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The Design and Value of Service Learning Partnerships in State Parks

Introduction

The park's perspective. Chronic revenue and budget shortages have led state and national parks to consider alternative methods to achieve their recreation or resource management missions. Attempts to maintain public facilities at reduced cost have included consideration of privatized and development-oriented facilities in an attempt to obtain economies of scale and lower personnel costs (see Callahan 1989; Power 1998; Reiter and Askari, in preparation). One rationale behind these changes is that the funds saved by such privatization efforts can be channeled into the management, resources, or personnel of park operations, though competition for funding from other government sectors can prevent this transfer from occurring.

A state park's resource management plan is a long-term strategy that is commonly subject to review by central office staff, managers, and resource specialists. The focus of such a management plan is to identify primary resource concerns and establish objectives to address them. As management objectives are established and information needs determined, park staff attempt to address priorities as funding and staffing allow. But particularly in times of stretched park budgets, management plans and the funds set aside to address resource concerns can be redirected or eliminated altogether. This can leave parks with static or reduced personnel to implement their present management plans or perform the necessary research to address new or updated management issues. More importantly, it can lead to management decisions based upon incomplete, outdated, or missing information. As a result, new ways to accomplish planning and resource management goals are also being sought.

The university's perspective. Recently there has been concern over the number of students who do not complete college science and math

programs. A number of studies have attempted to find answers to this complex issue. In a report by the Boyer Commission (1998), a new model of undergraduate education was recommended that called for "connected and integrated communities" rather than the fragmentation that has occurred between departments and the teaching and research communities. As a result of this fragmentation, the report argues that students do not know how diverse fields overlap and intermingle. They identified "collaborative learning experiences," integrating the skills of analysis, evaluation, and synthesis, as the hallmark of a good education. The report further recommended making research-based learning the standard for undergraduate education, where "learning is based on discovery guided by mentoring rather than on the transmission of information." Finally, the report encouraged "faculties to reexamine their methods of delivering education, to ask how, in every course, students can become active rather than passive learners."

At the conference "Expanding Opportunities in Oceanic and Atmospheric Sciences" held at the University of Maryland–Eastern Shore (USDOC 1999), a student panel named two factors that had the most influence on participants' career choices—local environment and early exposure. The conference also identified professional contacts, research experience, and interdisciplinary strengths as important for students (minority students in particular) to enter and succeed in graduate programs.

Field experience has been identified as a way to get students involved in the research process, enhance and broaden their knowledge base and their ability to synthesize and analyze information, engender interest, and increase student retention in scientific fields (Light 1992; NSF 1993, 1996). For those students who hope to work within natural resource fields or continue their studies in a resource-related discipline, participation in an experiential learning program would enhance their educational experience and offer a competitive advantage in applications for employment or graduate school.

An opportunity for mutual assistance. Given the range of interdisciplinary resource management issues to be addressed in state parks, there exists a significant opportunity for a synergistic experiential learning relationship with universities. Through such a program, the need for field experience to improve student retention and preparedness can be turned into a positive for the state. By providing "manpower" to address critical resource issues, the program provides the opportunity to (1) sharpen the skills of baccalaureate and graduate students in resource management, (2) address a collection of interrelated resource management issues of real-life significance, and (3) develop the

interdisciplinary resource managers who will be required by the state and nation in the near future. In return, park managers would have a means of obtaining information for important management decisions that may not otherwise be obtained because of personnel or financial constraints.

We recommend addressing both park and university concerns by establishing service learning relationships between university departments and state parks, matching the academic goals of students and faculty with the needs of park managers. As management plans are considered and research objectives established, park staff members meet with interested students and faculty to help design projects so that they address both the interests of the students and the priorities of the park's management plan. A program of this type addresses many of the issues outlined earlier for both parks and universities, and includes many of the recommendations made by the National Science Foundation (NSF 1993) and the Boyer Report (1998), including integrating research into the teaching curriculum.

Over the past eight years, service learning programs have been established three states: in Florida, between Blue Springs State Park (BSSP) and Seminole Community College (completed); in Indiana, between Brown County State Park (BCSP) and Indiana University/Purdue University–Columbus; and, most recently, in Delaware, between Trap Pond State Park (TPSP) and Delaware State University (DSU). The Indiana Department of Natural Resources has offered the service learning program initiated at BCSP as a model to its other state parks, forests, and managed areas in order to extend the benefits of the program statewide. With support from state resource officials, university faculty, and park staff, these programs have offered exciting learning opportunities to university students while demonstrating the potential to serve elementary through high school students, local interests, seniors, and the visiting public.

Establishing a Program

The service learning programs were established through initial contacts between one of the authors (Reiter) and park naturalists or principal managers. Where mutual interest was found, a program was designed that would serve both the needs of the park and the students. The finalized program contains up to three different components that can be implemented at any time or left unimplemented depending upon the needs of the park: K-12 and public environmental education, college-level service learning research projects, and a summer residency program in interdisciplinary resource management.

K-12 and public environmental education. Our nation's parks are a favorite destination for the public

throughout the year. Parks and their facilities act as resource centers for campers, hikers, fishermen, etc. during the outdoor season, visiting school and club groups during the school year, and the general public at any time. In most state parks, the interpretive centers, trails, and facilities are utilized heavily each spring through fall. It is common for groups to contact the park naturalist to organize trips and programs. The number of requests can become difficult to accommodate if staffing is inadequate or during busy times such as the end of the school year. A service learning relationship can help provide a source of students and faculty to supplement the normal park program staff during peak seasons.

For example, not all requests to meet with a naturalist–interpreter can be accommodated at BCSP because of limited staffing, forcing some groups to conduct classes, fieldwork, or outdoor exercises on their own. While facilitators are available in a wide range of programs (such as Project WILD, Project WET, etc.) to train interested educators, the programs are presently separate efforts. The service learning program at BCSP addressed this issue by offering to act as a coordinating body and as a source of programs for K-12 and general-public environmental education efforts at BCSP. The program provided the capacity to offer grade school, high school, and general-public environmental education programs run by college students, allowing for a range of programs for visitors without requiring park staff. At the same time, environmental education and field biology students obtained experience in program development. This can be particularly useful at locations such as TPSP, where a renewed emphasis on advanced programming for secondary school students and beyond is being encouraged despite staffing restrictions.

To give an illustration, a student participant was responsible for obtaining the background information necessary to initiate a friends' group at BCSP. The group has since been established, and is providing a useful conduit for information, ideas, and activities. The group recently dedicated an "easy access" trail for National Trails Day (June 3) that they helped fund and install, and have provided a source of feedback between park staff and the general public. The group is increasing in membership in its first year, giving the park a source of volunteers and funding when paid staff are not available.

By providing training for teachers and students, such service learning programs can fulfill a need for environmentally aware citizens in the local community, the student population, and the state without increasing time demands on park personnel. By organizing and directing such programs, the population of knowledgeable students and teachers is en-

hanced, and a clearinghouse of environmental education opportunities provided for those who wish to further their own academic pursuits at a state park.

College-level service learning research projects. In many locations, parks are attempting to supplement their own staff's research efforts. In such a situation, students wishing to gain field experience, or faculty wanting to further their own research endeavors, can be valuable to park staff by providing an important and inexpensive data source to help the park address its management goals.

Students interested in this portion of the program meet with a faculty advisor and a park representative to identify a project that covers the academic needs of the student and the information needs of the park. The project is agreed to and carried out by the student under the supervision of faculty and park staff, and the results are provided to park managers in both written and oral form for use in management plans. Students are also free to publish their data through traditional academic channels. In this way the student gains the research and communication experience recommended for retention and strength of background, while the park gains valuable data for its management decisions.

At TPSP, concern exists over the condition of the park's ponds and their population of bald-cypress *(Taxodium distichum).* However, there is a lack of basic data from which to derive a comprehensive management plan for the ponds and the cypress, and limited personnel hours available to perform the basic research. The service learning program in conjunction with DSU, as its first step, aims to provide field equipment and personnel to begin collecting the data necessary to make management decisions. Issues addressed in a similar way at BSSP included the behavior of the rare Blue Spring hydrobe *(Aphaostracon asthenes)* and Blue Spring siltsnail *(Cincinnatia parva),* the proliferation of invasive exotic plants from outside park boundaries, and the use of controlled burns in regenerating native vegetation.

At BCSP, the timber rattlesnake *(Crotalus horridus)* is an endangered species that occupies the hilly terrain in the park's backcountry. While rare in the state and important to the ecology of the hills, encounters between visitors and snakes can be dangerous to both. The snake is presently being monitored for its movements, hunting behavior, and den selection in order to obtain information for addressing management concerns. Also, 24 of the over 100 wildlife ponds on park property were selected for a herptile population study to assess the frogs, salamanders, newts, etc. occupying the ponds both before and after planned habitat manipulations. An investigation of the shrew population is presently being conducted to follow

up on previous surveys in the early and late 1980s that showed population declines prior to deer management efforts in the park. Now that deer control has been initiated at the park, the study is being redone to determine if shrew populations have responded.

By providing a research-based service learning component, students who desire a career in ecology, biology, environmental science, or resource management gain invaluable field experience as well as a large field site that would be unaffordable for most small colleges and universities. In return, the park receives a volunteer work force capable of addressing critical management questions that would be in danger of being ignored under traditional park programs. The link between school and park thus provides financial and environmental benefits to the state for a small outlay in time and organization.

Summer residency program in interdisciplinary resource management. The need for environmental education does not stop with undergraduate students. Resource managers require knowledge of the science behind the systems they manage, as well as the economics, politics, sociology, education, etc. necessary to facilitate their relationship with the public and the political system. The reality of today's educational system is that advanced training usually comes in specialized fields that make it difficult for those aspiring to a career in resource management to obtain the breadth of information they will eventually utilize. Parks often face the choice of hiring an individual with a strong science background but lacking the non-scientific support information, versus another individual who has the management training but lacks a scientific understanding of the systems he or she would manage.

Service learning programs can address this discrepancy in resource manager training by implementing a summer residency program in interdisciplinary resource management. At BCSP, an old Civilian Conservation Corps cabin, originally built as a residence but later used as a park office, is now utilized as storage for printed brochures and camping forms. Park administrators agree that the structure could lend itself to a small dormitory if repairs were made to accommodate student and faculty residents, and have approved its use for a residential field lab. Plans are underway to obtain funds to renovate the interior of the cabin and the nearby garage to house a limited number of students and faculty during the late spring and summer months. Once established, the program can offer four-week residential courses in interdisciplinary resource management. Participants would spend half of each day in projects and directed study of the natural systems of BCSP, and the other half of each day learning the business, economics, and public relations aspects of park

management.

By offering a training component, the service learning programs help to provide the interdisciplinary individuals needed to address modern resource management issues. Students living on park property will be able to conduct their classes and research projects *in situ*, hands-on and without interruption, while serving to supplement park programs and update park naturalists with their daily investigations.

Conclusion

Parks exhibit a vast array of natural environments of incredible beauty that attract millions of visitors annually. Each year our country's parks continue to host visitors from all 50 states and many foreign countries with services and facilities created to provide the visiting public with a positive outdoor experience.

Yet with organization, state parks throughout the USA can offer more to the public than simply a recreation site. As quality outdoor recreational facilities attract visitors in increasing numbers, states have realized that it is the natural environment people have come to see and use all along; it's the "draw" that makes the state park experience different from visiting alternatives such as theme parks or museums. But as increasing numbers of visitors affect parks across the country, resource management must receive increasing attention if parks are to preserve this "draw" in perpetuity. The service learning programs we have described are designed to contribute to the continued health and integrity of state park ecosystems in a way that benefits visitors, managers, students, and the state. They can also help tomorrow's concerned citizens and conservation leaders become better informed about today's management problems—issues that face the park's, and ultimately the nation's, natural resources.

Hillary Rodham Clinton, in a letter to National Trails Day celebrants, stated that "partnerships" are a sign of the times, and that she sees them becoming a trend nationwide as interested resource users return to volunteer their time and talents. In this respect, it is hoped that the service learning programs we have designed can serve as models of cooperation for other state parks and natural areas with nearby academic institutions throughout the country. By linking the park to a university campus, the strengths of both institutions can be combined synergistically to provide important support for their missions. The arrangement promises to benefit the academic preparation of the students, the management decisions of the parks, and the quality of the environment.

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