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Landowner Attitudes Toward Shortleaf Pine Restoration

R. Reitz¹ and D. Gwaze¹



THE AUTHORS:

Ron Reitz is a Survey Coordinator with the Missouri Department of Conservation, Resource Science Center (1110 S. College, Columbia, MO 65201). David Gwaze is a Resource Scientist with the Missouri Department of Conservation, Resource Science Center (1110 S College, Columbia, MO 65201).

EXECUTIVE SUMMARY

- In Missouri, 85% of forested land is privately owned. Thus, if shortleaf pine restoration efforts are to succeed, they must do so on private land. We therefore undertook a survey of private landowners within the historic range of shortleaf pine in south Missouri to gauge their interest, attitudes, motivations, and challenges regarding shortleaf pine restoration.
- Self-administered, mail-back surveys were sent to 5,584 landowners, resulting in 2,506 responses (46.6% response rate).
- The respondents were mostly male, retired or in a professional occupation, had at least a high school education and moderate to low income.
- The large majority of respondents (69%) planting or managing shortleaf pine reported doing so on 10 or fewer acres of land.
- The main reasons respondents restored shortleaf pine on their property were recreation, aesthetics and wildlife values.
- About 90% of respondents planting or managing shortleaf pine planted seedlings or relied on natural regeneration for restoring shortleaf pine. Direct seeding was a minor regeneration method for shortleaf pine restoration.
- A majority of respondents planting or managing shortleaf pine (>50%) did not require much assistance in restoring shortleaf pine with the exception of access to printed material, which many (61%) reported would be helpful.
- A large majority (>75%) of respondents planting or managing shortleaf pine did not have serious challenges to restoring shortleaf pine.

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INTRODUCTION

There is considerable interest in restoring shortleaf pine by various agencies and private landowners in Missouri. Currently, agencies implementing restoration projects include Mark Twain National Forest, The Nature Conservancy, Missouri Department of Natural Resources-State Parks, Pioneer Forest, and the Missouri Department of Conservation (MDC).

Restoration of shortleaf pine, the only native pine species in Missouri, on public and private lands is a priority because its historic range has declined substantially since European settlement. Extensive logging, frequent wildfires, and overgrazing collectively are suggested as the primary causes of shortleaf population decline. Today, about 10% of the shortleaf pine forests in existence 100 years ago remain in Missouri. Shortleaf pine restoration is an attempt to re-establish the shortleaf pine forests in their historic range (Figure 1). Restored shortleaf pine forests can increase biodiversity, improve wildlife habitat, re-establish a sustainable softwood forest products industry, capture and store carbon, produce biomass for energy, and generate an array of other socioeconomic benefits. Restoration efforts have been motivated by the fact that shortleaf pine is a major component of Missouri's biodiversity and natural heritage, and shortleaf pine

would provide habitat and food for a diverse array of wildlife and may mitigate chronic oak decline (Law et al. 2004).

Given that 85% of commercial forests in the state are under private ownership, restoration efforts are not possible without the participation of private landowners. In preparation to assist private landowners with shortleaf pine restoration, an understanding of their interest, attitudes and motivations toward restoration and general forest management is necessary.

The specific objectives of this study were to:

- Determine the characteristics of landowners in the shortleaf pine range and the extent to which they are planting and managing shortleaf pine.
- Identify landowner reasons for restoring shortleaf pine on their land.
- Identify landowner challenges to shortleaf pine restoration.

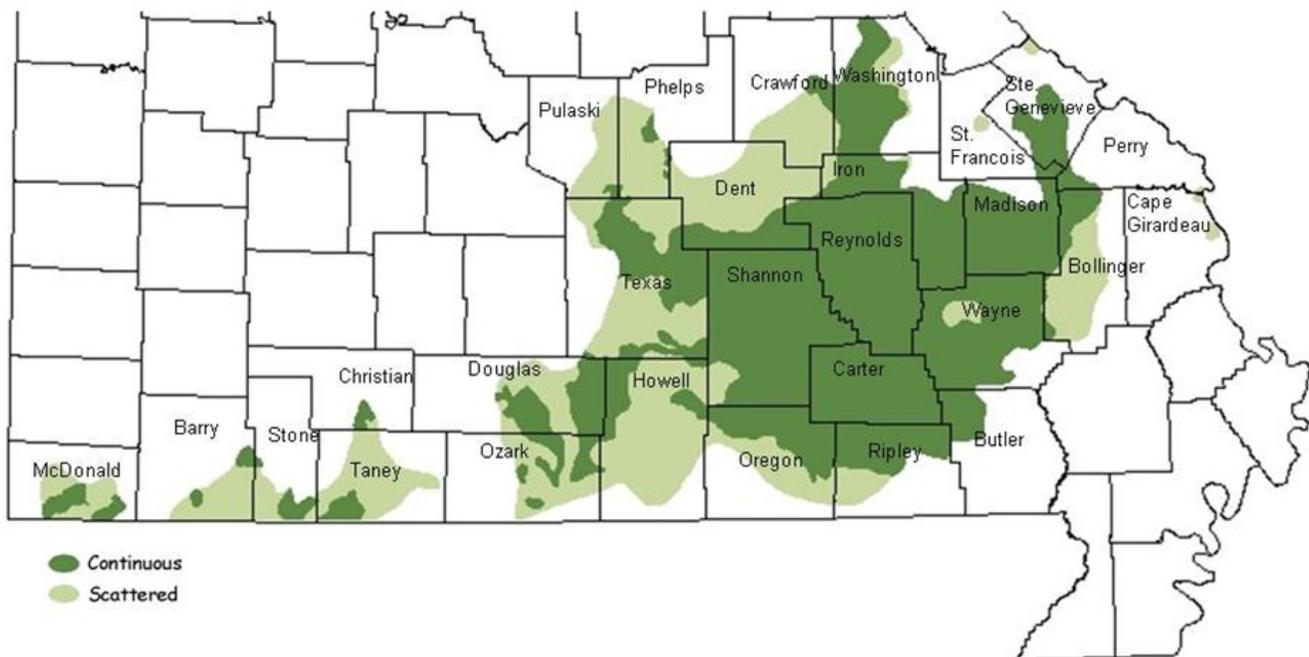


Figure 1. Historic range of shortleaf pine in southern Missouri.

METHODS

In April - June 2008, we conducted a self-administered, mail-back survey of 5,584 south-Missouri landowners (Appendix). Based on census data for the 25 counties within the historical range of shortleaf pine, we determined the population of landowners was too large for a complete census. Instead, three multi-county geographic strata (Core, Periphery, and Isolated) were identified (Figure 2). Counties were randomly selected within each stratum (4 in the Core, 6 in the Periphery), except for the Isolated stratum, where a sample of landowners was drawn for each of the four counties. Ownership, address, and acreage information for landowners in each county selected were compiled using county assessors' records. All duplicate information and individuals with missing address information were omitted before the final sample for each county was drawn. Counties selected in the Core stratum were Shannon, Madison, Iron and Reynolds. Counties selected in the Periphery stratum were Howell, Douglas, Washington, Ozark, Perry and Bollinger. A simple random sample of 400 landowners with more than 5 acres not publicly or

utility owned was drawn in each of the selected counties (Perry County had only 384 landowners in the population and a census was conducted in this county). A county-level census was conducted in the Isolated stratum, which included Taney, Stone, Barry and McDonald counties.

The mailings were administered according to recommendations by Dillman (2000). A daily log was kept of returned questionnaires, undeliverable questionnaires, and forwarding address changes. Up to four contacts (pre-notice letter, survey, and up to two follow-up contacts consisting of a reminder postcard and second survey mailing) were made with the selected landowners. Non-response was assumed to be random and a follow-up with non-respondents was not conducted. The returned questionnaires were entered into Key Entry III data entry software and checked for errors and analyzed using SAS statistical analysis software. Results from this survey will be used to better serve Missouri landowners, develop education strategies regarding shortleaf pine management and marketing, and assist in the restoration of shortleaf pine in its historic range.

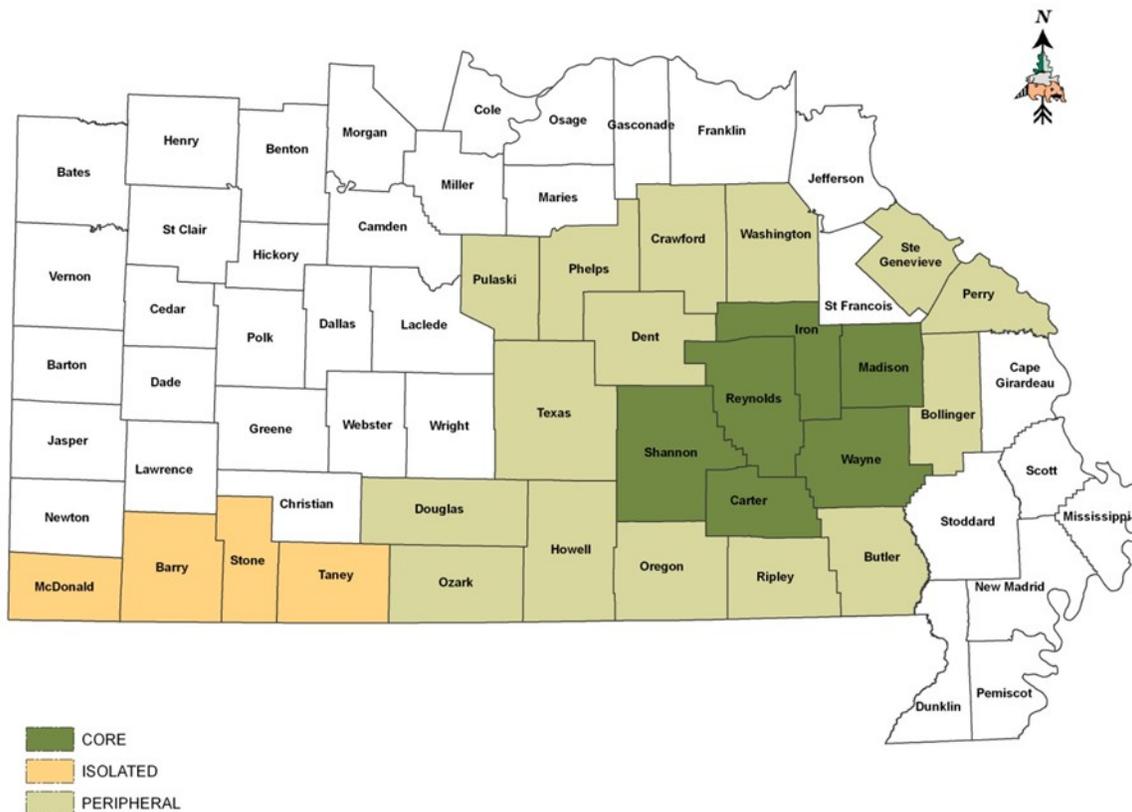


Figure 2. Strata for survey of landowners in the historic range of shortleaf pine in southern Missouri.

RESULTS AND DISCUSSION

Results presented in this section of the report will primarily address the objectives outlined in the introduction. Discussion will address landowner demographics and ownership characteristics, as well as constraints and motivations of landowners that managed or planted shortleaf pine and those that did not.

Of the 5,584 surveys mailed, 5,378 surveys reached their intended recipients. We received 2,506 usable responses to the survey, for an overall adjusted response rate of 46.6%. The number of respondents was large enough to make reasonable inferences about the perspectives of private landowners toward shortleaf pine restoration. Response rates at the county and strata level were similar (Table 1).

Demographics

Survey respondents were mostly male (79.2%), over 40 years of age (91.2%; most in the “over 60” category), retired or in a professional or managerial occupation (Table 2), and had at least a high school education (Table 3). The majority of respondents had some college education (55.6%) and a fair proportion (17.1%) had graduate or professional degrees (Table 3). The majority of respondents (52.1%) had a household income of \$50,000 or less, with fully a quarter of all respondents earning less than \$30,000 a year (Table 4).

County	Total Responses	Adjusted Response Rate (%)
Stratum 1- Core	718	47.0
Shannon	173	46.0
Iron	179	46.9
Madison	180	47.2
Reynolds	186	47.7
Stratum 2- Periphery	1092	47.4
Washington	186	48.7
Perry	192	50.3
Bollinger	187	49.1
Douglas	178	46.8
Ozark	177	45.5
Howell	172	44.1
Stratum 3- Isolated	696	45.3
Taney	190	49.2
Stone	169	43.2
McDonald	167	43.9
Barry	170	44.7

Table 1. County and strata survey response specifics.

Land Ownership Characteristics and Land Use

Roughly one out of four (24.4%) reported owning 26 to 75 acres, while slightly more (28.3%) owned more than 150 acres (Table 5). Almost three fourths (72.6%) of respondents reported living on the acreage they owned. The median acreage ownership was 64 acres.

Occupation	Response Distribution (%)
Manufacturing	6.7
Professional/Managerial	20.5
Agriculture/Farmer	9.4
Services	10.0
Student	0.2
Homemaker	3.1
Not employed	0.9
Retired	37.4
Other	11.9

Table 2. Occupation of respondents (n=1,962)

Education	Response Distribution (%)
Grade School	3.2
Some High School	4.4
High School	36.9
Some College	25.0
College Degree	13.5
Graduate or Professional Degree	17.1

Table 3. Education characteristics of respondents (n=2,113)

The survey indicated that, in south Missouri, land is owned for the following reasons (in descending

order of importance (as signified by a “very important” or “somewhat important” response)): 1) quiet recreation (camping, horseback riding, hiking, etc.),

Income categories	Response Distribution (%)
Under \$30,000	25.6
\$30,001 to \$50,000	26.5
\$50,001 to \$70,000	16.0
\$70,001 to \$90,000	9.8
\$90,001 to \$110,000	8.9
\$110,001 to \$130,000	4.2
Over \$130,000	9.0

Table 4. Annual household income of respondents (n=1,872)

Acreage categories	Response Distribution (%)
0 or none	0.3
1 to 10 acres	12.9
11 to 25 acres	15.7
26 to 75 acres	24.4
76 to 150 acres	18.5
More than 150 acres	28.3

Table 5. Reported acreage owned by respondents (n=2,484)

2) hunting, fishing, and wildlife viewing, 3) timber production, 4) livestock production and 5) crop production (Table 6). While most landowners had oak species on their land (96.8%), fewer had shortleaf pine on their property (37.9%). Most landowners did not actively manage their forests; only 24.4% of landowners manage for oaks and 12.5% for shortleaf pine. However, the interest in restoring shortleaf pine was high, with 48.3% of respondents indicating they were “very interested” or “somewhat interested” in “growing shortleaf pine”.

Land Use	Importance (%)		
	Very Important	Somewhat Important	Not Important
Crop Production (n=2,183)	17.5	22.5	60.0
Livestock Production (n=2,286)	32.2	19.6	48.3
Timber Production (n=2,223)	22.3	39.6	38.1
Hunting/Fishing/Wildlife (n=2,315)	48.6	32.8	18.6
Quiet Recreation (n=2,302)	61.8	24.9	13.3

Table 6. Importance of different land uses to respondents

Views on Motivations

Respondents were segmented into two groups, those that reported planting or managing shortleaf pine on their property (n=197 (Core=72, Periphery=96, Isolated=29)), and those that did not (n=1,849). We were interested in the needs, perceptions and motivations of both types of landowners and the challenges associated with shortleaf pine management. Caution should be used when interpreting data related to shortleaf pine management at the strata level, especially when comparing responses from the Core and Periphery to the Isolated stratum due to low numbers of shortleaf pine managers in these strata.

Landowners in the Core stratum were more likely to have planted or managed their land for shortleaf pine, with 17.1% reporting having done so, compared to 13.5% of respondents in the Periphery and 6.8% in the Isolated strata. While this seems fairly high, the acreage affected by active management may be relatively small since 68.5% of respondents that reported planting or managing shortleaf pine reported doing so on 10 or fewer acres (Table 7). In general, large-acreage landowners managed proportionally less of their land in shortleaf pine than did smaller acreage landowners.

When asked who managed or planted the shortleaf pine on their land, 85.5% reported doing it themselves, followed by a neighbor, friend, or family member (28.7%), loggers (13.8%), state foresters (9.4%), and consulting foresters (6.8%). Shortleaf pine managers in the Core and Periphery strata typically reported longer active management of their land

Acreage categories	Response Distribution (%)
1 to 10 acres	68.5
11 to 25 acres	10.2
26 to 75 acres	10.7
76 to 150 acres	5.1
More than 150 acres	5.6

Table 7. Acreage reported to be planted or managed for shortleaf pine (n=197)

for shortleaf pine than did landowners in the Isolated stratum (Table 8). In Missouri, shortleaf pine restoration is critically affected by frequent changes in land ownership (Cunningham 2007).

Most shortleaf pine managers planted seedlings or relied on natural regeneration as methods of establishing shortleaf pine stands. A minority (<12%) have used direct seeding as a method to restore shortleaf pine (Table 9). According to Gwaze (2005), direct seeding was a common regeneration method in Missouri from the 1960's to the 1980's, but fell out of favor because the availability of seed was limited. Specifically targeted seed collections of natural shortleaf pine could make seed available to those private landowners who might consider using direct seeding as an alternative management method.

Strata	Less than 5 years (%)	5 to 10 years (%)	11 to 20 years (%)	More than 20 years (%)
Core	25.0	23.6	13.9	37.5
Periphery	39.8	14.0	14.0	32.3
Isolated	46.2	19.2	23.1	11.5

Table 8. Years managing for shortleaf pine by strata (n=191)

Strata	Planted Seeds (%)	Planted Seedlings (%)	Natural Regeneration (%)
Core	8.9	51.7	88.2
Periphery	9.0	79.5	55.6
Isolated	11.1	78.3	40.0

Table 9. Proportion of landowners, by strata, that used specific methods for shortleaf pine establishment (n=169)

The majority of pine managers planted seedlings (>51%) and a larger majority (>78%) were from the Peripheral and Isolated strata (Table 9). An average of 1.6 million seedlings were delivered to private landowners each year from the George O. White nursery from 1960 to 1986 (Gwaze et al. 2007); thus indicating that planting was the major regeneration method. However, since 1986 the demand for shortleaf pine seedlings by private landowners continues to decline despite federal programs such as Forestry Incentive Program (FIP) and Forestland Enhancement Program (FLEP); declining demand could be the result of limited markets for shortleaf pine products in Missouri. Efforts should be made to identify solutions for increasing shortleaf pine seedling demand by the private landowners.

Natural regeneration was the most popular method with landowners in the Core strata, while seedling planting was most popular in the Periphery and Isolated strata. The most common site preparation method reportedly used by shortleaf pine managers was prescribed burning, followed by disking and ripping (Table 10).

About 89% of landowners in the Core and 83% in the Periphery planned to continue shortleaf pine planting or management on their property, while only 61% of those in the Isolated stratum planned to do so. Most landowners in all three strata indicated they would encourage others to manage shortleaf pine on their property (Core - 82.4%, Periphery - 91.0%, Isolated - 80.8%).

We asked landowners how important certain land ownership motivations were when making shortleaf pine management decisions. The most important motivations affecting management decisions were “natural beauty and scenery” and “improving wildlife habitat.” Other important reasons were “passing the land on to children,” “protecting nature and biodiversity,” “recreation,” and “adding value to property.” Lowest in importance was “income from timber products” and “tradition” (Table 11). The low concern for income from timber production may not be surprising because of the limited markets for shortleaf pine products. Landowners who manage their forests for wildlife or aesthetics are likely to be interested in timber production if markets exist and they are offered a good price for their timber. Our finding is supported by results from focus groups held across the shortleaf pine range in Missouri, which showed that the motivations for growing and managing shortleaf pine included aesthetics and wildlife habitat goals, as well as a more

general restoration ethic (Scroggins et al. 2009). The focus groups also revealed that economic values were not the main reason private landowners restored shortleaf pine, although the focus group conducted closest to the shortleaf pine market in Houston clearly indicated that economic values were important (Scroggins et al. 2009).

Views on Assistance Needs and Challenges

Landowners often seek assistance, information, or funding when managing their land. We asked managers of shortleaf pine how helpful various types of assistance such as technical, cost-share, printed information, workshops and equipment rental were. While all types of assistance mentioned in the survey were helpful to a fair proportion of landowners that managed shortleaf pine, printed information was reported to be most helpful followed by technical assistance (Table 12). The importance of printed information is in agreement with findings from focus groups where landowners voiced a need for educational brochures about shortleaf pine restoration because they were unaware of benefits and how to manage the species (Scroggins et al. 2009). While equipment rental was important, it is not clear what type of equipment landowners need, particularly given that very few landowners use ripping or disking to prepare sites for shortleaf pine restoration. MDC provides technical assistance to landowners (help with forest management plan, forest inventory, etc.) and the findings here indicate that such assistance is valued and should be continued.

We asked both groups, shortleaf pine managers and non-managers, whether they agreed or disagreed with various statements regarding potential challenges that could affect their ability to manage shortleaf pine on their property. These challenges included lack of time, high costs, seedling and seed availability, adequate markets, and availability of technical assistance. In general, those that did not manage shortleaf pine knew very little about potential challenges and/or incentives to shortleaf pine restoration (Table 13). This finding somewhat contradicts our previous result which indicated that many respondents (48.3%) were interested in restoring shortleaf pine. While a small proportion of shortleaf pine managers were aware of the challenges to restoration, in some cases the proportions that were not aware of the challenges were still

<u>Strata</u>	Prescribed Burning (%)	Ripping (%)	Disking (%)
Core	23.4	6.5	8.2
Periphery	20.2	7.7	11.7
Isolated	19.2	8.7	4.3

Table 10. Proportion of landowners, by strata, that used specific site preparation methods for shortleaf pine establishment (n=174)

<u>Land Ownership Motivations</u>	Strata	Very Important %	Somewhat Important %	Not Important %
<u>Income from timber products: (n=188)</u>	Core	29.2	37.5	33.3
	Periphery	15.6	28.9	55.6
	Isolated	3.8	11.5	84.6
<u>Natural beauty and scenery: (n=194)</u>	Core	76.4	22.2	1.4
	Periphery	76.6	20.2	3.2
	Isolated	71.4	14.3	14.3
<u>Recreation: (n=187)</u>	Core	58.6	31.4	10.0
	Periphery	59.3	28.6	12.1
	Isolated	34.6	19.2	46.2
<u>Passing land to children: (n=187)</u>	Core	62.0	22.5	15.5
	Periphery	71.1	23.3	5.6
	Isolated	46.2	34.6	19.2
<u>Tradition: (n=184)</u>	Core	34.3	35.7	30.0
	Periphery	37.5	29.5	33.0
	Isolated	46.2	19.2	34.6
<u>Protecting nature and biodiversity: (n=189)</u>	Core	59.2	35.2	5.6
	Periphery	67.0	29.7	3.3
	Isolated	59.3	29.6	11.1
<u>Improving wildlife habitat: (n=191)</u>	Core	74.3	24.3	1.4
	Periphery	77.7	18.1	3.2
	Isolated	71.4	17.9	10.7
<u>Adding value to property: (n=186)</u>	Core	62.0	29.6	8.5
	Periphery	55.6	32.2	12.2
	Isolated	52.0	28.0	20.0

Table 11. Importance of specific land ownership motivations, proportion by strata, to managers of shortleaf pine

<u>Types of Assistance</u>	Strata	Very Helpful %	Somewhat Helpful %	Not Helpful %	Don't Know %
<u>Technical assistance: (n=186)</u>	Core	15.5	28.2	26.8	28.2
	Periphery	26.4	26.4	16.5	30.8
	Isolated	24.0	20.0	20.0	36.0
<u>Cost-share funding: (n=184)</u>	Core	23.9	18.3	23.9	32.4
	Periphery	28.9	20.0	16.7	33.3
	Isolated	32.0	8.0	20.0	40.0
<u>Printed information: (n=185)</u>	Core	36.6	25.4	18.3	18.3
	Periphery	30.0	33.3	10.0	25.6
	Isolated	38.5	19.2	19.2	23.1
<u>Workshops: (n=183)</u>	Core	18.8	17.4	27.5	34.8
	Periphery	14.4	25.6	21.1	38.9
	Isolated	20.0	20.0	28.0	32.0
<u>Equipment loan or rental: (n=187)</u>	Core	17.1	18.6	32.9	31.4
	Periphery	20.0	25.6	20.0	34.4
	Isolated	22.2	14.8	25.9	37.0

Table 12. Helpfulness of specific types of landowner assistance, proportion by strata, to managers of shortleaf pine

<u>Statement</u>	Strata	Agree %	Disagree %	Don't Know %
<u>There are adequate markets for shortleaf pine timber.</u>	Shortleaf pine managers	21.4	20.9	57.7
	Non-managers	8.9	5.6	85.4
<u>Technical assistance on shortleaf pine is hard to find.</u>	Shortleaf pine managers	11.0	21.0	68.0
	Non-managers	5.2	3.1	91.7
<u>It is difficult to get shortleaf pine seedlings in February.</u>	Shortleaf pine managers	7.6	22.2	70.2
	Non-managers	2.8	2.0	95.2
<u>Shortleaf pine seeds are difficult to obtain.</u>	Shortleaf pine managers	8.6	19.7	71.7
	Non-managers	2.7	2.1	95.2
<u>Shortleaf pine management takes a lot of time.</u>	Shortleaf pine managers	22.5	36.0	41.5
	Non-managers	3.0	2.8	94.2
<u>Shortleaf pine management is affordable.</u>	Shortleaf pine managers	51.0	3.0	46.0
	Non-managers	3.5	1.5	95.0

Table 13. Agreement and disagreement of shortleaf pine managers and non-managers to statements related to management challenges

relatively large (i.e., 41.5% - 71.7%). The majority of shortleaf pine managers indicated that restoration was affordable (51%) and the proportion that faced any challenges was moderate to low, indicating that shortleaf pine restoration does not present serious challenges. Moderate challenges faced by shortleaf pine managers were lack of adequate markets (20.9%) and the time consuming nature of shortleaf pine management (22.5%). The keys to successful restoration of shortleaf pine involve good site preparation, controlling hardwood competition during and after establishment, using quality seed, proper timing of sowing or planting, adequate moisture during seed germination or after planting, and sufficient light on the site, all which require an investment in time. A thriving shortleaf pine market existed prior to 1920, but today limited markets exist for poles and posts, and none for saw timber. Markets could be a powerful incentive for private landowners to invest in shortleaf pine restoration and would create opportunities for those people having a primarily commercial interest in shortleaf pine restoration. Generally, profits from commercial sales can be used to restore larger areas than would be possible without those markets.

CONCLUSIONS

This paper provides an understanding of private landowner perspectives on shortleaf pine restoration to help MDC more effectively target the support it gives to private landowners. Supporting private landowners is critical to sustainably managing forests in Missouri because the majority of the forested lands are privately owned. The study revealed that while few landowners in the historic range of shortleaf pine were actively restoring shortleaf pine, many were interested in doing so. The main reasons private landowners restore shortleaf pine are for recreation, aesthetics and wildlife values. They do not require much assistance, but indicated that printed information would be helpful. Information to consider for dissemination to private landowners include 1) a simple definition of what shortleaf pine restoration is, 2) a demonstration of the economic and ecological viability of shortleaf pine restoration, including aesthetics, and 3) technical information on how to restore shortleaf pine communities. Lack of markets was viewed as an obstacle to shortleaf pine restoration. It is recommended that the Missouri Department of Conservation and its partners

should facilitate the development of markets for shortleaf pine and small diameter hardwoods, while at the same time promoting the ecological and aesthetic benefits of shortleaf pine restoration. Information obtained from this study provides a good starting point for MDC to help private landowners in restoring shortleaf pine natural communities in Missouri.

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A Survey of Missouri Landowners



by the
Missouri Department of Conservation



The Missouri Department of Conservation is conducting a survey of Missouri's landowners. The Missouri Department of Conservation offers many programs to help landowners achieve their management goals. Your opinions will help us improve our programs and help landowners.

Please take a few minutes to tell us about your opinions. Please remember the following:

- Your answers remain strictly confidential. We will use your input to help improve our programs. Your name and individual responses will never be included in any report.
- After you fill in the survey, please mail it back to us in the enclosed business reply envelope. You **do not** have to provide postage.

Thank you for your time and cooperation.

1 How many acres of land do you own? _____ acres

2 Do you live on any of this land? (Check one box.)

Yes..... No.....

3 How important are the following uses of your land? (Check one box for each line.)

	<u>Very</u> <u>Important</u> ▼	<u>Somewhat</u> <u>Important</u> ▼	<u>Not</u> <u>Important</u> ▼
Crop production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Livestock production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Timber production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hunting\fishing\wildlife.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quiet recreation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other _____ (Please specify)

4 How many acres of forested land or woodlands do you own? _____ acres (If “0” or “None”, please skip to Question **19** on the last page.)

5 Do you have the following tree species on your land? (Check one box for each line.)

	<u>Yes</u> ▼	<u>No</u> ▼	<u>Don't</u> <u>Know</u> ▼
Oaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walnuts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hickories.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shortleaf pine.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other pines.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other _____ (Please specify)

6 Do you plant or manage for the following tree species? (Check one box for each line.)

	<u>Yes</u> ▼	<u>No</u> ▼	<u>Don't</u> <u>Know</u> ▼
Oaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walnuts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hickories.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shortleaf pine.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other pines.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other _____ (Please specify)

7 How interested are you in growing shortleaf pine? (Check one box.)

- Very interested.....
- Somewhat interested.....
- Not interested.....
- Don't know.....

8 How many acres of your forested land or woodlands have been managed for or planted in shortleaf pine? _____ acres If "0" or "None", please skip to Question **17** on the last page.

9 Who has planted or managed for shortleaf pine on your land? (Check one box for each line.)

	<u>Yes</u> ▼	<u>No</u> ▼	<u>Don't Know</u> ▼
You.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Neighbor\Friend\Family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State forester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consulting forester.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Logger.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____(Please specify)			

10 How long have you been involved in planting or managing for shortleaf pine? (Check one box.)

- Less than 5 years.....
- 5 to 10 years.....
- 11 to 20 years.....
- More than 20 years.....

11 Have you used the following practices when establishing shortleaf pine? (Check one box for each line.)

	<u>Yes</u> ▼	<u>No</u> ▼	<u>Don't Know</u> ▼
Planting seeds.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planting tree seedlings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural regeneration.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____ (Please specify)			

12 Have you used the following site preparation methods when establishing shortleaf pine? (Check one box for each line.)

	<u>Yes</u> ▼	<u>No</u> ▼	<u>Don't Know</u> ▼
Prescribed burning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ripping.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____ (Please specify)			

13 Do you plan to continue to plant or manage for shortleaf pine on your land? (Check one box.)

Yes..... No.....

14 Would you encourage others to plant or manage for shortleaf pine on their land? (Check one box.)

Yes..... No.....

15 How important are each of the following when you make your shortleaf pine management decisions? (Check one box for each line.)

	Very <u>Important</u> ▼	Somewhat <u>Important</u> ▼	Not <u>Important</u> ▼
Income from timber products.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural beauty and scenery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation (hunting, fishing, etc.).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Passing the land on to my children and grandchildren ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tradition.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protecting nature and biodiversity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improving wildlife habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adding value to my property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____ (Please specify)			

16 How helpful are each of the following in managing your shortleaf pine? (Check one box for each line.)

	Very <u>Helpful</u> ▼	Somewhat <u>Helpful</u> ▼	Not <u>Helpful</u> ▼	<u>Don't Know</u> ▼
Technical assistance.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cost-share funding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Printed information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Workshops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment loan or rental.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____ (Please specify)				

17 Do you agree or disagree with the following statements? (Check one box for each line.)

	<u>Agree</u>	<u>Disagree</u>	<u>Don't Know</u>
	▼	▼	▼
There are adequate markets for shortleaf pine timber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical assistance on shortleaf pine is hard to find.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is difficult to get shortleaf pine seedlings in February	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shortleaf pine seeds are difficult to obtain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shortleaf pine management takes a lot of time.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shortleaf pine management is affordable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18 How important to you are each of the following when deciding whether or not to plant or manage for shortleaf pine? (Check one box for each line.)

	Very	Somewhat	Not
	<u>Important</u>	<u>Important</u>	<u>Important</u>
	▼	▼	▼
Having adequate markets for shortleaf pine timber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access to technical assistance on shortleaf pine.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having shortleaf pine seedlings available in February	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having shortleaf pine seeds available.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19 Are you: (Check one box.)

Male Female.....

20 Please fill in your age. _____ (years old)

21 What best describes your current primary occupation? (Check one box.)

Manufacturing.....	<input type="checkbox"/>	Homemaker.....	<input type="checkbox"/>
Professional/Managerial	<input type="checkbox"/>	Not employed.....	<input type="checkbox"/>
Agriculture/Farmer	<input type="checkbox"/>	Retired.....	<input type="checkbox"/>
Services.....	<input type="checkbox"/>	Other	<input type="checkbox"/>
Student	<input type="checkbox"/>		

22 What is the highest education level that you have completed? (Check one box.)

Grade School	<input type="checkbox"/>	Some College.....	<input type="checkbox"/>
Some High School	<input type="checkbox"/>	College.....	<input type="checkbox"/>
High School	<input type="checkbox"/>	Graduate/Professional.....	<input type="checkbox"/>

23 What was your approximate gross annual household income in 2007? (Check one box.)

- Under \$30,000
- \$30,000 to \$50,000
- \$50,001 to \$70,000
- \$70,001 to \$90,000
- \$90,001 to \$110,000
- \$110,001 to \$130,000
- Over \$130,000.....

You are done! Please fold the survey and mail it back to us in the enclosed postage-paid envelope. You **do not** have to provide postage.

Thank you for your time and cooperation.

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