

# GPS TECHNOLOGY: A MANAGEMENT TOOL FOR THE SMALL WOODLAND OWNER

Douglas J. McLaren  
University of Kentucky  
107 T.P. Cooper Building  
Department of Forestry  
Lexington, KY 40546  
E-mail: dmclaren@uky.edu

## Abstract

We live in a world where the human population is growing at a phenomenal rate. The natural resources of timber, soil, and water are being used or altered at an alarming rate. Two recently developed technologies, GPS (Global Positioning System) and GIS (Geographic Information System), are decision making tools that can support the work of resource professionals, managers, and lay persons. The question raised by the University of Kentucky's Department of Forestry Cooperative Extension Service is, "What is the resource landowner doing to keep pace with these new technologies?" The knowledge gap related to the use of these technologies is high for the resource owner who has neither the time nor the proficiency to use these software programs. The question typically asked by the landowner is, "Are the benefits of these technologies worth the time and effort required to learn them?" In this study, we evaluated how woodland owners responded to learning GPS and GIS technologies. After completing the day-long program, many landowners realized that they have the desire to tackle the next level of understanding of these technologies. Others recognized that their needs would best be served by professional resource managers who can assist them in making resource decisions.

**Keywords.** Forest owners, forest education, resource management, outreach, education

## Introduction

In Kentucky nearly half (47%) of the state is forested (Thomas et al., 2006). This number has decreased by 6% since 1988. Forest land conversion to other categories is the reason for the loss of some 700,000 acres since the 1988 reporting. There are over 400,000 woodland owners who own 78% of Kentucky's forested land. Much of Kentucky's woodlands have little or no intensive management work being accomplished to improve the status of these woodlands. Very few management plans exist on these lands, which is not unusual, as it is estimated that only 3% of family-owned forest lands nationally have workable forest management plans (Butler and Leatherberry, 2004).

So how do you attract woodland owners to programs that explain the benefits of proper forest and natural resource management? Over the years attracting new audiences with the message of

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“proper forest management” has been difficult for many of the programming agencies including the Cooperative Extension Service programs in Kentucky (Butler et al., 2007). Having fewer resource managers and fewer dollars to help in these educational decisions is leading resource educators to re-evaluate and assess new approaches to training.

One approach to attract new woodland owners and have them investigate forest management is through the use of new innovative techniques (Stombaugh et al., 2005). The intent is to “WOW” them with technology that can be used not only in forest management but also in other aspects of their lives. Secondly, we need to look at forest management from the eyes of the untrained forest resource owners – look at forest management options “one acre at a time.” Most resource professionals look at forest management from the concept of the “total landscape.” This could actually encompass thousands of acres. To a woodland owner this is overwhelming and possibly could discourage any extensive work in the woods.

The University of Kentucky’s Cooperative Extension Service training opportunities assist users in understanding GPS and GIS technologies. Through these hands-on educational programs, resource owners are taught how to determine the various levels of ability while maintaining their resources sustainability. In this study we evaluate how the woodland owner will respond to using GPS and GIS technologies in the formulation and updates of their woodland management plans.

One objective for initiating GPS or GIS forestry and natural resource education is to create a “hook” to first gain the attention of the woodland owner. After attaining their attention we hope to provide them with various potential options available to them for the management of their woodlands. Woodland owners seem to all approach fundamental forest management for a variety of reasons. Timber management is not an “important reason” for the majority of family owned forest lands (Butler and Leatherberry, 2004). Tomorrow’s consistent wood supply will need to be achieved from the private woodland owner, but it is being seen across the continental United States that only a small portion of the timber owners are indicating a desire to harvest timber. Woodland owners are willing to learn the information in variety of approaches. Providing informative programs are important but can only be implemented if the wood landowner can or will attend these programs. Many important values need to be acknowledged when developing programs for woodland owners. To this end, there is a need to first attract the attention of these thousands of woodland owners. “How to attract new unique woodland owners” is the question that has confronted forestry and natural resource educators.

## **Methods**

An organizational meeting was held with Kentucky’s stake holders in natural resources attempting to find a new audience for programming (Kittredge, 2004). After an initial meeting a program was designed based upon subject content and time and location that would be suitable. The program was turned over to the University of Kentucky’s Department of Forestry Cooperative Extension Service who developed a program format based upon the input and content of the original stake holders. The program was to evolve with a theme focusing on the potential economic benefits of woodlands owned as a family investment for timber production. The program was to be entitled, *One Acre at a Time*.

The program, *One Acre at a Time*, was held during the evening of a weekday in the month of January (2006). The location of the program was at McConnell Springs Park a city / county owned facility. This park is within one mile of downtown Lexington, KY and had a suitable setting for indoor programming. The program was short in duration, two hours, but had a variety of subjects that would reflect the concerns of the original stakeholders that initiated the program format (Downing and Findley, 2005). Subject content consisted of the following titles and was advertised in the marketing materials: Alternative Forest Crops, Estate Planning, Forest Economics, Forest Health, Future Forest Trends, Partners in Forest Management Planning, Timber Pricing, and Wildlife Options. The partners of the program were the Kentucky Forest Industries Association, Kentucky Division of Forestry, Kentucky Department of Fish and Wildlife, Kentucky Association of Consulting Foresters, Natural Resources Conservation Service, Kentucky Woodland Owners Association, Lexington-Fayette County Government Parks and Recreation, and the University of Kentucky's Cooperative Extension Service.

In conjunction with this seminar (one hour prior to the seminar) was a one hour Global Positioning System (GPS) option. The design of this segment of the program was to have a brief introduction defining GPS and how it could be beneficial to a woodland owner, precisely how to determine land acreage in the field (using a Garmin 76 unit). In the marketing materials of the meeting it was mentioned that a hands-on demonstration was going to be included. Sixty percent of the attendees of the seminar (180 people) attended the GPS session. The marketing of the seminar *One Acre at a Time* was seen to be successful. The program, due to the capacity of the location, had to be held a second time, maintaining the original program format and speakers (session 1 contained 101 people, session 2 contained 79 people).

The questionnaire and evaluation that was presented provided information concerning size, location, absentee ownership, and if a management plan existed for the property. Open-ended questions were asked at the end of the evaluation to provide an opportunity for the individual to give a broader explanation of their attendance. Everyone was provided an evaluation to be filled out upon completion of the two programs.

## **Results**

The results of the program greatly exceeded our initial expectations on several levels. Our desire was to simply fill the room comfortably with woodland owners desiring information concerning woodland management options. Our expectations were exceeded in that we had to reschedule for a second event due to room capacity. The majority of the attendees were new to forest management and natural resource programming. Seventy percent of the attendees had not attended similar programming events before. It was discovered this large number of new attendees was due to a very informative article that was made in the regional daily newspaper. (Lexington Herald Leader, Sunday edition).

The second success of the program was the number of the individuals that attended the GPS session, "How to Use a GPS Unit." This portion of the program was held one hour prior to the general forestry management segment. The intent was to provide anyone attending the *One Acre at a Time* segment of the program an opportunity to better understand GPS technology and some potential uses for forest management and natural resource issues on their land. The hands-on

segment of this session dealt with land acreage. As we noted earlier, 60% of those attending the main program took advantage of pre-seminar offering.

Upon evaluating the outcome of this program, the committee decided to follow-up on two requests made by the evaluations. The first request was, “to be better informed about future forestry and natural resource programs.” These individuals were placed on a permanent mailing data base that automatically alerts them to any of the programs that originate from any of the stakeholders that were vested in this program. The second request involved providing participants of this seminar, *One Acre at a Time*, a follow-up, extended GPS training course.

A brochure was again sent to the participants of the initial program. The same criteria were followed concerning the events time and location. It was held at the same location, McConnell Springs Park, and held during a week day evening. The attendance of this event was less than predicted. Only 5% of the original audience returned for an extended program in GPS and GIS exposure. This GPS / GIS program was three hours in length and provided the attendees with exposure in the collection of waypoint data, transfer to a form of GIS software (MapTech) and an introduction to Geocaching ([www.Geocaching.com](http://www.Geocaching.com)). The use of MapTech was to introduce the participants to a user friendly program that had some versatility for other land management options. The program also provided the user with other opportunities that could be used beyond this natural resource setting.

The participants found the GPS / GIS training interesting and informative but none of the individuals had a desire to extend their training opportunities. Several of the individuals had consumer-grade GPS units versus the mapping-grade units which were purchased for the training exercises. Their desire following the initial training exercises was to simply use the units for “Geocaching” type events rather than forest management opportunities.

## **Discussion**

GPS technology is a valued resource to the professionals that use the information for forest and natural resource management decisions. The GPS training that was conducted by the Cooperative Extension Service found that few individuals have a desire to become involved in the GPS and GIS technology aspect of managing their properties. It was indicated that few individuals have the desire to attend the level of proficiency of GPS and GIS technology beyond that of determining the basic concepts of distance and direction – “How far am I from a location and how fast am I approaching that same location?”

Other literature concerning the use of GPS technology by the individual woodland resource landowner does not seem to exist. This would indicate that more formal investigations of GPS and GIS use by the woodland owner for woodland management purposes should be initiated. Our observations suggest that woodland management programming efforts developed for landowners that involve GPS and GIS do not entice these owners to desire any direct involvement in data collection and interpretation normally performed by resource managers in their daily management decisions.

## Conclusions

Workshops conducted by Kentucky's Department of Forestry Cooperative Extension Service have focused on making woodland owner programs more relevant and successful. The question that many resource programs need to answer is how to better serve the growing number of individuals with woodlands with information that is relevant to their needs and interests. Extension has the flexibility to provide the diverse opportunities for these owners to learn. This opportunity of learning should be within their comfort zone and learning style. It is the intent of the professional resource manager to expand a woodland owner's knowledge base so that the owner can better manage their own properties, the watersheds, and communities in which they live and work.

The literature confirms it – there are now one million more new forest landowners than in the previous decade (Butler and Leatherberry, 2004). Only 9 % of all the woodland owners nationwide have identified that their primary objective for the land is for timber production (Butler and Leatherberry, 2004). From this small number of individuals it has been identified that only 3% have a written defined management plan (Butler and Leatherberry, 2004). As forest and natural resource managers, we need to provide all woodland resource owners the initial step in a better understanding of the resource they are responsible for. Woodland owners need to understand the fundamentals of maintaining and directing their lands for the greater good of all the citizens in the watershed, their community, and the larger landscape based community that we all live in.

Natural resource educators need to re-evaluate the ever-evolving and segmented forest community. Resource educators need to redesign their programs to fit this evolving community of land owners. The programs and approaches need to go beyond the traditional conventional programs that have been used in previous successes. As a resource professionals, we need to provide a better updated smorgasbord of educational opportunities. Newly designed program options for basic woodland management concepts can probably attract not only the newly established forest owners but maintain the interest of those we have successfully served in the past.

*Tell me I'll forget; show me and I may remember; involve me and I'll understand* (Chinese proverb).

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