

Utilizing Volunteers on Fisheries Projects: Benefits, Challenges, and Management Techniques

ABSTRACT

We utilized 253 volunteers on a research project investigating predation impacts of nonnative fishes on native fishes in the Verde River, Arizona. Volunteers donated time that equated to over \$42,000 in salary costs. We exposed a diverse group of volunteers to conservation issues, helped deflate misconceptions about conservation and agency roles, developed a network of expertise, and completed a research project instrumental in determining future management of native fishes in Arizona. We found recruiting and managing volunteers could be time consuming and stressful, therefore we developed guidelines to help reduce the challenges associated with volunteer service and streamline field operations. We compiled volunteer lists for sample sites and tailored communications with individuals by identifying how volunteering on our project would meet their goals. We also developed methods for briefing volunteers on safety, equipment use, and data collection. These techniques allowed us to improve the safety and efficiency of using volunteers on the project.

Laura L. Leslie
Cristina E. Velez
Scott A. Bonar

Leslie and Velez were research assistants at the University of Arizona for this project. Leslie is currently a fisheries research biologist at the Arizona Game and Fish Department, Phoenix. Velez is currently a wildlife biologist with the National Park Service, Lake Mead National Recreation Area, Boulder City, Nevada. Bonar is unit leader and associate professor at the Arizona Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, University of Arizona, Tucson.

Governmental and conservation agencies have a long history of utilizing the time, talent, and expertise of volunteers. Volunteers donate 1.4 million hours a year to assist with restoration, conservation, and customer service for the U.S. Fish and Wildlife Service (USFWS), accounting for 20% of the work completed by the USFWS (<http://volunteers.fws.gov/>). Volunteers also play a vital role in water steward projects, water quality monitoring for the Environmental Protection Agency (EPA), and in the restoration of threatened and endangered fishes. As a result of this long history of volunteerism, various guides have been published for potential volunteers (Heritage Conservation and Recreation Service 1978; Seredich 1991; DiGeronimo 1995). However, while many fisheries professionals rely on volunteers to assist with fieldwork and data collection (Good 1990; Loftus et al. 2000; Bray and Schramm 2001), there are no guides explaining how to effectively use volunteers in fisheries research.

From March 2002 through January 2003, we used over 250 volunteers on a University of Arizona research project investigating predation impact of nonnative fishes on native fishes in the Verde River, Arizona. Our intense field season required sampling three sites a week with a field crew of at least six people. Like many projects, our funding was limited, so we were faced with the decision of whether to recruit volunteers or to substantially reduce the scope of the project. We decided to utilize volunteer service in the field portion of our project, allowing us to address key study objectives and at the same time expose a diverse group of volunteers to native fish conservation. Our volunteers came from all age (7–70 years of age) and experience groups (students to fisheries biologists). Volunteers assisted us with such tasks as recording data, setting block nets, weighing and measuring fish,

collecting stomach samples, and electrofishing. Our daily field sampling crew consisted of two paid staff and four volunteers. Typically volunteers assisted us for 6–10 hours per day, and many assisted us for 1–2 days per month during the entire 10 months of our field sampling. Our project would have been seriously impaired without the assistance of these volunteers.

Guidelines and suggestions for finding and recruiting volunteers, managing them in the field, and encouraging their continued service would have been beneficial to the development of this study. For this reason, we decided to (1) discuss the benefits and challenges associated with using volunteers on a fisheries research project and (2) describe how we recruited, trained, and managed volunteers.

Benefits of volunteer service

Use of volunteer service can provide cost savings on projects, public education, political support, a network of expertise, and allow graduate

Volunteers assist with data collection.



Laura Leslie



LAURA LISLIE

Volunteers from a wide variety of backgrounds assist with raft electrofishing.

students to develop job skills and make job contacts.

Use of volunteers can save project monies because hours donated by volunteers can translate into salary costs that can be used as matching funds on federal grants. On the Verde River Project, 3,840 hours of volunteer time were donated, which equated to \$30,720 in salary costs and \$12,000 in travel and per diem expenses. If we had applied for federal grants, we could have used these salary costs as matching funds.

Working with volunteers presents a valuable opportunity to effectively educate these members of the public about conservation issues, gain public support, and correct misconceptions about conservation and agency roles. Furthermore, field experiences provide the public with enjoyable experiential learning opportunities. Prior to our Verde River Project, many volunteers were unaware of current issues impacting native fishes and why native fish conservation should matter to them. We were able to educate people on the various nonnative species in the Verde River and the impacts these species have on Arizona's native fishes. Conversely, our staff biologists were also able to gain knowledge and expertise. Our volunteers came from a wide variety of backgrounds and had expertise in subjects such as mechanics, computer programming, history, politics, and biology. They challenged us with questions on conservation issues and offered advice and assistance improving the efficiency and flow of our fieldwork, developing database programs, and wiring and repairing field equipment. Volunteers from the area offered personal accounts of the history of the

Verde River that may not have been available to us otherwise, such as historic stocking and land use practices. The information we gained from our volunteers has assisted us with the formulation of management and research objectives in the Verde River, and even though the Verde River Project is completed, we continue to rely on the expertise of various volunteers.

Because we used a large pool of volunteers, we necessarily developed supervisory and communication skills suited to a wide variety of personality types. Supervising volunteers required careful planning of safety training, explanation of fieldwork, and close monitoring of data collection. Many volunteers had never worked on fisheries projects and did not understand how equipment worked, appropriate safety measures, or why specific techniques or methods were being used. As supervisors, we had to use a wide variety of communication methods to provide a safe and enjoyable work environment and maintain the integrity of the data being collected. As researchers, we developed the ability to communicate effectively to the public about scientific issues and methods. By refraining from using statistical and scientific terminology, volunteers indicated that we were able to tailor and improve our communications with them.

Because many of our volunteers were established natural resource professionals, they were an excellent source of information about future career opportunities, especially for graduate students. As graduate students, we developed relationships with our volunteers; they came to know us as a peer or a friend, not just



CRISTINA VELEZ

Volunteers Ann Widmer and Corissa Carveth transfer fish to live cars.



DIDO MARTINEZ

a resume. Furthermore, they witnessed our capabilities and were often willing to mention us to supervisors hiring employees. These volunteers were also an excellent source of inside information on future employment opportunities and the benefits and shortcomings of working in different agencies.

Challenges when using volunteers

Volunteer service is usually a positive experience, however, there are challenges associated with using volunteer service. Recruiting volunteers consumes time and generates stress because the ability to complete work on schedule depends on the availability and skills of the volunteers. At the beginning of our project, we spent considerable time (10–20 hours/week) developing a list of qualified volunteers. We then developed a routine for contacting and persuading volunteers to participate, which allowed us to reduce the time associated with finding volunteers to approximately 5 hours/week. Often we were able to recruit more people than needed, but occasionally we did not have enough volunteers to complete the work.

New volunteers were continually recruited, requiring frequent training and potentially introducing variability to the data. The efficiency of data collection did not increase as the project continued, as is the case with permanent hired staff. There was a learning curve associated with new volunteers that is not present when using permanent staff. This learning curve and associated training resulted in workdays being 1–2 hours longer when our field crew was composed solely of new volunteers.

Relying on volunteer service to conduct fieldwork can also be stressful because volunteers can sometimes be unreliable. We often scheduled extra volunteers to ensure we had enough assistance to finish our work in case a scheduled volunteer did not show up to assist us. However, despite our planning, there were two occasions when all four of our scheduled volunteers failed to show up to assist us for the day. When volunteers did not call ahead of time to let us know they could not assist, we eliminated them from future consideration for fieldwork.

Techniques for working with volunteers

Locating volunteers

There are several options to consider when searching for and recruiting volunteers. First, we compiled a list of potential volunteers from various sources such as volunteer lists from other agencies, local interest groups, newspaper articles and advertisements, environmental fairs, and local biologists. We received our initial volunteer list from the Arizona Game and Fish Department. This list was composed of people who had assisted with fisheries projects in the past. We sent personalized e-mails to every individual on the list to establish if he, she, or someone they knew would be interested in helping with our project.

Given the high number of volunteers needed for our project, we also explored other potential sources of volunteers (Figure 1). Local interest groups and clubs were a rich source of volunteers. We contacted many of these groups by posting a description of our project and our request for volunteers on listservs throughout various universities and colleges, government agencies, and local clubs. We contacted college professors and asked them to notify their classes of this learning and research opportunity. We also contacted local fishing, hiking, and bird watching clubs as well as the local Kiwanis Club, Sierra Club, and Nature Conservancy groups. We provided these groups with a brief background of the scope of our project, a summary of the work we were doing, and a schedule of our sampling trips. We also asked these groups to post this information on their websites and offered to present information about our project at their meetings.

We recruited various volunteers through newspaper articles about our project. The press was effective in educating the public about native fish conservation, reaching a broad range of individuals interested in volunteering, and in recognizing funding agencies. We invited several local reporters to assist us in the field, who in turn published information about our project and how to contact us to volunteer.

We also successfully recruited volunteers at local environmental fairs. We prepared a poster showing photographs of our fieldwork and describing the plight of native fishes. We had informative fliers available for volunteers to take and examine. Attending local environmental fairs was an effective way to meet people and get them excited about assisting with our project.

Local state and government agency biologists were some of the most valuable volunteers. While these biologists were often very busy, many of them rarely got the opportunity to assist with fieldwork and welcomed the opportunity to help out on different projects. Furthermore, their agencies donated their salaried time to the project, provided extensive knowledge, and became valuable professional contacts for graduate students. Biologists that volunteered from project funding agencies successfully kept those

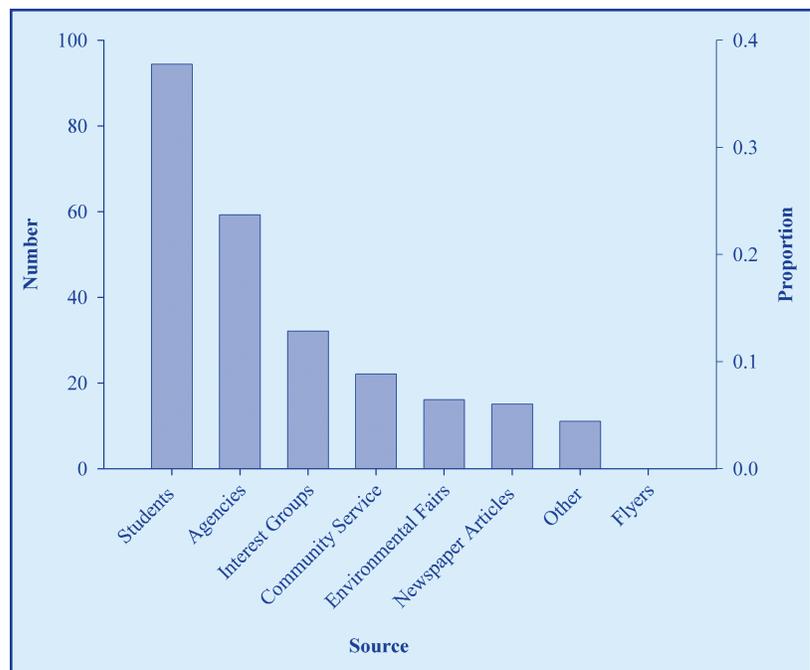


Figure 1. Source of volunteers who assisted on the Verde River Project (March 2002–January 2003).

agencies updated on project progress through briefing reports and personal communications.

We had no success recruiting volunteers through fliers posted in community centers and public areas. We had limited success with community service personnel. We found that people forced to help us (i.e., community service) were often a hindrance. We occasionally had safety concerns using community service personnel, and carefully checked their backgrounds and under what conditions (supervised or unsupervised by probation officer) they would be working with us before we enlisted their help.

Recruiting volunteers

Keeping a positive attitude and stressing the importance and value of our project to potential volunteers improved our ability to recruit them. We found that tailoring our communications to a specific individual's needs was very effective. Identifying how volunteering on our research project would meet the specific needs of an individual, or what rewards they might get by volunteering, assisted us in persuading individuals from different backgrounds to volunteer. For example, a volunteer from the Sierra Club may wish to assist with native fish conservation efforts and gain more knowledge about the plight of native fishes. A student from a university may want to gain skills, valuable work experience, and make future job contacts. A retired individual from the local fly-fishing club may be interested in locating good fishing sites. After assessing the potential needs of volunteers, we personalized our communications with them to persuade them to donate hours to our project by addressing their needs.

Personalizing our communications provided volunteers with a vested interest in our research. We found personalized communications with volunteers to be more effective than mass e-mails addressed to a general audience. Personal phone calls and e-mails, although time consuming, provided volunteers with a vested interest, increasing the chance that they would agree to volunteer. We tailored our e-mails to specific individuals, yet saved time by preparing standard sections of the e-mails ahead of time. When constructing a call for volunteers, we included the necessary information about the work we conducted, the kind of experience a volunteer could expect, specific project goals, dates we needed assistance (scheduled three months in advance), tasks to be completed, skill level and gear required, and equipment we would provide.

We attempted to minimize the costs associated with volunteering. We sampled 300 km of river and compiled a list of potential volunteers for each sampling site based on the proximity of volunteers with the site. This reduced the commute time and associated costs for volunteers, thus encouraging participation. We also tried to provide transportation to remote sampling sites. Lunch or snacks provided to volunteers improved morale and encouraged partici-

pation in future trips. As graduate students, we brought homemade snacks for our volunteers as a sign of our appreciation. Some agencies allow for the purchase of lunch materials for volunteers to come out of project budgets, others may not.

Managing volunteers

Before using volunteers, review of liability issues can help protect the worker and the agency. Volunteer protocols are often available through the risk management department of various agencies. Most agencies require a form to be signed by the volunteer designating them as an official volunteer for the duration of the project. This protects both the volunteer and the supervisor from any job-related liability that may occur while the volunteer is working.

There are also ethical and legal considerations for supervisors and agencies that are considering the use of volunteer labor in the natural resource profession (Whitaker 2003). Within the United States, the Fair Labor Standards Act (FLSA) has established guidelines for the use of full-time volunteer labor. Project leaders requiring the use of full-time volunteer labor may want to consult the FLSA and Whitaker (2003) before employing volunteers.

Volunteer Jason Burchardt enjoys the fishing experience.



LAURA LESLIE

Field crew safety is the most important priority of any project. On the Verde River Project, safety briefings and training new volunteers was often time consuming. Effective leadership and teamwork increased the efficiency of working with a crew of new volunteers. We had one person oversee all operations, insuring safety of personnel and proper collection of data. Having volunteers arrive at the same time allowed us to conduct safety briefings and training only once, thus reducing the time associated with training. We had spare sun protection, water, food, and dry clothes available in case a volunteer forgot any of these items. We obtained emergency contact information from all volunteers and had a means of communication in case of an emergency. Finally, we ensured our personal safety by speaking with all volunteers prior to going into the field, never working alone, and interviewing community service officers before working with any community service personnel.

After training was completed, we assigned tasks to volunteers based on their strengths and desires, and ensured that a crew leader was present at all times. Assigning daily tasks was sometimes difficult when we were not familiar with strengths and weaknesses of our volunteers. Some volunteers were inefficient at recording data or at spotting and netting fish; however, effectively training volunteers increased efficiency. We reassigned tasks when individuals were inefficient or having difficulty performing them. We supervised the work carefully and rechecked data sheets regularly for recording errors. We had to accept that volunteers were not as effective as trained fisheries professionals, and implemented as much quality control as possible. Rechecking data sheets regularly and assigning the most qualified people to tasks was usually an effective method for controlling inconsistencies.

Being organized and attentive toward volunteers built their confidence and respect for the project. We greeted volunteers by their first names as they arrived, which provided them with a feeling of respect and importance. We reduced volunteer absence by stressing the importance of confirming or canceling participation and provided a cell-phone number for last minute communication needs. We scheduled sampling dates months in advance and designated routine meeting places and times for each sampling site. Finally, we kept a list of potential volunteers with us in the field in case we had to recruit volunteers at the last minute.

Being patient and thoughtful with volunteers increased their enjoyment of work, and improved their performance. Fieldwork often involves sacrifice or manipulation of study organisms, which may be unexpected and/or difficult for volunteers to experience. Our fieldwork involved collecting diet samples from fish requiring some animals to be killed. When volunteers were sensitive to such protocols, we reassigned them to different tasks and discouraged distasteful jokes.

We personally thanked all volunteers at the close of the field day and invited them to volunteer again in the future. We stressed the importance of their contribution and offered to update them on project findings. In addition we asked if there was anything that could be improved if they were to volunteer again, for example, was there a task they would like to try next time, were they overexerted, and what could we have done to make their experience more enjoyable? We continue to publicly thank all volunteers for the contributions in all presentations and publications on our Verde River Project.

Conclusion

Funding shortfalls create circumstances where volunteers are needed to help protect and preserve our natural resources. Volunteers have been critical to many conservation projects by assisting with a wide range of tasks such as building and restoring backwater rearing areas for razorback sucker (*Xyrauchen texanus*), building fences to exclude cattle from riparian areas, monitoring water quality throughout the United States, assisting with river cleanup projects and trail maintenance, and supporting national wildlife refuges. Further, service provides an important opportunity to improve the public's sense of connection to natural resources. With effective recruitment and management, volunteers can be a valuable resource in fisheries research and management. 

High School students volunteer.



JIM WARNECKE

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