

To the Graduate Council:

I am submitting herewith a thesis written by James Levourn Wiggins entitled "Timber Availability and the Influence of Absentee Ownership." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Forestry.

Garland R. Wells

Garland R. Wells, Major Professor

We have read this thesis and
recommend its acceptance:

David Chalmers

Charles L. Cleland

Accepted for the Council:

L. Evans

Vice Chancellor
Graduate Studies and Research

Thesis
77
.W544
cop. 2

TIMBER AVAILABILITY AND THE INFLUENCE
OF ABSENTEE OWNERSHIP

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

James Levourn Wiggins

March 1977

1321106

ACKNOWLEDGMENTS

The writer wishes to thank Dr. Charles L. Cleland and Dr. David Ostermeier for giving of their time and efforts to serve on his graduate committee. Dr. Cleland's advice and recommendations during the development of the questionnaire used in this study were greatly appreciated.

Special appreciation is due Dr. Garland Ray Wells, major professor, for his guidance, inspiration and untiring patience during the writing of this thesis.

The writer is grateful to Inland Container Corporation, New Johnsonville, Tennessee, for its financial support of this thesis.

Dr. John Meadows, Tennessee Valley Authority, contributed much to this study in its initial stages and for this he is sincerely thanked. John L. Wells, fellow graduate student, is thanked for his contribution to the development of the questionnaire used for this thesis and for his help in data collection.

To my wife, Karen, without whose confidence and encouragement I could not have completed this thesis, I give my love.

ABSTRACT

The study was concerned with the influence of absenteeism on timber availability. The purpose was to determine how willing to sell timber products were selected groups of private, forest landowners. The study tested the hypothesis that absentee owners are less likely to market their timber than are resident owners. A specific group of absentee owners, those living in an urban or metropolitan area, was studied.

A sample of 36 absentee private forest landowners (urban-residents) who lived in Nashville, Tennessee and owned forest land in an 11 county timbershed in Tennessee was compared with 36 rural-resident owners who lived on or near their forest land in the same timbershed. These two groups, that controlled equal forest acreage, were interviewed regarding their attitudes toward marketing timber products.

A procedure was developed for determining an owners' "willingness to sell" forest products. This new method, called a "willingness score," proved to be more sensitive to an owner's objectives and motivations than the straight yes, no, or maybe responses used in previous studies.

It was found that the urban-resident forest owners were less willing to sell timber products than were rural-resident forest owners. It was further discovered that the major difference between these two groups was in the larger ownerships. That is to say those owners holding 150 or more acres of forest land were less "willing to sell" timber.

Using discriminant analysis, six variables were identified that together correctly classified owners as either urban-residents or

rural-residents 85% of the time. Other significant differences were found between the two groups and collectively they made up a profile of the urban-resident owners.

Urban-resident owners in Nashville, Tennessee controlled almost 52,000 acres of the commercial forest land in the timbershed studied. These owners, who are increasing in number, are an important target group for forest policy action.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Timber Availability—The Problem Setting	1
The Origin of the Study	2
Statement of the Problem	3
Hypothesis Regarding Absenteeism	3
Objectives	4
Definition of Private, Forest Landowners	4
Importance of Urban-Resident Forest Landowners	6
Assumptions: Resident and Urban-Resident Owners Defined	7
II. LITERATURE REVIEW	10
Previous Studies Dealing with Timber Availability	10
Residency	12
Relationship of Residence and Forest Management	13
Relationship of Residence and Leasing Forest Land for Management	16
Relationship of Residence and "Willingness to Sell" Forest Products	16
III. METHODS AND PROCEDURES	18
The Timbershed	18
The Population	18
Private Ownership Pattern	19
The Sampling Procedure	20
Personal Interview Questionnaire	21
Development	21
Pretesting	23
Field Interviews	24
Statistical Analysis	25
IV. MEASURING "WILLINGNESS TO SELL"	27
Need for a Better Method of Determining "Willingness to Sell"	27
Development of "Willingness Scores"	28
Base Scores	28
Perfect Score	29
Going Beyond the Yes, No, or Don't Know Answers	29
An Example of the "Willingness Score"	30

CHAPTER

PAGE

V.	PROFILE OF THE URBAN-RESIDENT FOREST LANDOWNER	33
	Variables that Show a Contrast Between Rural- Residents and Urban-Residents	33
	Owner Characteristics	33
	Education	34
	Health	34
	Income	35
	Occupation	35
	Membership in Farm Organizations	35
	Age	35
	Tenure	36
	Interest in Long-Term Leasing Arrangements	36
	Objectives of Ownership	36
	Reason for Purchase of Property if Bought	37
	Why Property was Held Regardless of How Acquired	37
	Disposition of Property	38
	Acquisition of Property	38
	Cutting History	38
	Timber Sold in the Past	40
	Timber Sold from Land Presently Owned	40
	Timber Cut From Land for Owners Own Use	40
	Forest Practices	40
	Comparison of Timber with that of Neighbors	41
	Forestry Information	42
	Who was Contacted for Forestry Information	42
	Knowledge of Present Prices of Timber Products	42
	Interest in Price Reporting Information	42
	Variables that are Discriminatory between Rural- Residents and Urban-Residents	43
	Profile Summary	44
VI.	FURTHER RESULTS	46
	Differences in "Willingness to Sell" between Urban- Resident and Rural-Resident Populations	46
	Reasons Given for Not Intending to Sell Timber in the Future	48
	Reason Most Often Given as Number One	48
	By Rural-Residents	48
	By Urban-Residents	49
	Reason Most Often Mentioned	49
	By Rural-Residents	49
	By Urban-Residents	49

CHAPTER

PAGE

Reasons Given for Intending to Sell Timber in the Future	50
Reason Most Often Given as Number One	50
By Rural-Residents	50
By Urban-Residents	50
Reason Most Often Mentioned	51
By Rural-Residents	51
By Urban-Residents	51
VII. DISCUSSION AND RECOMMENDATIONS	52
Discussion	52
Recommendations	53
LITERATURE CITED	56
APPENDIXES	61
Appendix A	62
Appendix B	73
Appendix C	76
VITA	81

LIST OF TABLES

TABLE	PAGE
1. Commercial Forest Land by Ownership Class for the Study Area—1971	19
2. Distribution of the Rural-Residents and Urban-Residents Interviewed by Size Classes	21
3. Distribution of Respondents for Rural-Resident and Urban-Resident Samples	25
4. The Difference Between Rural-Resident and Urban-Resident Forest Owners by Owner Characteristics	34
5. Difference Between Rural-Resident and Urban-Resident Forest Owners by Ownership Objectives	37
6. Differences Between Rural-Resident and Urban-Resident Forest Owners in Forest Management Intensity	39
7. Distribution of Sample that had Sold Timber in the Past	40
8. Prediction Results Based on Discriminant Analysis Test . .	44
9. Distribution of "Willingness Scores" for Rural-Resident and Urban-Resident Samples	46
10. Distribution of Responses to the Question, "Do You Intend to Sell Timber in the Future?"	47
11. Data in Table 9 cast for Kolmogorov-Smirnov test	77
12. Distribution of "Willingness Scores" for Owners Having Less than 150 Acres	77
13. Distribution of "Willingness Scores" for Owners Having 150 or More Acres	78
14. Distribution of Reasons Given by Rural-Residents for Not Selling Timber Products	78
15. Distribution of Reasons Given by Urban-Residents for Not Selling Timber Products	79

TABLE

PAGE

16.	Distribution of Reasons Given by Rural-Residents for Intending to Sell Timber Products	79
17.	Distribution of Reasons Given by Urban-Residents for Intending to Sell Timber Products	80

CHAPTER I

INTRODUCTION

Timber Availability--The Problem Setting

Private, nonindustrial forest owners¹ own 59% of the total commercial forest land in the United States (Forest Service 1973). Of the 103 million acres of commercial forest land in the Midsouth, 74 million acres (72%) are owned by private, nonindustrial forest owners. In Tennessee this group, approximately 200,000 in number, controls over 81% of the commercial forest land (Earles 1973). Certainly the collective actions of these owners are one key to the future timber situations of the State, Region, and Nation.

The question of how to maintain a consistent and desirable flow of timber from private, nonindustrial owners is a perennial one. It is feared by the forest industry that many of these lands will be "locked up" and unavailable for commercial uses. The trend has been for forest industries to build up growing stock on their own lands while buying most of their wood raw material from nearby private owners, thus making a heavy drain on private forest. If suddenly the majority of all forest owners should become ardent conservationists at once and decline to sell their forest products, industry would find itself facing a great problem (Duerr 1961). To a degree this problem exists now.

¹Includes all private forest owners except forest industry. Other industrial, or corporate holdings are included.

Not all marketable timber that is accessible is readily available. There is a need to determine how much consumable wood resource is actually available as contrasted to the net physical inventory of a given timbershed (Lawrence and Lege 1973).

In the past, the forest resource surveys have traditionally measured the timber resource in place. Thus, timber growth on ownerships where wood utilization is not an objective of the owner is added to rather than subtracted from supply estimates. This results in an overestimation of the available timber supply, particularly in terms of the short run.

The Origin of the Study

This study was part of a larger one which began in the summer of 1975. The overall study dealt with the economics of timber resource availability in an 11-county timbershed in Tennessee. It dealt only with private, nonindustrial forest landowners. Its major purpose was to determine how much of the timber in the study area was available to be marketed and to determine what factors affected availability. The three specific objectives of the overall study were:

1. Determine the proportion of the aggregate timber resource actually available from small nonindustrial forest ownerships.
2. Search out information relevant to the basic motives for withholding timber from the market on otherwise commercial lands.
3. Develop methods for depicting timber availability by combining timber and owner statistics through polygraph computerization.

This study grew out of objective number two above. It was an effort to determine if attitudes and behavior towards the availability of timber products differed significantly between two subgroups of landowners who were basically residents and nonresidents (absentee owners).

Statement of the Problem

Historically, the forest management on lands held by private, nonindustrial owners has been poor. Much time and effort has been expended over the past thirty years in trying to increase production on these lands. These efforts have met with limited success. These private, nonindustrial owners are very heterogeneous as a group and hold their lands for many different reasons. Timber availability not only depends upon the resource being physically present and accessible, but also upon the attitudes and objectives of the owners.

The purpose of this study was to learn more about timber availability on lands owned by private, nonindustrial owners. Since this group is so diverse, the study was limited to a specific category within the group. It dealt with absentee forest landowners who live in a metropolitan area. These owners have been called urban-residents by some authors (Capps 1969; Smith 1971). This is the terminology that is used in this thesis.

Hypothesis Regarding Absenteeism

It has been suggested by some studies that private, absentee owners are less likely to market their timber than are resident owners (Quinney

1962; Schallau 1964). This study sought to ascertain if this finding holds true for a specific group of absentee owners—urban-residents.

Objectives

There were three objectives to this study. The first objective was to determine if there is any difference in "willingness to sell" timber products between rural-resident and urban-resident forest landowners in the private, nonindustrial classification. The second objective was to derive a profile of urban-resident forest landowners, who are often a secondary target of urban forestry programs (Forest Farmers Association 1968; Capps 1969; Shirley 1970; Andresen 1974). A third objective was to develop a better method for determining timber owners' "willingness to sell" timber products.

Definition of Private, Forest Landowners

The terms used to describe different types of private forest owners are often confusing and misleading. When considering the results of any study dealing with landowners, a close scrutiny of the population referred to should be made. A misunderstanding of what the author really means can cause the results to be ambiguous.

Private, nonindustrial forest landowners and farm and miscellaneous private owners are two terms that are often used interchangeably in forestry literature. As Lege and Lawrence (1972) pointed out, this is valid as long as the term "nonindustrial" is understood to mean "nonforest industrial" or that the industry excluded from this ownership category

is only forest industry. If this is not understood, private, nonindustrial is not synonymous with farm and miscellaneous private because the latter group includes other corporate or nonforest industry ownerships. Therefore, private, nonindustrial forest lands include all privately owned forest properties not associated with wood manufacturing firms (Pomperoy and Yoho 1964). The Forest Service (1973) defines farm and miscellaneous lands as "privately owned land other than that in forest industry ownerships."

The term "small forest landowner" is seen quite often in the literature. It is often used when the size of the forest holding is being implicitly pointed out as the problem in forest management. As Taylor (1966) pointed out, this term is commonly thought of as including farm and miscellaneous private landowners and thus private, nonindustrial landowners. However, while small-forest owners may accurately describe many from these two groups of landowners, it is misleading to believe that all holdings of these landowners are "small." This is confusing in that the question arises as to the actual size of a "small forest landownership." As Wells (1967) pointed out, this is an ambiguous term because it gives too much emphasis to size.

In general, absentee landowners are those that do not live on their forest properties. However, there is some ambiguity in referring to absentee owners. Some authors define them as owners living five miles from their land. Others put the distance at ten miles, 15 miles, 25 miles, etc., and some go strictly by whether he lives on the land or not. Schwarz, Thor, and Elsner (1976) define absentee ownership as "the holding

of property by a person or persons not living or working on the premises and not regularly present to oversee its use or maintenance."

The concept of an absentee owner not being regularly present to oversee the use and maintenance of the land is important. An owner living 100 miles away could feasibly visit his property more often than another owner living 20 miles from his property. This points out the fact that the distance an owner lives from his land may be a poor criterion on which to base any assumption. If however, absentee owners can be placed in groups and studied collectively some useful trends may be discovered.

Generally speaking, anyone living in an urban environment can be referred to as an urban-resident. The term urban-resident is beginning to appear in forestry literature in respect to urban forestry programs. These programs are basically being designed for urban-residents who own shade trees and desire assistance in caring for them. However, as Capps pointed out, many of these urban-residents own a considerable amount of forest land. An important goal of any urban forestry program should be to reach this specific group (Capps 1969).

Importance of Urban-Resident Forest Landowners

The United States has become a nation of urbanites. Over 75% of the citizens of this country live in metropolitan areas (Anderson 1974). Leuthold (1968) noted that this increasing urban population showed no sign of slowing down. As was mentioned earlier, a large number of these urbanites own forest land. Many authors believe that an increasing amount

of the nation's forest land is falling into the hands of these urban-residents (Huff and Craig 1968; Efferson 1969; Shirley 1970; Smith 1971). Reunala (1974) also noted this trend in Finland.

Forestry programs designed for resident forest landowners will not always effectively reach the urban-residents. Urban-resident owners are different from resident owners in many respects. Just what these differences are and to what extent they affect timber availability has not been fully explored. Future forestry programs must be based on the best possible understanding of these differences.

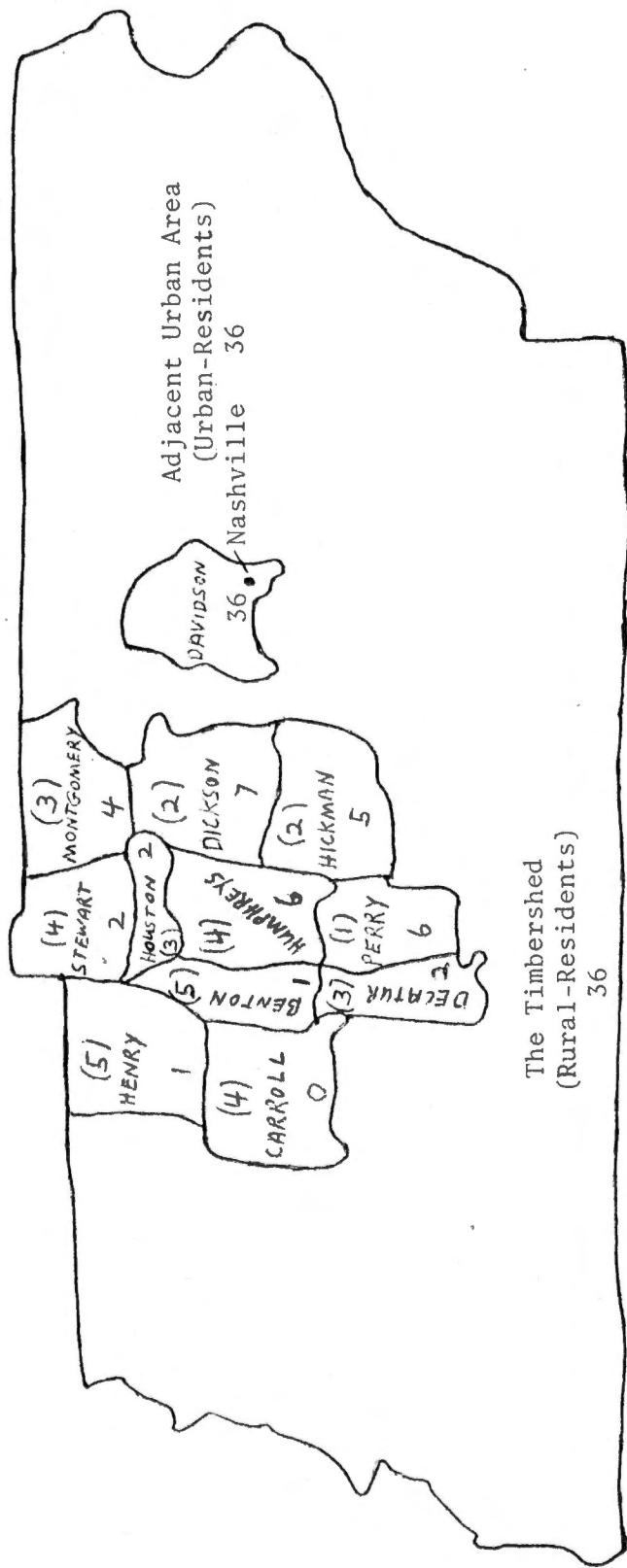
Assumptions: Resident and Urban-Resident Owners Defined

Given the ambiguity surrounding the word absenteeism, it is therefore imperative that the terms resident and urban-resident as used in this study be clearly defined.

Resident owners were those private, nonindustrial owners living on or within ten miles of their property and all residing inside the same county as their land. Owners either living over ten miles from their land or in a different county were excluded from the study. In this study all the resident owners lived within eight miles of their land. The total breakdown was as follows: 29 resided on their land; two lived one mile away; one lived two miles away; one lived four miles away; two lived five miles away; and one lived eight miles away. Since the majority of the resident owners used in this thesis were farmers, either full time or part-time, and lived in a relatively rural environment, they

were classified as rural-residents. This is the terminology used to refer to them in this thesis.

Urban-residents were owners who were absentee by the above definition, owning land in the study area and living in an adjacent urban environment. The urban environment common to all urban-residents in this study was Nashville, Tennessee (see Figure 1).



MIDDLE AND WEST TENNESSEE

Numbers in Parenthesis () = Forest Ownerships with Owner Residing in County

Numbers not in Parenthesis = Forest Ownerships with Owner Residing in Nashville

Figure 1. The study area with sampling pattern by county.

CHAPTER II

LITERATURE REVIEW

Some of the major studies dealing with timber availability and their results are cited in this chapter. Several studies have pointed out very clearly that the physical supply of timber on hand is not entirely available to the open market. In some areas over 50% of the owners were not "willing to sell"¹ their timber products. There were many reasons given for this unwillingness to sell.

It should be pointed out that the results from all studies cited are based upon direct responses from the landowners. It is possible and probable that some of the respondents gave the answer they felt would be the "right" one. For example, an owner might not have had any intention to sell timber in the future but he might have answered yes thinking that this was what the person questioning him felt he should say. A more accurate method of determining "willingness to sell" might have changed the results somewhat.

Previous Studies Dealing with Timber Availability

Babau, Rhodes, and MacConnell (1965) in Berkshire County, Massachusetts, found that only 15% of the owners controlling 29% of the

¹Willingness to sell timber is not easily measured. It is reported in this chapter as the authors define it for their studies. Also, percent of owners controlling a specific percent of acreage is reported as given. Most of these were percents of the sample with sampling procedures varying widely.

woodland acreage expected to sell forest products in the following five years, while 45% owning 28% of the acreage did not expect to sell. Forty percent of the owners controlling 43% of the woodland acreage were undecided. The major reasons given for not selling forest products were: fear of destroying the forest, its beauty and usefulness; not enough trees to sell; trees not large enough or too poor in quality; insufficient knowledge of what or how to sell; and disinterest in operations of this kind.

Holemo and Dyson (1971) in the Piedmont Region of Georgia found that 52.1% of the landowners controlling 34.1% of the land were not willing to sell timber products and that 18.7% controlling 11.6% of the land were undecided. This left 29.2% of the owners holding 54.3% of the land who were willing to sell. Principal reasons given for unwillingness to sell were: to save for financial emergency; to hold for higher price; and the need for better logging methods.

The owners that Holemo and Dyson found that were unwilling to sell generally had small timber tracts. Of the 55 respondents who said they would not sell timber, only four had tracts of saleable timber of 100 or more acres. Other studies have also confirmed this relationship. (Babau, Rhodes, and MacConnell 1965; Won and Hardie 1971; Larsen and Gansner 1972; Holemo and Brown 1975).

Lawrence and Lege (1973) found in Florida that up to 60% of the farm and miscellaneous private owners in some areas were not willing to sell any timber. For the state as a whole, 43% of the owners were unwilling to sell any timber products. Primary reasons given for not

selling were: wish to grow larger timber; holding for real estate purposes; and no specific reason.

Holemo and Brown (1975) in Georgia's Coastal plain asked landowners who had mature timber if they planned to have a timber sale in the next five years. Over 33% of the respondents controlling 29.1% of the acreage said they were unwilling to sell. Thirty-six percent controlling 23.4% of the acreage were uncertain, leaving 29.8% of the owners controlling 47.5% of the acreage who were willing to sell. The four major reasons why the landowners were unwilling to sell mature timber were: keep for financial security; allow the timber to grow in size and value; esthetics; and trust for children.

A study in Delaware showed that owners of 11% of private commercial forest land in that state were adamantly opposed to timber harvesting (Pulpwood Highlights 1975).

Won and Hardie (1971) in Maryland studied the differences between people willing to sell timber products and people not willing to sell. They found that timber sellers were more likely to:

1. Improve their growing stock of trees.
2. Have information about local stumpage prices.
3. Have contact with loggers.
4. Hold relatively large acreage of woodland.

Residency

Forest landownership means different things to different people. Some people may look at their forest land as merely a means for acquiring

additional income while others view it as a source of inspiration, a place to get away from the pressures of everyday life. Obviously, the purpose for which forest land is owned has a direct influence upon the way it will be managed. There are several variables that could be possible indicators of a person's reason for owning forest land and therefore indicators of what they intend to do with it. Residence, whether a person lives on the land or some distance from the land, is one of these variables.

Some studies have dealt with residence and the influence it has on forest management. A few authors have concluded that there is a difference in the way residents and nonresidents manage their forest land; others have found that no difference exists. Some studies indicate that interest in leasing of forest land for management might be greater among absentee owners than among residents. A small group of studies suggested that absentee owners are less willing to sell forest products than are residents.

Relationship of Residence and Forest Management

One of the earliest studies of absentee forest landowners or nonresidents was by C. H. Stoddard (1942). He found that most nonresident forest landowners "showed little knowledge about timber volumes, products from and prices for different species, distance to market and logging methods and all other factors influencing timber values." He noted that among factors influencing owners decisions on forest management was the proximity of residence to the land in order to permit regular supervision

over management operations and harvesting timber products. Stoddard also found that a majority of the nonresident individual owners are business and professional people who have been able to afford payment of taxes in spite of the absence of any income from their land.

Stoddard (1950) later turned up some interesting information on absentee owners. He found that many are involuntary owners and that others are incidental landholders. Some are recreational holders and others are speculators. He noted that the tenure for nonresidents tended to be short and that for those who hold the land longer, the distance they lived from the land and their occupations kept them from practicing frequent cuttings. Stoddard concluded that educating this group is extremely difficult because of the distance of their residence from the land and their general lack of interest or ability to carry out long-term forest management practices.

James, Hoffman and Payne (1951) found that owners who lived at distances above 50 miles from their forests had generally poorer management practices than owners who lived closer to their properties. They found no relation between distances and management practices for owners who lived under 50 miles from their property. They concluded that residence facilitates good forest management.

Yoho, James and Quinney (1957) in Michigan also found that residence facilitates forest management. Their study showed that timber stand conditions have no consistent relationship with an owners distance from property, but that some relationship can be observed between cutting practice and distance. A comparison showed much better cutting practices

among owners living on than those living off their properties. The main obstacle recognized was the inability to supervise because of either physical limitations or the demands of more profitable activities. Hutchison and McCauley (1961) in Ohio noted that the farther an owner lived from his forest land, the less attention he paid to it.

In Louisiana, Bradford and Marlin (1972) found that at the .25 level of significance owners living on their property had adopted more forest practices than those living away from their property. Also in Louisiana, Fontenot and Marlin (1974) found more residents than absentee owners planning to use prescribed burning.

Lovelace (1975) made an evaluation of the 1974 forestry incentives program in 12 East Tennessee counties. He found that low-participation areas had a high percentage of resident owners.

Some studies, however, have found no significant difference between management practices of residents and absentee owners. Folweiler (1944) found that the distance from the property that the owner resided was not significantly related with the practice of forestry. McDermid, Kitt and Guttenberg (1956) found that owners who resided on their property managed no better than absentee owners. Anderson (1968) noted that the distance from the owner's home to his forest land had nothing to do with the landowners' adoption of either planting or thinning. Folweiler and Vaux (1944) found that there was no observable correlation between productivity of the forest land and residence of the owner. Sutherland and Tubbs (1959) noted that the distance of residence from the woodlands has little influence on intentions to grow timber.

Yoho and Wells (1964) and Wells (1967) found that the distance an owner resided from the property was not significantly related with the practice of forestry. They suggested, however, that it might become more important in the future as absenteeism increases.

Relationship of Residence and Leasing Forest Land for Management

Recent studies indicate that nonresidents may be more interested in leasing their forest lands than residents. Sutherland and Tubbs (1959) found that absentee owners were not as eager to have their forest land managed for them as were residents. This finding is, however, in contrast to two more recent studies. Farell (1964) noted that nonresidents over 200 miles expressed greater interest in management-lease services than those residing on their land. Also, business and professional people showed greater interest in leasing than other types of owners. Toms and Marlin (1972) found that owners living away from their property were more interested in leasing their forest land than those living on the property.

Relationship of Residence and "Willingness to Sell" Forest Products

Stoddard (1942) found in his study area in the Northern Lake States that almost 3/4 of the area where cutting was planned was owned either by nearby residents or farmers. He also found that the area on which no cutting was planned was largely held by nonresident individuals, land companies and railroads.

Quinney (1962) noted that none of the owners making their homes outside his study area, Michigan's Upper Peninsula, had sold timber from

their lands. He also found that more than half of the resident forest landowners living there had harvested timber compared to only 11% of the nonresidents.

Schallau (1962) found that in Southern Michigan almost 40% of the owners who lived within ten miles of their woodland tract had harvested timber at least once during their tenure, but that only 7% of the remaining owners had done so. He later noted that absentee ownership does apparently influence the marketing of timber products. For the entire state of Michigan he found absentee owners to be less willing to market timber products than resident owners (Schallau 1964). Schallau suggested that one reason for this is the difficulty for absentee owners and buyers to get together.

This tendency may be more important in the short run than in the long run. Even though absentee owners are less likely to market timber products, which may be because they are less dependent on their forests for income, they seem to be more receptive to timber management and in the long run may actually increase the timber supply (Schallau 1965).

CHAPTER III

METHODS AND PROCEDURES

The Timbershed

The Timbershed included in the study area consists of 11 counties located in Middle and West Tennessee.¹ These are Benton, Carroll, Decatur, Dickson, Henry, Hickman, Houston, Humphreys, Montgomery, Perry, and Stewart Counties. The total acreage in the 11 county study area is 3,397,000 acres. In 1971 commercial forest land accounted for 1,913,200 acres or 56% of the total acreage (Hedlund and Earles 1971).

The majority of the forest land is stocked with hardwood species. Hardwood growing stock trees on the commercial forest land in 1971 totaled 1,517.2 million cubic feet. Hardwood sawtimber for the area totaled 3,258.4 million board feet. Softwood growing stock totaled 43.1 million cubic feet with sawtimber comprising 85.5 million board feet of this. Less than 3% of the total growing stock trees were softwood species (Hedlund and Earles 1971).

The Population

Private, nonindustrial forest landowners were the basic population with which this study was concerned. Two subgroups, rural-resident and urban-resident owners, were taken from this population for analysis to

¹These counties approximate the actual procurement area of the company providing the grant for the study. Humphreys county was the location of the processing plant.

determine differences in their "willingness to sell" timber products. A total of 72 landowners were interviewed for the purposes of this study—36 rural-resident owners paired with 36 urban-resident owners.

Private Ownership Pattern

As is true for the entire state, most of the forest land in the area is privately owned (see Table 1). Eighty percent or 1,525,400 acres of the commercial forest land in the study area is held by private, nonindustrial owners. Of this 1.5 million acres, 830,600 (54%) is held by farmers and 694,800 (56%) is held by other miscellaneous private owners.

Table 1. Commercial forest land by ownership class for the study area—1971.

All Ownerships	National Forest	Other Public	Forest Industry	Private Nonindustrial		
				Total	Farmer	Misc. Private
.....In Acres.....						
1,913,200		176,200	211,600	1,525,400	830,600	694,800

There are many acres in the study area owned by absentee owners, as suggested by owner addresses in published directories (Tenn. Div. of Forestry 1976) and other public records. There were 51,945 acres found in the study area, in tracts of 100 acres or larger, owned by 167 urban-resident owners living in Nashville, Tennessee.

The Sampling Procedure

The sampling was done in conjunction with the sampling for the overall study. To obtain a list of the landowners in the study area, the tax assessor in each county was contacted. Five counties had this information on computer tapes and duplicates of these tapes were made. The remaining six counties were visited and the necessary information obtained by going through the tax assessment files. The information collected consisted of the owner's name and address, the total number of acres owned, and its location. A few counties had on file the total number of woodland acres owned. This information was collected when available.

For expediency, only the names of landowners having 100 total acres or more were collected. However, as expected, when the samples were pulled many of the owners owned less than 100 acres of woodland. All owners were included in the study who owned ten acres of woodland or more.

Since it has been suggested, as shown in Chapter II, that "willingness to sell" timber products is related to the size of woodland acreage, it was decided to pair the rural-residents and the urban-resident sample together by size classes. The size classes used were: 10-49, 50-99, 100-299, 300-499, 500-999, and 1,000-4,999. Originally, a size class of 5,000+ was included but no private, nonindustrial owners in the urban area owned that much forest land so it was dropped. It was not possible in every case to pair the two samples up exactly by size classes and in such cases they were paired as closely as possible (see Table 2).

Table 2. Distribution of the rural-residents and urban-residents interviewed by size classes.

Size Classes in Acres	10- 49	50- 99	100- 299	300- 499	500- 999	1000- 4999	Total	Total Forest Acres Held
Rural-Resident	2	5	11	9	6	3	36	14152.5
Urban-Resident	1	5	16	4	6	4	36	15114.0
Totals from Each Size Class	3	10	27	13	12	7	72	

From the list of landowners a directory was formed. A stratified random sample, without replacement, was made from this directory and 76 owners were obtained for use in the overall study. Fifteen of these 76 owners were urban-residents, living in Nashville, Tennessee. From the remaining urban-resident population in Nashville, 36 other owners were randomly chosen, 6 from each size class, to bring the total sample to 51. It was decided that a sample of at least 30 was needed in order for comparison to have statistical validity. Alternates were also available if fewer than 30 of the 51 could be located.

Personal Interview Questionnaire

Development

A questionnaire was developed with the major purpose in mind of determining "willingness to sell" timber products (see Appendix A). It was designed to probe an owners' answer and find out why he responded in a certain manner to this important question. The questionnaire was developed to be used only by personal interviews. It was felt that more

accurate data could be collected this way.. One reason being that if the person answering the questionnaire had any question about one of the questions, someone would be there to help them. Another reason was to get the owner's first impression to the questions. Given time to think about the question a person might decide what he thought was the "correct" answer and put that down. By asking the questions and getting the owner's responses immediately, it was felt that they were "truer" responses.

The questionnaire was divided into four parts. The first part was seeking personal information about the owner. The second part sought information about the owner's knowledge of forestry and his past contacts for forestry information. The third part dealt with the owner's past timber marketing practices and factors that influence him to sell or not to sell in the future. It also asks what might cause him to sell timber if he does not now plan to sell. The fourth part sought his interest in government assistance programs for these practices.

The questionnaire was designed so as to be able to develop a "willingness score" to better determine if an owner is willing to sell or not. Questions 16, 17, 18, and 19 were very important in the development of this score.

Question 16 was, "Do you intend to sell timber in the future?" There were three possible follow-up questions numbered 17 and the one applicable to an owner was dependent upon how he answered this question, i.e., yes, no or don't know.

Question 17 gave lists of reasons that the respondent might have taken into consideration in making the decision to sell if the response

was "yes," or in making the decision not to sell if the response was "no." Owners were asked to mark the reasons or factors which they took into consideration in making their decision. If an owner responded "don't know," a list was given and they were asked to mark the conditions which would cause them to consider having a timber sale.

In all three situations owners were asked to list as few or as many answers as were applicable to their particular situation. They also had the opportunity to give answers that were not listed and were encouraged to do so if a reason affecting their decision was not listed.

Question 18 then asked the individual to choose the three reasons or considerations that were the most important to him and rank them as most important, next most important, and third most important.

Question 19 asked the individual to rank his three choices in terms of how important each was by percentages, not going over a total of 100%. The purpose of this was to weigh the responses. These percentages or weights were marked on a ladder scale which was included in the questionnaire.

Pretesting

Before the actual interviewing began the questionnaire was pretested on a person who lived in Knoxville, Tennessee, and owned land in the study area. It was discovered from this that some of the questions were too vague and needed rewording. One part of the questionnaire was much too complex for the interview. Appropriate changes were made.

It was decided, as a result of this pretesting, to read the questions to the person being interviewed instead of letting them read and mark the answers themselves. This was to shorten the time needed and also to make the person being interviewed feel more comfortable and conversive. Only a minimal amount of writing was done during the interview, the majority of the questionnaire being filled out immediately after leaving the interviewee.

Field Interviews

The interviews were made by this author and another graduate student in September and October of 1976. In all, 98 people were interviewed, 76 for the original study plus 22 extra urban-resident owners for this study. There was a total of 37 urban-resident owners interviewed but one was dropped from the sample after the interview because it was determined that he represented a forest industrial holding. Therefore, 36 urban-resident interviews were taken that were used in the analysis. Thirty-six rural-resident interviews were paired with these for comparison. Figure 1, page 9, shows the sampling pattern for both groups by county.

The most difficult part of the interviews was finding the people. Efforts were made to find them at home and if they were not there, then their place of employment was visited. If the owner could not be contacted, then the spouse, adult children, or manager was interviewed if they were available and seemed competent to answer for the owner. Several visits were made before giving up on any one owner. Table 3 shows the distribution of respondents for rural-resident and urban-resident samples.

Table 3. Distribution of respondents for rural-resident and urban-resident samples.

	Owner	Spouse	Adult Children	Manager	Total
Rural-Resident	27	5	3	1	36
Urban-Resident	26	8	0	2	36
Total Sample	53	13	3	3	72

In general, the people were very nice and considerate. Out of all the people contacted only two would not consent to an interview. One man said he "did not wish to participate" in our study and another said he was just too busy to stop for an interview. Interviews were made in tobacco and hay fields and one lady was interviewed in the hospital where she was a patient. Upon arriving at one house, it was discovered that an elderly lady had fallen and could not get up. This author gave her assistance and remained with her until her son arrived home from work. These and other incidents made the interviewing an interesting experience.

Statistical Analysis

Much of the analysis was conducted through the use of the computer program, The Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, Bent 1975). The acronym commonly used for this package is SPSS. SPSS was used to get frequency tables for all the data in this study. Chi-square tests were used through the program to determine differences between rural-residents and urban-residents.

Discriminant analysis was also used through SPSS to determine if certain variables were discriminatory between rural-residents and urban-residents.

The Kolmogorov-Smirnov (K-S) two-sample test (Siegel 1956) for small samples, a powerful chi-square test, was used to test the relationship between rural-residents and urban-residents and "willingness to sell." The "willingness scores" developed in this thesis were used in the analysis.

The Mann-Whitney U test (Siegel 1956) was used to determine the effects of acreage size upon differences in the "willingness scores" for the two groups. The two groups, rural-residents and urban-residents, were divided into those having less than 150 acres of forest land and those having 150 or more acres of forest land. The Mann-Whitney U test for large samples was used.

The K-S (one sample) test for large samples (Siegel 1956) was used to compare the distribution of "Yes" and "No" responses to question 16 (in Section III of the questionnaire) between urban-resident populations and the population used for the overall study. This was used to determine if the yes's and no's were distributed differently for the urban-residents than in a more "normal" population. The large one-sample test was used even though n_1 and n_2 were not all large (over 40) and were not equal. This is permissible because this test uses chi-square approximation and though there may be a small error, the error is always in the "safe" direction.

CHAPTER IV

MEASURING "WILLINGNESS TO SELL"

Need for a Better Method of Determining "Willingness to Sell"

Efforts to measure timber owners' "willingness to sell" timber products have traditionally been based entirely upon the owner's response of yes, no or don't know to a question such as "Do you intend to sell timber in the future?" This method had been generally accepted and surely it does give a better understanding of the timber availability picture. However, when answering questions about such things, people do not always answer exactly the way they feel. Often questions are answered as people feel the interviewer thinks they should answer them. Also, very little thought has to go into a yes or no answer and people may say one thing and do something else. In fact, an owner may not know himself if he will sell or not until he is approached by a buyer and made an offer. As Clawson (1975) said in speaking of the small private forest owner:

Partly because his land area is relatively small and hence the total volume of wood that may be harvested annually is small also, he is likely to make a sale of trees or stumpage at irregular and often long intervals. His need for cash may be more decisive than forestry considerations of optimum harvest date. In many cases, he will respond to the approaches of some wood buyer, often a small sawmill owner, rather than deciding himself, for silvicultural or economic reasons, that a timber harvest is the most economic thing to do at some particular date.

There is, therefore, a need for a method of determining "willingness to sell" that goes beyond a response to a single question and takes more

into consideration a person's real objectives and motivations. More accurate predictions about timber availability in the short run can then be made. Due to short tenure, change of ownership, markets, and changing social values, it is difficult to make predictions that would hold true for the long run.

Development of "Willingness Scores"

One of the objectives of this thesis was to develop a better method of determining "willingness to sell." This was done by using a combination including the traditional method, owner's reasons and considerations for saying yes, no, and don't know, and past selling practices to arrive at a numerical value of an owner's "willingness to sell" timber products.

The scores ranged from a low score of one to a high score of ten, with the higher scores being more "willing to sell." The scores were developed as continuous scores from one to ten so that they could be used in conjunction with, not in place of, the yes, no, and don't know responses. These responses were used to get the base scores, which account for the biggest part of the "willingness scores." It was felt that the "willingness score," as developed, would be more sensitive than the straight yes, no, and don't know classed tests.

Base Scores

The scores were based upon responses to question 16 in the questionnaire, "Do you intend to sell timber in the future?" A base

score of six was given to those answering yes and a base score of four was given to those answering no. Owners saying that they didn't know were given a base score of five.

Perfect Score

Owners receiving a base score of six were the only ones having a chance for a perfect score. If they were found to have sold timber in the past, then it was assumed that they really meant to sell again in the future and thus were given a score of ten. None of the owners receiving perfect scores had a negative attitude toward timber harvesting.

Going Beyond the Yes, No, or Don't Know Answers

The reasons or considerations given as the answer to question 17 give a good indication of how the owner feels toward his timber. For example, an owner may have said that he did not intend to sell timber in the future, but then listed "allow trees to grow in size" as a reason for not cutting. This does not seem to be an answer that would be given by someone totally opposed to cutting timber but by someone who does not expect to have timber that is ready to cut for some time in the future.

All the answers that were given to question 17 were separated into two groups based upon whether or not they were "negative" or "positive" toward selling timber in the future. Then the negative group was broken down again into two groups because some were more negative than the others. This entire process was done by looking at each answer from the standpoint of someone trying to buy timber from the person who answered. People who gave positive responses would be more likely to

sell than people who gave negative responses. People who gave very negative responses would be the hardest to buy timber from. These three groups are listed in Appendix B.

The positive responses to question 17 were given a value of 1, the negative a -.5 and the very negative group was given a value of -1. These values were then used in the "willingness scores" for those who did not get a maximum score of ten.

The value of the most important reason given was multiplied times the weight or percentage given as its importance and this was multiplied times three. This would give a maximum value of +3 or a minimum value of -3 if this reason was the only one listed and thus was weighted 100% for importance. (This was true in few cases.) The multiplication times three was necessary because the weights, showing the importance placed on each of the three reasons, add up to one. If multiplication times three was not included, the maximum score would have been one, which would not have made the scores large enough.

The same process was gone through for the second most important and third most important reason, if given, and the three values were totaled. This total was then added to the original base score given that particular individual and this was their "willingness score."

An Example of the "Willingness Score"

Owner A answered yes to question 16, indicating that he did intend to sell timber in the future. On turning to the appropriate question 17, Mr. A marked three factors that he considered in making his decision.

He marked "emergency funds," "nonemergency expenditures," and "good market price." He ranked them as follows: "good market price"- 50% of his decision; "emergency funds" - 30% of his decision; and "nonemergency expenditures" - 20% of his decision.

"Good market price" was in the positive group, "nonemergency expenditures" was in the negative group, and "emergency funds" was in the very negative group.

Mr. A received a base score of six for his yes response to question 16. A quick check of Section III, question 1 in the questionnaire revealed that he had never before been involved in a timber sale and therefore he did not get a perfect score of ten. Mr. A's most important consideration was in the positive group, worth +1 point. He rated it at 50% importance. We therefore multiply +1 times three times .50 and get 1.5. His second most important consideration was in the negative group, worth a -.5. He rated it at .30 importance. We multiply -.5 times three times .30 and get -.45. The third most important consideration in Mr. A's decision was in case he needed "emergency funds." This was in the very negative group, worth -1. He rated it as 20% of his decision to sell. Multiply -1 times three times .20 and get -.60.

These three values are added together for a total of +.45. This is added to his base score of six for a "willingness score" of 6.45. A simple review of the process follows.

Base Score of Six with No Past Timber Sales

$$\begin{array}{rcl}
 1 \times 3 \times .50 & = & 1.50 \\
 -.5 \times 3 \times .30 & = & -.45 \\
 - 1 \times 3 \times .20 & = & -.60 \\
 \hline
 & + & .45 \text{ plus } 6.00 = 6.45 = \text{Willingness Score}
 \end{array}$$

Owner B answered no to question 16, indicating that he did not intend to sell timber in the future. On turning to the appropriate question 17 for a no response, it was discovered that Mr. B only marked two factors that he considered in making his decision. He marked "keep for financial security" and "low prices paid for logs or pulpwood." He ranked "keep for financial security" as 60% of his decision and "low prices paid for logs or pulpwood" as 40% of his decision not to sell.

"Keep for financial security" was in the very negative group and "low prices paid for logs and pulpwood" was in the positive group of responses.

Mr. B received a base score of four for his no response to question 16. His most important consideration for not selling was in the very negative group, worth -1 point. He rated it at 60% importance. Multiply -1 times three times .60 and get -1.8. His second most important consideration was in the positive group, worth +1. He rated it at 40% importance. Multiply +1 times three times .40 and get 1.2.

These two values are added together for a total of -0.6. This is added to his base score of four for a "willingness score" of 3.4. A simple review of the process follows.

Base Score of Four With No Past Timber Sales

$$\begin{array}{rcl} -1 \times 3 \times .60 & = & -1.8 \\ 1 \times 3 \times .40 & = & 1.2 \\ \hline -0.6 \text{ plus } 4.00 & = & 3.40 = \text{Willingness Score} \end{array}$$

In the two examples given, owner A had a "willingness score" of 6.45 and owner B a "willingness score" of 3.40. Therefore, owner A was judged for analysis purposes as more likely to sell timber products in the future than owner B.

CHAPTER V

PROFILE OF THE URBAN-RESIDENT FOREST LANDOWNER

In order to better understand the urban-resident forest landowner, a profile is presented in this chapter. Along with this profile, rural-resident forest landowner characteristics were contrasted for comparison. Nineteen factors were found to be statistically significant and explained differences between the two groups. These factors and how they differ between rural-residents and urban-residents are shown in the next three tables. Six variables were also found in discriminant analysis that were discriminatory between the two groups. The chapter is concluded with a summary profile of the urban-resident.

Variables that Show a Contrast Between Rural-Residents and Urban-Residents

The 19 factors were divided into three categories—owner characteristics, factors related to land ownership, and factors associated with the marketing of timber products. Also discussed are some factors that did not show significant difference between the two groups but which either show interesting trends or better defined both groups when they were combined.

Owner Characteristics

Education, health, income, occupation, and membership in farm organizations were all significant factors. Table 4 shows these factors and how they differ between the two groups. Although age

and tenure were not significant, the older ages and short tenure of the two groups combined are worth noting. The interest in long-term leasing arrangements of both groups is also of interest.

Table 4. The difference between rural-resident and urban-resident forest owners by owner characteristics.

Owner Characteristics	Owner tended to be a---	
	Rural-resident	Urban-resident
	Where characteristic was	
Education	Low	High
Health	Poor	Good
Income	Low	High
Occupation	Farm oriented	Professional or Business oriented

Education. Urban-residents have more education than do rural-resident forest landowners. Sixty-seven percent of the urban-residents were educated beyond high school compared to only 33% of the rural-residents. Only 11% of the urban-resident owners had less than a twelfth grade education while 47% of the rural-residents had less.

Health. Urban-residents are in better health than are rural-resident owners. More urban-residents said that they were in good health

while more rural-residents said they were in poor health. All but one of the urban-residents said they were in good health, the one remaining having fair health. Only 67% of the rural-resident owners were in good health, 25% were in fair health and 8% indicated they were in poor health.

Income. Urban-residents have higher incomes than do rural-resident owners. Ninety-two percent of the urban-residents interviewed made over \$10,000 per year while only 47% of the rural-resident owners earned this amount.

Occupation. More urban-residents hold professional and business related jobs than do rural-residents. Sixty-seven percent of the urban-residents and 19% of the rural-residents interviewed held jobs in these two areas. Forty-seven percent of the rural-residents listed farming as their occupation compared to none of the urban-residents.

Membership in farm organizations. As might be expected by the occupations, many more rural-residents belong to farm organizations than do urban-residents. Thirty-nine percent of the rural-residents were members compared to only 6% of the urban-residents.

Age. It is interesting to note that in looking at both groups as a whole, the owners are relatively old. Sixty-five percent of the owners were 50 years old or older and 17% were older than 70 years of age.

Only 6% of all 72 owners were under 30 years old. This seems to indicate that it takes many years to obtain the wherewithal for acquiring land ownership of 100 acres or more.

Tenure. From the 72 owners interviewed in both groups tenure was relatively short given the average age of landowners. Fifty-one percent had owned their land for 20 years or less and 49% had owned their land for ten years or less. Only 20% of the owners had owned their land for 25 years or more.

Interest in long-term leasing arrangements. For both groups as a whole, over one-half of the owners showed some interest in long-term leasing of their forest land. Twenty-six percent indicated strong interest and twenty-six percent indicated slight interest in this arrangement. Forty-seven percent responded that they had no interest in long-term leasing of their forest land.

Objectives of Ownership

Urban-resident and rural-resident owners seem to have different objectives for ownership of forest land. The reason for purchase of property if bought, why it is held now, and the method of disposition are all significant variables. Table 5 shows these factors and how they differ for both groups.

Table 5. Difference between rural-resident and urban-resident forest owners by ownership objectives.

Factors	Owner tended to be a --	
	Rural-resident	Urban-resident
	Where factor was relatively	
Reason for Purchase of Property	farm oriented	investment oriented
Why Property is Held Now	farm oriented	investment oriented
Method of Disposition	direct heirs	no plans

Reason for purchase of property if bought. Many more rural-residents purchased their land to farm and for sentimental reasons. More urban-residents purchased for investment and retirement security purposes. Thirty-nine percent of the urban-residents purchased for investment while only 17% of the rural-residents did so. Fourteen percent of the urban-resident sample bought for retirement security but no rural-residents bought for this reason. Forty-seven percent of the rural-residents purchased the land to farm, compared to none of the urban-residents. Eleven percent of the rural-residents wanted the land for sentimental reasons but only one urban-resident (3%) bought for this reason.

Why property was held regardless of how acquired. Regardless of how the property was acquired, the reason it is held now was a significant difference between the two groups. Forty-four percent of the urban-residents held their land for investment purposes while only

8% of the rural-residents did so. Fifty percent of the rural-residents held the land to farm compared to none of the urban-residents.

Disposition of property. Owners were asked how they planned to dispose of their tract of land. Rural-residents were more certain of how they would dispose of their land. Thirty-nine percent of the urban-resident sample had no plans for disposition compared to only 19% of the rural-residents. Seventy-five percent of the rural-resident group planned on leaving the land to their direct heirs while only 36% of the urban-residents had this plan. Twenty-five percent of the urban-residents had plans to sell the property before their death compared to only one rural-resident owner.

Acquisition of property. Very few of the owners from either group acquired their property by inheritance. Only 15% of the 72 total owners sampled had inherited their land. Three percent (two) of all the owners interviewed acquired their property as gifts. The majority of all owners (79%) acquired their land by direct purchase.

Cutting History

One way of predicting the future selling practices of land owners is to look at their past record. Based on the past, it can be predicted that rural-residents will sell more timber in the future than urban-residents will. Factors related to cutting history found to show significant differences between the two groups were—timber sold in the past, timber sold from land presently owned and timber cut from land for owners' own use. Table 6 lists these factors.

Table 6. Differences between rural-resident and urban-resident forest owners in forest management intensity.

	Owner tended to be a --	
	Rural-resident	Urban-resident
	When response to factor was	
Cutting History:		
Timber sold in the past	Yes	No
Timber sold from land presently owned	Yes	No
Cut timber from land for owner's use	Yes	No
Cut for firewood	Yes	No
Cut for fence posts	Yes	No
Forest Practices:		
Practiced forestry in past	Yes	No
Cull tree removal	Yes	No
Understory release	Yes	No
Past use of cost sharing programs	Yes	No
Comparison of Timber with that of Neighbors	Better	Same or don't know

Timber sold in the past. Many more rural-residents had sold timber than had urban-resident owners. Seventy-five percent of the rural-resident owners had sold in the past compared to only 36% of the urban-resident owners (see Table 7).

Table 7. Distribution of sample that had sold timber in the past.

	Yes	Percent of Total	No	Percent of Total	Total
Rural-Resident	27	75	9	25	36
Urban-Resident	13	36	23	64	36

Timber sold from land presently owned. Fifty-eight percent of the rural-residents had sold timber from a tract of land they owned at the time of the interview. Only 28% of the urban-resident sample had sold timber from land they owned when interviewed.

Timber cut from land for owners own use. Owners were asked, "Do you or any of your friends cut any timber from your land for your own use"? As might be expected, more rural-resident owners (67%) answered yes than did urban-resident owners (28%). Rural-residents cut significantly more firewood and fence posts (58% and 36% respectively) than did urban-residents (28% and 8%).

Forest Practices

A significant difference between rural-resident and urban-resident owners was found in the use of forest practices. More rural-residents

(89%) than urban-residents (61%) were found to practice forestry. Cull tree removal and understory release, though not intensive practices, were found to be significantly different between the two groups. These two practices were used more often by rural-resident than by urban-resident forest owners. Sixty-one percent of the rural-residents and 28% of the urban-residents practiced cull tree removal. Understory release was practiced by 19% of the rural-residents while no (0%) urban-resident use this practice.

There was a significant difference in the past use of cost sharing programs between rural-residents and urban-residents. More rural-residents used these programs than urban-residents. Thirty-one percent of the rural-residents that had carried out some forest practice had used cost sharing programs compared to only 18% of the urban-residents. However, seven of the ten rural-residents and three of the four urban-residents using these programs could not remember which programs they had used. Two rural-residents and one urban-resident used the Agricultural Conservation Program (ACP) and one rural-resident used the Soil Bank Program.

Comparison of Timber with that of Neighbors

There was a significant difference in the way the two groups compared their timber with that of their neighbors. More rural-residents than urban-residents think that their timber is better than their neighbors' timber. More urban-residents do not know how to compare their timber with that belonging to their neighbors. Thirty-three percent of the

rural-residents and 19% of the urban-residents think their timber is better. Twenty-two percent of the urban-residents and only one rural-resident did not know. Sixty-four percent of the rural-residents and 56% of the urban-residents rank their timber as the same as their neighbors and one urban-resident thinks his timber is worse.

Forestry Information

Though none of the following three factors showed significant differences between the two groups, they are interesting findings.

Who was contacted for forestry information. It is interesting to note that the majority of both rural-residents and urban-residents who wanted forestry information called on State forestry personnel. For both groups together, 69% of those owners that had sought forestry information in the past had gone to the state. The State forester's office being in Nashville may have biased this result.

Knowledge of present prices of timber products. Results show that in general, people are not very knowledgeable about the prices of forest products. Only 28% of the 72 owners interviewed admitted to having some knowledge of current prices for forestry products.

Interest in price reporting information. Though the 72 owners were not very knowledgeable about forest product prices, many of them indicated an interest in becoming better acquainted with them. Over 70% of the owners interviewed said that they were highly interested in receiving price reporting information about forest products periodically.

Variables that are Discriminatory between
Rural-Residents and Urban-Residents

Several variables were used in a discriminant analysis test to find out which ones, if any, discriminated between rural-residents and urban-residents. Of the variables included, six were found to account for the majority of the differences in rural-residents and urban-residents.¹ These six variables were sex, intentions to sell timber in the future, income, occupation, tenure, and interest in long-term leasing. This means these six variables were highly successful in classifying rural-resident and urban-resident forest landowners.

From chi-square tests and frequency analysis run, the following differences were observed between the two groups in relation to these six variables. More rural-residents than urban-residents were women. Rural-residents, more so than urban-residents, have intentions to sell timber in the future. Urban-residents have higher incomes than rural-residents and are more often farmers while urban-residents are more often in professional and business related jobs. Rural-residents have longer tenure than urban-residents who were more interested in long-term leasing of forest land than were their counterparts.

Using these variables, the discriminant analysis correctly predicted the owners to be rural-resident or urban-resident 85% of the time. Rural-residents were correctly predicted 75% of the time and urban-residents 94% of the time. Prediction results are shown in Table 8.

¹The Eigenvalue was 1.05825; the Canonical Correlation was 0.717; and the relative percentage was 100.

Table 8. Prediction results based on Discriminant Analysis Test.

Actual Group	Number of Cases	Predicted Group Membership	
		Rural-Resident	Urban-Resident
Rural-Resident	36	27 (75%)	9 (25%)
Urban-Resident	36	2 (5.6%)	34 (94.4%)

Profile Summary

From the above information, it can easily be seen that rural-resident and urban-resident forest landowners are two distinct groups of people. The most obvious difference, of course, is that they live in two different environments, one being in rural surroundings and the other being in an urban, big city environment. But a closer look reveals many other differences. They have different kinds of employment and therefore different income. Their levels of education and even their healths are different. More importantly, they have different objectives for land ownership and therefore use their land, including their forest land, differently. The two groups' plans for disposing of the land were also different.

The two groups could almost be described as farm and nonfarm. Seventeen of the rural-residents listed farming as their major occupation and several others indicated that they were part-time farmers. None of the urban-residents gave farming as their major occupation. This alone explains many of the differences between the two groups.

Of particular interest is the fact that their past marketing practices were different. If it can be assumed that the two groups will remain as they are, then a good prediction can be made as to which group will sell timber in the future. Rural-residents have sold more in the past and will most likely sell more timber in the future than urban-residents.

Several generalizations can be made about urban-resident forest landowners. Urban-residents have good educations with at least some college attendance to their credit. They make over \$10,000 a year as professionals or business people. Urban-residents enjoy relatively good health. They are thus free to do with their forest land as they please. They are not forced to "make a living" or extract a profit immediately from their land and so can participate in management practices that are entirely different from those of the rural-resident.

Urban-residents acquire their property primarily by purchase, the reason for purchase being for investment, retirement security, and recreational purposes. When they want forestry information, they contact the State Division of Forestry or, if they want to sell their timber they contact local buyers or the State Division of Forestry. Many of them do not know whom they should contact if they need forestry information.

Though they do not sell very often, urban-residents would like to be more familiar with prices of timber products. They showed much interest in forest products price reporting information, feeling that it would keep them better informed as to the worth of their timber products and their land investments.

CHAPTER VI

FURTHER RESULTS

Differences in "Willingness to Sell" between Urban-Resident and Rural-Resident Populations

The rural-resident and urban-resident populations were compared to determine if there was any difference in their "willingness to sell" timber products. The "willingness scores" developed as a result of this thesis were used in the analysis. The results show that there was a significant difference, at the .05 level for a K-S one-tailed test, between the rural-resident and the urban-resident "willingness scores." Urban-residents were found to be less willing to sell timber products than rural-residents. Table 9 shows the distribution of "willingness scores" for the urban-resident and rural-resident samples. These scores have been rounded off for this table. For comparison, Table 10 shows the distribution of direct responses from rural-residents and urban-residents to the question, "Do you intend to sell timber in the future?" Table 11 (Appendix C) shows the data from Table 9 distributed for the K-S test.

Table 9. Distribution of "willingness scores" for rural-resident and urban-resident samples.

Scores	1	2	3	4	5	6	7	8	9	10	Total	Average Score
Rural-Resident	6	2	1	3	0	1	1	1	1	20	36	7.08
Urban-Resident	7	0	2	0	2	3	2	5	7	8	36	6.61

Table 10. Distribution of responses to the question, "Do you intend to sell timber in the future?"

	Yes	Percent of Total	No	Percent of Total	Don't Know	Percent of Total	Total
Rural-Resident	21	58	8	22	7	19	36
Urban-Resident	16	44	11	31	9	25	36
Total Sample	37	51	19	27	16	22	72

The largest difference in the two groups' scores came in the score of ten, the highest possible. Twenty rural-resident owners and only eight urban-residents received perfect ratings.

Since acreage has been shown to affect "willingness to sell," the two samples were tested to see how acreage would affect the "willingness scores." For analysis they were broken down into acreages of less than 150 acres and acreages of 150 acres or more by "willingness scores" (see Tables 12 and 13 in Appendix C). The Mann-Whitney U test shows that there was not a significant difference between rural-residents and urban-residents who own less than 150 acres. There was, however, a significant difference at the .05 level between rural-residents and urban-residents who own 150 acres or more of woodland with rural-residents being more "willing to sell."

Analyses were made to compare by size classes the distribution of "yes" and "no" responses to question 16 ("Do you intend to sell timber in the future?") between the urban-resident sample and the sample used

for the overall study (mentioned in Chapter III). Results showed that the "yes" responses were distributed throughout the size classes significantly different at the .05 level for the two groups, with the "normal" population, the overall study sample, having more "yes" responses in the size classes from 100-299 and up. There was no significant differences at the .05 level in the distribution of "no" responses. This finding agrees with the previous results that indicate the difference in the two groups "willingness to sell" timber products is in the larger acreages, with rural-residents in these larger acreages being more "willing to sell" than urban-residents.

Reasons Given for Not Intending to Sell Timber in the Future

It is not only important to know who intends to sell and who does not, but also to know why those that do not intend to sell feel that way. Only by finding out what motivates people not to sell timber products can proper action be taken. The following two sections discuss the reason most often given as the "most important reason" for not selling and the "reason most often mentioned," whether it was the number one, the number two or the number three most important reason given in answer to question 17.

Reason Most Often Given as Number One

By rural-residents. Of the eight rural-residents that said they did not intend to sell timber in the future, six reasons were rated as number one. One reason was cited by three people. This reason was

"not interested." The other five reasons were: "shade for cattle," "allow trees to grow in value," "fear of destroying the forest, its beauty and usefulness," "keep for financial security," and "trust for children."

By urban-residents. Of the eleven urban-residents that said they did not intend to sell timber in the future, ten reasons were rated as number one. One reason was mentioned twice, all others only once. The one reason that was cited twice was "allow trees to grow in size." The other nine reasons were: "shade for cattle," "keep for financial security," "sentimental," "fear of destroying the forest, its beauty and usefulness," "more value as shade trees for home buyers," "I want to sell the land with timber intact," "trees hold water and soil," "allow trees to grow in value," and "not interested."

Reason Most Often Mentioned

By rural-residents. In this group there was not any one reason that was most often mentioned. Three reasons were tied, each being selected three times. These three reasons for not selling were: "not interested," "keep for financial security," and "trust for children" (see Table 14, Appendix C).

By urban-residents. The urban-resident group most often said that they did not intend to sell timber in the future because "trees hold water and soil." This reason was mentioned five times. Two other reasons, "not interested" and "allow trees to grow in value," were mentioned three times each (see Table 15, Appendix C).

Reasons Given for Intending to Sell Timber in the Future

The majority of people in both the rural-resident and urban-resident groups said that they did intend to sell timber in the future. Twenty-one rural-residents and 16 urban-residents answered question 16 in the affirmative. The reasons for answering "yes" are just as important as the reasons for answering "no" in helping to understand the differences in rural-residents and urban-residents.

Reason Most Often Given as Number One

By rural-residents. Eleven of the 21 rural-residents listed "timber mature" as their most important reason for selling timber in the future. Four others listed "good market price" as their number one reason for selling and three listed "emergency funds." Three other reasons were listed once each. These three were: "improve the quality of the forest," "timber needed thinning," and "clear land for other uses."

By urban-residents. Five of the urban-resident group listed "timber mature" as their most important reason for selling timber in the future. Three others listed "good market price" and three listed "clear land for other uses" as their major reason for intentions to sell. Three listed "emergency funds" as their number one reason.

The other reasons listed were only selected by one person as the most important reason. These were: "nonemergency expenditures," "to reduce fire danger," and "improve quality of the forest."

Reasons Most Often Mentioned

By rural-residents. By a very wide margin, "timber mature" was the reason most often mentioned by the rural-resident population. Eighteen rural-residents listed this as their number one, number two, or number three reason for selling timber in the future. A "good market price" was listed eight times and "timber needed thinning" and "improve quality of the forest" were listed seven times each. "Emergency funds" and "salvage of injured or diseased trees" were listed six times each (see Table 16, Appendix C).

By urban-residents. "Timber mature" was also the most often mentioned reason for the urban-resident groups, it being mentioned nine times as a reason for selling timber in the future. The second most often mentioned reason, with eight people mentioning it, was "timber needed thinning." "Good market price" was listed seven times and "improve the quality of the forest" was listed six times (see Table 17, Appendix C).

CHAPTER VII

DISCUSSION AND RECOMMENDATIONS

Discussion

Differences in the two groups in "willingness to sell" was in the larger acreages. In this analysis subgroups were further divided into 150+ acres and less than 150 acres for comparison, with the 150+ group being significantly different. Rural-residents owning 150 acres or more are more "willing to sell" than urban-residents who own 150 acres or more. With urban-residents having good incomes (an overwhelming majority of them making over \$10,000 per year), they can afford to buy land in larger acreages than rural-residents. This trend could cause the timber availability problem to be magnified as urban-resident ownership increases in the future.

The ownership objectives of urban-residents are not the same as the objectives of the rural-resident owners. Most rural-residents see their land as a source of income for the present while urban-residents can afford to own the land without receiving an income from it. They view their land as an investment for the future, either to sell at a profit or have a place to retire, while utilizing it for recreational purposes at the present.

Many urban-residents were caught up at the recent "back to nature" movement. They possibly use their land as a place to get away from the pressures of everyday life. To them, land ownership is a "hobby," a

place to go on weekends and vacation to get away from people and find the inspiration they need to continue in our fast moving society. Whether they visit their property every week or once a year, they get satisfaction out of just knowing that it is there.

The more affluent urban-residents may not need the additional income they would realize through selling their timber as much as others. Many of them have heard stories about destructive logging practices and feel that any additional income they would get would be offset in devaluation of their property or by the unsightliness of the landscape afterwards. They like their trees, can afford to keep them, and therefore are simply not as interested in selling them as are rural-residents.

There is the possibility that some urban-residents can be convinced that harvesting of timber, like other forestry practices, can be done in such a way as to be compatible with other uses and that the unsightliness is only temporary. But even this cannot be expected to change their opinions greatly. As long as urban-residents can realize more benefits by holding their timber than by selling it, many will probably continue to answer "not interested" when asked to sell timber.

Recommendations

It is recommended, as result of this thesis, that more effort be made by both the State Division of Forestry and forest industry to reach urban-residents. These people control many acres of forest land in the state and all indications are that their numbers are increasing.

The Tennessee Forestry Association (TFA), in cooperation with Agricultural Extension Service and the Department of Forestry at the University of Tennessee, has made efforts to hold "awareness" meetings to inform urban-residents and others of forestry programs available to them. These meetings should be held more often with more emphasis upon the urban-resident populations. Meetings could be held in the four large metropolitan areas of the state periodically. These meetings should be announced well in advance by using all forms of news media. Texas has held such awareness meetings with good results (Smith 1971).

Private industry would definitely benefit from a good working relationship with the urban-resident population. They hold large acreages of forest land. Urban-residents are interested in the long-term leasing of their forest land as long as the management and subsequent timber harvesting are not viewed by them as being "destructive." By working closely with these people, better informing them of their operations, and meeting them "halfway," industry would profit from the association by having increased timber reserves. Industry through the TFA could possibly continue to cooperate with the state in carrying on the "awareness" meetings.

If foresters are to keep up with the ever increasing demand on our limited timber supply, every possible advantage must be taken. If a segment of our population is not "willing to sell" timber products, foresters should make sure that this segment or group understands the concept of forestry and that in many ways it is compatible with other land uses. Urban-residents are one of these important groups.

The above recommendations assume that programs should be developed to reach urban-resident forest-land owners and other similar groups. Another approach for future study would be to look at the broad aspect of land use planning and policy changes that would keep the ownership pattern more intact and thus eliminate the need for continual development of programs for emerging heterogeneous groups of forest owners.

LITERATURE CITED

LITERATURE CITED

- Anderson, W. C. 1968. Factors Influencing North Carolina Landowners to Practice Forestry. USDA Forest Serv. Res. Paper SO-33, 18 pp.
- Andresen, J. W. 1974. Community and Urban Forestry: A Selected and Annotated Bibliography. Southeastern Area, State and Private Forestry, U. S. Forest Serv., Atlanta, Ga. 195 pp.
- Babeu, Richard G., Arnold D. Rhodes, and William P. MacConnell, 1965. Forest Owner Characteristics and Attitudes in Berkshire County, Massachusetts. Mass. Agr. Exp. Sta. Bull. 549. 55 pp.
- Bradford, Lester F. and C. B. Marlin. 1972. Knowledge of Forestry Concepts Compared With Adoption of Forest Practices in Two Louisiana Parishes. La. State Univ. Forestry Note. 98. 4 pp.
- Capps, Osal B. 1969. Urban Forestry—A Program to Meet Expanding Needs. Forest Farmer 28 (10): 8-9, 17-18.
- Clawson, Marion. 1975. Forests for Whom and For What? Resources For the Future, Inc., Washington, D. C.: p. 95. 175 pp.
- Duerr, William A. 1961. The Future Demand for Wood. In the Challenges of Forestry. Proc. of the Colleges' fiftieth anniversary celebration, Syracuse Univ., New York State Col. of Forestry. pp. 61-68.
- Earles, J. M. 1973. Forest Area Statistics For Midsouth Counties. South. For. Exp. Sta., New Orleans, La. 64 pp. (USDA For. Serv. Resource Bull. SO-40).
- Efferson, J. Norman. 1969. Impact of the Urban Trend on Forest Farming. For. Farmer 28 (10): 6-7, 16-17.
- Farrell, John H. 1964. The Small Woodland Owner in the Missouri Ozarks—A Close Up. Cent. States Forest Expt. Sta., Columbus, Ohio. 15 pp. (U. S. Forest Serv. Res. Paper CS-10).
- Folweiler, A. D. and H. J. Vaux. 1944. Private Forest Land Ownership and Management in the Loblolly-Shortleaf Type of Louisiana. Jour. of Forestry 42: 783-790. 11 pp.
- Fontenot, Ronald Wayne and C. B. Marlin. 1974. Characteristics of Owners of Small Timber Tracts in Southwest Louisiana. La. State Univ. Forestry Note 106. 4 pp.

- Forest Farmers Association. 1968. Metro Forester. Forest Farmer 28 (2): 30-31, 51.
- Hedlund, Arnold, and Earles, J. M. 1971. Forest Statistics for Tennessee Counties. South. Forest Exp. Stn., New Orleans, La. 58 p. (USDA Forest Serv. Resour. Bull. SO-32).
- Holemo, Fred J. and Peter J. Dyson. 1971. Landowners Attitudes and Practices Concerning Timber Production and Marketing in the Piedmont Region of Georgia. Ga. Forest Research Paper # 66, Ga. Forest Res. Council. 12 pp.
- Holemo, Fred J. and E. Evan Brown. 1975. A Profile of the Private, Nonindustrial Forest Landowner. Ga. Forest Research Paper # 82, Ga. Forest Research Council. 17 pp.
- Huff, P. R. and J. W. Craig. 1968. A New Breed—The City Forest Farmer. Forest Farmer 28 (2): 25, 44, 46.
- Hutchison, O. Keith and O. D. McCauley. 1961. The Small Woodland Owner in Ohio. U. S. Forest Service. Central States Forest Exp. Sta. Tech. Paper 183. 12 pp.
- James, Lee M., W. P. Hoffman, and M. A. Payne. 1951. Private Forestland Ownership and Management in Central Mississippi. Miss. State College, Agric. Exp. Sta. Tech. Bul. no. 33. 38 pp.
- Larsen, David N. and David A. Gansner. 1973. Explaining the Forest Product Selling Behavior of Private Woodland Owners. USDA Forest Serv. Res. Paper NE-257. 4 pp.
- Lawrence, J. Dewel and Frank O. Lege. 1973. Availability of timber on lands of farm and miscellaneous private owners in Florida. Div. of Forestry, Florida Dept. Agr., and Consumer Serv. 35 pp.
- Lege, Frank O. and J. Dewell Lawrence. 1972. Availability of Stumpage For the Open Market. South Lumberman 225 (2800) 135-135.
- Leuthold, Frank O. 1968. The Rural Exodus. Forest Farmer 28 (2): 6-7, 52-54.
- Lovelace, Joe D. 1975. An Evaluation of the 1974 Forest Incentives Program in Twelve East Tennessee Counties. Unpublished M. S. Degree thesis. University of Tennessee, Knoxville, Tennessee.
- McDermid, R. W., P. D. Kitt, and S. Guttenberg. 1959. Ownership Factors Affecting Management of Small Woodlands in St. Helena Parish, Louisiana. LSU Ag. Expt. Sta. Bul. # 520.

- Nie, Norman H., C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner and Dale H. Bent. 1975. Statistical Package For the Social Sciences. Second Edition. McGraw-Hill Book Company, Inc., New York. 675 pp.
- Pomeroy, Kenneth B. and James G. Yoho. 1974. North Carolina Lands. Report for the American Forestry Association.
- Pulpwood Highlights. December 1975. American Pulpwood Association, 1619 Massachusetts Ave., N. W., Washington, D. C.
- Quinney, Dean N. 1962. Small private forest landowners in Michigan's Upper Peninsula. Lake States Forest Exp. Sta., Station Paper 95. 20 pp.
- Reunala, Aarne. 1974. Structural Change of Private Forest Ownership in Finland. Metsäntutkimuslaitoksen Julkaisuja 82.2. Helsinki.
- Schallau, Con H. 1962. Small forest ownership in the urban fringe area of Michigan. Lake States Forest Expt. Sta., Sta. Paper 103. 17 pp.
- Schallau, Con H. 1964. Forest Owners and Timber Management in Michigan. U. S. Forest Serv. Lake States For. Exp. Sta. Res. Paper LS-9. 39 pp.
- Schallau, Con H. 1965. Fragmentation, Absentee Ownership, and Turnover of Forest Land in Northern Lower Michigan. U. S. Forest Service Res. Paper LS-17. 12 pp.
- Schwarz, Charles F., Edward C. Thor and Gary H. Elsner. 1976. Wildlife Planning Glossary. USDA Forest Service Gen. Tech. Rep. PSW-13, 252 p. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.
- Shirley, A. Ray. 1970. Metro Forestry in Atlanta: Tree Power. American Forests. 76 (10): 8-11, 48.
- Siegel, Sidney. 1956. Nonparametric Statistics for the Behavioral Sciences. McGraw-Hill Book Company, Inc., New York. 312 pp.
- Smith, W. A. 1971. Reaching Urban Audiences. Journal of Forestry 69 (6): 343-345.
- Stoddard, Charles H., Jr. 1942. Future of Private Forest Land Ownership in the Northern Lake States. Journal of Land and Public Utility Economics 18 (3): 267-283.
- Stoddard, Charles H., Jr. 1950. Needed: A Research Program in Forest Owner Education. Jour. of Forestry 48: 339-341.

- Sutherland, Charles F., Jr., and Carl H. Tubbs. 1959. Influence of ownership on forestry in small woodlands. U. S. Forest Service. Lake States Forest Exp. Sta. Paper 77. 21 pp.
- Taylor, C. C. 1966. Who is the Small Forest Landowner? Forest Farmer 25 (6): 8-9, 14, 16-18.
- Tennessee Division of Forestry. 1976. Private Forest Land Ownership in Tennessee—500 Acres or Larger. Division of Forestry, Tennessee Department of Conservation, Nashville, Tennessee. 161 pp.
- Toms, Randolph E. and C. B. Marlin. 1972. Some Characteristics of Small Landowners in the Pine Region of Northwest Louisiana. La. State Univ. Forestry Note 100. 2 pp.
- U. S. Forest Service. 1973. The Outlook for Timber in the United States. Forest Resource Report no. 20. 367 pp.
- Wells, Garland R. 1967. The Comprehension and Practice of Forestry by Private, Nonindustrial Forest Owners of North Carolina. Unpublished Ph.D. dissertation. Duke University, Durham, North Carolina. 235 pp.
- Won, Duk-Joong and Ian W. Hardie. 1971. An analysis of nonindustrial woodland owners' attitude toward timber sales on the southern eastern shore of Maryland—1970. Univ. of Maryland Agr. Exp. Sta. Bull. MP-790. 73 pp.
- Yoho, James G., Lee M. James and Dean W. Quinney. 1957. Private forest landownership and management in the northern half of Michigan's Lower Peninsula. Mich. State Univ. Agr. Exp. Sta. in Cooperation with the U. S. Forest Service. Lake States Forest Exp. Sta. Tech. Bul. 261. 56 pp.
- Yoho, James G. and Garland R. Wells. 1964. Probing Other Factors. In: North Carolina Lands. The American Forestry Assoc. Washington, D. C. pp. 327-332.

APPENDIX A

Department of Forestry
University of Tennessee, Knoxville

Parcel #	_____
Acres	_____
Forest	_____
County	_____
Interviewer	_____
Date	_____

(IF RESPONDENT IS NOT OWNER) What is the nature of your arrangement with the owner?

_____ Salaried manager or agent, _____ Other (SPECIFY) _____

SECTION I PRESENT OWNER INFORMATION

A. _____ Individual (FILL OUT FOLLOWING FOR OWNER, IF POSSIBLE, OTHERWISE FOR LAND MANAGER OR AGENT)

1. Sex: _____ Male _____ Female
2. Age: under 30, 30-39, 40-49, 50-59, 60-69, 70 or above (CIRCLE PROPER CLASS)
3. Number of dependents _____ Age of youngest _____
4. Last year of school you completed (CIRCLE HIGHEST YEAR COMPLETED)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 or more
5. How is your health? _____ good _____ fair _____ poor
6. Distance your residence is from tract: _____ miles
(GIVE COUNTY IF DIFFERENT FROM TRACT LOCATION _____)
7. Income: (ESTIMATE IF NECESSARY) _____ Under \$1000; _____ \$1000-\$4999;
_____ \$5000-\$9999; _____ \$10,000+. CHECK HERE () IF INTERVIEWER'S
ESTIMATE
8. Principle occupation: Trades and labor, _____ Farming, _____ Housekeeping,
_____ Mercantile, _____ Professional, _____ Retired (ALSO CHECK WHAT LAST
OCCUPATION WAS), _____ Other (SPECIFY) _____.

B. Legal Form of ownership: _____ individual _____ partnership
_____ corporate _____ estate
(IF PARTNERSHIP, CHECK OCCUPATIONS OF PARTNERS ABOVE)
(IF FOREST PRODUCTS MFG., GIVE TYPE OF FIRM _____ sic _____
code)

C. How many years has tract been owned by present owner? _____ years

D. How does the owner plan to dispose of tract? _____ sell before death
_____ to other heirs _____ to direct descendents _____ no definite plans

E. How did the owner acquire this tract of land? _____ Purchased _____ Inherited
_____ Gift

F. If this tract was purchased, what was the owner's chief reason for originally acquiring this tract? _____.

SECTION I (Continued)

- G. If this tract was inherited, how many generations has it been owned by the same family? _____ no. of generations
- H. Regardless of acquisition, why does this owner hold property now?
- _____

SECTION II FORESTRY KNOWLEDGE

I would like to find out just a little more about you.

- I. With what organizations are you associated?

Civic _____, Farm _____, Conservation _____, Other _____

- J. Have you ever contacted anyone for forestry information? Yes ___ No ___
(IF YES)

- K. Who was contacted:

SCS ___, State Forestry Service ___, County Agent ___, University ___,
Other ____.

- L. How did you make the contact with the agent? (DO NOT READ LIST)

- ___ 1. None
- ___ 2. Asked about forestry in phone contact for other purpose
- ___ 3. Wrote or telephoned specifically to inquire about forestry
- ___ 4. Asked agent about forestry when visiting for other purposes
- ___ 5. Visited agent specifically to ask about forestry
- ___ 6. Agent suggested forestry at time of visit for another purpose
- ___ 7. Agent visited specifically to suggest forestry
- ___ 8. Visited agent following letter or phone appointment
- ___ 9. Agent visited following letter or phone appointment
- ___ 10. Agent visited following your visit
- ___ 11. Other _____

- M. If you needed forestry information who would you contact?

SCS ___, State Forestry Service ___, County Agent ___, University ___,
Other ____.

- N. What is your opinion of the timber buyers in this area? The loggers?

Buyers											Loggers											
Low										High	Low									High		
	1	2	3	4	5	6	7	8	9	10			1	2	3	4	5	6	7	8	9	10
No opinion _____											No opinion _____											

- O. Do you think that price reporting information would be of use to you as a timber owner? Yes___ No___
- P. Do you know current timber prices in the market area near your property? Yes___ No___
- Q. (IF YES TO P) With which prices are you the most familiar?
Sawtimber___, Pulpwood___, Firewood___, Crossties___, Pine___, Hardwood___,
Other_____
- R. In the deep South long-term contracts and leasing of timberlands is a common practice. Do you have any interest in such an arrangement?
___Strong Favor ___Slight Interest ___No Interest
- S. Are you familiar with capital gains treatment of income from timber sales? Yes___ No___

SECTION III EXPERIENCE WITH TIMBER MARKETING

1. Have you ever been involved in a timber sale? Yes___ No___
2. (IF YES) Was the sale on this particular parcel of land? Yes___ No___
3. (IF YES TO QUESTION 1) How long ago was the last sale with which you were involved? _____ years.
4. Do you have mercantable (marketable) timber on your property now?
Yes___ No___ Don't know___
5. How do you rank your timber with that of your neighbors, or other properties within the county?
Better___ Same___ Worse___
6. Have you ever owned land with mercantable timber?
Yes___ No___ Don't know___
7. Where would you go to find out whether or not you could sell your timber should you need money?
8. Do you or your friends cut any timber for your or their own use?
Yes___ No___
9. (IF YES) What did you use the timber for?
Firewood___, Lumber___, Fences___, Other___ (Specify)_____
(# cords___)

(IF ANSWER TO QUESTION 1 IS YES AND IF INVOLVED WITH A SALE DURING THE LAST THREE YEARS ANSWER THE FOLLOWING QUESTIONS. IF ANSWER TO QUESTION 1 IS YES AND THE SALE WAS MORE THAN THREE YEARS AGO GO TO QUESTION 16.)

10. Were you satisfied with your last sale? Yes___ No___
11. If not what made you dissatisfied with the sale? _____

12. By what method was the sale made?
Timber marked Yes___ No___ By forester___ By Logger___ Other___
Lump sum___
Diameter limit___
Bids received___ # bids___
Price/unit___
Contract___ Oral___ Written___
Sell only those trees marked___

13. Who made the initial contact? Buyer___ Seller___
14. What type products were sold? Sawtimber___ Pulpwood___ Poles___ Ties___
Firewood___ Hardwood___ Pine___
Other_____.
15. What were your reasons for making a sale? Financial___
Forest improvement___
Thinning___ Other___
Clear land other use___
16. Do you intend to sell timber in the future? Yes___ No___ Don't know___

SECTION III (Continued)

(IF NO TO QUESTION 16)

Parcel #	_____
Acres	_____
Forest	_____
County	_____
Interviewer	_____
Date	_____

17. Check all the reasons you considered in answering the last question (16).

- ☐ A. Not interested
- ☐ B. Keep for financial security
- ☐ C. Trust for children
- ☐ D. I use the timber myself
- ☐ E. Shade for cattle
- ☐ F. Can not find a buyer
- ☐ G. Allow trees to grow in size (too few trees, too small trees)
- ☐ H. Allow trees to grow in value (poor quality trees)
- ☐ I. Wildlife
- ☐ J. Protect crops from wind
- ☐ K. Insufficient knowledge of what or how to sell
- ☐ L. Rather put money into agricultural effort for higher return
- ☐ M. Low prices paid for logs or pulpwood
- ☐ N. Trees hold water and soil
- ☐ O. Destructive logging in previous sales
- ☐ P. Don't have time to supervise harvest
- ☐ Q. Distrust of buyers
- ☐ R. Opposition to cutting
- ☐ S. Sentimental e.g. My father never sold and I don't intend to either
- ☐ T. Only recently acquired land
- ☐ U. Fear of destroying the forest, its beauty, usefulness
- ☐ V. Unsettled estate
- ☐ W. Other Please specify _____
- ☐ X. " " " " _____
- ☐ Y. " " " " _____
- ☐ Z. " " " " _____

18. Using the items you listed in the above question which three (3) reasons were most important in making your decision not to sell?

Most important _____
 Next most important _____
 Third most important _____

19. Now using the ladder scale rank these three reasons according to the amount of weight you place on them in making your decision. The total should not be over 100%.

SECTION III (Continued)

(IF YES TO QUESTION 16)

Parcel # _____
Acres _____
Forest _____
County _____
Interviewer _____
Date _____

17. If you answered Yes to question 16 which of the following factors did you take into consideration in making your decision?

- ☐ A. Timber mature
☐ B. Emergency funds
☐ C. Clear land for other uses
☐ D. Timber needed thinning
☐ E. Nonemergency expenditures
☐ F. Salvage of injured or diseased trees
☐ G. "Good" market price
☐ H. Improve quality of the forest
☐ I. Other Please specify _____
☐ J. " " " "
☐ K. " " " "

18. Using the items you listed in the above question which three (3) reasons were most important in making your decision?

Most important _____
Next most important _____
Third most important _____

19. Now using the ladder scale rank these three reasons according to the amount of weight you place on them in making your decision. The total should not be over 100%.

SECTION III (Continued)

(IF DON'T KNOW TO QUESTION 16)

Parcel #	_____
Acres	_____
Forest	_____
County	_____
Interviewer	_____
Date	_____

17. If you answered don't know to question 16 which of the following conditions would cause you to consider having a timber sale? Indicate your answers below.

- ☐ A. If the market price of timber was "good"
☐ B. If the timber were mature
☐ C. If timber were attacked by insects or disease
☐ D. If timber needed thinning
☐ E. If you needed more land for agricultural purposes
☐ F. If you wanted to "develop" the land for housing or industry
☐ G. If you had need for money in an emergency
☐ H. If you wanted some money for buying farm equipment, home improvement, or a trip.
☐ I. Other Please specify _____
☐ J. " " " " _____
☐ K. " " " " _____

18. Using your choices from the question above pick the three (3) considerations that would be most important to you.

Most important _____
 Next most important _____
 Third most important _____

19. Using the ladder scale rank your three choices in terms of importance. The total should not be over 100%.

SECTION III (Continued)

Parcel #	_____
Acres	_____
Forest	_____
County	_____
Interviewer	_____
Date	_____

LADDER SCALE
CONSIDERATION IN DECISION

100%	_____

90%	_____

80%	_____

70%	_____

60%	_____

50%	_____

40%	_____

30%	_____

20%	_____

10%	_____

0	_____

SECTION IV

1. Has the owner ever practiced forestry? Yes ___ No ___

2. (IF YES) Specify practices.

Acres involved

Plant Bare Land ___

Site Preparation and Plant ___

Precommercial Thinning ___

Understory Release ___

Site Preparation for Natural Regeneration ___

Cull Tree Removal ___

Pruning ___

Fencing (to keep animals out of forest) ___

Firebreaks ___

Fire Protection Roads ___

Commercial Thinning ___

Other ___

3. Were cost sharing programs used? Yes ___ No ___

(IF YES SPECIFY)

FIP ___ REAP ___ Soil Bank ___ ACP ___ # Acres ___

4. Would owner be interested in assistance through cost sharing programs?

APPENDIX B

POSITIVE RESPONSES

+ 1 GROUP

I use the timber myself
Allow trees to grow in size
Allow trees to grow in value
Low prices paid for logs or pulpwood
Timber mature
Clear land for other uses
Timber needed thinning
Salvage of injured or diseased trees
Good market price
Improve quality of the forest
If the market price of timber were good
If the timber were mature
If the timber were attacked by insects or disease
If the timber needed thinning
If you needed more land for agricultural purposes

NEGATIVE RESPONSES

-.5 GROUP

Unsettled estate
Nonemergency funds
If you wanted to "develop" the land for housing or industry
If you wanted some money for buying farm equipment, home improvement, or a trip
Tax purposes
Life estate

VERY NEGATIVE RESPONSES

-1 GROUP

Not interested

Keep for financial security

Trust for children

Shade for cattle

Wildlife

Protect crops from wind

Trees hold water and soil

Destructive logging in previous sales

Distrust of buyers

Opposition to cutting

Sentimental

Fear of destroying the forest, its beauty and usefulness

Emergency funds

If you had need for money in an emergency

Selling land and fear loss of value (if sold timber)

APPENDIX C

Table 11. Data in Table 9 cast for Kolmogorov-Smirnov test.

	Willingness Scores									
	1	2	3	4	5	6	7	8	9	10
Rural-Resident $S_{36_1}(X)$	$\frac{6}{36}$	$\frac{8}{36}$	$\frac{9}{36}$	$\frac{12}{36}$	$\frac{12}{36}$	$\frac{13}{36}$	$\frac{14}{36}$	$\frac{15}{36}$	$\frac{16}{36}$	$\frac{36}{36}$
Urban-Resident $S_{36_2}(X)$	$\frac{7}{36}$	$\frac{7}{36}$	$\frac{9}{36}$	$\frac{9}{36}$	$\frac{11}{36}$	$\frac{14}{36}$	$\frac{16}{36}$	$\frac{21}{36}$	$\frac{21}{36}$	$\frac{36}{36}$
$S_{n_1}(X) - S_{n_2}(X)$	$\frac{-1}{36}$	$\frac{1}{36}$	$\frac{0}{36}$	$\frac{3}{36}$	$\frac{1}{36}$	$\frac{-1}{36}$	$\frac{-2}{36}$	$\frac{-6}{36}$	$\frac{-12}{36}$	0

Table 12. Distribution of "willingness scores" for owners having less than 150 acres.

Scores	1	2	3	4	5	6	7	8	9	10	Total	Average Score
Rural-Resident	2	2	0	3	0	1	0	1	0	5	14	5.86
Urban-Resident	4	0	1	0	0	2	0	2	4	3	16	6.31

Table 13. Distribution of "willingness scores" for owners having 150 or more acres.

Scores	1	2	3	4	5	6	7	8	9	10	Total	Average Score
Rural-Resident	4	0	1	0	0	0	1	0	1	15	22	7.86
Urban-Resident	3	0	1	0	2	1	2	3	3	5	20	6.85

Table 14. Distribution of reasons given by rural-residents for not selling timber products.

Reasons	Number of Times Mentioned	Percent
Not interested	3	16
Keep for financial security	3	16
Trust for children	3	16
Allow trees to grow in value	2	11
Wildlife	2	11
Shade for cattle	1	6
Trees hold water and soil	1	6
Fear of destroying the forest, its beauty and usefulness	1	6
I use the timber myself	1	6
Destructive logging in previous sales	1	6
Total	18	100

Table 15. Distribution of reasons given by urban-residents for not selling timber products.

Reasons	Number of Times Mentioned	Percent
Trees hold water and soil	5	22
Not interested	3	13
Allow trees to grow in value	3	13
Allow trees to grow in size	2	8
Wildlife	2	8
Fear of destroying the forest, its beauty and usefulness	2	8
Keep for financial security	2	8
Want to sell land with timber on it	1	4
Shade for cattle	1	4
Sentimental	1	4
More value as shade trees for home buyers	1	4
Unsettled estate	1	4
Total	24	100

Table 16. Distribution of reasons given by rural-residents for intending to sell timber products.

Reasons	Number of Times Mentioned	Percent
Timber mature	18	31
Good market price	8	14
Timber needed thinning	7	12
Improve the quality of the forest	7	12
Emergency funds	6	10
Salvage of injured or diseased trees	6	10
Clear land for other uses	5	9
Nonemergency expenditures	1	2
Total	58	100

Table 17. Distribution of reasons given by urban-residents for intending to sell timber products.

Reasons	Number of Times Mentioned	Percent
Timber mature	9	21
Timber needed thinning	8	18
Good market price	7	16
Improve the quality of the forest	6	14
Emergency funds	5	11
Clear the land for other uses	5	11
Salvage of injured or diseased trees	2	5
Nonemergency expenditures	1	2
To reduce fire danger	1	2
Total	44	100

VITA

James Levourn Wiggins was born in Bolivar, Tennessee, on November 18, 1950. He attended elementary school in that city and graduated from Bolivar Central High School in 1968. During the following summer, he worked at various farm jobs and for a short period of time as a material spreader at the Wilson County Garment Factory in Watertown, Tennessee. He worked at Kilgore Corporation, Toone, Tennessee, from January, 1969 to September, 1969.

In September, 1969 he entered the University of Tennessee at Knoxville and in June, 1973, he received a Bachelor of Science degree in Forestry. Upon graduation he was commissioned a Second Lieutenant in the United States Army and served in the Signal Corps from October of that year until May, 1975. He entered the Graduate School at the University of Tennessee in June, 1975 and received a Master of Science degree in Forestry in March, 1977. He is a member of Xi Sigma Pi and Gamma Sigma Delta honor societies.

He is married to the former Karen Sue Knight of Knoxville, Tennessee. They are expecting their first child in April, 1977.