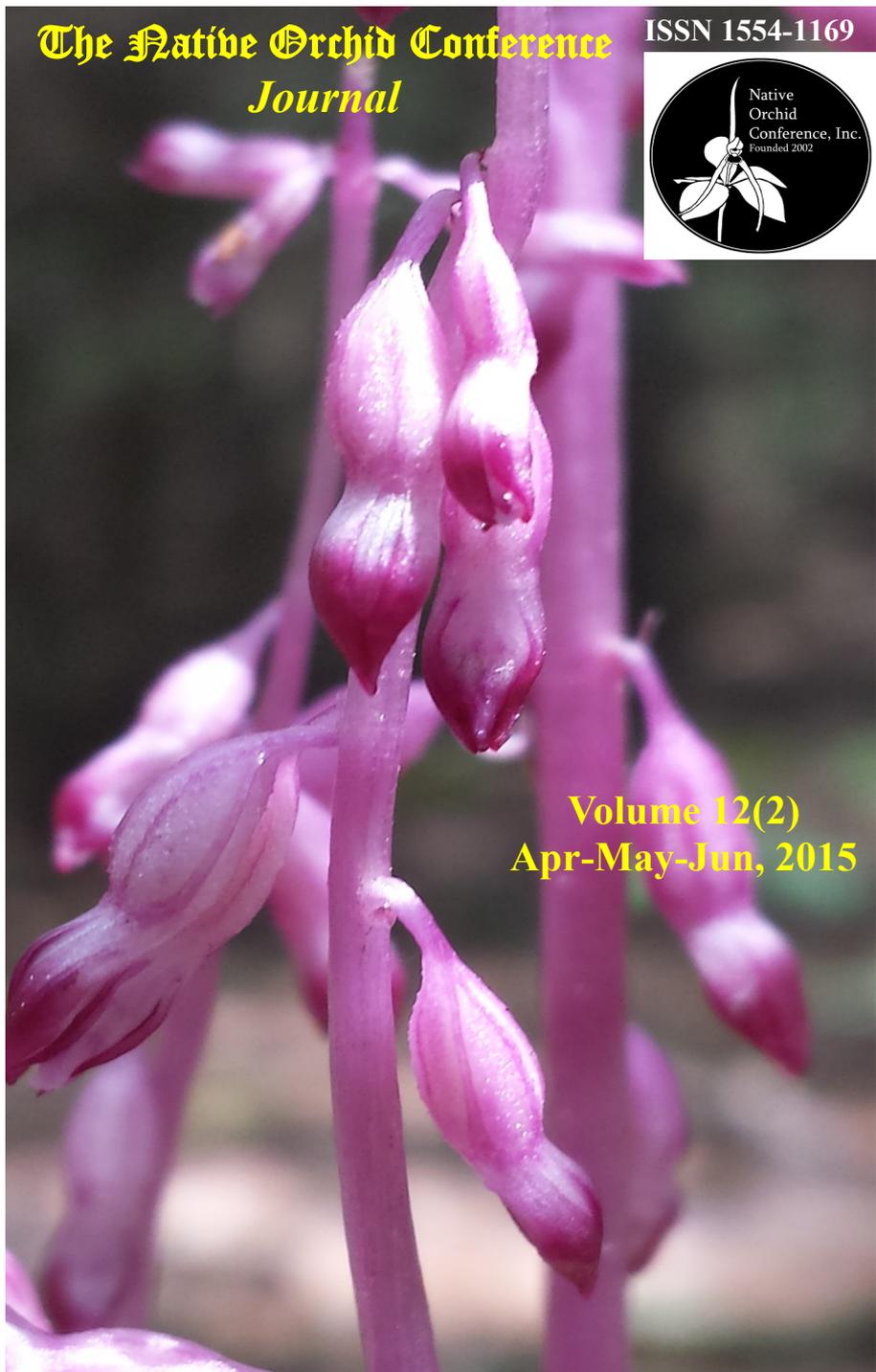


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*Corallorhiza odontorhiza*, a unique Autumn Coralroot Front Cover  
Photo: E. K. Richards 30 Aug-14.

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Photo: J. Fowler

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## Nature Snooping and Pregnancy

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all figures are by the author

“Seeing is more than merely looking, it involves NOTICING things”-Ned Smith naturalist and artist. Truer words have never been spoken when it comes to looking for such specific things as our native orchids. To have all the specifics in place for a single seed to take root is almost miraculous to me. Rarely do we find huge stands of orchids like you do with Large Flowered Trillium which may cover entire hillsides. This might be why I, along with Alison, tend to “bird dog” patches of woods that might hold a hidden jewel. More times than not we come up empty handed in the orchid department but we always, and I mean *always* notice something we have never seen before. Some say it’s better to be lucky than good and that might be so, but becoming good (or better, *sure*) makes life easier when trying to tackle our native orchids. Information is rather lacking for new orchid hunters. We have found very little about natural history, indicator species and the like. Through “noticing” and keeping notes we have managed to piece together some of the puzzle a little bit at a time. Information we collect may one day may prove handy for our newborn son or anyone else who is truly passionate about seeing them in their natural environment and keeping them there.

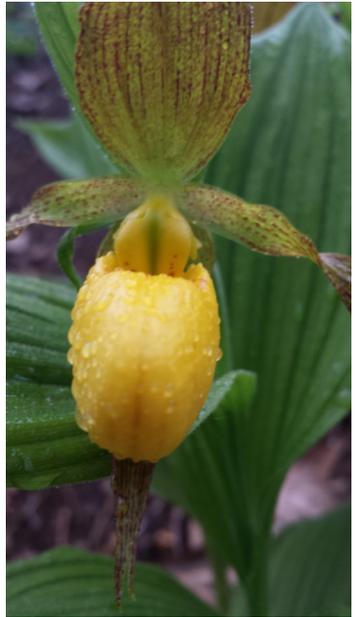


Fig. 1. *Cypripedium parviflorum*.  
Large Yellow lady Slipper orchid.

“There are some”, I said pointing at a small patch of Large Yellow Lady Slippers (*Cypripedium parviflorum*, Fig. 1). A split second later the skies opened up with some extra thunder and lightning added for good measure. As we trotted to some old limestone kilns to seek shelter from the storm, I had no idea what lay ahead for us this season. I had no idea how trying to see all 60+ wild orchids of Pennsylvania growing in Pennsylvania’s soil would shape us.

Back in 2013, I made it a point for Alison to see all the orchid species I had already seen, and we were successful except for a few. We did however add a good many others, and - even more important - we met some incredible people who would inspire us for years to come. We’d be hard pressed to repay their generosity

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and kindness! So with that, I should thank the following people right out of the gate: Scott Shriver, Pat Adams, Shane Miller, Tim Lyons, Bonnie Isaac and Dianne Machesney for their wisdom and patience. As if our lofty goal of seeing all of the orchids of PA wasn't challenging enough, we had one minor challenge added to the mix. For the entire season Alison was pregnant with our son. The entire season and right up to the day before our son Ronan Kiernan Richards was born, my wife was by my side, bush whacking, crossing black muck moats, walking across sphagnum bogs, and climbing hills that most wouldn't try.

Years ago I bought Wildflowers of Pennsylvania. It's a great book for the backpack, and it's put out by the Botanical Society of Western Pennsylvania. The last chapter had flowers I didn't even know about for the most part. The family Orchidaceae blew me away and so the journey began! I was living in the mountains of south-western Pennsylvania at the time and roamed a patch of woods that just seemed like it should have a bog in there somewhere. I asked a friend if there was one around and he said yes. When I asked where it was he simply said "you know what you're looking for". So off I went looking for my bog. As I was about to give up I came across a patch of Eastern Hemlocks and Mountain Laurel that just looked different. So I clawed my way through the under-story and came upon an opening covered in Sphagnum Moss, Pitcher Plants, Sundew, Cotton Grass and Rose Pogonia (*Pogonia ophioglossoides*, Fig. 2). This bog is one of the many places I have visited year after year to see the spectacle of hundreds of orchids in bloom. In 2013 Alison and I made a trip there so she could add the Rose Pogonia to her life list. There were thousands of them! Never had I seen so many, and who knows when we'll see that many again.



Fig. 2. *Pogonia ophioglossoides*, The Rose Pogonia.

A local place in which I grew up fishing for trout had been slated to be drained and the dams destroyed because they were deemed unsafe and it would cost too much to fix them. Years have gone by and I thought the place, now a pine plantation might be a good place in which to snoop around. As luck would have it, we found Lily Leaved Twayblade (*Liparis liliifolia*) and Downy Rattlesnake Plantain (*Goodyera pubescens*). The following season we made it a point to make that our home base. This was where we were going to see how many species we could find in a given area. Again, as luck would have it, we got more than we bargained for.

Aside from the two species we found the year before we also found Ragged Fringed orchid (*Platanthera lacera*, Fig. 3), Autumn Coralroot (*Corallorhiza odororhiza*, Nodding ladies-tresses (*Spiranthes cernua*) and Yellow ladies-tresses (*Spiranthes ochroleuca*). I really believe we may be able to squeeze a couple more species out of here. A couple spots look right for other *Spiranthes* species. One can only hope!

Probably the highlight of 2014 was our trip to see the Dragon's Mouth Orchid (*Arethusa bulbosa*, Fig. 4). This plant has been on my must-see list since I bought the afore-mentioned book. Finally in the first week of June we made a trip to one of the few places in PA to hold this amazing orchid. This is yet another one for which pictures never seem to do justice. Alison, well on her way in pregnancy, waded



Fig. 3. *Platanthera lacera*. - Ragged Fringed Orchid.

through the knee-deep muck and into the floating Sphagnum mat where a year before we saw the White Fringed Orchid (*Platanthera blephariglottis*), Grass Pink (*Calopogon tuberosus*) and Rose Pogonia (*Pogonia ophioglossoides*). After the trip in the bog we made our way to another bog not too far away to see if the Wild Calla was blooming. We had gotten word that Early Coralroot (*Corallorhiza trifida*) was seen blooming there. As luck would have it we found a handful still in bloom as well as a few Wild Calla. Once again, 'tis better to be lucky than good!



Fig. 4. *Arethusa bulbosa*.  
The Dragon's Mouth Orchid.

A little over a month later we made the trek north to see the Yellow Fringed Orchid (*Platanthera ciliaris*, Fig 5). We really were hoping that the two hour drive would bear fruit. As luck would have it we caught it at the perfect bloom time. As



Fig. 5. *Platanthera ciliaris* - The Yellow Fringed Orchid.

we were going gaga over the flower and not paying much attention to anything else I happened to look down and see a few Club-spur Orchids at the end of bloom right next to the Yellow Fringed. When we got home and put the pictures on the computer I was amazed at how they looked yellow in some pictures and orange in others. This was yet another orchid that pictures can never do justice.

August 2, 2014 (the day before the birth!) we made a trip to an area in hopes of finding some Purple Fringeless Orchis (*Platanthera peramoena*, Fig. 6). As we pulled down the wee road we could see a couple down by the stream side. We picked this voyage because Alison was closing in on her due date (August 24<sup>th</sup>) and we figured beating the thickets was no longer an option. We got out of our Xterra and made our way to the stream side when I spotted what looked like an albino version of the orchid on an island across the creek. I knew I had to get over there to see if that was what I thought it was and I also knew that I wasn't crossing that creek alone. Neither hell nor high water would keep



Fig. 6. *Platanthera peramoena*.  
The Purple Fringeless Orchis.

her on the shore. So, off we went crossing the belly deep stream in hopes that we got soaked for a good reason. The fruits of our labor were rewarded on the other side by a stunning *white* version of the Purple Fringless orchid (Fig. 7), and nearby, was another not-quite-purple, but very stunning version of almost two specimens pausing in the creek (Fig. 8)!



Fig. 7. Albino Purple Fringless Orchid. *Platanthera peramoena*, forma *doddsiae*.

The albino version was just one of 3 major finds as far as oddities were concerned; the first one being two triple lipped Pink lady slippers (*Cypripedium acaule*, Fig. 9). Then, on an outing with Scott Shriver, we struck out on the white version of



Fig. 8 Alison (with friend!) in creek during orchid hunt.

the Pink lady slipper and a Puttyroot location that no longer existed due to logging. He then led us to the edge of my favorite Whorled Pogonia (*Isotria verticillata*) and Pink lady slipper spot to see the triple lipped ones. Scott stood by and let Alison do the honors of unfolding the triple blooms.



Fig. 9. Triple lipped Pink Lady Slipper.

Our second oddity was a very, very odd coloration of Autumn Coralroot (*Corallorhiza odororhiza*, Fig. 10). The pinkish-purple coloration seemed to almost glow under the pines. After trying to find some online information of that variation we came up blank. All the people we know who are far more educated in such matters used the term “unique” to describe it (Fig. 11). These plants grew along a trail, and by the time Scott went to look at them all but one was gone. At least we got some decent pictures of the plants before they were all but wiped out. God willing, they will return next season.

Ronan was born via emergency C-



Fig. 10. *Corallorhiza odororhiza*.  
A Unique Autumn Coralroot Orchid.



Fig. 11. *Corallorhiza odororhiza*.  
Close-up of part-inflorescence.

section on August 3, 2014 (3 weeks early) and even that couldn't keep Alison down for long. Within a week we were at it again to see a nice stand of eight Downy Rattlesnake Plantain (*Goodyera pubescens*) we had snooped out a few months prior. As luck would have it, Ronan had his first orchid at just over a week old (Fig. 12). As it stands, he is at eleven species (five were in seed).

We had come to the end of orchid season here in Pennsylvania, but instead of lying around and waiting for next year to begin we went out and started photographing the seed capsules of a few of the orchids we had seen. On a trip to our fa-

favorite site of the Pink Lady Slipper and Large Whorled Pogonia, we once again happened to be at the right place at the right time. Seed capsules on a few plants were open and we could see the next generation of our favorite wildflowers. As we sat on a log looking at a few hundred Large Whorled Pogonia plants, I couldn't help but feel a bit of sadness. It was like watching an old friend go away. I remembered back in May when Alison first saw them, how quickly they became her favorite, and how a year before when I discovered this spot how amazed I was at the number of plants seen there. As it stands at present, we have found 27 species of native orchids and one non-native for Pennsylvania. All but a few have been found in the western part of the state.



Fig. 12. The family and Ronan's first orchid.  
*Spiranthes lacera*, Southern Slender Ladies' Tresses.  
("five were in seed")

It's been a long time since I started my journey as a naturalist roaming the woods of PA sketching, writing, photographing, and recording everything I was lucky enough to find. Now, some twenty years later I find myself feeling more blessed than ever. A connection with a kindred spirit, the shared thirst for knowledge, and the dream that maybe - just *maybe* - we can reach our goal of seeing all the orchids of Pennsylvania growing in Pennsylvania's soil. One thing is certain: we have to keep NOTICING things!

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## Native Orchids in the Upstate of South Carolina

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South Carolina is geographically located such that it is able to provide suitable habitat for some species that are more likely to be found in areas south of the state; in addition, it also provides suitable habitat for some species that are more likely to be found in areas north of the state. Of the 56 native orchid species found in South Carolina, 22-25 of them (depending on whom you ask) are found in the upstate. Upstate South Carolina is the region designated by the four counties in the north-west portion of the state: Oconee, Pickens, Greenville, and Spartanburg.

These counties include three physiographic regions known as the Blue Ridge (Southern Appalachian Mountains), Foothills, and Piedmont. The orchid species described in this article are found scattered over these three regions, but they are primarily located in the Mountains and Foothills.

I think it will be instructive to cover the species in the order of their bloom time beginning with March and ending with October.

### March:

March in South Carolina can still be rather chilly, but we do not usually have a blanket of snow and ice covering the ground as can be found further north. The first native orchid to show itself in the calendar year is *Corallorhiza wisteriana* (Spring coralroot orchid, Fig. 1). The earliest I've seen it is in late March when the daily temperatures reach a high of 60 degrees F (15 degrees C) and the tree canopy is still bare. It is not a common species, but with diligent searching, one can usually locate a few suitable sites.



Fig. 1. *Corallorhiza wisteriana*.  
Spring Coralroot orchid.

**April:**

Depending on the temperature, we might see the first flowers of *Galearis spectabilis* (Showy orchid, Fig. 2) and *Isotria verticillata* (Large whorled Pogonia orchid, Fig. 3) in late April, although both of these species can be found blooming during the first week in May. Each of these two species prefers damp, rather open woods. Also, each is capable of creating large populations of plants - Showy orchid by clumping, and Large whorled Pogonia orchid by sending out runners/stolons. More often than not, these two species are accompanied by the flowering of a number of *Trillium* species.



Fig. 2. *Galearis spectabilis*.  
Showy orchid.

**May:**

The month of May brings us a wide variety of early summer orchids beginning with *Cypripedium acaule* (Pink Lady's-slipper orchid, Fig. 4). This one is quite common for us, and can be found growing in almost any grove of *Pinus strobus* (White Pine) in the area. White Pine needles help provide the strongly acidic soil that Pink Lady's-slipper orchids require. It is not uncommon to find many dozens of plants blooming in a relatively small area with some clumps containing up to ten flowers. Many of our local naturalists associate this orchid with Mother's Day, since the flowers are usually open by then.



Fig. 3. *Isotria verticillata*.  
Large Whorled Pogonia orchid.

Mid-May brings us the largest monthly selection of native orchids during the year. These include *Aplectrum hyemale* (Putty-root orchid, Fig. 5), *Calopogon tuberosus* (Common Grass-Pink orchid, Fig. 6), *Cleisteslopsis bifaria* (Upland Spreading Pogonia orchid, Fig. 7), *Cypripedium pubescens* (Large yellow Lady's-slipper orchid, Fig. 8), the very rare, *Isotria medeoloides* (Small whorled Pogonia orchid, Fig. 9), *Malaxis unifolia* (Green Adder's-mouth orchid, Fig. 10), and *Pogonia ophioglossoides* (Rose Pogonia orchid, Fig. 11). Many of these can be found blooming just feet apart, making a day trip to any of our upstate Heritage Preserves a fruitful endeavor.



Fig. 5. *Aplectrum hyemale*.  
Putty-root orchid.



Fig. 4. *Cypripedium acaule*  
Pink Lady's-slipper orchid.

Putty-root orchid is one of our native orchids which has a single winter leaf that withers before anthesis. It unfurls in October and does its job providing nutrients from photosynthesis before the trees leaf-out in late spring. By the time the flowers open, the leaf is usually completely decayed.

Both Common Grass-pink orchid and Rose Pogonia orchid are often found blooming in the same areas - usually pond margins and wet seeps. It's always a pleasure to be able to photograph each of these orchids during the same visit.

The small whorled Pogonia orchid is so rare that I know of only two locations for it in the state (both in the upstate). Although it has been recorded in about twenty states east of the Mississippi, it is quite rare nationwide, being federally listed as endangered in most states where it occurs. One of the upstate locations is on the huge tract of watershed owned by the municipal water system, and the area is posted for non-trespassing -- and they mean it! I have heard of a number of arrests of persons venturing onto the property. Fortunately, I know of another area in a nearby state where I can photograph this species in season.

One must venture on an extended hike into the mountains of South Carolina to see our Yellow Lady's-slipper orchids. This is another species which is more commonly found further north. I know of only a couple of sites for this yellow beauty in the state, and each site supports only a handful of mature plants, but it is quite plentiful (a weed?) in many states further north.



Fig. 6. *Calopogon tuberosus*, Common Grass-Pink orchid.



Fig. 7. *Cleisteslopsis bifaria*, Upland Spreading Pogonia orchid.



Fig. 8. *Cypripedium pubescens* Large yellow Lady's-slipper orchid.



Fig. 9. *Isotria medeoloides*. Small whorled Pogonia orchid.



Fig. 10 *Malaxis unifolia*.

Green Adder's-mouth orchid



Fig. 11. *Pogonia ophioglossoides*.

Rose Pogonia orchid.

**June:**

June offers us only the lowly *Neottia smallii* (Appalachian Twayblade orchid, Fig. 12) and *Spiranthes vernalis* (Spring Ladies'-tresses orchid, Fig. 13). *Neottia smallii* is amazingly plentiful in areas of sparkling mountain streams and *Rhododendron* thickets. In fact, I dare say that it might just be the most common native orchid in the region, but it is seldom seen unless one intentionally looks for it. This orchid is found almost exclusively under the low-lying branches of *Rhododendron maximum* (Rosebay Rhododendron) near small brooks and streams. Crawling under those twisted branches is quite the chore, but one is more often than not rewarded with dozens of this odd little orchid.

Although found in much larger numbers in roadside medians along



Fig. 12. *Neottia smallii*.  
Appalachian Twayblade orchid.

the Atlantic Coastal Plain of the state, Spring ladies'-tresses has appeared from time to time to the astute observer in fallow fields and meadows in the upstate.

**July:**

The month of July brings us six species of native orchids. The first of these to bloom is *Gymnadeniopsis clavellata* (Club-spur orchid or Green woodland orchid, Fig. 14). It is found in moist areas, usually growing in *Sphagnum*. The size of populations of this orchid species can be quite large, but most often only a few plants are seen.



Fig. 13. *Spiranthes vernalis*, Spring ladies'-tresses orchid.

The next two species can often be found blooming just inches apart: *Goodyera pubescens* (Downy Rattlesnake Plantain orchid, Fig. 15) and *Tipularia discolor* (Crane-fly orchid, Fig. 16). Interestingly, both of these species have winter leaves - *G. pubescens* has a beautifully reticulated evergreen leaf rosette while *T. discolor* has a single winter leaf (green on top and purple underneath) that usually withers before anthesis. Another interesting note about *T. discolor* is that its pollinator is said to be a night-flying moth.



Fig. 14. *Gymnadeniopsis clavellata*. The Club-spur orchid or Green woodland orchid.

The most spectacular July orchid (in my opinion) is *Hexalectris spicata* (Crested coralroot orchid, Fig. 17) with its ruffled, deep magenta lip and yellow/tan striped petals and sepals. This is one that I patiently wait for each year, since it is so much fun to photograph.

By happy chance, there is one *Spiranthes* species that bloom reliably for us in July. It is *S. lacera* var. *gracilis* (Southern slender Ladies'-tresses orchid, Fig. 18). This one is always a challenge for me to photograph because its flowers are at the tip of an exceedingly thin stem -- one that always manages to catch the slightest breeze to sway back and forth (intentionally to frustrate the photographer, I presume). When a close-up shot is needed, I usually look around to find a couple of twigs to brace the inflorescence to try to keep it from moving.

The final native orchid species to bloom in July for us in the upstate is *Platanthera ciliaris* (Yellow fringed orchid, Fig. 19). On occasion, one can find dozens of them scattered along roadside ditches. These "butterfly magnets" usually provide this photographer the opportunity to



Fig. 15. *Goodyera pubescens*.  
The Downy Rattlesnake Plantain orchid.

catch pollination in action if I am willing to be patient (and I usually am).

**August:**

The month of August heralds the flowering of a tiny, but never-the-less spectacular orchid, *Triphora trianthophora* (Three-birds orchid, Fig. 20). Perhaps I should have included this one in the July grouping, since global warming has moved the first flowering of this species into late July the past couple of years. However, this is one of my favorites, but until I learned how to predict when it would bloom, I was often disappointed in just finding unopened buds or newly formed seed capsules. As you might already know, the flowers of this species remain open for just a few hours during the day. When they finally decide to bloom, the flowers generally



Fig. 16. *Tipularia discolor*. The Crane-fly orchid.

open in mid-morning and close in late afternoon. It's just too bad if you miss the flowering, because those flowers will not open again. However, there is usually more than one "wave" of flowering for the Three-birds orchid. It seems that they are so attuned to the weather that only when there is a specific set of weather circumstances will they open. What I (and others) have figured out is that each "wave" of blooms will appear 48 hours after a set of morning low temperatures that decrease by 5 or more degrees (F) each morning over a period of three days. It is rather complicated, but if you keep a graph of the morning low temperatures of the area, it is fairly easy to predict the bloom. Since the closest patch of Three-birds orchids is more than an hour from my home, it really cuts down the number of times I spend driving to the site to find them in bloom. Fortunately, if you miss the first "wave" of blooming, there are usually a few more to follow.



Fig. 17. *Hexalectris spicata*. The Crested coralroot orchid.



Fig. 18. *Spiranthes lacera* var. *gracilis*.  
The Southern slender Ladies'-tresses orchid.



Fig. 19. *Platanthera ciliaris*. The Yellow fringed orchid.

Late August usually brings the fairly unattractive *Corallorhiza odontorhiza* (Autumn coralroot orchid). I use the term, "unattractive", since the ones in our area are largely cleistogamous or have closed flowers. Only a few flowers may open fully on any particular stem. It turns out that they don't need open flowers to attract a pollinator, because they are self-pollinating. I have found that this particular species is not always a reliable bloomer. For the past decade, I have been following a particular patch of them. Sometimes, a few years pass with no sign of the plants above ground, but I can be pretty sure that they are just building up strength underground. Since the coralroot orchids do not photosynthesize their own food, they rely on an underground mycorrhizal fungus to provide nutrition in the form of carbohydrates. So, even if they don't appear above ground every single year, they are likely still alive underground.



Fig. 20. *Triphora trianthophora*.

The Three-birds orchid.

**September:**

September is a very sparse month for orchids in the upstate. We have only the *Spiranthes ochroleuca* (Yellow ladies'-tresses orchid, Fig. 21) to grace our woodlands. This orchid species is another one of those species whose natural range is usually much further north, but I have managed to find a few cool, shaded locations where this orchid thrives. Fortunately, these locations are not only protected by being in a state Heritage Preserve, but they are protected naturally by their remoteness.

**October:**



Fig. 21. *Spiranthes ochroleuca*.  
The Yellow Ladies'-tresses orchid.



Fig. 22. *Spiranthes cernua*.  
The Nodding Ladies'-tresses orchid.

The last of our native orchids to bloom in the upstate is *Spiranthes cernua* (Nodding ladies'-tresses orchid, Fig. 22). It's a fairly common orchid to find if you look in the right place. The ones I photograph every year are in an area underlain by solid granite outcrops. They grow on the Blue Ridge escarpment. It is a fairly acidic environment with just a few inches of sandy soil holding the roots. Since *S. cernua* readily appropriates genes from other *Spiranthes* species, the differing morphology of the flowers and plants in various locations can be quite distinct.

Some plants are relatively short with tiny flowers, while others may be more like *Spiranthes odorata*, tall with large flowers. It must be noted that, to my knowledge, *S. odorata* has not been identified this far inland within the state. In any case, this brings a fitting end to the orchid season in the upstate. If these beauties have not satisfied my hunger for flowering orchids in South Carolina, I can always drive four hours south to South Carolina's Atlantic Coastal Plain for a few additional orchids to wrap up the season -- but that story is for another time...

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