

BACKYARD WOODLOTS: FILLING THE SMALL ACREAGE SERVICE PROVIDER GAP WITH THE GREEN INDUSTRY

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ABSTRACT--To better understand the needs of small-acreage landowners and the readiness and interest of the green industry (landscapers and arborists) to be potential providers to service these needs, companion surveys were conducted with each audience in 2007 and 2008. The landowner survey sought to acquire data on basic demographics, impact of educational programs, which woodland management activities landowners presently carry out, and their willingness to pay for services. The companion survey of potential service providers in the green industry provided data on basic demographics, interest in training in small woodlot management, and what woodland management practices they presently offer to clientele. The findings have been used to design and deliver educational programs targeting landowners, natural resource professionals, and the green industry. The lack of management on small acreage woodlots is a growing concern as in sum they provide ecological and social ecosystem services that broadly benefit the society. A “chicken and egg” situation of simultaneously educating landowners and equipping service providers demands a comprehensive approach. In this paper, we present the results of surveys, as well as lessons learned in educational program design, delivery, and evaluation. We offer suggestions on the types of program approaches that appear most promising at affecting change. This presentation compliments *Backyard Woodlots: Large Scale Education for Small Scale Acreages* submitted by A. Downing.

INTRODUCTION

Private woodland owners holding less than 10 acres own 61 percent of the forest properties in the United States. In the Mid-Atlantic region this varies from about 60 percent in Pennsylvania and Virginia to about 84 percent in the highly parcelized states of Maryland and New Jersey (Butler, 2006). The actual percentage of woodland acreage held by those owning one to nine acres is relatively small in Pennsylvania and Virginia (about 8 percent). However, in the more heavily parcelized states of Maryland and New Jersey, the private ownerships one to nine acres in size represent 22 percent and 32 percent of the total private forest acreage, respectively.

The number of properties held by these individuals should attract the attention of natural resource related businesses. As parcelization creates more and more small acreage properties, the demand for land management providers can only increase. Private consulting foresters and loggers have been slow to recognize and respond to this new business opportunity where timber

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is not a major focus. Existing green industry businesses such as arborists and landscape contractors could benefit from engaging and training a cadre of natural resource service providers equipped and already willing to connect with small acreage clientele.

A companion paper presented at this conference entitled, *Backyard Woodlots: Large Scale Education for Small Acreages*, provides details on an educational program focused on the small acreage owners (Downing, Kays & Finley) . The outreach program uses a self-assessment manual entitled, *The Woods in Your Backyard: Enhancing Natural Areas Around Your Home* (WIYB), as part of an educational workshop to help small acreage owners learn how to make informed decisions that reduce their impact on water, wildlife populations, recreational opportunities, and forest health (Kays *et al.* 2006).

The first part of this paper provides details on the impacts of landowner training efforts and the willingness of landowners to pay for specific land management services in the State of Maryland. In the second part, it also provides findings from a companion survey conducted with green industry professional from the Washington, D.C/ Baltimore Metro area who had attended a presentation on *The Woods in Your Backyard* to help them recognize the opportunity to develop services for “backyard” woodlots. The survey provided insights on their perceptions of their potential new clientele, the woodland services they now offer, and their interest in additional educational programs.

UNDERSTANDING SMALL ACREAGE LANDOWNERS

Since the release of the WIYB manual, over 2651 small acreage owners, many of whom are volunteer master gardeners, and forestry volunteers, have attended either a single presentation or two-evening workshops in Pennsylvania, Virginia, and Maryland. Approximately 1300 Maryland participants have attended workshops and completed follow-up evaluations and exit surveys. These evaluations have helped identify the needs, interests, and actions taken by attendees.

Methods

In Fall 2007, a six-month follow-up survey was sent to 316 participants of one of sixteen *The Woods in Your Backyard* training sessions in Maryland held between September of 2006 and May 2007 (Kays & Green, 2008). The one- or two-hour workshops highlighted challenges faced by small-acreage owners, and demonstrated how *The Backyard* manual could be used as a learning tool to indentify and reach personal objectives. The survey response rate was 35 percent. Only 60 of the respondents owned 1-10 acres, so the analysis was restricted to this response set.

Results and Discussion

The respondents were primarily private landowners (83%). Beyond holding land, the respondents had additional interests in the program as 59 percent were master gardeners, 9 percent were forestry volunteers, and 8 percent were natural resource professionals. One-half of the participants were over 60 years old and one-third was 50-59 years old.

Respondents provided the following information about their properties. The term natural area refers to self-sustaining areas with native vegetation, water or natural features such as forests, old fields, wetlands, etc:

- 35 percent had less than 25 percent of their land in natural area
- 47 percent had 26-75 percent in natural area
- 18 percent had over 75 percent in natural area

Other key points from the survey include:

- 48 percent would like to convert lawn to natural area. Of these, 33 percent would like to convert up to 25 percent more lawn to natural area.
- 13 percent had enrolled in property tax reduction program
- 40 percent had assessed wildlife habitat, identified their interests, and developed a property map.
- 23 percent had contacted a service provider for assistance in implementing a practice and additional 7 percent planned to make such a contact, mostly with green industry professionals.
- 49 percent had shared information from the workshop or publication with others and 52 percent had initiated a discussion with friends or family about lawn conversion.
- 40 to 50 percent had completed workbook activities that assessed wildlife habitat, identified their interests in the land, and developed a map of the property.
- 35 to 76% had completed 8 of the 14 woodland management activities included in the survey and 39 percent wanted more in-depth information.

The manual along with the educational program suggest many woodland management activities that landowners might include in a plan for their property. A central interest in the survey was to understand landowner willingness to use specific activities and their interest in investing in services to complete these projects (Table 1).

Table 1. Woodland Activities of Private Landowners and Willingness to Pay.

Woodland Activity	Service Category	Percent Done Activity	Percent Willing to Pay for Service
Controlling vines in natural areas so they do not damage trees.	Forest Health	82	0
Building wildlife brush piles.	Wildlife	77	2
Felling hazard trees	Forest Health	63	8
Designing, creating or enhancing a trail through a natural area	Recreation	55	5
Planting trees or shrubs along a drainage to improve water quality	Water Quality	45	7
Herbiciding invasive and exotic plant species in natural areas	Forest Health	42	7
Cutting trees for firewood	Forest Products	42	5
Preparing and planting existing lawn area with tree seedlings	Forest Establishment	37	10

(less than 3' tall)			
Creating a tall grass meadow using less mowing or burning	Wildlife	32	8
Planning and establishing wildflower meadows	Wildlife	25	5
Preparing and planting wildlife food plots using corn, sorghum, clover, etc.	Wildlife	17	5
Cutting a few logs to mill for lumber	Forest Products	10	17
Cutting a few trees for income	Forest Products	2	12
Growing non-traditional crops such as shiitake mushrooms or ginseng	Forest Products	3	5

It is clear that respondents are willing to undertake activities that enhance and improve existing natural areas on their properties. Among most popular activities were: controlling vines, building brush piles, felling hazard trees, and creating or improving a trail. There is less likelihood they will have taken steps to convert lawn to tree cover; however, the responses suggest there is interest in finding others to help with this type of work. Activities that require special skills or specialized equipment, such as harvesting of trees for products other than firewood, are not commonly accomplished; however, respondents indicated an interest in having others perform these services on their land. Interestingly, respondents expressed little interest in non-timber forest products (Table 1).

The low level of activity related to forest products is consistent with the demographics of small acreage owners who are more interested in amenities, wildlife, and other non-consumptive objectives. The lack of knowledge about timber harvesting and non-traditional crops as well as the lack of foresters and loggers who can profitably work on small acreage properties likely contributes to the low activity in this area.

The survey did not explicitly ask if the respondent had done a given activity themselves or hired someone to have it done. However, we speculate that in most cases they had done the activity themselves. We also do not know the magnitude of any activities selected. It may be that cutting one vine means controlling vines, or cutting one tree for firewood is selective cutting.

Willingness to Pay for Services

We were particularly interested in the willingness of clientele to pay for services (Table 1). In general, there was little willingness to pay for most activities. As noted above, there is more willingness to pay for activities that require a chainsaw or specialized equipment and training (e.g., felling hazard trees, preparing and planting a lawn using tree seedlings, creating a meadow using mowing or burning, or cutting logs for lumber or income).

These landowners are very involved with their property and carry out a range of woodland activities. While many have contacted service providers for assistance, their interest in paying for services is low. If educational programs such as *The Backyard* manual help landowners learn

about their properties, it is possible that they will appreciate the benefits of certain management activities and be more willing to pay for services. It is encouraging that 10 percent of the respondents indicated a willingness to pay for preparing and planting an existing lawn area with tree seedlings and using tree shelters to establish a new forest area. This is a potential opportunity for green industry professionals and tree planting contractors.

Impact of More Intensive Landowner Education

The *Woods in Your Backyard* manual was designed to be used either as a “self-learning” tool or as a curriculum guide in workshops. In 2008, 61 Maryland landowners participated in two separate workshops. Each workshop included two evening sessions with one week between sessions. A combined pre- and post-workshop evaluation completed at the end of the second workshop scaled knowledge change for six topics covered in the workshop series. The scale ranged from 1 = not knowledgeable, to 10 = very knowledgeable. Participants assessed their knowledge at an average of 3.6 prior to the workshop, and at an average of 7.8 after completing the second workshop. Forty three participants (70%) planned to convert excessive lawn to natural area, and 85 percent planned to better manage existing natural areas. Over half of the respondents planned to complete the manual activities and 85 percent will use the internet to find maps of their property and other information.

The common extension model links knowledge gain to adoption (Rodgers 2003). As landowners learn more about their properties and benefits of certain practices, they appear motivated to implement a variety of woodland activities. Future workshop evaluations and follow-up surveys should assess willingness to pay for services. We believe landowners who complete the two-evening workshop series will be more likely to seek the services of professionals who can implement their plans.

THE INTEREST OF GREEN INDUSTRY PROFESSIONALS AS SERVICE PROVIDERS

Methods

In 2007 and 2008, a companion survey designed to complement the one used for small acreage landowner, was conducted of potential service providers from the green industry (landscapers and arborists) to better understand their readiness and interest in providing small acreage woodland services. The survey asked potential service providers about woodland management services they presently provide, their interest in training related to small woodlot management, and basic demographic data. The green industry survey used the same list of woodland activities as were included in the landowner survey. This approach permitted comparisons among activities and willingness to pay by landowners for the type of services that the green industry professionals offer.

Rather than conduct a mail survey with professionals, presentations were given at the Mid-Atlantic International Society of Arboriculture, Chesapeake Conservation Landscaping Council, and the Pest Management for Landscape and Nursery Managers and Arborists meeting in Fall 2008. The survey was provided to those attending the presentations and collected before they left the presentation hall. Fifty participants completed the survey.

Survey Results and Discussion

Of the 50 professionals who returned the survey, 34 % were landscape architects, 26 % landscape contractors, 26 % tree service or arborists, and 14 % lawn mowers. Three of four respondents were from Maryland. Most had been in business for more than 10 years, and 25 percent had 10 employees. The respondents shared that 36 % of their clients had 1-5 acres, and 12 % had 6-10 acres (52% did not respond). It was encouraging that nearly half (46%) of the respondents were interested in additional educational programs on Backyard Woodlots, and 68 % asked to receive mailings about upcoming programs.

The specific services offered by green industry professionals ranged from a high of 62 % for planting trees along drainage areas, to a low of 6 % for growing non-traditional crops (Table 2).

Table 2. Services Provided by Green Industry Professionals

Service Provided	Service Category	Percent offering service
Planting trees or shrubs along a drainage to improve water quality	Water Quality	62
Planning and establishing wildflower meadows	Wildlife	56
Designing, creating or enhancing a trail through a natural area	Recreation	52
Controlling vines in natural areas so they do not damage trees	Forest Health	52
Herbiciding invasive and exotic plant species in natural areas	Forest Health	46
Creating a tall grass meadow using less mowing or burning	Wildlife	42
Preparing and planting existing lawn area with tree seedlings (less than 3' tall)	Forest Establishment	40
Felling hazard trees	Forest Health	40
Building wildlife brush piles	Wildlife	34
Cutting a few logs to mill for lumber	Forest Products	18
Cutting trees for firewood	Forest Products	18
Preparing and planting wildlife food plots using corn, sorghum, clover, etc.	Wildlife	16
Cutting a few trees for income	Resource	14
Growing non-traditional crops such as shiitake mushrooms or ginseng	Resource	6

The top nine activities offered by the green industry professionals involve either specialized equipment or skills (see activities 1 to 9 in Table 2). Actually processing trees into products (i.e., lumber and firewood) is not as popular as activities involving changing land use or manipulating vegetation. Most landowners enjoy wildlife related activities and many people feed birds and other species. Surprisingly, service providers are not currently doing much to provide food resources for wildlife or enhance wildlife habitat. The continuing problem with overabundant deer in the region may be one reason that wildlife habitat improvement, which will usually benefit deer as well as other species, is not highlighted. Most of the services provided relate to water quality, recreation, and forest health and establishment.

This survey of service providers cannot be generalized to the overall green industry, given the select sample of green industry professionals. However, it indicates that green industry professionals offer woodland services and they are receptive to future educational programming to further develop their services. The challenge is to identify receptive businesses and to find the right venue for educational programs.

The survey of landowners found that only a small percentage of landowners are willing to pay for woodland services (Table 1). If educational programs such as *The Woods in Your Backyard* can help landowners learn about their properties and about the benefits of implementing woodland practices beyond what they can do themselves, it is possible that there are potential profit centers for new businesses that offer woodland services.

Service Provider Activity by Profession

The survey data provided information on services offered by profession. The respondents who identified their services as primarily lawn mowing offered a small percentage (about 13% on average) of the services in Table 2. Table 3 provides a comparison of services provided by landscape-related professionals (landscape contractors and architects/designers) and arborists (arborists and tree services). In general, landscape-related professionals offer unique services that involve forest establishment, water quality protection, wildflower meadows, and recreational trail construction. These are the services offered by the largest number of respondents in Table 2.

By contrast, arborist professionals offer unique services that involve felling of hazard trees, and cutting trees for lumber, income, or firewood – services offered by a very low percentage of the overall survey respondents (Table 2). Particularly interesting were the forest health and wildlife management services offered by both sectors of the industry, and the dominance in that by landscape-related professionals. These crossover service areas represent educational opportunities that would be attractive to both sectors of the industry.

The differences in services unique to each profession make sense as arborists tend to focus on chainsaw-related activities, and landscape-related professionals focus on the design and installation of land management activities. These insights suggest the need for specific educational programs for different green industry professionals and the potential for partnering with foresters and loggers.

Table 3. Percentage of Green Industry Professionals Offering Woodland Services by Category

Service Category & Services	Landscape Contractors & Architects/Designers	Arborists/ Tree Service
<u>Forest Establishment/Water Quality</u> Planting trees or shrubs along drainage ways, preparing, planting lawns with tree seedlings	69%	17%
<u>Wildlife Management & Recreation</u> Establishing wildflower meadows, designing or creating trails	68%	19%
<u>Forest Health</u> Controlling vines in natural areas, spraying exotic and invasive species	57%	27%
<u>Wildlife Management</u> Building brush piles, establishing wildlife food plots, creating tall grass meadow with less frequent mowing or burning	65%	30%
Forest Health Felling hazard trees in woodlands	28%	57%
Forest Products Cutting trees for lumber, firewood, or for income	15%	77%

Lessons Learned from Green Industry Education Programs

Based on survey results and discussions with green industry professionals, educational programs were developed specifically to target the green industry. In November 2008, a full-day program entitled *Landscapes and Backyard Woodlots: Business Opportunities for the Green Industry* was offered. The goal was to provide green industry professionals (i.e. landscapers and arborists) with tools and knowledge to expand their traditional business model to serve an evolving market managing and creating backyard woodlots (Kays and Downing, 2008). Although the workshop was widely advertised, response was low (23 participants); however, several attendees are now seeking opportunities in this new market area. Landscapers represented the majority of those attending, a further indication of the greater interest of these professionals as service providers.

The day-long program focused on teaching knowledge and skills. Fortunately, participants and presenters shared ideas and perspectives, resulting in shared benefits. Lessons learned included:

- While the landscaper and arborist survey indicated that this industry offered a variety of woodland services (Table 2 and 3), many workshop participants realize they are not well qualified to make management recommendations to landowners. To address this, they see a benefit in developing working relationships with a professional forester willing to meet clients and to make recommendations, which the green industry would then implement.

Traditionally professional consulting foresters work on a commission-basis deriving income from timber harvests. In the green industry, they would more likely be paid a fee.

- The low turnout for the *Landscapes & Backyard Woodlots program* may have been partially related to the concerns about uncertain demand and potential profitability in the current economic downturn. Many businesses are struggling and cautious about providing new services with questionable profitability, especially when they may require additional skills and investments. Future training programs for this audience must demonstrate proven profitability in given service areas. This could be addressed by including examples from successful businesses providing these services. Landscape-related businesses would be a logical audience to target initially.
- Arborists are reluctant to offer logging type activities on small acreage woodlots because of the differences in Occupational Safety and Health Administration (OSHA) regulations and insurance requirements between logging and their industry standards. Discussions with arborists at subsequent professional meetings find they do not want to be seen as loggers. Nonetheless, arborists express strong interest in learning to buck and grade logs from trees removed from residential or commercial properties. As a result, programs are being planned with arborist professional associations in Maryland to teach arborists about tree value, bucking trees for maximum value, and cooperating with local sawmills to receive fair prices. These programs will encourage cooperation to attain better market sawlogs which are normally cut for firewood.

Some arborists, when there is sufficient volume, have tried to arrange for loggers to pick up logs from residential properties. However, in many cases the logger failed to follow through, leaving the arborist with an upset client and an unsightly log pile they had to remove from the site. This suggests there is an opportunity to identify loggers interested in working with arborists on small-acreage properties, and to provide education on how to work with clientele in this niche market.

CONCLUSIONS

The focus of this study and the educational programs has been the Mid-Atlantic region; however, the challenge of encouraging management on small acreage parcels is a nationwide issue. Parcelization and fragmentation of the landscape has been documented (Butler 2006) and the challenge of providing technical and educational assistance to private landowners with small acreage tracts a reoccurring national theme (A Closer Look at Forests on The Edge 2008). There are likely regional differences, but the results of this paper should apply to regions with a high percentage of the private forest ownerships under 10-20 acres.

The need for, willingness, and readiness of landscapers and arborists to provide woodland services is a “chicken and egg” issue. Addressing it will require both educating landowners about the management of their small-acreage holdings to more effectively meet their needs, and equipping service providers to provide a comprehensive approach. In part, this approach will involve networking interested foresters and loggers to work with new clientele and green industry professionals.

The results from the surveys described in this paper provide insights into lessons learned and some generalizations about the needs of stakeholders for developing new business opportunities. There is clearly a need for the following:

- Target programs to arborists that focus on improved profitability from bucking, grading and marketing of logs to local sawmills and/or through the development of cooperatives that would increase market opportunities.
- Landscape-related professional will likely need to provide woodland services such as establishing small tree plantings, establishing wildflower meadows, and creating recreational trails. They would also be the primary provider of services such as controlling invasive and exotic species, building brush piles, creating tall grass meadows, and wildlife food plots, although some arborist professionals would also be interested in these services (Table 3). To build this opportunity, it will be useful to develop case examples of businesses that demonstrate success. Education programs should seek to improve skills and knowledge related to designing and implementing practices on small acreage landholdings which are not intensely managed.
- Foresters and loggers interested in working on small acreage properties need to be identified. This might be accomplished using surveys or through workshops at professional meetings. Here again, there will be opportunities to develop educational programs that link knowledge and skill sets of different professionals to new audiences and clientele.

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FOREST LANDOWNERS' PREFERENCES FOR FORESTRY EXTENSION SERVICES IN NORTH CAROLINA

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Abstract--The sustainability of forests relies on millions of non-industrial private forest landowners who make the decisions that affect the management of the land. The purpose of the study is to examine landowners' perceptions on the importance of different topics about which Extension Forestry currently offers information and education; and to describe landowners preferred distribution channels for information and educational material. The data were collected by a mail survey sent to 2600 non-industrial private forest landowners in 13 North Carolina counties in 2005.

Three priority groups were identified among landowners regarding the importance of different forestry extension topics. Timber producers (56%) emphasized the topics related to economic utilization of the forest. Landowners in the group Environmentally-oriented (one fifth), stressed only non-timber attributes. The third group, Producers of other goods than timber (one fourth), was interested in the topics related to alternative uses of forest.

Most landowners considered mailed material as an appropriate information delivery method. Also short educational programs were accepted by more than half of the respondents. Four distinct groups could be identified: passive landowners were not interested in any form of information; traditionalists preferred to receive all information by mail; users of modern methods preferred to use internet-based services and long-distance education; and the fourth group strongly emphasized participatory methods. The results show that there is a need to offer a wide range of forestry extension services and education that suit to the varying conditions and objectives of individual landowners.

INTRODUCTION

The nation's forests provide economic, social, and environmental benefits that benefit all of society. The sustainability of these forests relies on millions of non-industrial private forest landowners (NIPF). Sustaining these forests will require reaching these landowners who make decision that affect the forests (Jones *et al.* 2001).

The traditional means of reaching and educating these landowners in North Carolina have been through the Cooperative Extension Service (CES) (Barden *et al.* 1996). Nationally, only 14% of

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family forest owners have sought advice from a multitude of public and private sources that include state forestry agencies, Extension, federal agencies, private forestry consultants, forest industry, loggers, and other landowners (Butler 2006). In North Carolina the three major sources of advice are the state forestry agency, private forestry consultants, and Extension. Landowners whom seek education are often motivated to adopt a more active role in managing their forest (Baughman 1994) and are more likely to utilize government programs that enable adoption of practices (USDA 2005).

It is suggested to use diverse information delivery methods to reach the landowners, but the delivery methods must be matched with target audiences to insure their efficacy (Egan *et al.* 1992, Rodewald 2001, Londo & Gaddis 2003, Radhakrishna *et al.* 2003, Cartmell II *et al.* 2006). Not only the information delivery method should be suitable but also the subjects should fit landowners' needs. Forest ownership objectives have become an increasingly important issue in many countries and have attracted considerable research and investigation over the last decades (e.g. Hänninen & Karppinen 1996, Kangas & Niemeläinen 1996, Karppinen 1998, Karppinen & Hänninen 2000, Selby *et al.* 2007).

Dynamic forestland ownership patterns and increased demands for forest products and other benefits together emphasize the need to deliver relevant forestry information to a growing and changing NIPF population. The purpose of the study is to examine landowners' perceptions on the importance of different topics about which Extension Forestry currently offers information and education; and to describe landowners preferred distribution channels for information and educational material.

METHODS

The data were collected by a mail survey sent to 2600 non-industrial private forest landowners from 13 counties of North Carolina in 2005. The response rate in the mail inquiry was 15 %. The 13 counties, selected using a stratified random sample, were chosen from a population of 100 counties distributed between seven Cooperative Extension districts. A stratified random sampling of the counties was done to ensure that all regions of the state were represented (Figure 1). Within each county, 200 landowners were randomly selected from the 2004 present use-value tax records.

The questionnaire included questions concerning the importance of different forest related subjects of which the Extension Forestry offers information; and questions concerning the preferences for information delivery methods. The original variables were condensed by principal component analysis into a few interpretable components. The principal component scores were used as criterion variables for K-means clustering. K-means clustering attempts to identify relatively homogeneous groups of cases based on selected characteristics. Owner and holding characteristics were described by sample means and crosstabulations. Forest management experience, future plans for forest management, sources from which forestry information is obtained, and required forest-based income were also examined. Analyses were conducted by using SPSS.

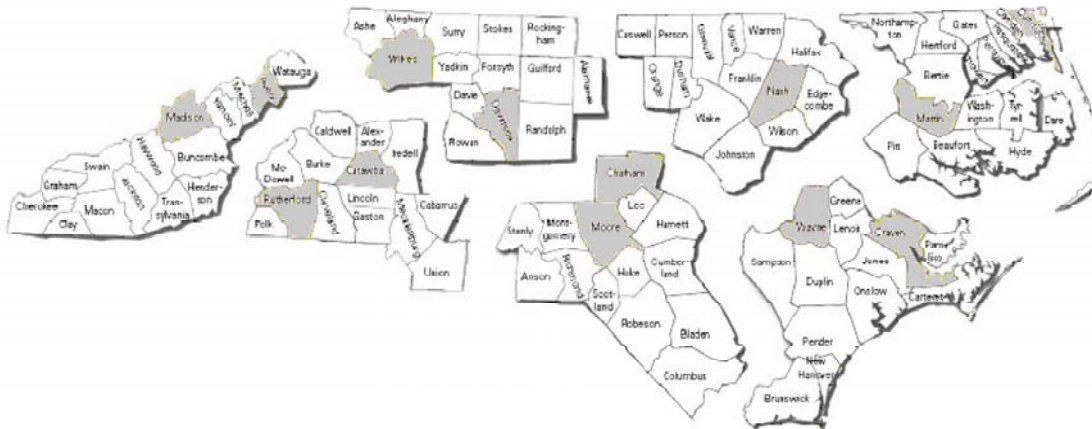


Figure 1. Distribution of 13 North Carolina Counties (shaded counties) selected through stratified random sampling across seven cooperative Extension districts.

RESULTS

Landowners were asked to rate the importance of different subjects about which Extension Forestry currently offers information and education, on a five point scale from 'very important' to 'not at all important'. Overall, issues concerning forest management, forest productivity and forestry activities were considered more important than factors related to recreation, landscaping or conservation easements. Landowners were divided into three groups by cluster analysis: Timber producers (56%) emphasized the topics related to economic utilization of the forest. In the group *Environmentally-oriented* (one fifth), only the non-timber attributes received positive loading. Third group, Producers of other goods than timber (one fourth), emphasized the possibility to receive profit from alternative uses of forest.

Landowners' preferences for information delivery methods were examined by asking the respondents to assess how appropriate different delivery methods are on a four point scale from "Would never use" to "Would often use". The six information delivery methods included mail-based material, web-based material, short programs, long programs, landowner association participation, and distance education. Most of landowners considered mailed material as appropriate information delivery method. Also short educational programs were accepted by more than half of the respondents. By K-means clustering four distinct groups were identified. Passive landowners (10%) were not interested in any form of information delivery methods presented in the questionnaire. Traditionalists (30%) preferred to receive all the information by mail - especially the modern information delivery methods were undesired in this group. Users of modern methods (one fourth) preferred to use internet-based services and long-distance education. Users of participatory methods (one third) supported all kind of information delivery methods but strongly emphasized the participatory ones.

CONCLUSIONS

Extension Forestry assists landowners to reach the economic, social and environmental goals they hold for their forests. Therefore it's crucial to recognize landowners' needs for information and services as well as to deliver the information by using method that the landowners are able to utilize. The results clearly support a need for developing flexible forestry extension services that suit to the varying conditions and objectives of individual landowners. Forestry extension efforts

can be more efficiently targeted by identifying the different preference groups and preferred information delivery methods among landowners.

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