

Community Conservation: A grassroots approach to building a sustainable future

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Effective biodiversity protection and conservation planning involve species and/or environmental monitoring. Rare species monitoring enables population trends to be detected, current and potential risks to be identified, and provides the information needed to develop successful recovery plans. Professional monitoring, however, is typically expensive and not sustainable over long time periods (Danielsen et al. 2005). Amateurs can often be trained to collect data using the methodology of professional scientists and land managers. These “citizen science” initiatives, also known as “locally-based,” “participatory,” or “community-based” monitoring projects, are carried out at the local scale by individuals with little formal education. Typically, local people are directly involved in data collection, providing them with a greater scientific understanding of conservation issues (Trumbull et al. 2000). Community science projects are valuable as means of public education and engagement, as well as increasing data collection and monitoring.

New England Wild Flower Society involves over 1,200 citizen scientists in on-the-ground plant conservation throughout the region. The Society is a nonprofit organization that seeks to promote conservation of North American native plants through education, research, horticulture, habitat preservation, and advocacy. Its first volunteer monitoring program, the Plant Conservation Volunteer Corps, is an excellent example of a successful community science initiative.

The Plant Conservation Volunteer Corps began in 1996, as an offshoot of the New England Plant Conservation Program (NEPCoP). Founded in 1991 to address the issue of plant endangerment in New England, NEPCoP is a voluntary alliance of over 65 botanists, private institutions, and government agencies that work together to prevent the extirpation and promote the recovery of the region's endangered flora (for species list and more information, see Brumback et al. 1996). NEPCoP aims to develop consistent approaches in different states regarding issues of plant rarity, habitat management, reintroduction of endangered plants, and taxonomy. Protection of plants in their natural habitats is the goal of the program and NEPCoP members, who are conservation professionals and botanists, monitor and manage populations of plants that are regionally and globally rare. After several years of work, however, NEPCoP members realized that the professionals alone were not able to monitor all the rare plant sites in the region. Even high-priority rare plant populations went unvisited for decades, and hundreds of historic rare plant populations, known from herbaria collections, needed to be relocated or confirmed as extirpated. Data on rare plant populations became out-of-date and inadequate for maintaining accurate rare plant lists and enforcing protection policies by state government agencies.

The need for more eyes on the ground brought about the Plant Conservation Volunteer Corps, but New England Wild Flower Society had additional goals for the program as well. The Society sought to revitalize amateur field botany, a popular hobby in New England during the mid-nineteenth century that later fell out of favor, and create a constituency for plant conservation in New England. In addition to gathering data on the region's rare flora, the vision of the Plant Conservation Volunteer Corps was to create a social network of plant conservationists across the region, to create community advocates for plants, and to empower these individuals to make a difference at the local level.

In 1993, New England Wild Flower Society developed a pilot program of 23 amateur rare plant monitors in the state of Massachusetts. Despite the acknowledged need for improved data on the region's rare flora, many botanists and conservation professionals were skeptical of volunteer citizens conducting the monitoring. Could amateurs interpret rare plant records to locate rare populations, they wondered, and could they reliably identify the plants? Would they refrain from trespassing on private property and conduct themselves professionally with

landowners? Perhaps of greatest concern to many, could volunteers be trusted to keep information on rare plant sites confidential? Information on the exact location and data on rare plant and animal populations is maintained by natural heritage programs in each state and is generally only released on a case-by-case basis, or as mandated by state law (for example, as part of environmental reviews or permitting procedures). Risks of unethical collection, malicious destruction, or over-visitation make this confidentiality extremely important.

The Society was, and continues to be, acutely aware of the above questions. Since the inception of the volunteer corps, New England Wild Flower Society has worked carefully to allay these fears and demonstrate that a well-designed and supervised citizen science program yields reliable data. During the pilot year, the Society worked with the Massachusetts Natural Heritage and Endangered Species Program (MANHESP), part of the state's Division of Fisheries and Wildlife, in developing training programs for the volunteers and in selecting the sites they would monitor. By the end of the first field season, volunteers had monitored 46 rare plant populations, and the target species was found at 32 of these sites. Several of the remaining populations had clearly been lost due to habitat changes or development. One volunteer even located a new population of a rare species.

The MANESP was extremely enthusiastic after the pilot year, and because of its success New England Wild Flower Society continued and expanded the program. Today, there are nearly 500 Plant Conservation Volunteers in all six New England states. In 2006, volunteers monitored 685 rare plant populations, and found the plants in 439 of the populations. In addition to rare plant monitoring, Plant Conservation Volunteers work with staff from New England Wild Flower Society to perform botanical inventories of conservation lands and conduct invasive species removal and management to benefit rare plant populations. In 2006, volunteers participated in 55 days of management and 11 days of botanical inventory. Volunteers donate anywhere from 10 to 450 hours of time each year. On average, each volunteer donated an astounding 94 hours of their time to the program annually.

In order to accomplish growth in the program, we perform annual volunteer recruitment. Press releases and a "Call for Volunteers" are published in the Society's membership publications, as well as in newsletters and websites of conservation organizations throughout the region. We have recruited volunteers through land trusts, conservation commissions, and state natural heritage programs. Word of mouth and postings by current volunteers serve as valuable recruitment mechanisms as well.

While growth is vital to achieve significant impact in the region, the Plant Conservation Volunteer Corps must uphold a certain level of selectivity in order to maintain high standards of data quality and confidentiality. There are several ways we achieve this. First, we require that all interested individuals submit an application with references. Second, all volunteers must attend two intensive training sessions, where data collection, forms, and species identification are carefully reviewed. To supplement the required training, we offer a number of field-based classes and excursions to ecologically interesting areas free of charge to the volunteers. Finally, volunteers are asked to submit photographs and, occasionally and only if appropriate, plant specimens in order to verify species identification.

After a volunteer is accepted into the program and attends the training, he or she signs up to monitor at least one rare plant populations in his or her local area. New England Wild Flower Society staff work with state natural heritage programs to develop a list of sites in need of monitoring, and volunteers choose sites from this list. The Society's staff then conducts landowner research and acquires permission to send volunteers to the sites. After landowner permission is received, we send volunteers specific location and population information from previous surveys. In some cases, the only data available is a historic place name and habitat description, taken from the herbarium specimen. Volunteers visit the site in groups of two or three, and, if the target species is located, they collect data on population size, vigor, associated plants, and environmental conditions. Volunteers create a map of the population's location, often using global positioning system (GPS) equipment, and take photographs. They send the data collection forms back to New England Wild Flower Society staff, who review the data, confirm identification, and enter information into our database before sending the forms on to the state natural heritage program.

Data collected by Plant Conservation Volunteers has proved to be invaluable for conservation, and is utilized in numerous ways by natural heritage programs, the Society, and other conservation organizations. State heritage programs use the monitoring data to update the rarity statuses of plant species in the state, to prioritize lands for conservation, and for regulatory purposes. New England Wild Flower Society and NEPCoP use the information to identify conservation needs, such as invasive species removal or habitat management, at each site. We can then develop and implement management plans to benefit the rare plant population. The plans may be as simple as asking the landowner not to mow during certain times of the year to allow reproduction of the plant, or the management plans may be multi-year invasive species removal projects. Volunteers often assist with the implementation of these plans, and typically play a key role in developing a positive relationship with landowners. Since the majority of rare plant populations in New England occur on private property, landowner contact and support is vital to protecting the region's rare flora.

Clearly, the Society and conservation community benefit greatly from the work of Plant Conservation Volunteers, but what do volunteers gain from the experience? Volunteers participate for a number of reasons: the chance to be outdoors, to explore new places with a purpose, and to enhance their botanical knowledge are all reasons that have been cited by volunteers as motivations for taking part in the program. For many, this is a retirement activity that provides a social network and a new learning opportunity. There are official benefits to the program, including free botanical training, courses, and field trips. While these are unlikely to be the underlying driving force for volunteering in the program, group activities help build a sense of community and enable personal relationships to develop. Volunteers bond through rare plant searches, ripping out invasive species, and other adventures together in the field. The success and growth of Plant Conservation Volunteer Corps is largely due to the sense of community it has developed.

The Plant Conservation Volunteer Corps has served as a model to other regions of the United States, including California, New York, and New Jersey, who have initiated similar programs. New England Wild Flower Society's success with volunteer monitoring also inspired development of a different citizen science initiative in New England, the Invasive Plant Atlas of New England (IPANE). Volunteers in IPANE are coordinated by New England Wild Flower Society, and they collect data on invasive plant species and where they occur in the landscape. This data is used by university researchers to create models predicting future spread of invasive species, and the information is used to prioritize areas where invasive species removal is needed.

Through IPANE and the Plant Conservation Volunteer Corps, citizens and amateur botanists are able to contribute significantly to plant conservation in New England. Volunteers monitor hundreds of rare plant populations, conduct dozens of habitat restoration projects, and remove invasive species at high priority sites throughout the region. As environmental pressures increase and funding remains inadequate to address conservation issues around the world, volunteers and citizen scientists offer a viable approach and valuable component to solving these problems. The Plant Conservation Volunteer Corps is a model that can be exported to other regions in the world, particularly in areas where funding is scarce for plant conservation.

References

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