

Citizen Scientists
An Orchid Recovery Project
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Fifteen years ago I received a notice looking for volunteers to participate in a unique project to restore a native orchid in northeast Illinois. WOW, since I freely admit to having an orchid addiction, this project was made for me! I attended the first training session and learned we would be working to restore the federally threatened *Platanthera leucophaea*, the Eastern Prairie Fringed Orchid. I had found lady slippers orchids on many camping trips but my true fascination with the family until then had been with tropical orchids. Before that day I had never heard of, let alone seen, this species.



Natural area restoration has been ongoing in the Chicago area since the mid-1970's due mainly to one man's curiosity, Steve Packard. In 1975 Packard discovered prairie remnants within the forest preserves of Cook County. Although they were strewn with garbage and overgrown with weeds, some prairie plants still survived. After doing much research, he was given permission by Forest Preserve management to begin restoration at one area using volunteers. In fact a book has been written about the early years of his restoration efforts, *Miracle Under the Oaks* by William Stevens. The recovery project for *P. leucophaea* is a byproduct of that restoration movement.

In the 1980's Marlin Bowles, a researcher with the Morton Arboretum southwest of Chicago, was studying this rare prairie species and met with Packard who saw the plants of *P. leucophaea* Bowles had been growing in pots, and was shown the technique used to pollinate them. Ironically, soon after that day, Packard receive a call from someone who had found what could be orchids on forest preserve land. Packard met with the caller and discovered a population of *P. leucophaea* and used his newly learned skills to pollinate them. These plants produced seed, which were later collected and introduced it into the area that he was restoring. A number of years later this effort was rewarded with blooming plants at that site. In the meantime Bowles had written a recovery plan for the orchid from his research and it was decided to expand the orchid's re-introduction into suitable natural areas throughout the Chicago region. Since money was limited for this project, it was decided to recruit enthusiastic volunteers to get the project going.

At the first meeting in 1993, the volunteers met at a site on private land where some prairie fringed orchid were in full bloom. We learned that *P. leucophaea* grew in moist to wet tall grass prairies and were shown the proper method to pollinate them. Due to the fragmentation of natural areas, the orchid's natural pollinators might be missing and the volunteers would hand pollinate. In that early evening we walked around with our new tools, toothpicks and a Styrofoam cup, collecting pollinia from one orchid and placing it on another. For the first time, I enjoyed the wonderful fragrance that the species releases

in the evening to attract pollinators. We were given assignments of sites that already had the orchid present; had been a historic site; or had suitable habitat with known associate plants. I accepted 2 sites, one historic and the original site where Packard had first pollinated the orchids. We were to pollinate only 25% of the blooms. We tagged each plant with a numbered metal tag in the ground and marked the plants with a stake to find them later in the year. When we returned later in the season, we would discover if other blooms had produced seed capsules from natural pollination. Finding them proved to be the most difficult part of the project for they were easily camouflaged among the many prairie species. We would harvest the capsules when they just started to brown. Some seed would be distributed to other new sites and the rest were allowed to disburse naturally. From year to year we would keep track of plants that bloomed, produced only vegetative growth, or failed to appear.

The first year I received seed to put into my historic site. It was suggested that I mix the seed with an agent, such as sand or cornmeal to make it easier to distribute. Also I



collected a bit of soil from the base of a blooming plant hoping that it might introduce the mycorrhiza that was thought to have a relationship with the orchids. I set up transect lines that traversed through different plant communities and moisture levels. In 1994, the second year sowing seed, I decided to disturb the prairie sod allowing the seed more

contact with the soil. Believe me when I say prairie sod is THICK! What a sight I must have been to the traffic on the nearby road; using my trusty camping axe to chop through the thick prairie soil matrix. Seven years later, I was rewarded with one blooming orchid exactly on my transect line. Of course I did my little orchid dance! The plant was caged so not to become deer candy and the seed was left to disperse. Sadly, that plant has never been seen since.

Studies of this orchid are still continuing and at our annual meeting we hear of the new discoveries being made. Cathy Pollack with US Fish and Wildlife has been staying out in the field at night to determine which of the sphinx moths is the pollinator. Larry Zettler of Illinois College and his students have been working to discover the relationship mycorrhiza has with germination of the seed. Patty Vitt of the Chicago Botanic Gardens has studied the effects of pollination on the life of the orchid. Timothy Bell of Chicago State University and his students are researching germination and growth stages of seedlings.

Through the years many volunteers, now called citizen scientists, have continued to be devoted even with failure. A few of sites that started with small populations climbed up to well over 500 orchids, while other sites, like mine, just barely seem to hang on. The drought the Midwest experienced 3 years ago took its toll on all the orchids but given

time they may recover. Last year for instance, after 7 long years, I found a new blooming plant in an area I had never sown seed. Another orchid dance was done! I'm guessing it came from seed produced from the first plant I had discovered on my transect line. That day I also saw and photographed a sphinx moth pollinating a native phlox. Although it wasn't the correct species responsible for pollinating the orchid, I did get to see up close how they feed on the flowers nectar with their long proboscis.

Not long ago I read *An Annotated Flora of the Chicago Area* by Hermann Pepon written in 1927. It described a familiar area in Chicago that is now covered with homes and a shopping mall. Back then it was a prairie with hundreds of Eastern Prairie Fringed Orchids. That area can never be restored but wouldn't it be wonderful to see *Platanthera leucophaea* blooming once again in the remaining natural areas of our large urban setting. I'm hoping to do many more orchid dances in years to come.

Orchid Conservation Coalition <http://www.orchidconservationcoalition.org>

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