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# A Survey of Animal-Powered Logging in Alabama

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**ABSTRACT:** *In a state with a very large, highly mechanized timber harvesting industry, animal-powered logging still occupies a niche in Alabama as a small-scale harvesting alternative. This article summarizes the results from a study that examined the extent of animal logging in Alabama. We investigated this topic by asking who is logging with animals, where are they working, what equipment are they using, and what do they see as the future of animal-powered logging in Alabama. To answer these questions, we conducted a telephone survey of 33 owner-operators of horse and/or mule logging operations and on-site semi-structured interviews with a subsample of survey participants. Horse and mule loggers in Alabama work mostly on nonindustrial privately owned forests. The average animal logging operation consists of three people, two animals, and a side-loading truck. Most animal loggers find their niche in Alabama's logging industry by working on small tracts, tracts with low timber volumes, and harvests that use selective thinnings. With 90% of the animal loggers in Alabama over age 40, and with 27 loggers having retired in the past 5 yr, the number of animal loggers in Alabama is expected to decline, or, at best, hold steady, over the next 10 to 20 yr. As the average area of a nonindustrial privately owned forested tract in the Southeast continues to decrease, particularly along the urban fringe, the demand for small-scale harvesting systems, including systems using animals and farm tractor-sized implements to skid logs, may increase. *South. J. Appl. For.* 25(1):17-24.*

**Key Words:** Animal-powered logging, horse logging, mule logging, small-scale harvesting systems, logger demographics.

Two-thirds of the land in Alabama is forested, and nonindustrial private forest (NIPF) owners such as farmers, corporations (other than forest industry) and other individuals own 73% of the 22 million forested acres. The remaining forestland is predominantly owned by forest industries with government ownerships accounting for only 5% (McWilliams 1992). In 1995, NIPF owners contributed 67% of the 1.4 billion ft<sup>3</sup> of Alabama's total roundwood output (Johnson et al. 1998).

A 1991 survey reported 71% of surveyed NIPF owners in Alabama consider income from timber sales to be an important benefit of forest ownership. When asked which was the primary benefit of forest ownership, 25% cited income from timber sales. However, 59% cited

noncommodity values such as maintaining family ownership, appreciating and protecting nature, providing wildlife habitat, and providing opportunities for personal recreation (Bliss 1993).

In 1994 in the United States, small private forest ownerships in the 1 to 99 ac size class comprised 32% of the private forest acreage and 94% of the NIPF owners (Birch 1996). Forestland ownerships in this size class can be expected to make up a greater percentage of the forestland base in the future. Within the southern United States, an analysis by Greene et al. (1997) reported a trend toward decreasing timber stand size and sales in Georgia. However, small tracts present a challenge for natural resource managers to find and develop small-scale harvesting systems that can operate efficiently while meeting the diverse management objectives of NIPF owners. DeCoster (1998) in an analysis of NIPF ownerships stated, "We need new approaches and technologies designed for small parcels."

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While not a new approach, animal-powered logging and associated technologies can be further developed to meet this challenge. In the past, low-capital, low-production shortwood systems often met the objectives of the owners of small forested tracts. With these systems, woods workers harvested shortwood (5 ft, 3 in. pulpwood lengths) manually with a saw. Loading was accomplished by hand or with a self-loading truck. As markets for shortwood have decreased, so have the shortwood harvesting systems. In 1979, 78% of southern pulpwood loggers produced shortwood. Only 15 yr later, this share had dropped to 20% (Munn et al. 1998). With fewer low-capital harvesting systems operating, owners of small forested tracts have fewer management options available to them. Animal logging, however, continues to be a low-capital, low-production harvesting system.

### **Animal-Powered Logging—Then and Now**

At the beginning of the twentieth century, steam power began to replace animal power, and by the 1930s, as forestry's industrial revolution continued, diesel crawler tractors were taking the place of the horses, mules, and oxen in the southern United States. Even so, animal power was still a viable skidding system under certain circumstances. "Although horses are being replaced by tractors, they are not entirely out of the woods. No piece of equipment has ever been manufactured that can handle logs as cheaply as horses for short distances and under certain conditions ... . In many places in the South, in stands of small to medium-sized timber, where the topography is flat and trucks can be driven almost anywhere, logs can be bunched with horses cheaper than any other method" (Girard 1937).

As mechanized timber harvesting technology replaced animal power in the woods, some loggers continued to use their horses, mules, and oxen. Today, animal loggers, while now the exception rather than the norm, provide a timber harvesting alternative for forest landowners and managers. As some forest owners and managers increasingly desire harvesting systems to satisfy specific demands, animal loggers are filling a timber harvesting niche.

Little research has been conducted on animal logging as a small-scale harvesting system. In the 1930s, studies compared the productivity of animal logging systems to the then new tractor logging systems. Garver (1934) found that a tractor could do the work of three horse teams at a lower cost. More recently, a few studies were completed in the United States, which again examined the productivity and costs of animal logging systems (McNamara 1983, Thompson and Sturos 1984, McNamara and Kaufman 1985, Toms et al. 1996). This second wave of studies, along with an abundance of animal logging articles appearing in popular and trade journals, provides evidence of a resurgence of public interest in animal logging.

In many of these articles, animal logging is touted as a low-impact harvesting alternative. There is research that documents situations where this has been true. In upland oak-pine forest sites in the Missouri Ozarks, Ficklin et al. (1997) found cambium exposed bole damage to residual trees from mule skidding was only 30% of that caused by a conventional

rubber-tired skidder system in a selection thinning operation. A study conducted in northeast China used multiple criteria to compare animal skidding to ground machine skidding (Wang 1997). Negative impacts on each soil physical property criterion were significantly greater for the machine skidding as compared to animal skidding. When examining the damage of skidding to the residual stand and young seedlings, it was found that "the direct damage rate of machine skidding is much higher than animal skidding due to the machine's big size, high power, and low flexibility" (Wang 1997).

Future forest management may hold a place for small-scale harvesting systems such as animal logging. Increased knowledge of animal logging systems will help forest managers evaluate how this alternative harvesting system may be a part of their management activities.

The purpose of our research project was to (1) examine the prevalence of horse and mule logging in the state of Alabama, (2) record characteristics of the loggers and their harvesting systems, (3) investigate the market niche that animal loggers occupy in Alabama, and (4) discuss some concerns for the future of animal logging.

### **Methods**

Surveys and semi-structured interviews were employed in this study. The surveys provided a baseline of information, while the interviews were used to further explore the topics in the survey and to provide an understanding of patterns and relationships in the data. To understand how animal logging can best be used as an element of small-scale forestry, there must be an understanding of how and where these loggers are working, what their limitations are, and, if animal logging has a future as a small-scale harvesting system. The loggers themselves need to be studied to make these assessments, especially when considering the future of animal logging. Future research focusing on the productivity, environmental impact, and economic viability of animal logging will benefit from the loggers' perspective ascertained in this study.

With the help of extension agents in the Alabama Cooperative Extension System and foresters with the Alabama Forestry Commission from each of the 67 counties in Alabama, names, addresses and phone numbers of horse and mule loggers working in the state were compiled in a database. Four logging operations were visited with the purpose of preparing for the next phase of the research project, a phone survey. The wording of the questions could not be successfully completed without first having a good understanding of the survey audience (Bliss and Martin 1989). The survey was created using an approach based mostly on Dillman's (1978) Total Design Method. Before the survey was conducted with Alabama's horse and mule loggers, it was first peer-reviewed and then pretested with horse loggers from adjacent states.

The loggers in the database were called and asked to participate in a 40-question phone survey that averaged 15 minutes to complete. The survey examined characteristics of the loggers, their employees, and the animals and equipment used in their harvesting system, the forested tract they were

currently logging, and their thoughts on the future of animal logging in Alabama. The survey protocol allowed for open-ended discussion if initiated by the participating logger. Information gathered from these discussions was found to be as useful in understanding animal loggers as that gathered from the prepared questions.

A logger being surveyed would occasionally supply the name of a new contact that would then be included in the database. Of the 50 loggers eventually compiled in the database, 33 active loggers were contacted, and all loggers contacted participated in the phone survey. Only one person, either the owner, owner/operator, or co-owner, from each logging crew was contacted. Loggers who had retired, had no phone, or were otherwise inaccessible were not included in the survey population.

Following the phone survey, semi-structured, tape-recorded interviews were conducted with a purposeful sample of loggers who had participated in the phone survey. Loggers were chosen for interviews based on differences in harvesting systems, levels of productivity, personal characteristics, and geographic location. In the interviews, topics covered in the survey were furthered examined. Also, the interview allowed for issues to be discussed which could not have been satisfactorily covered in the phone survey because of the time required and the complexity of the issues. Such topics included the loggers' motivations toward animal-powered logging. The interviews were conducted on site so that observational data about silvicultural activities, residual stand impacts, and how the elements of the harvesting system worked together could be obtained. Interviews were then transcribed and added to a collection of documents from other interviews and previous site visits. Ethnographic information was collected from a total of ten animal loggers. To protect the loggers' confidentiality, aliases have been used.

## Results and Discussion

### The Loggers

The average (and median) age of Alabama's horse and mule loggers was 54 yr. This is 10 yr older than the reported 44.2 average age for Alabama's pulpwood contractors (Munn et al. 1998). The range of the sample for animal loggers includes a 24-yr-old master's degree student who logs in the evenings and weekends, as well as a 62-yr-old logger who started logging at age 11 to support his family when his father suffered a permanent debilitating injury, and an 80-yr-old gentleman who has supervised two mule logging crews for the past 48 yr. Two-thirds of the loggers are over 50 yr old (Table 1). Also, our research identified 27 animal loggers that had retired in the past 5 yr, most for age or health reasons. With only six new animal loggers starting in the last 10 yr, it is expected that in the next 10 to 15 yr, many of the animal loggers currently active will retire, and it would seem that the total number of animal loggers in Alabama will drop.

All loggers surveyed worked in the northern and eastern portions of Alabama (Figure 1). Of the 33 respondents, all were white males. The education levels of the loggers ranged from a grade-school education to post-graduate study, and 64% had obtained at least a high school diploma. In a 1993

**Table 1. Characteristics of 33 Alabama's horse and mule loggers, 1998.**

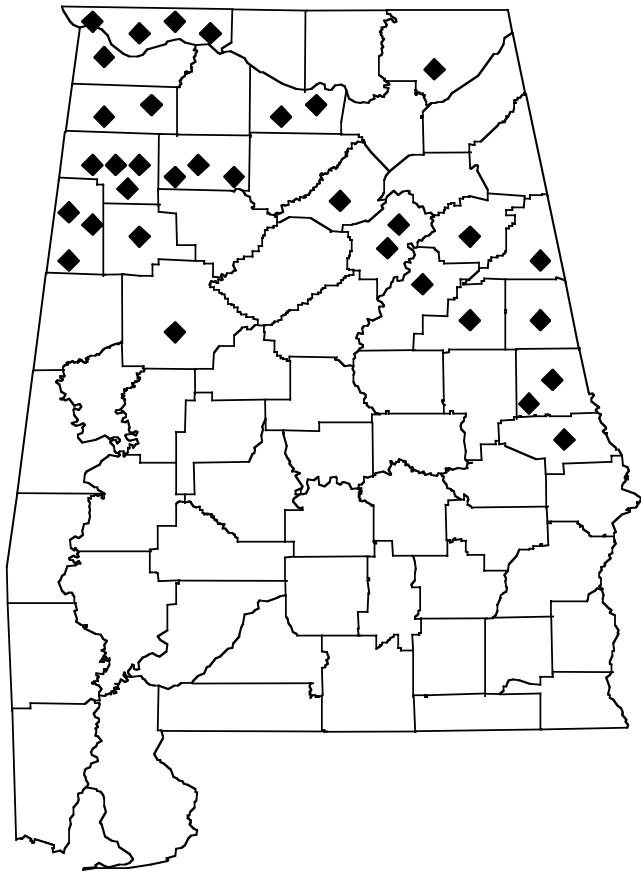
Characteristic	Categories	Number	Percent
Age (yr)	20–29	2	6
	30–39	1	3
	40–49	8	24
	50–59	10	30
	60–69	9	27
	70 and older	3	9
Experience (yr)	<10	6	18
	10–19	9	27
	20–29	5	15
	30–39	6	18
	>40	7	21
Crew size (persons)	1	5	15
	2	10	30
	3	10	30
	4	4	12
	5 or more	4	12
Animals*	Belgian horses	20	61
	Percheron horses	3	9
	Mules	17	52
Loaders*	Side loader	24	73
	Knuckleboom	6	18
	Cable "big stick"	3	9
	Front-end forks	2	6
	Forwarder	2	6
Tract size(ac)	1–10	9	27
	11–20	10	30
	21–30	4	12
	31–40	2	6
	>40	8	24

\* Numbers in a category may total more than 33 because some crews use more than one. Percent in category may total more than 100 as use within a category is not mutually exclusive.

survey of conventional southern pulpwood contractors, Munn et al. (1998) reported that 71% of the survey respondents had 12 or more years of school. In addition, Munn et al. (1998) reported that pulpwood contractors in Alabama averaged 12.0 yr of education.

Income from logging was the primary source occupation for 30 animal loggers. Nearly half the surveyed loggers stated that their total household income from the previous year was between \$25,000 and \$50,000. One-third of the loggers responded that their total household income was less than \$25,000, and the remaining few either reported an income over \$50,000 or did not respond.

As animal loggers retire, they may take with them a skill learned over many years. Over half the loggers surveyed had more than 20 yr experience. On average, animal loggers had been at their profession longer than mechanized loggers had. Animal loggers averaged 24.1 yr of experience while conventional southern pulpwood contractors averaged 13.8 yr (Munn et al. 1998). Much, but not all, of the experience difference can be attributed to the age differences between animal and conventional loggers. Most of the animal loggers in Alabama gained their experience while working alongside their fathers and grandfathers. Twenty-seven of the 33 loggers surveyed learned how to log with animals through family connections. Family ties continue in the woods. Two-



**Figure 1. Locations of the 33 animal loggers surveyed in Alabama.**

thirds of the loggers were working with family members: brothers, sisters, sons, sons-in-law, cousins, and wives. The younger family members may be the next generation of animal loggers, as 36% of the loggers said they may pass their business down to someone else when they retire.

Why is it that these animal loggers operate as they do? Based on observations and discussions with horse and mule loggers, there are quite a few reasons, many of them intertwined. To many, horse logging is the way they “enjoy life,” and for others it may just be the least expensive way to start logging. Also, keeping with family tradition and the satisfaction of spending day-after-day with their favorite animals motivate a number of horse and mule loggers.

A number of the loggers interviewed also expressed a disinclination towards mechanized harvesting systems, and for a few that attitude came from experience. Some of the other horse and mule loggers who tried logging with skidders cited their disapproval because of the noise of the machines and the faster pace of the operation. Some said that they simply preferred the daily fatigue from walking behind a horse or mule to that of riding in the cab of a skidder.

Some horse loggers stated that they feel the mechanized logger is “working for the banks or the equipment dealers” whereas the horse logger, who usually pays cash for his equipment, is working for himself. One logger discussed the effects a week of heavy rain would have on both types of operations. While a mechanized logger would still be making payments, “our payments have stopped. We just don’t have

many groceries that week.” (Personal communication, M. Riggins and R. Williams, mule loggers in northwest Alabama, May 5, 1998). And as they see this difference between mechanized and animal-powered crews, they realize that they do not necessarily compete with each other. “We got our set up, they’ve got theirs...[We] can’t compete with the price some of the [mechanized crews] give. There’s no way we can...That’s about the only thing that gets our timber, is the [forest owners] don’t want their land tore up.” (Personal communication, M. Riggins and R. Williams, mule loggers in northwest Alabama, May 5, 1998).

## The Harvesting Systems

The typical animal logging system in Alabama consists of 2 or 3 people, 2 animals, and a side-loading truck (Table 1). Seventy-five percent of the crews are made up of three people or fewer performing felling, skidding, loading, and hauling operations. After trees are felled, limbed, bucked, and topped manually with chainsaws, animals pull the logs to a landing. About half the animal loggers in Alabama use mules, while the other half use draft horses, specifically Belgians or Percherons to skid logs to a landing (Table 1, Figure 2). In nearly all cases, the animals are transported to and from the logging site each day.

It is not unusual for animal loggers to have a piece of equipment in their harvesting system. Eight crews use log carts, nine use farm tractors, six use bulldozers, and five use skidders in their logging operations. Skidders and farm tractors aid in long distance or rough terrain skidding. Bulldozers are primarily used for the clearing of old woods roads or building of temporary roads. For many animal logging crews though, the minimum equipment needed to round out the harvesting system, aside from animals and chainsaws, is a loader and a truck. A few crews use front-end loaders or knuckleboom loaders to load logs onto trucks, and two crews even use forwarders as an animal bunching/mechanized forwarding system, but 73% of the crews use side-loading trucks (Table 1, Figure 3). According to some of the loggers, many of the side-loaders on their logging trucks were built in the 1950s, and a number of them have actually been recovered from old kudzu fields. Other loggers have just built their own side-loader.

## The Market Niche

Twenty-nine crews were working on NIPF land, and the remaining four crews were working on corporate or public lands. Working in the northern and eastern portions of the state, the loggers considered most of the tracts they were on to be a mixed pine-hardwood forest type. Just north of the pine region of the Coastal Plain, these hilly and mountainous areas of the state have abundant oak-hickory and mixed pine-hardwood forests and relatively high concentrations of NIPF ownership (McWilliams 1992). These regions differ from the southern half of the state in historical land ownership patterns, in forest types, and in available markets. After much of the state had been cleared for agriculture, the lands in south Alabama (particularly the southwest) were kept in large



**Figure 2. Belgian draft horses used to skid logs by 61% of the animal logging crews surveyed.**

ownerships and are now the base of the forest industry with the many of the state's pulp and paper mills located in this region. The lands in the northern hill country, much poorer for agriculture, wound up in smaller ownerships as individual families would often farm this land for their own subsistence. These land ownership patterns still exist.

Finding timber to cut is not a problem for Alabama's horse and mule loggers. Eighty-two percent of the loggers responded that in the past year they had a steady supply of timber, such that they had no downtime while looking for timber to cut. Many loggers stated that they had so many forest owners requesting their services that they have had to turn people down. In 28 of the 33 surveyed cases, the forest owner contacted the logger for his services. One logger

commented that he gets a number of requests for his services as people pull up beside him on the road when they see him driving the side-loading truck that pulls his horse trailer. As this scenario indicates, animal loggers in Alabama are successfully occupying a market niche, a small fraction of the timber harvesting market not typically served by conventional logging systems.

When forest owners contract with animal loggers, they usually do so for two reasons. The forest owner either owns a small tract with not enough timber volume for mechanized crews to log economically, or they are willing to accept a reduction in the value of their stumpage for the perceived aesthetic and environmental benefits they expect from an animal logging operation (Personal commu-



**Figure 3. Side-loading trucks used by 73% of the animal logging crews surveyed.**

nication, Tom Meadows, Forestry Field Coordinator, Alabama Power, Dadeville, Alabama, July 23, 1999). Horse and mule loggers in Alabama are also contracted to harvest sales with a low volume per unit area, such as the salvage of windthrow or insect-infested timber. The market niche that animal loggers are occupying in Alabama basically consists of the following three components, which often overlap: small tract harvests, low volume harvests, and selective cutting.

### **Small Tract Harvests**

Twenty-three animal loggers were working on tracts of 30 ac or less (Table 1). The median tract size was 20 ac for the 29 animal loggers working on NIPF ownerships. With the exception of one 600 ac tract, all reported tract sizes for NIPF ownerships were less than 150 ac.

The effect of tract size on harvesting costs has been examined in the literature. Based on a 17 cord/ac volume harvest, Cubbage (1983a) used computer simulation in an analysis to estimate per cord harvesting costs of four harvesting systems operating in the southern pine region for various tract sizes. Cubbage (1983a) reported that harvest costs for capital intensive, highly mechanized systems are more sensitive to tract size as compared to low-capital, labor intensive harvesting systems. Cubbage noted that high capital, highly mechanized harvesting systems had the lowest per cord harvesting costs for tracts larger than 30 ac. Low capital bobtail and prehauler shortwood systems had the lowest harvesting cost for tracts less than 20 ac with chainsaw treelength operations being more cost effective on tracts of 20 to 30 ac. Cubbage (1983a) reported that highly mechanized harvesting systems have high move costs which must be spread over fewer units of production associated with smaller tracts effectively increasing their average cost of production. Cubbage examined the sensitivity of harvesting costs as affected by changes in his volume per acre assumption. Harvesting costs for a stand with low volumes (10 cord/ac) and high volumes (27 cord/ac) were examined for the four harvesting systems. While harvesting costs were affected by changing the volume per acre harvested, the relative ranking of the systems were unchanged from the base assumption of 17 cord/ac. The 20 ac median tract size reported in our survey indicates that animal loggers are operating within the general range of tract sizes where low-capital, low-production harvesting systems may be cost effective.

The small-tract forest owner may prefer animal logging or may have been unable to get a mechanized contractor to bid on a harvesting job. If a forest owner is not partial to animal logging, any small-scale logging system, such as a properly modified farm tractor, could feasibly be used to harvest the tract. Animal loggers will also perform many "yard jobs," where there are a few merchantable trees near a house that a landowner wants removed. In this situation, the logger may only remove one load, but the landowner gets some return rather than paying a tree removal service. Similarly, animal loggers are also working for developers, removing trees in and around future house sites.

### **Low Volume Harvests**

Just as it may be more economically feasible for a logging system with low move-in costs to work on small tracts, they may also have an economic advantage in harvests where only a low volume per unit area is being removed. A study by Cubbage (1983b) indicated that low stand volumes increased costs most for tree-length and least for low capital bobtail systems. There are many opportunities for animal-logging, as a low-capital harvesting system, to operate on tracts having low volumes per unit area.

Several months before the research for this project began, Hurricane Opal went through the state, creating a number of salvage opportunities. Many horse and mule loggers were busy for the next year harvesting windthrow.

### **Selective Cutting**

Horse and mule loggers work in selective cuttings on both small tracts and low volume harvests. Most of the horse and mule loggers were performing a variety of selective harvests for these forest owners. When asked in the survey how trees to be cut were selected on the tract they were currently working, the 33 loggers responded with the following: 11 use a minimum diameter limit (usually between 12 and 18 in.) as a guideline; 10 were cutting trees already marked (some of the tracts were marked by the landowner); 8 had no guidelines (i.e., logger's choice); and the 4 remaining loggers were clearcutting. Diameter limit cutting, where only sawlogs are harvested, may, in some cases, result in a landowner maximizing current revenue. It may also reduce the overall stand quality through "high-grading." If an animal logger were required to harvest pulpwood, harvesting costs would increase and the stumpage price may correspondingly decrease, resulting in less total revenue to a landowner.

### **Product Markets**

All horse and mule loggers surveyed harvest pine and hardwood sawtimber, and 70% of them harvest and merchandise pine and hardwood pulpwood. Some loggers only merchandise the tops of trees harvested as pulpwood, and 30% of the animal loggers do not care to harvest pulpwood at all, feeling that it is not profitable. One reason why horse and mule loggers in Alabama may prefer not to cut pulpwood is because they are usually only equipped to skid one or two stems at a time, and their productivity is decreased.

Animal loggers hauling their logs and pulpwood on side-loading and other tandem axle trucks report that they rarely drive more than 35 miles to deliver their wood, feeling that driving further with the small trucks would not be economical.

### **Considerations for the Future**

As we look to the future of horse and mule logging as a small-scale harvesting alternative, it is necessary to examine some of the concerns raised in this investigation. First, who will take over for these loggers when they retire? Two-thirds of the loggers surveyed felt that horse and mule logging will remain a part of Alabama forestry. The remaining one-third made statements such as, "the younger generation is too lazy to work," and "they just

want to push buttons for a living.” When asked if he felt there would be many horse and mule loggers in Alabama 10 to 20 yr from now, a horse logger responded: “I don’t believe there will if people don’t start learning how” (Personal communication, R.L. Thompson, horse logger in northeast Alabama, May 12, 1988).

With family businesses accounting for two-thirds of Alabama’s animal logging operations, the skills associated with animal logging may continue to be passed from generation to generation. Yet, in a few cases, loggers have said that their children have chosen to log with mechanized systems over animals, if they chose to log at all. One-half of the 36% of the survey respondents who stated that they have someone in line who will take over the business are under 50 yr of age. The family member “next in line” could certainly change his or her mind by the time the family business was to be handed down.

On the other hand, some animal loggers had other careers before taking up animal logging. Local-level demonstrations of animal logging as a low-capital timber harvesting system may attract persons with draft animal experience who are between or retiring from other careers. For those with little or no experience with animals, there are active loggers with generations of experience willing to offer apprenticeship opportunities. Certain trade magazines often provide a list of such opportunities.

Horse and mule loggers in Alabama appear to be meeting the objectives of the forest owners they work for based on the fact that most of the loggers seem to have steady work, and many of them have worked on the same tract of land for the same owner two or three times in their career. One point of consideration is that this survey found little involvement of foresters working with loggers to provide this alternative harvesting system for NIPF owners. Of the 29 loggers working on NIPF land when surveyed, none of them were working with foresters. Foresters may become more interested in animal logging *if* they find it helpful in meeting a landowner’s management objectives and *if* it becomes a readily available option. Results of a survey of natural resource managers in the northeast United States found that 58% agreed with the statement: “If there were loggers who used animals in my area, I would use animal logging over conventional methods in some situations” (Egan 1998).

Horse and mule loggers may be able to address their low numbers in certain areas as well as promote and maintain their profession by establishing training programs. In British Columbia, with the help of a grant from Forest Renewal B.C., the Cariboo Horse Loggers Association was able to develop a training program to maintain a horse logging industry within the region (Personal communication, Robert Borsato, President, Cariboo Horse Loggers Assoc., August 21, 1998). Such programs, which address silviculture, best management practices, and safety, exist for mechanized loggers in many states and possibly could be developed and adapted for animal loggers. Such efforts could help horse and mule loggers promote their craft as a viable harvesting alternative.

## Conclusions

This project has developed a foundation of information to be used for future research and extension projects as animal logging continues to be examined as a small-scale harvesting alternative. Investigations into the productivity, environmental impact and economics of animal logging and other low-capital systems are necessary to examine the viability of these types of systems, how they may contribute to the logging industry, the situations for which they are best suited, and their future as a harvesting alternative. Future forest management may hold a place for small-scale harvesting systems such as animal logging especially as our forest ownership becomes more fragmented and landowners’ objectives become more diverse. Increased knowledge of animal logging systems will help forest managers and landowners evaluate how this alternative harvesting system may be a part of their management options.

Whether the number of animal loggers decreases due to attrition or increases due to increased available markets and public desire, the opportunities for small-scale harvesting systems should increase with the expected increase in the fragmentation of forest ownerships. Therefore this article does not just provide anecdotes for the nostalgic forester, nor is it meant to deliver the message that animal logging is better or worse than mechanized logging. Rather, it points out that there is a need to further explore all aspects of low-capital, small-scale harvesting systems as they may become more important in the future. Animal logging is not likely to contribute any significant volume to meet the wood supply demands of the forest products industry. However, animal logging, and other small-scale harvesting systems such as farm tractor-based systems, may complement mechanized logging by filling the harvesting niches of very small tracts, low sawlog volume harvests, and aesthetically sensitive areas.

Currently there is some demand for animal-powered logging in Alabama. Since nearly all of Alabama’s horse and mule loggers live in the northern part of the Alabama, an area that includes southern extensions of the Piedmont and Appalachian Highlands, it is possible that small-scale harvesting systems operate throughout these regions of the southern United States.

Although horse and mule loggers may only be producing a small percentage of the Alabama’s roundwood output, they are providing a service for a number of landowners.

“As long as it’s got but one load, if I got time, I’ll pick it up. I’ve got this [side loading] truck rigged that I can hook the horse trailer right behind it, put the saw in it, and go cut it, and then go back home. That one load is just as important to them people as it is for people that’s got a thousand acres out there, and somebody needs to be set up where they can get it.” (Personal communication, R.L. Thompson, horse logger in northeast Alabama, May 12, 1988).

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