

***NORTH AMERICAN
NATIVE ORCHID JOURNAL***

Volume 13 (3)

2007



IN THIS ISSUE:
THE NATIVE ORCHIDS OF COLORADO
and more.....

The *North American Native Orchid Journal* (ISSN 1084-7332) is a publication devoted to promoting interest and knowledge of the native orchids of North America. A limited number of the print version of each issue of the *Journal* are available upon request and electronic versions are available to all interested persons or institutions free of charge. The *Journal* welcomes article of any nature that deal with native or introduced orchids that are found growing wild in North America, primarily north of Mexico, although articles of general interest concerning Mexican species will always be welcome.

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Cover: *Spiranthes diluvialis* by Stan Folsom

NOTES FROM THE EDITOR

It is with great pleasure that the *Journal* presents Scott Smith's work on the native orchids of Colorado. Apart from editing the format to fit the Journal layout and some corrections of grammar, this is all Scott's work. I have tried very hard not to alter his style, presentation of data, or concept of the species treatments. It has been a pleasure to work with him.

I am still soliciting additional articles for both the March and October 2008 issues at this time. Please submit both ideas and finished work. I can work with you on your ideas if you are not quite sure how to develop them.

Paul Martin Brown

Editor

naorchid@aol.com



Piperia unalascensis
drawn by Stan Folsom

The Native Orchids of Colorado

A Botanical Adventure of an Amateur
Scott F. Smith



A Gentle Reminder

Our wild orchids are best left in the wild. That is where they have grown up and that is what they have become use to. Terrestrial orchids depend upon mycorrhizal fungal associations to survive. These mycorrhizal conditions are not typically available in people's yards. Most wild obtained plants that are brought out of the woods will die a year or two at best after transplanting - assuming you can get close to recreating their habitat conditions at home. So it is best to leave them where you find them. Pictures will last longer. A few, large, modern-day greenhouses are now starting to figure out the associations that are necessary to grow these wonderful orchids. Every year they become more and more available. The *Cypripedium* species are the first of these being commercially grown and sold. So let's buy them from these folks and save a possible fine or jail time for removal of wild native flowers. The hunt for and the actual finding of these orchids is amazingly fun and challenging. The satisfaction of finding these in the wild is an immense pleasure. After spending hours and hours, sometimes days, searching for these plants, only to find them trampled or removed is an extreme let down. So let's try and leave them for others to have the same fun experiences.



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Preface

The orchid hunt continues today in a similar manner to days gone by. The difference is that most of us now days are hunting these rarities for photographic purposes, and just the sheer enjoyment of actually finding these often small, beautiful plants. Unlike 100 years ago, when orchid hunters scavenged the earths forests for orchids to send back to England, Europe and the United States. Of course our native orchids are much smaller than what these other orchid hunters were looking for. Our native orchids don't lend themselves to living, after being ripped out of the ground. This pastime seems to be growing in popularity the last few years. We shall see if this continues into the future as the price of our gasoline continues to sky rocket. Of course, if these other folks are anything like me, we will continue the hunt whatever the cost of fuel. The addiction is too great with too much fun and enjoyment to be had.

Our native or wild orchids of Colorado are found growing in the plains--they are growing along the foothills--you find them high in the mountains--you find them where you previously use to trod and tromp. Mother Nature has a way of letting the rarest of these beauties grow along side of roads and trails. Sometimes even in the middle of them. They grow out in wet boggy areas. Some even thrive growing right out of the crags and cracks of large rocks. Some have their existence growing in crushed granite and pine needles. Others love to live by the rushing streams and flood plains where the soil is much richer. Yet others appear as if to grow purely out of pine needles. Weather in the plains or along mountain streams renders most of the plants very small. Their flowers are as shapely and elegant as their tropical orchid cousins; only on a much smaller scale. Some of our orchids are best appreciated through the lens of a magnifying loupe or glass. The rarity of several of our Colorado orchids has landed them on the state and federal threatened and endangered species lists. Without concerted effort by the general populous, some may disappear entirely from Colorado. The largest of our orchids is the yellow lady's-slipper, (*Cypripedium parviflorum*); the plant in good habitat can reach 18 inches tall or so. The smallest orchid in Colorado's inventory, *Malaxis monophyllos* var. *brachypoda*, is only about 3 inches tall and pure translucent green. Is it possible still to find an unknown orchid type in Colorado? Yes. There are at least three species of orchids that are thought to be possibly growing within the borders of Colorado. The only thing required to find these plants are lots of fuel and determination. The love for the outdoors also plays a large roll.

This book was inspired by my desire to know more about the orchids that I was looking for and finding. Also not finding a modern book on Colorado's orchids has also inspired me to writing my own book; a book written in a very general English language format without an overabundance of Latin. Sort of a *Colorado Orchids for Dummies*; a book for someone like myself, who has great difficulty in pronouncing the Latin terms and meanings. Something everybody could appreciate. But the more I study the more I learn. Someday I will be able to say the names out loud without fear of tripping over my tongue in the pronunciation of Orchidaceae.

During the 1960s Dr John C. Long authored the first book about Colorado orchids. Many things have changed since that time. Many of the orchids have now gone through name changes and realignments with other genera of orchids. Some of the species names have changed also. This is due to science having a better understanding of our wild terrestrial orchids. I guess it was high time I tried my hand at authoring a book on Colorado orchids. Who knows this may this book will be my break in life. I'll fill my days by looking for new orchids in the field. If this book becomes accepted it will follow in a long line of other books about regional and local books from other orchid fans from

around the United States. In the Bibliography I have listed all of the books that I have read and filtered through, gleaning knowledge about how to find the wonderful, illustrious, hidden treasures.

My first thoughts on Colorado orchids came from a thought I had about buying my mother some flowers for Mothers Day. It dawned on me to look for an orchid dealer in the Denver area. I figured I could buy local and have them sent to mom. So I hit the Internet and that is when I learned that orchids existed in our mountains. I was amazed and stumped that orchids grew in cold weather regions. But that was all it took. I was hooked. I had to learn more, and that is what I did. My wife Flossie is still amazed that I can see orchids in the road side ditches as we drive our way through the Colorado mountains. Hiking along trails in the mountains I try to point them out whenever I can. Flossie still says “How did you ever see that in the sea of green grasses, ferns, and mosses?”. How many of these wonderful plants did I walk on or over before I knew. Now whenever the search is on for a particular orchid, and I finally find it, I stop completely. I then look around the immediate area to make sure I’m not in the middle of a patch of them. Often I have found more of the orchids right behind me from where I had just come from.

Over the years I have been given tidbits of information about where to look for these sometimes elusive plants. Occasionally there is enough information to go directly to the plants; more often than not folks are reluctant to give this information out. Sometimes only the general area is all of the information that is given. A recent discovery took me over three years to find. Some other orchids I am still looking for. As with most things, the more you learn and know about subjects the more information people tell you. At times you know half of the puzzle and at a later date the other piece of the treasure map falls your way. Besides word of mouth from people, the Internet has played a very large roll in the current information available about native orchids. There are vast amounts of information available via the Internet. It is not all in one neat grouping though. Much more time needs to be spent on compiling this data. Tons of information is out there if you have the time to spend sifting through it. Orchid books have been a huge help in identifying many types of the orchids. You think you know what you are looking for until you really do find the correct plant. Once the differences are learned, life gets easier. Seeing two different *Goodyera* orchids (*oblongifolia* and *repens*), in a book doesn’t quite give you the full appreciation of what you are looking for. When you finally see the differences, the light bulb turns on inside your brain and you say, “Oh, I see now”. They really don’t look alike and they are truly different. I have purchased virtually any and all native orchid books that I have come across pertaining to terrestrial orchids; even other native orchid books from other northern hemisphere countries. Many types of orchids that we know about in the United States also live in Europe and China. Some publications are very old and others have been just produced within the last few years. I would hope that in the future that there would be a book from every state in the Union and from all of Canada. The orchids of Canada are virtually the same as the ones in the United States. Our orchids do not know boundary lines. They only follow habitat types.

I have included pronunciation guides at the beginning of each section of every Colorado orchid along with the definition of the orchids Latin names. They really do make sense after learning what their Latin names mean-- mostly anyhow.

I need to thank my wife for putting up with my being gone most of the months of June, July and August. My house and gardens goes into neglect during those times also, as I push those items off that need to be fixed until later; although Flossie does accompany me on many of my adventures. I would also like to thank any and all of the folks that have lent me information, small or great in this search. The Denver Post Newspaper, Bill Jennings, Denise Wilson, Boulder Open Space Parks and Recreation, Barbara Frase, Mark Wilson, Rebecca Daly, The Internet, and hoards of books.

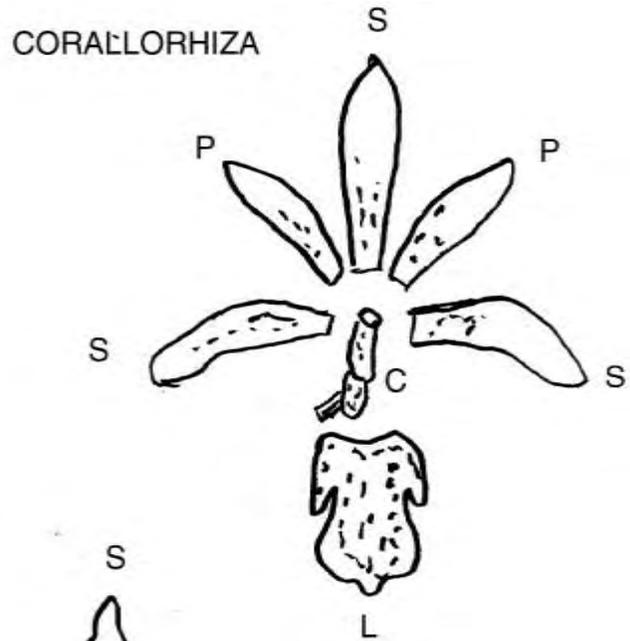
What is a Wild, Native, Terrestrial Orchid?

What is a Wild, Native, Terrestrial Orchid? This is easy. Wild: a plant that grows out of the grasslands or mountains, without the help of mankind. Native: a plant that is endemic to the area. Not a transplant from another part of the country or a different country. Terrestrial: meaning growing on or from the ground--Earth. Orchid, what is an orchid? It must be that highly elusive and difficult plant you see in greenhouses and its beauty unsurpassed. That plant that nobody can grow at home. Yes and no. Orchids make up the largest of all plant families. With about 35,000 naturally occurring members to this family. This does not include the thousands of hybrids that have been developed since humans became addicted to orchids. Now that is an extended nuclear family. An orchid, like most flowering plants, has stamen(s) and a pistil. But in orchids these are fused together into one. This called a column. The flower itself is made up of three petals and three sepals. One of the three petals is fashioned into what is called the *lip*. The *lip* acts as a platform, usually for a very particular pollinator. The pollinator could be a wasp, a bee, a butterfly, a spider, a bird, a moth, and so many more other insects. But each type of orchid is usually only pollinated by one pollinator. Each particular orchid has developed a relationship with its pollinator that when its pollinator dies out as a species so might the orchid.

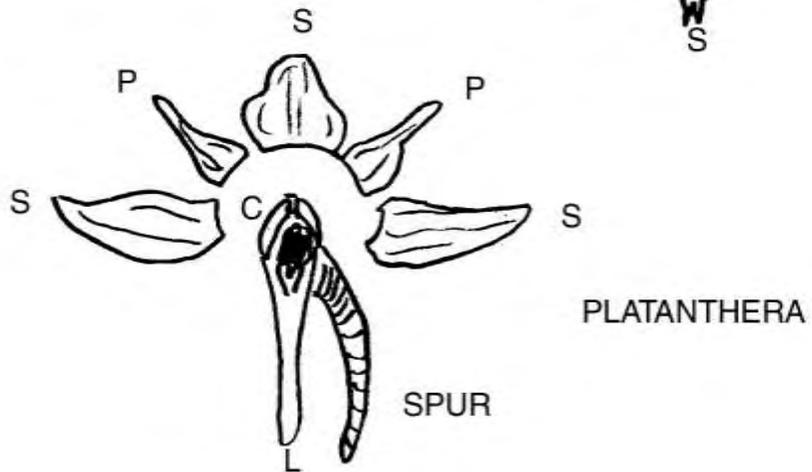
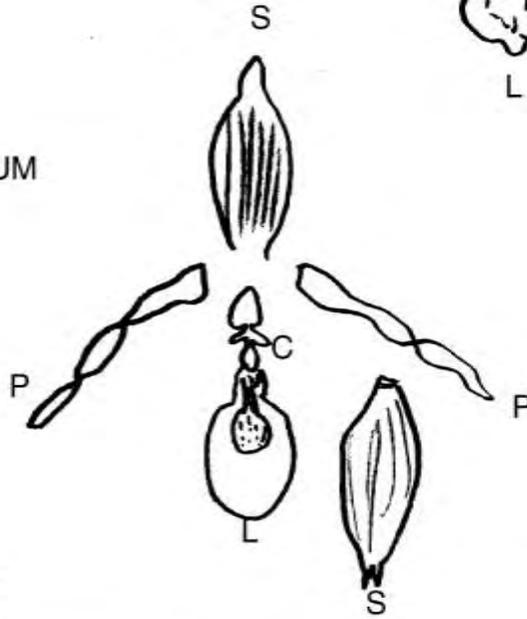


Flower parts of an Orchid

S = SEPAL
P = PETAL
L = LIP
C = COLUMN



CYPRIPEDIUM



***Calypso bulbosa* (L.) Oakes**
variety *americana* (R. Brown) Luer

Calypso bulbosa, (ka-lip'-soe)+(bul-boe'-sa). From the Latin name "bulbus", referring to the bulblike corns that the plant rises from. Calypso is from the Greek word for the sea nymph of Homer's *Odyssey*.

Common names: Calypso, fairy slipper, Venus's slipper, Deer's head slipper.

Flowering: from late May thru June.

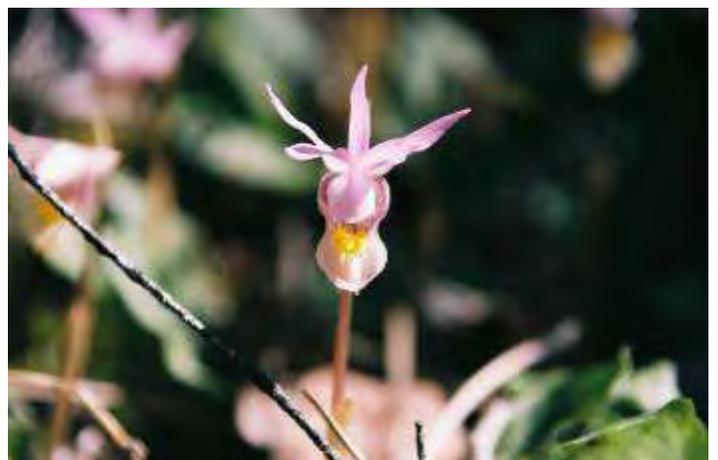
Description: Flower stem of 2-9 inches tall. Nodding, then progressing to proudly erect when mature with a solitary, purplish-red to pinkish flower that fades to a whitish cream color after its prime.



The lip or pouch is whitish pink with yellow hairs. The very tip of the lip is spilt or bifurcated. The flower has 3 sepals and 3 petals, one of which is modified itself into the lip. The insides of the lip or pouch are streaked with very dark purple markings with the flower size is about 2 inches maximum length. A single, dark green leaf, at the base of the flower stem, deeply veined, oval in shape, grows throughout the winter, but then dies after flowering. This green-veined leaf is a very distinguishable marker when looking for this orchid. This orchid is quite pleasantly scented; so much so that they are often eaten by forest animals. There is no nectar in this orchid, so it depends upon bees not realizing this. Hopefully they visit several plants before figuring out this folly.

Habitat: usually shade in cool, moist pine and Aspen mountain forests. Found growing mostly on north to east facing slopes, often in decaying wood, pine needles or Aspens leaves near streamside or watershed at elevation ranges between 7,000 and 10,000 feet in Colorado.

Calypso is one of Colorado's most striking orchids. This orchid has several myths surrounding it. Most of which probably just aren't true. Though not common, it is also not rare. There are two varieties of this orchid in North America, but we in Colorado only have the *Calypso bulbosa* variety *americana*. The differences between them are that our orchid has yellow hairs (beard) at the opening of the pouch, where as the variety *occidentalis* has white hairs. White flowered forms of this orchid do exist in Colorado.



***Coeloglossum viride* (L.) Hartm.**

variety *virescens* (Muhl.) Luer

Coeloglossum viride (see-low-glos'-um) + (vir'-i'-dee) - from the Latin *viride* meaning green.

Coeloglossum is from the Greek word meaning "hollow tongue", pertaining to the shape of the spur.

Common names: Frog orchid, long bracted orchid.

Flowering: from the middle of June through July.

Description: Flower stems about 12 inches tall; erect; multiple flowers up the stem. Flowering from bottom to top, the flowers

are several shades of green. The orchid flower is made up of 3 sepals and 3 petals, one of which has formed the stylistic lip of this plant. The most obvious way of distinguishing this green orchid from the many other green orchid parts is through the distinctness of the form of the lip. The lip of this orchid is multi-colored in green. The apex of the lip is split into three lobes. The two outside lobes are very prominent. The center lobe is much small in size, almost to the point that it is not even recognized as a third lobe and mostly looks split like a snake's tongue. The sepals and petals then also form a hood over the column. The spur on this flower hides itself behind the rest of the flower. It is whitish in color, very small and scrotum shaped. The plant is not fragrant. The spur does contain the nectar. The leaves, dark green in color, are elliptical in shape, coming to a point at the tips and alternate up the stem of the plant. Up in the flowering portion of the plant bracts appear instead of leaves.

Habitat: This orchid is found growing in shady Aspen mountain forests at around 9,000 to 10,000 feet in elevation, typically in very wet areas. These areas tend to dry out later in the summer. I have seen this plant growing immediately next to juniper bushes and very close to yellow lady's slippers. In the Aspen forests the grass is usually a foot tall along with other leafy plants that hide this orchid very well.



There are two varieties of the orchid in North America. Colorado only has *Coeloglossum viride* variety *virescens*. Our Colorado variety is the much larger and robust form of the two types; a bonus for us. This orchid is not found in many areas of Colorado. But usually quite a few of these exist in an area though. This makes them uncommon but not rare.

Corallorhiza in Colorado



maculata



striata



wisteriana



trifida

***Corallorhiza maculata* (Raf.) Raf. variety *maculata* and variety *occidentalis* (Lindl.) Ames**

Corallorhiza maculata, (ko-rall'-oh-rye-za)+(mak-yoo-lah'-ta) - from the Latin *maculata* meaning spotted. *Corallorhiza* is from the Greek word for "Coral Root", referring to the structure and shape of the rhizome to coral.

Common names: Spotted coralroot, large coralroot, many-flowered coralroot.

Flowering: from late May thru August

Description: A leafless plant, with absolutely no chlorophyll to the plant whatsoever. No green in this orchid. The color of the plant ranges from a brilliant yellow to orange, red to deep maroon. The orchid flowers have 3 sepals and 3 petals. One petal has formed itself into the lip. This attractive landing platform is typically white with varying amounts of spots on it--some more than others. The spots are the same color as the plant. Occasional plants will have pure white lips and no spots. Because these plants have no leaves and no green they cannot get their nutrients from the sun. Where they are usually located does not allow them to get any sun either. So these plants are sometimes considered saprophytic, but are now accepted as living mutually with the mycorrhizal fungal that are parts of the earth that they co-habitat. Hence they are able to live deep in the shade. They get all of their food these mycorrhizal sources. The base of the lip on this orchid flower actually has two ears or tabs that protrude out of the sides of the lip. This is an important way of telling a couple of our coralroot orchids apart. Not much in the fragrance category here; pretty much none existent. There may be as many as 50 flowers along the stem with many blooming at the same time from bottom upwards. They can either be seen growing as a single stem of flowers or in clumps up to a foot in diameter.

Habitat: Typically located in deeply shaded forest, either evergreen or also in Aspen forests. They grow solidly in gravel and pine needles, strictly in pine duff, and also in grassy Aspen leaf litter. Occasionally then also seen in grass semi open areas. They grow between the elevations of 6,500 to 10,000 feet.

In the United States there are 7 species of this genus, with only 4 known from Colorado. *Corallorhiza maculata* has two varieties. One variety is called "*occidentalis*", meaning "western" and the other is known as variety "*maculata*". The variety '*occidentalis*' blooms first and then variety '*maculata*'. Small differences tell these two apart as their blooming seasons can and do overlap. The lips of variety "*occidentalis*" is rounded on the sides, where as the lips of variety "*maculata*" are more straight and narrow.





top and left var. *occidentalis*
right: var. *maculata*
left : unusual double-lipped form

***Corallorhiza striata* Lindl.**

Corallorhiza striata, (ko-rall'oh-rye-za)+(stry-ay'-ta) - from the Latin word for "striped". *Corallorhiza* is from the Greek word for "coral root", referring to the structure and shape of the roots to coral.

Common names: Striped coral root.

Flowering: from middle of May thru June.

Description: A leafless plant, with absolutely no chlorophyll to the plant what so ever. No green in this orchid. The color of the plant ranges from a light red to dark reddish purple. The orchid flowers have 3 sepals and 3 petals. All are white and striped with a deep purple color. One petal has formed itself into the lip. This attractive landing platform is typically the same color as the rest of the plant. This is the largest of the Coralroot orchids. These will grow as tall as 18 inches. Occasional white or ivory colored individuals will be several shades of yellow, with some very dull stripping. Because these plants have no leaves and no green they cannot get their nutrients from the sun. Where they are usually located at does not allow them to get any sun either. So these plants are sometimes considered saprophytic, but are now accepted as living mutually with the mycorrhizal fungus that are parts of the earth that they co-habitat hence being able to live deep in the shade. They get all of their food these mycorrhizal sources. Not much in the fragrance category here; pretty much none existent. There could be as many as 30 flowers along the stem with many blooming at the same time from bottom upwards. They are most often found growing singly and very seldom if ever in clumps. Of the Coralroot orchids I find this one to be the prettiest of all and probably the most majestic.

Habitat: Typically located in wetter, deeply shaded forests of pines, firs, or spruce trees. They grow solidly in gravel and pine needles, strictly in pine duff, and also in rotting leaf litter. On the front range of Colorado they can be found growing in drier pine forests. They grow between the elevations of 6,500 to 10,000 feet, sometimes mixed in with grasses, Oregon grape, and the notorious poison ivy. The best patches are always located in with large clumps of the poison ivy. These are uncommon to rare in Colorado.

In Colorado we have two varieties of *Corallorhiza striata*. *Corallorhiza striata* variety *striata*, is the more robust form. Taller, bigger, much darker colors, more flowers per stem. The second is called *Corallorhiza striata* variety *vreelandii*. This plant is usually much small, less than a foot tall, with far fewer flowers with less colorful markings and stripes. Lots of times light purple with yellowish tan colors, but still a showy orchid.



var. *striata*

var. *vreelandii*

forma *flavida*

***Corallorhiza trifida* Chat.**

Corallorhiza trifida, (ko-rall'oh-rye-za)+(trif-id-ah) - from the Latin word for “split into three”, referring to the three lobed lip. *Corallorhiza* is from the Greek word for “coral root”, referring to the structure and shape of the rhizome to coral.

Common names: Early coralroot, pale coralroot, northern coral root.

Flowering: from late May thru July.

Description: A leafless plant, this is the only *Corallorhiza* that exhibits any green color to the flower. It can be the smallest of the coralroot species, sometimes only a couple of inches tall; usually no more than 6 inches. The plant is most often seen as single units but can be found in clumps of 20 or more. The color of the plant ranges from a light yellowish green to a dark green. The orchid flowers have 3 sepals and 3 petals. One petal has formed itself into the lip. This attractive landing platform is white. The rest of the sepals and petals are green. The same color as the stems. Because these plants have no leaves they can not get their nutrients from the sun. But the green stem and flowers may actually help here. So these plants are sometimes considered saprophytic, but are now accepted as living mutually with the mycorrhizal fungus that are parts of the earth that they co-habitat, hence being able to live deep in the shade. They get all of their food these mycorrhizal sources. Not much in the fragrance category here; pretty much non-existent. There could be as many as 20, typically fewer, flowers along the stem with many blooming at the same time from bottom upwards; very seldom if ever in clumps or multiple stems. *Corallorhiza trifida* forma *verna* is common in Colorado. Not rare at all.

Habitat: Typically located in wetter, cooler, deeply shaded forest, of either pine, fir, or spruce trees and also in Aspen forests. Often in areas that have water running across the ground. They grow solidly in pine needles and/or rotting leaf litter. They grow between the elevations of 8,900 to 11,500 feet. They are sometimes mixed in with grasses, and mushrooms.

In Colorado we have only this one form *Corallorhiza trifida* forma *verna*. So this is an easy one to spot.



***Corallorhiza wisteriana* Conrad**

Corallorhiza wisteriana, (ko-rall'oh-rye-za)+(wis-ter'-ee-a-na) - named after the American botanist Charles J. Wister. *Corallorhiza* is from the Greek word for “coral root”, referring to the structure and shape of the rhizome to coral.

Common names: Spring coralroot, Wister's coralroot

Flowering: from middle of May thru June.

Description: A leafless plant, with absolutely no chlorophyll to the plant what so ever. It can be very small and hard to see as it blends into the pine duff and or leaf litter. Sometimes it is only a couple of inches tall and usually no more than 9 inches. This orchid plant is most often seen as single stem. You can see many other stems close by but not often do you see these clumping. The color most often seen is a brownish-red to dark maroon. Many color forms exist of the orchid, including light yellow, green, green and pink and reds. The orchid flowers have 3 sepals and 3 petals. One petal has formed itself into the lip. This attractive landing platform is white along with pinkish spots on the lip. The rest of the sepals and petals are the same color as the stem with as many as 10 flowers per plant. Because these plants have no leaves they can not get their nutrients from the sun, so these plants are sometimes considered saprophytic. But they are now accepted as living mutually with the mycorrhizal fungus that are parts of the earth that they co-habitat, hence being able to live deep in the shade. They get all of their food these mycorrhizal sources. Not much in the fragrance category here; pretty much none existent. Many flowers bloom at the same time from bottom upwards. It is very seldom, if ever, in clumps or multiple stems. *Corallorhiza wisteriana* is common in Colorado. Not rare at all.

Habitat: Typically located in wetter, cooler, deeply shaded forest, of either pine, fir or spruce trees, also in Aspen tree forests, and juniper bushes. Often in areas that have water running across the ground. They grow solidly in pine needles and/or rotting leaf litter. They grow between the elevations of 6,500 to 11,000 feet. They are sometimes mixed in with grasses and mushrooms. This orchid is not rare at all in Colorado. Quite common during its blooming season

In Colorado we have typical *Corallorhiza wisteriana*, but also many color forms, including white lipped forms. *Corallorhiza wisteriana* looks amazing like *Corallorhiza maculata*. Besides its much smaller size and stature, the lips of the orchid flower give you the differences. Most often the spotting on *wisteriana* is quite faint, where as on *maculata* it is brilliant. The lip on *Corallorhiza wisteriana* does not show the eared tabs that are present on *Corallorhiza maculata*.



Cypripedium fasciculatum Kell. ex S. Wats.

Cypripedium fasciculatum, (sip-ri-pe'-dee-um)+(fas-sik-yoo lah'-tum) - from the Latin, means “gathered into a bundle” referring to the clustering of these flowers. *Cypripedium* is from the Greek words for “Aphrodite”, the Goddess of love and “foot”, and would closely translate as “Aphrodite’s foot”

Common names: Clustered lady’s-slipper, Brownie lady’s-slipper

Flowering: from the middle of June into August.

Description: A green stemmed, green leaved plant with a small pouched flower. The color of this orchid ranges from green, or brown, to deep purple. The flower itself is not much bigger than one-half inch in diameter and the plants growing not much taller than about 6 inches in height. This orchid plant is most often seen as single stem with sometimes up to 10 orchid flowers on the stem. Mostly those that you see only have 1-2 flowers per stem. This orchid does have the desire to form clumps of flowers. The orchid flowers have 3 sepals and 3 petals. One petal has formed itself into the lip or pouch. This attractive landing platform is almost always covered up by the sepals and petals as they form hoods over the lip or pouch. A pair of leaves sit opposed to each other at the base of the plant. Not much more than an inch off of the pine needle mat. The leaves are mostly round, but quickly coming to a point at the far ends of the leaf; flowering during the months of June, July and August.

Habitat: Typically located in wetter, cooler, deeply shaded fir forests, sometimes in with spruce trees and some juniper bushes. They grow solidly in pine needles and/or rotting leaf litter. Usually very little undergrowth is found in areas where this orchid grows with little to no competition for nutrients. They grow between the elevations of 8,900 to 11,000 feet. This orchid is rare in Colorado. Care should be taken when around these orchids as they are only known from just a few locations. It seems that most of these site have very few of these orchids per site.

In Colorado we have this orchid growing in a few disjunct populations. I have seen this growing right next to four wheel drive roads. Amazing how Mother Nature places her rare plants.



***Cypripedium parviflorum* Salisb. variety *pubescens* (Willd.) Knight**

Cypripedium parviflorum, (sip-ri-pe'-dee-um)+(par-vi-flor'-um) - from Latin, means "small flowered" and may have been referring to the larger flowers of the European *Cypripedium calceolus*. *Cypripedium* is from the Greek words for "Aphrodite", the goddess of love and "foot", and would closely translate as "Aphrodite's foot"

Common name: Large Yellow Lady's-slipper

Flowering: from early June thru the middle to late July.

Description: This orchid is erect standing, light green in color, and has ascending leaves that are deeply veined the length of them. The older the orchid the more leaves they have. I have seen up to 7 leaves. Both the stems and leaves are covered by small hairs. Hence the variety named (*pubescens*). Usually single stemmed, reaching 18 inches tall. Typically on one flower per stem, but sometimes on very rare occasions 2 flowers. The flowers are bright yellow, pouch shaped, slightly scented of rose. They are spotted internally with reddish maroon. Sometimes a few spots are on the outside. This flower has 3 sepals and 3 petals. One of the petals has turned into the magnificently elegant lip or pouch. Of the three sepals, the two bottom sepals are joined together in what is called a synsepal. The two lateral petals are twisted and spiraling. The sepals and petals are yellow and light brown, sometimes lighter and sometimes much darker. The dorsal sepal acts as a hood over top of the lip. The yellow lip is usually about 2 – 3 inches in length. This is the most beautiful of our Colorado orchids, hence its rarity.

Habitat: Found growing in shady Aspen groves and pine forests between 6,500 to 10,000 feet in elevation. Preferred soils range from pine needles and gravel to Aspen leaf litter. I have seen them growing in grasses and Aspens and along side Juniper bushes. They are found growing on south facing slopes, along with eastern and western slopes as well. They like shady, wetter, riparian slopes, and also dry hill sides near seasonally wet meadows. I have seen these growing virtually in pure crushed granite on Pikes Peak Mountain. They are very fond of growing next to yellow flowered *Arnica*. This makes identification difficult at times. The yellow *Arnica* flower more often than not is the flower that catches your eye.

In Colorado we have the *Cypripedium parviflorum* variety *pubescens*. The name *pubescens* is derived from the small soft hairs that cover most of the entire plant. In Colorado what was once known as, *Cypripedium parviflorum* variety *planipetalum*, is now just an extreme expression of variety *pubescens*. Its smaller stature was once thought of a variety, but its apparent differences are just from extreme environmental conditions such as growing on the gravelly slopes of Pikes Peak. This extreme form of the yellow lady's-slipper usually has thicker, heavier leaves, it is a much more compact dense plant. It is found growing in drier habitats and is smaller in size. These *Cypripedium parviflorum* variety *pubescens* plants are extremely rare and have legal protection in Colorado and neighboring states. Let's be careful around these guys.





***Epipactis gigantea* Doug. ex Hook.**

Epipactis gigantea, (ep-i-pak'-tis)+(gij-gan'-tee-ah) - from the Latin word for gigantic, in reference to the large size of the flower and plant. *Epipactis* is apparently derived from a classical Greek name used by Theophrastus for a plant used to curdle milk.

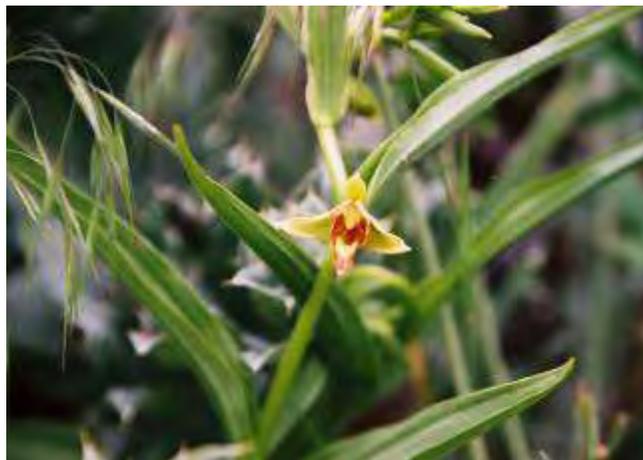
Common names: Stream orchid, chatterbox orchid.

Flowering: from early June thru the middle to late July.

Description: Tall orchid up to 1 foot tall with up to 6 or 7 green, alternating, heavily veined long leaves.

Habitat: This orchid is usually found in very wet areas near to mineral hot springs, and river or creek banks. This orchid likes to grow in very hot exposed areas of Colorado especially in the hot springs and seeps of Western and Southern Colorado; found growing around 5,000-8,000 feet in elevation.

There are three species of *Epipactis* found growing in North America, but in Colorado only *Epipactis gigantea* is found to be growing naturally. It is found growing in the northern and southern ends of the San Louis valley. Also found growing in the hot canyon lands of western Colorado. Big clues to finding his one are finding seeps and hot springs.



***Goodyera oblongifolia* Raf.**

Goodyera oblongifolia Rafinesque; (Good year rah)+(ob longi folia). Named in honor of the English Botanist John Goodyear (1592-1664). *Oblongifolia* from the word oblong, referring to the shape of the leaves in this orchid

Other names: *Goodyera decipiens*, *Epipactis decipiens*, *Peramium decipiens*

Common names: Menzies rattlesnake plantain, giant rattlesnake plantain.

Flowering: late July thru September.

Description: hairy perennial, mostly lying flat on the ground with flower stem of 6–16 inches tall growing out of the rosette of leaves, with 10-30 densely close, tiny, fuzzy flowers with greenish sepals and white petals, the apex looking like a spout. Three to seven pear-shaped leaves forming a basal rosette, dark, shiny green or blue green with a prominent white spreading stripe along midrib. It may be confused with other *Goodyera* species, but this one is more common and larger.

Habitat: Most often in coniferous woods where there is a well developed humus layer overlying sand. Elevation Range: 8,000 to 11,000 feet. Often appears as a ground cover. This orchid can be found by the hundreds in many areas around Colorado. *Goodyera oblongifolia* is one of our most common orchids in Colorado.



***Goodyera repens* (L.) R. Br.**

Goodyera repens (Good year rah)+(re pens). *Goodyera* in honor of the English Botanist John Goodyer (1592-1664). *Repens*, from the Latin for “creeping”. *Ophioides*, from the Greek, meaning snake-like.

Common names: dwarf rattlesnake plantain, lesser rattlesnake plantain, creeping rattlesnake plantain.

Flowering: late July thru September.

Description: perennial, very small flat lying herb, flower stem of 3–14 inches tall, with 8–20 densely close, tiny, fuzzy flowers growing on one side of the spike, with greenish sepals and white petals, the apex looking like a spout. Four to seven ovate leaves forming a basal rosette, dark, shiny green or blue green usually with a network of white horizontal markings. Can be confused with other *Goodyera* species, but this one has tiny leaves.

Habitat: Coniferous swamps and bogs, cool, shady, moist coniferous forests with a mossy understory, in slightly acidic soils in full to partial shade. Elevation range seems to be around 7,500 to 9,000 feet.

It appears to be fire-sensitive and does not come back after a burn. In Colorado this orchid is one of our more uncommon ones. So far I have only seen this orchid in the front range mountains.



Listera borealis Morong

Listera borealis, (lis-ter-ah)+(bor-re'-alis) - from the Latin for boreal or from the north. Usually pertaining to its northern habitats. *Listera*, the genus was named after the Dr. Martin Lister, an English Botanist and physician.

Common name: Northern Twayblade orchid.

Flowering: between the middle of June thru July.

Description: Flowering stem usually not more than 4-5 inches tall, most of the time smaller. Two to ten flowers ascend up the stem. The flowers are several shades of green, from translucent to dark shiny green, darkest green in the center of the lip, elongated green stripe. The orchid flower is 3 sepals and 3 petals, one which has formed the stylistic lip of this plant. The lip of the plant is oblong in shape and narrowly cleft at the apex of the lip. Leaves are typically two each, opposed to each other. Roughly midway up the stem, they are green and ovate-oblong in shape.

Habitat: This orchid is found growing at high elevations in Spruce/Aspen forests at around 9,000-11,000 feet in elevation. Typically in very wet areas to open running water.

This is one of our rarest orchids in Colorado. When found only a few plants are found at each location.



***Listera convallarioides* (Sw.) Nutt.**

Listera convallarioides, (lis-ter-ah)+(con-val-lar-i-oi-dees) - means “like *convallaria*” or “like lily-of-the valley,” referring to the supposed likeness to the “Lily of the valley” plant. *Listera*, the genus was named after the Dr. Martin Lister, an English Botanist and physician.

Common name: Broad-Lipped Twayblade orchid.

Flowering: late June thru August.

Description: Flowering stem usually not more than 4-7 inches tall, most of the time smaller. The stem is usually hairy or pubescent above the leaves. Two to fifteen flowers ascend up the stem. The flowers are several shades of green, from translucent to dark shiny green and slightly darker green in the center of the lip, elongated green stripe. The orchid flower is 3 sepals and 3 petals, one which has formed the stylistic lip of this plant. The lip of the plant is oblong and shaped somewhat like a fiddle. The lip is minutely tri-lobed, but most obviously double lobed at the apex of the lip. Leaves are typically two, opposed to each other, roughly midway up the stem, and they are green and oblong to round in shape.

Habitat: This orchid is found growing at high elevations in Spruce/Aspen forests at around 7,000-11,000 feet in elevation. Typically in very grassy, herby wet areas to open running water.

This is one of our rarest orchids in Colorado. When found, there are usually quite a few plants seen at each location.



Listera cordata (L.) R. Brown

Listera cordata variety *nephrophylla*, (lis-ter-ah)+(cor-day-tah) - from the Latin meaning “heart shaped” referring to the heart shaped leaves. *Listera*, the genus was named after the Dr. Martin Lister, an English Botanist and physician.

Common name: Heart-leaved twayblade orchid.

Flowering: between the middle of June and the end of July.

Description: Flowering stem usually not more than 4-7 inches tall, most of the time smaller, the stem usually hairy or pubescent above the leaves with two to fifteen flowers ascending up the stem. The flowers are several shades of green, from translucent to dark shiny green; sometimes red to reddish brown in one of our forms. The orchid flower has 3 sepals and 3 petals, one which has formed the stylistic lip of this plant. The lip of the plant is deeply forked for half the length of the lip itself. Leaves are typically two each, opposed to each other, roughly midway up the stem, and they are green and oblong to round in shape.

Habitat: This orchid is found growing at high elevations in Spruce/Aspen forests around 9,000-11,000 feet in elevation. Typically in very grassy, herby wet areas. Wet to open running water.

This is one of our most common orchids in Colorado. When found, there are usually quite a few plants at each location.

In Colorado we have only *Listera cordata* variety *nephrophylla*. The variety *nephrophylla* are usually green flowered although the red-flowered forma *rubescens* is often mistaken for *L. cordata* var. *cordata*. The all green-flowered orchid seems to be the more common of the two in Colorado. But occasionally you will find both growing side by side here.



forma
rubescens



***Malaxis monophyllos* (L.) Sw. variety *brachypoda* (A. Gray) Morris & Eames**

Malaxis monophyllos variety *brachypoda* - *brachypoda* from the Greek word “brachys” and “podion” referring to short and foot, referring to the relatively short pedicel of this variety. *monophyllos* derived from the Greek word “monos”, solitary leaf, referring to the single leaf to this orchid. *Malaxis* derived from the Greek word for, “softening”, in reference to the soft succulent consistency of the leaves in this genus.

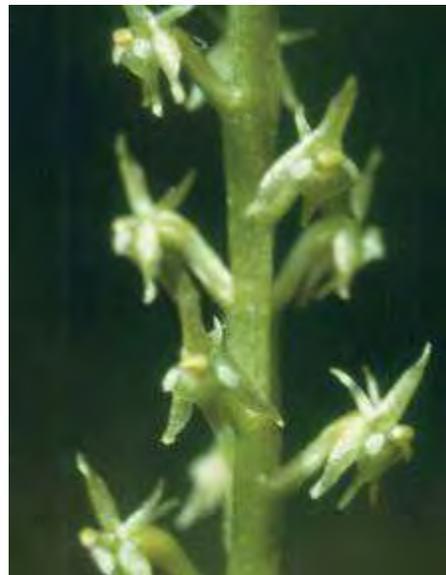
Common name: White Adder’s- mouth orchid

Flowering: from the middle of July thru the middle of August.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is two months long. The flower itself is light whitish green in color and extremely small in size - less than a ¼ inch. The plant is less than 4-6 inches in over all height. This is the smallest orchid flower in Colorado. Flowers are lightly spaced along the stem of the flower, the sepals, light whitish green, folding backwards and splayed outwards towards the stem of the plant. The petals are fully opened up and almost forming a star shape. This orchid has no spur or nectary. The single leaf is dark green and almost as tall as the over plant height clasping around the base of the stem. The lip is triangular in shape and three lobed at the base. The front of the lip is pointed and then rolls backwards. Colorado’s *Malaxis monophyllos* variety *brachypoda* is a disjunct collection. This is a northern orchid.

Habitat: This orchid grows in partial sun to partial sunshine. Mostly found growing in wet stream banks at an elevation between 7,000 and 9,000 feet in Colorado.

In Colorado, *Malaxis monophyllos* variety *brachypoda* is the rarest of all our native orchids. So rare that it goes years between being spotted. When seen it is extremely rare in quantity. There are two recorded sites in Colorado and one area is not considered historic. Our *Malaxis* is found growing in cool wet dry locations, typically very mossy and grassy. Cool water running near by seems to be key in this orchid. Besides being extremely rare it is also extremely small in stature. This is one of our rarest orchids in the state.



Piperia unalascensis (Spreng.) Rydberg

Piperia unalascensis, (pi'-per'-ria)+(un-alas-censis) - *unalascensis* named for the Aleutian Island, Unalaska, where it was first discovered. *Piperia* named in honor of Professor C.V. Piper of the Agricultural Experimental Station at Pullman Washington.

Common names: Alaska piperia, slender spire orchid.

Flowering: early June, July thru July.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is two months long. The flower itself is light whitish green in color and extremely small in size - less than a ¼ inch. This orchid is green completely. The leaves, 2-6 each, are lance-like and are extremely shiny, waxy like. A wonderful characteristic of this orchid is that the shiny leaves are all withering at the time of blooming. The flowering stem comes from the plants in a very densely packed group. Probably 30-75 flowers packed together. As the plant grows through the early season these densely packed spikes elongate and space out as the stem grows to 2 feet tall. The plant is than 12-24 inches in over all height. The orchid flower is one of the smallest in Colorado. Flowers are evenly spaced along the stem of the flower. The sepals, light whitish green, fold downwards and are slightly twisted. The petals are fully opened up and almost forming a star shape. The spur is about as long as the lip. It also curves outward from the base of the spur and flower. *Piperia unalascensis* flowers bear a large resemblance to flowers of several *Platanthera* species. This orchid is found growing in some of our mesic conifer dry forest. They can be found growing in and under full forests or along banks from old road cuts and trails.

Habitat: This orchid grows in partial sun to full sunshine. Mostly found growing in cooler forest areas. The height of this orchid during blooming time varies between 12-24 inches tall at an elevation between 6,500 and 9,000 feet in Colorado.

In Colorado, *Piperia unalascensis* is not common but not on the endangered list yet ether. When seen it is small in quantity. There are records for more than ten counties in Colorado. Our *Piperia unalascensis* is found growing in cool dry forest locations. In the foothills around Boulder, Colorado these can be found. They are also found growing in the mountain valleys.



Platanthera aquilonis Sheviak

Platanthera aquilonis, (pla-tan'-ther-ah)+(ack-wee-low'-niss) meaning “of the north”, in reference to its range. *Platanthera* is from the Greek words meaning wide anther, referring to the broad anthers on these flowers.

Common name: Green bog orchid.

Flowering: late May thru early August.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is a month long or better. The higher the elevation the later it blooms and the later it stays blossoming. The flower itself is a light green to a yellow green. The sepals fold downwards towards the spur. The petals and dorsal sepal come together to form a type of hood over the column. This hooded portion along with the lower sepal and lip forms a roughly 90 degree angle that points outwards from the flowering stem. The flowers along the stem seem to stay compact along the upper portion of the stem. This orchid also has a nectary or spur which contains the nectar that so many insects and moths are striving for. The spur is cylindrical and club like and fully rounded at the bottom. It also curves outward from the base of the spur and flower. The spur is usually shorter than the length of the lip. The spur is yellow green.

Habitat: This orchid grows from slightly partial shade to full complete sunshine. Mostly found growing in wet swampy ground to having running water around the plant. The height of this orchid during blooming time varies between 12 inches and 2 feet, varying with habitat conditions and amounts of water and elevations. Found at elevations between 5,000 and 11,000 feet in Colorado.

This orchid was once known as *Platanthera hyperborea*. This was incorrect and everything in the United States that was once called *P. hyperborea* (without variety) is now known as *P. aquilonis*.



Platanthera dilatata (Pursh) Lindl. **variety *dilatata*** and **variety *albiflora*** (Cham.) Led.

Platanthera dilatata, (pla-tan'-ther-ah)+(dy-la-tah'-ta) - from the Latin *dilatatus*, meaning broadened or expanded, referring to the dilated base of the lip of the flower. *Platanthera* is from the Greek words meaning "wide anther", referring to the broad anthers on these flowers. This is the easiest of all of the *Platanthera* species to identify.

Common names: Tall white bog orchid, tall white northern orchid, bog orchid, fragrant orchid.

Flowering: early June thru August

Description: The most obvious identifying characteristic is the beautiful bone white to pure ivory white in color. The orchid more often catches the senses of nose first before actually seeing the orchid and is extremely pleasant sweet smelling and noticeable from a distance. The base of the plant being the thickest and tapering down in diameter as the plant grows upwards. The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is a month long or better. The higher the elevation the later it blooms and the later it stays blossoming. Hot weather is detrimental to the longevity of this orchid. The stem of flowers can be loosely or densely packed with flowers. Having 100 individual flowers is not uncommon on this orchid. The stem and the leaves of this orchid are green in color. Some darker some lighter. Seems the more sun they have the lighter green the plant is. The leaves alternate their way up the stem all the way to the flowers. They are quite long at the base of the plant and finally reduce in size to small bract like leaves by the time they mix in with the flowers. The size of each flower is no more than about 1/2" inch. This orchid flower has three sepals and three petals, one petal of which has turned into the lip of the flower as a landing platform for the pollinating insect. It is this lip which is "dilated" at the base of the flower from which the plant gets its name, *dilatata*. This orchid also has a nectary or spur which contains the nectar that so many insects and moths are striving for. The spur is cylindrical and club like and fully rounded at the bottom. It also curves outward from the base of the spur and flower.

Habitat: This orchid grows from slightly partial shade to full complete sunshine. Mostly found growing in wet swampy ground to having running water around the plant. The height of this orchid during blooming time varies between 6 inches and 2 feet. Size varies with habitat conditions, amounts of water, and elevations. Elevation between 8,000 and 11,000 feet in Colorado

In Colorado we have two varieties of this orchid. *Platanthera dilatata* variety *dilatata*, and *Platanthera dilatata* variety *albiflora*. The term "*albiflora*" means white flower. But in this case both varieties are white flowered. So this is not a good identifying characteristic. The best way to tell these two varieties from each other is by the length of the spurs or nectary on each type. The spur length on *Platanthera dilatata* variety *dilatata* is usually as long or slightly long than the length of the lip. On *Platanthera dilatata* variety *albiflora* the spur length is usually about 1/2 to 3/4's the length of the lip.



var. *dilatata*



var. *albiflora*

***Platanthera huronensis* (Nutt.) Lindl.**

Platanthera huronensis, (pla-tan'-ther-ah)+(hur-on-en'-sis), named after Lake Huron close to where it was first found. *Platanthera* derived from the Greek words meaning "wide anther", in reference to the broad anther on the flower in this orchid.

This plant flowers are a very distinctive greenish white. It has been confused with *Platanthera dilatata* by some.

Common names: Tall northern green orchid, Tall green bog-orchid

Flowering: early June thru August.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is a month long or better. The higher the elevation the later it blooms and the later it stays blossoming. The flower itself is greenish white in color. But not white like *Platanthera dilatata*. Flowers are densely packed along the upper half of the flowering stem. The sepals fold downwards and outwards at a 45 degree angle from the base of the spur and flower. The petals and dorsal sepal come together to form a type of hood over the Column. This hooded portion along with the lower sepal and lip stand erect and parallel to the flowering stem. This orchid also has a nectary or spur which contains the nectar that so many insects and moths are striving for. The spur is cylindrical and club like and fully rounded at the bottom. It also curves outward from the base of the spur and flower. The spur is about as long as the lip. The spur is greenish white.

Habitat: This orchid grows from some partial shade to full complete sunshine. Mostly found growing in wet swampy ground to having running water around the plant. It is an orchid that grows in road side cuts. The height of this orchid during blooming time varies between 4 to 18 inches depending on habitat and altitude conditions, amounts of water and elevations. It is found at elevations between 8,000 and 12,000 feet in Colorado.



***Platanthera obtusata* (Banks ex Pursh) Lindl.**

Platanthera obtusata, (pla-tan'-ther-ah)+(ob-tus'-say'ta), named for the obtuse shape of the leaf. *Platanthera* derived from the Greek words meaning "wide anther", in reference to the broad anther on the flower in this orchid.

This orchid is the only *Platanthera* in Colorado that has a single leaf. This is extremely handy in identification purposes. This plant has flowers that are greenish white and very distinctive.

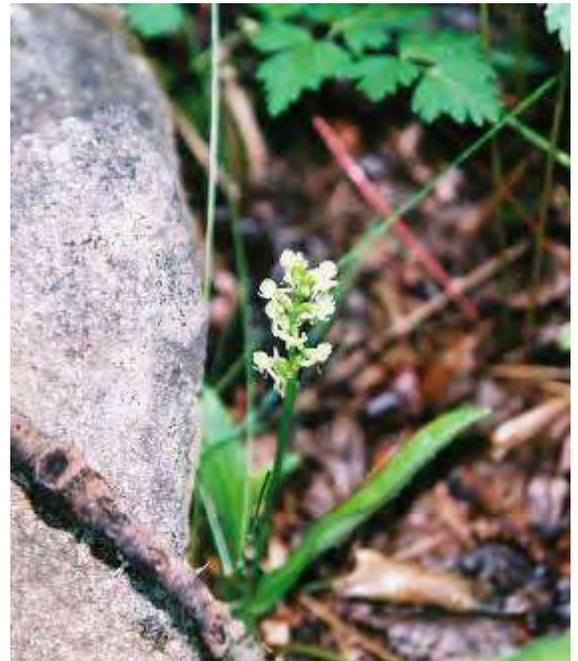
Common names: Blunt leaf orchid.

Flowering: from the middle of June thru early August.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is a month long or better. The higher the elevation the later it blooms and the later it stays blossoming. It is a sparsely flowered orchid with 4-8 flowers. Overall height of this orchid usually does not exceed 6 inches. The flower itself is whitish green in color. Flowers are sparsely distributed along the upper half of the flowering stem.

This orchid also has a nectary or spur which contains the nectar that so many insects and moths are striving for. The spur is cylindrical and club like and fully rounded at the bottom. It also curves outward from the base of the spur and flower. The spur is about as long as the lip to longer than the lip. The spur is greenish white.

Habitat: This orchid grows from heavy shade to partial sunshine. Mostly found growing in wet swampy ground to having running water around the plant. The plant loves mossy grounds. The height of this orchid during blooming time varies between 4 to 6 inches and varies with habitat and altitude conditions, amounts of water and elevations. It grows at elevations between 9,000 and 12,000 feet in Colorado.



Platanthera purpurascens (Rydb.) Sheviak & Jennings

Platanthera purpurascens, (pla-tan'-ther-ah)+(pur-pur-as'-enz), deriving its name from the intense purple spotting that is found on some of the flowers its range. *Platanthera* derived from the Greek words meaning "wide anther", in reference to the broad anther on the flower in this orchid.

Common name: short-spurred bog orchid

Flowering: middle of June thru August.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is a two months long or better. The higher the elevation the later it blooms and the later it stays blossoming. The flower itself is deep green in color. Flowers can be densely to lightly packed along the stem. The sepals fold downwards and twist inwards paralleling the spur. The petals and dorsal sepal come together to form a type of hood over the column. This hooded portion along with the lower sepal and lip stand erect and parallel to the flowering stem. This orchid also has a nectary or spur which contains the nectar that so many insects and moths are striving for. The spur is usually scrotiform to clavate. It also curves outward from the base of the spur and flower. The spur is dark green and shorter than the lip. The leaves are dark green and between 3-6 leaves are scattered along the stem before the flowers start. Besides its sac-like spur, this orchid is identified by its aroma or smell. It has a strong musty smell. Not sweet like many other orchids.

Habitat: This orchid grows from full shade to partial sunshine. Mostly found growing in wet swampy ground to having running water around the plant. It is an orchid that grows in road side cuts. The height of this orchid during blooming time is between 4 to 18 inches and varies with habitat and altitude conditions, amounts of water, and elevations. It grows at elevations between 5,000 and 10,000 feet in Colorado. This orchid can be found growing in Clear Creek River in Denver.



Platanthera tescamnis Sheviak & Jennings

Platanthera tescamnis (pla-tan'-ther-ah)+(tes-cam-nis), derived from the words for desert and water, referring to its location of habitat. *Platanthera* derived from the Greek words meaning "wide anther", in reference to the broad anther on the flower in this orchid.

Common name: Intermountain rein orchid

Flowering: late June thru August.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is two months long or better. The higher the elevation the later it blooms and the later it stays blossoming. The flower itself is light green to yellow green in color. Flowers can be densely to light packed along the stem of the flower. The sepals, light green, fold downwards and twist backwards paralleling the spur. The petals and dorsal sepal come together to form a type of hood over the column. This hooded portion along with the lower sepal and lip extend horizontally out from the flowering stem, forming almost a 90 degree angle to the stem. This orchid also has a nectary or spur which contains the nectar that so many insects and moths are striving for. The spur is cylindrical and pale green and also curves outward from the base of the spur and flower. The spur is longer than the lip; to as much as 1½ times as long as the lip. The lip is a yellow to yellow green in color. It appears to hang straight down from the rest of the flower. The flower has a strong scent. The 6-8 leaves are dark green and clustered around the base of the plant forming somewhat of a rosette.

Habitat: This orchid grows from partial shade to full sunshine. Mostly found growing in wet stream banks and riparian areas. It is an orchid that grows in road side cuts. The height of this orchid during blooming time varies between 12 to 24 inches and varies with habitat and altitude conditions, amounts of water and elevations. It is found at elevations between 7,000 and 10,000 feet in Colorado.

In Colorado *Platanthera tescamnis* is found growing in some desert locations with water, but also in the foothills of the San Louis valley and along I-70 close to Vail, Colorado. The plants in Colorado were known as *Platanthera sparsiflora* for the longest time, but large differences were found between Colorado's plants and the typical *P. sparsiflora*, hence the renaming of our species of *Platanthera tescamnis*.



Platanthera zothecina (Higgins & Welsh) Kartesz & Gandhi

Platanthera zothecina, (pla-tan'-ther-ah)+(zoth-e-ki'-na), *Platanthera* derived from the Greek words meaning "wide anther", in reference to the broad anther on the flower in this orchid; *zothecina* meaning of niches or alcoves.

Common name: Alcove Bog-orchid.

Flowering: July and August.

Description: The floral stem blooms from the bottom first and then blossoms upwards. The blooming time of this orchid is a two months long. The flower itself is light green to greenish white in color. Flowers are lightly spaced along the stem of the flower. The sepals, light green, fold backwards paralleling the spur, pointing towards the stem of the plant. The petals and dorsal sepal come together to form a type of hood over the column. This hooded portion along with the lower sepal and lip extend horizontally out from the flowering stem forming almost a 90 degree angle to the stem. This orchid also has a nectary or spur which contains the nectar that so many insects and moths are striving for. The spur is cylindrical, pointed on the end and pale green and also curves outward from the base of the spur and flower. The spur is much longer than the than the lip - to as much as 2+ times as long as the lip. The lip is a yellow to yellow green in color. The flower has a strong scent. The 3-6 leaves are dark green, alternating on the stem from the base of the plant. The leaves of *Platanthera zothecina* are much more round than any of the other Colorado *Platanthera* orchids.

Habitat: This orchid grows in partial sun to shade. It is found growing in wet, seepy over hanging gardens along the Colorado River. The height of this orchid during blooming time varies between 8 to 12 inches. It is found at elevation between 5,000 and 7,000 feet in Colorado.

In Colorado *Platanthera zothecina* is found growing in hot desert-like locations with limited water in hanging alcoves. In Colorado it is only found three places in the deserts of northwestern Colorado. This is one of our rarest orchids in the state.



Spiranthes diluvialis Sheviak

Spiranthes diluvialis Sheviak (Spy' ran' these)+(dil' lou' vee' all' lis), derived from the Greek words (Spir), as in coiled and the (Anthes), as in flower; referring to the spiraling of the flowers along the stem. The name *diluvialis* comes from the meaning of flood, or referring to the wet stream side or open water habitats that the plant thrives in.

Common name: Ute ladies'-tresses

Other names: *Spiranthes romanzoffiana* var. *diluvialis*

Flowering: starting in early July thru August

Description: appears as an erect, slightly hairy perennial herb, stem 8-16 inches tall. Multiple small, white, 1/4 to 1/2 inch long flowers spiral gracefully up the 1/3 top of the stalk, petals and sepals jutting out horizontally; the lower lip curling under like a hook. The lip petal is oval or lance-shaped with a middle constriction; edges wavy. Leaves persist when plant is flowering, are linear at base and become bracts above, up to 10 inches long and 1/2 inch wide; visible veined. Seed capsules bunch close to and around the stalk.

Habitat: Plants can grow in wet meadows in full-sun in the margin just outside of cattails, but also in areas flooded in early spring, then draining as summer progresses and growing in the shade of willows at 4500 to 6,800 feet in altitude.

Spiranthes diluvialis is an amphidiploid (natural cross breeding) of *Spiranthes romanzoffiana* and *Spiranthes magnicamporum*, a Midwestern species no longer existing in Colorado. It is Colorado's only Threatened status orchid species, but is currently being considered for de-listing by U.S. Fish & Wildlife. It numbers in the thousands east of Boulder due in part to the efforts of Anna Arft, who did her Ph.D. work on this plant, and Lynn Reidel, with Boulder Parks & Open Space, who took that invaluable information and has managed a successful program of protection, grazing, burning and mowing at the right times.



Spiranthes romanzoffiana Chamisso

Spiranthes romanzoffiana (Spy' ran' these)+(ro' man' zof' vee' a' na), derived from the Greek words (Spir), as in coiled and the (Anthes), as in flower - referring to the spiraling of the flowers along the stem. The name *romanzoffiana* comes from naming the plant in honor of Nicholas Romanzoff, a Russian minister of state and financial supporter of the expedition that discovered the orchid.

Other names: *Gyrostachys stricta*, *Ibidium strictum*, *Spiranthes stricta*,

Common name: Hooded ladies'-tresses

Flowering: starting in late July and going as long as late September.

Description: Looks much like *Spiranthes diluvialis*, but is shorter, with flowers more symmetrically and densely spiraled, and occurs at higher altitudes, above 7,500 feet. It is also an erect, slightly hairy perennial herb, stem 4-8 inches tall. Three rows of multiple small, white, ¼ to ½ inch long flowers spiral up the ½ top of the stalk, petals and sepals hooded and jutting upward at an angle; an individual flower viewed straight on looks like it's sticking out its tongue at you. The lip petal is oval or lance-shaped with a middle constriction, tapering down to a point, with frilled edges. Leaves persist when plant is flowering, are lance-shaped and 7 inches long and ½ inch wide at base of plant and become bracts above; visibly veined. Seed capsules bunch close to and around the stalk.

Habitat: Plants grow in full-sun in wet, high mountain meadows, or along streams, at 7,500 to 11,000 feet in altitude. It is hidden within the grasses; look for shooting stars.

Spiranthes romanzoffiana was first discovered in Alaska and named for a Russian, Count Nicholas Romanzof. This plant is adaptable and grows in the cool zone across the northern US and down through the Rockies and across Canada, too. These flowers are nicely fragrant and pollinated by bumble bees.



Blooming Times of our Orchids

Orchid	May	Jun	Jul	Aug	Sep
<i>Calypso bulbosa</i>	X	X	X		
<i>Coeloglossum viride</i>	X	X	X		
<i>Corallorhiza maculata</i>	X	X	X	X	
<i>Corallorhiza striata</i>	X	X	X		
<i>Corallorhiza trifida</i>		X	X		
<i>Corallorhiza wisteriana</i>	X	X			
<i>Cypripedium fasciculatum</i>		X	X		
<i>Cypripedium parviflorum</i>		X	X		
<i>Epipactis gigantea</i>		X	X		
<i>Goodyera oblongifolia</i>			X	X	X
<i>Goodyera repens</i>			X	X	
<i>Listera borealis</i>		X	X		
<i>Listera convallarioides</i>		X	X		
<i>Listera cordata</i>		X	X		
<i>Malaxis monophyllos</i>			X	X	
<i>Piperia unalascensis</i>		X	X		
<i>Platanthera aquilonis</i>		X	X		
<i>Platanthera dilatata</i>		X	X	X	
<i>Platanthera huronensis</i>		X	X	X	
<i>Platanthera obtusata</i>		X	X		
<i>Platanthera purpurascens</i>		X	X	X	
<i>Platanthera tescamnis</i>		X	X		
<i>Platanthera zothecina</i>			X	X	
<i>Spiranthes diluvialis</i>			X	X	
<i>Spiranthes romanzooffiana</i>		X	X	X	X

Rarity of our Orchids

Orchid	Very Rare	Rare	Uncommon	Common	Very Common
<i>Calypso bulbosa</i>				X	
<i>Coeloglossum viride</i>			X		
<i>Corallorhiza maculata</i>					X
<i>Corallorhiza striata</i>			X		
<i>Corallorhiza trifida</i>			X		
<i>Corallorhiza wisteriana</i>			X		
<i>Cypripedium fasciculatum</i>		X			
<i>Cypripedium parviflorum</i>		X			
<i>Epipactis gigantea</i>		X			
<i>Goodyera oblongifolia</i>					X
<i>Goodyera repens</i>			X		
<i>Listera borealis</i>		X			
<i>Listera convallarioides</i>		X			
<i>Listera cordata</i>					X
<i>Malaxis monophyllos</i>	X				
<i>Piperia unalascensis</i>			X		
<i>Platanthera aquilonis</i>				X	
<i>Platanthera dilatata</i>				X	
<i>Platanthera huronensis</i>				X	
<i>Platanthera obtusata</i>			X		
<i>Platanthera purpurascens</i>			X		
<i>Platanthera tescamnis</i>		X			
<i>Platanthera zothecina</i>	X				
<i>Spiranthes diluvialis</i>		X			
<i>Spiranthes romanoffiana</i>			X		

Orchids That May Possibly Exist in Colorado



Malaxis porphyrea
Known from northern New Mexico



Malaxis soulei
Known from northern New Mexico



Spiranthes magnicamporum
Known from northern New Mexico and
the Great Plains

Parks and Places Having Orchids

Some National, State and Local Open Space Parks of Colorado That Have Native Colorado Orchids

Colorado National Park	Clear Creek Campground, Clear Creek County
Dinosaur National Park	Clear Creek Reservoir, Clear Creek County
Eldorado State Park	Empire Pass, Clear Creek County
Golden Gate State Park	Green Lake, Clear Creek County
Great Sand Dunes National Park	Guanella Pass, Clear Creek County
Lost Creek Wilderness Park	Guanella Pass Campground, Clear Creek County
Mesa Verde National Park	Herman's Gulch Trail, Clear Creek County
Mount Evans Wilderness	Jones Pass Trail, Clear Creek County
Mount Massive Wilderness Park	Loveland Pass, Clear Creek County
Pikes Peak National Park	Silver Dale City, Clear Creek County
Roxborough State Park	
Rocky Mountain National Park	Empire Pass, Grand County
Spanish Peaks Wilderness Park	Fraiser Experimental Forest, Grand County
	Grand Lake, Grand County
Arapahoe Pass Trail, Boulder County	Monarch Lake, Grand County
Boulder Valley Ranch, Boulder County	Winter Park, Grand County
Brainard Lakes Trail, Boulder County	
Buchanan Pass, Boulder County	Alderfer/Three Sisters Park, Jefferson County
Camp Dick/Peaceful Valley, Boulder County	Deer Creek Canyon Park, Jefferson County
Chautauqua Meadow, Boulder County	Elk Meadow Park, Jefferson County
Cherryvale, Boulder County	Hildebrand Ranch Park, Jefferson County
Devils Thumb Pass Trail, Boulder County	Lair O' the Bear Park, Jefferson County
Diamond Lake, Boulder County	Meyer Ranch Park, Jefferson County
Doudy Draw, Boulder County	Mount Falcon Park, Jefferson County
Eldora Ski Area, Boulder County	Pine Valley Ranch Park, Jefferson County
Enchanted Mesa/McClintock, Boulder County	Reynolds Park, Jefferson County
Flagstaff Road, Boulder County	White Ranch Park, Jefferson County
Flatirons, Boulder County	
Fourth Of July Trail, Boulder County	Lion Gulch, Larimer County
Gregory Canyon, Boulder County	
Hessie Railhead, Boulder County	Buffalo Creek, Park County
Lost Lake Trail, Boulder County	Guanella Pass, Park County
Mesa Trail South, Boulder County	
NCAR (National Center For Atmospheric Research), Boulder County	Breakenridge, Summit County
Pawnee Pass Trail, Boulder County	Fremont Pass, Summit County
South Boulder Creek West, Boulder County	Loveland Pass, Summit County
	North 10 Mile Trail, Summit County
	Vail Pass, Summit County

TELLING THOSE *LISTERA* SPECIES APART FROM ONE ANOTHER

Listera borealis



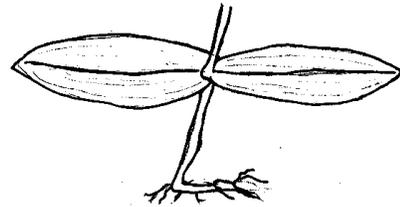
Lip: Light green to whitish-green; sometimes almost translucent; usually flat and parallel to the ground. Cleft about $\frac{1}{4}$ of the length of the lip; rounded, bi-lobed at the apex. Sides of the lip are slightly concaved, with both sides gently sweeping towards each other and widening again towards the rounded base.

Column: Light green to dark green. Protruding out, paralleling the plane of the lip; likening to a head of a snake hanging out investigating something.

Petals and Sepal: Light green to whitish green; swept backwards from the lip like a strong wind is blowing them backwards.

Leaves: Dark green; usually two, rarely three; opposite, parallel to the ground; typically 1-2'' above the ground surface; oval, 2- 3'' wide with a lightly veined surface.

Habitat: Open running water to very moist soils. Usually found growing on wet mossy slopes with little to no grasses and herbs; shade cover can be up to 75%.



Listera convallarioides



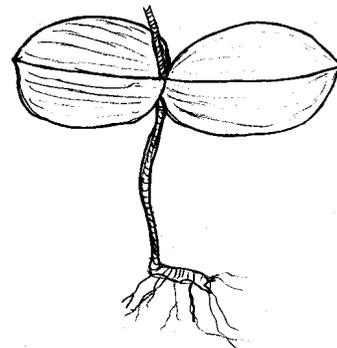
Lip: Light green to whitish-green; sometimes almost translucent; usually flat and parallel to the ground; shallowly cleft and obscurely tri-lobed with two highly rounded lobes on either side and one small apiculate lobe between the two highly rounded lobes. The apex of the lip is the widest part, tapering back to the base of the lip and column; sort of resembles the wings of a fly.

Column: Light green to dark green. Protruding out, paralleling the plane of the lip; appearing as the head of a snake hanging out investigating something.

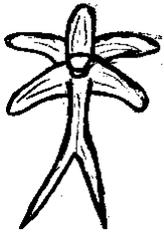
Petals and Sepals: Light green to whitish-green; swept backwards from the lip like a strong wind is blowing backwards.

Leaves: Dark green, almost always two; opposite, parallel to the ground; typically 1-3'' above the ground surface. The shape is very round to slightly oval with a nicely veined surfaced. It is the largest of the three *Listera* species in Colorado.

Habitat: Open slow running water to moist ground. Usually found growing in much taller grasses and herbs; shade cover can be partial to dense.



Listera cordata

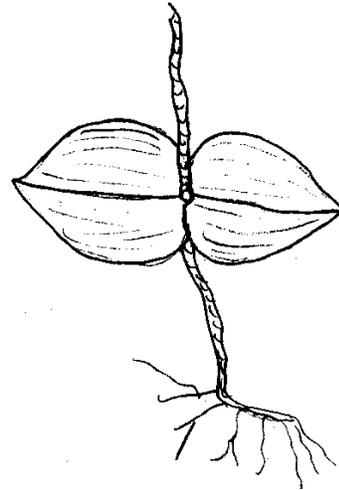


Lip: Light green to dark green; rarely reddish-brown to purple-brown; or the lip one color and the rest of the flower the other; usually perpendicular to the leaves and the ground surface. With two lobes, up $\frac{1}{2}$ to $\frac{3}{4}$ the length of the lip, pointed at the apices; distinctive with the extremely “V” shaped fissure and split like the tongue of a snake. Column: Light green to purple-brown, poking out and downwards from the face of the flower.

Petals and Sepals: Light green to dark green rarely reddish-brown to purple-brown; usually perpendicular to the leaves and ground and almost resembling a smiling face.

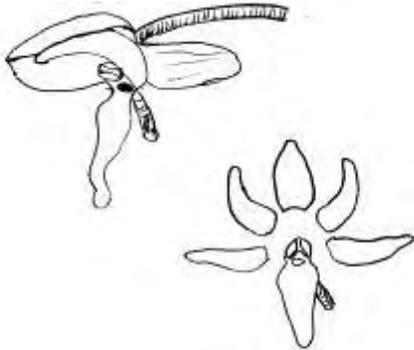
Leaves: Dark green. Two leaves opposed to each other, parallel to the ground, usually at or just above the ground level. Leaves are heart shaped in appearance with highly veined surfaces.

Habitat: Moist to slow moving water in some sort of mossy cover; usually very little other competition other than mosses and with 50%-100% canopy coverage.



TELLING THOSE *PLATANThERA* SPECIES APART FROM ONE ANOTHER

Platanthera aquilonis



Lip: Light green to dark green, slightly dilated at the base of the lip.

Spur: Light green to yellow green, cylindrical in shape and shorter than the length of the lip.

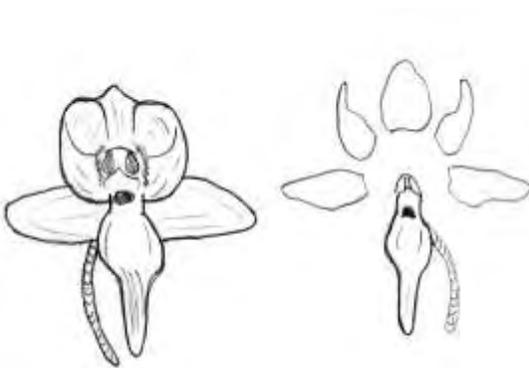
Petals and Sepal: Light green to yellow green.

Flower forms a 90 degree angle, with the lip paralleling the stem of the plant.

Leaves: Dark green. Ascending up the stem and getting smaller as they ascend upward.

Aroma: Slightly sweet smell to no aroma.

Platanthera dilatata



Lip: Ivory white to bone white, highly dilated at the base of the lip.

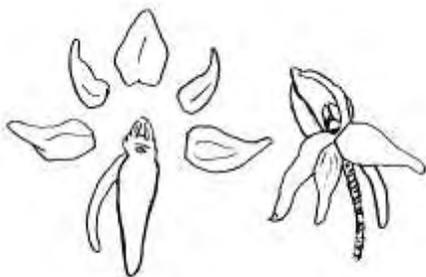
Spur: Ivory white to bone white, cylindrical in shape. Length of the spur varies from 1/2 the length of the lip to slightly longer than the length of the lip.

Petals and Sepals: Ivory white to bone white.

Leaves: Green to dark green. Ascending up the stem and getting smaller as they ascend upward.

Aroma: Extremely sweet smelling and can be detected from a long ways away.

Platanthera buronensis



Lip: Light green to whitish-green.

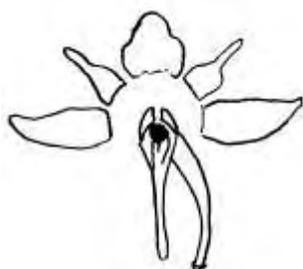
Spur: Whitish-green, cylindrical in shape. Fully rounded on the bottom and arching outwards. Length is about as long as the length of the lip.

Petals and Sepals: Light green to whitish-green.

Leaves: Green to dark green. Ascending up the stem and getting smaller as they ascend upward.

Aroma: Nice sweet aroma, faint to distinct.

Platanthera obtusata



Lip: Whitish-green.

Spur: Whitish-green. As long as the lip to slightly longer than the lip of the flower.

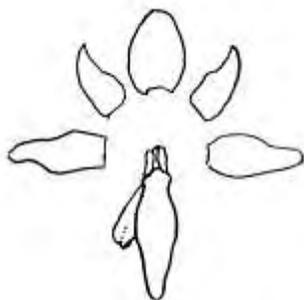
Sepals and Petals: Whitish-green

Leaves: Only one leaf on this orchid.

About as long and tall as stem of the flower itself.

Aroma: Little to no aroma or smell.

Platanthera purpurascens



Lip: Green to yellow green. Slightly dilated at the base

Spur: Dark green, cylindrical to widening almost to a sack like shape, usually no longer than $\frac{1}{2}$ the length of the lip of the flower.

Sepals and Petals: Green to dark green.

Leaves: Dark green, ascending upwards along the flower stem.

Aroma: Very distinct smell, musky and dank.

Platanthera tescamnis



Lip: Yellow green, long and paralleling sides, not dilated.

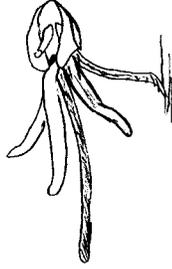
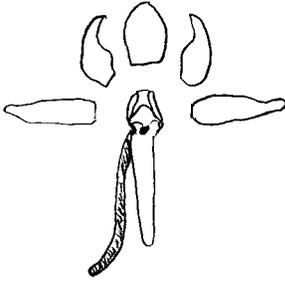
Spur: Yellow to yellow-green. As long as the lip to longer than the lip of the flower.

Sepals and Petals: Light green to green.

Leaves: Many and mainly clustered around the base of the flower stem. Some ascending, but mostly they are basal and form somewhat of a rosette around the base of the plant.

Aroma: Some to none.

Platanthera zothecina



Lip: Light green to whitish-green.

Spur: Light whitish-green to green. Length is longer than to 1-1/2 times as long as the length of the spur.

Sepals and Petals: Green to dark green.

Leaves: Dark green and shiny; very wide and few.

Aroma: Some to none.

Different Orchids That Live Side by Side

Often is the case when you see one type of orchid you will one or more other types of native orchids also in the area. Some of the relationships that might be seen in the same area would be:

- *Calypso bulbosa* variety *americana*, grows with *Goodyera oblongifolia* and *G. repens* forma *ophioides*, *Corallorhiza maculata*, *trifida*, and *wisteriana*.
- *Coeloglossum viride* variety *virescens*, grows with *Platanthera buronensis* and *P. purpurascens*, *Corallorhiza maculata*, *trifida*, *wisteriana*, *Goodyera oblongifolia*.
- *Corallorhiza* species, grow with each other, *Goodyera oblongifolia*, *Calypso bulbosa* variety *americana*.
- *Cypripedium parviflorum* variety *pubescens*, grows with *Corallorhiza maculata* and *trifida*, *Coeloglossum viride* variety *virescens*, *Platanthera purpurascens*.
- *Cypripedium fasciculatum*, grows with *Corallorhiza maculata*, *Listera convallarioides* and *L. cordata*, *Goodyera oblongifolia*, *Platanthera purpurascens*.
- *Epipactis gigantea*, grows with *Platanthera tescamnis* and *Platanthera purpurascens*.
- *Goodyera* orchids, grows with each other, *Corallorhiza maculata* and *wisteriana*.
- *Listera borealis*, grows with other *Listera* orchids, *Corallorhiza maculata* and *trifida*, *Calypso bulbosa* variety *americana*.



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For more of the authors' photographs of Colorado orchids see
<http://www.conps.org/Slide%20Shows/Colorado%20Orchids/index.html>

REMINISCENCES ABOUT ORCHIDS

The Slow Empiricist

As I move into my later years I can look back on many wonderful orchid experiences. Even the frustrating times when searching for a particular species yielded no plants or only leaves or plants in fruit provided me with pleasure. I enjoy the pursuit where I am not so single of mind that I don't find fulfillment from the other plants and sights I might encounter. Unfortunately, not all orchid enthusiasts feel that



way. I can understand their frustration, especially when they have invested a great deal of time and money only to come up empty handed. My Pollyannaish suggestion of there's always next year can't be very ameliorating.

What I'd like to do instead is describe some of my more memorable experiences that still give me pleasure as I recall them. I remember driving through the California coastal redwoods north of San Francisco and stopping in a grove of the giants to enjoy their quiet beauty and strength. To my surprise sprinkling the ground around the trees were dozens of *Calypso bulbosa* var. *occidentalis*, the western fairy slipper. My sensory experience revved up to nearly overload!

Two other roadside surprises stay etched in my memory as well. We were on our way up into Canada as we were returning from the Olympic Peninsula in Washington and had been heading through the Canadian Rockies. We stopped along the roadside near Radium Hot Springs to photograph. I explored the woods along side the roadway and discovered a stand of mountain lady's-slipper, *Cypripedium montanum*, still in flower in mid July! Deeper in the woods I spotted *Platanthera orbiculata*, the pad-leaved orchis. Both of these beauties were a happy accident waiting

to be discovered. On the same trip, near Lake Louise, we were exploring the countryside and just pulled off the road on a gravel pull out to let the traffic go by us and Paul spotted a northern twayblade, *Listera borealis*, on the damp edge of the gravel. Another fortuitous chance encounter that yielded unexpected pleasure.

One of the goals I set for myself is to try to find my own example of the orchid a group has been finding and photographing. One experience that I have good memories of occurred in Washington State near the Columbia River Gorge. The group had been photographing the ghostly white phantom orchid, *Cephalanthera austiniiae*, in the open woodlands and had then stopped by a meadow with a brook traversing it to look at *Spiranthes porrifolia*, the western ladies'-tresses. After enjoying the orchids I set out to explore along the road to find my own site. Instead I found a lush stand of *Piperia elegans*, the elegant lace orchid, which delighted not only me but the rest of the group.



This summer I was privileged to travel from the East Coast to Yosemite National Park in California. Along the way to and from we encountered 10 species we had not seen before and found new sites for many of them. This year's explorations will fill my memories with lots of wonderful experiences from the soaring mountains to the endless skies above the deserts and high plains. I'll remember discovering a new site for a newly discovered orchid that added over 700 new plants to the orchid's total. I'll remember discovering a perfectly beautiful *Malaxis porphyrea*, purple adder's-mouth, standing majestically on a hillside in New Mexico. I'll remember meeting



wonderful new people who shared the experiences and were kindred spirits in my appreciation for the bounties of nature.

I could go on and extol the thrill of finding a remnant prairie full of *Calopogon oklahomensis*, Oklahoma grass-pink, or sitting by a fallen cedar capturing *Calypto bulbosa* in water-color or a myriad of other wonderful experiences, but I think I'll savor those times to myself for now.

I remember a visual feast when I was just a beginner at orchid hunting. We were in north Maine over the Memorial Day weekend holiday where we met a man who had loved orchids all his life. On a part of his property he had discovered yellow lady's-slippers. He set about helping them to multiply, assisting in their pollination. When he showed us his handiwork, the group was overwhelmed by the

sight. There were hundreds in bloom, carpeting the forest floor with their golden slippers. The white birches and green hemlocks made a stunning setting for these beauties.

Closer to home I have been thrilled to watch a small pair of pink lady's-slipper leaves sprout on my property. There used to be lady's-slippers here when I was a child but the changing nature of the woods crowded them out. Now I have a chance to see these leaves grow and mature into a flowering plant or plants. As of this year we have four larger leaves in evidence. We look forward to next spring and what it brings.

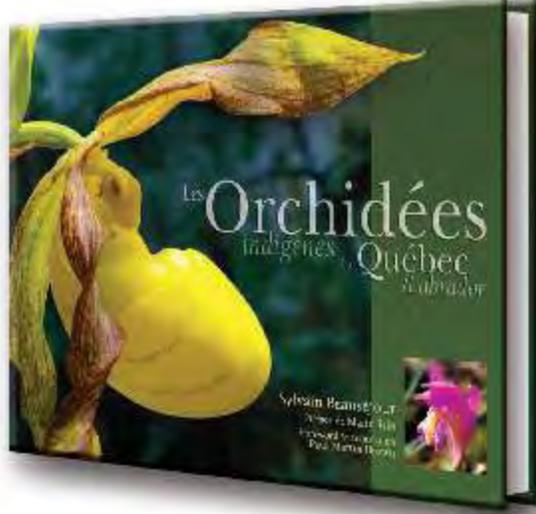
This is why my interest in orchids has never waned and why I look forward to more adventures with these elusive wonders. I hope you all have built up a treasured reserve of memories that delight your mind's eye and have many more years to expand your experiences and enrich your life.

Your Slow Empiricist



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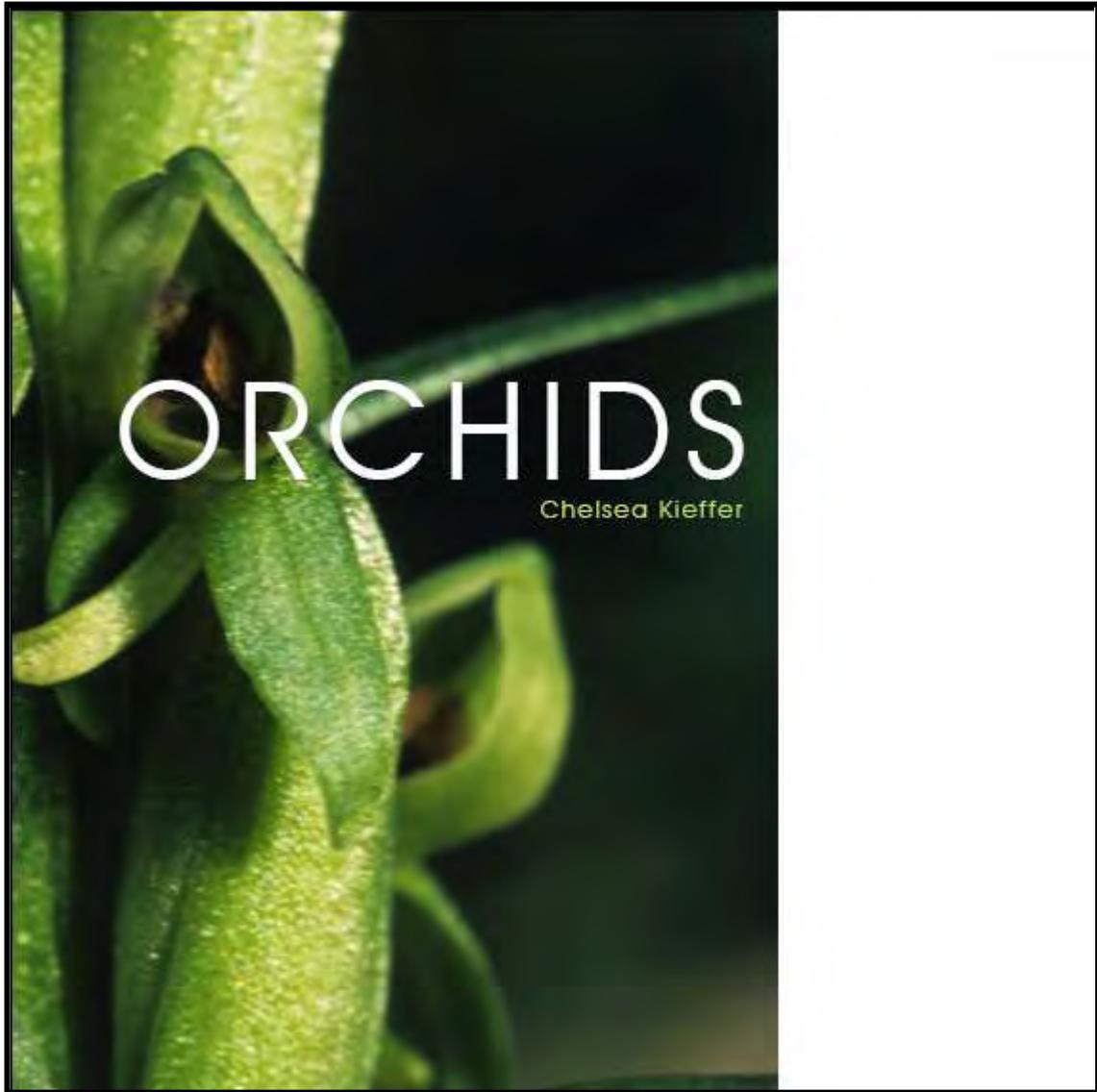


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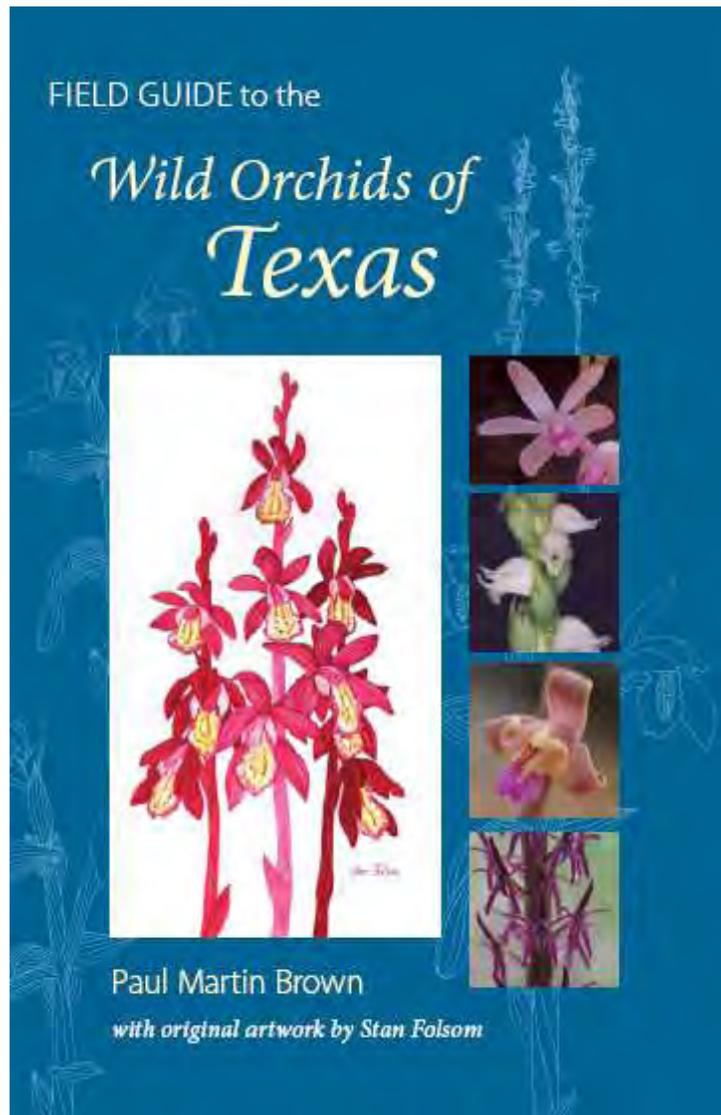
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