

The Native Orchid Conference Journal



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Editorial contributions and inquiries about publishing articles and requirements for manuscripts, illustrations, or photos for publication should be addressed to the Editor:

Dr. Jyotsna Sharma,
University of Florida
155 Research Road, Quincy, FL 32351; USA
jyotsna@ufl.edu

Exclusion of *Spiranthes magnicamporum* from Arkansas: Three Strikes and You are Out

George P. Johnson
Arkansas Tech University, Russellville, Arkansas
george.johnson@atu.edu

Unquestionably, *Spiranthes* (ladies'-tresses) has been the most troublesome genus of the Orchidaceae to work with on the Flora of Arkansas Project. This would not be surprising to anyone in the eastern United States who has spent much time trying to identify a *Spiranthes*. And initially, the genus did not seem like it would be difficult. There are not that many taxa in the State, the plants are easily recognized, and living plants can be located and studied without much trouble. The plants are not especially small and neither are the flowers, which are easily examined even with a hand lens. And with numerous flowers per plant, a plant is in bloom for an extended period of time. And besides, how bad could the plants be with the common name of ladies'-tresses? Well, they are really, really bad. And in Arkansas, as in the rest of the eastern United States, some of the most difficult taxa in *Spiranthes* are in the *S. cernua* complex.

Three taxa of the *S. cernua* complex have been reported from Arkansas and are considered to occur there: *S. cernua* (L.) Rich. (nodding ladies'-tresses), *S. magnicamporum* Sheviak (great plains ladies'-tresses), and *S. odorata* (Nutt.) Lindl. (fragrant ladies'-tresses). Smith (1988) listed *S. cernua* and *S. odorata* (as two varieties of the same species) for the State and mapped their county distributions as known to him, and Sheviak and Brown (2002) listed and mapped both taxa for Arkansas in their treatment of *Spiranthes* for Flora of North America. Supporting these listings are numerous specimens of each taxon in state, regional and national herbaria, and extant populations of each taxon are well known. Accordingly, there is no doubt that both of these taxa occur within the state.

The situation with *S. magnicamporum* is not so simple. The first record of *S. magnicamporum* for the State (or so we thought) was a photograph taken by Carl Slaughter in 1992 at Devil's Den State Park in Washington County in northwestern Arkansas. This is the basis for the Element Occurrence Record in the database of the Arkansas Natural Heritage Commission (Cindy Osborne, personal communication, 1999) which became the basis for listing the taxon for Arkansas in what are commonly referred to as the "national databases" (Kartesz, 2003; USDA, NRCS, 2006). This is also the photograph published as *S. magnicamporum* by Slaughter in the Wild Orchids of Arkansas (1993). Unfortunately, the Flora of Arkansas Project is specimen-based, and a photograph is not accepted as documentation for a taxon's occurrence because

characters and character states required for accurate identification may not be determined from a photograph. Also, the flowers in the photograph do not match the drawings or the description of the species in Sheviak (1973) and are typical of living plants and specimens I have seen that are unquestionably *S. cernua*. While the plant photographed was growing in the right habitat, above limestone bedrock, and in the right part of the state, northwestern, it was not *S. magnicamporum*. Strike One.

The second record of *S. magnicamporum* for the State (or so we thought) were specimens collected by Singhurst, Holmes, and Baldrige in 1999 in Little River and Sevier Counties in southwestern Arkansas (Sinhurst, Holmes, and Baldrige, 2002). Again, the plants had been growing in the right type of habitat, a limestone quarry and chalk cliffs, respectively, and in the right part of the state, southwestern. Examination of the specimens, though, again led to disappointment. The flowers did not match the drawings and description of the species in Sheviak (1973), and did not compare favorably with known specimens of *S. magnicamporum* I had examined. Certainly, these were again *S. cernua*. Strike Two.

One of the goals for generating a state checklist is elimination of taxa that do not actually occur within a state. But with checklists, bigger is considered to be better, and in the Orchidaceae, we were losing ground. So I began to recheck the literature and revisit online sources. As I looked through Volume 26 of Flora of North America, I remembered that one of the criteria for mapping a taxon to a state in that work was having seen a specimen from that State. As I had done before on other orchid matters, I emailed Dr. Charles Sheviak at the New York State Museum, and asked what was the basis for inclusion of *S. magnicamporum* in Arkansas. It turned out that the basis was not Carl Slaughter's photograph or the specimens of Singhurst, Holmes, and Baldrige. It was a single specimen that Dr. Sheviak had seen and annotated in 1976 from the herbarium at Oklahoma State University (OKLA). The specimen had been collected in Benton County in northwestern Arkansas in 1951 by Dwight Moore, who had been the plant taxonomist at the University of Arkansas in Fayetteville (UARK). The first report of *S. magnicamporum* in Arkansas then, had been Sheviak's publication on the *S. cernua* complex (Sheviak, 1982), and it was backed by a specimen. Things were looking up.

I emailed Dr. Ronald Tysl, the curator at OKLA, and asked about the specimen. Some weeks went by with no reply, and I assumed that my inquiry had been forgotten. I was going to email again when I received a reply. Ron explained that the long delay in getting back to me was because he was on sabbatical in Sydney, Australia, and he was not regularly checking email at home. In that circumstance, who would be? He said that he would have someone send the specimen to me and not long afterward, it arrived (Figure 1). I emailed Dr. Sheviak that I had received the specimen on loan and he kindly

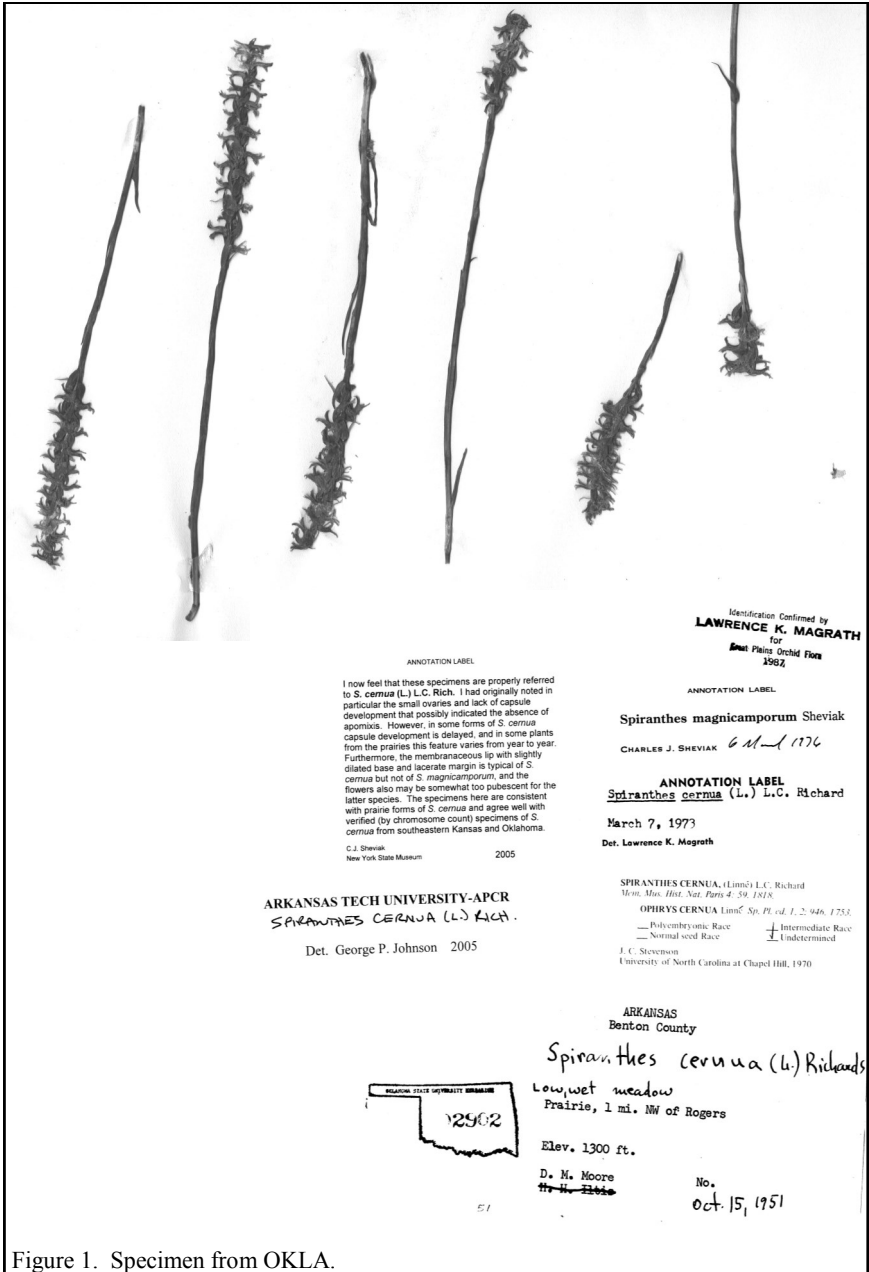


Figure 1. Specimen from OKLA.

offered to reexamine it for me. He noted that when he had examined the specimen in 1976 the plants had been atypical for *S. magnicamporum*.

With great anticipation, I opened the box, removed the specimen, and gave it a quick look. In total, there were 6 plants mounted on a single sheet. All of the plants were in full flower and none of the ovaries were beginning to develop into fruits, which was a good sign. Unlike *S. cernua*, *S. magnicamporum* is sexually reproducing, and ovaries do not always mature into fruits. Another good sign was that the plants lacked basal leaves, which is typical of *S. magnicamporum* while having them is typical of *S. cernua*. And although it had nothing to do with the plants' characteristics, none of the specimens had root systems attached, which could have been very useful in identification. The roots of *S. magnicamporum* are thick and vertically oriented, while the roots of *S. cernua* are thinner and are horizontally oriented. Regardless, I carefully packed the herbarium sheet and sent it to Dr. Sheviak.

It wasn't long before I heard back from Dr. Sheviak and the news was bad. His determination was that the specimen was actually *S. cernua* and he annotated the sheet accordingly. His annotation indicated that while there was lack of fruit development on the plants, it is sometimes delayed in *S. cernua*. Also, when dissected, the character states of the flowers were consistent with flowers of *S. cernua* he had seen in southeastern Kansas and Oklahoma, and whose chromosome numbers he had counted. *Spiranthes magnicamporum* is a diploid with $2n=30$ while *S. cernua* is a polyploid with $2n=45$ or 60 . This was Strike Three. *Spiranthes magnicamporum*, great plains ladies'-tresses, was out of Arkansas.

Not only is it important to know that *S. magnicamporum* is not known to occur within Arkansas, but to understand how *S. cernua* can be readily misidentified as *S. magnicamporum*. The explanation is due to the reproductive biology of *S. cernua*, which is a polyploid, facultative apomictic compilospecies (Sheviak, 1982; Sheviak, 1991). In translation: plants of *S. cernua* have three or four sets of chromosomes instead of two sets like its close relatives; *S. cernua* forms seeds mostly asexually (the embryos inside the seeds are clones of the parent plant), and there is a limited amount of sexual reproduction; and, through its limited sexual reproduction, *S. cernua* incorporates genetic material from its diploid relatives, *S. magnicamporum* in this case. This input from *S. magnicamporum* has caused some populations of *S. cernua* to become genetically and morphologically similar to *S. magnicamporum* in northern, northwestern and southwestern Arkansas. These regions of the State are typically hot and dry in late summer and fall, and natural selection has favored *S. cernua* genotypes and morphotypes more similar to *S. magnicamporum*. The latter is adapted to a more xeric prairie habitat than is typical for *S. cernua*. Asexual reproduction in *S. cernua* then perpetuates these xeric-adapted genotypes. Not unexpectedly, the same phenomenon has occurred in southern, eastern and central Arkansas resulting in the creation of populations of *S. cernua* that resemble *S. odorata* in their morphology and habitat preferences.

Acknowledgments: Many individuals have generously assisted me in my work with their time and expertise, which I gratefully acknowledge. I am especially indebted to Dr. Charles Sheviak of the New York State Museum and Dr. Ronald Tyrl of Oklahoma State University.

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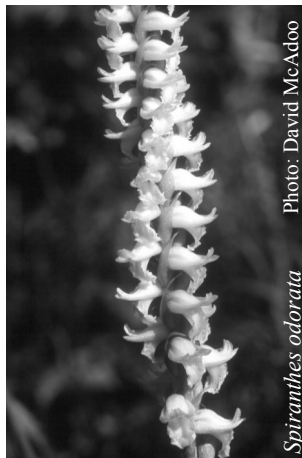
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Expanding Our Resources: A Call for an Annual Bibliography

Nancy Cowden
Lynchburg, Virginia
cowden@lynchburg.edu

Many of us undoubtedly joined the Native Orchid Conference not only for the fellowship of visiting remote sites to admire our favorite plants but also to learn more about them. Some of these educational experiences require being in the right place at the right time while others are garnered from books, journal articles, and other periodicals. It is the rare orchid hunter among us who has not felt the frustration of being directed to a “good” location only to find the plants in an uncooperative state or that we have arrived in the wrong location. Similarly, I think many of us have searched for an orchid reference source that someone mentioned in passing and that we have never quite been able to track down.

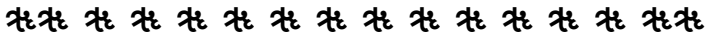
Born out of my own frustration at learning late about a publication that might have affected my investigations of native orchids, I am proposing an annual article be added to the *Native Orchid Conference Journal* (NOCJ). This article would model what the *Orchid Research Newsletter* (ORN), published at Kew Gardens (<http://www.rbgekew.org.uk/herbarium/orchid/>), accomplishes on a semi-annual basis for orchidologists worldwide. The ORN collects full bibliographic information for orchid-related, primarily scientific literature and lists publications by main subject area (i.e., taxonomy, ecology, pollination biology). I would like us to produce a once-a-year compilation that reviews additions to the North American orchid literature, including not just bibliographic information but also a sentence or two summarizing the content. These contributions, like those in the ORN, would be categorized by major subject area and listed alphabetically by author.

Because I “voiced” the idea (although I assume many others have thought the same), I have volunteered to gather and compile the information, to be published in the last issue of each year. However, for such an effort to work well, I ask that each of you interested in seeing such a resource, submit your findings to me as you come across them.

For those affiliated with large, research institutions, combing the orchid literature is often a relatively easy and effective task. At smaller educational facilities, however, our resources may be incomplete. And for those dependent upon our own resources and wiles, obtaining up-to-date information can be downright difficult. I hope that many, if not all, of us will once again demonstrate our on-going enthusiasm and willingness to share all things orchid by submitting article and book publication information for the current year as we

encounter it.

To get the ball rolling, submission information should be addressed to me either in an e-mail (to Cowden@lynchburg.edu) with the subject line "NOJC literature" or sent via U.S. mail to: Nancy Cowden, Biology Program, Lynchburg College, 1501 Lakeside Drive, Lynchburg, Virginia. 24501. Submissions should include: 1) author or authors' names, 2) year of publication; 3) title of article or book; 4) journal name (or publisher if submission is a book); 5) journal volume and number; 6) page numbers of complete article; 7) a one or two sentence summary of publication's main points. I will be sure to respond to your e-mail when received. Thank you in advance!



The Hunt for *Deiregyne confusa*

Ron A. Coleman¹, Joe Sirotnak, and Allison Leavitt
¹Tucson, Arizona
ronorchid@cox.net

In 1931 J.A. Moore and J.A. Steyermark discovered an unusual orchid growing in the Chisos Mountains of west Texas. Their specimen was stored at the Missouri Botanic Garden and identified as *Spiranthes durangensis*. Moore's and Steyermark's discovery proved to be the only record and the only sighting of *S. durangensis* from the United States. Years went by with no new sightings. The Chisos Mountains, a classic example of a cool, moist "sky island" in the Chihuahuan Desert, were protected as part of Big Bend National Park in 1944. Park personnel were aware that *S. durangensis* had been found in the Park and kept an eye out for it but did not find it.

As part of his revision of Spirantheae, Garay (1980) identified a new taxon, *Deiregyne confusa* (Figures 1 and 2, page 9), and said "All specimens which I have seen named as '*Spiranthes durangensis*' including those from Texas, U.S.A. are all referable to this new species." The orchid from Texas had a new name but this did not make it any easier to find. An occasional orchid enthusiast would make a sojourn to Big Bend to look for it to no avail. One of those was Bill Jennings, an orchid researcher from Colorado, who searched in 1990.

A big break came in 2004. Park Botanist Joe Sirotnak, GIS specialist Betty Alex, and volunteer plant enthusiasts keep track of federally listed and other rare plants in Big Bend National Park. One of those is the red orchid *Dichromanthus cinnabarinus* (Figure 3, page 9). Leaves of *D. cinnabarinus* come up in late spring, and it blooms in late summer and early fall. For years orchid

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Photo: Ron Coleman

Figure 4. Joe Sirotnak and Allison Leavitt.

illustrate it. He can now correct that omission when *The Wild Orchids of Texas* is reprinted.

In September, 2004, Dana Price, a Botanist with the Texas Parks and Wildlife Department's Wildlife Diversity Program, notified Ron Coleman of the find since he had studied orchids in Big Bend previously and had corresponded with Price on other wild orchids in Texas. An immediate e-mail to Betty Alex yielded the information that the plants were long since out of bloom, but Ron now had a mission for 2005.

Over time orchid enthusiasts and researchers get to know one another and arrange to meet to seek and study our native orchids. For example in 1999 Ron Coleman, Cliff Pelchat, Mark Laroque, and Eric and Christina Holenda had met in Big Bend National Park to observe and photograph *D. cinnabarinus*. Coleman, Bill Jennings, and Pelchat met in Washington in 2000 to study orchids. Coleman, Mark Laroque, Stefan Ambs, and Dennis Horn had also joined up in Arizona in 2003 in search of orchids. It was inevitable that when Coleman decided to go after *D. confusa* in 2005 that Laroque, Jennings, Horn, Pelchat, and Ambs also would be there.

The group met Park botanists Joe Sirotnak and Allison Leavitt at 7:30 AM on

searchers had observed rosettes of small leaves believed to be juvenile plants of *D. cinnabarinus*. In late May of 2004 Joe Sirotnak and seasonal botanist Allison Leavitt (Figure 4) decided to check on some of the juvenile plants. Because of the difficult terrain Allison surveyed the site with her new Nikon Monarch binoculars. She noticed some white flowers sticking out of them. Allison and Joe had re-found *D. confusa*! Over the next several weeks more blooming plants were found, and they invited Joe Liggio, author of *The Wild Orchids of Texas* (Liggio and Liggio, 1999) to share the find. Joe had reported the story of *D. confusa* in his book but had no photos with which to



Figures 1, 2, and 3 from 'The Hunt for *Deiregyne confusa*' by Ron Coleman (page 7).

1. Flowers of *Deiregyne confusa*.
2. Leaves of *Deiregyne confusa*.
3. Flower of *Dichromanthus cinnabarinus*.



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Photo: Lawrence Zettler

Figure 2. *Platanthera holochila* in flower. From 'Endemics: Ghosts in the Making' by Lawrence Zettler (page 14).



Figure 1 and 4 from 'Endemics: Ghosts in the Making' by Lawrence Zettler (page 14).

1. Molokai, like other Hawaiian islands, harbors cloud forests that remain cool year-round (50-75 F) in the higher elevations.
4. Typical habitat of *P. holochila* and other endemic species that frequent acidic bogs.



10 June and started hiking up the mountain. The Visitor Center is at about 5500' (1676 m) elevation and Moore and Steyermark had found their plant at about 7500' (2286 m) so there was a lot of elevation gain and about 10 miles of hiking to go. Each member of the party started with a gallon to a gallon and a half of water, plus camera gear, lunch, and packs. By mid-afternoon we had visited all the known plants and found, much to our chagrin, that while the plants had lasted in bloom for much of June in 2004, in 2005 they had apparently finished blooming by the first part of June. We found several plants in capsule and it looked like they had been out of bloom for over a week.

The plants were on fairly to very steep terrain, under oaks and alligator juniper. At one location plants of *D. cinnabarinus* were nearby. The oak and juniper cover resulted in light to moderate shade. Steep terrain and loose surface soil and rocks made footing hazardous near the plants, and we had to exercise extreme care not to disturb the orchids and other plants growing near them.

Blooming plants had four or five leaves up to 12 cm long and about 2 cm wide. A typical flower spike was 50 cm tall and held up to eight flowers. The pollination rate seemed to be fairly low as only three maturing capsules were observed.

By mid-afternoon we decided to split up to return down the mountain. Ambs went off by himself and the others split into two groups to cover more territory on the way down by taking different routes. Those two groups did not find any other plants. Ambs came off the mountain last, about 7:30 PM, but with great news. He had found several more plants, one of which still had fresh flowers! For the hardy, Ambs' find meant a hike back up the mountain the next morning. For the others, there is always next year.

The plants found by Ambs meant we had seen a total of just under two dozen plants. *Deiregyne confusa* is small and difficult to see in or out of bloom. It flowers for only a brief interval. The colonies we visited were scattered over a distance of several miles and several hundred feet of elevation range. This suggests that *D. confusa* may have been there continuously since Moore and Steyermark discovered it and was just eluding searchers. It will be interesting to see if more plants are discovered in the ensuing years and what more can be learned about their blooming patterns and ecology. Knowledge of the location, habitat and biology of this and other rare plants helps park staff protect plant populations and aids in the implementation of management programs like road and trail maintenance and wildfire management.

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Endemics: Ghosts in the Making

Lawrence W. Zettler
Illinois College, Jacksonville, Illinois
lwzettler@ic.edu

As a college student in the mid-1980s, I would borrow my parent's small fishing boat and ride out to a remote, uninhabited island on the Gulf of Mexico just north of Horseshoe Beach, Florida. I would sit on the sand, watch the sunset and imagine what life was like there hundreds of years ago, just before European settlers arrived. I could almost visualize seeing Timucua Indians, chipping away at oysters, eating their contents, and throwing the shells behind them, contributing to a midden. In the distance, I could literally hear the crackle of noisy Carolina parakeets (*Canuropsis carolinensis*) roosting in the branches of live oaks further inland. Should these birds continue south, they would encounter large stands of cypress trees draped in massive cigar orchids (*Cyrtopodium punctatum*) and showy bromeliads. Today, the Timucua have vanished, the Carolina parakeet is extinct, and the midden is succumbing to beach erosion. Around me are a mixture of native plants and exotic garden escapees battling for supremacy. It will only be a matter of time, I thought, until the Brazilian pepper prevails.

That was 20 years ago. Indeed, the natural landscape I once knew has changed. In a mere two decades, new exotics have appeared including the Asian tiger mosquito (*Aedes albopictus*), turtle doves (*Streptopelia* spp.), and yes, even a terrestrial orchid (*Zeuxine strateumatica*) to name a few. Each return trip to my home state is a bit more painful. My last trip to Florida took me to Manatee Springs State Park just west of Gainesville. As a boy, I would swim there in crystal blue water and gaze in awe at numerous fish species gliding between blades of tape grass (*Vallisneria americana*) that gently oscillated in the currents below. Today, many of the fish species have left, and the tape grass has been replaced by massive, stringy blooms of blue green algae that thrive on an influx of nutrients that have slowly leached into the aquifer from lawns and septic tanks throughout north-central Florida. Of course not everything has changed. The 200 year-old live oak in my parent's back yard still stands with its descending gnarly branches that almost seem to provide comfort, reassurance, or perhaps pity. On one particular branch, a clump of the epiphytic green-fly orchid (*Epidendrum conopseum*) still clings as it did back in the 1970s. Visiting this orchid each year is almost like visiting an old friend.

Of course, Florida isn't the only place experiencing ecological change. Other places on Earth have it much worse, especially remote islands. This is especially true in Hawaii where more than 50% of the endemic flora is at risk of extinction due, in part, to the introduction of exotic species by humans. Euro-

pean settlers brought most of these species into the archipelago, but the early Polynesians initiated this process back in 300-750 A.D. by introducing the domestic pig. Wild pigs now roam freely on the islands and inflict serious damage to the endemic flora. Native birds have vanished at an alarming rate, and the remaining species are now threatened by avian malaria spread by introduced mosquitoes. The downfall of endemic Hawaiian birds has led to a reproductive crisis in many native tree species because these birds serve as pollinators. One by one, domino by domino, Hawaii, like Florida, is becoming a biological ghost town of endemic species.

During the past 10 years, I have worked with undergraduate students in research aimed at cultivating our native orchids threatened with extinction via the Orchid Recovery Program at Illinois College. We have propagated several North American species using mycorrhizal fungi in a process known as symbiotic seed germination. In doing so, the students play a direct role in orchid conservation and gain a sense of personal fulfillment as they strive to build their careers. Personally, it is both rewarding and reassuring to see this younger generation appreciate the natural world when the overall trend seems to be one of disconnect. An ongoing project in our lab seeks to propagate one of North America's rarest and least-understood orchids - *Platanthera holochila* - one of three endemic orchid species native to Hawaii. Known locally as "puahala a kane", this terrestrial was once thought to be extinct only a few decades ago. Today, fewer than two or three dozen plants are thought to remain deep within the cloud forests on the islands of Kauai, Maui, and Molokai. The species was once present on Oahu but hasn't been seen there since the 1940s. On Kauai, only a single specimen remains, its location a guarded secret.

The origin of *P. holochila* remains unclear, but Luer (1975) noted that the species closely resembles the Alaskan green orchid, *P. hyperborea*, and speculated that its dust-like seeds were carried to the Hawaiian archipelago long ago on the feet of the Pacific golden plover - a bird that annually migrates between the Aleutian Islands and Hawaii. This scenario is conceivable given that the bird frequents cold bogs in Alaska and prefers to visit cooler, high elevation bogs in Hawaii (Figure 1, page 12). If true, *P. holochila* descended from *P. hyperborea* stock, and has undergone speciation in relative isolation there. As a widely-recognized distinct taxon, *P. holochila* is listed as a C1 U.S. Federal Endangered species and has been assigned a global rank of G1 (= 1-5 sites and fewer than 1,000 individuals). Compared to many other *Platanthera* species on the mainland, the floral display of *P. holochila* may be described as "unflattering" (Figure 2, page 11). One redeemable characteristic is its floral scent, which, although light, is pleasantly fragrant at close range. This is surprising considering that the species is assumed to be self-pollinated. It is an orchid nevertheless, and a survivor, at least for now.

During the summer of 2004, my students and I traveled to Hawaii in an attempt



Figure 3. Illinois College students made the trip to Molokai to study *P. holochila*. Depicted (l-r) are Sarah Poulter, the author, Darcie Dennis, Steve Perlman, and Sarah Hopkins. Photo courtesy of Sarah Poulter.

to recover and preserve the fungi that *P. holochila* requires to complete its life cycle in nature. If successful, such fungi could conceivably be utilized to artificially mass-propagate the species leading to its reintroduction. Upon arriving on Molokai, we met Steve Perlman, a botanist at the National Tropical Botanical Garden and project collaborator (Figure 3). Steve is widely known throughout Hawaii for his death-defying efforts to hand pollinate many of Hawaii's endemic plants that now lack pollinators. Many of these plants cling to steep, wind-blown mountain cliffs hundreds or even thousands of feet in the air. Steve reaches these plants by utilizing a cable wire, and risks his life to pollinate, and collect seeds of the many species in peril (Royte, 1995). He is, understandably, very protective of Hawaii's endemic flora, and does not readily volunteer information to outsiders. Earning his trust in this project was an achievement in itself, and one for which I am especially grateful. Steve took us to a secluded location on Molokai within the Kamakou Preserve, owned by The Nature Conservancy. As we climbed a slope, we passed a number of invasive species along the trail, many of which were common weeds on the mainland (e.g., plantain). The trail was frequented by wild pigs which were in the immediate area evidenced by fresh tracks visible in the mud. As we continued to walk, I noticed fewer and fewer invasive species. Eventually, we entered an area that represented one of the last unspoiled habitats in Hawaii, apparently free of invasives. I mentioned to my students that this was a special, once in a lifetime opportunity to glimpse Hawaii as it used to be - before Europeans arrived, and perhaps even before the Polynesians. The area consisted of a dwarf forest dominated by *Metrosideros polymorpha*, whose branches seemed to be bathed by mosses (Figure 4, page 12). The site was cloudy, but occasionally sunlight

to recover and preserve the fungi that *P. holochila* requires to complete its life cycle in nature. If successful, such fungi could conceivably be utilized to artificially mass-propagate the species leading to its reintroduction.

would emerge, illuminating drops of water on mosses and branches that sparkled and flickered. As we continued to walk, our footsteps sank deep into layers of moss that seemed to absorb sound. There were no sounds of insects or any other creatures. All that was audible was the faint roar of wind stirring in the canyon below. This was truly a magical and peaceful place but something was missing. Steve mentioned that in 1975, he was on the expedition that filmed and recorded the Kauai O'ō (*Moho braccatus*) - one of the colorful endangered honeycreeper birds endemic to Hawaii. He said that the group actually heard the call of a male, repeatedly calling out for a mate in the forest. She never showed up that day. In 1989, only 3 birds were counted and that species has not been seen or heard from since. Like the Carolina parakeet, the Kauai O'ō has apparently slipped into extinction to become yet another endemic ghost of the past.

Eventually, we came to a clump of *P. holochila*, one of only about a dozen individuals at that site. The clump was robust, healthy, and proud, but, nevertheless precarious. It was an experience I will never forget. When I looked at the expressions on the faces of my three students, I realized that they too understood the significance of the experience. There is hope after all.

Since then, we have recovered a fungus from *P. holochila* that appears to be unique in pure culture. Whether or not it is a new species, and whether or not it can be utilized to cultivate *P. holochila* is not yet known. The fungus' color changes from dull cream to bright pink upon exposure to white light - a spectacle that one would expect of a fungus from the Hawaiian archipelago. Should it be a new species, I would like to name it after my 3 year-old daughter, Audrey Rose, who shows signs of an appreciation for nature, and whose favorite color is pink. Hopefully, she will grow up with the opportunity to experience the remaining endemic plants and animals before they too become ghosts of a bygone era.

References and Further Reading:

- Sakai, A.K., W.L. Wagner and L.A. Mehrhoff. 2002. Patterns of endangerment in the Hawaiian flora. *Syst. Biol.* 51(2): 276-302.
- Murphy, L. 1996. Strangers in Paradise. *Nature Conservancy* 46(1): 28-33.
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- Luer, C.A. 1975. *The Native Orchids of the United States and Canada*. New York Botanical Garden, New York.
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www.amnh.org/nationalcenter/Endangered/hawaii/hawaii.html

Annual Financial Report 2005

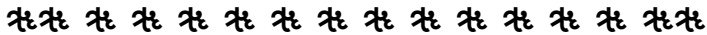
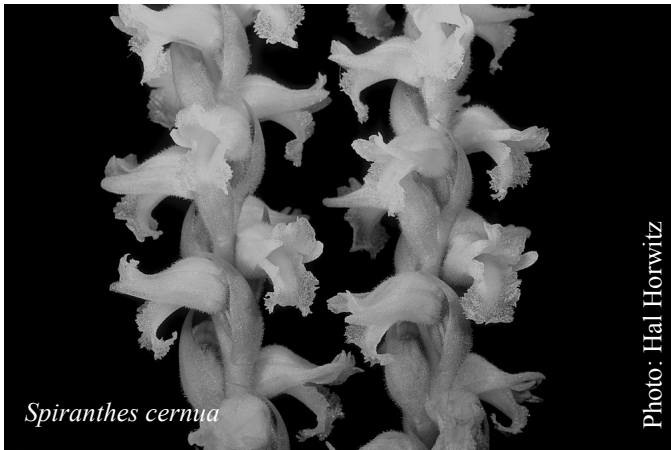
Mark Rose
Greensboro, North Carolina
rmarkrose_2000@yahoo.com

BALANCE (31 December 2004)	+ \$7,135.64
INCOME: Membership	+ \$3,580.00
Conference Registration	+ \$4,693.00
TOTAL INCOME:	+ \$8,273.00
BALANCE	+ \$15,408.64
EXPENSES: Bank Charges	- \$211.71
Journal Reprints	- \$34.91
Journal (including postage)	- \$3,456.70
Office Supplies	- \$160.11
Postage	- \$171.93
Conference	- \$5,157.67
Conference Refunds	- \$361.50
Books	- \$66.61
TOTAL EXPENSES	- \$9,621.14
BALANCE (31 December 2005)	+ \$5,787.50

END NOTES

Erratum

In our previous issue [NO CJ 3(2), page 10], the image shown below was mislabeled as '*Spiranthes magnicamporum*.' Our apologies to the readers. The image shows the inflorescences of *Spiranthes cernua*, instead.



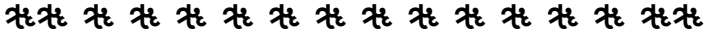
3rd International Orchid Conservation Congress, and 2nd International Conference on Neotropical Orchidology

This event, sponsored by the Orchid Specialists Group of the Species Survival Commission (International Union for Conservation of Nature – IUCN) will be held March 19–24, 2007, in San Jose, Costa Rica. Organized by the Lankester Botanical Garden (University of Costa Rica) and the Charles H. Lankester Foundation, the congress will provide a forum for sharing knowledge, concerns, and hypotheses about the current status of orchid conservation worldwide.

The primary objective will be to broaden the spectrum of knowledge and instruments of conservation. We aim to include a broad base of professionals, both biologists and non-biologists, to analyze the factors that affect orchid populations and to suggest feasible strategies for conservation. The implementa-

tion of an International Agenda for Orchid Conservation will be reviewed and goals will be proposed to support the Global Strategy for Plant Conservation.

For further details see <http://www.jardinbotanicolankester.org/ing/congress.html>. For contact information and to be added to the message list, please email Carlos Ossenbach at caossenb@racsa.co.cr.



Native Orchid Conference T-Shirts and Tote Bags

Recently, NOC, Inc. has made available to our members some items which display our logo. Each item is **\$15 (+\$4 Shipping)**. Should you wish to purchase the items listed below, please send a check (payable to: Native Orchid Conference, Inc.) to Dr. Jyotsna Sharma, University of Florida, 155 Research Road, Quincy, Florida 32351. The minimal revenue generated through these sales will be used toward the NOC sponsored activities.

Please see **Page 10** for color images of these items.



Short-Sleeved, 100% Cotton T-Shirts (Colors: Tan and Sage)

- S (34-36)
- M (38-40)
- L (42-44) (Sage is sold out)
- XL (46-48)



Tote Bags - one size

- Length - 18 inches (45.7 cm)
- Width - 5 inches (12.7 cm)
- Height - 11.5 inches (29.2 cm)

The Native Orchid Conference, Inc.

P.O. Box 29010

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Web Site: <http://groups.yahoo.com/group/nativeorchidconference/>

Officers

President: David McAdoo; ncorchid@yahoo.com

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