

Public and Private Technical Assistance Programs for Non-industrial Private Forest Landowners in the Southern United States

Frederick W. Cabbage & Donald G. Hodges

Non-industrial private landowners hold about two-thirds of the forest land in the southern United States. The types of public (state) and private (consulting and industrial) assistance offered to these owners is reviewed. In total, about 1600 foresters in the South provide management assistance to non-industrial private forest landowners. They assist at least 72 000 owners annually, including provision of management plans for about 10 million acres and supervision of over 4 million acres of leased lands.

Introduction

Non-industrial private forests (NIPFs) constitute about 71 percent of the 188 million acres of commercial forest land in the southern United States. Twelve southern states—Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, Oklahoma, Tennessee, Texas, and Virginia—produce about 76 percent of the pine pulpwood in the United States and about 65 percent of the pine sawtimber. Non-industrial private forest owners produce about 65 percent of the total harvest in the South (Table 1). These figures indicate the importance of the NIPFs in the U.S. South, and indeed in the world, for solid wood and reconstituted wood fiber products.

How are these forest lands managed? What forest practices are performed on NIPF lands? Who provides NIPFs with technical information on forestry? In fact, how much of the NIPF land area even receives the benefit of professional forest management? In this paper, we will attempt to answer these questions based on published and unpublished

information. Essentially, we will describe public and private technical assistance programs available to southern NIPF owners. In addition, we will summarize available information on their forest management practices and draw conclusions regarding overall levels of forest management assistance.

Programs

Non-industrial private forest landowners in the United States may receive on-the-ground technical assistance from three principal sources—public programs, industry management assistance programs, and private consulting foresters.

Public programs

Public forestry assistance is provided in each state by service foresters who work directly with forest landowners. The states are

Table 1. Southern U.S. non-industrial private forest land statistics, 1977.

Forest land characteristic	All southern ownerships	Nonindustrial private ownerships	
		Amount	Percent of southern total
Commercial Forest Area (million acres)	188.0	134.1	71.3 %
Sawtimber Volume (mil.bd.ft.) ¹⁾			
Softwoods	341023	206770	60.6 %
Hardwoods	273686	198746	72.6 %
Volume Growing Stock (mil.cu.ft.)			
Softwoods	97136	61814	63.6 %
Hardwoods	104873	77680	74.1 %
Removals (mil.cu.ft.)			
Softwoods	4471	2661	59.5 %
Hardwoods	2100	1618	77.0 %
Growth (mil.cu.ft.)			
Softwoods	6158	4078	66.2 %
Hardwoods	4547	3443	75.7 %
Growth: Removal Ratio			
Softwoods	1.4	1.5	—
Hardwoods	2.2	2.1	—

Source: U.S. Forest Service 1982

¹⁾ International 1/4-inch log rule

assisted in these efforts by the State and Private Forestry branch of the U.S. Forest Service, which provides partial funding and maintains a staff of technical specialists to advise the states. Many of the states in the U.S. maintain only modest private forestry assistance staffs. The states in the South, however, generally have very substantial forest management assistance programs.

The state programs stem largely from federal legislation enacted to initiate cooperative assistance efforts. The Cooperative Farm Forestry Act of 1937 (Norris-Doxey Act) first established a program of federal funding for technical assistance to farm woodland owners, which was actually provided by foresters employed by the states. The legislation authorized and annual federal appropriation of \$2.5 million. The first appropriation actually received was for \$300 000 in fiscal year 1940

(Dana and Fairfax 1980). The 1950 Cooperative Forest Management Act superseded the 1937 law, and broadened the clientele served to include nonfarm private forest landowners, harvesters, and primary processors (Skok and Gregersen 1975). This was the first comprehensive program to provide substantial technical assistance to non-industrial private landowners. Under the programs, federal funds allocated to the states must be matched by state funds. In the South, states provide substantially more than the federal contribution.

In 1978, the Cooperative Forestry Assistance Act consolidated all previous cooperative legislation, authorizing the Secretary of Agriculture to provide financial and technical assistance to state foresters to produce seeds and seedlings; to perform nonfederal forest planning; protect and improve watersheds;

and to provide technical and financial forestry assistance to private forest landowners, vendors, operators, wood processors, and public agencies. As such, the authority for management assistance under the Cooperative Forest Management (CFM) program was superseded by the 1978 law, and is now referred to as Private Forestry Assistance or Rural Forestry Assistance.

In addition to on-the-ground technical assistance, private forest landowners also receive assistance from state forestry extension personnel. The Smith-Lever Act of 1914 provided for cooperative agricultural extension work between the U.S. Department of Agriculture and the state land grant colleges. The act is funded by the federal government, individual states, and local communities, with their contributions totalling about \$1 billion in 1985. Recently, the federal government has funded about 37 percent of the programs, local governments 7 to 11 percent, and the states the balance.

Extension includes a substantial forestry component in most southern states. Separate congressional authority for forestry extension services was granted under the Renewable Resources Extension Act of 1978, but to date very little additional funds have been appropriated. Annual forest management and utilization extension funds have usually amounted to about \$4 million, and natural resources as a whole to about \$15 million.

State extension foresters provide information and education for private landowners, loggers, and forest products firms, primarily by holding workshops, meetings, tours, and forestry demonstrations and by publishing forestry bulletins. They also work closely with county extension agents in conducting local forestry education programs. In addition to public education, extension personnel have taken a leading role in disseminating research findings to public and private foresters, as well as informing researchers of the concerns of forestry professionals and the public.

Private Forestry Assistance

In addition to public programs, technical assistance in the South is provided by many

private forestry consultants and by forest products firms.

Private consultants are located throughout the South and provide a wide array of services. Most consultants provide complete forest management services, including performing timber inventories and appraisals, preparing management plans, administering timber sales, and managing for regeneration. Several consultants also assist landowners in planning and managing for wildlife or other nontimber goods, constructing and maintaining firelanes, and managing Christmas tree plantations. Additionally, numerous consultants prescribe timber stand improvement and site preparation for their client's tracts. Due to the large expense of maintaining work crews for sporadic silvicultural work, many consultants contract such work with private forestry vendors. Normally, these vendors concentrate on providing silvicultural treatment rather than long-term management for landowners. Landowners may also contract directly with private vendors.

Charges for consultant services vary with the type and size of the project, the location of the tract, and the time required to complete the task. Most consultants charge on a daily or per acre basis for services not involving monetary transactions or valuations, such as management plan preparation. Projects involving sales or appraisals have been provided for on a percentage of the sale or appraised value basis, but most consultants now charge for these on an hourly or daily basis to avoid an apparent conflict of interest.

Forest industry in the South also employs foresters who assist in managing nonindustrial private forests through two approaches—long-term contracts and formal assistance programs. Long-term contracts may take the form of a lease, which involves renting the land with control over management practices and timber cutting rights; or that of a timber cutting contract, which grants timber cutting rights but provides for no management control. Companies began using long-term contracts in the 1940's. The use of such agreements has declined somewhat since the early 1970's (Meyer and Klemperer 1984).

Many companies have initiated management assistance programs, in part to compensate for the decreasing amount of wood supplied under long-term contracts. In the assist-

ance programs, the company will provide management planning or assistance, and will often perform management activities required at approximately company costs. In return, landowners often granted the participating company the right of first refusal (the opportunity to meet any sale price offered by a competitor) on timber sold from the land. Requirement of first refusal rights is dwindling rapidly, however, because landowners are often reluctant to enroll with such a stipulation. Some owners believe that first refusal rights discourage other firms from bidding on sales, thus depressing timber prices (Cleaves and O'Laughlin 1983). Additional program requirements may include a minimum tract size, a desirable tract species composition, or a maximum distance from the mill.

Most firms offering a formal management assistance program or leasing of lands provide services similar to those of consultants. This includes preparing management plans, conducting timber inventories, and ensuring adequate regeneration. Companies often perform the silvicultural work themselves, since they already maintain work crews for similar activities on company land. Few industries provide assistance for nontimber uses, although there are some exceptions.

Banks and other financial institutions provide another source of private, technical assistance. Prior to 1980, most financial institutions referred forest management responsibilities to private consultants. While many continue to rely on consultants for such cases, several banks and investment agencies are developing forest management expertise within the firm. Like consultants and forest products firms, the financial institutions offer a wide range of services to their clients. Generally, the management responsibilities are assumed completely by the financial institution, allowing the landowner to treat the land as any other investment. If the prospect of timberland investments become more attractive, the importance of these institutions is likely to increase.

Personnel

Approximately 1000 professional foresters were employed by the 12 southern states in 1985 (Forest Farmer 1985). Florida employed the most professional foresters employed (131). Several other states employed at least 100 foresters, including Georgia (103), Mississippi (100), North Carolina (103), and Virginia (118). All the rest, except Oklahoma, employed 50 or more foresters.

Not all of these state service foresters provide direct assistance to non-industrial private forest landowners. Some are administrators of cooperative forestry programs and some are involved in fire protection, pest management, or information and education activities. One could expect that about 1/2 to 2/3 (500 to 700 persons) of the foresters in the South are actively involved in providing on-the-ground technical forest management assistance.

Field and Holt (1984) surveyed forestry consultants throughout the United States and developed a population list of all consultants. According to their updated estimates, 656 consulting foresters offered services in the southern states in 1983 (Field 1986). Probably almost all of these foresters actually provided on-the-ground technical assistance to NIPF landowners. Most forestry consulting is performed by small 1 or 2 person firms, with a few exceptions. Field and Holt's data probably underestimate the total number of consultants in the South now, because many entered in recent years. This is confirmed by Hodges and Cabbage (1986a), who found 189 consulting foresters in Georgia compared to the 113 reported by Field and Holt. Thus the total number of southern field forestry consultants is apt to be only slightly less than the number of state field service foresters.

Estimating the number of foresters involved in industrial forest management assistance and leasing programs is more difficult. No national or regional surveys of such programs have estimated the number of foresters involved in their administration or execution. In fact, only a survey of industry programs in Georgia (Skinner and Cabbage 1985) has estimated personnel involved at all. That survey found that 16 forest products firms maintained leasing or management assistance programs in the state, employing 15

Table 2. Number of professional, full-time equivalent foresters in the Southern United States who assist non-industrial private forest landowners.

State	Sector			Total without industry
	State service ^{a)} foresters	Forestry ^{b)} consultants	Forest ^{c)} industry	
Alabama	53	48	—	101
Arkansas	35	40	—	75
Florida	87	60	—	147
Georgia	69	122	15	191
Louisiana	41	62	—	103
Mississippi	67	61	—	128
North Carolina	69	56	—	125
Oklahoma	19	8	—	27
South Carolina	57	78	—	135
Tennessee	45	37	—	82
Texas	47	30	—	77
Virginia	79	54	—	133
Total	668	656	288	1324

^{a)} Source: Forest Farmer 1985; Total state professional foresters' figures multiplied by 2/3.

^{b)} Source: State totals taken from Field and Holt (1984) and expanded by estimates for total population from Field (1986).

^{c)} Source: Skinner and Cabbage 1985 (for Georgia); Georgia employee figures expanded to equal proportionate South-wide area figures reported by Meyer and Klemperer (1984).

professional foresters (10 in MAPs, 5 in leases) and 11 forestry technicians. However, the survey findings indicated that these programs were probably not as well developed as in many other states.

By combining data from the Georgia study (Cabbage and Skinner 1985, Skinner and Cabbage 1985) and that from a South-wide study on the area in industry programs (Meyer and Klemperer 1984), one can estimate the share provided in Georgia. Georgia lands in management assistance programs constituted only 4 percent of those in the South; lease programs 21 percent of the southern totals. If the number of foresters employed in Georgia for these programs reflected employee: land area ratios typical throughout the South, one could calculate that the equivalent of about 23 full-time foresters were involved with administering lease programs and 255 were involved in management assistance programs, for a total of 288 full-time foresters. This estimate seems reasonable.

The total number of public and private field foresters who provide on-the-ground assistance to NIPF landowners in the South,

then, would equal about 1600 people (Table 2). Extension personnel, bank foresters, and others would increase this total somewhat. Both public and private foresters are assisted by a large number of forestry technicians and fire wardens as well. These numbers are very difficult to estimate accurately, but they would surely exceed the number of full-time professional foresters. Total payroll costs for all these forestry personnel would be significant. Assuming an average salary of \$30 000 per year, annual payroll costs for foresters in the South would equal \$48 000 000. Technicians' salaries would again probably equal or exceed this amount because of the larger number of employees.

Accomplishments

Estimates of the accomplishments of southern U.S. NIPF landowners who are assisted by field foresters can also be made. Of the three principal sectors, the most detailed re-

Table 3. Accomplishment on Southern U.S. non-industrial private forest lands where owners received technical forestry assistance.

Practice	Sector/Source						Totals ⁶⁾
	States ¹⁾	Industry		Consulting		Georgia ⁵⁾	
		South	South ²⁾	Georgia ³⁾	Reported ⁴⁾		
Landowners Assisted (no.)	54963	—	—	3416	17664	4934	72627
Management Plan/Management Assistance Programs							
number	27318	8200	260	880	4550	3892	40068
acres	2090034	4214000	165351	725000	3748932	779441	10052966
Lease Programs							
number	—	2200	350	—	—	—	2200
acres	—	4661000	1000000	—	—	—	4661000
Timber Stand Improvement (ac.)	179050	—	5500	71610	370291	23915	549341
Regeneration							
Planting (acres)	441432	—	37596	55575	287375	29413	728807
Natural (acres)	50932	—	0	—	—	22078	50932
Seeded (acres)	12191	—	1400	—	—	9898	12191
Total	498364	—	38996	—	287375	61389	779739
Timber Harvest							
Acres	103071	—	6260	105000	542949	135024	646020
Sawtimber (MBF)	427937	—	4000	250000	1292735	279443	1720672
Pulwood (cords)	504409	—	98078	259000	1339274	485610	1843683

¹⁾ Source: Lentz 1986

²⁾ Source: Meyer and Klemperer 1984

³⁾ Source: Cabbage and Skinner 1985

⁴⁾ Source: Field and Holt 1984; expanded totals equal accomplishments for respondents' share in South times 5/9 (the total population in south)

⁵⁾ Source: Hodges and Cabbage 1986b

⁶⁾ Source: Total = States + Industry South + Consulting South Expanded

ords on accomplishments are kept for the state technical assistance programs. Information on the number and acres of forest land management plans, the acres of timber stand improvement, amount and types of regeneration, characteristics of landowners assisted, amount of cost-share assistance provided, and other records are reported by each state. Data from Field and Holt (1984) can be used to calculate a rough estimate of forestry consultants' accomplishments. Meyer and Klemperer (1984) report area treated and owners involved in southern industrial programs. Lastly, Hodges and Cabbage (1986a, 1986b) and Skinner and Cabbage (1985) provide detailed information on Georgia consulting and forest industry accomplishments, respec-

tively, which can be used as a check. Table 3 summarizes the available information for the South on the accomplishments of the three sectors.

State programs

The state forestry assistance data for fiscal year 1985 (Lentz 1986) indicate that over 27 000 forest management plans were prepared by service foresters. The total acreage covered in the plans exceeded 2 million acres. Over 54 000 landowners were assisted. Timber stand improvement was performed on almost 180 000 acres of forest land. Ap-

proximately 500 000 acres were regenerated, including 50 000 acres of natural regeneration, 441 000 acres of planting, and 12 000 acres of direct seeding. An additional 400 000 acres of NIPF land was covered in management plans addressing recreation (71 622 acres), wildlife (227 184), forage (20 919), and watersheds (20 919).

In 1985, southern state foresters assisted in timber harvests on 103 000 acres of land. Total volumes harvested included 427 000 000 board feet of timber and 504 000 cords of pulpwood. They also referred almost 7 400 landowners to private forestry consultants for advice.

Private consultants

The survey by Field and Holt (1984) can provide a rough estimate of southern accomplishment for forestry consultants. According to their estimates, 605 foresters were in business in the South in 1980. Of this total, only 76 southern firms returned the questionnaire. Some responses, however, included data for firms with more than one individual from the initial mailing. Thus the responding population accounted for in the South was 117 foresters, or 19.3 percent.

Field and Holt reported total accomplishments for all foresters in the United States, as well as regional accomplishments. Assuming that accomplishments were proportional to the response (e.g. 117 respondents out of 605 Southern consultants), the following estimates were made for total southern forestry accomplishments reported by the 117 respondents.

The calculations indicate that approximately 18 000 landowners were assisted by consultants in 1980. Formal forest land management plans were written for 4550 tracts, covering a cumulative southern area of 3.8 million acres. Forest harvests covered 542 949 acres, including 1.3 million board feet of sawtimber and 1.3 million cords of pulpwood. Timber stand improvement occurred on 370 000 acres, and artificial regeneration on about 287 000 acres. Additionally, non-timber assistance levels provided by con-

sultants could be estimated: wildlife (688 630 acres), recreation (6 464), watershed (22 700), and range (207 872).

Examining the accomplishments of consultants in Georgia, as reported by Hodges and Cabbage (1986a), may provide a check on the accuracy of these expanded southern totals. In 1983, consultants assisted approximately 5 000 landowners in the management of almost 0.8 million acres of NIPFs in Georgia. These consultants also supervised 46 percent of the harvest acres projected for all southern consultants, and more than 30 percent of the pine sawtimber harvested under the supervision of southern consultants. In addition, Georgia consultants were active in non-timber management with totals of 33 349 acres for wildlife; 6 152 for recreation; 2 324 for watershed; and 7 929 acres for range. With the exception of the pulpwood and other roundwood totals, these comparisons suggest that the expanded southern consultant totals are reasonable, or even conservative.

Industrial forestry programs

Details on industrial forest management assistance and leasing programs in the South are sparse. Meyer and Klemperer (1984) performed a survey that received a 100 percent response, although it asked for only limited information. Their results indicated that in 1983, forest industry leased 4 661 000 acres from 2 200 owners. Additionally, their management assistance programs assisted 8 700 owners, with a total area of 4 214 000 acres. The average size for the leased land holding was 2 078 acres; for management assistance lands it was 484 acres. No other data on accomplishments were surveyed, however.

Skinner and Cabbage (1985) gathered more detailed information in Georgia which may provide some indication of industry involvement in NIPF management assistance. Industry lease and management foresters assisted in managing more than one million acres of Georgia NIPFs in 1983—or almost one-half of all NIPF acres managed in the state by a professional forester. These pro-

grams also accounted for 34 percent of the NIPF acres planted, but less than one percent of the acres harvested. Little non-timber management assistance was reported by industry.

Discussion

Birch et al. (1982) reported that there were 3 479 000 private forest landowners in the southern United States. The U.S. Forest Service (1982) reports a total southern nonindustrial private forest land area of 134 million acres. Based on these total forest land areas, and assuming that all accomplishments occurred in the same year, one could conservatively estimate that about 14 713 966 acres or 11 percent of the nonindustrial private forest area received formal management assistance from public or private foresters. Of this total area covered by management plans, state-provided management plans constituted 14.2 percent of the area; consulting plans 25.5 percent; industry management assistance programs 28.6 percent; and industry leasing programs 31.4 percent.

The land area and reported accomplishments demonstrate that foresters significantly influence the management of southern NIPFs. For example, the Georgia study revealed that foresters were responsible for the bulk of planting on NIPFs in the state, as well as a considerable portion of site-preparation and timber stand improvement (Cabbage and Hodges 1986). Forest management in harvesting and reforestation decisions could be improved substantially, however. Kaiser (1983) found that less than 50 percent of the harvested lands in the South not managed by a professional forester had adequate pine restocking. Landowners believed that the pine would regenerate naturally or that regeneration costs were too great to be considered.

Assuring continued or increased production from southern NIPFs will require increasing landowner awareness of the benefits of professional forestry management, as well as improving cooperation among public and private foresters. Royer and Kaiser (1985)

suggest public foresters should assume an increased role as facilitators. State forestry agencies and extension services are well suited for publicizing the benefits of forest management. They also will continue to provide a significant amount of on-the-ground technical assistance. As the Georgia studies demonstrated, the three sources of assistance serve a somewhat different clientele (Cabbage and Hodges 1985). The Georgia Forestry Commission focused on smaller tracts (average size — 131 acres), while consultants and industry concentrated on those tracts with potential for greater economic returns (376 and 636 acres, respectively). These results suggest that the continued provision of many forms technical assistance, plus improved cooperation, is essential to maintaining and improving the productivity of the South's nonindustrial private forests.

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