



**The Goodwin-Niering Center for Conservation Biology and
Environmental Studies, Connecticut College**

**Summary of paper presented at the conference:
Saving Biological Diversity:
Weighing the Protection of Endangered Species vs. Entire Ecosystems
April 6 – 7, 2007**

America's Vanishing Flora: A Call to Action

Presented by Kathryn Kennedy

Summary by Rick Hederstrom

At this year's conference on saving biological diversity, Dr. Kennedy discussed the plight of native plant species in this time of increased conservation efforts. Although plants are extremely important in many ways, they are frequently put on a lower priority level when it comes to protection. The Center for Plant Conservation's mission is to "conserve and restore the rare native plants of the United States." The CPC works with a network of community-based organizations to achieve its goals, believing that local action is the most effective conservation method. The Center "operates the only coordinated national program of off-site conservation of rare plant material," and is therefore an invaluable resource to plant conservation in the United States (CPC website).

The plants that the CPC protects and restores are often underserved and undervalued. There are many reasons why plants need to be protected. Native plants provide ecological, educational, aesthetic, historical, recreational, and scientific benefit. Studies in ecology have enlightened us as to the interconnectivity of individual species in ecosystems and the importance of interactions between species. The U.S. Forest Service has said that for every plant species that goes extinct, up to 30 other plant, animal, and insect species may also decline. The

implications of this statistic are not measurable, but they are most assuredly significant. Plants serve as very important elements of natural systems; they clean the air, prevent erosion, remove water impurities, and cool the earth with shade (CPC website). Native plants are also economically important, not only for food, but for clothing, building materials, medicine, etc. Eighty percent of native plants are closely related to economically important species around the world and 50% are closely related to crop plants, making them a priceless source of genetic variation. This genetic variation is invaluable because it has been developed over thousands of years and provides material for breeding in disease resistance, tolerance of environmental conditions, and many other traits. If monocultures or near-monocultures of plant species develop, they lose much of their ability to adapt to changing conditions and resist disease outbreaks. Genetic material found in plants is also useful because certain species code for unique or rare traits of potentially great utility, especially in this age of advanced breeding techniques and genetic modification. The Pecos sunflower, which contains a trait for alkali tolerance, and Texas wild rice, which is high in lysine and disease resistant, are only two of many examples of useful traits possessed by native plants.

Dr. Kennedy explained that the best place to preserve plants is in the wild in multiple, robust populations. This method, contrary to a number of other conservation methods, is cost-effective, low-maintenance, and insured against major disturbances or catastrophes.

Conservation methods that are cost-effective and low-maintenance are especially important since so little of the federal budget is allocated to protection of our native flora. Preservation of plants in wild populations significantly reduces the amount of human intervention needed and also ensures that they are integrated into their respective ecosystems, which is important because they are depended upon in many ways by other organisms in their habitat. This cannot be achieved

exclusively through preservation in greenhouses, seed banks, or other artificial methods, which isolate the plant from its environment, leaving a hole in its ecosystem. This implies that we must not only conserve individual plants, but also the ecosystems in which each plant species lives and interacts, which can be quite challenging, considering the range of levels on which these systems operate.

The problem is that we have fallen quite far behind in our efforts to conserve our native flora, and in many cases it is too late to do anything at all. Over 60% of the US land area has been significantly disturbed, causing the destruction of native plant communities in these areas. There are about 20,000 native US plant species, and it is quite possible that over 7,100 have gone extinct thus far. About 7,500 of the 20,000 native species are species of concern, but only 889 are federally listed. Intended or not, plants are less than half as likely to be listed under the Endangered Species Act as animals. This is probably due to the charismatic qualities in animals that draw so much public support that seems to be lacking in plants. That is not to say, however, that plants are less important than animals; indeed, they permeate almost every aspect of our lives. Many people don't realize that we are totally dependent on plants and take them for granted. Plants provide us with all of our food, either directly or indirectly, clothing, housing, fuel, and countless other necessities. Without plants, our world would collapse.

When plants do finally make it on the list, their condition is often far worse than that of animal populations when they are listed, thereby making management and restoration much more difficult. Nearly three quarters of plants listed have less than 100 individuals per site, which is a very vulnerable state to be in, and many of these plants will most likely not recover as a result of protection. Almost 90% of plans for listed species recommend reintroduction or augmentation, which are actions taken usually only when the need is dire. Plants also receive less

than only 5% of federal funds for restoration, even though they make up about half of the species listed. This severely limits recovery efforts and often results in efforts that are inadequate to preserve the species. The low number of botanical experts involved in plant conservation efforts is yet another problem to be faced.

The Center for Plant Conservation is a non-profit organization that works with public and private organizations, largely at a local level, to restore native plants to healthy population numbers. While individual species restoration is important, the CPC also focuses on habitat and community restoration, which helps ensure the plant's future survival. The restoration approach is science-based, coordinated, and collaborative. The CPC often works with existing institutions, and volunteers and funding are important for continued operation. The Center's activities, however, have been and continue to be a learning experience because the science behind restoration is new, and failsafe methods for restoration have not yet been fully developed. The CPC also believes that genetically correct material is important for conservation and has consequently set up the National Collection of Endangered Plants to preserve plants in a live state to be reintroduced into nature in the future. Currently, the CPC has over 13 million seeds and numerous root cuttings, tissue cultures, and live plants of about 629 species preserved in its seed banks for future use.

Despite the odds against it, the Center for Plant Conservation has had notable success with restoration projects on several occasions. Here are a few examples: Robbin's Cinquefoil has been de-listed because of their efforts; the Ventura March Milk Vetch was relocated to save it from extinction; and Pyne's Ground Plum was re-introduced with successful reproduction among its members. These successes, stresses Kennedy, are largely dependent upon local

participation and if restoration of our native flora is to be successful on a national level, it must first be successful on a local one.

This presentation should serve as both a warning and a call to action. We are losing many irreplaceable species of incalculable value at a rapid rate and actions need to be taken now in order to prevent any further loss. Organizations like the Center for Plant Conservation provide a way to organize and unite towards this goal, but progress is made on an individual basis. Each of us needs to realize what is at stake and work to stop any further damage from being done. A few ways that we, as individuals, can contribute: write politicians; vote for change; find out what you can do with your land to conserve species; volunteer with and donate to conservation organizations. Something that is especially bothersome is that plant species restoration and extinction prevention efforts can be boosted tremendously for a small fraction of what is being spent on our current war with Iraq each year. It's time to re-evaluate our priorities and work to restore and preserve the native treasures of America for generations to come.

Bibliography / Links

The Center for Plant Conservation web page:

www.centerforplantconservation.org

(click the "Plant Links" tab for an exhaustive list of websites dealing with native plant conservation)