



## Orchid Habitat Loss, Preservation, and Restoration I I

How can we continue to preserve remaining orchid habitats? Perhaps our first efforts must be directed towards public outreach and education. Can people value what they do not know?

When I tell people that my state, Illinois, is (or at least was) home to 50 species of native orchids, they are amazed. When I tell them that we have less than 5% of our intact natural lands left, that Illinois is second only to Iowa in percentage of land given over to development, and that 5% is where all the orchids are, they become concerned. We have already lost one-fourth of our original orchid species, and another fourth are listed as endangered or threatened statewide. When I tell them of the relationships between orchids and ecosystem health, especially surface water quality and soil health, they start to see that it is in their interest to keep our “canary in the mine” alive!

Outreach is the only effective way to save our native orchids! Once we discover populations of native orchids, we should inform the landowner and help educate them as to their conservation value. This is not as easy as some might think, especially if the species are listed as threatened or endangered in the state or country. Some property owners have deliberately destroyed populations of rare plants, dumping on them or plowing them under, because they believe that local government will come in

and tell them how to use, or not use, their land. Unfortunately this is not true, but misinformation is widespread.

Perhaps this is a good place to discuss confidentiality issues. There is a lot of concern that too widely disseminated information about locations will result in poaching of our native orchids. That is a very valid concern, and part of the responsibility of the environmental advocate or educator is to speak out about the need to protect the sites, and keep the orchids exactly where they are, in order to preserve the site's maximum genetic diversity. Another important piece of information is that the soil fungi act as the orchid's extended root system. If you dig up the orchid, it's like cutting off all their roots. How will they survive that? Ninety-nine times out of one hundred, unfortunately, they don't. So, poaching is not only illegal and immoral, it almost always results in the loss of the plant and its valuable genetic information. Education is key, but discretion in conversation is also necessary.

It is so very important to research the particular laws in your area, find out whether there are any tax advantages to be had for conservation easements (in the case just described, that would have been a very important possibility for the owner, if he hadn't been so quick to jump to the wrong conclusions!) or any other regional land preservation initiatives, that can help inspire landowners to preserve habitat for native species.

What we know now is that, conservation-wise, orchids do not live in a vacuum, and they can't be saved without our dedication and help. You can't save just the orchids - you have to save their entire habitat! The orchids have obligate mycorrhizal relationships to the soil fungi, which in turn are connected, for example, to oak, pine and beech trees and all the other native species where the orchids live. The healthier the fungi, the healthier the trees and other plants, the healthier the orchids will be too.

Once you have the land set aside, the other two activities that need careful consideration and implementation are management and monitoring. Management means keeping the habitat healthy for the orchids and other species - removal of non-native shrubs such as buckthorn and honeysuckle, fast-growing invasive species such as reed canary grass, kudzu, common reed, garlic mustard, and Canada thistle. Some of this is accomplished through hand and/or mechanical or chemical methods and sometimes prescribed burns are necessary too. Education about these methods has to precede implementation so that people understand the process and the safeguards for their property.

After management strategies are in place, the populations should be monitored, probably not more often than every other year, to avoid unnecessary impact from soil compaction. If there is a positive relationship between the management and monitoring, other negative impacts (such as dumping or ATV use) are avoided, and natural hydrology is cooperative, there is reasonable expectation that the orchid populations should remain stable over time.

There are already programs in place, such as the Chicago Botanic Garden's Plants of Concern program and the US Fish and Wildlife prairie white fringed orchid monitoring program, that follow specific populations of native species, including but not limited to orchids, over a long period of time, using the same monitoring protocol for consistency from year to year.

Some of the data collected for each subpopulation of each species include: date, site and GPS coordinates, population numbers, percent of plants that are reproductive, area covered by population (in square meters), soil hydrology at the time of monitoring, associate species of trees, shrubs and

understory plants, identification and percentage cover of invasive species of plants, management observed or not, other threats to the population and comments. This material is extremely valuable to the landowners because with it they can track changes in populations over time and help make informed management decisions.

Last year my monitoring partner and I were in DuPage County monitoring the small white lady slipper orchid, *Cypripedium candidum*. In one subpopulation there had been an early spring burn, which resulted in doubling of the numbers of plants we found the year before. There were other areas of this very high quality site that had been succumbing to brush incursion, mostly grey dogwood and buckthorn, and these areas were, too, full of orchids, including spiranthes and prairie white fringed, but those numbers had been steadily declining. Concerned but determined to do what I could, I called up the head of the land management division and recommended that if at all possible, they should direct some resources towards a burn in the other areas. Thankfully, they did so, and we were again rewarded this year by an abundance of orchids!



Now, the plants have always been there, we knew, but struggling to survive. The fire was able to set back the woody brush and restore free carbon and other nutrients to the soil. Burning off last year's leaf litter opened up the soil to sunlight, giving the juvenile plants a head start in competing with everything else emerging in this rich area. There had also been hand clearing in one area that had not yet been burned, and there were also many orchids found in that area.

In this particular instance, monitoring successfully informed good management decisions. Our most important job as advocates for native orchids is to patiently build effective partnerships with landowners (such as forest preserve agencies and private land trusts), stakeholders (such as the recreational public) and schools (where we can offer our conservation message while the kids get service hour credit helping with restoration activities!). Careful relationship-building with the landowners, tactful public outreach, self-education about all the various issues related to land management concerns, are all necessary to orchid conservation on a regional level. This means reaching out to and trying to work with those who have different opinions and different agendas and trying to build consensus. It takes time and sometimes even tremendous effort, but it's worth it!

I am hopeful that with proper, ongoing management, with education of the stakeholders and general public, everyone will be able to appreciate the treasures that are in our midst, and be partners in their preservation.

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