inform landowners of the opportunities and benefits available by following good forest stewardship.
CES, IDNR, IFRC, NRCS, SWCD
Ongoing
 - Inform landowners of the economic opportunities from recreational use of their forest lands.
CES, IDNR, IFRC, NRCS
Ongoing
 - Help soil and water conservation districts and landowners to protect forest lands from grazing and to plant trees on highly erodible lands.
CES, IDNR, SWCD, NRCS
Ongoing
 - Continue to inform and demonstrate the economic benefits and cost of forestry versus row cropping.
CES, NRCS, SWCD, IDNR
Ongoing
 - Encourage landowners and timber buyers to identify property lines before implementing a timber sale.
Council, IDNR, IWPA, Industry
Ongoing
 - Incorporate forestry into regional and local planning efforts.
IDNR, RPA, NRCS, RC&D, SWCD
Ongoing
 - Incorporate forestry considerations into the existing educational programs of state agencies.
Council
Ongoing
 - Promote and expand the use of existing resources and programs such as Tree Trunks, IDNR Education Kits, Tree Farm, Project Learning Tree, Project Wild, and the training of secondary and high school teachers.
IDNR, CES, SBOE, IFRC, SWCD
Ongoing
 - Develop a forest-awareness program within the IDNR.
Council, IDNR
FY 2000-01
 - Continue to inform forest landowners associations, expand their activities, and encourage the formation of such groups in southern Illinois and the Chicago area.
CES, IDNR, SWCD, RC&D, IFRC, Council
FY 99-2005
 - Continue to inform landowners and firewood users about what to cut and what to protect in order to ensure further timber products.
IDNR, CES, IFRC
Ongoing
 - Support and promote forest-stewardship activities in Conservation Priority Areas and C-2000 Resource Partnership Areas.
Council, IDNR, NRCS, SWCD
Ongoing
 - Develop and distribute informational materials emphasizing the compatibility of timber and wildlife management.
CES, IDNR, Universities
FY 2000-05
 - Distribute and promote the use of "A Landowner's Guide to Woodland Stewardship."
Council, IFRC
Ongoing
 - Provide information and encourage the involvement of CES Natural Resource Educators in forest-stewardship education activities.
CES, Council, Universities
FY 99-2001
 - Provide training and assistance to NRCS district personnel in selecting, planting, and maintaining forest tree plantations and forest lands.
IDNR, CES, NRCS
Ongoing
 - Promote the use of Best Management Practices (BMPs) by all forest landowners and users.
IDNR, NRCS, SWCD, IFRC
Ongoing
 - Put forestry-education information for landowners and forest industries on the Internet.
CES, Universities, IDNR
Ongoing
-

- Continue to promote the use and establishment of windbreaks and shelterbelts to reduce wind erosion, benefit other crops and wildlife, and conserve energy.
CES, NRCS, IDNR
Ongoing
- Support and promote forest-stewardship activities in the Illinois River Valley Program.
IDNR, NRCS, FSA, CES, SWCD
Ongoing
- Encourage the planting and maintenance of forest riparian areas.
CES, NRCS, IDNR, FSA, IFRC, SWCD
Ongoing
- Provide economic data that will encourage the use of windbreaks, fuelwood, and passive solar systems in place of nonrenewable sources of energy.
CES, IDNR, Council, NRCS, SWCD
FY 2000-02
- Provide information packages for landowners that encourage the integration of agroforestry into farming operations.
NRCS, IDNR, CES, IFRC, SWCD
Ongoing
- Encourage and promote the development of forest-stewardship informational materials, the use of BMPs, conferences, workshops, and the celebration of Arbor Day and Earth Day.
IDNR, CES, IFRC
Ongoing
- Develop and publish educational posters, materials, and displays for all age groups on the stewardship of forest land.
IDNR, CES, IFRC
Ongoing
- Sponsor and encourage programs where urban people visit rural people to learn about forest management.
CES
FY 2000-05
- Sponsor stewardship weeks and stewardship days for children of all ages.
IDNR, CES, IFRC
Ongoing

- Increase public awareness of the wildland-urban interface situation and develop strategies to prevent or mitigate the impacts.
IDNR
FY 2001-05

Objective 2

Educate forest landowners, public officials, and the general public about the important value of natural areas and the need to preserve, protect, and manage those areas for the future.

■ Actions

- Continue to provide and promote instruction in the multiple-use benefits of good forest management/stewardship and natural area management to K-12 aged young people.
Council, IDNR, CES, SBOE
Ongoing
- Provide forestry-related information, assistance, and support to the General Assembly and the Governor's Office.
Council, IDNR
Ongoing
- Produce public information spots for radio and television on forest-resource benefits, needs, and opportunities.
IDNR, Council
FY 2001-02
- Provide information on forest land values and management for real estate brokers and agents.
Council, CES
FY 2001-02
- Provide information on forest stewardship that demonstrates the benefits of natural areas and natural heritage values.
IDNR, CES, IFRC
FY 2001-05
- Provide timely information to the state legislature on conservation education needs, benefits, and opportunities.
Council
Ongoing

- Integrate forest information into 4-H, Future Farmers of America, vocational education, and other programs.

Council, IDNR, CES, IDOA, Universities
FY 2001-03

- Provide education publications and workshops for landowners.

Council, Universities
FY 2001-04

Objective 3

Provide a comprehensive urban forestry-education program to promote the multiple-use values of forest resources.

■ Actions

- Visit urban K-12 classrooms to emphasize urban forest-resource benefits, needs, and opportunities.

IDNR, CES, SBOE
FY 2000-05

- Utilize educational opportunities and develop conservation education programs that promote healthy ecosystems and sustainable urban forests.

Council, IDNR, CES, NRCS, Universities
Ongoing

- Prepare and distribute media promotions for radio, TV, newspapers, magazines, buses, parks, benches, and so forth.

IDNR
FY 2000-01

- Continue to promote and expand the Tree City USA program.

IDNR, IDCCA
FY 99-2005

- Integrate the urban forestry concept with other community programs and groups such as Kiwanis, Lions Club, Rotary, and municipal associations.

Council, IDNR, IAA
FY 2000-04

- Encourage the inclusion of BMP erosion-control practices in all Illinois community ordinances.

Council, IDCCA, IDNR
FY 99-2000

- Continue to distribute trees for Arbor Day programs in schools.

IDNR, SWCD
Ongoing

- Continue to publish "The Prairie Tree Companion."

IDNR
Ongoing

- Establish a tree-planting award program to recognize individual and group efforts that promote tree-planting in urban areas.

IDNR, IEC
FY 99-2000

- Continue to organize and encourage the formation of additional regional urban-forestry councils.

IDNR, Council, IAA
FY 99-2002

Objective 4

Develop and implement education programs for proper harvesting, wood utilization, marketing, and product manufacturing.

■ Actions

- Provide information to timber buyers regarding forestry issues, programs, prices, and activities.

IDNR, FSA, CES, IDOA, IWPA
Ongoing

- Train loggers in low-impact harvest techniques, safe and efficient felling, skidding, and hauling, BMPs, and forest stewardship.

IDNR, USFS/S&PF, CES, Council

- Continue to provide harvesting, utilization, and marketing education programs to update practicing foresters who provide assistance in the state.

CES, SAF, IFRC
Ongoing

Monitoring the Plan

The Illinois Forestry Development Council will monitor the implementation of this revised plan. To do so, we will track the progress of the organizations and agencies that are implementing specific activities. Although the Council is responsible for developing the monitoring system, the Illinois Department of Natural Resources will be the main agency to administer it.

Specifically, IDNR will begin gathering information and will follow up. The department could use its computerized accomplishment reporting system for transferring information from the agencies to a summary report. The Council will then review this report and prepare annual reports to the legislature, indicating progress, adjustments to the plan, and new issues affecting forest resources in Illinois.

Glossary



Acid rain	Precipitation resulting from the dilution of sulfur dioxide and other acidic chemicals in the atmosphere.	Greenhouse effect	Climatic changes resulting from the accumulation of certain atmospheric gases.
Afforestation	The planting of trees on a site where trees were not previously growing.	Growing stock	All live trees in a forest.
Agribusiness	A business in which the main source of income comes from production on agricultural lands.	Habitat	The type of site where a plant or animal naturally grows.
Board foot	A measure of wood volume that equals 1 foot x 1 foot x 1 inch.	Hardwood	General term for broadleaf (dicotyledonous) tree species such as oak, hard maple, and hickory.
Charge capacity	In reference to a wood kiln, the amount of wood that can be dried at one time.	Interdisciplinary	Involving input from several professions.
Commercial forest land	Unencumbered forest land that produces or is capable of producing crops for industrial wood products (more than 20 cubic feet per acre per year when managed).	Interior species	Species that require the type of habitat found in the center of forest stands.
Conversion	A change in forest cover type.	Kiln	A heated enclosure for removing the moisture from fresh-sawn wood.
Ecology	The totality or pattern of relations among organisms and their environment.	Permanent cover	Vegetative ground cover that is not removed annually (i.e., is retained over several years).
Ecosystems	The complex of a biological community and its environment functioning as an ecological unit in nature.	Planer	A piece of machinery used to smooth the surface of a board.
Edge species	Species that require the habitat present at the edge of adjoining plant communities.	Poletimber	Live trees of a commercial species at least 5 inches in diameter but smaller than sawtimber, in good form, and vigorous.
Erosion	The wearing away of materials (soil) by wind, water, and glacial action.	Primary industry	Commercial operations that process roundwood into products that require secondary processing.
Forest cover type	A classification of forest land based on the dominant tree species present.	Reforestation	The regeneration of trees on a site once covered with trees.
Forest land	At least 1 acre, 120 feet wide, stocked to at least 16.7 percent.	Regeneration	The regrowth of forest land.
Forestry	The science of developing, caring for, cultivating, and managing forest resources.	Roundwood	Round sections or materials (chips) from round sections of trees.
Geology	Subsurface features.	Sapling	Live tree with 1.5+ inches diameter at breast height (dbh).
Geography	Physical characteristics of the landscape.	Sawtimber	Live trees of a commercial species at least 9 inches in diameter for softwood and 11 inches in diameter for hardwood species.
Grade	A forestry term relating to the quality of trees for timber-production purposes.	Secondary industry	Commercial operations that utilize the products of primary industry.
		Sediment	Material deposited by wind, water, or glaciers.



Seedling	A live tree of less than 1 inch dbh that is expected to survive. Only softwood seedlings more than 6 inches tall and hardwood seedlings more than 12 inches tall are counted.	Stocking	The degree to which trees occupy land; measured by basal area and/or the number of trees in a stand by size or age and spacing, compared with the basal area and/or number of trees required to fully utilize the growth potential of the land (i.e., the stocking standard).
Siltation	The deposit of sediments in water bodies.		
Site class	The classification of land according to its productive potential; in forestry, a site index is assigned.		A stocking percentage of 100 indicates full utilization of the site and is equivalent to 80 square feet of basal area per acre in trees 5 inches dbh and larger. In a stand of trees less than 5 inches dbh, a stocking percentage of 100 would indicate that the number of trees is sufficient to produce 80 square feet of basal area per acre when the trees reach 5 inches dbh. Stands are grouped into the following stocking classes:
Softwood	Generally refers to a conifer tree species such as pine, spruce, or other evergreen species with needles.		
Species	A category of biological classification that groups individuals of similar characteristics, capable of interbreeding.		
Stand-size class	A classification of stocked forest land based on the size of live trees on the area (i.e., sawtimber, poletimber, or seedlings and saplings).		<ul style="list-style-type: none"> • Overstocked stands: Stocking of trees is more than 130 percent • Fully stocked stands: Stocking of trees is from 100 to 129 percent • Medium stocked stands: Stocking of trees is from 60 to 99.9 percent • Poorly stocked stand: Stocking of trees is from 16.7 to 59.9 percent • Nonstocked area: Stocking of trees is less than 16.7 percent
Stands, poletimber	Stands with half or more live stocking in poletimber and/or sawtimber trees and with poletimber stocking exceeding that of sawtimber.		
Stands, sapling-seedling	Stands with more than half of the live stocking in saplings and/or seedlings.		
Stands, sawtimber	Stands with half or more of live stocking in sawtimber and/or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.	Watershed	A stream and the entire area into which it naturally drains.

A Critical Issues Forum on Illinois Forests



58

March 24-25, 1999, the Illinois Forestry Development Council and the Illinois Society of American Foresters jointly sponsored a Critical Issues Forum on Illinois Forests, in cooperation with the Illinois Department of Natural Resources. The purpose of the event was to bring together diverse stakeholders to discuss the future of Illinois' rural and urban forests, and the critical issues affecting their protection, management, and utilization.

Seventy people, representing a diversity of viewpoints, participated in the forum, which was designed to build consensus on a common vision for the future of Illinois forests. Moreover, the event provided a forum for problem-solving on such critical issues as forest fragmentation, the invasion of exotic species and epidemic pests, and the need for more value-added Illinois manufacturing of forest products.

A variety of stakeholder groups, including landowners, field foresters, biologists, urban forestry specialists, academics (both faculty and students), government agency officials, and representatives of private organizations, were represented at the forum. With seven people seated around each of ten round tables, small groups completed six assignments over the two-day event. Participants became actively engaged in the process, alternately working through assignments and reporting their results to the entire audience.

The first two assignments asked participants to develop "a common vision for Illinois forests." They began by brainstorming and then moved to a draft vision statement. Based on initial voting and suggested revisions to the statement's ten

elements, the vision statement was revised overnight and presented the following day for a final vote. Results of these consensus-building exercises are summarized on the following page.

The next four assignments focused on critical issue identification and analysis. The groups began by brainstorming and prioritizing issues. Critical issues were defined by problem statements. Then the groups identified the restraining and enabling forces affecting resolution of major issues. During the last assignment, called "Next Steps," participants came up with potential solutions to problems and identified the next courses of action to address each issue.

Materials resulting from the Critical Issues Forum will include a final report, which will be shared with forum participants, members of the Illinois General Assembly, and others across the state. A key element of the report will be a summary of critical issues discussed and the solutions recommended during the forum. The Illinois Forestry Development Council will take the lead in continuing the important dialogue and problem-solving spirit developed at the forum. Further, the Council will continue to broaden the diversity of perspectives included in the process and push for tangible progress on issues affecting Illinois forests.

A Common Vision for Illinois Forests

Final voting results and consensus from 60 diverse stakeholders attending the Critical Issues Forum on Illinois Forests, March 24-25, 1999 in Springfield, Illinois.

Green = Agreement, include in vision statement

Yellow = Mixed feelings, but willing to accept as part of the vision statement

Red = Disagreement, do not include in vision statement as written

() = % Consensus

Final Tally

Green	Yellow	Red	In the future Illinois' forests will be managed so that they will:
45	11	4	...be held by owners whose rights, objectives, and expectations are respected because they understand and accept their responsibilities as stewards of the land (93.3);
54	5	1	...be healthy, sustainable, support biological diversity, and maintain ecological processes (98.3);
48	11	1	...provide a range of goods, services, experiences, and values that contribute to community well being, economic stability, social and personal satisfaction, and recreational enjoyment (98.3);
53	4	3	...maintain long-term ecosystem integrity through the application of scientifically sound resource management practices (95.0);
38	20	2	...be sustained by policies that enable private landowners to implement diverse management strategies that meet their goals, while maintaining ecological processes and providing opportunities to meet societal needs for a variety of goods and services (96.6);
42	15	3	...increase through reforestation and restoration where ecologically, economically, and culturally appropriate in order to meet the needs (clean water and air, recreational opportunities, plant and animal diversity, forest products, etc.) of an expanding human population (95.0);
50	10	3	...be protected from land use changes and development impacts that diminish ecological processes, wildlife habitat, aesthetic values, forest product industries, and rural community values (100);
49	8	3	...be maintained as predominately native forest types which support diverse wildlife populations and plant communities (95.0);
47	9	4	...provide benefits that sustain the quality of life for people who live and work in rural and urban communities (93.3);
54	4	2	...be acknowledged as vital by all people, who appreciate the important role forests play in the State's economy and the forest's positive impact on their quality of life (96.6).

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

Prepared by the Illinois Forestry Development Council, University of Illinois
W503 Turner Hall, 1102 South Goodwin Ave., Urbana, IL 61801

Edited and designed by Otto-Walker Communications Inc., Champaign, IL

5,000 – 26923 – July 1999 

Printed by the authority of the State of Illinois.

The Illinois Department of Natural Resources receives federal financial assistance and therefore must comply with the federal anti-discrimination laws. In compliance with the Illinois Human Rights Act, the Illinois Constitution, Title VI of the 1964 Civil Rights Act, Section 504 of the Rehabilitation Act of 1973 as amended, and the U.S. Constitution, the Illinois Department of Natural Resources does not discriminate on the basis of race, color, sex, national origin, age or disability. If you believe you have been discriminated against in any program, activity, or facility, please contact the Equal Employment Opportunity Officer, Department of Natural Resources, 524 S. Second Street, Springfield, Illinois 62701-1787, (217) 782-7616 or the Office of Human Resources, U.S. Fish & Wildlife Service, Washington, D.C. 20240. Department information is available to the hearing impaired by calling DNR's telecommunications device for the deaf: (217) 782-9175.
