1974

The Forests of Coles County, Illinois

David R. Sampson

Eastern Illinois University

This research is a product of the graduate program in Geography at Eastern Illinois University. Find out more about the program.

Recommended Citation

https://thekeep.eiu.edu/theses/3652

This is brought to you for free and open access by the Student Theses & Publications at The Keep. It has been accepted for inclusion in Masters Theses by an authorized administrator of The Keep. For more information, please contact tabruns@eiu.edu.
TO: Graduate Degree Candidates who have written formal theses.

SUBJECT: Permission to reproduce theses.

The University Library is receiving a number of requests from other institutions asking permission to reproduce dissertations for inclusion in their library holdings. Although no copyright laws are involved, we feel that professional courtesy demands that permission be obtained from the author before we allow theses to be copied.

Please sign one of the following statements:

Booth Library of Eastern Illinois University has my permission to lend my thesis to a reputable college or university for the purpose of copying it for inclusion in that institution's library or research holdings.

I respectfully request Booth Library of Eastern Illinois University not allow my thesis be reproduced because

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

Date Author

May 2, 1974 pdm
THE FORESTS OF COLES COUNTY, ILLINOIS

(TITLE)

BY

DAVID. R. SAMPSON

THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN EDUCATION
IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1974
YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING THIS PART OF THE GRADUATE

[Handwritten dates and signatures]
PREFACE

The purpose of this investigation has been to organize and compile a relevant body of information concerning the forested land within Coles County. The methods employed in conducting this study consisted of library research, field work, interviews, and the use of a questionnaire. The questionnaire was designed to determine how the forest landowners were utilizing their forests. A random sample of the forest landowners of each township within Coles County was conducted. In addition to the questionnaire, which was the primary source of detailed information relating to forest utilization, there were interviews with the county farm cooperative extension agent, the district forester, and other parties. Information provided by these sources was organized by township thus providing an adequate base from which many of the maps and figures appearing in the study were constructed.

Finally, the author has organized and implemented a program of field work in which field reconnaissance and the photographs appearing in this paper were utilized to substantiate the data resulting from the questionnaire and the interviews. It is upon these methods that the following study is based.
Information has been categorized and presented to the reader in five chapters. The first chapter provides the introduction and framework for the succeeding chapters. Chapter II is a historical compendium of Coles County Forests. In Chapter III, the relationship of physical features to forests, such as climate, topography, and soils, are discussed. Chapters IV and V deal with ownership, the present forest distribution, utilization of the forests by the owner, and probable future trends.
ACKNOWLEDGEMENT

The following acknowledgements are made to those individuals who made this thesis possible.

In the preparation of this thesis, I wish to acknowledge the guidance and assistance of my advisor Dr. Dallas A. Price. A special thanks goes to Dr. Mary Jo Read and Dr. Elwyn Martin, as members of my graduate committee.

I am indebted to the many cooperators who supplied detailed and accurate data on which this study was based. Excellent cooperation was received from the forest landowners, the county farm cooperative extension agent, and the district forester.

A particular thanks goes to Mike Roytek for taking the ground photographs used in this paper and to Miss Betty Hartbank, Eastern Illinois University librarian, for assisting me in attaining resource materials.

Finally, a word of appreciation and gratitude to my wife, Karen, who typed the thesis and provided encouragement throughout the graduate program.

David R. Sampson

March 31, 1974
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREFACE</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF MAPS</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF PLATES</td>
<td>viii</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II. HISTORICAL ASPECTS</td>
<td>8</td>
</tr>
<tr>
<td>III. PHYSICAL FEATURES</td>
<td>18</td>
</tr>
<tr>
<td>IV. THE PRESENT SITUATION</td>
<td>35</td>
</tr>
<tr>
<td>V. SUMMARY AND PROSPECT</td>
<td>60</td>
</tr>
<tr>
<td>APPENDIX</td>
<td>69</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>72</td>
</tr>
</tbody>
</table>
LIST OF MAPS

<table>
<thead>
<tr>
<th>Map</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Location of Coles County in Illinois</td>
<td>6</td>
</tr>
<tr>
<td>II. Coles County: Cities, Townships, and Major Streams</td>
<td>7</td>
</tr>
<tr>
<td>III. Natural Vegetation of Coles County: 1840</td>
<td>9</td>
</tr>
<tr>
<td>IV. Pleistocene Deposits in Coles County</td>
<td>24</td>
</tr>
<tr>
<td>V. 7th Approximation Subgroup Regions in Coles County</td>
<td>28</td>
</tr>
<tr>
<td>VI. Slope Regions of Coles County</td>
<td>29</td>
</tr>
<tr>
<td>VII. Distribution of Forests in Coles County</td>
<td>37</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Distribution of Forests in Coles County by Township: 1840</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>Coles County Climatogram</td>
<td>20</td>
</tr>
<tr>
<td>3.</td>
<td>The Major Soil Types Found in Coles County</td>
<td>27</td>
</tr>
<tr>
<td>4.</td>
<td>The Association of Natural Vegetation with Soil Subgroup and Slope</td>
<td>32</td>
</tr>
<tr>
<td>5.</td>
<td>Distribution of Forests within Coles County by Township: 1973</td>
<td>38</td>
</tr>
<tr>
<td>6.</td>
<td>Distribution of Forests within Coles County by Landform</td>
<td>40</td>
</tr>
<tr>
<td>7.</td>
<td>Forest Land Ownership</td>
<td>42</td>
</tr>
<tr>
<td>8.</td>
<td>The Cost Per Acre in Raising Selected Crops</td>
<td>52</td>
</tr>
</tbody>
</table>
# LIST OF PLATES

<table>
<thead>
<tr>
<th>Plate</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Representative Setting of Upland Oak-Hickory Forest on the Shelbyville Moraine Near Lake Charleston Dam</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>Exposed Roots of a Sycamore Tree Located Upon a Pastured Hillside Four Miles South of Charleston Tell the Story of Erosion</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>Galleria Forests Adjacent the Embarrass River Located on the Soil Subgroup Typh Normudalf</td>
<td>33</td>
</tr>
<tr>
<td>4.</td>
<td>Forest Land on a Shelbyville Moraine South Facing Slope Located 5 Miles South of Charleston</td>
<td>39</td>
</tr>
<tr>
<td>5.</td>
<td>Upland Forest Land Located Upon the Shelbyville Moraine 2.5 Miles Southeast of Lerna</td>
<td>39</td>
</tr>
<tr>
<td>6.</td>
<td>A Representative Scene of Lincoln Log Cabin State Park</td>
<td>44</td>
</tr>
<tr>
<td>7.</td>
<td>Upland Forest Land Which Has Been Cleared and Used for Grazing Livestock</td>
<td>46</td>
</tr>
<tr>
<td>8.</td>
<td>Forest Land Held as a Part of this Farm</td>
<td>46</td>
</tr>
<tr>
<td>9.</td>
<td>The Results of Extensive Grazing of Sheep and Goats in South-Central Coles County</td>
<td>47</td>
</tr>
<tr>
<td>10.</td>
<td>Evidences of Grazing</td>
<td>47</td>
</tr>
<tr>
<td>11.</td>
<td>Intensive Grazing Activities on the Shelbyville Moraine Resulted in Severe Gully Erosion</td>
<td>48</td>
</tr>
<tr>
<td>12.</td>
<td>The Cattle in this Once Forested Pasture Located in Pleasant Grove Township Near Indian Creek are Representative of the Most Commonly Grassed Livestock</td>
<td>48</td>
</tr>
<tr>
<td>13.</td>
<td>This Forest in Pleasant Grove Township is Near Death as a Result of Extensive Grazing</td>
<td>50</td>
</tr>
<tr>
<td>Plate</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>14. Evidence of Recently Cleared Forest Land</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>15. This Forest Land Located Along South Fork Indian Creek in Pleasant Grove Township is Being Cut for Commercial Sawlogs</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>16. A Truck with a &quot;Boom&quot; Used for Lifting Sawlogs During a Logging Operation</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>17. Forest Land Located Near the Embarrass River and Route 130 Southeast of Charleston Being Utilised for Non-economic Timber Services: Watershed and Wildlife Protection</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>18. Farm Pond Constructed by Building a Dam Across a Gully</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>19. This Pond Located in a Forest Area is Utilized Primarily for Watering Cattle. Pond is Located 3 Miles Southeast of Charleston</td>
<td>59</td>
<td></td>
</tr>
</tbody>
</table>
Since the first settlers arrived approximately 150 years ago, Coles County's forest land areas have undergone significant changes in both areal extent and utilization. The history of forest land utilization has been one of rapid and widespread exploitation. These resources have in the past and are presently providing direct materials for substantial segments of manufacturing and commerce as well as making up a part of the recreational potential of the region.

A review of the Atlas of Illinois Resources will show that Coles County is not favored above other counties with regard to forest resources. In colonial times parts of Coles County were heavily forested. In fact more than 30 per cent of the county's 509 square miles were covered with forests distributed primarily along the county's two major rivers and their tributaries. Trees within the county included cottonwoods, hickories, maples, oaks, sycamores, and walnuts among others. (See Plate 1.)

An examination of the literature reveals that little has been written treating the forest land of Coles County from a regional and distributional viewpoint, although, the literature is replete with works treating the subject of forest vegetation from other perspectives. Therefore, the purpose of this study is to ascertain and analyze pertinent information about the forest lands of Coles County from the regional aspect. This study will attempt to characterize the forest land areas for description and mapping. It will also consider present qualities and assets of the forest land so as to provide some prospective into the future economic development and potential.

This study is an attempt to find the answers to questions such as the following: What was the areal extent of the original forest lands at the time of early settlement in the county? What was the historical utilization of the forests at the time of settlement by white man in Coles County? What areal changes have occurred in the past 145 years? Are there discernible distributional characteristics of the present forest lands in the study area? How much of the study area is presently forest land? Who owns the forest lands and how are the owners or their tenants utilizing the present forest lands? What forest associations are found in the county? Is the present acreage of forest likely to remain constant and if not for what is the land being utilized? Finally, what does the future portend toward greater utilization of the forest lands within Coles County?
Coles County was selected for study on the basis of a variety of factors. Chief among these factors is the author's lifetime interest and residence in the forest lands of the county. Also, the use of the county as a statistical base by both state and federal agencies encourages the adoption of this unit as a basis for this study. Another factor involved is the proposed Lincoln Reservoir. If completed it will inundate a large part of the remaining forest land in the county.

For the purpose of this study, forest land will be defined as the following. a) Land bearing vegetative associations dominated by trees. b) It includes lands that are at least ten per cent stocked with forest trees of any size and capable of producing timber or other wood products. c) Lands from which the trees described in (b) have been removed to less than ten per cent stocking and which have not been developed for other uses. d) Replanted areas. The minimum area that qualifies as forest land in the study is one acre. Roadside, streamside, and shelterbelt strips of timber, in addition to meeting above requirements, must be at least 120 feet wide to qualify as forest land.

---

1 Coles County Soil and Water Conservation District, Our Resources and Your Environment (U.S.A.: Printing by Rardin), p. 12.

Coles County is located in east-central Illinois. It has a latitudinal range of approximately 19 miles and a longitudinal range of 26.5 miles, and contains an area of approximately 509 square miles. The present forest land areas of the county are located within a vegetative region recognized by the United States Department of Agriculture as the Central Region of the Eastern Deciduous Forest. (See Map 1 and Map 2.)

The methodology employed in undertaking this study involved a combination of extensive library research, field observation, interviews, and the use of questionnaires with forest land owners and tenants, as well as interviews with the county farm cooperative extension agent, the district forester and other interested parties.
PLATE 1

REPRESENTATIVE SETTING OF UPLAND OAK-HICKORY FOREST
ON THE SHELBYVILLE MORAINE NEAR LAKE CHARLESTON DAM

(Note that oak, hickory, and maple are the chief species. The larger diameter trees are oaks 40 to 60 years old.)
MAP I

LOCATION OF COLES COUNTY IN ILLINOIS

Scale 50 Miles Per Inch

DS 3/74
COLES COUNTY: CITIES, TOWNSHIPS, AND MAJOR STREAMS

- KASKASKIA RIVER
- NORTH OKAW
- HUMBOLDT
- SEVEN HICKORY
- EMBARRAS RIVER
- MORGAN
- EAST OAKLAND
- OAKLAND
- MATTWEON
- ASHMORE
- CHARLESTON
- LAFAYETTE
- PARADISE
- LERNA
- PLEASANT GROVE
- HUTTON

Scale 3 Miles Per Inch

DS 3/74
CHAPTER II

HISTORICAL ASPECTS

Vegetation

Before white man emigrated into the county, Coles County had extensive forested areas. These forest areas were located primarily along the Embarrass and Kaskaskia River valleys and formed either galleria-type forests or broad, upland forests adjacent to the river valleys. It was from these galleria-type forests adjacent to the Little Wabash River in 1827 that the first resident of Coles County, Charles Sawyer an emigrant of Kentucky, built his home.

Although there are no accurate quantitative data of the areal extent of the forest areas within the county at the time of its creation as a county by the state legislature during its 1830-1831 session, it has been estimated that forest areas covered approximately 31 percent of Coles County in the early 1800's.¹ (See Map 3.)

A descriptive analysis of the forest areas has been made and organized by townships although at the time of the county's creation, it was not organized by the township concept. A geographic delimitation utilizing townships allows a more accurate and detailed discussion than the county unit. (See Figure 1.)

NATIONAL VEGETATION OF COLES COUNTY: 1840


Scale 4 Miles Per Inch
DS 3/74
FIGURE 1

DISTRIBUTION OF FORESTS IN COLES COUNTY BY TOWNSHIP: 1840

<table>
<thead>
<tr>
<th>Township</th>
<th>Forested Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Okaw</td>
<td>33%</td>
</tr>
<tr>
<td>Humboldt</td>
<td>10%</td>
</tr>
<tr>
<td>Seven Hichory</td>
<td>0%</td>
</tr>
<tr>
<td>Morgan</td>
<td>42%</td>
</tr>
<tr>
<td>East Oakland</td>
<td>23%</td>
</tr>
<tr>
<td>Mattoon</td>
<td>14%</td>
</tr>
<tr>
<td>LaFayette</td>
<td>10%</td>
</tr>
<tr>
<td>Charleston</td>
<td>75%</td>
</tr>
<tr>
<td>Ashmore</td>
<td>50%</td>
</tr>
<tr>
<td>Paradise</td>
<td>75%</td>
</tr>
<tr>
<td>Pleasant Grove</td>
<td>86%</td>
</tr>
<tr>
<td>Hutton</td>
<td>50%</td>
</tr>
</tbody>
</table>

Number of sections per township.

- Forested Area
- Prairie Area

1 The distribution of the forests discussed in this paper is based on the results of surveyor reports in the History of Coles County 1879.
North Okaw Township. Surveyors estimated that approximately one-third of the township's 54 sections were forested areas, the remaining two-thirds being prairie. The forested areas were confined to areas adjacent to the Kaskaskia River (Okaw River). In the Kaskaskia River bottomland, pin oak had a tendency to form nearly pure stands.

Humboldt Township. Most of the forested area in this township was located along Flat Branch, a small grove on Section 10 southeast of Humboldt and the Okaw timber. These were described as covering about 10 per cent of the 54 sections comprising the township. The remaining land is prairie.

Seven Hickory Township. With the exception of a few natural groves, the entire township was described as prairie. This encompasses 54 sections.

Morgan Township. Many of the 24 sections making up this township were almost entirely covered with forest as the Embarrass River valley encompasses much of the area. Surveyor's reports indicate that almost half of the township was forested and the remaining area was prairie contiguous with the prairie of Seven Hickory Township.


2Ibid., p. 469.

3The Okaw Timber is an unclassical name which has been designated by the early settlers within the study area. The terms Okaw Timber and the Kaskaskia Timber are synomomous.

4History of Coles County 1879, p. 469.

5Ibid., p. 457.
East Oakland Township. This township consists of 44 sections with the Embarrass River as its west boundary. Thus most of the forsted area within the township was located along the eastern side of the Embarrass River.\(^1\) According to surveyor reports, this forested area consisted of approximately 10 sections.

Mattoon Township. Prairies comprised most of the area in this township with exception of the forested area adjacent to the Little Wabash River in the southern part of the township.\(^2\) It has been calculated that the forest area accounted for approximately 4 of the 36 sections in this township.

La Fayette Township. The forested areas within this township were primarily located along the Kickapoo Creek, Riley Creek, and Dead Man's Grove.\(^3\) Thus, 4 of the 36 sections comprising the township are thought to have been considered as forested areas.

Charleston Township. With the Embarrass River as its east boundary, this township had extensive forested areas. An examination of the vegetation map (See Map 3.) indicated that Charleston township was nearly all forested area. It can be interpolated that approximately three-fourths of the township's 36 section were covered by forests.

\(^1\)Ibid., p. 443.
\(^2\)Ibid., p. 324.
\(^3\)Ibid., p. 478.
Ashmore Township. This township was divided almost equally between prairie and forest areas with the later predominating. Most of the forest areas were located along the Embarrass River and its tributaries.\(^1\) Twenty-three of the township's 46 sections were forested.

Paradise Township. In its original state 18 of the 24 sections in this township were forested and the remaining sections were prairie.\(^2\) The forests were located on either side of the Little Wabash River; also, a small belt of forested area was located in the eastern portion of the township called Dry Grove.

Pleasant Grove Township. This township has been described as being nearly all covered with forests 150 years ago. The only prairie of significance is the one known as "Goose Nest Prairie".\(^3\) The township is comprised of 44 sections of which approximately 38 sections were forested.

Hutton Township. At the time of settlement about half of the township's 54 sections were covered with forested areas. These were located mainly along the Embarrass River valley which borders the township on the west side.

As a rule, the prairies occupy the high land and the forests the low land, though there are exception to this.\(^4\) The forested areas are largely restricted to the

\(^1\)Ibid., p. 391.

\(^2\)Ibid., p. 496.

\(^3\)Ibid., p. 407.

flood plains of the larger streams and their tributaries. During the 1830's to 1850's there were long galleries of forest areas extending onto the prairies but they were the low land soft wood species which were found mainly along the streams. In the county are several groves, or smaller bodies of forested areas isolated from the main bodies of forested areas. What circumstances gave rise to their growth or how long they have been growing is not within the scope of this paper. The chief species consisted of several different oaks, hickories, walnut, elm, maples, cottonwood, hackberry, and sycamore.

A description of the original forested area is found in the Third Report on a Forest Survey of Illinois.

Extending along the flood plains of the larger streams was a splendid hardwood forest. The chief species were oaks, with some hickory. These oak-hickory forests extended along the small streams and carried on a continuous struggle for possession of the prairies. The pioneers describe them as of grove-like aspect, bordering the streams and thinning rapidly as the prairie approached.¹

Utilization

Because the forest areas provided many necessities of life, it is not difficult to understand why forests were highly regarded. The forests were a source of timber for the construction of homes, barns, and fences as well as a source for crop land. To the early pioneer the presence of forested areas was an indication of rich soil, and the

absence of forests was believed to be an indication of relatively poor soil. Therefore, most land owners were of the opinion that they must have some forest land within their property and that prairies were unfavorable for settlement.¹

The forested areas were cleared of their timber and after being turned by the barshare plow, were planted in corn, potatoes, and a few other garden vegetables.² If additional forest areas were available, wheat was sown. Most of the cleared land was planted in corn for it provided the meal for food. Wood ashes were used in producing lye by filtering water through them and then corn was boiled in the lye to make hominy. The settlers also obtained honey and collected sugar maple sap from which maple syrup was made.

Settlers also utilized the forests for raising livestock. Brush fences were erected around the uncleared forest areas by cutting small trees and placing their tops together in a continuous line. Then these areas were grazed extensively by livestock, mainly hogs, which subsisted on mast.³

¹Interview with District Forester, April, 1972.
²History of Coles County 1879, p. 333.
³Mast is a collective term for nuts from oak and hickory trees.
It is not within the scope of this paper to undertake a detailed study of the commercial utilization of forested areas by the early settlers. The author is interested only in the utilization of the forests by the early land owners in their attempts to subsist.

Value of Forested Areas

During the 1800's, the price of forest areas varied considerably from area to area within the county. The price was influenced by several factors chief among these was proximity to the Illinois Central Railroad built in the 1850's, which sold its granted land at $5. to $25. an acre. The Illinois Central Railroad granted land included prairie as well as forest areas. It should be remembered that forest areas commanded a higher price than the prairies. Another predominate factor was improvements to the forest areas. Samuel Ashmore in 1829 cleared 100 acres of bottom timber along the Embarrass River, built a two-story home and several barns which he sold for $600. Unimproved private forest areas

1It is worthwhile to note that, although many softwood species were present in Coles County, the forested areas were comprised chiefly of hardwoods such as oaks, hickories, maples, and walnuts. These hardwoods aren't as desirable as the softwoods for construction purposes, thus speculators were discouraged from building sawmills. The first commercial sawmill was constructed in 1840 by Thomas Marshall. It was destroyed by high water and the effort was abandoned at a loss of approximately $600.

2Olson, Forestry in Illinois, p. 6.

3History of Coles County, 1879, p. 351.
sold as low as 50 cents an acre. In most instances, prairie land could not be sold unless forested areas were included. Two factors were primarily responsible for the lack of interest in prairie land. One was the belief that prairie soil was inadequate for growing the grain and vegetable crops upon which the settlers subsisted. The second factor was the lack of much needed timber on the prairies for construction of homes, barns, and fences. In 1835-1839 the prairie land commonly sold for $5. an acre, while the accompanying forested areas sold for $35. an acre.

1Olson, Forestry in Illinois, p. 6.

2Ibid., p. 6.
CHAPTER III

PHYSICAL FEATURES

Climate

The climate of Coles County is categorized by the Koppen climatic classification system as humid continental with warm summers and cool winters (Daf). This climatic region has been subdivided into four zones by Thornthwaite based upon the precipitation effectiveness, a function of precipitation and evaporation, which indicates the amount of precipitation for plant growth.\(^1\) Coles County is recognized as being within the zone having the lowest precipitation effectiveness index. Therefore, the climate through precipitation and temperature\(^2\) is an important factor responsible for the type of vegetation that is able to exist in an area.


\(^2\)Precipitation effectiveness is directly influenced by temperature. When temperature increases the evaporation rate increases thus reducing the availability of precipitation for plant growth.
The principle controls of climate within the study area are continental location and cyclonic storms. The county has a latitudinal range of 25 a degree thus the climate doesn't vary significantly across it. Continental location accounts for the summer and winter temperature variations. (See Figure 2.) January is usually the coldest month of the year with an average temperature of 29.6 degrees Fahrenheit. July is usually the warmest month with an average temperature of 77.1 degrees Fahrenheit, which falls within the 77 to 86 degrees Fahrenheit required for the optimum functioning of physiological processes of trees. An examination of Figure 2 reveals that the temperature range during the growing season is within the minimum to maximum range, 40 to 105 degrees Fahrenheit, required of the oak-hickory forest associations within the study area. Cyclonic storms passing over the county, 25 per year, are responsible for the temperature variation and much of the

---

1 The topography of Coles County is primarily a flat plain with no major hills or deep valleys; therefore, topography has no significant effect upon the climate within the county according to the Illinois State Water Survey Division in a report entitled "Local Climatological".


3 Ibid.


5 Ibid., p. 2.
FIGURE 2

COLES COUNTY CLIMATOGRAM

Precipitation (inches)  Temperature (°F)

Average Monthly Precipitation
Average Monthly Temperature

annual precipitation. The average annual precipitation is 38.34 inches with the monthly precipitation ranging from 1.95 inches in February to 4.2 inches in May.¹ (See Figure 2.) Fifty-eight per cent of the annual precipitation is received from April through September and forty-two per cent is received from October through March. The growing season within the study area is 178 days long, usually April 23 is the date of the last frost in the spring and October 19 is the date of the first frost in the fall. Thus, the growing season and the wet season coincide which is ideal for the forest associations recognized within the county.

Topography

Pleistocene geography is an important aspect in a consideration of the forested areas within Coles County. The entire region lies in two physiographic provinces of Illinois, the Bloomington Ridged Plain and the Springfield Plain.² A closer examination of the county reveals a complex pattern of land forms which have influenced the areal extent of the forested areas. Much of this complexity can be traced to the Pleistocene glacial history of the region.

Three of four Pleistocene ice advances in North America are believed to have extended into Coles County.

¹Department of Registration and Education, Local Climatological Data 1901-1962, Charleston.
The Kansan, Illinoian, and the Wisconsinan respectively advanced into the region.\(^1\) Little is known about the effects of the Kansan glaciation (700,000 years ago) because of the age of the material and subsequent glaciation by the Illinoian advance. The only published Kansan exposure in Coles County has been located and described by Mac Clintock.\(^2\) Approximately 200,000 years ago, a lobe of the Illinoian ice sheet advanced into the region and leveled many of the existing topographic features and deposited a layer of drift upon the area. Located in the southwestern and southeastern corners of Coles County are exposures of Illinoian drift. These exposures are distinguished by their flat topography, mineral composition, and grain size of the matrix of the tills. This Illinoian drift is much older than the Wisconsinan material and has been weathered intensely. The most recent glacial advance, the Wisconsinan, began about 50,000 years ago and reached its southern extent in Illinois about 11,000 years ago.\(^3\) It is the Wisconsinan ice sheet which had the most pronounced effect on the topography of Coles County of all the Pleistocene glacial advances, thus being a significant factor in the distribution of the forested areas within the region. Coles County's topography has been previously described as either till plain or moraine. The Wisconsinan


\(^3\) Byron K. Barton, "Physiography of the Charleston Area," (unpublished paper, Indiana State University, 1953), p. 3.
Till Plain, composed of 193,000 acres, with its characteristic flatness and resulting poor drainage contributed in part to the development of a conducive habitat for the establishment of prairie vegetation. Oak-hickory forest associations became established upon the 86,000 acre Shelbyville Morainic System which crested 20 to 100 feet above the surrounding till plains. This apparent difference in elevation was significant enough to provide the necessary drainage for the establishment of forests.

The Shelbyville Morainic System which marks the southern extent of the Wisconsin ice sheet varies greatly along its east-west trend across Coles County in size and depth. (See Map 4.) Surveyor reports during the 1840's indicate that oak-hickory forests covered the moraines located within the county. Approximately 80,000 acres of forests were located upon these moraines, whereas, there are about 15,000 acres of forest presently associated with these moraines. The Shelbyville Morainic System is composed of three moraines which may be summarized as follows.¹

Westfield Drift. The Westfield Moraine is the outer of the three moraines in the Shelbyville Moraine System. Within Coles County this moraine is 3 to 4 miles in width, 10 miles in length and crests about 100 feet above the Illinoian till plain.

Nevins Drift. The Nevins Moraine is the middle moraine of this system. This moraine is approximately 1 to 2 miles in

MAP IV

PLEISTOCENE DEPOSITS IN COLES COUNTY

Moraines (Arcola, Cerro Gordo, Paris, Nevins, and Westfield)
Illinoian Till Plain
Wisconsin Till Plain
Shelbyville Moraine

width and the length and height are the same as the Westfield Moraine.

Paris Drift. The Paris Moraine is the inner and northern moraine of the Shelbyville Morainic System. It is 1 to 2 miles in width, 25 miles in length and is about 50 feet lower than the Westfield and Nevins Moraines.

Two other moraines trending across Coles County are related to the Shelbyville Morainic System. One is the Cerro Gordo Moraine which is generally 2 to 3 miles in width, 25 miles in length, and crests 20 to 40 feet above the surrounding till plain.\(^1\) The other moraine is the Arcola Moraine having dimensions of 3 to 4 miles in width, 13 miles in length, and is 20 to 30 feet in height.\(^2\)

Soils

The multi-facted glacial history of Coles County has added to the diversity of soils within the region. The area is underlaid by a variety of sedimentary base materials, in addition to the introduction of parent materials by glacial deposition and wind. Only those features of soil salient to a study of the forested areas will be discussed, primarily the soil type and slope. These two features help to determine the types of vegetation located from place to place.

In general, the soils found within the region are

\(^1\)Ibid., p. 93.

\(^2\)Ibid., p. 93.
classified into two major orders\textsuperscript{1} and numerous suborders, great groups, and subgroups.\textsuperscript{2} (See Figure 3 and Map 5.)

The natural vegetation located in an area has been associated with soil subgroups and inclination of slope. A generalized map of the slope regions within the county is shown in Map 6. Individual slopes in Region I range from 0 to 4 per cent and have an average slope of .5 per cent. Drainage is poor and as a result a natural prairie vegetation developed. Region II has individual slopes ranging from 1 to 7 per cent and average .5 per cent. Quality of drainage varies with per cent of slope and as a result prairie vegetation has developed on the loess soils. Region III is characterized by individual slopes ranging from 0 to 12 per cent and average 3 per cent. Soil in Region IIIA has developed under a prairie vegetation and the soil in Region IIIB has developed under a forest vegetation. Region IV has individual slope ranging from 2 to 15 per cent and average 6 per cent. Higher slopes in this region have a rapid runoff; therefore, severe erosion has occurred often removing the loess resulting in soils developed from Wisconsin till. (See Plate 2.) A natural vegetation consisting of broadleaf deciduous forest characterized by oak-hickory associations developed in areas having higher slopes.


\textsuperscript{2}Although there are two additional levels of classification after the subgroup (family and series) they are not considered by the author because of a lack of data for the county.
FIGURE 3

THE MAJOR SOIL TYPES
FOUND IN COLES COUNTY

<table>
<thead>
<tr>
<th>Order</th>
<th>Suborder</th>
<th>Great Groups</th>
<th>Subgroups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mollisol</td>
<td>Udoll</td>
<td>Argiudoll</td>
<td>Typic Haplaquoll</td>
</tr>
<tr>
<td></td>
<td>Aquoll</td>
<td>Haplaquoll</td>
<td>Typic Argiudoll</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Argialboll</td>
<td>Acquic Argiudoll</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Haplaquic Argialboll</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquic Normudalf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquollic Normudolf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cumulic Hapludolf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cumulic Acquic Hapludolf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mollic Natraqualf</td>
</tr>
<tr>
<td>Alfisol</td>
<td>Udalf</td>
<td>Normudalf</td>
<td>Typic Normudolf</td>
</tr>
<tr>
<td></td>
<td>Aqualf</td>
<td>Albaqualf</td>
<td>Mollic Albaqualf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquic Normudalf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquollic Normudalf</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Typic Ochraqualf</td>
</tr>
</tbody>
</table>

Source: Conservation Needs Inventory Data, Coles County Soil Conservation Office, U.S. Department of Agriculture.
Source: Conservation Needs Inventory Data, Coles County Soil Conservation Office, U.S. Dept. of Agriculture.
LEGEND

I A 1 PRIMARY - Typic Normudalf
SECONDARY - Aquic Normudalf, Cumulic Aquic Hapludoll
[Over 50 / Typic Normudalf, Over 25 / Aquic Normudalf, Over 15 / Cumulic Aquic Hapludoll]

2 PRIMARY - Typic Normudalf
SECONDARY - Aquic Normudalf
[Over 70 / Typic Normudalf, Over 10 / Aquic Normudalf]

3 PRIMARY - Typic Normudalf
SECONDARY - Cumulic Aquic Hapludolls
[Over 50 / Typic Normudalf, Over 20 / Cumulic Aquic Hapludolls]

4
SECONDARY - Typic Normudalf, Aquic Normudalf, Cumulic or Cumulic Aquic Hapludoll
[Over 25 / Typic Normudalf, Over 30 / Aquic Normudalf, Over 20 / Cumulic Aquic Hapludoll]

B 1 PRIMARY - Mollic Albaqualf
SECONDARY - Mollic Natraqualf
[Over 70 / Mollic Albaqualf, Over 15 / Mollic Natraqualf]

2 PRIMARY - Mollic Albaqualf
SECONDARY - Typic Ochraqualf
[Over 50 / Mollic Albaqualf, Over 30 / Typic Ochraqualf]

II
SECONDARY - Typic Normudalf, Aquollic Normudalf, Aquic Argiudoll
[Over 25 / Typic Normudalf, Over 25 / Aquollic Normudalf, Over 30 / Aquic Argiudoll]

III A 1 PRIMARY - Typic Haplaquoll
SECONDARY - Aquollic Normudalf, Aquic Normudalf
[Over 60 / Typic Haplaquoll, Over 15 / Aquollic Normudalf, Over 15 / Aquic Normudalf]

2 PRIMARY - Typic Haplaquoll
SECONDARY - Aquic Normudalf, Typic Normudalf
[Over 50 / Typic Haplaquoll, Over 20 / Aquic Normudalf, Over 20 / Typic Normudalf]
B  SECONDARY - Haplaquic Argialboll, Typic Ochraqualf
   [Over 40 / Haplaquic Argialboll, Over 30 / Typic Ochraqualf]

IV PRIMARY - Typic Haplaquoll  SECONDARY - Aquollc Normudalf
   [Over 80 / Typic Haplaquoll, Over 15 / Aquollc Normudalf]

V A PRIMARY - Typic Haplaquoll  SECONDARY - Aquic Argiudoll
   [Over 50 / Typic Haplaquoll, Over 20 / Aquic Argiudoll]

B 1 PRIMARY - Acquic Argiudoll  SECONDARY - Typic Haplaquoll
   [Over 50 / Acquic Argiudoll, Over 20 / Typic Haplaquoll]

Z  SECONDARY - Typic Argiudoll, Typic Haplaquoll
   [Over 45 / Typic Argiudoll, Over 40 / Typic Haplaquoll]
SLOPE REGIONS OF COLES COUNTY


Average Slope

- I 0.5 %
- II 1.5 %
- III 3.0 %
- IV 6.0 %

Scale 4 Miles Per Inch
PLATE 2

EXPOSED ROOTS OF A SYCAMORE TREE LOCATED UPON A PASTURED HILLSIDE FOUR MILES SOUTH OF CHARLESTON TELL THE STORY OF EROSION.
In accordance with the diversity of individual characteristics, it is difficult to generalize about the physical interrelationships of the forests within Coles County. Several prevalent features in the location of forested areas have been discussed. The interplay of climate, through temperature and precipitation, topography, and soils, is primarily responsible for the type of vegetation that is able to exist within the region. The natural vegetation can be associated with soil subgroups and the inclination of slope. (See Figure 4.)

The portions of the study region having extensive forest areas in the past were located adjacent to the Kaskaskia River, the Embarrass River, the Little Wabash River and upon the Shelbyville Morainic System. (See Plate 3.) An examination of aerial photographs of Coles County reveals that the aforementioned areas still have significant forests although they have been reduced substantially in areal extent.

Prairie vegetation developed in areas of the Wisconsin drift sheet in localities characterized as flat to undulating interfluve with slopes ranging from 0 to 4 per cent. Homer C. Sampson¹ and John R. Borchert² have stated that the prairies were established upon land having gentle slopes and

---


FIGURE 4

THE ASSOCIATION OF NATURAL VEGETATION
WITH SOIL SUBGROUP AND SLOPE

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Natural Vegetation (a &amp; B)</th>
<th>Per cent Slope (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typic Normudalf</td>
<td>Timber</td>
<td>0 - 25</td>
</tr>
<tr>
<td>Aquic Normudalf</td>
<td>Timber</td>
<td>0 - 3</td>
</tr>
<tr>
<td>Aquollic Normudalf</td>
<td>Timber &amp; grass</td>
<td>0 - 2</td>
</tr>
<tr>
<td>Mollic Albaqualf</td>
<td>Prairie</td>
<td>0 - 2</td>
</tr>
<tr>
<td>Typic Haplaquoll</td>
<td>Sedges to slough grass</td>
<td>0 - 1/4</td>
</tr>
<tr>
<td>Typic Argiudoll</td>
<td>Prairie</td>
<td>2 - 12</td>
</tr>
<tr>
<td>Aquic Argiudoll</td>
<td>Prairie</td>
<td>0 - 4</td>
</tr>
<tr>
<td>Cumulic Hapludoll</td>
<td>Grasses &amp; scattered timber</td>
<td>0 - 1/4</td>
</tr>
<tr>
<td>Cumulic Acquic Hapludoll</td>
<td>Grasses &amp; scattered timber</td>
<td>0 - 1/4</td>
</tr>
<tr>
<td>Typic Ochraqualf</td>
<td>Timber</td>
<td>0 - 1</td>
</tr>
<tr>
<td>Mollic Natraqualf</td>
<td>Prairie</td>
<td>0 - 2</td>
</tr>
<tr>
<td>Haplaquic Argialboll</td>
<td>Prairie</td>
<td>0 - 1/4</td>
</tr>
</tbody>
</table>


b - Soil series sheets, Conservation Needs Inventory Data.
PLATE 3

GALLERIA FORESTS ADJACENT THE EMBARRASS RIVER LOCATED ON THE SOIL SUBGROUP TYPIC NORMUDALF.
low local relief during a drier climate which prevailed at the close of the Wisconsin glacial age. The climate has become more humid and favorable for tree growth in the past few thousand years and thus forests became established upon land with good natural drainage.
CHAPTER IV

THE PRESENT SITUATION

Distribution of the Forest Land

To the early pioneer the presence of forest vegetation was an indication of fertile soil. These forests also provided the pioneer with essential materials for existence within the region. It was in part to the aforementioned reasons that the forests were chosen as the first sites for settlement. The use of forest land for crops and materials for construction marks the first utilization of the forest land within the county by the white man and therefore marks the beginning of the decline in areal extent.¹

Telford has estimated that there were 105,000 acres of forest vegetation which covered 31 per cent of Coles County during the early 1800's. At the present time there are 25,220 acres² covering 8 per cent of the county's 509

¹It is not the intent of the author to investigate the factors which have influenced the decline in the original areal extent of forested land within the study area. For the purposes of this paper it is sufficient to state that agricultural impact has been most influential.

²Illinois Soil and Water Conservation Needs Inventory, Report published by the Cooperative Extension Service states that there are 24,084 acres of forest land within the county. (Champaign-Urbana: College of Agriculture, University of Illinois, 1970), p. 15.
square miles (325,760.0 acres). (See Map 7.)

Hutton Township with 5760 acres has the largest distribution of forest land within Coles County. Charleston and Pleasant Grove Townships are next in total acreage with 4800 and 3520 acres respectively. Therefore, these three townships with 14,080 acres of forest land represent 55.5 per cent of the total in the county. (See Figure 5.) It is noted that the Shelbyville Morainic System, partially located within these three townships, represents 15,040 acres of forest land or 59.6 per cent of the total for Coles County. (See Plate 4 and Plate 5.) Approximately 35 per cent of the forest land is located upon the Wisconsin Till Plain. Thus, 98.7 per cent of the forest land within the county is associated with the Shelbyville Morainic System and the Wisconsin Till Plain and therefore represents the largest concentration of forest land in Coles County. (See Figure 6.)

Three hundred twenty acres of forests located upon the Illinois Till Plain represents the remaining 1.3 per cent of forested land within the county.

1The Wisconsin Till Plain is occupied by 9860 acres of forest land representing 5.1 per cent of its total landform area. A brief explanation concerning the distribution within this landform is pertinent. An examination of Map 7 reveals that the Embarrass River, the Kaskaskia River, and associated tributaries flow through the Wisconsin Till Plain. More than 90 per cent of the 9860 acres of forest land associated with the till plain are in fact located along these two rivers and their tributaries.
DISTRIBUTION OF FORESTS IN COLES COUNTY


Legend:
- Dark-gray shaded areas represent forests.

1This map is a composite of the following topographic maps: Arcola 1935, Oakland 1936, Kansas 1946, Mattoon 1934, Toledo 1933, and Casey 1937.
FIGURE 5

DISTRIBUTION OF FORESTS WITHIN COLES COUNTY BY TOWNSHIP, 1973

<table>
<thead>
<tr>
<th>Township</th>
<th>Forest Area</th>
<th>Per Cent of Township Occupied</th>
<th>Township Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Okaw</td>
<td>1200</td>
<td>3.8</td>
<td>34,560</td>
</tr>
<tr>
<td>Humboldt</td>
<td>100</td>
<td>3.5</td>
<td>34,560</td>
</tr>
<tr>
<td>Seven Hickory</td>
<td>0</td>
<td>0.00</td>
<td>34,560</td>
</tr>
<tr>
<td>Morgan</td>
<td>1520</td>
<td>9.9</td>
<td>15,360</td>
</tr>
<tr>
<td>East Oakland</td>
<td>2720</td>
<td>9.5</td>
<td>28,160</td>
</tr>
<tr>
<td>Mattoon</td>
<td>440</td>
<td>1.4</td>
<td>23,040</td>
</tr>
<tr>
<td>LaFayette</td>
<td>1800</td>
<td>7.8</td>
<td>23,040</td>
</tr>
<tr>
<td>Charleston</td>
<td>4800</td>
<td>19.8</td>
<td>24,320</td>
</tr>
<tr>
<td>Ashmore</td>
<td>2840</td>
<td>9.6</td>
<td>29,440</td>
</tr>
<tr>
<td>Paradise</td>
<td>520</td>
<td>3.5</td>
<td>15,360</td>
</tr>
<tr>
<td>Pleasant Grove</td>
<td>3520</td>
<td>12.5</td>
<td>28,160</td>
</tr>
<tr>
<td>Hutton</td>
<td>5760</td>
<td>16.6</td>
<td>34,560</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>25220 acres</strong></td>
<td>--</td>
<td><strong>325,120 acres</strong></td>
</tr>
</tbody>
</table>


1This represents a 4.7 per cent difference between the 25,220 acres determined by the author and the 24,084 acres determined by the Illinois Soil and Water Conservation Needs Inventory.
PLATE 4

FOREST LAND ON A SHELBYVILLE MORAINE SOUTH FACING SLOPE LOCATED 5 MILES SOUTH OF CHARLESTON.

PLATE 5

UPLAND FOREST LAND LOCATED UPON THE SHELBYVILLE MORAINE 2.5 MILES SOUTHEAST OF LERNA.
FIGURE 6

DISTRIBUTION OF FORESTS WITHIN COLES COUNTY BY LANDFORM

<table>
<thead>
<tr>
<th>Landform</th>
<th>Per Cent of Landform Occupied</th>
<th>Forest Area</th>
<th>Landform Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arcola Moraine</td>
<td>0</td>
<td>0</td>
<td>13,248</td>
</tr>
<tr>
<td>Cerro Gordo Moraine</td>
<td>0</td>
<td>0</td>
<td>17,664</td>
</tr>
<tr>
<td>Paris Moraine</td>
<td>8.8</td>
<td>1880</td>
<td>21,344</td>
</tr>
<tr>
<td>Nevins Moraine</td>
<td>4.3</td>
<td>220</td>
<td>5,152</td>
</tr>
<tr>
<td>Westfield Moraine</td>
<td>8.0</td>
<td>920</td>
<td>11,776</td>
</tr>
<tr>
<td>Shelbyville (undifferentiated)</td>
<td>25.1</td>
<td>12,020</td>
<td>47,840</td>
</tr>
<tr>
<td>Illinoian Till Plain</td>
<td>2.2</td>
<td>320</td>
<td>14,720</td>
</tr>
<tr>
<td>Wisconsin Till Plain(^1)</td>
<td>5.1</td>
<td>9860</td>
<td>193,376</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>7.8</strong></td>
<td><strong>25,220</strong></td>
<td><strong>325,120</strong></td>
</tr>
</tbody>
</table>

\(^1\)The Kaskaskia River and the Embarrass River are included in this landform classification by the author.
Ownership of the Forest Lands

The forest land within Coles County is characterized by a multiplicity of ownerships with acreage ranging from 10 to 425 acres; therefore, the author has arbitrarily classified ownership of forest land into three categories: private, state, and municipal holdings. (See Figure 7.)

A large proportion of the forest land is owned by approximately 500 private holders. An examination of the Coles County Plat book reveals 97 per cent\(^1\) of the forest land is privately owned, usually by owners residing on the land,\(^2\) which represents 24,444 acres. Forest land holdings average 50 acres\(^3\) throughout the county and are generally associated with a farm which has been owned by the same owner for an average tenure of 23.4 years.\(^4\) A distinct distribution pattern based on acreage occurs within the county. Tracts of privately owned forest land are significantly larger in areal extent along the Embarrass River and adjacent uplands. Tracts within this area average 74.5 acres, while tracts along the Little Wabash and Kaskaskia Rivers average 32.2 acres.\(^5\) This could be explained by the

---

\(^1\) Data was interpolated from the Coles County Plat book.

\(^2\) Based upon interviews.

\(^3\) Data was ascertained by dividing the 24,444 acres of forest land by the number of private forest land owners (500).

\(^4\) Based upon interviews.

\(^5\) Based upon interviews.
### FIGURE 7

**FOREST LAND OWNERSHIP**

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Acreage</th>
<th>Use</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State holdings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lincoln Log Cabin</td>
<td>65</td>
<td>recreation</td>
<td>T11N,R9E,S21</td>
</tr>
<tr>
<td>State Park</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State of Illinois</td>
<td>160</td>
<td>Wildlife refuge</td>
<td>T11N,R9E,S11</td>
</tr>
<tr>
<td>Conservation Dept.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fox Ridge State Park</td>
<td>455</td>
<td>recreation</td>
<td>T11N,R9E,S12 &amp; S13</td>
</tr>
<tr>
<td><strong>Municipal holdings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City of Charleston</td>
<td>46</td>
<td>N.A.</td>
<td>T11N,R9E,S19</td>
</tr>
<tr>
<td>Charleston Water Works</td>
<td>40</td>
<td>water facilities</td>
<td>T12N,R9E,S24</td>
</tr>
<tr>
<td>City of Charleston</td>
<td>10</td>
<td>N.A.</td>
<td>T12N,R10E,S19</td>
</tr>
<tr>
<td><strong>Private holdings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individuals (usually owning agricultural lands having forest land associated with it)</td>
<td>24,444</td>
<td>varied</td>
<td>distributed throughout Coles County</td>
</tr>
<tr>
<td><strong>Total acreage</strong></td>
<td>25,220</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---


2Determined on a minimum holding of 10 acres. This unit was necessitated by the use of the 10 acre unit in the Coles County Plat Book.

3Data was not available.
per cent of slope upon which the forest are located and the areal extent of the original forest land. Related in part to inaccessibility and severe erosion, the steeper slopes are usually the last to be cleared of their forests. Investigation of the slopes along these rivers reveals that the Embarrass River has 10 - 12 per cent plus slopes while slopes along the Little Wabash and Kaskaskia rivers are generally less than 10 - 12 per cent. The original areal extent could also be significant in explaining this distribution pattern. According to reports by surveyors and historians the Embarrass River valley and adjacent upland areas were the most extensively forested.

State and municipal holdings upon comparison with private holdings would be considered very small, but not insignificant. The state owns 2.7 per cent of the forest land within Coles County which represents 680 acres covering three separate tracts of forest. These tracts are the State Conservation Department land, Fox Ridge State Park and Lincoln Log Cabin State Park. (See Plate 6.) Municipal holdings owned by the Charleston Water Works and the City of Charleston total 96 acres of forest land which represents .3 per cent of the 25,220 acres of forest land within the county.

**Utilization of the Forest Land Within Coles County**

Agricultural has had an impact upon Coles County forest land, consequently a characteristic utilization related to agriculture had developed. The fact
PLATE 6

A REPRESENTATIVE SCENE OF LINCOLN LOG CABIN STATE PARK.
that 70 per cent of the forest land presently remaining has been held as parts of farms has brought with it the utilization of forest land for pasture for farm livestock, the growing of agricultural crops, the sale of commercial timber, and the non-economic timber services. (See Plate 7 and Plate 8.)

Grazing has been an influential agricultural factor having significant impact upon the forests. (See Plate 9.) In an interview, the district forester stated almost all forested land in the county has been pastured in the past. This is evidenced by the general lack of 12 to 20 inch diameter trees\(^1\) in much of the forest land. (See Plate 10.) A survey of forest land owners conducted by the author revealed that 56.8 per cent of Coles County forests are grazed by livestock.\(^2\) Cattle, hogs, and sheep respectively, are the most commonly grazed livestock. (See Plate 11 and Plate 12.) As frequently practiced, grazing is so heavy that it destroys seedlings, leaving only the mature trees; then as the older trees die the forested area

\(^1\)The district forester, Bob Blair, stated that livestock need not be observed actually grazing in the forested land in order to determine if grazing has indeed occurred in the past years. Livestock will eat and trample the seedlings during the period a forest is grazed thus creating an absence of entire diameter classes. For example, it was determined a 20 acre tract of forested land purchased by Mr. Blair in Ashmore Township had been grazed extensively in the past due to the absence of trees 12 to 20 inches in diameter.

\(^2\)Data are the result of a survey of forest land owners holding 20 per cent of the county's 25,220 acres.
PLATE 7

UPLAND FOREST LAND WHICH HAS BEEN CLEARED AND USED FOR GRAZING LIVESTOCK, ALSO NOTE THE GALLERIA FORESTS ALONG THE EMBARRASS RIVER AND THE UTILIZATION OF THE RIVER VALLEY FOR GRAIN CROPS.

PLATE 8

FOREST LAND: HELD AS A PART OF THIS FARM. THIS SITUATION IS CHARACTERISTIC OF THE FOREST LAND OWNERSHIP WITHIN COLES COUNTY.
THE RESULTS OF EXTENSIVE GRAZING OF SHEEP AND GOATS IN SOUTH-CENTRAL COLES COUNTY.

EVIDENCES OF GRAZING FOUND FIVE MILES SOUTH OF CHARLESTON: TRUNK, THE SOLID ANIMAL WASTES AND NO REPLACEMENT SEEDLINGS. BEYOND THE FENCE IS LAND WHICH THROUGH SUCCESSION IS REVERTING BACK TO FOREST VEGETATION.
PLATE 11

INTENSIVE GRAZING ACTIVITIES ON THE SHELBYVILLE MORAINES RESULTED IN SEVERE GULLY EROSION WHICH THE OWNER HAS TRIED TO PREVENT WITH CORN COBS.

PLATE 12

THE CATTLE IN THIS ONCE FORESTED PASTURE LOCATED IN PLEASANT GROVE TOWNSHIP NEAR INDIAN CREEK ARE REPRESENTATIVE OF THE MOST COMMONLY GRAZED LIVESTOCK.
becomes a grove. (See Plate 13.) The leaf litter dis­
appears and grass takes its place thus further perpetuating
even more extensive grazing. Eventually even the grove
disappears. A majority of the forest land owners within
the county indicated this was a deliberate part of the
clearing process, but some owners indicated they were not
aware of the damaging effects of grazing livestock.

Although the clearing of forest areas is secondary
in importance to grazing when comparing the total acreage
grazed with the total acreage cleared for the planting of
crops, it is significant to note that the trend toward
clearing forests is increasing. During their 23.4 years
of average tenure, the farm land owners which were surveyed
indicated that they had cleared a total of 114 acres of
forested lands. When the 114 acres is contrasted with the
4,760 acres covered by the study, it represents 2.4 per
cent. But even more significant was the 56 acres (49.1
per cent) which had been recently cleared in most cases
during the last two years. (See Plate 14.) Apparently
the increased prices farm operators have been receiving for
marketed crops is having a marked impact upon the clearing
of forest land and is making such attractive. In addition
to forest lands, several farm operator-owners indicated
PLATE 13

This forest in Pleasant Grove Township is near death as a result of extensive grazing which has removed the replacement seedlings thus leaving only the mature trees.

PLATE 14

Evidence of recently cleared forest land 3 miles southeast of Lerna used for cash grain farm activities.
that they might reclaim abandoned submarginal lands. ¹

An analysis of the factors influential in the clearing of forest lands is salient to an explanation of the trend. Construction companies contract to bulldoze forest lands at an average rate of $300. per acre. ²

Cleared forest lands are low in productivity, for example wheat, which is often the first crop marketed after the land has been cleared, yields approximately 30 bushels per acre. The price received by the farmer for wheat was $4.22 per bushel during the month of November, 1973. Based on these figures, this would place the gross net value per acre at $126.60. According to the county farm extension agent, it costs the farm operator $82.00 to produce and market an acre of wheat. (See Figure 8 for a complete analysis of cost.) A net profit of $44.60 is realized from each acre; therefore, it is conceivable to pay the initial $300. incurred during the clearing of the forest.

¹Another influence, difficult to trace, has come from the long process of farmland abandonment and consequent reversion to forest land. New acreage is being cleared from the present forest land and old land that becomes worn out, eroded, and in other ways submarginal is being abandoned. The process has been slow from year to year, but over the decades the result has been that a substantial portion of Coles County's present agricultural land is land that was once forest land.

²Farrier Construction Company quoted an average price of $300. per acre, although, the actual cost is highly variable. They stated a range of $225. to $500. dependent upon degree of slope, size of species within the stand, and density of the stand.
FIGURE 8

THE COST PER ACRE IN RAISING SELECTED CROPS\textsuperscript{1}

<table>
<thead>
<tr>
<th>Crop</th>
<th>Machine &amp; Soil preparation</th>
<th>Fertilizer</th>
<th>Seed</th>
<th>Herbicide</th>
<th>Taxes &amp; interest on money invested\textsuperscript{2}</th>
</tr>
</thead>
<tbody>
<tr>
<td>wheat</td>
<td>20</td>
<td>16</td>
<td>16</td>
<td>none</td>
<td>30</td>
</tr>
<tr>
<td>corn</td>
<td>25</td>
<td>16</td>
<td>12</td>
<td>18-20</td>
<td>30</td>
</tr>
<tr>
<td>soybean</td>
<td>25</td>
<td>16</td>
<td>12</td>
<td>18-20</td>
<td>30</td>
</tr>
</tbody>
</table>

\textsuperscript{1} All figures are represented as a dollar per acre cost.

\textsuperscript{2} The dollar per acre values represented are based on $400 per acre land. This is the average value per acre of cleared forest land as indicated by the Coles County farm extension agent.
land within a period of 7 to 8 years.¹ These conditions make it economically feasible to clear forest lands.

The utilization of the forest land as a source of income through the marketing of commercial timber has been important to forest land owners in the past and shall continue to be important as a source of income in the future.² (See Plate 15.) Seventy-five per cent of the forest land owners interviewed stated they had sold commercial timber during their ownership of the land.³ (See Plate 16.) The largest contiguous tract of forest land covered by this study which had been cut over in the past 7 years consisted of 175 acres. The owner indicated he had received a lump-sum payment of $5000, and the buyer removed the commercial timber which consisted chiefly of white oak and walnut. Although the

¹The 7 to 8 year payment period can be reduced if the forest land owner can market commercial timber and applies this sum toward defrayment of the clearing expense.

²Virtually 100 per cent of the forest land within Coles County has had commercial timber marketed from it according to Bob Blair, the district forester.

³Most individuals interviewed preferred not to divulge the amount of income realized from the marketing of timber thus making it difficult to obtain valid information. As a result the study of this aspect of utilization by the forest land owners has been hindered. In view of this reluctance, the author substituted another question: in order to obtain data which would provide some indication of the relative economic importance of timber sold. Individuals interviewed were asked to rank the utilization of forest land by economic importance. Some information did emerge which is salient to the utilization of forest land as a source of income from timber sales. Ranked in order of financial importance to the forest land owners, these are: grazing, growing grain crops, selling timber, and the non-economic timber services. The sale of timber was held to be third in financial importance.
PLATE 15

This forest land located along South Fork Indian Creek in Pleasant Grove Township is being cut for commercial sawlogs.

PLATE 16

A truck with a "boom" used for lifting sawlogs during a logging operation along South Fork Indian Creek.
amount received by this forest land owner is probably atypical of the average amount received, this is typical of the most common method in marketing commercial timber within the county.\(^1\) The forest land owners, without the aid of professional assistance, market unmarked timber accepting a lump-sum payment and rely upon the buyers discretion concerning board feet removed and the actual market value. A practice which has often resulted in poor financial experiences as several owners indicated. Three forest land owners who had previously marketed timber and later discovered they had sold below the market value called in the professional services of the district forester to mark trees for removal. It was their opinion that commercial timber buyers were generally less interested in purchasing the timber once it was known a professional forester was involved. This has created a situation in which commercial timber buyers refrain from purchasing timber from knowledgeable owners, thus creating a marketing problem for the owners.

A decline in the sale of commercial timber is likely to occur although income derived from the sale of timber will continue to be an important source of income to individual forest land owners on a periodic basis.\(^2\) This decline is

---

\(^1\) This was the market practice indicated by more than 90 per cent of the forest land owners interviewed.

\(^2\) The time from seedling to maturity is 60 to 70 years for hardwood species and 35 to 45 years for softwood species. If all the mature timber in a stand is marketed as practiced within the county, it could require several decades to produce a new crop.
the result of several factors listed as follows:

1. A decrease in the total forest acreage has occurred.
2. The 60 year seedling to maturity life cycle for hardwoods.
3. Extensive cutting has occurred in the past, thus reducing the quality of existing stands.
4. Poor financial experiences have been encountered by a majority of the owners marketing timber.

The rate of decline cannot be accurately measured. This is attributed to 25 per cent of the forest land owners who have indicated that their lands had not been cut-over during their tenure. To some extent these owners thought of the forest land as assets set aside against a rainy day, which are meanwhile increasing in value. The rate at which this timber is marketed will influence the rate of decline.

The last major use of the forest land by the owners\(^1\) can be classified as non-economic timber services.\(^2\) Non-economic timber services may have an even greater total value than the three aforementioned utilizations discussed. Foremost among the non-economic timber services are watershed protection, recreation, and wildlife protection. (See Plate 17.)

---

\(^1\)All of the forest land owners indicated that they utilized their land for this purpose although it is suspected that they did not fully realize this until they were questioned.

\(^2\)Non-economic timber service is defined as benefits received by the forest land owner which does not result in actual income but is of value.
FOREST LAND LOCATED NEAR THE EMBARRASS RIVER AND ROUTE 130 SOUTHEAST OF CHARLESTON BEING UTILIZED FOR NON-ECONOMIC TIMBER SERVICES: WATERSHED AND WILDLIFE PROTECTION.
Watershed protection is generally considered the most significant.\(^1\) This is illustrated by the siltation of Lake Charleston and Lake Mattoon. Forest lands are recognized as important non-economic timber values for the following reasons:

1. Facilitates the infiltration of water into the soil.
2. Retards the run off of surface water.
3. Helps reduce flood crests and stabilizes stream flow.
4. Checks soil erosion; therefore, reducing siltation.

Forest landowners are not consciously aware of the non-economic timber services although landowners are utilizing their forest land for this purpose. Very few forest landowners \(^3\) have adopted the concept of multiple use resource management in the utilization of forest lands. It should be stated that multiple use and non-economic timber services are the same. Many owners have applied these measures through construction of farm ponds. (See Plate 18.) Ponds have been constructed by building earth bank dams in gullies for the purposes of checking soil erosion, reduction of surface run-off, recreation and wildlife protection. In addition, these ponds were utilized to provide water for livestock. (See Plate 19.)

PLATE 18

FARM POND CONSTRUCTED BY BUILDING A DAM ACROSS A GULLY IN PLEASANT GROVE TOWNSHIP.

PLATE 19

THIS POND LOCATED IN A FOREST AREA IS UTILIZED PRIMARILY FOR WATERING CATTLE. POND IS LOCATED 3 MILES SOUTH-EAST OF CHARLESTON.
CHAPTER V

SUMMARY AND PROSPECT

Historically the utilization of the forest lands in Coles County was directly influenced by agricultural activities. To the early pioneer, forests were an indication of rich soil and the absence of forests was an indication of poor soil. Therefore, the forested areas were cleared of their timber, plowed, planted in crops and used as a source of construction materials for homes and barns. In addition to utilization for crop land and homes, the forests were utilized by settlers for raising livestock, primarily hogs. It should be remembered that forest land commanded a higher price than the prairies as a result of this type of utilization. In 1835-1839, prairie land sold for $5 an acre, while forested land commonly sold for $35 an acre. To summarize, the forests provided necessities for survival whereas the prairies did not adequately provide for these necessities.

Telford has estimated that one-third of Coles County, 105,000 acres, was forested in the early 1800's. These oak-hickory forests were generally classified as either galleria or upland forests and were confined primarily to areas along the Embarrass River, the Kaskaskia River, and their tributaries with the exception of a few natural groves. Oaks, hickories,
walnuts, elms, maples, cottonwoods, hackberries, and sycamores were the chief species classified within the county. The remaining two-thirds of the county was classified as prairie land characterized by tall grass vegetation.

The interplay of climate, through temperature and precipitation, topography, and soils, is primarily responsible for the broadleaf deciduous forest characterized by the oak-hickory associations in Coles County. During the 178 day, May to October, growing season, temperatures are within the minimum to maximum range of 40 to 105 degrees Fahrenheit required of the forest characteristic to the county. Precipitation during the growing season total 23 inches which is adequate.

Of all the Pleistocene glacial advances, the Wisconsin ice sheet has had the most pronounced effect on the topography of Coles County and is therefore a significant factor in the distribution of the forests within the region. The Wisconsin Till Plain, the Illinoian Till Plain, and the Shelbyville Morainic System have been previously described as the chief Pleistocene deposits. The acres of forested land associated with the above three are 9860, 320, and 15,040, respectively. The major concentration of forests within these landforms is located along the Embarrass River, the Kaskaskia River, and their tributaries.

Ownership is an important consideration in a study of the utilization of the forest lands within Coles County. Several discernable facts related to ownership have emerged in this study.
First, 70 per cent of the private forest land owners sampled are engaged full time in the pursuit of agricultural activities primarily cash grain farming and raising livestock. Second, the forest land owners have held their forest lands for an average tenure of 23.4 years. Last, the forest land within the county is held in association with agricultural land as part of farms. These facts appear to be interrelated and difficult to understand when treated singly. The author has concluded that the utilization of the forest lands within the county is related to the three aforementioned characteristics. In order of economic magnitude to the farm owner, the forest land is utilized for grazing, cropland, timber, and non-economic timber value.

The author is aware of the dangers inherent in speculating on the future. It is not easy to project a single trend for forest land utilization since there is a diversity of factors to be considered. However, the temptation remains irresistible. There are three likely alternative directions in which the utilization of the forested lands within Coles County can move in the future.

One obvious alternative is that the utilization of the forested land remains basically unchanged from what it is today. The likelihood of this alternative is rejected by the author. The economic situation shows no sign of decelerating. Greater prices for cash grain crops, for example wheat sold for $4.22 per bushel during the month of November, 1973, are
almost certain to increase pressure for alternative forest land use. If this assumption is valid, the available forest lands will be cleared of timber and cash grain crops such as wheat will be grown on this land. According to the county farm extension agent, the cost for the farm operator to produce and market an acre of wheat is $82.00. Wheat will average 30 bushels per acre on recently cleared forest land, thus a net profit of approximately $44. per acre could be realized. It is conceivable to pay the initial $300. incurred during the clearing of the forest lands within a 7 to 8 year time period. If there are any commercial sawlogs which can be marketed, the time period is reduced.

The second alternative, one in which the likelihood is also rejected by the author, is an increase in non-economic timber services as a means of utilizing the forest land. This judgement is based on two assumptions. The first assumption is a lack of cognizance for the importance of non-economic timber services. Although watershed protection, recreation, and wildlife preservation are acknowledged as being important, most individuals are insensitive to the needs of forest management or are unaware of the practices for profitably managing their forest land. For example, a majority of the forest land owners, 95 per cent, were not concerned with non-economic timber services as a means of utilizing their forest land. This lack of concern is supported by the lack of forest management practices observed by the author upon the forest lands surveyed. When interviewed and questioned
about free technical assistance available through the Cooperative Farm Forestry Act of 1937, forest land owners indicated a lack of knowledge of the program. The second assumption is the apparent demand of more remunerative activities which are held by the forest land owner to be more important. It has been previously indicated that non-economic timber service utilization is the least economically profitable of the four major forest utilizations studied in this paper.

The third, and in the author's opinion most likely, alternative is the reduction of grazing on forest lands and the continued clearing of pastured forest land. This judgment is based upon five assumptions. The first assumption is an existing trend toward the reduction of grazing forest land. All of the county's present 25,220 acres of forest land has been grazed in the past. It has been pointed out that 56.8 per cent of the forest land sampled is presently grazed. When applied on a county wide basis, this means that 14,800 acres of forest land is grazed. Reasons for this decrease are the present trends toward consolidation of small farm units into larger farms, farm owners are reducing livestock operations, and the clearing of pastured forest land for greater remunerative activities. Previous studies have revealed that farm size is a significant factor in an explanation of the farm consolidation trend. This fact is pertinent to an understanding of the recent decline in the grazing of forest lands as a result of farm consolidation. According to survey results, small
farmers are often forced to purchase a few cattle or hogs and pasture their forest land for added income; whereas, the farmers of larger farm units engaged in cash grain crops are economically stable.

There has been a recent increase in clearing forest land. It has been pointed out that 49 per cent of the forest land cleared in the past 20 years has been cleared during the past two years. The attitude of owners toward forest management, if supply or demand fluctuations alter the current profit levels in timber, becomes increasingly important. Most farmers don't realize an income from their forest land on a year to year basis other than that derived from grazing or cash grain crops. Growing timber as a crop forces the forest land owner to "lock in" to production of commercial timber for 60 to 70 years in hardwood species and 35 to 45 years in softwoods until the first timber crop is marketed. This situation doesn't appeal to farm owners because it eliminates flexibility. As prices and demand for various grains change, the farmer can respond to the changed conditions in a single year. For instance, to change production from corn to soybeans or to wheat is a relatively simple procedure. The utilization of the forest land through timber sales has long provided the farm unit with a source of income and shall continue to do so in the future. Seventy-five per cent of those sampled indicated that they had marketed timber. This has created a three-faceted problem--difficulty in marketing timber, reduced present timber stands (50 acres is average size
in Coles County), and has created relatively low quality and small amounts of salable timber. These problems must be resolved before profitable utilization can be made of the forest land. Two possibilities for solution exist. One is a concerted effort by professional agencies to educate forest land owners in concepts of forest management practices. The second is to develop cooperative concentration yards for timber. Forest land owners would stockpile commercial timbers and then invite interested buyers to submit bids thus insuring a profitable and honest price. An analysis of the trends toward reducing livestock operations and the clearing of pastured forest land reveals that both are closely related. A decrease in livestock operations is often the result of clearing pastured forest land for growing cash grain crops.

The second assumption supporting the author's third alternative is based upon increased agricultural prices for cash grain crops. It is anticipated that increased agricultural prices, which has resulted in greater profits, will economically warrant the clearing of presently overlooked forest land. Corn, wheat, and soybeans at 3, 5, and 8 dollars per bushel respectively, the price paid to sellers November, 1973, make it feasible to remove timber, plant grain crops, and pay the clearing expense incurred within a seven year period, dependent upon land productivity.

Limitations imposed by inclination of slope is the third factor in support of the trend toward continued clearing of pastured forest land. Because a majority of the forest
land with low slopes, 1 to 4 per cent, was previously cleared and is presently under cultivation, the remaining forest are located on slopes in excess of 4 to 8 per cent. Ideally, agricultural land would be less than 4 per cent and land in excess of this figure should be terraced. Not only would excessive slopes require terracing to retard surface runoff and prevention of soil erosion but tractor operation becomes an important factor. The possibility of turning a tractor over on steep slopes thus endangering life and machinery will govern the per cent of slope which could be cleared of timber.

The proximity of forest land to existing agricultural land is the fourth assumption. Geographic location of the prospective cropland in relationship to existing agricultural land is an influential factor in the future clearing of forest land. If the forest land is adjacent to existing crop land, other factors being favorable, it is likely to be cleared of timber. This is a result of agricultural technology; the new machinery is larger. Five to ten acre tracts of detached land do not lend themselves to the conducive operation of large farm machinery. An eight row corn planter encounters maneuvering difficulties in small fields. In addition to maneuvering problems, transportation costs to the detached tracts of crop land, the time involved becomes prohibitive.

One final factor deserves consideration. This factor is the impact of the energy crisis upon farm fuels for operation of machinery. An indefinite energy crisis through fuel
allocation will influence the future clearing of forest land. If fuel rationing occurs the farm owner is going to utilize gasoline and diesel fuels for machine operation on land which is high in crop productivity. This could eliminate cultivation of soils which have developed under the oak-hickory forest associations. Because these soils are recognized as being low in productivity, the farmer is faced with the problem of increasing the productivity of the forest land or abandoning the land.
APPENDIX I

SURVEY QUESTIONNAIRE

DEFINITION OF FORESTED LAND: Forested land is defined as the following. a) Land bearing vegetative associations dominated by trees. b) It includes lands that are at least ten percent stocked with forest trees of any size and capable of producing timber or other wood products. c) Lands from which the trees described in (b) have been removed to less than ten percent stocking and which have not been developed for other uses. d) Replanted areas. The minimum area that qualifies as forest land in the study is one acre. Roadside, streamside, and shelterbelt strips of timber, in addition to meeting above requirements, must be at least 120 feet wide to qualify as forest land.

1. Please indicate the approximate total acreage of your forested land. ____________________

2. What dollar value per acre do you give to your forested land? ____________________

3. If part of your forested land is utilized for grazing or pasturing livestock indicate the:
   a. _______ number of acres.
   b. _______ type of livestock.
   c. lay of the forested land (for example: is it very hilly and steep or flat).

4. If commercial sawlogs have been cut from your forested land:
   a. _______ how many acres were cut over?
   b. _______ about how many board feet per acre were cut?
   c. _______ what was the approximate dollar value per acre?
5. Referring to the above question, did you cut and market the commercial sawlogs?  
   a. ____ yes  
   b. ____ no

6. If another party bought and cut the sawlogs, please indicate the name of the individual or company. ________

7. Have you realized any income from your forested land other than that from sawlogs sold or grazing livestock?  
   a. ____ yes  
   b. ____ no  
   If yes, please indicate the nature of income.  
   c. ____ the sale of firewood  
   d. ____ sale of homesites  
   e. ____ camping fees,  
   f. ____ sale of walnuts and hickory nuts  
   g. ____ other  
   h. _______________________ Please indicate the approximate dollar value.

8. Concerning multiple use of forested land, please check the following uses which apply to you.  
   a. ____ checking erosion.  
   b. ____ protecting pond watershed.  
   c. ____ site for recreation.  
   d. ____ habitat for restoration of wildlife.  
   e. ____ others (please indicate) _______________________  

9. Has a part of your forested land been cleared since you have owned the land?  
   a. ____ yes  
   b. ____ no  
   c. ____ please indicate the number of acres cleared. (if yes)

10. Is your forested land presently under a program of forest management with the district forester?  
    a. ____ yes  
    b. ____ no

11. Have you replanted any land for the purpose of re-establishing forested land?  
    a. ____ yes  
    b. ____ no  
    c. ____ indicate the number of acres replanted. (if yes)
12. How would you rank the following items on the basis of income? Put a number 1 next to that which you consider to be of the greatest income, a number 2 to the second greatest income, and so on down the list. Please feel free to add other sources of income which I have not listed.

a. _______ pasture for farm livestock.
b. _______ growing of cash grain crops.
c. _______ marketing of commercial timber.
d. _______ non-economic timber services: watershed protection, recreation, and wildlife protection.
e. _______ others, please indicate.

13. What do you intend to do with your forested land in the next 10 years? Check the uses listed below.

a. _______ participate in a program of forest management.
b. _______ market the commercial sawlogs for income.
c. _______ sell the forested land presently owned.
d. _______ clear the forested land for livestock grazing.
e. _______ clear the forested land for growing crops.
f. _______ let the forested land lie fallow.
g. _______ other (indicate the intent)

14. What are your taxes paid on forest land? ____________

15. Do you reside on the forested land? ____________

16. What is your occupation(s)? ____________

17. How long has your forested land been in your possession?

Note: This questionnaire was conducted by compiling a list of the 510 forest landowners recorded in the Coles County Plat Book, 1971. Next, eighty-two forest landowners were selected at random from this list and interviewed by the author through use of the telephone. Thus a random sample of 15.8 per cent of the forest landowners within Coles County is represented.
BIBLIOGRAPHY

Barton, Byron, K. "Physiography of the Charleston Area." Unpublished paper, Department of Geography, Indiana State University, 1953.


