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A Study of Owners of Small Timber Tracts in Louisiana

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Contents

Introduction .............................................................. 5
Objectives ............................................................... 7
Review of Literature .................................................. 8
Study Area .............................................................. 20
Methods and Procedures .............................................. 22
Results ................................................................. 24
Summary ................................................................. 42
Conclusions ............................................................ 48
Recommendations ....................................................... 51
Literature Cited ........................................................ 55
Appendix .................................................................. 58

List of Tables

1. Primary use of forest land ........................................... 25
2. Secondary use of forest land ....................................... 25
3. Future plans of owners for forest lands, by size of ownership 26
4. Relationship between size of ownership and selected forest practices, by number of owners 28
5. Relationship between membership in community organizations and selected forest practices, by number of owners 29
6. Views of landowners on thinning, fencing, and leasing, by occupational categories 31
7. Views of landowners on tree planting and owner-paid improvements, by occupational categories 31
8. Main use of forest lands by pine and hardwood owners 40
9. Plans for woodlands in pine and hardwood areas 41
10. Policy on use of forest for recreation in pine and hardwood areas 41

List of Figures

1. Location of wood-using industries in Louisiana, 1971 ........ 7
2. Six major stratified and 24 sub-stratified areas of Louisiana from which random samples were drawn 23
Introduction

The Southern Forest Resources Analysis Committee in 1969 published *The South’s Third Forest*, which outlines the requirements for timberland development and production necessary to provide the multiple-use benefits that come from productive forests. These requirements include producing 2.3 times as much wood by the year 2000 as was harvested in 1968, and this accelerated production must be accomplished on a decreasing forest land area. If production is to be increased by this amount in Louisiana, it will require the adoption and application of advanced forest management practices by all forest landowners, and especially by the owners of small tracts of timber.

There are 93,732 private forest landowners in Louisiana who each own less than 80 acres of forest land, and 18,538 with ownerships varying in size from 80 to 499 acres (Gunter, 1975). These 112,270 owners control 40 percent, or 5.3 million acres, of Louisiana’s forest land and represent 98 percent of the state’s forest landowners. An additional 2,423 nonindustrial owners with holdings between 500 and 4,999 acres in size (average: 1,181 acres) own more than 2.8 million acres.

The Louisiana Legislature in 1970 passed House Concurrent Resolution No. 101 declaring that it shall be the public policy of the state to cooperate and lend assistance in developing the forests of Louisiana. The resolution requested that all resource management agencies of the state cooperate, accelerate, and intensify their related resource development programs. Educational agencies were requested to accelerate their research and extension programs and the teaching of resource values, needs, and individual citizen responsibilities for these multiple-use resources. All woodland owners were encouraged to manage the forest land resources they have available to meet the goals for Louisiana’s multiple-use Third Forest of the year 2000. The federal government and its agencies were asked to intensify their efforts to meet their responsibilities and fulfill authorized programs.

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with particular reference to protection and small landowner assistance. Also, the Louisiana Forestry Association is committed to the development of the Third Forest.

Louisiana is blessed with a long growing season (250 to 270 days per year), adequate rainfall (50 to 60 inches), mild temperature, and many desirable species of trees. The productive capacity of the forest land area in Louisiana is as good as that of any state and better than that of most states.

Many benefits are derived from forests. It is, therefore, important that forests and associated resources be perpetuated so they may continue to serve as an important part of the present and future environment and economy of Louisiana and the United States. The interest of the human population in forest production is in direct proportion to the benefits received from forests. The recipients of benefits should also be interested in a basic forest management program in proportion to those benefits.

Benefits derived from productive forests include wood, water, recreation, wildlife, forage, aesthetics, and soil stabilization. Some of these are tangible and can be expressed in monetary terms. Others, such as aesthetics, water, soil stabilization, and many forms of recreation and wildlife, are intangible and cannot be expressed in terms of money with the present state of knowledge. However, they are very important and the perpetuation of them must be emphasized.

Forests provide the raw materials for one of the most important industrial structures in Louisiana. The Louisiana Forestry Commission reported 316 primary wood-using industries in Louisiana in 1976 (Martel and Burns). The plants are well distributed throughout the state (Figure 1). The wood industry in 1976 paid approximately $129 million to landowners for stumpage, provided employment for more than 32,000 industrial workers (making it the leading industrial employer in Louisiana), and had an annual payroll of about $370 million.

A report of the U.S. Forest Service showed the total value of wood products in Louisiana was 22.1 times the stumpage value in 1958 (Hair, 1963). A study in Louisiana (Marlin, 1968) found that the average total value of wood products in the state was 27 times greater than the stumpage value for the 14-year period from 1947 through 1960.

Also, most of the intangible benefits associated with forests, such as water, wildlife, recreation, aesthetics, clean air, sound barriers, and soil stabilization, go to the general public.
Objectives

Adequate facts concerning owners of small tracts of forest are essential as a basis for developing programs to improve the status of management on such holdings. The purpose of this study was to secure facts that will be helpful in guiding action programs. The main objectives were:

1. To review data and previous research that have attempted to characterize, measure, analyze, and describe the various attributes of owners of small tracts of forest land.
2. To look at the economic, institutional, and other factors relating to small forest ownerships.
3. To study characteristics of landowners and seek relationships between owners, their land, and their forest management practices.
4. To determine from past experience and the current study what steps may have the best chance of leading to increased production.
This was a fact-finding study to seek information that would be helpful in making recommendations for programs to increase the productivity of forests on small ownerships. It was the first state-wide study in Louisiana of owners of small tracts of forest land. Field interviews were completed during the period of July 1971 through July 1974.

Review of Literature

Throughout the years of scientific forest management in America, the private nonindustrial woodland owner has done little to improve production on his holdings. Since owners of small timber tracts are so numerous, own so much land, and practice little management, a detailed review of the literature was made in an effort to identify characteristics associated with forest management.

Several studies have been made in an attempt to learn more about small landowners. Most of these inquiries were based in the South and East where private landowners are most numerous.

Some studies were made in parts of Louisiana. Folweiler (1944), McDermid, et al. (1959), and South, et al. (1965) dealt with land ownership and management practices in some parishes. Jones and McKean (1962) compared innovator and noninnovator owners. In the southern United States, Martin, et al. (1960) characterized the nonmanagers of small woodlands in Alabama. Anderson (1968) polled North Carolina landowners to discover factors influencing forestry practices. Yoho and Muench (1962), Webster and Stoltenberg (1959), and Somberg (1969) were others who wrote on forest owners' characteristics. The studies did not contain the same variables, but these authors and others provided much background information on topics considered in this study.

McArdle (1956) observed that the findings of the nationwide Timber Resource Review showed that: "The real key to America's future timber supply lies in the hands of one out of every 10 families who own small forests. Most of the lands owned by forest industries and public agencies are left in reasonably good growing condition after cutting, but on over one-half of the recently cut farm and other small private forests conditions for future growth are far from good."

Stoddard (1961) said:

The objectives of forest owners depend in large part on how and why they obtained their land. In the case of farmers, these questions are largely answered by the fact that the woodland has been a part of the farm unit since the original settlement, a part usually located on steep, swampy, or rocky land unsuitable for crop production and used

1The U.S. Forest Service classifies ownerships of less than 5,000 acres as small.
primarily as a source of firewood and building materials. Forest land in the hands of nonresident nonfarm owners usually consists of a small tract in a heavily wooded area where a larger block of land has been cut of its best timber and divided up. Few of the ownership studies cited develop the methods of acquisition in any detail, but they do show that a major portion of the land was purchased rather than inherited. The principal reasons for purchase given by owners were: investment, resale at a profit, reforestation and future returns, a variety of recreational uses and speculation in mineral potentials. . .

. . . One very important aspect of forest ownership which previous studies have never been able to develop satisfactorily is that land ownership seems to satisfy a basic psychic urge quite apart from economic motives. This subconscious drive is seldom brought to the surface by interviewing and questionnaire techniques, though it does develop in personal discussions. When people derive little or no income from land and continue tax and other payments to hold it, it is unlikely that the primary incentive is an economic one except where land is held for speculation or mineral development.

Occupation was a popular characteristic considered. In accord with several studies, James, Hoffman, and Payne (1951) found that the majority of owners they observed were farmers. Yoho and Muench (1962) emphasized that 75 percent of all small, private ownerships are concentrated in farm units but only half of the owners list themselves as farmers by occupation. Coutu (1961) suggested that improved employment opportunities off the farm had resulted in an increase in part-time farming which was compatible with forest management. South, et al. (1955) cited farmers as having adopted more forest practices than nonfarmers, and Ramke (1960) found that bankers, industrialists, and farmers did a better job of timber management than owners with other occupations. However, Pleasonton and Guttenberg (1961) said farmers in northern Mississippi who owned small forests were less likely to adopt forestry than were the nonfarm woodland owners. While the results varied among studies, one definite trend was that the number of full-time conventional farmers (row crop and livestock) was decreasing.

The findings of investigators in regard to age of owners as a factor in forest management have varied. LeVasseur (1963) and Hestbeck (1963) found more innovators of forestry below 60 years of age than above 60. McDermid, et al. (1959) found no correlation between age and forest practices in a St. Helena Parish, Louisiana, study. Ramke (1960) stated that owners above 40 were better managers. Perry and Guttenberg (1959) found younger owners were more willing than older owners to seek
professional help. However, most studies found that older people own the majority of the forest land, but that most of them feel their remaining life span is insufficient for them to realize much profit from a forestry venture.

Investigators have also looked into the size of ownership as an influential factor regarding forest practices. Gunter (1975) found the number of people owning more than 500 acres of forest land was decreasing. McDermid, et al. (1959) found that larger owners adopted forest practices more frequently than did smaller owners. This finding was supported by McClay (1961), Barrett (1962), and South, et al. (1965). Sizemore (1970) said owners of very small holdings tend to value each tree instead of visualizing or evaluating the stand of trees.

While most investigators agreed that size of ownership was a significant factor concerning small forest owners, varying conclusions were drawn about the role of education. Chamberlain, et al. (1945) indicated that the average nonindustrial landowner lacks an understanding of forest management and needs a program of demonstration as well as education. Lack of technical knowledge was a major reason cited by landowners in Vernon Parish, La., for their insufficient forest management (Stevens, 1963). McDermid, et al. (1959) found that owners who had some college education practiced forest management at a significantly higher level than owners with only a grammar school education. Yoho (1961) also found education to be a significant factor in the acceptance and practice of forestry. He mentioned that owners with at least 10 or 11 years of formal education were more favorable toward forestry than those with less education. South, et al. (1965) revealed that most owners who adopted forestry were educated beyond high school.

Bradford and Marlin (1972) found that a high level of understanding of basic forestry concepts was strongly associated with a high level of adoption of forest practices by owners of small tracts in two Louisiana parishes. However, there was a time-lag before acquired knowledge resulted in the adoption of improved practices on the ground. Owners in their 50's scored highest in knowledge of forestry concepts while owners more than 60 years old scored highest in adoption of forest practices.

Findings in regard to the importance of the location of an owner's home in relation to the location of his tract of timber have varied. LeVasseur (1963) observed more innovators living on their woodland than away from their woodland. Conversely, Hestbeck (1963) found that innovators were less likely to live on their holdings than were noninnovators. Ramke (1960) maintained that absentee owners could be successful in their forest operations if they had responsible managers. Coutu (1960) reported that a favorable condition for forestry existed with rural, nonfarm resident owners. He added that one of the optimistic forces of forestry was an increase in this type of small, private landowner.
Although Barrett (1962) and Craig (1972) both cited forest credit as an incentive to practice forestry, most researchers have found scant interest among owners for loans. A low percentage of owners in an Arkansas study by Perry and Guttenberg (1959) desired a loan to finance a forest management practice. Anderson (1968) said most of his interviewees utilized no outside funds or labor for forest practices but relied on their own resources. Forest credit was observed by James, et al. (1951), Southland and Tubbs (1959), and McClay (1961) to be of little interest to respondents in their studies.

Various conclusions were drawn from the research on tenure of the small, private landowners. McDermid, et al. (1959) and Pleasonton and Guttenberg (1961) associated good forest productivity with tenure of more than 10 years. On the other hand, Seigworth (1956) and Ramke (1960) cited two decades as the length of tenure favorable to sound forest management. In general, past studies indicate that an increase in the years of ownership enhance the practice of forestry by private landowners.

The leasing of small, private ownerships to those in a position to apply intensive management practice could increase productivity. Coutu (1960) suggested that leasing could prove to be an excellent method of utilizing idle woodlands, and Smith (1972) listed leasing as an incentive to propagate trees on small, private ownerships. However, McClay (1961) found only a small percentage of owners were interested in the idea of leasing their holdings. Likewise, Sutherland and Tubbs (1959) reported that approximately one-tenth of their interviewees expressed a desire to lease their woodland, while Somberg (1971) found that 20 percent of the owners of nonindustrial forests in Alabama were interested in entering a lease of 25 years or more.

Mignery (1956) and Perry and Guttenberg (1959) found a relationship between income or assets and the practice of forest management, with management generally increasing with assets. Yoho (1961) found that total income played an important role in adoption or nonadoption of forest practices. South, et al. (1965) said forests were not the major source of income for owners. However, most authors concluded that more intensive management was accompanied by higher owner income and assets.

An attempt to determine how landowners used and managed their forest lands was made in some studies. The majority listed timber growing as the main use (Sutherland and Tubbs, 1959; Perry and Guttenberg, 1959; McClay, 1961; Jones and McKeen, 1962; Toms and Marlin, 1972, and Fontenot and Marlin, 1974). James, et al. (1951) found 41 percent of the owners did nothing to stop fires, and more than half of the owners either had no concept or a misleading concept of the definition of timber management.

Sutherland and Tubbs (1959) found 75 percent of the owners applied no
forest management practices, and the remaining 25 percent gave planting as the most popular practice. Respondents listed either lack of area or lack of time as the reason for not planting. Tree planting was also found by Perry and Guttenberg (1959), McClay (1961), and Anderson (1968) to be the most popular practice. McDermid, et al. (1959) listed 24 percent of the respondents as being involved in some kind of management. McClay (1961) said only one-third of the owners applied forestry practices. Anderson (1968) found that many owners engaged in forest management had adopted practices in only two or three categories. In general, actual participation in forest management was low, with planting of trees being the most common practice.

Harvesting, including timber sales, was another practice discussed in some studies. Only 24 percent of the owners of small tracts had sold timber in central Wisconsin (Sutherland and Tubbs, 1959). A written contract was used in 35 percent of the sales, and 23 percent of the sales were by lump sum. Perry and Guttenberg (1959) found that 27 percent of the interviewees had sold timber in the past decade, and payment was mostly by scale at the woodyard. James, et al. (1951) found that only 28 percent of the owners rated "fair" or above in quality of timber cutting practices. Pleasonton and Guttenberg (1961) found that only 4 percent had used timber marking in their sales. Chamberlain, et al. (1945) believed that inadequate harvesting contracts were responsible for poor cutting practices on nonindustrial tracts. In a citation of a case history of profitable forest management on small ownerships, Bethune and LaGrande (1960) listed timber stand improvement as a necessary ingredient of a good forest management plan. In observing the problems of the small-forest owner, Barrett (1962) emphasized planting, timber stand improvement, and harvesting as areas of forestry that need to be increased and/or improved.

With regard to harvesting, Anderson (1968) disclosed that the majority of respondents did not know the value of timber harvested and relied on a buyer's estimate. In general, past studies seem to point to a lack of understanding of the economic and management benefits of good harvesting and selling techniques.

Toms and Marlin (1972) found that, although forest production was low in comparison with that on well-managed land, the owners of small tracts of timber in northwest Louisiana used better methods of harvesting and selling timber, applied more timber stand improvement, and had more interest in forest credit and in leasing of their lands than respondents of earlier studies in Louisiana, the South, and the U.S.

Fontenot and Marlin (1974) found timber growing to be the main use of forest land by 64 percent of the owners of small tracts of timber in southwest Louisiana. Grazing was the primary use listed by 28 percent of the owners, and it was the most popular secondary use. The young owners
listed grazing as the number one use of forest land more frequently than other age groups. Sixty-eight percent of the interviewees grazed cattle on their forest land.

A study of woodland management practices among owners of small tracts in 17 Louisiana parishes was made by Jones and McKean (1962). Woodland owners interviewed were asked to rank, in order of importance, 12 listed reasons why owners do not use better management practices. The leading four reasons were:

1. It takes such a long time to grow a crop and get income.
2. Insufficient technical knowledge.
3. Cost of practices outweighs possible benefits.
4. More rewarding activities on which to use their time and money.

In the same study, woodland owners were asked to complete the sentence, "The thing I like most about my woodland is _____." The most frequent comments and the number of owners making them were:

<table>
<thead>
<tr>
<th>Liked most</th>
<th>Number of owners</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic returns</td>
<td>267</td>
<td>62.4</td>
</tr>
<tr>
<td>Beauty, like to watch it grow</td>
<td>30</td>
<td>7.0</td>
</tr>
<tr>
<td>Wildlife, recreation, hunting</td>
<td>27</td>
<td>6.3</td>
</tr>
<tr>
<td>Pride of ownership</td>
<td>12</td>
<td>2.8</td>
</tr>
<tr>
<td>Very little expense and care to maintain</td>
<td>11</td>
<td>2.6</td>
</tr>
<tr>
<td>Timber</td>
<td>11</td>
<td>2.6</td>
</tr>
<tr>
<td>Protects cattle from weather</td>
<td>9</td>
<td>2.0</td>
</tr>
<tr>
<td>All other</td>
<td>61</td>
<td>14.3</td>
</tr>
<tr>
<td></td>
<td>428</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Interviewees were also asked to complete the sentence, "The thing I dislike most about my woodland is _____." A majority of the owners felt the question did not apply to them since they did not dislike their woodlands. These owners did not respond to the question. Reasons given by those responding were:

<table>
<thead>
<tr>
<th>Disliked most</th>
<th>Number of owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returns too small</td>
<td>57</td>
</tr>
<tr>
<td>Growth too slow</td>
<td>32</td>
</tr>
<tr>
<td>Problems of underbrush</td>
<td>30</td>
</tr>
<tr>
<td>Need it for pasture land</td>
<td>17</td>
</tr>
<tr>
<td>Holdings too small</td>
<td>14</td>
</tr>
<tr>
<td>Grown up in undesirable species</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>163</td>
</tr>
</tbody>
</table>
Answers to the above two questions point to the fact that economic returns were the main reason for growing timber, but the income was slow in coming and low in rate of return. This is because it takes a long time to grow a tree and only one of the many goods and services derived from forests has a good market. This is wood fiber, and the grower gets only about 4 percent of its total value.

A number of studies have shown that forest management yields a low rate of return to the landowner. A report by Resources for the Future, Inc. (1958) contained useful data and an analysis of costs and returns from forestry, as follows:

Until recently there have been few records of continuously managed forests which would reveal relationships between net income and capital investment as a measure of profitability. To be meaningful, the accumulation of such figures requires complex and specialized record keeping over a considerable time. Probably the best of the available data are to be found in the records of the so-called ‘Farm Forestry Forties,’ located in the various experimental forests of the U.S. Forest Service. Other estimates have been made from growth and yield data pertaining to larger areas.

Rapid growth rates in the southern pine region, which are a result of heavy rainfall and a long growing season, have caused that area to be regarded as the most profitable producer of forest products in the country. Close behind are the Douglas-fir and redwood forests of the moist Pacific Northwest, and the northern pine forests which also are good wood producers. The hardwood types are generally slower in rate of growth. . . .

The report showed that net percentage return on the appraised value of the timber stands before income taxes for three experimental forests in the East were 7.5, 3.6 and 2.4 for southern pine, red and white pine, and northern hardwoods, respectively.

The data given above tend to confirm the assumed advantage of the southern pine forests. However, this is offset in part by heavier annual costs. While these net returns are comparable with those on some of the more conservative bond issues, they must be regarded as minimal returns on invested capital.

Stoddard (1961) wrote:

Although we have no way of knowing how the several ownership motives may be apportioned nationally, it appears that many are willing to pay the holding costs of small tracts of wild forest land and some are willing to invest in tree planting but relatively few own their lands in order to carry on an active forest management program.
designed to provide regular crops of forest products. Although ownership may be in fairly stable hands, there seems to be insufficient economic motivation in forestry to induce the owner to grow and produce forest products on a systematic basis, compared with returns from other activities in which he can or does engage. Where high yields of valuable species are possible on better growing sites (as in the Southern pine region), considerably more incentive exists.

. . . The heart of the problem appears to lie in the small scale on which businesslike forest management must be practiced on these little woodlands. The costs to the owner simply outweigh any prospective returns—except where liquidation once in a rotation is the practice.

In a study by Marlin (1968), the value of manufactured products derived from Louisiana forests during a 14-year period, 1947-60, was $7,789,200,000. The forest landowner, who grew the raw material, received less than 4 percent while others received more than 96 percent of the total value of the wood products. In other words, every time the forest landowner received $1 for stumpage, other people and governments (federal, state, local) received $26.79 for felling, limbing, bucking, skidding, loading, hauling, manufacturing, drying, selling, shipping, and using that dollar’s worth of stumpage. Therefore, timber is a more important economic and consumer product for the “general public” than it is for the owner.

Hair (1963), in a study titled The Economic Importance of Timber in the United States, determined that in 1958, the study year, timber increased in value almost 25 times between the stump and delivery of the finished products. In that year, the gross national product originating in timber-based activities was $24.75 billion. As shown in the following tabulation, only 4 percent of the total value of finished wood products was returned to the owner for growing the timber. In that year, about one person of every 20 employed in the U.S. was engaged in some kind of timber-based economic activity.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percent</th>
<th>$ (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing</td>
<td>4</td>
<td>1.0</td>
</tr>
<tr>
<td>Harvesting</td>
<td>6</td>
<td>1.50</td>
</tr>
<tr>
<td>Primary manufacturing</td>
<td>16</td>
<td>3.85</td>
</tr>
<tr>
<td>Secondary manufacturing</td>
<td>22</td>
<td>5.45</td>
</tr>
<tr>
<td>Construction</td>
<td>31</td>
<td>7.60</td>
</tr>
<tr>
<td>Transportation and marketing</td>
<td>21</td>
<td>5.35</td>
</tr>
<tr>
<td><strong>Total income</strong></td>
<td><strong>100</strong></td>
<td><strong>24.75</strong></td>
</tr>
</tbody>
</table>
Montgomery and others (1975) could not economically justify any forest management by landowners on almost half of the 18 million acres of commercial forest in small ownerships in Georgia. Their projection was made on the basis of stumpage prices estimated through the year 2000. Anticipated income to the owners of 8.5 million acres of forest land did not even cover annual ad valorem taxes under the simplest management program.

Furthermore, Tucker (1975) stated: "... on large industrial ownerships the after-tax return on the woodlands entity as a self-standing profit center most probably would be no more than 2 to 3 percent. Therefore, industry's justification for owning timberland may be rationalized as:

1. Supporting the long-term investment in and the profit potential of the manufacturing facility by minimizing its dependency on the outside sources of raw materials.

2. Reducing the impact of run-away prices of open market wood under demand stress.

3. Assuring a dependable source of raw material at reasonable cost."

Sizemore (1970) said: "... the returns that are afforded by investments to improve woodland productivity are distinctly marginal." He estimated that investments in forest management would produce returns of 3 to 5 percent.

Porterfield (1975) concluded that the reason 2.5 million acres of commercial forest land in Arkansas were converted to other uses from 1959 to 1969 was because it was more profitable for the landowner to have the Delta lands producing annual crops than hardwood timber.

Myers (1973) said:

... the small forest landowner is no problem to himself. He is only a problem to those of us who are seeking to motivate him to do some things we would like for him to do, primarily to get him to invest some of his hard-earned money in growing trees. When he does not respond, he may actually be smarter than we give him credit for being. Dr. Jack Muench of the National Forest Products Association was likely the first one to say that, and I believe it is true. This small landowner usually has only a limited amount of cash and has a low deferability of income. Low deferability of income means he is frequently over committed. He has more commitments than he can meet, more bills than he can pay. Many of us are acquainted with this problem on a first-hand basis.

Moreover, when the small landowner has the money available to invest in development of his timberlands, he would be less than astute if he did not consider his investment alternatives. Remember, we are talking about a hard-nosed business proposition, and keep in mind
further there is absolutely no moral or other reason for the landowner to invest his money in growing trees. Within this climate of consideration, where should he put his money? He should put it where his capital will be protected and his rate of return will be the maximum.

The report, *The South's Third Forest*, indicates the landowner can expect from 5 to 7 percent net return on investment from timber growing activities. Furthermore, the risks of fire, insects and disease, ice storms, etc., are high and markets apt to be uncertain. In addition, the owner can expect to wait at least 10 years before getting his first return on investment. It is true that real estate values may appreciate, but this is to a degree offset by the unknowns of future ad valorem taxes. Moreover, this appreciation of capital would likely occur without expenditures for forest development. So we wind up with a so-called 'Mexican standoff' on real estate appreciation.

Where does this leave the landowner in considering investment alternatives? Well, he can count on a likely 5 to 7 percent return on his investment if his timber doesn't burn up, or the bugs don't get it, and there is an available market. In addition, of course, his money is tied up for 10 years before he gets his first return.

Now let us examine for a moment the other investment alternatives available to the small owner. He can put his money in the local bank and get up to 5 percent, with his capital guaranteed and immediately available. He can also put his money in a savings and loan bank and draw up to 6 percent on 2-year certificates, again with his capital guaranteed.

If the owner can and wants to get into the cattle-raising or rowcrop farming business, these offer other alternatives. These are likewise high-risk ventures, but his payoff comes in a shorter period of time and returns on investment may be 12 percent or more.

Faced with this set of alternatives—to name a few — and a low deferability of income, what would you as a timberland owner do?

McKnight (1973) said:

... we are not going to engender the interest of the nonindustry private owner to really practice forestry on a big scale without an incentive program of some kind. It may come from state, private, or federal sources. It may come from all three.

... it has been my reasoning, and the rationale of others, that the capital investment required to increase productivity of forests on nonindustrial ownerships may well be a public concern, at least partially. That initial investment does assure the nation the goods and services produced by forests if the individual landowner assumes his
stewardship in the management of that investment. We should also consider that people other than the owner use that land in many ways. They look at it, walk through it, watch the wildlife, hunt on it, and use the water, wood, and wood fiber produced by it. There are also other amenity benefits. So this is a payment, in effect, for using the land in a certain fashion and to assure its full productivity.

The report of the President’s Advisory Panel on Timber and the Environment (1973) said that:

A major goal of national forest policy must be to achieve, during the period 1990-2020, a relatively high timber harvest from nonindustrial private woodlands. Whether or not this goal will be attained depends largely on measures initiated in the 1970’s and 1980’s.

The immense area, low stocking, modest growth, and modest rate of harvest of the ‘other private’ lands makes them the listless giant of forestry. If the growth rate of these woodlands could be increased to match that of the timber industry forests, the effect would be an increase of one-fourth in the average annual growth of all American forests. Part of the problem of getting more output from these lands is technical, part is economic, and part is motivational. Taking into account the present quality and stocking of timber on ‘other private’ lands, one can only conclude that the current growing stock must be improved to serve as an effective ‘factory’ to produce timber for projected future demands. The small area in the typical ownership makes many forestry operations unduly costly per acre, or provides only limited incentive to the owner to apply his resources to forest management.

Skok and Gregersen (1975) listed a number of public policy instruments that could be used to intensify forest management on private ownerships. They suggested incentives as the most logical way of increasing the attractiveness of financial returns from forestry by minimizing the private cost impact of investments in forest management.

They also noted that, in recent years, agricultural conservation program payments for forestry practices have been, at a national level, only slightly more than 1 cent per acre of nonindustrial private forest land.

Worrell and Irland (1975) wrote: “Policies to raise the level of private activity in forest management encounter obstacles of low profit, indifference, lack of ability, lack of knowledge, and conflict with other goals.” The writers said policies at the economy-wide level were best suited to overcoming the obstacles of low profitability, with the federal government being the most effective agency to develop and implement such policies. The remaining obstacles could be minimized by action by all appropriate governmental and private institutions.
Mills (1975) stated: "Several major analyses of timber production opportunities indicate that there are millions of acres of profitable investments which small-owner assistance programs can stimulate. The problem of priority assignment is how to find the payoff acres while sidestepping those which are unlikely to contribute to program goals."

Anderson (1975) said: "Entice small-forest owners into forestry with a rewarding experience, and they will finance progressively more intensive management in their woodlands. Foresters would agree that applying this theory requires more than efforts to educate owners and give them technical aid. Financial assistance has been tried in the form of cost sharing and rental payments."

Gould (1975) stated: "... several flaws in the present forestry situation could be solved by actions like those that worked with farmers. . . . forestry does suffer some of the malaise that once afflicted agriculture, and some of the remedial schemes might work again. As in farming, we should aim for that critical mass of public action needed to create a new and improved forest planning climate. . . . If we really wish private owners to produce more of such public, nonmarket values than they need for themselves, it seems only fair that the public should make a cost contribution. Practices aimed at these nonproduct values should figure more prominently on new cost-sharing lists."

McKillop (1975), in an article on social benefits of forestry incentive programs, asserted:

Reductions in consumer outlays for wood products and dampening of future price rises are the major gains to the nation as a whole, but gains to geographical regions or sectors of the economy from forestry incentive programs may be appreciable. Since timber-growing and wood-processing enterprises are frequently in depressed rural areas, additional economic activity may significantly help achieve employment and income goals. . . . The unique character of forest management investments itself might justify the forestry incentives programs. No other type of private investment holds the same degree of uncertainty. No other business is faced with the same combination of fluctuating prices and long investment periods. Industrial forest owners may have the expertise to appreciate that future prices for wood products will be substantially higher than present levels and that intensified timber management is a sound business investment. But the nonindustrial owner does not have this knowledge and confidence. The willingness of government to bear part of the cost may indicate to him the social merits of investment and, in addition, provide a means by which uncertainty may be reduced.

McKillop said a continuing program of intensified management applied
only to investment opportunities that would earn a rate of return of at least 5 percent would cover the direct costs including interest charges. Also, secondary benefits from such a program would be substantial when it was fully underway.

Mills and Cain (1976) found the overall performance of the Forestry Incentives Program (FIP) was favorable during the first year of operation in 1974.

Chambers (1976), working on the Third Forest Program in Louisiana, had the following to say about forest needs on nonindustrial lands: “The landowners are not going to accomplish the job themselves. And my experience over the last 3 years has convinced me that there are three fundamental keys which we must utilize to motivate these landowners. The absence of any one of these keys will halt the Third Forest in its tracks.

“First, we must communicate with landowners on a personal basis. Eyeball to eyeball, we must tell them of the gravity of their forest management needs and the benefits they will reap therefrom.

“Second, adequate economic incentives must be provided.

“Third and last, services for accomplishing the needed work must be provided.”

Chambers expressed the opinion that the mammoth job of forest improvements could be accomplished in a manner similar to the success story in agriculture. In Louisiana, he said, “For the period 1970-74, agricultural interests received $66.7 million annually in direct payments and price support loans to crop farmers, ranchers, and the like. That’s 4 percent of the economic activity generated by the products these interests produce. . . .” He said forest improvements could be accomplished by investing a much smaller percentage of the total economic activity generated by the forests and forest products industry and the rewards would be astounding.

A summary of the literature shows occupation, residence, age, education, income, and amount of timberland owned as important determinants of participation in forest practices. Most small forest ownerships were in the hands of persons 50 years of age or older with 11 years of formal education or less. Forest practices as a whole were not used to any significant degree by owners of small timber tracts, with tree planting being the most used practice. Forestry is a long-range crop that produces many goods and services. Intensive forest management yields a high rate of return to society (the general public) but a low rate of return to the landowner.

Study Area

The forests of Louisiana fall into two broad categories. Softwood forests comprising the four major southern pines (loblolly, longleaf, shortleaf, and
slash) occupy most of the uplands. Oak-hickory forests are also found where the pine has been removed from pine-hardwood forests. Hardwood forests are found principally on the alluvial flood plains in the Delta and along major streams elsewhere in the state. The major hardwood forests are made up of species typically found in the South, such as oak, gum, ash, hackberry, pecan, sycamore, willow, cottonwood, and cypress (a softwood).

Most of Louisiana was covered with virgin timber that was removed in the late 1800’s and early 1900’s. The largest sawtimber harvest in the history of the U.S. was made in Louisiana in 1913. Some of the clearcut land regenerated naturally, but much of it was taken over by farmers.

Three major study areas (Northwest, Southwest, and Southeast) were located in the upland pine areas. A determined effort was made by many people to grow agricultural row crops on the cleared uplands. However, the land was not as level or fertile as the bottomlands. Also, farms were not large in size and mechanization was not very feasible. The depression of the 1930’s plus the decreasing economic situation of small farms resulted in much of the land being released from cultivation, and much of it reverted back to some type of timber production. Southern pines grow well on the hill soils. Site indexes (average height of dominant and codominant trees at age 50 years) of 85 to 100 are not uncommon on the better sites.

The Northwest Pine Area comprises the largest concentration of loblolly and shortleaf pine in the state. The topography is rolling with small and medium stream bottoms. Elevation is 100 to 600 feet. The softwood forests are loblolly pine and shortleaf pine. Bertrand (1960) used the term “yeoman farmers” to describe the inhabitants of the North Louisiana Uplands. He further classified the owners as hardy, independent, individualistic, and somewhat conservative in their approach to new ideas or practices.

In the Southwest Pine Area, longleaf pine, slash pine, and loblolly pine are the most common softwoods. Species of oak and gum are the most frequent hardwoods located in the low-lying areas. The topography ranges from rolling clay hills on the north to hardpan flatlands on the south. Sandy and clay loam soils are found in the coastal plains and prairies, while soils of the flatwoods and river terraces are predominantly silt loams. Rice, soybeans, forest products, and cattle are the main farm crops.

People living in the northwest part of the Southwest Pine Area are predominantly of English and Irish descent who worship in the Protestant faith and tend to live on the land they own. On the other hand, residents to the south are predominantly of French heritage and worship in the faith of Catholicism. Many Acadian customs and practices have been passed from generation to generation. These people tend to live in towns and cities.

The Southeast Pine Area (Florida Parishes) includes the pine forests of Louisiana located east of the Mississippi River. Major sources of income
are from dairying, pastures, truck farming, and timber. All four major southern pines are found here, with longleaf pine and slash pine concentrated on the east side of the area and loblolly pine and shortleaf pine occurring on the west. Hardwoods occur throughout the area but are more abundant in the southern section. The topography ranges from rolling hills on the north to flatlands on the south. The area is made up of small farms with the majority of the owners living on the land.

Two major survey areas (North Delta, South Delta) were located in the bottomlands. The forests are hardwoods, with the exception of cypress. The most productive lands are located in these areas and in belts of varying width along waterways throughout the state. Farms are generally large, highly mechanized, and intensively managed for production of row crops and cattle. Much of the land that was in hardwood timber has been cleared in the past 15 years for agricultural use. Forests on nonindustrial ownerships are now essentially limited to land with poor physical properties or inadequate drainage.

The North Delta consists of the alluvial flood plains of north Louisiana and the Red River Valley. Soybeans, cotton, corn, cattle, and timber are the main cash crops.

The South Delta is made up of the alluvial flood plains of the Atchafalaya River and a part of the Mississippi River. This area plays an important role in the flood control program for the Mississippi River. Timber is the logical use for some of the land because of flooding and inadequate drainage. Farming, where feasible, is intensive. The main cash crops are sugarcane, soybeans, beef cattle, and timber.

Another survey area, the Industrial Area, includes the territory on each side of the Mississippi River from about 30 miles north of Baton Rouge to New Orleans, and the area surrounding portions of Lake Pontchartrain and Lake Maurepas. This area was separated from the others because of industrialization and the concentration of population. The opportunity for industrial employment is excellent and a job in industry is usually the main source of income. The soil and forest land vary in characteristics from those of the Southeast Pine to the South Delta areas, and include extensive hardwood bottomland forests and a sizeable area of flatwoods southern pine.

**Methods and Procedures**

This study included Louisiana residents who are owners of 20 to 500 acres of forest land. The sampling design was a stratified random sample to assure good representation. The state’s timbered lands were stratified into six broad areas according to timber types, soils, agricultural crops, characteristics of the human population, and industrialization. Each of the six areas was then stratified into four subareas (Figure 2).
One voting ward was randomly selected in each of the 24 subareas. A random sample of 14 landowners, each owning between 20 and 500 acres of forest land, was then drawn from the tax rolls for each of the 24 subareas. Alternate owners were also randomly drawn to replace those failing to qualify on further study. The random procedure was used to assure an unbiased sample.

Each of the 336 owners (24 stratified areas x 14 interviewees per area) was personally interviewed. A member of the study team went to the sample areas and located interviewees through use of such means as description of the property, parish maps, telephone directories, public employees, and local citizens. Completion of a questionnaire (see Appendix) was accomplished in an informal manner to assure an atmosphere of
ease and congeniality. A special effort was made to obtain facts and opinions from the owners without influence from the interviewer. Questions were asked to obtain information on characteristics of owners, information regarding forest management practices, and general data on their land and timber. The characteristics of owners studied were forest acres owned, participation in community organizations, occupation, annual income, age, number of years the owner had owned forest land, years of formal schooling, sex, residence at the time of the study, residence during most of the life of the interviewee, children in school, and race.

Information was obtained on forestry knowledge and practices by collecting data on what had been done in the past 10 years and what was planned for the coming 10 years in regard to forest land, tree planting, timber harvesting and selling practices, timber stand improvement, prescribed burning, policy on recreational use of forest land by the public, forest credit, opinion as to the need for improving the productivity of forest land in general, and the personal obligation that each interviewee felt he or she had, as an owner, to do something to improve the productivity of his or her forest.

Frequency distributions and the chi-square test of variance for goodness of fit were utilized in analyzing the data with the aid of a computer. A minimum expected value of five was used in testing for significance with the chi-square method. Each landowner characteristic studied was compared with the forest management practices listed above.

Information was also collected and frequency distributions were tabulated for total acres owned, primary and secondary uses of forest land, distance in miles that absentee owners who were Louisiana residents lived from the property, farming activity, main cash crop, and who managed the property.

**Results**

**Land Use.**—Information on primary and secondary uses of forest lands was obtained by providing interviewees with a list of five land uses from which he or she identified the primary and secondary uses of forest lands on the date of the interview.

More than half of the owners in the sample listed timber growing as the primary use of their forest land (Table 1). Approximately half of those listing timber growing as the primary use showed no secondary use, and it is this group that should be most responsive to an intensive forest management program. The remainder of the owners showing timber growing as the primary use but also listing a secondary use would probably be receptive to a management program that would help the owner in reaching his objective. Grazing by domestic animals was the primary use of forest land listed by 60 owners, and wildlife was listed by 53 respondents.
Table 1.—Primary use of forest land

<table>
<thead>
<tr>
<th>Use</th>
<th>Owners in sample</th>
<th>Estimated total owners in La.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber growing</td>
<td>187</td>
<td>62,478</td>
</tr>
<tr>
<td>Grazing</td>
<td>60</td>
<td>20,047</td>
</tr>
<tr>
<td>Wildlife</td>
<td>53</td>
<td>17,707</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>7,016</td>
</tr>
<tr>
<td>Recreation</td>
<td>15</td>
<td>5,012</td>
</tr>
<tr>
<td>Total</td>
<td>336</td>
<td>112,260</td>
</tr>
</tbody>
</table>

Table 2.—Secondary use of forest land

<table>
<thead>
<tr>
<th>Use</th>
<th>Owners in sample</th>
<th>Estimated total owners in La.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specified secondary use</td>
<td>95</td>
<td>31,740</td>
</tr>
<tr>
<td>Wildlife</td>
<td>80</td>
<td>26,729</td>
</tr>
<tr>
<td>Timber growing</td>
<td>66</td>
<td>22,051</td>
</tr>
<tr>
<td>Grazing</td>
<td>58</td>
<td>19,378</td>
</tr>
<tr>
<td>Recreation</td>
<td>25</td>
<td>8,353</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>4,009</td>
</tr>
<tr>
<td>Total</td>
<td>336</td>
<td>112,260</td>
</tr>
</tbody>
</table>

The leading secondary uses were wildlife, timber growing, and grazing (Table 2). These owners would probably be receptive to a management program compatible with their primary and secondary uses of forest land.

**Future Plans for Forest Land.**—In the section of the questionnaire dealing with forest land management, each interviewee was asked: What plans do you have for your woodlands in the next 10 years? The interviewees were not given a list from which to select an answer. Each owner’s reply was recorded and considered to be the actual plans he had in mind and would apply to the land. Replies were grouped into the six categories shown in Table 3, and are listed in order of frequency by size of ownership. These data show that more than half the owners plan to let unaided nature produce what goods and services it can, with the main function of the owners being to either store, harvest, or sell what is produced. This applies to primary and secondary uses of forest land. It includes the ownership group planning to let timber grow without management, and those with no plans. In both cases, the land will remain in timber and production will be left to “Mother Nature.”

A fifth of the owners planned to do something to improve the productivity of their forest land by using management practices such as thinning, timber stand improvement\(^2\), prescribed burning, plowing fire lines, and

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\(^2\)Timber stand improvement (TSI) in this study refers to improving the productivity of forests by removing cull trees.
Table 3.—Future plans of owners for forest lands, by size of ownership

<table>
<thead>
<tr>
<th>Future plans</th>
<th>20-40</th>
<th>41-80</th>
<th>81-200</th>
<th>201-500</th>
<th>Total owners in sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage forest</td>
<td>43</td>
<td>44</td>
<td>30</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>No plans</td>
<td>7</td>
<td>7</td>
<td>16</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>Clear land</td>
<td>27</td>
<td>28</td>
<td>22</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>13</td>
<td>11</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>7</td>
<td>7</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>98</td>
<td>100</td>
<td>92</td>
<td>100</td>
<td>82</td>
</tr>
</tbody>
</table>
planting. The number of improvement practices averaged 2.8 per owner. These forest lands will be managed, but, on the average, not intensively managed.

Twenty-one percent of the interviewees did not list timber production as either a primary or secondary use of their forest lands. Included were 41 owners (12 percent) who planned to clear their land, and 30 (9 percent) who had "other" plans for their forest lands. On a statewide basis, this means an estimated 13,471 owners of small tracts of timber plan to remove the forest from their lands in the next 10 years. The only contribution to the wood supply will be the volume removed, and the values of the lands as forests will terminate at the time of cutting. An estimated 10,103 additional owners plan to keep their lands in forests, but rank wood production as a third or lower priority use. These forests will continue to make good contributions to amenity values, but only a minimum contribution to the wood supply.

Only five owners (1.5 percent) had plans to manage their timber holdings primarily for wildlife in the next 10 years, compared with 53 (15.8 percent) who had listed wildlife as the primary use of their forest lands a few minutes earlier in the same interview. Almost all of these ownerships were not being managed at the time of the interview and the owners were going to leave the management in the hands of "Mother Nature" during the next 10 years.

Even though owners of small tracts of timber in Louisiana are not doing much in the way of management, 70 percent of them show a definite multiple-use orientation in that the land is usually being used for more than one purpose. Also, under present plans for the future, the production of wood will be either a primary or secondary use of more than 75 percent of the ownerships and 85 percent of the land area in small ownerships.

**Forest Acreage.**—There was a highly significant relationship (P<.01)\(^3\) between the acreage of forest land owned and future plans for the forest, plans for thinning and timber stand improvement, frequency of timber sales, and payment of the entire cost of a forest improvement practice. Plans for prescribed burning were significantly associated (P<.05) with forest acres owned.

The relationship between acres of forest land owned and future plans for the forests is shown in Table 4. The percentage of owners planning to do some forest management work increased with increasing size of ownership. The percentage of owners with plans to let unaided nature produce the timber, and owners with no plans whatsoever for their forest holdings, decreased with increasing size of ownership.

\(^3\)Highly significant (P < .01) and significant (P<.05) are used in discussing the results of this study in the normal way for expressing research findings. A minimum expected value of five was used in testing for significance with the chi-square method.
Table 4.—Relationship between size of ownership and selected forest practices, by number of owners

<table>
<thead>
<tr>
<th>Acres of forest land owned</th>
<th>Plans for thinning</th>
<th>Plans for TSI¹</th>
<th>Sold timber in past 10 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>20 to 40</td>
<td>35</td>
<td>63</td>
<td>8</td>
</tr>
<tr>
<td>41 to 80</td>
<td>32</td>
<td>60</td>
<td>11</td>
</tr>
<tr>
<td>81 to 200</td>
<td>44</td>
<td>38</td>
<td>13</td>
</tr>
<tr>
<td>201 to 500</td>
<td>38</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Total²</td>
<td>149</td>
<td>187</td>
<td>55</td>
</tr>
</tbody>
</table>

¹Timber stand improvement, including cull tree removal.
²In some tables and summaries, the total number of interviewees shown is slightly less than 336. This is due either to a refusal by some interviewees to reply to the question or the interviewers' failure to request or record the information.

Only a third of the 190 owners with 20 to 80 acres of forest land had plans for conducting a thinning practice in the next decade. On the other hand, 44 (54 percent) of the 82 owners in the 81- to 200-acre category had plans for thinning, and 38 (59 percent) of the 64 landowners in the 201- to 500-acre ownership class had plans for conducting a thinning practice (Table 4). The percentage of owners who had plans for timber stand improvement increased with the acres of forest land owned. For example, only 8 (9 percent) of the 90 owners who owned 20 to 40 acres had plans for timber stand improvement in the next 10 years, while 23 (36 percent) of the 64 owners who owned 201 to 500 acres had such plans (Table 4).

In general, the percentage of owners who had sold timber in the past 10 years increased with acres owned (Table 4). The largest ownership class had sold timber about twice as often as the smallest. The same pattern held true for plans to sell timber in the next 10 years.

**Involvement in Community Organizations.**—Membership of interviewees in community organizations was as follows:

<table>
<thead>
<tr>
<th>Memberships in organizations</th>
<th>Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>0</td>
<td>127</td>
</tr>
<tr>
<td>1 to 3</td>
<td>158</td>
</tr>
<tr>
<td>4 or more</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>336</td>
</tr>
</tbody>
</table>

Membership in community organizations had a highly significant association with interest in long-term leasing. Also, a significant association
was found in regard to need for increasing the productivity of forest lands, main use of forest land, future plans for forest land, and owners having planted trees.

Forty-two (13 percent) of the owners were interested in a long-term lease (25 years or more). Owners associated with up to three organizations were almost twice as interested, and owners associated with four or more organizations were more than three times as interested in leasing as were nonmembers (Table 5).

Sixty-nine (21 percent) of the owners thought forest lands must be more productive, 219 (67 percent) felt forest lands should be more productive, and 40 (12 percent) of the owners cited productively as desirable but not important. No one listed production as not desirable. Owners said forest lands either must or should be more productive almost twice as often when they belonged to community organizations. More than half the owners who cited forest productivity as unimportant did not belong to any community organization (Table 5).

A higher percentage of owners involved in community organizations listed timber production as the main use for their forest lands while a higher percentage of owners not participating in community organizations listed grazing.

Regarding future plans for forest lands, nonmembers of community organizations had plans to clear their forest land 2.5 times as often as members. Also, a larger percentage of nonmembers had no plans for their forest lands.

While only 37 (11 percent) of the interviewees had planted trees in the past, there was a significant association between membership in organizations and having planted trees. Owners who were members of up to three organizations had planted trees twice as frequently, and members of four or more organizations had planted trees three times as frequently, as nonmembers.

**Occupation.**—Landowners interviewed were classified into seven occupational groups:
Occupation was found to have a highly significant association with plans for thinning and plans for fencing (constructing a fence around the property). Occupation had a significant association with paying the entire cost of a forest improvement practice, interest in forest credit, production of forest land, and plans for cull tree removal. Owners who were self-employed or in professional occupations were the groups most interested in thinning their timber stands, while farmers showed the least interest in this forest practice (Table 6). Seventy-two (22 percent) of the owners had plans for fencing. Wage earners, unemployed, professional, and self-employed owners showed more interest in fencing than did farmers, retired, and miscellaneous owners.

Thirty-seven (11 percent) of the owners had planted trees in the past 10 years. Most of the planting had been done by those in the professional, retired, and self-employed occupational groups. Little planting had been done by farmers and miscellaneous owners. No planting had been done by the unemployed (Table 7).

Owners with plans to plant trees exceeded those who had planted trees by 41 to 37. Occupation was significantly related to plans to plant trees, with professional and self-employed owners having the most interest in this activity. Farmers and retired owners had the least interest in planting trees (Table 7).

Occupation was significantly related to the willingness of owners to invest funds in a forest improvement practice without some type of financial help. Fifty-five (16 percent) of the interviewees had participated. Owners in the self-employed and professional groups were the leaders in this activity while those in miscellaneous and unemployed categories had not participated (Table 7).

Almost a fifth of the owners expressed a desire to obtain forest credit at a reasonable rate of interest to improve the productivity of their forest holdings. The desire was rather uniform among all occupational groups, except the miscellaneous and retired owners.
Table 6.—Views of landowners on thinning, fencing, and leasing, by occupational categories

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Plans for thinning</th>
<th></th>
<th>Plans for fencing</th>
<th></th>
<th>Interested in a long-term lease</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wage earner</td>
<td>34</td>
<td>45</td>
<td>42</td>
<td>55</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>Professional</td>
<td>32</td>
<td>53</td>
<td>28</td>
<td>47</td>
<td>16</td>
<td>27</td>
</tr>
<tr>
<td>Farmer</td>
<td>14</td>
<td>33</td>
<td>29</td>
<td>67</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Retired</td>
<td>36</td>
<td>38</td>
<td>59</td>
<td>62</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Self-employed</td>
<td>24</td>
<td>57</td>
<td>18</td>
<td>43</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5</td>
<td>46</td>
<td>6</td>
<td>54</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3</td>
<td>43</td>
<td>4</td>
<td>57</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
<td>44</td>
<td>186</td>
<td>56</td>
<td>72</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 7.—Views of landowners on tree planting and owner-paid improvements, by occupational categories

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Trees already planted</th>
<th></th>
<th>Plans for planting trees</th>
<th></th>
<th>Paid entire cost for a forest improvement practice</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wage earner</td>
<td>4</td>
<td>5</td>
<td>72</td>
<td>95</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Professional</td>
<td>11</td>
<td>18</td>
<td>49</td>
<td>82</td>
<td>14</td>
<td>23</td>
</tr>
<tr>
<td>Farmer</td>
<td>2</td>
<td>5</td>
<td>41</td>
<td>95</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Retired</td>
<td>11</td>
<td>11</td>
<td>85</td>
<td>89</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Self-employed</td>
<td>8</td>
<td>19</td>
<td>34</td>
<td>81</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1</td>
<td>9</td>
<td>10</td>
<td>91</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>100</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>11</td>
<td>298</td>
<td>89</td>
<td>41</td>
<td>12</td>
</tr>
</tbody>
</table>
Occupation was significantly associated with personal feelings of owners regarding the need for increasing the productivity of forest lands. Two hundred eighty-seven (88 percent) of the owners of small tracts of timber felt forest lands either must or should be made more productive, while only 40 (12 percent) cited productivity as desirable but not important. Owners in the professional, self-employed, and wage earner categories placed more emphasis on the need for increasing the productivity of forest lands than did other occupational groups.

**Owner Income.**—Information was solicited concerning annual income because of its close association with funds available for investment. Data were obtained from 304 (90 percent) of the interviewees. The results follow:

<table>
<thead>
<tr>
<th>Annual income (dollars)</th>
<th>Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Less than 2,000</td>
<td>25</td>
</tr>
<tr>
<td>2,000 to 4,000</td>
<td>45</td>
</tr>
<tr>
<td>4,001 to 7,000</td>
<td>58</td>
</tr>
<tr>
<td>7,001 to 10,000</td>
<td>36</td>
</tr>
<tr>
<td>10,001 to 15,000</td>
<td>58</td>
</tr>
<tr>
<td>15,001 to 25,000</td>
<td>43</td>
</tr>
<tr>
<td>More than 25,000</td>
<td>39</td>
</tr>
<tr>
<td>Total</td>
<td>304</td>
</tr>
</tbody>
</table>

Annual income had a highly significant association with feelings of interviewees on the need for increasing the productivity of forest lands. For example, 166 (95 percent) of the landowners who earned more than $7,000 annually thought forest lands either must or should be more productive, while 9 (5 percent) cited productivity as desirable but not important. In contrast, 96 (79 percent) of the landowners who earned less than $7,000 a year thought forest lands either must or should be more productive, and 26 (21 percent) felt productivity was desirable but not important.

Income also was significantly associated with the landowner’s feeling of personal obligation for making lands under his control more productive. Owners with higher incomes felt a stronger obligation to do something about increasing production than did owners with lower incomes.

There was a highly significant association between tree planting and annual income. Landowners who earned $7,000 to $10,000 and those who earned more than $25,000 had done most of the tree planting, while owners who earned less than $7,000 had done the least. Income also was associated with the landowner’s plans for planting. For example, 87 percent of the owners with plans to plant trees in the next 10 years had an annual income of more than $7,000.
Income was significantly related to the landowner’s interest in a long-term lease. Generally, landowners who earned less than $10,000 had little interest in a long-term lease, while almost a fourth of the landowners who earned $10,000 and more were interested in leasing.

Income was significantly associated with the owner’s plans for fencing, with most of the interest in fencing being concentrated in the higher income groups. Only 16 (12.5 percent) of the 128 landowners with incomes of less than $7,000 expressed plans to fence their lands. Twenty-eight (30 percent) of the 94 middle-income earners ($7,000 to $15,000) planned to invest in fences. Seventeen (21 percent) of the 82 owners with annual incomes of more than $15,000 had plans for fencing their lands.

Seventy-nine percent of the owners supported up to three people with their incomes, while 21 percent supported from four to nine persons.

Age of Owner.—The youngest owner in the sample was 27 and the oldest was 92. The most frequent age was 65, with 15 owners of that age. The average age of all owners was 59. The greatest number of owners (108 or 32 percent) were in the 60-to-69 age group. The number of owners by age group was as follows:

<table>
<thead>
<tr>
<th>Age group</th>
<th>Owners in sample</th>
<th>Estimated total owners in Louisiana</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>4</td>
<td>1,123</td>
</tr>
<tr>
<td>30-39</td>
<td>23</td>
<td>7,858</td>
</tr>
<tr>
<td>40-49</td>
<td>53</td>
<td>17,962</td>
</tr>
<tr>
<td>50-59</td>
<td>79</td>
<td>26,942</td>
</tr>
<tr>
<td>60-69</td>
<td>108</td>
<td>35,923</td>
</tr>
<tr>
<td>70-79</td>
<td>48</td>
<td>15,716</td>
</tr>
<tr>
<td>80-89</td>
<td>16</td>
<td>5,613</td>
</tr>
<tr>
<td>90-92</td>
<td>4</td>
<td>1,123</td>
</tr>
<tr>
<td>Total</td>
<td>335</td>
<td>112,260</td>
</tr>
</tbody>
</table>

Age of owner had a highly significant association with plans for cull tree removal, plans for fencing, plans for prescribed burning, and attitudes toward the importance of increasing the productivity of forest lands. Thirty percent (102) of the landowners had plans for removing cull trees, and most of these owners were less than 60 years of age. Most of the interest in fencing was shown by owners less than 50 years old.

A third of the 76 landowners in the 30-to-49 age group had plans for prescribed burning. This age group showed about twice as much interest in prescribed burning as did the older owners. In general, the younger owners expressed a stronger desire for an increase in the productivity of forests
than did older owners. However, it was encouraging to note that a high percentage of all age groups recognized a need for increasing the rate of production on small forest holdings.

**Tenure of Ownership.** — The years of ownership of forest land was as follows:

<table>
<thead>
<tr>
<th>Years of ownership</th>
<th>Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Less than 11</td>
<td>57</td>
</tr>
<tr>
<td>11 to 25</td>
<td>108</td>
</tr>
<tr>
<td>26 to 50</td>
<td>139</td>
</tr>
<tr>
<td>More than 50</td>
<td>29</td>
</tr>
</tbody>
</table>

There was a highly significant relationship between length of tenure and the opinions of owners concerning the importance of increasing the productivity of their forest lands and plans for planting trees. Most landowners in every tenure group said their forest lands either must or should be more productive. However, the greatest interest in increasing production and in planting trees was shown by owners with the shortest length of tenure (the younger owners). Most of the owners (73 percent) had purchased all of their land, while 27 percent had acquired at least a part of their ownership by inheritance. Eighteen percent of the owners had a mortgage on the property.

**Education of Owners.** — The years of formal education of the respondents was sampled and the results follow:

<table>
<thead>
<tr>
<th>Years of education</th>
<th>Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>None</td>
<td>5</td>
</tr>
<tr>
<td>1 to 4</td>
<td>8</td>
</tr>
<tr>
<td>4 to 8</td>
<td>67</td>
</tr>
<tr>
<td>9 to 11</td>
<td>69</td>
</tr>
<tr>
<td>12</td>
<td>47</td>
</tr>
<tr>
<td>13 to 15</td>
<td>55</td>
</tr>
<tr>
<td>16</td>
<td>43</td>
</tr>
<tr>
<td>More than 16</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>334</td>
</tr>
</tbody>
</table>

There were 13 (4 percent) of the owners who had not completed the fourth grade, 67 (20 percent) who had quit school between the fourth and eighth grades, and 69 (21 percent) who had ended their formal education
between the ninth and eleventh grades. Out of 185 owners who had completed high school, 138 (75 percent) had attended college and 83 of them had graduated. Almost half of the college graduates had taken courses in graduate school.

Formal education had a highly significant relationship to the importance owners placed on the need for increasing the production of forest lands, to plans for timber stand improvement, and to forest improvement practices completely financed by the owner. Education had a significant relationship to plans for prescribed burning, recreational use of the property, and the personal obligation felt by the owner for improving the productivity of woodlands.

A higher percentage of the interviewees with a formal education of high school or above said forest lands either must or should be made more productive than did those having less formal education. In general, the importance attached to improving the productivity of forest lands increased with education.

Education was associated with landowners who had paid for some type of forest improvement practice. Fifty-five (16 percent) of the interviewees had completed one or more practice in which they had paid the entire cost. Owners with a high school education and above had participated more than twice as frequently as owners with less formal education.

Seventy-one (38 percent) of the owners with at least a high school education had plans for timber stand improvement, compared with 31 (21 percent) of the owners with less formal education.

Race. — There was a highly significant difference of opinion between the white and black races regarding the need for increasing the productivity of forest land and a significant difference in main use of forest land. White owners placed more emphasis on the importance of increasing the productivity of forests, while more black owners listed grazing as the primary use of their forest lands.

Sex of Owner. — Of the landowners interviewed, 288 (86 percent) were males and 48 (14 percent) were females. There are an estimated 96,552 males and 15,718 females who are owners of small tracts of timber in Louisiana. No significant relationship was found between the sex of owners and the forest practices included in this study. However, female owners were more interested in leasing and rated the importance of increasing the productivity of forest lands higher than did male owners.

Residence in the Past. — Landowners were questioned about their place of residence during most of their lives. The purpose was to provide a comparison of landowners from rural and urban environments. Rural residents outnumbered urban residents 234 to 100. Residence during most of the life of the owner had a highly significant relationship to plans for
planting trees and to interest in entering a long-term lease. Also, it had a significant association with main use of and future plans for woodlands, recreational use by the public, and the importance attached to increasing the production of forest lands.

Forty-one (12 percent) of the owners had plans to plant trees. Owners with urban backgrounds had plans to plant trees more than twice as often as owners with rural backgrounds. Also, owners with plans to plant trees exceeded those who had planted trees by 10 percent. The entire increase came from owners with urban backgrounds. In addition, respondents with urban backgrounds were twice as interested in a long-term leasing agreement as were those with rural backgrounds.

More rural owners used their land primarily for grazing and they were somewhat less willing than urban owners to allow public use of their forest land for recreation. Owners from urban areas had plans to practice some forest management more often than did rural owners. Also, the importance placed on the need for increased productivity was higher among urban owners.

**Present Residence.** — Along with past residence of a landowner, the location where the landowner currently lived was also found to be an important characteristic. Interviewees were asked if their home was located on their woodland. One hundred sixty-two (48 percent) of the owners lived on some part of their forests, while 174 (52 percent) were absentee owners.

Absentee owners were asked the distance in miles they lived from their woodland. Most (52 percent) of the absentee owners lived within 10 miles, 43 percent were within 50 miles, and 5 percent were more than 50 miles from their property. The results were as follows:

<table>
<thead>
<tr>
<th>Miles from woodland</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 or less</td>
<td>90</td>
<td>51.7</td>
</tr>
<tr>
<td>11 to 50</td>
<td>75</td>
<td>43.1</td>
</tr>
<tr>
<td>51 to 200</td>
<td>8</td>
<td>4.6</td>
</tr>
<tr>
<td>200 or more</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>174</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Residence had a highly significant relationship with plans for constructing fire lines, fencing, and with interest in leasing forest land. Resident owners were more interested in constructing fire lines and fencing, while absentee owners indicated an interest in leasing their lands that exceeded that of resident owners by 30 to 12.

Plans for planting trees and for the main use of forest land were significantly associated with place of residence. A total of 41 (12 percent) of the
interviewee had plans for planting. Absentee owners with plans for planting trees exceeded resident owners by 28 to 13. Ninety-nine (61 percent) of the owners who lived on their woodlands listed timber growing as the main use of their forest lands, compared with 88 (51 percent) of the absentee owners. Thirty-six (22 percent) of the resident owners used their forest lands primarily for grazing, compared with 24 (14 percent) of the absentee owners. Absentee owners listing wildlife as their main use of forest lands outnumbered resident owners 36 to 17.

**Children in School.** — More than half (61 percent) of the landowners had no children attending school. The presence of school-age children in the home had a highly significant association with the owner’s personal feelings on the need for increasing the productivity of forest lands, and significant associations with prescribed burning, interest in obtaining forest credit, plans for fencing, and plans for constructing fire lines. A higher percentage of the owners with children in school showed interest in the above activities than did owners without children in school.

**Obligations of Owners in Forest Management.**—Two questions were included in the questionnaire to find out how owners of small tracts of timber viewed the importance of forest management. The first question was designed to obtain a general impression of how productive forest lands should be in the opinions of owners of small tracts of timber. Seventy-one owners said forest lands must be more productive, 224 said forest lands should be made more productive, and 41 said increasing productivity was desirable but not important. None of the respondents rated increasing the productivity of forest lands as undesirable.

Immediately after obtaining the opinions of owners concerning the general importance of increasing the productivity of forest lands, interviewees were asked what they considered their personal obligations to be for doing something about increasing the productivity of the forest lands they own. Five percent of the owners felt it was essential, and 11 percent thought it was important that they, as owners, should do something to increase the productivity of their forest lands even though it would not be profitable. More of the owners (37 percent) felt a personal obligation to increase production if it were profitable, and an additional 33 percent if it were profitable and convenient. Of all interviewees, 88 percent felt some type of moral obligation to make forest lands more productive, while 12 percent felt no obligation. The percentage of owners that felt no personal obligation was the same as the 12 percent planning to clear their forest lands.

**Use of Forest for Recreation.** — It was encouraging to find that 74 percent of the owners of small forest tracts were willing for the public to use their property for recreational purposes. Permission of the owner was the
most frequent requirement. Urban owners were more willing to allow public use of their forest land for recreation than were rural owners. Feelings of owners were as follows:

<table>
<thead>
<tr>
<th>Public use of land</th>
<th>Percent owners by residence</th>
<th>All owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Without pay or</td>
<td>16</td>
<td>27</td>
</tr>
<tr>
<td>permission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permission only</td>
<td>51</td>
<td>46</td>
</tr>
<tr>
<td>Only with pay</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>None</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Forest Management Practices.**—Much information was obtained concerning timber management practices being used by owners of small tracts of timber. Ninety percent of the owners made their own decisions regarding forest management practices, while 10 percent had delegated this responsibility to others. Only 5 percent—17 of 336 owners in the sample—had a written management plan. Fourteen percent had talked with a forester about a management plan and 8 percent had obtained some assistance from a forester on a management plan. When asked why they had not made more use of foresters in preparing management plans, owners gave such reasons as (1) low rate of return from forestry, (2) long period of production, (3) small acreage, and (4) they preferred to handle their forests themselves.

Fifty-three percent, or 177 of the owners, had sold timber within the last 10 years. When asked why they sold timber, 32 percent said they wanted the income and the timber needed thinning, 27 percent said they needed the money, and 10 percent said the timber cutter needed a job. Only 7 percent, or 13 owners, had done part of the harvesting.

Thirty-one percent of the owners had the timber marked, and 27 percent had a written contract with the buyer. Fifty-one of the owners obtained bids on their timber, with 75 percent of these obtaining three or more bids. Forty-two of the 51 owners that obtained bids said they chose the buyer that offered the highest price.

Sixty-five percent (119) of the 177 owners who had sold timber knew the price of stumpage before selling. As to payment, 68 percent were paid on the basis of the volume harvested, while 30 percent received a lump-sum payment for the timber included in the sale. Seventy percent were paid either as the cutting progressed or after the cutting was done, and 21 percent
were paid before the cutting. Thirty percent of the owners knew how much money they would receive from the sale before the timber was cut.

Most owners (86 percent) expressed satisfaction with the sales. Half of those gave the reason that they had received the income expected. However, 14 percent of the sellers said they were either cheated by the buyers or the uncut timber was heavily damaged by destructive logging practices of the cutter. Owners who had not sold timber said their timber was not ready to be cut, or they were not ready to sell their timber. Forty-four percent of the owners who indicated they intended to sell timber in the next 10 years said they would obtain bids, while 25 percent said they would deal with only one buyer.

The 336 owners of small tracts of timber gave many reasons for not using more forestry improvement practices. Thirty-six percent listed lack of sufficient knowledge of forestry practices to make a profit, 12 percent replied that they had more profitable uses for their money and time than timber growing, and 9 percent said their holdings were too small. Other reasons given were that they were too busy, funds were not available, it takes too long to grow trees, and prices for timber products were too low to justify investing more time and money in forestry.

When asked what was needed to get more intensive forestry practiced, 37 percent of the respondents indicated a need for an intensive and professional program involving technical and financial assistance, 12 percent said better timber prices were needed, and 22 percent said they did not know how to get owners of small tracts of timber to practice more intensive forestry.

No agricultural farming activities were being carried out on 61 percent of the ownerships. This means that 205 owners in the sample, and an estimated 68,479 owners in the state, are not engaged in agricultural farming activities. The entire holdings of these owners are available for either forest management or a forest-related use.

There were 131 ownerships, 39 percent of the total, on which farming activities were being conducted. The farming was actually being done by 70 owners, while 61 owners either rented or leased their agricultural lands. The income received was of sufficient importance to 86 owners for them to list farming as their main source of income. The usual source of income was from row crops, livestock, or rental payments. The remaining 45 owners did not receive their main income from agricultural activities.

Ninety percent of the 131 ownerships where farming was an activity had received agricultural conservation program payments for farm practices in the past 10 years, compared with only 9 percent of the 336 owners in the sample who had obtained ACP payments for improving forestry practices. This indicates that conservation programs involving agriculture have been far more attractive to owners of small tracts of timber than have those involving forestry.
Differences Between Owners of Pine and Hardwood Forests.— There were highly significant differences between owners of pine forests and hardwood forests in 10 of 16 variables tested, and significant differences in two additional variables.

The highly significant differences were in main use of forest lands, plans for woodlands, thinning, removing cull trees, fire lines, prescribed burning, fencing, sale of timber in the past 10 years, recreational use of forest land, and personal obligation for improving the productivity of forest lands. The variables showing significant differences were interest in forest credit and payment of the entire cost of a forest improvement practice.

The production of wood was the main use listed by 56 percent of the owners (187 of 336) on a statewide basis and was the leading use in both the pine and hardwood areas. However, 79 percent of the owners of pine were using their forests primarily for wood production, compared with only 32 percent of the owners of hardwoods (Table 8).

<table>
<thead>
<tr>
<th>Main use</th>
<th>Pine owners</th>
<th>Hardwood owners</th>
<th>Total owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Forest</td>
<td>133</td>
<td>79</td>
<td>54</td>
</tr>
<tr>
<td>Grazing</td>
<td>20</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>Wildlife</td>
<td>9</td>
<td>5</td>
<td>44</td>
</tr>
<tr>
<td>Recreation</td>
<td>3</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>168</strong></td>
<td>100</td>
<td><strong>168</strong></td>
</tr>
</tbody>
</table>

Grazing was the main use of forest land shown by 60 owners (18 percent), and wildlife management was listed by 53 (16 percent). Owners of hardwood forests listed grazing as the main use of their land twice as often, and listed wildlife management five times as often, as did owners of pine forests. Recreation was the main use listed by 15 owners, with 12 (80 percent) of them being in the hardwood area (Table 8).

More than three times as many landowners living in the pine areas were planning to use forest practices as were owners of hardwood forests (Table 9). Of 41 landowners who planned to clear the forests from their lands, 32 of them were in the hardwood areas. Also, four of the five landowners listing wildlife as the main use of their woodlands in the future were in hardwood areas. There were 59 owners of hardwoods without any plans for their forests, compared with seven owners of pine forests.

One hundred and four (70 percent) of the owners of pine forests had plans for thinning in the next 10 years, compared with 45 (30 percent) of the owners of hardwood forests. More owners of pine forests had plans for removing cull trees than did owners of hardwood forests. Owners of pine
forests with plans for constructing fire lines exceeded owners of hardwoods by 45 to 7. As expected, activity in prescribed burning was centered with owners of pine forests, with slightly more than a fourth of the pine owners having plans for prescribed burning. Owners had plans for fencing twice as often in pine as in hardwood areas.

More than half (54 percent) of all owners in the survey had sold timber in the past. One hundred and ten (65 percent) of the owners of pine forests had sold timber, as compared with 71 (42 percent) of the owners of hardwood forests.

Owners of hardwood forests ranked the importance of increasing the productivity of their forest lands lower than did owners of pine forests. Thirty-six of the 44 owners who felt no moral obligation to make their forests more productive were owners of hardwood forests.

Owners of pine forests allowed public recreational uses of their lands without payment or permission more frequently than did owners of hardwoods. Landowners in hardwood areas permitting use of their forest lands only with payment exceeded owners in the pine areas by 14 to 4. Also, more owners of hardwood forests did not allow the public to use their lands for recreational purposes (Table 10).

### Table 9.—Plans for woodlands in pine and hardwood areas

<table>
<thead>
<tr>
<th>Plans for woodlands</th>
<th>Owners in pine area</th>
<th>Owners in hardwood area</th>
<th>Total owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Grow timber without</td>
<td>92</td>
<td>55</td>
<td>31</td>
</tr>
<tr>
<td>management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>practices</td>
<td>54</td>
<td>32</td>
<td>17</td>
</tr>
<tr>
<td>Clear land</td>
<td>9</td>
<td>5</td>
<td>32</td>
</tr>
<tr>
<td>No plans</td>
<td>7</td>
<td>4</td>
<td>59</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Wildlife</td>
<td>1</td>
<td>0.6</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>99.6</td>
<td>168</td>
</tr>
</tbody>
</table>

### Table 10.—Policy on use of forest for recreation in pine and hardwood areas

<table>
<thead>
<tr>
<th>Recreational use</th>
<th>Owners in pine area</th>
<th>Owners in hardwood area</th>
<th>Total owners</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Without payment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>or permission</td>
<td>45</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>Permission only</td>
<td>56</td>
<td>51</td>
<td>80</td>
</tr>
<tr>
<td>Only with payment</td>
<td>4</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>No public use</td>
<td>33</td>
<td>19</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>168</td>
<td>100</td>
<td>168</td>
</tr>
</tbody>
</table>
Fifty-eight (17 percent) of the owners expressed interest in forest credit, with almost two-thirds of them owning land in pine areas. The entire cost of a forest improvement practice had been paid by 55 owners, with pine owners outnumbering hardwood owners by 36 to 19.

Summary

Forests are one of Louisiana's great renewable resources. Forty-seven percent (14.5 million acres) of Louisiana land is in forests. Louisiana's forest lands produce the raw material for 316 primary wood-using facilities in the state. The forests and forest product industries are the largest employers of industrial workers in Louisiana. With more than 32,000 employees in 1976, these industries paid approximately $129 million to landowners for stumpage and provided payrolls of about $370 million. Personnel of the Louisiana Cooperative Extension Service estimated $2.8 billion of economic activity was generated in 1976 by harvesting, processing, selling, transporting, and using wood and wood fiber produced in Louisiana. In addition, Louisiana forest lands produce other values and uses, including aesthetics, environmental quality, soil stabilization, recreation, water, and wildlife.

Louisiana has favorable environmental conditions for forest production. Forest lands of the state have the capacity for more than double current production and could meet estimated future demands if all forest lands were intensively managed. Also, it is the written policy of the state to protect, conserve and replenish its forest resources.

The ownership of small, nonindustrial timber tracts in Louisiana, some problems associated with such ownerships, and characteristics of owners have been examined in detail in this study.

The existence of problems associated with ownership of small tracts of timber was made evident by the results of several state, regional, and nationwide surveys. These studies found that a major portion of the small forests were in a low state of productivity and only a small percentage of the owners were applying forest management practices. In Louisiana, there are about 112,260 forest owners with holdings less than 500 acres in size, and they own 5,279,546 acres, or 40 percent, of the forest land. They account for more than 98 percent of all forest owners and they, along with 2,423 other nonindustrial owners with 2.8 million acres (average size: 1,181 acres), hold the key to the future supply of goods and services produced by forests in Louisiana. These forests are producing at less than half of their capabilities.

Information was solicited from a stratified random sample of Louisiana residents who owned small tracts of timber by means of personal interviews completed from July 1971 through July 1974. Questions were asked to obtain information on personal characteristics of owners, information
regarding forest management practices, and general data on their land and timber. The personal characteristics of owners studied were forest acres owned, participation in community organizations, occupation, annual income, age, years the owner had possessed forest land (tenure), years of formal education, sex, residence during most of the life of the interviewee, residence at the time of the study, children in school, and race.

Information was obtained on forestry knowledge and practices by collecting data on what had been done in the past 10 years and what was planned for the coming 10 years in regard to: (1) main use of forest land, trees planted, and timber sold; (2) plans for the woodlands, planting trees, selling timber, timber stand improvement, plowing fire lines, prescribed burning, and building fences; (3) policy on recreational use of forest land by the public, interest in forest credit, opinion as to the need for improving the productivity of forest land in general, and the personal obligation that each interviewee felt he or she had, as an owner, to do something to improve the productivity of his or her forest.

Each of the 12 landowner characteristics studied was compared with the 14 forest management related practices listed above to test for significant relationships. A minimum expected value of five was used in testing for significance with the chi-square method.

Information was also collected on total acres owned, primary and secondary uses of forest land, distance in miles that absentee owners but residents of Louisiana lived from the property, farming activity, main cash crop, and who managed the property.

**Forest Acreage.**—The acreage of forest land owned had a highly significant association with future plans for the forest, plans for thinning, timber stand improvement, frequency of timber sales, and owners who had paid the entire cost of a forest improvement practice. Plans for prescribed burning were significantly associated with forest acres owned. In general, interest in the above activities increased with size of ownership.

Seventy-three percent of the owners had purchased all of their forest lands, while 27 percent had received part of their ownership by inheritance. Eighteen percent of the owners had a mortgage on the property.

Under present plans of owners, production of wood and wood fiber will be an important use of more than 75 percent of the ownerships and 85 percent of the land area in small ownerships in Louisiana in the future. The primary loss of acres will be through land clearing for row crops and pasture.

**Occupation.**—Occupation of the owner had a highly significant relationship to plans for thinning and fencing, and a significant association with interest in a long-term lease, trees planted, plans for a forest improvement practice, interest in forest credit, the importance attached to increas-
ing production of forest land, and plans for cull tree removal. Owners in the retired, professional, and self-employed categories (48 percent of the interviewees) were more inclined to use their forest land primarily for timber production, whereas farmers and young owners were more likely to list grazing as the priority use for forest land, or a combination of timber production and grazing. Professionals were more likely than owners in other occupational groupings to have plans to initiate forest improvement practices. In the pine areas, owners in the professional, self-employed, and wage-earner categories were more interested in prescribed burning than were retired owners and farmers.

Annual Income.—One of every four owners had an annual income of less than $4,000. Income had a highly significant association with personal feelings of interviewees on the need for increasing the productivity of forest lands and with their having planted trees. The owners’ feelings of personal obligation for making their forest lands more productive, plans for planting trees, fencing, and interest in leasing their lands were significantly related to income. In general, expressed interest and participation in the above activities increased with income.

Age.—More than half of the owners were more than 60 years of age, and this characteristic had a highly significant association with plans for cull tree removal, plans for fencing, prescribed burning, and the importance attached to increasing the productivity of forest lands. In general, the younger owners expressed more interest in the above activities than did older owners, but the older owners had most of the land. Also, age of owner had a significant association with main use of forest land, with a higher percentage of the younger owners listing grazing as the main use of their forests. The average age of all owners in the sample was 59.

Tenure.—Half of the interviewees had owned timber land more than 25 years. There was a highly significant relationship between length of tenure and the opinions of owners concerning the importance of increasing the productivity of their forest lands and their plans for planting trees. Most owners in every tenure group said their forest lands either must or should be more productive. However, the greatest interest in increasing production and in planting trees was expressed by the owners with the shortest length of tenure (the younger owners).

Education.—Formal education had a highly significant association with the importance owners placed on the need for increasing the production of forest lands, plans for timber stand improvement, and forest improvement practices completely financed by the owner.

Education had a significant association with plans for prescribed burning, recreational policy of the owner, and with feelings of personal obligation to do something to increase the productivity of their forest lands. In
general, interest and participation in the above activities increased with years of formal education. Also, owners with a formal education of high school or above expressed the most interest in increasing the productivity of their forests.

**Sex of Owner.**—No significant relationship was found between sex of owners and the forest practices included in this study. However, female owners were more interested in leasing and rated the importance of increasing the productivity of forest lands higher than male owners.

**Rural or Urban Background.**—Owners with urban backgrounds rated forestry higher and were practicing more forest management than owners with rural backgrounds. Owners who had lived most of their lives in an urban environment were more interested in tree planting and in entering a long-term lease than were owners who had lived most of their lives in a rural environment. Urban owners were more willing for the public to use their lands for recreational purposes. Owners with a rural background were combining timber growing and grazing more often than those from an urban area.

**Present Residence.**—Nearly half of the owners lived on some part of their property and present residence had a highly significant relationship with plans for forest lands, constructing fire lines, fencing, prescribed burning, and interest in leasing their forest land. Plans for planting trees and main use of forest land were significantly associated with residence. Resident owners were more interested in constructing fire lines, prescribed burning, fencing, and grazing, while absentee owners indicated more interest in leasing, planting trees, and recreation. Absentee owners placed a higher priority on increasing the productivity of forest lands and were doing more forest management than were resident owners. Absentee ownership was found to be compatible with forest management.

**Children in School.**—The presence of school-age children in the home had a highly significant association with the owner’s personal feelings concerning the need for increasing the productivity of forest lands, and had a significant association with prescribed burning, interest in obtaining forest credit, plans for fencing, and plans for constructing fire lines. A higher percentage of the owners with children in school showed interest in the above activities than did owners without children in school.

**Owners of Pine and Hardwood Forests.**—There were many differences between owners of pine forests and hardwood forests in land use. The production of wood was the main use listed by 56 percent of the owners (187 of 336) on a statewide basis and was the leading use in both the pine and hardwood areas. However, 79 percent of the owners of pine forests were using their forests primarily for wood production, compared with only 32 percent of the owners of hardwood forests.
Grazing was the main use of forest land reported by 60 owners (18 percent) and wildlife management by 53 (16 percent). Owners of hardwood forests listed grazing as the main use of their land twice as often and wildlife five times as often as did owners of pine forests. However, the forage, wildlife, and other timber resources were not being managed. Recreation was the main use listed by 15 owners, with 12 of them being in the hardwood area. More hardwood owners had plans to remove forests from the land and they were less willing for the public to use their lands for recreational purposes than owners of pine forests.

Owners of pine forests were more active in forest management practices such as harvesting, removing cull trees, constructing fire lines, prescribed burning, and fencing, and they ranked the importance of increasing the productivity of their forest lands higher than did owners of hardwood forests. Also, almost twice as many pine owners had paid the entire cost of forest improvement practices. Owners of pine forests sold timber more frequently than owners of hardwood forest.

**Land Use and Forest Management Practices.**—Timber growing was cited as the main use of forest land by 56 percent, grazing by 18 percent, and wildlife by 16 percent of the owners. Twelve percent of the interviewees had plans to clear their timber land and use it for row crops or pasture.

Twenty-eight percent of the owners listing wood production as the primary use listed no secondary use for their forest lands, while 24, 20, 17, and 7 percent listed wildlife, timber growing, grazing, and recreation as secondary uses, respectively.

One hundred and twelve owners (34 percent) had been helped, on one or more occasions, in such activities as marking timber, insect control, plowing fire lines, conducting prescribed burns, and removing cull trees. Therefore, the combined efforts of all programs of landowner assistance from all sources (public and private) for nonindustrial owners had not reached two-thirds of the owners in the sample.

Seventy-nine percent of the interviewees said they would take advantage of free help in managing their timber, while 21 percent felt they had no need for forestry assistance. The latter group consisted primarily of owners planning to either clear forests from their lands or use their lands for some purpose that did not include the production of wood.

Only 17 landowners (5 percent) had a written management plan and only 46 owners (13 percent) had talked to a forester about a plan of management. The remainder (82 percent) felt they had no need for a written plan in handling their forest activities.

One hundred seventy-seven (53 percent) of the interviewees had timber cut from their forest land in the past decade, but only 13 owners did any of the harvesting. Fifty-nine percent of the owners had their timber cut for income or to thin their stands.
Forty-nine owners (27 percent of the sellers) had written contracts with buyers and most payments were on the basis of the cords or board feet harvested. Seventy-five percent of the 51 owners who put their timber up for bids received as many as three offers to buy. In making timber sales, 38 owners utilized some type of professional help from public, industry, and consulting sources.

Half of the interviewees planned to sell some timber in the next 10 years. Also, owners planned to use one or more additional forest practices, as follows: 149, thinning; 72, fencing; 63, prescribed burning; 55, timber stand improvement; 52, plow fire lines, and 41, planting trees.

Eighty-eight percent of the owners expressed the opinion that forest lands need to be more productive, but they also felt that anticipated returns to the owner from increased production would be insufficient to justify the financial investment required. Technical help, subsidies, and higher stumpage prices were suggested to make forestry more competitive with other uses for land and money.

Most owners (69 percent) permitted free use of their lands for recreational purposes, but half of them wanted the user to obtain permission in advance. An additional 5 percent of the owners permitted recreational use with the payment of a small fee. Young owners and absentee owners were more willing than older and resident owners for the public to use their lands for recreation.

Ninety percent of the owners made their own decisions regarding management practices, while 10 percent had delegated this responsibility to others. In general, owners of small tracts of timber have done little forest management. More than half of the owners planned to let unaided nature produce the goods and services, with the main function of the owners being to either store, harvest, or sell what is produced.

A fifth of the owners planned to do something to improve the productivity of their forests. The number of improved practices averaged 2.8 per owner.

Twenty-one percent of the interviewees did not list timber production as either a primary or secondary use of their forest lands. This included the 41 owners (12 percent) who planned to clear their land within 10 years and the 30 owners (9 percent) who had other plans for their forest lands.

No agricultural farming activities were being carried out on 61 percent of the ownerships. Seventy owners were active farmers, and 61 additional owners either rented or leased their agricultural land to someone else. Farming or rental payments for farm land was the main source of income for 86 (26 percent) of the respondents.

Ninety percent of the 131 ownerships where farming was an activity had received agricultural conservation program payments for farm practices in the past 10 years, compared with only 9 percent of the 336 owners in the sample who had obtained such payments for improving forestry practices.
In general, the younger, better educated, absentee, and higher income owners were the best forest managers. Many of the owners were in business, professional, self-employed, and wage-earner occupational groupings, lived away from the woodlot, had children in school, and belonged to community organizations.

Conclusions

Loss of forests through land clearing will continue for land uses that yield a higher rate of return to the owner than that received from forestry. Most of the loss will be in the Delta hardwoods.

Nonindustrial owners of the size included in this study, and those with more than 500 acres, hold the key to increased forest production in Louisiana. The forest growing stock on these holdings is insufficient to meet predicted future demands for forest resources.

Owners with certain characteristics are better candidates for increasing production of forests than others. Innovative owners with larger holdings who are professionals, self-employed, or wage earners will provide the greatest output per unit of external input. Also, more owners of pine forests will participate in intensive management programs than will owners of hardwood forests.

Major hazards to investment in timber growing include capital requirements, long periods of production, low rates of return to the landowner, taxes, fire, diseases, weather, insects, and other animals.

Harvesting (including marketing and regeneration), timber stand improvement, site preparation, and tree planting are the areas of forestry in greatest need of improvement. Harvesting is a critical time in determining the future productivity of forest lands. It presents an excellent opportunity to implement intensive forest practices on lands in a state of low productivity, as well as being a time that requires professional skills to maintain a high level of production on lands already under intensive management.

Federal programs for conservation practices have been more favorable to conventional farmers than to forest farmers.

The highest stumpage returns from intensive forest management are realized from longer rotations than those most suitable to nonindustrial owners.

Seventy owners in the sample and an estimated 23,387 owners in the state actually engaged in farming have an excellent opportunity to increase their income from forestry by partial harvesting of the forest products produced. They have the equipment needed to fell, buck, and skid forest products to a point for loading onto a truck. The work could be scheduled during times of the year when demands on their time from farming activities are at a minimum. The harvesting operation would increase the
income from the forests and provide additional employment for the owners.

Owners of small tracts of timber have been doing about what other responsible citizens in Louisiana and the U.S. would do under similar circumstances. They have done a creditable job of providing goods and services under the prevailing institutional environment. Emphasis in the past has been concentrated on developing Louisiana and the U.S. by using natural resources. The result has been a gradual deterioration in the quality of timber stands to the point of low productivity.

A major investment is now required to convert forests on nonindustrial ownerships from a state of low production to high production. When this is accomplished, it is believed that a high level of production can be maintained with a satisfactory institutional environment and the application of forestry skills.

Almost all nonindustrial landowners recognize the need for increasing the productivity of forest lands. However, a satisfactory rate of return is not available to the forest landowner under current conditions. The economic, institutional, and technical factors associated with intensive forest management must be improved before any significant increase can be made in the productivity of forests on small nonindustrial ownerships.

Owners of small tracts of timber may already have made an adequate investment to represent their economic interest in productive forests, even though the rate of production is only about one-third of the potential. This investment is in the land itself, the timber currently on the land (even though it may be inadequate in both quantity and quality), and annual taxes. Also, most owners will pay part of the cost of improving their forests, but the remaining investment for increased production must come from some other source if forest improvement practices are to be an economically feasible operation for the landowner.

Some public programs have been developed for nonindustrial forest owners and these programs have improved forest practices. The most applicable federal programs for getting the job done (Cooperative Forest Management — 1950, and the Forest Incentives — 1973) are so small in size in relation to the job to be done that they are only scratching the surface of the problem. However, the incentives are in an amount and form that will help resolve the institutional, technical, and economic problems most responsible for the unproductive condition of forests on nonindustrial ownerships. Other programs in forestry will also be helpful in achieving and maintaining a higher level of production.

Private companies within the forest industry that have provided tree seedlings, advice, and, in some cases, entered into agreements to either manage or lease the forests on some nonindustrial ownerships have contributed to improved management. However, the programs are so small that these efforts fall in the category of desirable attempts to find the best
methods for improving the industrial supply of wood.

The problem of achieving and maintaining more intensive forest management practices on nonindustrial ownerships is largely institutional, economic, and technical in nature.

The existing institutional environment for forestry provides the small nonindustrial forest owner with little or no income from the many intangible benefits produced and only about 5 percent of the tangible income resulting from intensive forest management. The remaining 95 percent of the benefits go to other segments of the economy and to the general public.

The general public has not provided an adequate forest management environment through the political institutions to represent its interest in achieving and maintaining high production on nonindustrial forest lands. One solution would be to improve the institutional environment for forestry to make it financially profitable for owners of nonindustrial forests to produce the goods and provide the services desired by the general public. Part of the justification would be that we are dealing with the most widely distributed, versatile, and renewable natural resource in Louisiana and the U.S. The tangible and intangible goods and services produced are many, and they are essential to our present and future environmental and economic health.

The most effective forest management programs involving financial assistance for owners of small timber tracts have been based on incentives. This has been a procedure used often in the U.S. in many fields to reach desired goals of programs. The primary objective of some of these programs related to forestry was something considered to be more important at the time than increasing forest production. However, more intensive forest management was one of several benefits resulting from these programs.

The main objective of Civilian Conservation Corps (1933) activities in forestry was to provide employment for young men. The primary purpose of the Tennessee Valley Authority reforestation program started in the 1930’s was control of soil erosion. This was also the objective of the Yazoo-Little Tallahatchie Flood Control project started in northwest Mississippi in the 1940’s. The main objective of the forestry provision of the Soil Bank Program (1956) was to reduce surpluses in agricultural crops. The forestry provisions of the above programs were effective in getting some forest practices accomplished by improving the institutional and economic factors that were preventing the action from taking place.

The most effective accomplishments in forestry to date have been achieved by programs that combined both financial and technical incentives. Financial assistance was necessary to make the practice economic for the landowner. Technical assistance, including professional forestry assistance and a forestry vendor service, was required to get effective performance. Based on the best information available, public participation is justified up to approximately 95 percent of the initial cost of achieving high
production on medium and higher quality sites.

The federal government has made similar commitments in many areas in the 200-year history of the U.S. Highly successful investments of this type have been and are being made in agriculture. Forestry offers an outstanding opportunity for similar development.

Investments required to increase production of goods and services on nonindustrial forest lands in Louisiana and the U.S. would be substantial, and would probably need to continue for at least 30 to 40 years. However, there would be a favorable cost-benefit ratio to the public on at least the medium and higher quality sites of cooperating landowners. Also, all needs could be met with existing agencies and most needs could be met through increased support of existing programs.

Recommendations

Based on results and interpretations derived from this study, and programs initiated during the period of the study to improve management on small forest holdings, the following recommendations are offered.

1. Federal land-use policies regarding forestry provisions on capital gains, depletion, and charging of certain forest costs against annual income should be improved. These policies have provided the essential institutional foundation that has supported the growth of industrial forestry since their enactment in 1944. Forest manufacturing plants average a low rate of return from growing trees with a higher rate of return from processing trees grown in their forests and those purchased from nonindustrial owners. The average of the two rates of return permit a reasonable yield on invested capital for those in forestry with a wood manufacturing plant. However, the low and deferred rate of return from growing trees has not provided a satisfactory yield on invested capital for owners of small tracts of timber without manufacturing facilities. This is the main reason that little progress has been made in forest management on small ownerships.

Everyone involved in forestry is in greater need of these policies today than in the past because of inflation and the increasing cost of money. High rates of interest for investment funds put the capital-intensive, long-range forestry business in a less competitive position to attract money, especially for forest management purposes.

A continuation of the above policies is essential for at least two reasons. First, it is necessary in order to have a satisfactory institutional climate for the forest products industry that purchases the wood from the nonindustrial owner. Otherwise, the industry cannot either maintain its current role or reach its potential as an important employer of workers, creator of economic activity, and producer of more than 5,000 consumer products. Second, it is part of the institutional foundation that must be broadened to create a satisfactory institutional environment for nonindustrial owners.
without manufacturing facilities. Extending current policies to permit regeneration costs to be treated as expense items would be helpful.

2. The federal Forest Incentives Program enacted in 1973 should be funded each year at 100 percent of the estimated demand for funds on the current basis for cost-sharing. This program has improved the institutional, economic, and technical environment for forestry to the point that the more progressive nonindustrial owners that qualify will intensify their forest management practices.

Some additional suggestions for improving the Forest Incentives Program are:

—Increase the number of acres of forest land an owner may possess and still participate in the program. There is a big gap between the current limit of 500 acres and the 5,000 acres classified by the U.S. Forest Service as a small ownership. Retaining the current program limitation of $2,500 for all cost sharing per owner per year and keeping the rate of assistance at 75 percent of the total cost would impose adequate ceilings on participation each year by an owner. Assistance would be limited to probably less than 30 acres a year for those owners converting forest lands in the greatest need of improvement from a state of low productivity to high productivity. Also, the current limit on acreage creates an inequity for nonindustrial forest owners whose entire holdings are in forests and who own more than 500 acres. Current regulations permit owners of more than 500 acres of total land area to participate in the Forest Incentives Program and other conservation programs when the acres in excess of 500 are in open pasture or row crops. However, the owner is restricted if he owns more than 500 acres and it is all in forests.

—Limit the program to the acres with medium and high productive capacity to provide the most favorable benefits to the public in relation to cost. A minimum capacity to produce 60 cubic feet of wood per acre per year is suggested.

—Set a minimum number of acres for improvement in order to participate. This would increase the efficiency of the program and maximize public benefits in relation to costs.

—Minimize uncertainties regarding the level of annual funding to enhance the implementation of practices under the program and improve efficiency and accomplishments.

3. The nonindustrial forests of Louisiana and the United States should be researched with the same intensity that experiment stations (federal, state, and private) have researched and are researching the various row crops, livestock, and horticultural crops. Improved techniques in forestry are needed at all levels of production and marketing, including costs and returns.

4. All forestry programs (federal, state, and private) in diseases,
education, fire, harvesting, insects, marketing, research, tree genetics, tree seedling production, taxation, and utilization should be reviewed to determine what is needed to make it economically feasible for nonindustrial forest landowners to produce the goods and services that are in the public interest.

5. A better source of both short- and long-term credit on standing timber should be established for nonindustrial owners as an alternative to timber liquidation when the owner has an urgent need for funds. The rate of interest should be low enough not to exceed the rate of increase in the value of stumpage.

6. Louisiana should consider enactment of a program similar to those established in Virginia (Virginia Reforestation Law, 1970), Mississippi (Forest Resources Development Act, 1974), and North Carolina. Each of these states has enacted legislation that provides specialized equipment and financial aid to nonindustrial timberland owners for such practices as timber stand improvement, site preparation, stand conversion, prescribed burning, and tree planting. Such programs, along with the federal Forest Incentives Program, should improve the institutional, economic, and technical environment for forestry to the point that the more progressive nonindustrial owners that qualify will start intensifying their forest management practices.

7. Total forestry efforts at all levels should be reviewed and coordinated to provide strong, coordinated leadership from local to national levels to generate and sustain the cooperative action needed to accomplish and maintain increased productivity on nonindustrial forests.

8. The forest products industry should be encouraged to increase its assistance to owners of small tracts of timber. Appropriate equipment to accomplish stand conversion and other cultural practices should be made available at cost. Competent vendor services should be expanded. Industry should become more involved in harvesting operations on nonindustrial holdings in an effort to maximize income to landowners, to improve the future productivity of forest lands not fully productive, and to maintain a high level of production on lands already productive. It is recommended that forest land be leased as a partial substitute for buying land. The industry also should combine its resources with those of public research agencies in seeking the most efficient way of utilizing low-quality forests on nonindustrial ownerships and converting these lands from low to high productivity.

9. Consulting foresters should increase their assistance to owners of small tracts of timber, including the establishment or expansion of vendor services in forestry for small ownerships.

10. All agencies should provide all possible assistance in fully develop-
ing, using, and perpetuating the forest resources of Louisiana.

11. All citizens should provide maximum support to the development of an institutional environment that will promote full development, use, and perpetuation of the forest resources of Louisiana.

12. Everyone involved in management and harvesting of timber crops should do everything they can to get forest improvement practices accomplished at the time of harvest, which will improve the future productivity of forest lands not fully productive, and to maintain a high level of production on lands already productive. Also, individual and group activities should be coordinated with total efforts from all sources.

13. The Office of Forestry, Louisiana Department of Natural Resources (formerly the Louisiana Forestry Commission), should increase its services in forest management on a fee basis in all parishes with fire protection up to the limit of compatibility with other programs. Additional vendor services should be either developed from private sources or provided by the commission in all areas where the total supply from all sources is inadequate.
Literature Cited


APPENDIX

STATE OF LOUISIANA

INTERVIEW WITH OWNERS OF SMALL WOODLANDS

Owner [ ] Parish [ ] Questionnaire
Ward [ ] Number----------[ ]

1. How many years have you lived on this place? Years [ ]
   How many years have you owned forested land? Years [ ]

Now, I would like some general information about your land.

2. What is the total acreage of land you own in Louisiana? Total acreage [ ]
   How many acres are farm land and pasture? Land & pasture [ ]
   How many acres are forested? Forested acres [ ]
   How many acres have been cut in last 10 years? Acres cut------[ ]

3. What is the main use of your forest land?
   What is a secondary use (Indicate with number 2)
   
<table>
<thead>
<tr>
<th>Plot 1</th>
<th>Plot 2</th>
<th>Plot 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Wildlife</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Timber growing</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Recreation</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Other</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

4. Is your home located on any of your woodlands? Yes [ ]
   No [ ]
   a. How many miles is most of your woodland from your home? Miles [ ]
   b. Who manages your forest? Self [ ] Other [ ]

5. Is any of your land being farmed at this time? Yes [ ]
   No [ ]
   (If yes)
   a. Are you farming the land yourself? Yes [ ] No [ ]
   b. What is the main cash crop? Crop [ ]
   c. Has this farming required additional investment of $5,000 or more in past 3 years? Yes [ ] No [ ]
I am going to ask some questions concerning forest management:

6. What plans do you have for your woodland in the next 10 years?

Plot 1

Plot 2

a. Is there a written plan for forest management? Yes [ ] No [ ]

(If no)
b. Have you ever talked with a forester about a forest management plan? Yes [ ] No [ ]

(If yes)
c. Why wasn't the plan made? ____________________________

7. Have there been any trees planted on your land in the past ten years? Yes [ ] No [ ]

(If yes)
a. How many trees have been planted? Number of Trees [ ]

b. Do you intend to continue planting trees? Yes [ ] No [ ]

(If no)
c. Why have you made this decision? ____________________________

8. If you needed help in managing your forest, what organization or person would you turn to? ____________________________

9. Which one or ones of the following are you familiar with? (Read list)

Ext. Service--------[ ]
L.F.C.--------------[ ]
S.C.S.-------------[ ]
A.S.C.S.----------[ ]
Consulting Forester---[ ]
Company Forester------[ ]
Other----------------[ ]
None----------------[ ]

a. How did you first learn about these people? (For agencies mentioned)

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<tr>
<th>Agency</th>
<th>Reason</th>
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b. Have any of the agencies every helped you with your forest land?
   (If yes)
   In what ways were they helpful?

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<th>Ways</th>
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   (If yes)
   In what ways were they helpful?

   c. If you were offered free help in managing your woodland and in selling your timber, would you accept it?
   (If no)
   Why wouldn't you accept free help?

   d. Have you ever received assistance from a forester?
   (If no)
   Why have you not used technical assistance?

Now, I would like to discuss more specific forest practices:

10. a. Do you have any plans in the future for using any of the following practices?

   (Read List)   Yes   No
   Planting------[ ] [ ]
   Thinning------[ ] [ ]
   Removing cull trees----[ ] [ ]
   Fire line construction-[ ] [ ]
   Fence around forest----[ ] [ ]
   Prescribed burning-----[ ] [ ]
   Other______________________________

   b. If you had extra money to spend on forestry, which one of the following practices would you spend it on?

   (Read List)   Yes   No
   Planting------[ ] [ ]
   Thinning------[ ] [ ]
   Removing cull trees----[ ] [ ]
   Fire line construction-[ ] [ ]
   Fence around forest----[ ] [ ]
   Prescribed burning-----[ ] [ ]
   Other______________________________
11. Have you obtained an ACP payment for any farm practice?  
Have you obtained an ACP payment for any forestry practice on your land?  
(If yes)  
a. How many acres were planted under ACP?  
b. How many acres had cull trees removed?  
c. How many acres were fenced for forestry purposes?  
d. How many miles of fire lanes were plowed?  
e. Were there any other payment practices?  
(Specify)  

12. Have you made investments into your forest where you paid the entire costs?  
(If yes)  
a. How many additional acres were planted?  
b. From how many additional acres did you remove the cull trees?  
c. How many acres did you purchase solely for growing trees?  

13. Would you be interested in entering into a long-term lease agreement, 25 yrs. or more, with a pulp and paper company or sawmill?  
(If no)  
a. Why are you not interested?  

14. Would you be interested in entering into a short-term lease arrangement, less than 25 yrs., with a pulp and paper company?  
(If yes)  
a. How many years would you be interested in?  

15. Do cattle graze on any of your forest land at anytime of the year?  

16. Do you have fire lines around any of your woodland?  

Now, _________ that we have discussed forest practices in general, I would like to ask some questions concerning timber harvesting on your land:
17. Have you sold any timber or forest products in past 10 years?
   Yes [ ]
   No [ ]

(If yes) (If no, to to M part)

a. How much of the following have you sold off your land?

   (Read list)
   Firewood (cords) ---- [ ]
   Fenceposts (number) - [ ]
   Pulpwood (cords) ---- [ ]
   Sawlogs (MBF) -------- [ ]
   Other ___________________________

b. Why did you sell at this time?
   Sale 1 ___________________________________________
   Sale 2 ___________________________________________
   Sale 3 ___________________________________________

c. Did you do any of the cutting or harvesting yourself?
   Yes [ ]
   No [ ]

d. Was your timber ever marked for sale?
   Yes [ ]
   No [ ]

(If yes) Did you pay for the marking?
   Yes [ ]
   No [ ]

e. Was there a written contract on any of the sales?
   Yes [ ]
   No [ ]

f. Did you receive payment in one lump sum or were you paid by the cord and board foot?
   Lump Cd/bd. ft.
   Sale 1 [ ] [ ]
   Sale 2 [ ] [ ]
   Sale 3 [ ] [ ]

g. Did you ever receive more than one bid for any sale?
   Yes [ ]
   No [ ]

(If yes)
   1. How many bids did you receive? Number [ ]
   2. Why did you choose one buyer over another? ____________________________

62
h. What professional help or advice did you have in preparing for and making the sale? ________________

Did you pay for this help?  Yes [ ]
No [ ]

i. Did you know the price of stumpage before you established contact with a buyer?

Sale 1 [ ] [ ]
Sale 2 [ ] [ ]
Sale 3 [ ] [ ]

j. Were you paid before cutting, during cutting, after cutting, or some kind of combination?

Before During After Combination
Sale 1 [ ] [ ] [ ] [ ]
Sale 2 [ ] [ ] [ ] [ ]
Sale 3 [ ] [ ] [ ] [ ]

k. Did you ever know, before cutting, the total amount of money you would receive?  Yes [ ]
No [ ]

l. Were you satisfied with the sale?  Yes [ ]
No [ ]

What were your reasons for being satisfied (or unsatisfied)? ____________________________________________

m. Why have you not made any sales? _______________________________________________________________

n. Do you intend to sell any timber in the next 10 years?  Yes [ ]
No [ ]

(If yes)
How will you go about preparing for the sale and carrying it out? _______________________________________

Timber harvesting is only one use of the forest, I would like to get your view on some of the other aspects.
18. Which one of the following would best describe your feelings toward the public using your land for recreation? (Read list)
   - Using land without payment or permission [ ]
   - Using land with permission only [ ]
   - Using land only with payment [ ]
   - No use on the land for recreation [ ]

19. Do you feel you need and would use forest credit if it were readily available at a reasonable rate? Yes [ ]
   No [ ]

20. What would you say are the reasons many woodland owners do not use more forestry improvement practices than they do? 

21. What do you think is needed to get forest management practiced? 

22. I would like to get your feelings on the subject of how much responsibility the small forest owner has to the conservation of the land and forest. First, I want to know how productive you think our forest lands should be. Which one of the following do you agree with? (Read list)
   - Forest lands must be made productive-- [ ]
   - Forest lands should be made productive [ ]
   - Productivity is desirable but not important----------------- [ ]
   - Productivity is not desirable------ [ ]

Second, I want to know how you feel toward your responsibility as a landowner to the idea of conservation and your obligation to society. You have a card with the choices. I want you to check the one that best fits your feelings.

Now, we need some information about you and your family.

23. Did you live on a farm or in a city most of your life? Farm [ ]
    City [ ]

24. How many community and civic organizations do you belong to? Number [ ]

25. How many children do you have attending school? Number [ ]

26. (If head of household) How many people do you earn a living for? Number [ ]
27. What is your occupation?

28. How many years of school did you have the opportunity to get? Highest grade attained

29. Did you get ownership by purchase, inheritance, gift, or another form?

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<th>Purchase</th>
<th>Inheritance</th>
<th>Gift</th>
<th>Other</th>
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<td>Plot 1</td>
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Is any of your land mortgaged? Yes [ ] No [ ]

30. What was your age on your last birthday? Age [ ]

31. About how much was your income last year? Dollars [ ]

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<th>Sex</th>
<th>Race</th>
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<tr>
<td>Female</td>
<td>White [ ]</td>
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<td>Mixed [ ]</td>
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Date ___________________________ Interviewer ___________________________