

Service Learning as a Stimulus to Community Natural Resource Management

Thomas J. Straka, Professor, Department of Forest Resources,
Clemson University, South Carolina

Professional forestry and natural resource management undergraduate courses usually require a capstone course in forest resource management plans. This involves plan development for a forest ownership. Traditionally the ownership is a section of a university-owned forest or a hypothetical forest that exists only on paper. Service learning provides an opportunity to expose forestry students to a variety of landowners with diverse motivations, objectives, and forest conditions. This interaction tends to increase community involvement in forest resource planning, and landowners seek to become involved with the service learning. This project found that service learning led to increased student satisfaction and enhanced awareness of forest resource planning in the community.

Service learning in higher education is receiving wide attention as an innovation that enhances course concept acquisition and broadens student attitudes concerning social problems, community involvement, and civic activity (Moely *et al.*, 2002). Community and service learning also provides an outstanding framework to enhance natural resource management education by adding the human dimension to natural resource planning exercises. Natural resource planning issues are, by definition, human-based. In the past, much of the “laboratory” type natural resources exercises were case studies or field exercises on university-owned land. Service learning offers an opportunity to expand the laboratory to actual community situations.

Many landowners have no concept of natural resource planning and resource stewardship. Forest resource management plans are the foundation of responsible natural resource stewardship. The typical management plan is written for a nonindustrial private forest (NIPF) landowner by a state agency forestry commission or consulting forester. These landowners usually know little about forest resource planning, but are anxious to learn about opportunities to better manage their land (Melfi *et al.*, 1997).

Forest Resource Management Plans Courses

In many forestry and applied natural resource management curricula, the capstone course often involves the development of a comprehensive forest resource management

plan. The course is usually a combination of lecture and an extended field exercise type of laboratory. This means that each student or student team must have access to a forested property in order to devise their management plans. Management plans typically define the objectives of the forest landowner, describe the forest resource, outline the planned management activities necessary to achieve the objectives, and summarize the results expected from the plan.

Until the late twentieth century forest management plans tended to be primarily timber management plans (Straka, 1993). A timber-oriented philosophy fits well with a hypothetical forest and timber harvesting budgets, as the main parameters are defined in biological rather than social terms. For example, if a certain specified harvest is needed each year and a resulting forest structure is defined, biological parameter (primarily size and number of trees per land area) can reduce the forest to a textbook-type situation.

Timber management plans have given way to forest resource management plans that are concerned with both biological and social considerations. Multiple management objectives (not just timber, but also wildlife, recreation, soils, water, and aesthetics) are required and broad stewardship responsibilities are recognized. Realistic objectives offer conflict in achievement and are often not well-defined. Social parameters, such as a living landowner with sometimes ill-defined management objectives and uncertain expectations, expose students to a more real-world situation. In order to ensure that students will encounter multiple resource management objectives, non-timber goals, and less-definitive management problems, it is crucial to expose natural resource students to actual landowners. Students experience greater challenges – challenges that more closely resemble those they will find on the job.

Incorporating Forest Landowners into the Course

Forestry seniors have spent nearly four years in college learning concepts concerning trees and other natural resources. These concepts are relatively straightforward, and students thus have little fear of trees or forests. Most students, therefore, find it relatively easy to develop a timber harvesting budget and do not have a problem with timber management per se. However, operating within the confines of the real world management objectives and having to deal with a real person often makes

students apprehensive. When forestry students graduate from school and begin working in a forestry position, many will deal with landowners on a daily basis.

Only a small fraction of NIPF landowners have a written forest management plan (Thrift et al. 1997). But these landowners have diverse management objectives and often require that management activities consider much more than timber alone. A cross-section of landowners in any area will produce many management objectives that stress recreation, wildlife, or aesthetics in addition to timber.

The heart of a forest resource management plan is the landowner's management objectives and the means to achieve these objectives. The landowner determines the direction the plan takes and the expected final result, within the broad range of alternatives allowed by society. The management objectives define the overall goal of management and the constraints that affect attainment of the goals.

Service learning allows for incorporating forest landowners into forest resource management planning courses, and at the same time exposes these landowners to current philosophies, techniques, and requirements that go into this planning process. Thousands of forest landowners exist within reach of most forestry schools. Many of these landowners are anxious to increase stewardship and management on their properties if someone would just show them how. Our goal at Clemson University is to procure a forest landowner and a corresponding management opportunity for each senior in the capstone course. We also attempt to introduce the student to a professional forester who is acquainted with the management opportunity. The professional forester provides a quality control check on the field work, and allows the student to interact with a practicing professional.

A simple route for locating cooperative landowners with appropriate forest landholdings is to work through forestry or other natural resource agencies, firms, or other organizations. Often the cooperating organization's land can be used or the organization's clients can serve as cooperating landowners. Typical cooperating forestry organizations are the state forestry commission, private consulting forestry firms, federal agencies (e.g., USDA Forest Service, Department of Interior, or Corps of Engineers), and forest industry. By including a cross-section of these organizations, a diverse set of

management objectives and a variety of landowner types will greatly increase student understanding of management planning fundamentals.

Course Logistics

Forest resource management plan courses provide an ideal vehicle for service learning. Better stated, service learning provides an ideal vehicle for accomplishing the laboratory goals of the course while providing community benefits. Students express a strong desire to work on real-world forest tracts owned by real landowners. Forestry organizations and individual landowners are anxious to reap the reciprocal benefits that result from this planning and few situations are as well-adapted to this goal as forest management planning courses.

The forest resource management plans course can be divided into quarters. First, the instructor presents traditional lectures on forest resource management planning fundamentals and reviews background materials. Second, a set of natural resource professionals give informal lectures on management planning in their organizations. The instructor provides perspective on the various outside lectures and helps the students synthesize the material. For the third quarter, the students are in the field. The class finishes with written and oral presentations of the forest resource management plans in the fourth quarter.

Course objectives are to (i) give the student a thorough introduction to the forest resource management planning process, (ii) provide the student with an opportunity to contrast management plans based on varied management techniques (even-aged and uneven-aged management, for example), (iii) present management plans used by a cross-section of the natural resource management organizations and with a cross-section of management objectives, (iv) provide review in the field procedures and computational methods used in management plan development, (v) provide the student field practice in forest resource management planning on a NIPF landowner's property and to provide interaction with the landowner, (vi) provide a forum for student discussion of results of plan development for the various management objectives., (vii) provide interaction between the forestry students and the community and to increase community awareness of proper forest resource management planning, (viii) provide interaction between the

forestry students and the various natural resource management organizations in the state and to increase organizational awareness of Clemson University and proper forest management planning practices, and (ix) place each forestry student into a situation that requires problem-solving, one-on-one communication, and complex technical field situations that benefit both student learning and the community forestry planning process.

Class size in the forest resource management plans course at Clemson University averages 35 to 40 students. The students work in teams of at least two, each on a different tract. Each student is assigned a landowner and a cooperating forester from a natural resource management organization. Landowners come from the client group of the cooperating forester. Some landowners have existing management plans, while others do not. All landowners are selected because they have either challenging management objectives or a challenging physical situation on their tract. These landowners tend to have very high interest levels in forestry and many are leaders in terms of diffusion of innovation. These community leaders assure that the forestry information and advice tends to have a large impact on their friends and neighbors (Doolittle & Straka, 1987).

The educational levels of the landowners vary greatly. Many students feel the need to write at the college-level and this may be totally inappropriate for some of the landowners. The need to communicate with the landowners must be stressed by the professor. Students commonly submit partial drafts, primarily technical aspects, for in progress comments. Since two key "reviewers" of the management plan are the landowner and the natural resource professional, the students do not have a real opportunity to submit full drafts in progress. The final management plan is evaluated by the landowner, forester, and instructor. The landowner must be able to read the plan. Both the landowner and forester can help determine if the landowner's objectives are addressed. Management plan length varies to suit the landowner's needs, from 6 to 60 pages.

Each student is required to give a short oral presentation at the end of the course. Students are evaluated on the basis of their own presentations and their contributions to

the overall discussion on the various plans. The thrust of the presentation should be to contrast the various types of objectives and plans.

Traditional grading is difficult. Tests are not really appropriate and the planning requirements obviously vary by the type of plan each student selects. Necessarily, the written management plan forms the crux of the grade. The instructor needs input from the landowner and cooperating forester, especially on how well the management objectives were met. Writing and organization are emphasized. Contrasting the various plans and objectives via oral student presentations is also a grade component. The nature of the course requires a rather subjective grade determination. Weights for the components have varied from year to year – the written management plan ranges from 60 to 75%, the oral presentation 25 to 40%, and a final examination from 0 to 15%.

Student evaluations are very positive on the approach. Usually the student will comment on how much they liked the service learning approach, despite their early concerns over the unusual requirements. Responses to the question, "What did you like *most* about this course?" stressed "actually meeting a real landowner," "accomplishing something that is a real plan that will be used," "landowner might use my recommendation," "felt like I made a contribution to profession," "hands-on experience," "varied experiences" (e.g., obtaining maps from the courthouse and aerial photographs from government offices), "flexibility to do field work on my own schedule," and "learning how forestry really works in the real world."

The most common responses to the question, "What did you like *least* about this course?" were "some tracts are located far from campus," "need a standard plan to follow," "some of the people can be intimidating," "stress deadlines," "all tracts should be the same size," and "more time for field work." These concerns can be easily addressed because the syllabus is modified from year to year.

By the end of the course, each student has developed a relationship with a landowner and a professional forester. Given an option to hand-deliver the plan to the landowner or have the instructor mail it, almost all students choose to deliver it personally. The students are proud of the hard work that went into the plan. Each landowner has been enlightened on proper forest resource management planning. This

impacts not only these landowners, but the entire forestry community through their example and demonstration effects.

Service Learning Is a Two-Way Street

Service learning has been shown to enhance student retention, increase relevancy, and enrich quality of experience (Eyler & Giles, 1999; Yates & Youniss, 1996). It leads to increases in student self-understanding and enhancement, increased value expression, and better understanding of career options (Stukas, Clary, and Snyder, 1999).

Simultaneously, service learning increases a student's involvement with the community outside of the university (Gallini & Moely, 2003). The objective is to produce complementary benefits where both the student and the community experience positive change (Fiske, 2001). The student benefits by the connection of the service opportunity to potential increases in student awareness of community responsibility, self-image, and value acquisition. It also provides an opportunity for students to apply textbook skills to real-world situations. Service learning is intended to meet a community need and is best demonstrated when both the student and the community experience metamorphosis. The forest landowner views the results of forest resource management planning on his or her own land. The managed forest becomes an example of forest management and good stewardship visible to the entire community. Optimally, both the student and the community benefit; both learn and both experience some sort of transformation.

Forest resource management planning provides an optimal vehicle for implementation of service learning. Students are involved in the production of the basic service foresters provide; thus, they are in a position to provide an actual service as opposed to a hypothetical situation where the service produced is part of a textbook-type field exercise. There is a huge demand by forest landowners for this service, especially when it is provided free and their land management options can be examined thoroughly not just by the students, but by a forestry professor and another forester. The procedure is supposed to be for cooperating foresters to choose interesting and challenging landowners or tracts. Our experience at Clemson has been that word spreads in the forestry community and landowners contact both the foresters and professor asking about getting into the management plan program. A proper management plan is a prerequisite

to obtaining federal and state cost-sharing monies for reforestation practices.

Recommendations from the plan often lead to cost-sharing opportunities in forest management and anything that enhances the chance a landowner will obtain cost-share funding leads to a high level of landowner interest. This type of service learning is so popular within the forestry community that a waiting list of landowners is necessary.

Participating landowners report an increased understanding of forest resource management planning, with more active management of their forested property. They report a positive impact on their neighbors and the community. The management plans produced as part of the class are generally implemented. Overall, they see this service learning course as a valuable community service.

The cooperating natural resource organizations also benefit. Foresters gain a broad up-to-date perspective on forest resource planning by working with the students and benefit from having their current management practices and techniques questioned by the students. Students do not accept the status-quo and ask questions like, "Why do you do it this way?", or "Wouldn't his work better if we used some new piece of software to solve this problem?" The nature of the course is that the foresters are exposed to new ideas from the students and from the interaction of the various forestry organizations involved.

Over time, the course becomes part of the fabric of the forestry community. Knowledgeable landowners tend to know the details of the course (often having participated at one time) and spread the word. Landowners tend to be very observant of what goes on over the neighboring forest tracts. Management plans lead to improvements in forest management practices and neighbors often want to know what instigated the change. The newly-managed tracts serve as magnets to arouse curiosity and to increase community involvement in forest management. The tracts serve the same function as Cooperative Extension demonstration areas or tracts. Good forest management gets landowners interested in applications on their own land.

Of course, the main beneficiaries of service learning in forest resource management planning are the students. They are provided real-world management situations with all the complications. They have to deal with living landowners and this is usually a skill they have not developed. Once employed, it is a skill that often

determines how fast they move up in a forestry organization. Since two-thirds of forests in the South are controlled by these small-tract landowners, it is of great advantage to acquire the skills to deal with them. Course evaluations shows that the students appreciate this opportunity.

Service learning is a two-way street in that the students and landowners benefit equally. Both get something of high value. At the same time, cooperating foresters and organizations and the forestry community are benefiting. Both have their horizons on forest resource management planning expanded. There is no question that all the groups involved benefit, and that a major transformation occurs in student learning and community acceptance of forest resource management planning.

Conclusion

Service learning is a strong tool to achieve many education goals. It expands student learning through active participation in the process being learned and can impact student motivation, retention, and self-confidence. Forest resource management planning is a course that is field-based and operational. It should involve active planning. Limited educational resources often lead to the course being taught as a laboratory exercise on a contrived forest tract with contrived forest landowners. The student then learns nothing about the human interaction involved in real-world planning and the complexity of modern planning issues.

Most forest landowners do not have a management plan and have limited exposure to the planning process. Since planning leads to forests that are perceived as "better managed " and more apt to be eligible for cost-share funds, landowners tend to be quite interested in how to get involved in the planning process. Service learning provides just this opportunity and landowners are anxious to get involved. This involvement increases community awareness of forest resource management planning and forest management opportunities. The forestry community is transformed into one that broadly integrates forestry planning into farm and land management. It is an excellent example of service learning that effects positive transformation in a community.

Students, forest landowners, community leaders, and forestry organizations have been eager to participate in Clemson's forest resource management planning course. Educational experience, landowner acceptance of the need for a forest management plan,

community acceptance of resource planning, and overall environmental quality within the community have been enhanced. Service learning and forest resource management planning mutually promote student and community development.

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About the Author

Thomas J. Straka is a professor in the Department of Forestry and Natural Resources at Clemson University in Clemson, S.C. He has been at Clemson for 15 years and spent 8 years on the faculty of Mississippi State University. At both universities he taught the forest resource management plan course and at both universities he moved the course from one based on contrived forest tracts on the university forest to forests owned by real-world people. You can contact the author at Department of Forestry and Natural Resources, Clemson University, Box 340317, Clemson, SC, 29634-0317; E-mail: tstraka@clemson.edu, Telephone: (864) 656-4827.