Predicting Nonindustrial Private Forest Landowners' Choices of a Forester for Harvesting and Tree Planting Assistance in Alabama

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ABSTRACT: *Nonindustrial private forest (NIPF) landowners often seek technical assistance from public, consulting, and industry foresters. This study uses a multinomial logit model to investigate factors influencing landowners' choices of a specific type of forester for harvesting and tree planting assistance. Income and preparation of management plan are significant predictors in both cases. In addition, species composition is a significant factor in the choice for harvesting assistance, and size of ownership and time spent in forest management are significant factors in the choice for tree planting assistance. The results may be useful to assist foresters in developing their marketing strategy. Policy implications for the design and delivery of technical assistance are discussed. South. J. Appl. For. 25(3):101–107.*

Key Words: NIPF, technical assistance, multinomial logit model.

About 59% of the commercial timberland in the United States is controlled by nonindustrial private forest (NIPF) landowners (Birch 1996, Powell et al. 1993). NIPF lands contribute a considerable share of timber supply and provide many nontimber benefits. As timber supply from public lands is restricted because of environmental concerns, the role of private forests has become even more crucial.

The characteristics of NIPF landowners have changed over the years, as landowners have become an increasingly educated and informed segment of society. Landowners often seek technical assistance from public, consulting, or industry foresters. Public foresters work for county, state, or federal forestry agencies and provide services to landowners free of charge. Consulting foresters are professionals who run their own forestry consulting businesses and charge fees for their services. Industry foresters, on the other hand, represent forest industry firms and provide services to landowners free or on an at-cost basis. While their assistance helps landowners make sound management choices, there are trade-offs in choosing one of them. For example, public foresters may not be able to respond to all of the requests they receive in a timely manner, and industry foresters may ask to be notified if landowners intend to sell their timber and to have a first-refusal right to the timber.

This article is aimed at identifying the determinants of NIPF landowners' choices of a forester for two most important forest management activities: timber harvesting and tree planting assistance. A number of studies have been done on technical assistance for landowners. Two of these studies (Clawson 1989, Cubbage and Hodges 1986) examined the role of public and private foresters in private forest management. Two other studies (Cubbage 1989, Henly et al. 1990) investigated the impacts of technical assistance from service foresters at the state level, while Skinner et al. (1990) studied the impacts of technical assistance on reforestation in the southern states. Munn and Rucker (1994) empirically estimated the value of information services in private timber sales using a hedonic pricing model. Zhang et al. (1998) examined the role of public and private foresters in private forest management. In short, these studies focus primarily on the role of the foresters and the quality and impacts of their services. The determinants of NIPF landowners' choices of assistance foresters have not been examined empirically.

Using a multinomial logit model, we analyzed data from a survey of NIPF landowners in Alabama to assess the possible relationship between owners and ownership characteristics and their choice of assistance foresters. The results support the utility of selected landowner characteristics, ownership characteristics, and management

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intention as determinants and predictors of their choice of assistance foresters. These results have several important practical and policy implications for nonindustrial private forest management in the southern United States, such as attracting more NIPF landowners to use technical assistance and providing services to underserved landowners.

The Multinomial Logit Model

Since the choices of forester are more than two (namely public, consultant, or industry forester, or no forester at all) and are made individually, a multinomial logit model is applicable to this study. We define landowner *i*'s choice of a type of forester *j* as Y_{ij}:

$$Y_{ij} = \alpha + \beta X_i + \varepsilon_i$$

where X_i is the factors influencing the choice of a particular type of forester, ε_i is random error, and α and β are parameters to be estimated. The dependent variable Y_{ij} is a set of neutrally exclusive binary variables:

Y_{i1} = {1 if public forester is used, 0 otherwise}

Y_{i2} = {1 if consulting forester is used, 0 otherwise}

Y_{i3} = {1 if industry forester is used, 0 otherwise}

and

Y_{i0} = {1 if no assistance forester is used, 0 otherwise}

If we let P_{ij} = Probability [Y_{ij} = 1] for j = 0, 1, 2,3, then

$$\sum_{j=ij}^{3} P_{ij} = 1$$

In our case, the probability of selecting a particular type of forester is given by:[1]

$$P_{i1} = \frac{e^{X_i\beta_1}}{1+e^{X_i\beta_1}+e^{X_i\beta_2}+e^{X_i\beta_3}}$$

$$P_{i2} = \frac{e^{X_i\beta_2}}{1+e^{X_i\beta_1}+e^{X_i\beta_2}+e^{X_i\beta_3}}$$

$$P_{i3} = \frac{e^{X_i\beta_3}}{1+e^{X_i\beta_1}+e^{X_i\beta_2}+e^{X_i\beta_3}}$$

and

$$P_{i0} = \frac{1}{1+e^{X_i\beta_1}+e^{X_i\beta_2}+e^{X_i\beta_3}}$$

where *i* represents the individuals, and β_1, β_2, and β_3 represents the estimated beta coefficients in each of the three models. In general, if there are *j* choices, there can be two different sets of probabilities. First, there is the probability that the dependent variable is equal to *j* (where *j* = 1, 2, 3, 0). Second, there is the probability that the dependent variable is equal to 0. This implies that the log-odds ratios can be computed as (Greene 1993)

$$\ln\left[\frac{P_{ij}}{P_{i0}}\right] = \beta'_j X_i$$

This means that the log-odds ratio for the *j*th choice does not depend on the other choices. This is often referred to as the "independence of irrelevant alternatives." Although this is a useful requirement for the purpose of estimation (independence of error terms), as far as economic theory is concerned, it is not so attractive (Greene 1993). This is a major criticism of most multivariate logit models. Furthermore, the estimated coefficients in multinomial logit are somewhat difficult to explain and can be misleading (Greene 1993). For this reason, more emphasis is often given to the marginal effects, which represent a percent change in the dependent variable due to an incremental change in the respective independent variable. Although in the following section statistical significance of both coefficients and marginal effects are discussed, the signs of the marginal effects take precedence over those of the coefficients. If there are "*m*" explanatory variables, the marginal effects for a variable "*j*" will be[2]

$$\text{marginal effects} = P_j(\beta_j - \sum_{k=1}^{m-1} P_k\beta_k)$$

where *k* represents all other explanatory variables except *j*.

Data and Hypothesis

The data for this study were collected through a mail survey of Alabama NIPF landowners conducted in the spring of 1996 (Zhang et al. 1998).[3] The survey responses were first coded into a data set from which landowners that performed harvesting and reforestation were separated. Then, two models were estimated, the first focusing on identifying the factors affecting a landowner's choice of a forester for harvesting assistance and the second focusing on tree planting assistance.

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1 As a normalization rule to ensure that the selection probabilities sum to 1, we set $b_0 = 0$.

2 Therefore, marginal effect of a variable is determined by not only the probability and coefficient of the variable itself, but also the probabilities and coefficients of all other variables. For this reason, all independent variables, statistically significant or not, are important in a multinomial logit regression.

3 A sample of 616 randomly selected NIPF landowners in 7 Alabama counties was surveyed by mail in the spring of 1996. These counties were randomly selected from a total of 67 counties in Alabama and had some 10,560 NIPF landowners. Two hundred and seventy-one of the surveys were completed and returned, representing a response rate of 44%. However, only 173 and 130 respondents indicated that they conducted timber harvesting and tree planting in the last 10 yr, respectively. A nonrespondent survey showed that responses are not related to income, size of ownership or county origins, and the results reported here are likely to be generally representative of those prevailing throughout Alabama and may have implications in other southern states (Zhang et al. 1998).

Table 1. Definition and descriptive statistics of variables used in the empirical models for landowners' choices of assistance foresters in timber harvesting and tree planting.

Variable	Definition	Harvest model	Tree planting model
		(Frequency)	
HFOR	Choice of a forester for harvesting assistance. The variable takes the values "0" (no forester), "1" (consulting forester), and "2" (industry forester).	0 = 87 1 = 55 2 = 33	
RFOR	Choice of a forester for reforestation assistance. The variable takes the values "0" (no forester), "1" (public forester), "2" (consulting forester), and "3" (industry forester).		0 = 38 1 = 32 2 = 39 3 = 21
INC	Annual household income; binary dummy: "1" if more than $50,000, "0" otherwise.	117	98
LANDS	Dummy variable: "1" if a landowner owns 100 acres or less, "0" otherwise.	47	26
LANDL	Dummy variable: "1" if a landowner owns 500 acres or more, "0" otherwise.	51	43
MPLAN	Whether or not a management plan was prepared; binary dummy: "1" if yes, "0" otherwise.	77	66
TIME	Time spent on land in a year; binary dummy: "1" if more than one month, "0" otherwise.	31	28
OCCUP	Occupation of the landowner; binary dummy: "1" if farmer, "0" otherwise.	29	21
PINE	Ratio of pine on land; binary dummy: "1" if more than half, "0" otherwise.	98	90
No. of observations		173	130

The survey covers the profiles and perceptions of assistance foresters' services, distribution, and quality of services, and landowner and ownership characteristics. The survey indicates that the quality of services from all three types of assistance foresters is similar (Zhang et al. 1998). We assume that landowners would have considered the difference in the scope and availability of assistance provided by the three types of foresters and their fee charge (or no charge) when they request assistance.

The choice of independent variables was designed to capture several important factors in NIPF management. The following variables were considered as the factors influencing the choice of a specific type of forester:

- two characteristics of NIPF landowners: annual income and occupation,[4]
- two characteristics of their ownership: size and proportion of southern pine,
- two management intention variables: preparation of management plan and percentage of time spent on forest management.

The specific models used in this study are

$$\text{HFOR} = f\,(\text{INC, LANDS, LANDL, MPLAN, TIME, OCCUP, PINE})$$

and

$$\text{RFOR} = f\,(\text{INC, LANDS, LANDL, MPLAN, TIME, OCCUP, PINE})$$

Table 1 reports the definition and frequency of these variables. The dependent variables, HFOR and RFOR, represent individual landowners' choices of a type of forester for timber harvesting and tree planting assistance respectively. Since public foresters are only allowed to provide some periphery service in timber harvesting such as market condition and list of potential buyers and are not allowed to provide many key aspects of timber harvesting assistance such as timber cruising, harvesting, and marketing, they were excluded in the harvesting assistance model. The variable HFOR, therefore, has three possible values: zero if no forester was used, one and two for consulting and industry foresters respectively. RFOR, on the other hand, has four possible values: zero if no forester was used, one if a public forester was used, two if a consulting forester was used, and three if an industry forester was used.

All independent variables are categorical. Income and land size have been found to be important in many NIPF studies (e.g., Romm et al. 1987, Greene and Blatner 1986, Binkley 1981). Landowner's income is represented by a variable, INC, which took the value of one if a landowner's annual household income is more than $50,000, and zero otherwise. Medium and high-income landowners can afford the costs of forest management activities. Therefore, management intensity and the use of assistance foresters may increase with income. Moreover, high-income landowners are more likely to be able to afford consulting foresters. Therefore, the variable INC is expected to have a positive sign.

Three ownership size classes are identified, and two variables, LANDS and LANDL, are used in this study. The variable LANDS took the value of 1 if an NIPF landowner owns 100 ac of forestlands or less, and 0 otherwise. Likewise, LANDL took the value of 1 if the landowner owns 500 ac or more, and 0 otherwise. The comparison group is landowners who own between 100 and 500 ac. Since large landowners have more management activities and are more likely to derive income and other benefits from their lands, they would be more likely to seek assistance from a forester. Thus, we expect LANDL to have a positive sign and LANDS a nega-

[4] Other landowner characteristics such as education, age, absentee ownership, and length of ownership are insignificant in the initial run of the model. Furthermore, these variables did not contribute positively to the explanatory power of the model. We therefore decided to omit these variables from the model.

tive sign. Due to economies of scale (reduction in average cost over the long run resulting from expanded output), we expect that large landowners are more likely to choose consulting and industry foresters for timber harvesting and tree planting assistance.

Two variables, MPLAN and TIME, which measure how actively landowners manage their lands, are included in this study. MPLAN took the value of 1 if a management plan was prepared within 10 yr prior to the survey, and 0 otherwise. TIME took the value of 1 if a landowner spent more than a month of his or her time on forest related activities. Preparation of a management plan is an indication that the land is being actively managed. Also, management plans are somewhat technical and are usually prepared by assistance foresters. This implies that these landowners have sought assistance from foresters in the past. Based on their past behavior, they may know these foresters better and be more likely to seek their assistance for timber harvesting and tree planting. Therefore, MPLAN is expected to have a positive sign. However, the sign of the TIME variable is less predictable as two contrary factors take force. On one hand, spending more time on forest management represents a landowner's intent to manage the land actively, and active land management often involves professional assistance. This would imply a positive sign for TIME. On the other hand, spending more time on forest-related activities means the landowner has the experience and knowledge in forest management. In this case, the landowner may not seek assistance from a forester.

The variable OCCUP took the value of 1 if the landowner is a farmer and 0 otherwise. As farmers are more closely associated with lands, they are more likely to manage their lands actively, and thus they have more experience and better knowledge about forest management practices than most other landowners. Therefore, everything else being equal, farmers are less likely to seek assistance from foresters, and we expect a negative sign for OCCUP.

Finally, an additional ownership characteristic variable, PINE, is used to control the effect of species composition of the forests. It took the value of 1 if pine covers more than 50% of the forests and 0 otherwise. Since pines are the primary commercial species in Alabama and many other southern states, industry foresters are often actively looking for pine forests. Therefore, the more pine forests a landowner owns, the more likely the landowner has sought to derive income from the land and has been contacted by assistance foresters, especially industry foresters. We therefore expect the PINE variable to be positive.

Model Estimation and Results

The timber harvesting and tree planting models were estimated separately. The log-likelihood ratios are significant at the 1% level in both cases. None of the independent variables is highly correlated with others, and their coefficients are all smaller than ± 0.39 in both models. Most of the variables have expected signs.

Choice of Foresters for Timber Harvesting

Table 2 presents the results of the model for the choice of assistance foresters for timber harvesting. For the choice of consulting foresters, coefficients and marginal effects have expected signs. The coefficient for the management plan variable is positive and significant at 1%. The marginal effect of the variable is also positive and marginally significant at 20%. Thus, holding the probability of choosing an industry forester constant, landowners who have prepared management plans have a higher probability of using a consulting forester in timber harvesting rather than no forester at all. More precisely, everything else being equal, the presence of a management plan increases the likelihood of using a consulting forester for harvesting assistance by approximately 14%.

The income variable is also positive and significant at the 5% level (marginal effect significant at 20%), indicat-

Table 2. Multinomial logit estimates of landowner's choice of a specific type of forester for timber harvesting assistance.

Type of forester	Variables	Coefficient	*t* statistic	Marginal effect	SE
Consulting forester	Constant	–1.5992****	–3.4090		
	INC	0.8905***	2.2280	0.1156*	0.0787
	LANDS	–0.4573	–0.8790	–0.1231	0.1162
	LANDL	0.5046	0.4614	0.1103	0.0958
	MPLAN	0.9895****	2.3520	0.1382*	0.0924
	TIME	0.5206	1.0430	0.1221	0.1039
	OCCUP	–0.9660**	–1.6490	–0.2285**	0.1346
	PINE	0.2927	0.7130	0.0270	0.0861
Industry forester	Constant	–3.5294****	–3.4090		
	INC	1.5863****	3.2800	0.1623***	0.0753
	LANDS	0.4209	0.6400	0.0789	0.0883
	LANDL	0.0298	0.0510	–0.0221	0.0696
	MPLAN	1.5745****	2.7360	0.1557**	0.0914
	TIME	–0.1285	–0.1910	–0.0437	0.0820
	OCCUP	0.2768	0.4540	0.0862	0.0796
	PINE	0.7344*	1.3630	0.0813	0.0742
Log-likelihood			–148.2696		
Restrict. log-likelihood			–176.1285		
Chi-squared value			55.7177****		
No. of observations			173		

NOTE: **** significant at 1%; *** significant at 5%; ** significant at 10%; * significant at 20%.

ing that high-income landowners are more likely to seek and to retain assistance from consulting foresters in timber harvesting. These landowners may better understand the merits of using consulting foresters in timber harvesting and marketing (Munn and Rucker 1994). Both the coefficient and marginal effect of the occupation variable are negative and significant at 10%. This implies that farmers have a higher probability of choosing no forester at all rather than choosing a consulting forester.

As in the case of consulting foresters, the coefficient for MPLAN is positive and significant at the 1% level for the choice of industry foresters. The marginal effect is also positive and significant at 10%. The income variable is positive and significant at the 1% level, and the marginal effect of the variable is also positive and significant at 5%. This implies that medium and high income landowners have a higher probability of choosing industry foresters rather than no forester at all. The coefficient for the variable representing pine species coverage is positive and significant at the 10% level. This implies that, everything else being equal, the more pine forests a landowner owns, the higher the probability that the landowner will choose an industry forester (compared to no forester at all). The ownership size variables have counter-intuitive signs for their marginal effects, but are not significant.

In summary, these results indicate that (1) preparation of a management plan is a key determinant in NIPF landowners' choices of technical assistance in timber harvesting; (2) high income landowners are more likely to use consulting and industry foresters; (3) ownership size is not a factor in landowners' decisions to seek technical assistance in timber harvesting; (4) landowners with pine forests are more likely to retain services from industry foresters.

Choice of Foresters in Tree Planting

Table 3 shows the estimates for the tree planting model. For the choice of public foresters, two of the coefficients (LANDL and LANDS) that had counter-intuitive signs have the correct signs for the marginal effects. The marginal effect of the income variable is negative and significant at 5%. This implies that high-income landowners have a lower probability of retaining assistance from a public forester compared to no forester at all, holding the probability of choosing consulting and industry foresters constant. This result is consistent with the hypothesis.

As expected, the coefficient for MPLAN is positive and significant at the 5% level. The coefficient for small landowner variable, LANDS, is negative and marginally significant. The marginal effects of both variables are not significant. The coefficient for the variable representing the amount of time spent on land is negative and significant at the 5% level while the marginal effect is significant at 15%. These results are similar to those in the earlier model.

For the choice of consulting foresters, the coefficients and marginal effects of all variables except PINE have expected signs. The coefficients for MPLAN and INC are positive and significant at the 5% level. However, the marginal effects of these two variables are also positive and significant at the 15% level. The small landowner variable LANDS is negative

Table 3. Multinomial logit estimates of landowner's choice of a specific type of forester for tree planting assistance.

Type of forester	Variables	Coefficient	*t* statistic	Marginal effect	SE
Public forester	Constant	–0.2946	–0.5410		
	INC	–0.1207	–0.2200	–0.2822***	0.0591
	LANDS	–0.9627*	–1.4360	0.0042	0.0392
	LANDL	1.1461	1.3490	–0.0610	0.0507
	MPLAN	1.2557***	2.0400	0.0713	0.0332
	TIME	–2.1493***	–2.4750	–0.2167*	0.0432
	OCCUP	0.0640	–0.0890	0.0809	0.0396
	PINE	0.3147	0.9300	0.0367	0.0219
Consulting forester	Constant	–1.4223***	–2.0750		
	INC	1.4326***	2.1980	0.1825*	0.0485
	LANDS	–2.3163***	–2.0490	–0.4088*	0.0557
	LANDL	2.1571****	2.6110	0.2454***	0.0450
	MPLAN	1.5150***	2.4080	0.1528*	0.0343
	TIME	–1.6840***	–2.0560	–0.0819	0.0452
	OCCUP	–0.9136	–1.1370	–0.1757	0.0414
	PINE	0.0706	0.1300	–0.0366	0.0230
Industry forester	Constant	–3.9094****	–3.1450		
	INC	2.8217***	2.5660	0.3050*	0.2232
	LANDS	0.0940	0.1150	0.1644*	0.1344
	LANDL	2.3193***	2.4440	0.1484*	0.1308
	MPLAN	1.1796*	1.6060	0.0254	0.0948
	TIME	–1.7384**	–1.8100	–0.0496	0.1237
	OCCUP	–0.2619	–0.3040	–0.0117	0.1126
	PINE	0.4953	1.0100	0.0468	0.0698
Log-likelihood			–139.4233		
Restrict. log-likelihood			–176.8338		
Chi-squared value			74.8210****		
No. of observations			130		

NOTE: **** significant at 1%; *** significant at 5%; ** significant at 10%; * significant at 20%.

and significant at the 5% level (marginal effect significant at 15%), implying that small landowners choose consulting foresters less frequently for assistance in tree planting as compared to medium size landowners. The coefficient for the large landowner variable, LANDL, is positive and significant at the 1% level (marginal effect significant at 5%). The coefficient for the variable representing amount of time spent on land each year, TIME, is negative and significant at the 5% level. Therefore, large and high-income landowners who have a management plan and spend little time on forest management are more likely to use consulting foresters in tree planting.

For the choice of industry forester, all coefficients and marginal effects except LANDS have expected signs. Marginal effect for the variable LANDS is positive and marginally significant (at the 20% level). The number of landowners choosing industry foresters in our data set was rather low in the tree planting model (Table 1). Thus, observations that would otherwise be considered "outliers" in a larger data set might have caused this counterintuitive result. The variables MPLAN, LANDL, and INC are positive and significant at the 15, 5, and 5% levels, respectively. The marginal effects of LANDL and INC are significant at 15%. These results are expected and follow the same reasoning as before. The variable TIME is negative and significant at the 10% level. The marginal effect for this variable, however, is not significant. Therefore, large and high-income landowners who have a management plan and spend little time on forest management are also more likely to use industry foresters. Obviously, consulting foresters and industry foresters are competitors in providing tree planting assistance to these landowners.

The results show that preparation of a management plan is also the key factor in a landowner's decision to seek technical assistance in tree planting. In addition, large landowners are more likely to retain services from consulting and industry foresters. Finally, income is a significant factor in a landowner's decision to seek assistance from consulting and industry foresters but not so in the decision to seek assistance form public foresters in tree planting.

Table 4 compares the predicted and actual outcomes for the two models. In case of harvesting assistance, the model correctly predicts the choice of "no forester" 82% of the time, while the "consulting forester" choice is correctly predicted 56 out of 100 times. However, the model does a rather poor job in predicting the choice of "industry forester" (correctly predicting only 16%). In case of tree planting, the model performs somewhat better in predicting these two choices. Nevertheless, the results are similar to the overall percentage of NIPF landowners choosing assistance foresters in writing management plan. The overall rates of correct projection are 64 and 55% for the harvesting and tree planting model, respectively. Munn and Rucker (1998) argue that despite the occasional seemingly "poor" performance of limited dependent variable models, they may still provide useful information. In our data set, number of observations for the "industry forester" choice was rather small. A larger amount of data may have resulted in better predictions.

Table 4. Comparison of predicted and actual outcomes.

	Harvest model				%
		Predicted outcomes			
	Actual	0	1	2	Correct
0	87	71	15	1	82
1	55	22	31	2	56
2	31	11	15	5	16
Total	173	104	61	8	64

	Reforestation model					%
		Predicted outcomes				
	Actual	0	1	2	3	Correct
0	38	27	6	5	0	71
1	32	8	8	16	0	25
2	39	2	5	32	0	82
3	21	2	0	14	5	24
Total	130	39	19	67	5	55

Conclusions and Policy Implications

This article identifies the determinants of NIPF landowners' choices of assistance foresters for harvesting and tree planting assistance. The results show that presence of a forest management plan is the single most significant factor influencing NIPF landowners' decisions in choosing a forester for technical assistance in timber harvesting and tree planting. Landowners who have a management plan are more likely to use an assistance forester. In addition, income is a significant factor in the likelihood of landowners using consulting and industry foresters but not in using public foresters. Third, small landowners are not likely to use any of the three types of assistance foresters in tree planting. Finally, owners of pine forests are more likely to retain services from industry foresters in timber harvesting, and NIPF landowners use all three types of foresters less frequently in tree planting when they spend more time on forest management.

The results of this study have several practical and policy implications. First, preparation of a management plan is the first step that allows assistance foresters to get into the door of NIPF management, yet only 5% of NIPF landowners (who control 21% of the private forest acreage) in the southern United States has a written management plan (Birch 1997). Therefore, assistance foresters who want to increase their number of clients may consider writing a management plan for NIPF landowners for free or at a large discount. Government cost-share programs that require landowners to have a written management plan will encourage NIPF landowners to use more technical assistance in forest management.

It is often argued that in the presence of a market for forestry consultants, free assistance by public foresters is not warranted (e.g., McColly 1996). This study shows that the relationship among the three types of assistance foresters is complicated. Large landowners are more likely to use consulting and industry foresters, but small landowners are less likely to use any of the three types of foresters. In addition, adequate income is a determinant for NIPF landowners to use consulting foresters and industry foresters but not a significant factor for them to use public foresters. Why do small and low income landowners apparently not use the services of assistance foresters? This question needs to be answered before technical assistance by public agencies is designed and delivered towards this segment of landowners in the future.

Finally, many NIPF landowners (about 50% in this study) have not been served by any assistance forester. Some of these landowners have the experience and knowledge to conduct forest management activities and thus do not need technical assistance. In the U.S. South, about 12% of the landowners who have a management plan for their land prepared it themselves (Birch 1997). Others simply do not know any assistance foresters or cannot find one that fits their needs. Future research could explore why NIPF landowners who are not farmers, who do not spend much time on their lands, and who own a large portion of hardwood are less likely to use assistance foresters.

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