



THE NATIVE ORCHID CONFERENCE JOURNAL



Isotria verticillata

VOLUME 17.3



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THE NATIVE ORCHID CONFERENCE JOURNAL

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ORCHID ILLUSTRATION: BOTANICAL ARTISTRY VS. PHOTOGRAPHY

By Rick Burian, bur.rick@att.net

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Message from the President:

Early November in Edmonton, Alberta and we just had our first significant snowfall (over 25 cm). My orchid season is over for this year: I'm left with the photographs and memories from a strange season that kept me close to home in Alberta, but led to some truly spectacular orchid finds. Some of you are lucky enough to still be able to get out and see orchids in flower. I urge you to make the most of your opportunities during these trying times.

We are about two months past our first 'online' Annual General Meeting, that was 'attended' by more than 45 people. I would like to thank all our speakers for their excellent presentations: Dennis Whigham (North American Orchid Conservation Center); Monica Marcelli (George Mason University); Brandon Corder (University of Wisconsin-Madison); Noah Brooks (Grant MacEwan University); and Jeanne Rhinehart (Native Orchid Preservation and Education Society). The feedback that we received was positive. At least for a short evening the virtual meeting gave us a chance to connect and share our passion for native orchids.

Volume 17.3 is all about images of orchids. Our Board Member Rick Burian has put together a masterful series of articles on Orchid Illustration focusing on the contrasting but complementary techniques of botanical artistry and orchid photography. Rick starts off with an illustrated history and discussion of botanical art. Next follows the centerpiece of the issue: comparisons of illustrations (i.e., different drawings and paintings) and photographs of 21 different orchid species! The volume closes with an extensive discussion of photographic techniques compiled from a survey of several NOC orchid photographers. This article contains a goldmine of tips, tricks, and suggestions for all orchid photographers. Many of the photographers are even captured in action! I highly recommend this edition of the Journal. It is packed with dozens of quality orchid images of all kinds and I'm sure it contains something for everyone.

As always, please consider sharing your finds with us: write an article for the Journal, submit some of your photographs to our Facebook page, or send us a link to your orchid pictures on one of the many photo-sharing websites.

Stay safe and healthy. Take care of yourselves, your family and your friends.

Ben Rostron
Edmonton, Alberta
November, 2020

(P.S. Special thanks to Rick Burian for a wonderful job on this volume of the Journal)

HISTORY AND DISCUSSION

I am not an artist. Well, I do dabble in photography, and most will agree that a good photographer is indeed an artist. But I am referring to the art of drawing and painting, in particular illustrating natural things, specifically our native orchids.



Woodland scene including *Cypripedium parviflorum* and *Galearis spectabilis* with goldenseal and yellow violets, by Judy Simon

I am thrilled by an excellent photo of a flower. We spend lots of time and effort as well as money on travel and equipment to find and document the many spectacular species of orchids across the globe. It is common practice to take dozens of exposures to get that one perfect image. Thank goodness for the advent of digital photography. But sometimes I look at my best photos and still feel that some aspects of the plant are not fully portrayed. Maybe floral parts are obscured or slightly out of focus. Or maybe the background is too busy. Or shadows are distracting. Or I am not showing the non-floral parts of the plant. Perhaps the back of the petals are more interesting than the front. Or I wished that the texture was better emphasized.

A drawing or a painting of an orchid can also be very satisfying and it seems that sometimes there may be advantages to them when trying to identify a plant. So I started thinking about the two means for documenting nature and the merits of each. I did a little on-line research but then decided to consult with

my former college roommate Scott Rawlins, Professor Emeritus at Arcadia University in Pennsylvania. Scott holds graduate degrees in museum education and in medical and biological illustration and taught general and scientific illustration. He has been president of the American Society of Botanical Artists (ASBA), the Philadelphia Society of Botanical Illustrators and the Guild of Natural Science Illustrators (GNSI). He just completed his reign as Director of Education for GNSI. I couldn't have asked for a better resource.

First a little history of botanical art and then some comparisons of drawings/paintings versus photographs.

Looking in books about orchids, especially older works, one often finds drawings and paintings that clearly illustrate the beauty and complexity of the flowers. Botanical drawings have been around for over two millennia. In classical times botanical art was used in herbals to help identify plants known for medicinal properties as well as distinguish safe plants from those that were poisonous. During the Renaissance period (14th to 17th century) there was a resurgence of naturalism and with it a revival and expansion of realistic artistic representation of plants drawn from nature. Particularly in northern Europe, artists created decorative works that were notable for their attention to life-like detail. The "golden age" of botanical art occurred for about 100 years starting in the mid-1700s, during a grand era of exploration and discovery. Scientific botany developed along with the quest to find new species and often naturalists and botanists collaborated with artists on explorations around the world, because they could provide detailed and accurate depictions of newly discovered plants. Rich amateur horticulturists in Europe desired to cultivate exotic plants in their gardens and hothouses and artists were hired to accurately document the expensive acquisitions. Tulips in particular were all the rage, especially in Holland (Ben-Ari 1999).

Apparently there was a period of decline in quality and popularity of botanical art for the next 100 years or so, but then another resurgence occurred about 50 years ago. Some may say that the improvements in photography may have been the stimulus, but it turns out that modern day plant collectors, in particular, orchid growers, wanted portraits of their awarded plants as well as older botanical prints. And, with the increased interest in gardening and our environment, creating botanical art is also more appealing. Maybe it is a desire to return to a simpler life and an appreciation for Mother Nature (Ben-Ari 1999)?

My first thought was that photography is the preferred method of documenting an orchid. The image seems true to life. You don't have to have extraordinary artistic talents (sorry, photographers). A photograph can give you instant results. The camera captures and stores details. Habitats can be included for context. All you need is a camera and film/memory cards, maybe a tripod or flash. No messy charcoal or paint. The colors and brilliance of a photo have real pizzazz. You can adjust for contrast, lighting and color after the fact. It is easy to share your images. But then I started thinking about my original impressions that some aspects were not being properly portrayed.



Isotria verticillata
Watercolor painting by Marcia Whitmore

Michelle Meyer, a biological illustrator and former ASBA president, is quoted as saying that photographs are seldom an adequate substitute for botanical illustrations:

You can never get all the information about a plant in a photograph, because something's always out of focus or in a shadow, whereas in a botanical illustration you can bring everything into perfect focus. You can also show something of the entire life cycle of a plant. (Ben-Ari 1999)

A perhaps more biased answer to this question comes from illustrator Natalya Zahn (2017):

As an artist of science and nature subjects, I'm often asked what makes the work I do better than a photograph. It makes perfect sense to imagine that a direct photographic capture of an object would offer the very most accurate description of that object – and photography certainly is a brilliant format for capturing detail. What that imagination fails to take into account is that a camera must capture everything that it sees in any given shot. Depending on the complexity or ambiguity of the subject, a highly detailed photograph may just as easily overwhelm or confuse a viewer, rather than offer clarification. The beauty of illustration is that it can precisely isolate specific forms or features of a subject, omitting irrelevant details and making clear essential attributes. It is this quality of simplified clarification, produced through execution and interpretation that can, under the right circumstances, make scientific illustration a more successful form of visual communication than photography.

Lizzie Harper (2014) states:

A botanical illustration can be clearer than a photo. This relates to habit and structure. [In a typical] illustration, all the details of the plant have been drawn. The structure of every part of the specimen needs to be understood. The veins of the leaf need to be correctly illustrated. This involves looking at the plant for ages. This leads to a clearer understanding of the subject than if you just pointed a camera at it.

Scott Rawlins adds to that:

The bottom line is that photos can be deceiving, and unless it is a new species being depicted, one individual might not be totally characteristic of the species as a whole. Illustrations can be clearer, the layout more accessible and dissections are much easier to "read" in an illustration compared to a photograph. Photos provide some context, however -- if a habitat background is included.

My friend Kevin Havener of the Field Museum in Chicago once told me that the human eye and brain team is truly remarkable in its power of observation and interpretation and ability to create scientifically accurate, precise, and yet also idealized (not to mention aesthetic) images. It doesn't seem like a camera can do that.

I asked Scott Rawlins when a photograph might be preferable:

The Audubon field guide series uses photographs. While these are often not good enough to identify things with total confidence (the photos focus on the flowers so the leaves are out of focus or missing), the colors and growth forms are good. Botanical illustrations are typically somewhat flattened like herbarium mounts but a photo of the plant is fully three-dimensional. Most botanical illustrations (of a scientific type) are in B&W, though if digital illustration is used, it's not too time consuming to either create a colored version or to adapt a B&W version. Most true scientific illustrations of plants are still B&W -- but many people can more easily identify a plant that is in color. Photographs are more useful when the target audience is a popular one.

When a photograph could be deceiving:

Photos can distort things and unless a system is employed that can create a composite of images at different depths, some elements will be out of focus. Color can obscure some detail. An illustration can emphasize some aspects of a plant and downplay less important ones. As I said, a photo is generally of one individual specimen -- which may not be 100% typical of that species. Good illustrators take this into consideration by consulting a number of sources.

How about true colors. Is a photograph better?

True colors? Yes and no. Some botanical artists agonize over getting just the right green for a leaf but that same leaf will be a different color at 6 AM than it is at 5 PM, on a sunny day or a rainy day, when the plant is young or when it is old, etc. Illustrations can aim to depict the "true" colors of plants -- that is, typical colors in a normal lighting situation and when the plant is at its peak. Photos allow viewers to look at subjects in context -- reflections of water, how a plant looks in relation to other types of plants in the same area, etc. Many illustrators use photos for reference -- the plants may wilt or move toward the sun or dry out, but the photo won't (BUT -- if you need to see what's behind a structure, a photo will not allow you to do this). Usually, photos are used in conjunction with the actual plants -- especially if the illustrator is working from a dried herbarium specimen. The herbarium mount is used for details and accuracy and the photos may be used for color (if needed) and as a guide to help the illustrator achieve a more three-dimensional look to the drawing.



Arethusa bulbosa
Watercolor painting by Robin Jess

Perhaps I should have pointed out the difference between botanical illustration and botanical art though that distinction can be quite fuzzy. Strictly speaking, Rawlins says, scientific illustration, including botanical illustration, are images generated to facilitate communication among scientists. It is not meant for the general public or for field guides, for example. In botanical illustration accuracy is paramount. In botanical art aesthetics can take precedence over accuracy. But when aesthetics overpowers realism, such as in a Vincent Van Gogh or Georgia O'Keefe painting, we are not really talking about botanical art, as beautiful as it may be (Ben-Ari 1999). Rawlins says, often scientific illustrations are done in black and white, but color is also acceptable for botanical illustrations. Alice Tangerini, staff illustrator for the department of botany at the Smithsonian, is quoted as saying that botanical art needs to be recognized at least by genus, if not species (Ben-Ari 1999). Rawlins adds that when shifting towards aesthetics, the details that would indicate exactly what species is illustrated can be wrong or missing.

Are there guidelines for botanical illustrations? I asked Rawlins:

Every scientist has his or her preferences regarding how an illustration should look and what information is depicted -- taking into consideration that there are certain aspects that should always be present, such as leaves (often both sides), stems, flowers, sexual parts, etc. Ideally, the roots and fruit and seed should be shown as well. BUT -- it also depends on the intended audience. A scientific illustration for a college textbook would be less involved than one for a journal where new species are described.

What is the gold standard for illustrating a species: a botanical drawing or a photograph? "Definitely an illustration," replies Rawlins.

When describing a new species, what is required of an illustration? Rawlins says:

The illustration is an integral part of the description of a new species so must conform to the description of the type specimen. The illustration should include taxonomic details that will allow those that read the article to understand what makes the new species different from those already identified. The drawings must be clear and in many ways show the "ideal" rather than what appears in a photo.

Here is another answer from an article by Elia T. Ben-Ari (1999):

The scientific illustrations of plants that accompany scholarly works have a clear purpose, and although there are variations in style among artists, all scientific illustrations of plants must follow certain conventions so that botanists can easily interpret the images. One convention is the general format for the illustrations. Scientific illustrators usually begin by depicting the overall "habit" of the plant—a life-sized view of the entire plant, often with the roots. If the habit is too large to fit on the page, the illustrator may show just a flowering

branch or reduce the habit to a small inset on the page. The artist then moves to more detailed drawings of various parts of the plant, such as the flowers, fruit, and seeds, often including cutaways, dissections, and magnifications of some of these structures. All of these views of the plant are then combined on a single page or plate.

Further, Ben-Ari (1999) quotes Alice Tangerini:

Scientific botanical illustrators follow other conventions as well. ‘One of the main conventions is the light source. It’s always from the upper left—at least in the Western Hemisphere... Scientific illustrations are most often done in black and white, usually with pen and ink or brush and ink. Half-tone drawings, which are more costly to print, may be used to give a better indication of mass and color. Scientific illustrators rarely use color, mainly because of the economics of printing, but also because adding color may obscure the essential “characters” of the plant, such as the pattern of veins in the leaves or the way in which the stamens are attached in the flower.’

Continues Tangerini:

Another convention has to do with when and how to drop out lines or show a break in the drawing. For example, if the artist decides not to show a particular leaf, she must indicate the omission in some way, such as by sketching in the base of the leaf. The amount of shading in scientific illustrations is kept to a relative minimum so as not to obscure the characters of the plant, although just how much shading constitutes too much or too little is a matter of artistic judgment.

Further, Tangerini says:

Other aspects of scientific botanical illustration also fall into the realm of individual artistic judgment and style. Although illustrators who draw for botanists must depict their subjects from a scientific viewpoint, they nevertheless ‘have to lay things out so that they look balanced, so that they will catch the eye of the audience,’ Tangerini says. The picture ‘has to have some sort of aesthetic appeal or people don’t really look at it.’

Botanical art that does not fall into the category of technical scientific illustration also tends to follow certain traditional conventions. Sometimes the artist will include small views of individual parts of the plant, such as the flower or fruit, similar to the representations in more technical illustrations. One of the most common traditions in botanical art is that the subject is shown at eye level and isolated on a blank background—almost as if it were floating in space—to focus attention on the plant. However, some modern-day botanical artists are more



Cypripedium candidum

©2020 Kathleen Marie Garness

Cypripedium candidum
Drawing by Kathleen Garness

likely to depict the plant in its natural surroundings and may even portray a group of plants in a particular setting. (Ben-Ari 1999)

Scott Rawlins concludes:

While different kinds of "imaging" are taking over some areas of scientific illustration (now sometimes called "biomedical visualization"!!), the greatest shift has been from traditionally-generated drawings and paintings to digital ones. The former are generally preferred by those who want botanical art and the latter by those who need something accurate and quickly-produced -- and easy to change if corrections are needed.

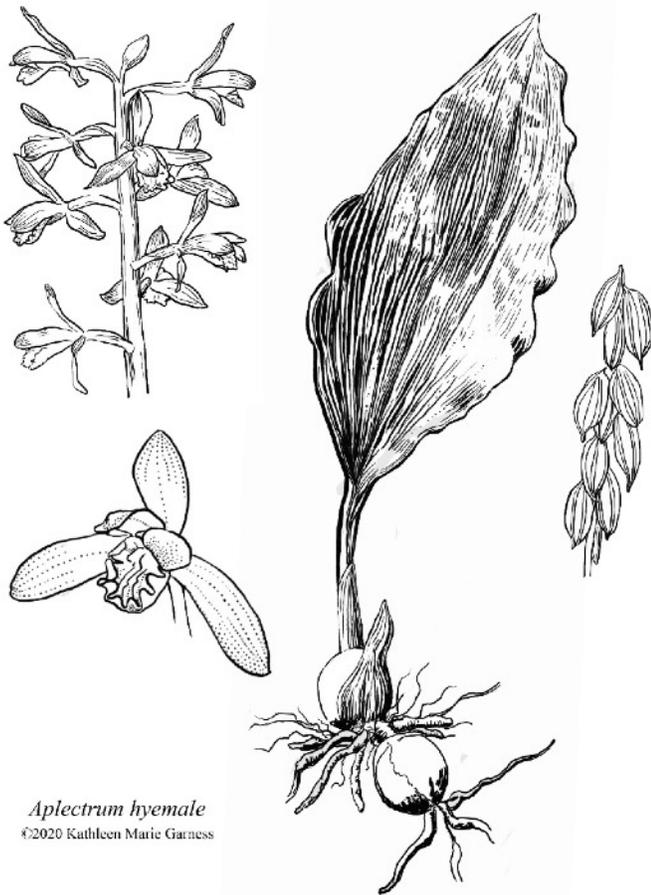
What I have observed in scientific journals is that a combination of illustrations and photographs are now commonplace. New methods such as 3D photography and other scanning techniques are being developed and refined. But let's hope that the brilliance and flair of botanical illustrators will always have a role in both art and science. The same should be said for photographers.

My original intent in this article was to highlight the talents of the members of the NOC. What follows are examples of botanical illustrations from some of the most accomplished artists in the U.S. who gave me permission to share their works. Also included are photographs from some of our highly talented members. The response was a bit overwhelming and I sincerely thank all who contributed. I had to choose the images that best met my goal of allowing the reader to note the differences between illustrations and photographs. We can all agree that both formats are remarkable and each has merit. But you may have a preference which is completely acceptable. Enjoy! Also, thank you to the North American Orchid Conservation Center for permission to use the *Go Orchids* website for the species descriptions.

In addition, I have asked some of our gifted photographers to offer advice and tips on how to take excellent images of orchids. This follows the illustrations below. I hope that everyone can learn something from their answers and appreciate their skills even more.

SPECIES IMAGE COMPARISONS

Aplectrum hyemale, commonly called Putty Root or Adam and Eve, is found across the eastern U.S. and Canada from Louisiana to Quebec. It produces a single leaf in the fall, which stays green throughout the winter. The plant flowers in the spring as the leaf senesces. It produces 7-15 small flowers with a white-purple labellum.



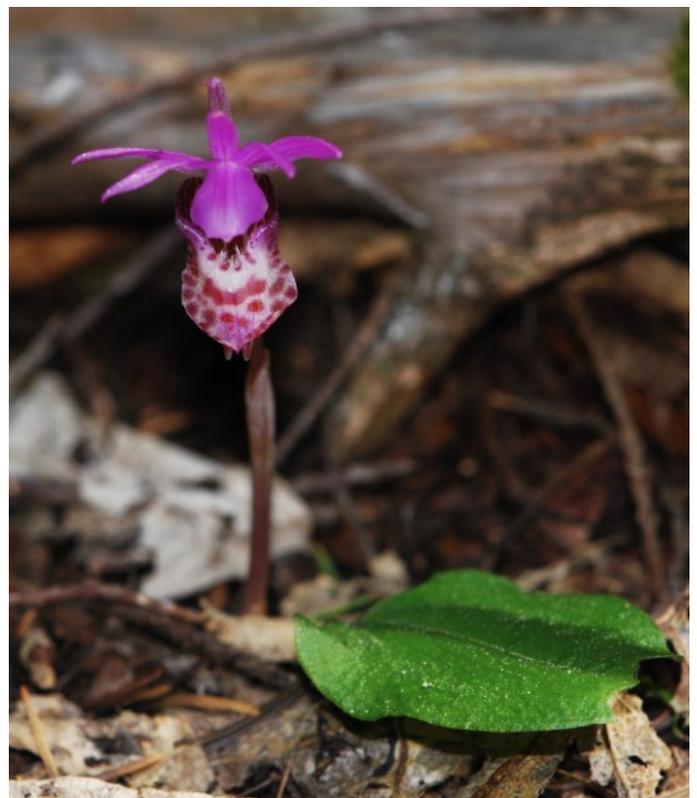
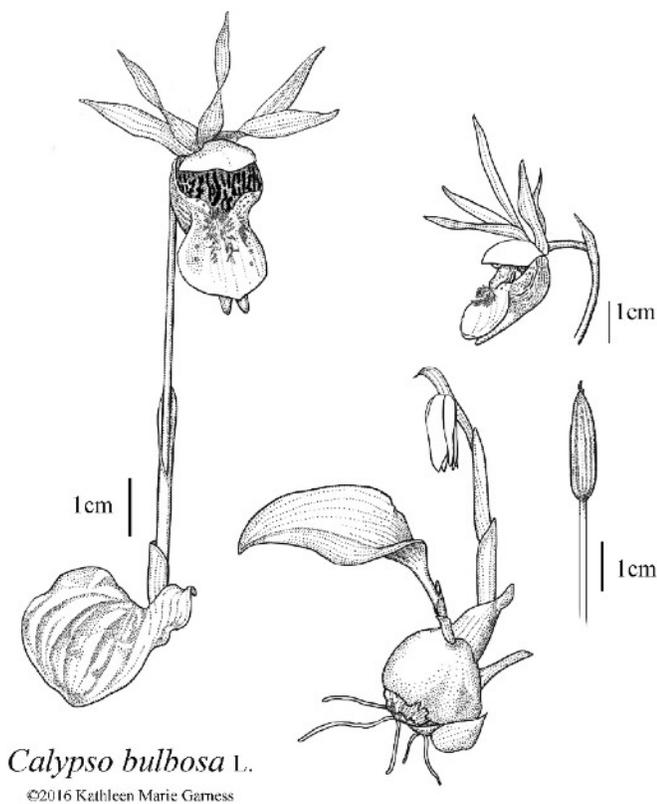
Left: drawing by Kathleen Garness
Right: photograph by Jim Fowler

Arethusa bulbosa, commonly known as Dragon's Mouth or Swamp Pink, is found in wet areas in eastern and central United States and Canada, from South Carolina to Saskatchewan. In the summer, each stem produces one bright pink flower with a whitish pink labellum marked with magenta spots and a yellow center. It is the only species in the genus.



Upper left: photograph by Chelsea Kieffer
Lower left: photograph by Tom Sampliner
Right: pen and ink drawing by Bobbi Angell

Calypso bulbosa, commonly called Fairy Slipper, has a circumboreal distribution; in North America, it is found across Canada from Alaska to Newfoundland and in the northeastern and western United States. It produces a solitary basal leaf in the autumn which senesces soon after flowering. A solitary flower (rarely two) is produced in the late spring, usually pink, magenta, or white, with a pouch-like labellum that can be spotted with contrasting colors such as yellow. Its lateral petals and sepals spread distinctively outwards. In most of North America, it is found in wet coniferous or mixed forests and bogs; in the northwest, it is found in drier, shady coniferous forests.



Left: drawing by Kathleen Garness
Right: variety *occidentalis*; photograph by Linnea Hanson

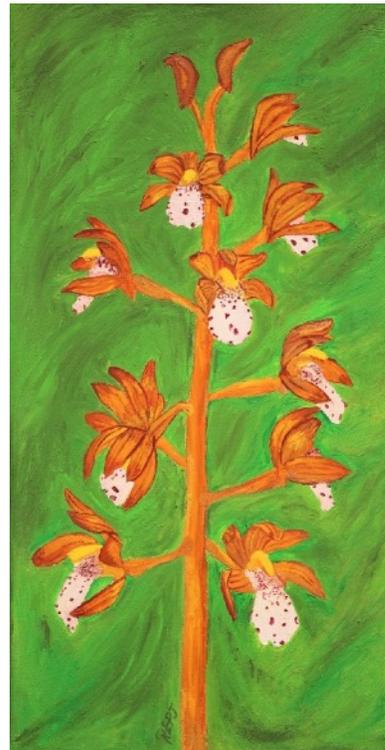
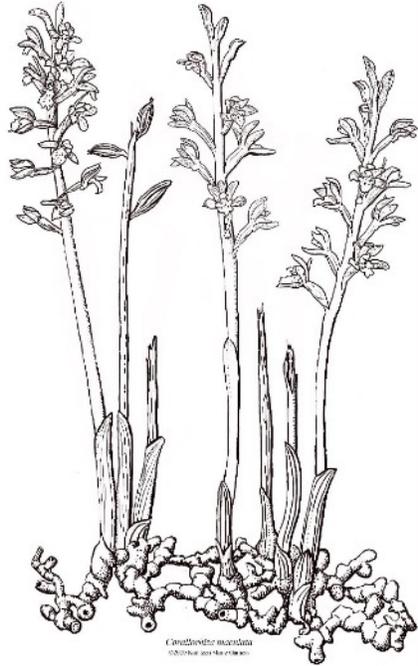


Calypso bulbosa

Top: variety *occidentalis* in California; photograph by Raymond Prothero

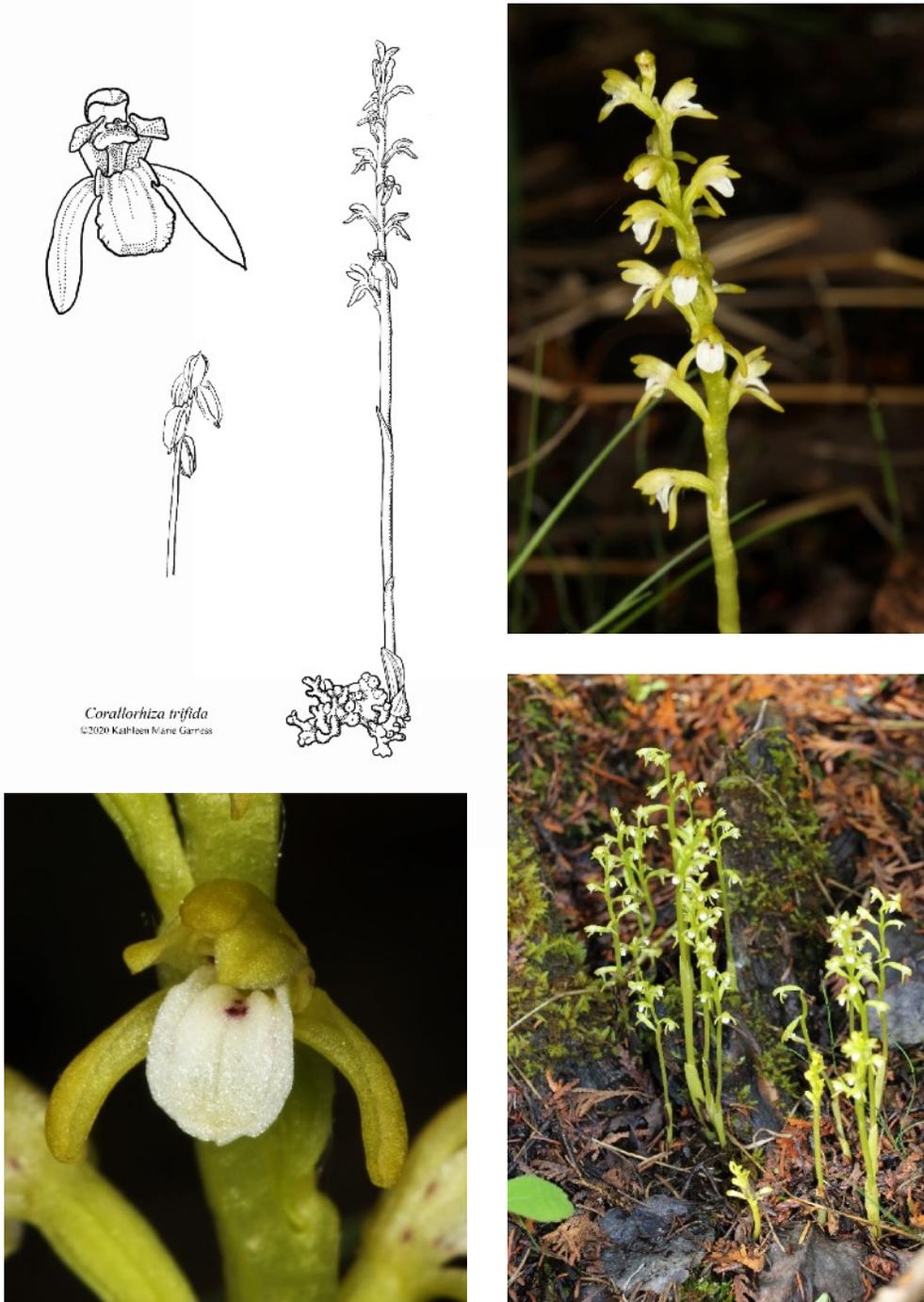
Bottom: oil painting of variety *occidentalis* by Raymond Prothero

Corallorhiza maculata, commonly known as Spotted Coralroot, is widely distributed across North America, its range spanning virtually all of Canada and the United States with the exception of the northernmost Canadian provinces and some southern U.S. states. Like other members of its genus, this orchid is myco-heterotrophic: it primarily obtains nutrients not from photosynthesis but through mycorrhizal fungi. It produces up to 41 flowers with brown, yellow, or reddish petals and a white labellum spotted with purple (from which it derives its common name). It grows in a wide variety of woodlands and forests, generally preferring those with limited herbaceous cover.



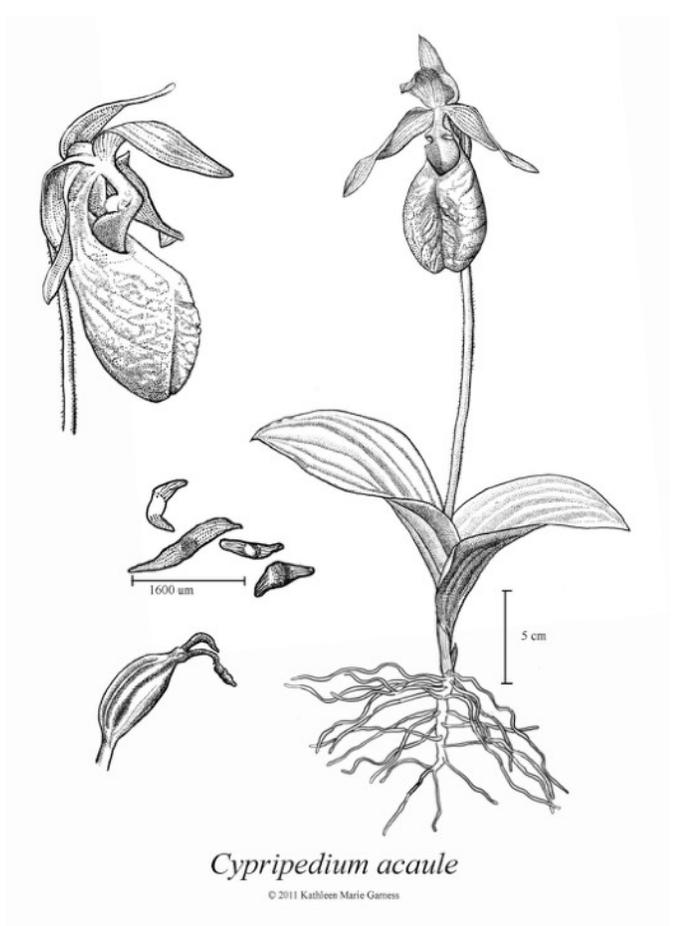
Upper left: drawing by Kathleen Garness
Upper right: photograph by Rick Burian
Lower right: oil painting by Raymond Prothero
Lower left: photograph by Bill Kress

Corallorhiza trifida, commonly called Early Coral Root, is broadly distributed across northern and western North America, from Newfoundland to California. In spring or early summer it produces up to 20 pale, yellowish-green to purple-brown flowers, with a white labellum often spotted with purple. The lateral petals and dorsal sepal are connivent and curve hood-like over the column. The stems are glabrous, and vary from 2" to 10" tall. It is found in moist coniferous, deciduous, or mixed forests, and in swamps or bogs.

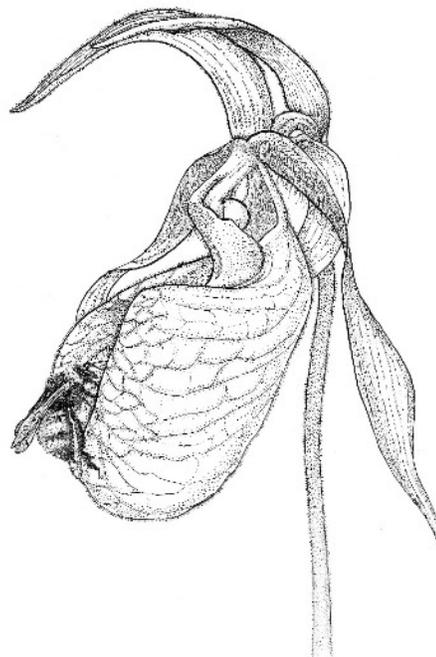


Upper left: drawing by Kathleen Garness
Photographs by Rick Burian

Cypripedium acaule, commonly called Pink Lady's Slipper or Moccasin Flower, is widely distributed across the eastern United States and eastern to central Canada, from Alabama to the Northwest Territories. It produces two basal leaves and a solitary flower with purplish brown to green petals and sepals. The labellum is a distinctively inflated pouch, magenta to white, often light pink with darker pink venation; a slit with inwardly rolled edges marks the front of the labellum. It is found in forests and woodlands, often near pines or conifers, and occasionally in bogs or swamps.



Left: drawing by Kathleen Garness
Right: photograph by Jim Fowler



Cypripedium acaule

Upper left: painting by Marcia Whitmore

Upper right: pen and ink by Judy Simon, used in a coloring book on pollinators

Lower right: painting by Kathleen Garness

Lower left: painting by Robin Jess

Cypripedium candidum, commonly known as Small White Lady's Slipper, is found in northeastern and central Canada and the United States, with a disjunct population in two counties of Alabama. Its labellum is a large, inflated, ovate pouch, white with a waxy or shiny surface and often striped with purple on the inside. It produces three to five leaves on its stem, and has yellowish green sepals and petals, often spotted with red or purple, which twist away in spirals. It grows in moist, sunny meadows, prairies, and fens; because it cannot tolerate shade, its population diminishes as woody canopies grow.



Watercolor by Marcia Whitmore



Cypripedium candidum

Top: painting by Judy Simon

Lower left: photograph by Tom Sampliner

Lower right: photograph by Bob Sprague

Cypripedium parviflorum var. *pubescens*, commonly known as Large Yellow Lady's Slipper, is found across virtually all of the United States and Canada, from Alaska to Georgia. It is a widely variable species, with four varieties and multiple hybrids, making identification and delimitation difficult. It produces a large flower with a pale to dark yellow (and very rarely white) pouch-like labellum, which sometimes has reddish spots on the interior. Green or yellowish sepals and petals twist outwards in spirals. It produces up to five stem leaves; both the stem and leaves are covered in thin hairs. It grows in dry to mesic forests, woodlands, fens, prairies, and meadows.



Left: painting by Kathleen Garness
Upper right: painting by Carol Woodin
Lower right: painting by Marcia Whitmore



Cypripedium parviflorum var. *pubescens*

Left: painting by Judy Simon

Right: photograph by Rick Burian

Cypripedium reginae, also called Showy Lady's Slipper, is distributed through eastern and central Canada and the U.S., from North Carolina to Saskatchewan. It has white sepals and petals which spread out from a pouch-like labellum, which is usually suffused with pink to magenta. The stem, which usually bears three to six large leaves, is covered in thin hairs which can cause moderate to severe dermatitis. It is a clonal plant that grows slowly, occasionally taking over 16 years to produce its first bloom; a single plant can live over fifty years. It requires moist soil, growing in damp fens, meadows, forests, swamps, and on river banks. In moist, favorable conditions, a single plant can produce over 200 flowering stems.



Upper left: photograph by Tom Sampliner
Right: painting by Marcia Whitmore
Lower left: photograph by Jim Fowler



Cypripedium reginae
Painting by Carol Woodin

Epipactis helleborine, or Broad Leaved Helleborine, is a non-native orchid, originating in Europe but with a wide distribution across eastern and central Canada and the United States, and disjunct populations on the West Coast. Flowering in the late summer and early fall, it produces up to 50 small flowers with greenish purple petals and sepals, and a divided labellum: the innermost part, closest to the column, is curved into a bowl-like shape and is purple or brown, often glossy on the inner side; the outer part is triangular and pink, green or white. It produces 3-10 leaves on its stem, which is covered with fine hairs. In addition to disturbed habitats such as lawns, sidewalks, gardens, and roadsides, *Epipactis helleborine* grows in forests, swamps, and riverbeds. It grows so aggressively in some states, such as Wisconsin, that it is considered a weed.

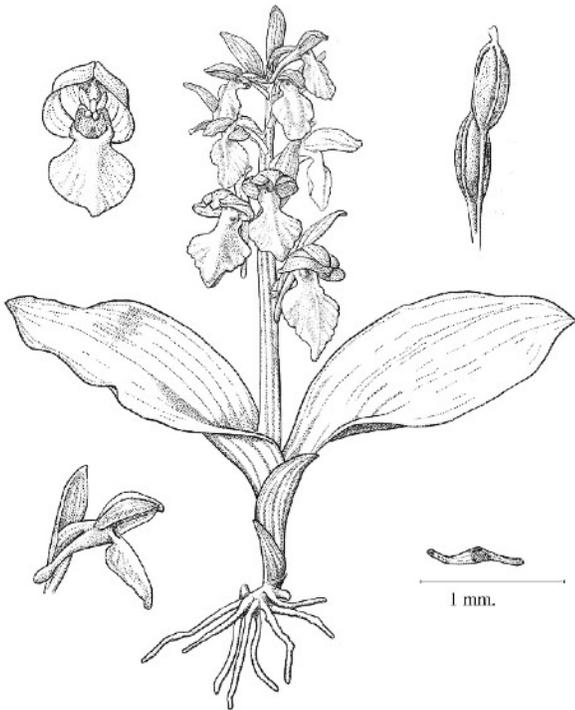


Left: photograph by Rick Burian
Right: photograph by Chelsea Kieffer



Epipactis helleborine
Drawing by Bobbi Angell

Galearis spectabilis, commonly known as Showy Orchid, is found across central and eastern Canada and the United States, from Quebec to Oklahoma. When flowering in the spring and early summer, it produces up to 15 small, conspicuous flowers with a white labellum and pink or purple sepals and petals, which curve together to form a hood over the column. A noticeable spur extends out from behind the base of the labellum. Due to its distinctive flowers and two basal leaves, it is unlikely to be confused with any other orchid. It is found in dry to moist forests and woodlands.



Galearis spectabilis (L.) Raf
©2020 Kathleen Marie Garness



Left: drawing by Kathleen Garness
Right: painting by Judy Simon



Galearis spectabilis

Upper left: painting by Marcia Whitmore

Upper right: photograph by Bob Sprague

Bottom: photograph by Jim Fowler

Isotria verticillata, commonly called Large Whorled Pogonia, is found throughout the central and eastern United States, from Texas to Maine, and in Ontario. It has a purplish brown stem and 5 leaves which form a whorled ring around the upper part of the stem. The leaves are green on the upper surface, and occasionally greyish blue or green on the bottom surface. It produces one to two flowers with purple-brown sepals, yellowish green petals, and a yellow-green to white labellum, which is often striped with purple. It can be distinguished from *I. medeoloides* by its larger size and its purple, instead of green, sepals. It is known to form extensive clonal groups and can be found in mesic to dry forests and woodlands, and occasionally in bogs.



Left: colored pencil drawing by Scott Rawlins

Right: photograph by Bob Sprague

Liparis liliifolia, commonly known as the large Twayblade or Mauve Sleekwort, is distributed throughout much of eastern and central Canada and the U.S., from Oklahoma to Quebec. It has two, dark green, often glossy basal leaves. When it flowers in the spring and early summer, it produces up to 31 dark purple or rarely green flowers, which are distinctive for their wide, flat, and nearly translucent labellum. By contrast, the petals and sepals are long and thin, often drooping away from the flower. It can be found in mesic to moist woodlands, thickets, and forests, including deciduous forests, mixed pine forests, and occasionally floodplain forests.



Liparis liliifolia (L.) Rich. ex Lindl.
©2014 Kathleen Marie Garness



Upper left: drawing by Kathleen Garness
Upper right: photograph by Tom Sampliner
Bottom: photograph by Jim Fowler

Platanthera blephariglottis, commonly known as White Fringed Bog Orchid, is broadly distributed across the East Coast of the United States and Canada from Florida to Newfoundland, around the Gulf Coast states west to Texas, and one disjunct population in Illinois. It produces several small stem leaves, and bears an inflorescence of multiple large, showy, white flowers. The labellum is distinctly and often heavily fringed, and the flowers have a long nectar spur which extends back away from the labellum. It can be found in bogs, wet meadows, marshes, and moist, open woodlands.



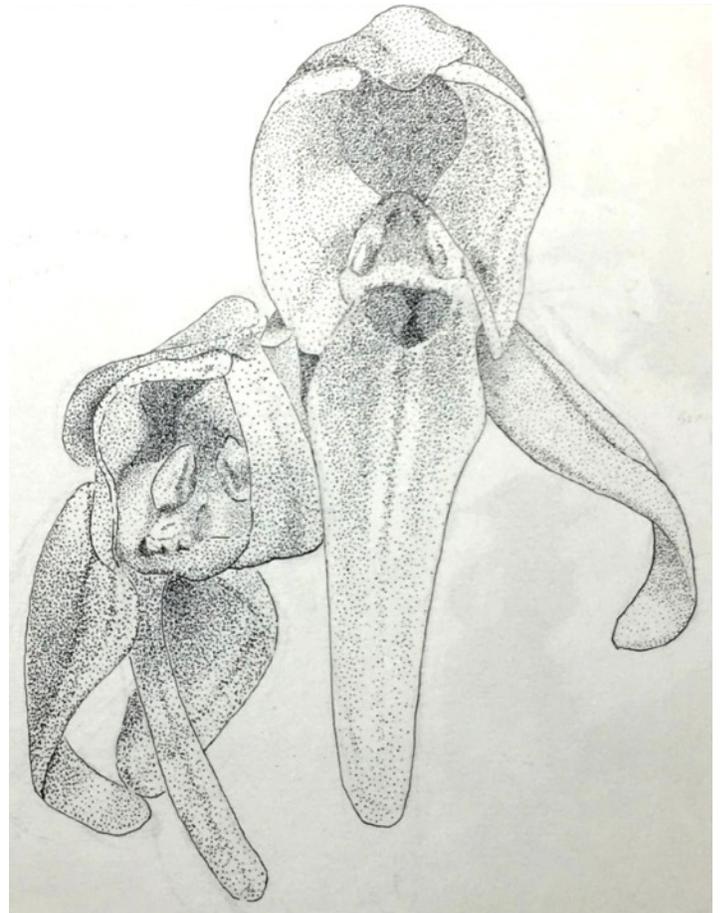
Left: painting by Robin Jess
Right: photograph by Rick Burian

Platanthera grandiflora, commonly called Greater Purple Fringed Bog Orchid, is found across the East Coast of the United States and Canada, from Georgia to Quebec. It has two to six wide, spreading leaves along its stem and produces a showy inflorescence of multiple bright purple, pink, or rarely white flowers. The labellum is deeply fringed and three-lobed. Primarily a wetland species, it can be found in moist forests and fields, marshes, bogs, and swamps.



Left: painting by Carol Woodin
Right: photograph by John Gange

Platanthera huronensis, commonly called Lake Huron Bog Green Orchid, is distributed across the northeastern United States and Canada, with disjunct populations in western Canada, Alaska, and from New Mexico to Wyoming. It produces several stem leaves and bears an inflorescence of whitish green flowers, which can vary greatly in number. The labellum is often paler than the rest of the flower, and is wider at its base than at its tip. The flowers are typically intensely fragrant. It can be found in wet meadows and woodlands, marshes, fens, bogs, and along riverbanks and roadsides. This orchid is thought to have descended from a cross between *Platanthera aquilonis* and *Platanthera dilatata*.



Left: drawing by Bobbi Angell
Right: pencil drawing by John Gange



Platanthera huronensis
Left: photograph by Tom Sampliner
Right: photograph by Jim Fowler

Platanthera peramoena, also called Purple Fringeless Orchid, has a limited distribution in the southeastern and central United States, from Missouri to New Jersey. It produces two to five spreading leaves along its stem, and bears an inflorescence of multiple, showy, pink or purple flowers. The labellum is deeply three lobed and usually slightly dentate (not fully fringed), although it is occasionally nearly entire; a prominent notch slits the central lobe of the labellum. It grows in moist forests, woodlands, meadows, and thickets, as well as in marshes and swamps. It appears to benefit from natural disturbances that reduce overhead tree canopies and result in more light.



Platanthera peramoena
©2009 Kathleen Marie Garness

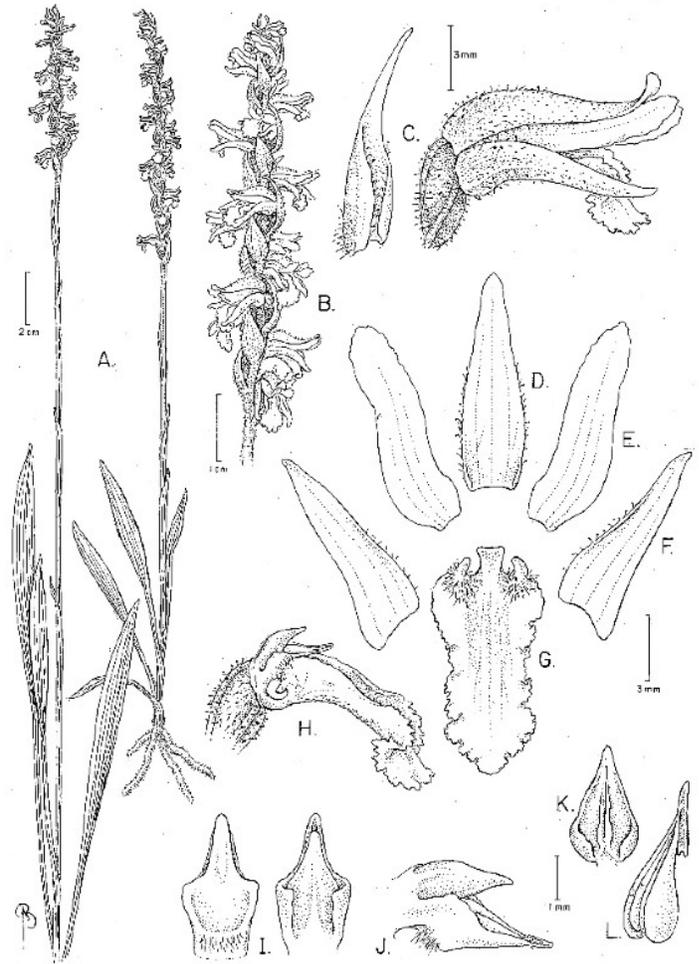
Painting by Kathleen Garness



Platanthera peramoena
Photographs by Rick Burian

The next four pages are of orchids within the *Spiranthes cernua* complex extensively studied by Dr. Matthew Pace of the New York Botanical Gardens. The Native Orchid Conference provided Dr. Pace with a Case grant in 2014 to assist in this work. I have included these to highlight the value of a scientific illustration which can more easily show the sometimes minute differences more easily than a photograph.

Spiranthes arcisepala, the Appalachian Ladies' Tresses, is a recently described species that is widely distributed throughout the northeast, from Ontario south to Virginia and as far west as Ohio. It produces one to four basal leaves which are held upright but wither shortly after the plant flowers. The white flowers form a loosely coiled spiral along the spike and are distinguished by their pubescent, downward arching lateral sepals with tips that often surpass the ruffled, lower margin of the labellum. It grows in moist, short-statured habitats, such as grasslands, bogs, marshes, and fens, as well as along wet roadside.



Left: the holotype herbarium specimen
 Image courtesy of the C. V. Starr Virtual Herbarium (<http://sweetgum.nybg.org/science/vh/>)
 Right: drawing by Bobbi Angell



Spiranthes arcisepala

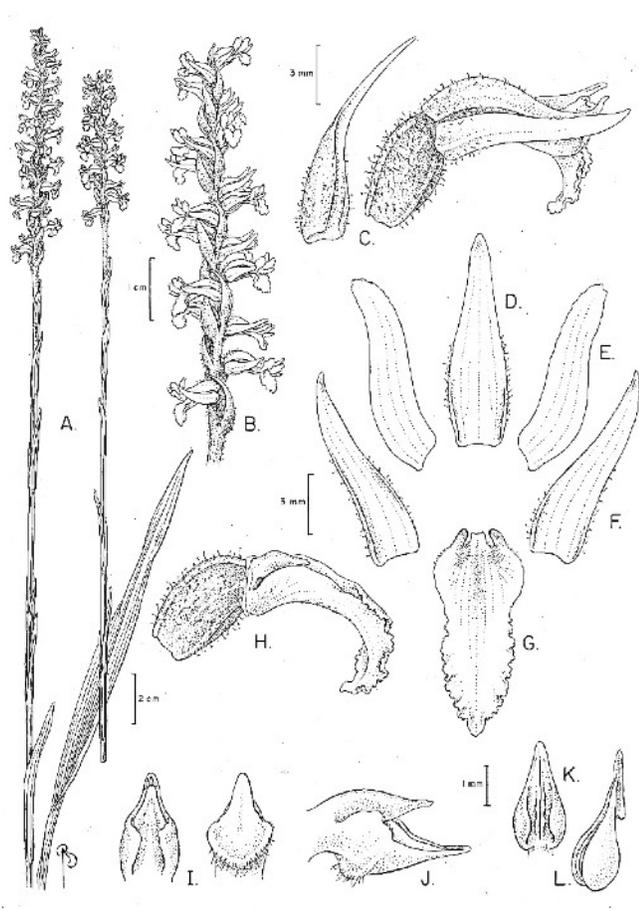
Left: the holotype specimen

Photograph by Matthew Pace

Right: a flower from northern New Jersey.

Photograph by Matthew Pace

Spiranthes cernua, commonly called Nodding Ladies' Tresses, is widely distributed along the Coastal Plain and in the southern Appalachian Mountains. It produces one to five basal leaves held upright that may begin to wither shortly before the plant flowers but usually persist through anthesis. It bears a spike of white to ivory-colored nodding flowers that form a single row in a coiled spiral. This species is distinguished by its upward sweeping lateral sepals and a white to pale yellow labellum with conical, highly reduced tubercles. It grows in moist fields, meadows, bogs, marshes, and fens, as well as along roadsides and riverbanks.

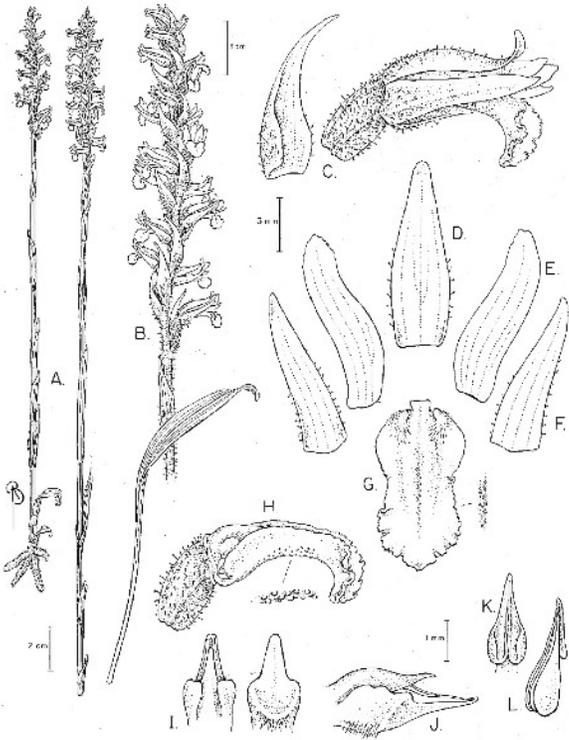


Upper left: drawing by Bobbi Angell

Right: photograph by Jim Fowler

Lower left: photograph by Matthew Pace

Spiranthes xkapnosperia. This is a natural hybrid of *Spiranthes cernua* and *S. ochroleuca*. Dr. Pace wrote that the first DNA sample for this plant was provided by Jim Fowler.

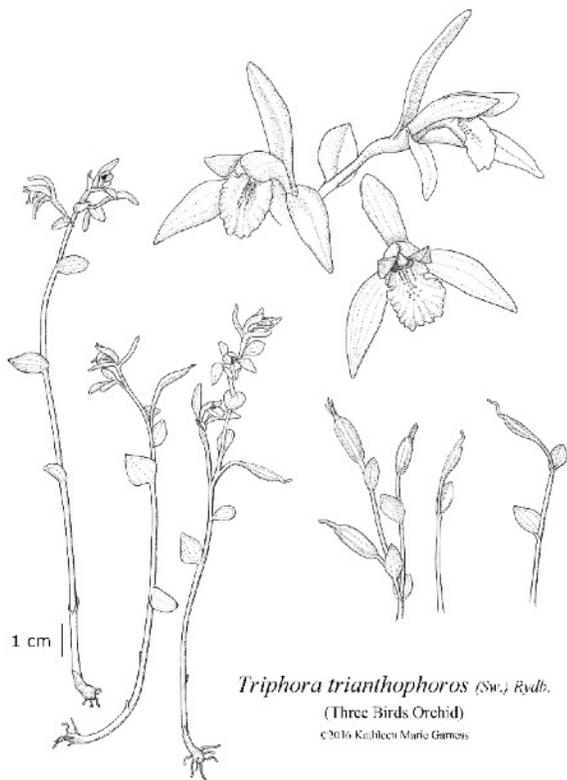


Upper left: drawing by Bobbi Angell
Right: herbarium specimen from which the scientific drawing was made. Image courtesy of the C. V. Starr Virtual Herbarium (<http://sweetgum.nybg.org/science/vh/>). Notice that this is the holotype or exact specimen from which the new natural hybrid was named.
Lower left: photograph by Matthew Pace

Triphora trianthophoros, commonly called Three Birds Orchid, is distributed in the central and eastern United States, from Texas to Maine, and north into Ontario. It produces two to six small leaves on its purplish green stem, and bears up to four pink or rarely white flowers that last for only a few days. The labellum is three-lobed and has three green ridges in the center. It is found in dry to mesic forests, woodlands, thickets, and occasionally in swamps.



Triphora trianthophoros
Painting by Carol Woodin



Triphora trianthophoros

Upper left: drawing by Kathleen Garnoss

Right: photograph by Jim Fowler

Lower left: copper etching print by Bobbi Angell

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CONTRIBUTING ARTISTS

Bobbi Angell says “My background training was studying botany at the University of Vermont and I have been drawing plants for botanists and horticulturalists ever since, for more than 40 years, with my work continuing to enrich me. I learn so much with each plant I draw, dissecting under my microscope and discovering details.” Her work began with illustrating plants for *Intermountain Flora* (Noel and Patricia Holmgren), published in several volumes over 35 years, interspersed with illustrations for several other floras and monographs. Much of Bobbi’s work has been from herbarium specimens and pickled flowers, but, being an active gardener, she also draws a great deal from live plants for various projects including several garden memoirs written by local authors. The first orchids on which she started working were for *Guide to Vascular Plants of Central French Guiana* by Scott Mori and others, followed by *Orchid Flora of the Greater Antilles* by James Ackerman. She continues to draw orchids for orchidologists Gustavo A. Romero and Matthew Pace and lately have been drawing native species for Gerry Moore, seeking out plants in local habitats.

John Gange is one of the younger enthusiasts involved in native orchids. He is a self-taught artist, but has had some guidance to help develop his skills. John is an avid photographer with several posts on iNaturalist. He is working on a book of the wild orchids of New England which will include some of his botanical illustrations. He also has a keen interest in taxonomy of orchids as well as of carnivorous plants. Still in high school, John's goal is to become a chemical/biological researcher and professor.

Kathleen Garness spent 15 years in the commercial art field before enrolling in and graduating from the scientific and botanical art certificate program at Morton Arboretum, Lisle IL. In 2010 her painting of the native yellow lady’s-slipper orchid complex was selected for the international exhibition co-sponsored by the American Society of Botanical Artists, the Smithsonian, and the Center for Plant Conservation: ‘Losing Paradise? Endangered Plants Here and Around the World’. Her artwork is currently featured by the Smithsonian’s North American Native Orchid Conservation Center website as well as *Smithsonian in Your Classroom* Magazine and many other publications. She has been a steward of two Lake County, IL natural areas since 2003 and is currently working on a portfolio of paintings of the native orchids of the Midwest. Kathleen is a scientific affiliate both at the Morton Arboretum and the Field Museum, and her illustrated guides are downloadable from their website. She was recently commissioned by the Indiana Academy of Science to add 14 plates of glossary illustrations to their *Flora of the Chicago Region* (2017: Wilhelm and Rericha), which will be released soon on the Conservation Research Institute website.

Robin A. Jess of Edison, New Jersey is the Coordinator of the Botanical Art and Illustration Program at The New York Botanical Garden. She is the co-editor of the new book, *A Comprehensive Guide to Botanical Art Techniques* (Timber Press) written for the American Society of Botanical Artists. Robin is the former Executive

Director of the American Society of Botanical Artists. During her career, she has held several administrative positions in the art field, most notably Interim Executive Director of the NJ Center for Visual Arts (now the Visual Arts Center of New Jersey) in Summit, NJ and Director of the New Jersey State Teen Arts Program. For fifteen years, she was the illustrator for Dr. Arthur Cronquist and her work appears in many of his books, including *An Integrated System of Classification of Flowering Plants*. She also provided numerous drawings for several volumes of the Intermountain Flora series by Dr. Noel Holmgren et al. Over the years, Robin has worked successfully in graphite, pen and ink, and watercolor. The New Jersey State Council on the Arts awarded Robin with two fellowships, including the Distinguished Artist Fellowship in 1990. With funding from the Geraldine R. Dodge Foundation, in cooperation with the Pinelands Preservation Alliance, Robin created a series of forty watercolors of NJ's Pinelands flora, which toured the state's major museums and arts venues. Robin also designed the NJ Pinelands license plate. She is a graduate of University of Delaware and received a Masters from Pratt Institute.

Raymond Prothero is an NOC member and self-taught artist working primarily with oil paints. He has displayed his paintings at local orchid shows in California. Raymond chaired the NOC symposium in Oroville, California in 2013 and has contributed to the NOC Journal.

Scott Rawlins graduated from Earlham College with a degree in biology, and holds graduate degrees in museum education and medical & biological illustration from the George Washington University and the University of Michigan respectively. Scott is a Professor at Arcadia University where he teaches scientific illustration, general illustration and design. He regularly exhibits his artwork nationally and has served on the board of the American Society of Botanical Artists as well as the boards of the Guild of Natural Science Illustrators and the Philadelphia Society of Botanical Illustrators. Scott's illustrations have appeared in numerous books, including *Your Inner Fish*, *The Guild Handbook of Scientific Illustration* and *Shackelford's Surgery of the Alimentary Tract*. Journals that have published his illustrations include *Acta Zoologica*, *Records of the Australian Museum*, Harvard's *Bulletin of the Museum of Comparative Zoology*, *Geobios* and *Zootaxa*.

Judy Simon practices botanical art in Berks County, Pennsylvania. She has a BFA in Communication Design with a concentration in illustration from Kutztown University. She is an avid organic gardener and plant collector who likes to combine nurturing her garden with her passion for botanical art and illustration. Judy also enjoys seeking out native plants in their environment, especially those with interesting forms and textures. A member of ASBA and PSBI, her exhibitions include the Philadelphia Flower Show, the 13th and 15th annual HSNY/ASBA show, the Following in the Bartrams' Footsteps exhibition, exhibit at the United States Botanical Garden, Jenkins Arboretum, Friend's Hospital, and Winterthur Museum. "I enjoy using different materials and techniques, and switching from small to larger works and back again. I prefer to work from live specimens, however, that isn't always possible. Protected native plants must be sketched with color studies and lists of that plant's key identifying points, with many photographs taken to fill in information back in the studio. And plants

go out of bloom or change during the many days and hours it takes to finish a painting. Several of the works included are printed on aluminum from scans of original scratchboard and dye. Scratchboard isn't common in the botanical world, although some scientific illustrators are using it in their work. Duralar, or drafting film, allows me to work on both sides of the material with colored pencil to create greater depth, and watercolor on vellum can't be matched for color and depth." Judy also will do instructional illustrations for articles in periodicals, such as *Fine Gardening*, and has had several pieces on pollinators exhibited in an Artmobile show that travelled throughout many schools over a period of several years. She also teaches 2- to 5-day group classes on botanical illustration.

Carol Woodin is a botanical artist who has been specializing in rare plants, mainly orchids, and her work has been exhibited around the world. Some recent venues have been the Shirley Sherwood Gallery, Royal Botanic Gardens, Kew, UK, Museo della Grafica, Pisa, Italy, and UBS Gallery, New York. Her paintings are in the collections of the Royal Botanic Gardens, Kew, Smithsonian National Museum of Natural History, and the Shirley Sherwood Collection. She provided illustrations for the recent monograph *Slipper Orchids of the Tropical Americas* authored by Phillip Cribb and Christopher Purver. Recipient of an RHS Gold Medal for *Paphiopedilums* in 1995, the Lankester Award for Orchid Art, and the 2016 Orchid Digest Medal of Honor, she is Director of Exhibitions for the American Society of Botanical Artists.

Marcia Whitmore began growing orchids in 1972 in a basement grow room. "I started with one shelf and one 4-foot, 4-bulb fluorescent light setup. This grow room soon expanded into many shelves with grow lights over the tops of benches and shelves that housed phalaenopsis, miltoniopsis, cattleyas and many other species of orchids." Marcia is a member of the American Orchid Society, Illowa Orchid Society and the Eastern Orchid Society. She has won 31 American Orchid Society awards for culture and flower quality and also AOS awards for displays at orchid shows. Her interest in native orchids began on a weekend when she discovered *Cypripedium parviflorum* in a local forest preserve. That began a search for other native orchids in local state preserves, pioneer cemeteries and prairie remnants. This led to the discovery of *Platanthera leucophaea*, *Cypripedium candidum* and several species of *Spiranthes*. She did her undergraduate work at Augustana College and earned a master's degree in education from Western Illinois University. Her career was in education...teaching many grade levels and finishing the last 13 years teaching fifth graders. Marcia retired in 2000. She is also a botanical illustrator with a membership in the American Society of Botanical Artists. Her paintings are of orchids exclusively. She has had shows at the Chicago Botanical Center, the Clinton Art League, the Quad City Botanical Center, the Fairchild Botanical Center in Florida and Studios in the Park in Paso Robles, CA in conjunction with the Five Cities Orchid Show and the Muscatine Fine Arts Gallery in Muscatine, IA. Also she has had many displays at orchid shows. In 2019 – 2020 her work has been featured in *Orchids*, the journal of the American Orchid Society. She has an upcoming show at the Quad City International Airport Art Gallery. Marcia maintains a Facebook page entitled "A Brush With Orchids."

DISCUSSION ON PHOTOGRAPHIC TECHNIQUES

With some wonderful photos shown in the first part of this article and many talented photographers who are members of the NOC, I thought a section on hints for taking better orchid photos would be a good addition. A huge thank you to those who shared their hard earned expertise. I posed a series of questions to those who submitted photographs and will summarize those answers.

CAMERAS AND LENSES

I first asked about camera and lens preferences. Though smart phones and point and shoot cameras are used by most of us for some form of documentation, more serious photographers seem to prefer a Digital SLR camera. Nikon, Canon and Sony lead the list. Each has its merits and it often comes down to comfort and past experience with a brand. Bob Sprague says he likes his Nikon D5100 which isn't brand new but, like an old pair of slippers, he has gotten comfortable with it. Jim Fowler is not using a DSLR camera and currently uses a Sony α 7R II digital, full-frame, 42 megapixel, mirrorless camera with image stabilization and auto-white balance set. Ben Rostron uses two cameras. He has a DSLR Canon 6D on which he has taken over 40,000 photographs and a newer Fuji GFX-50S medium format 50 megapixel mirrorless camera. Jean Stefanik loves her Pentax WG-3 which has a built in macro and microscope mode that allows her to get within 1 cm of the subject. It also has a built in ring flash, is waterproof and light weight and she says produces amazing images yet falls short in the telephoto mode.



Cypripedium reginae
(photograph by Bob Sprague)



Bob Sprague and Amy Levensgood
(photograph by Rick Burian)

As for lenses, a macro lens in the range of 90 to 120 mm seems to be the most popular for close ups. Jim Fowler uses a Sony FE 90 mm f2.8 Macro G OSS lens for 99.9% of his shots. Like for others, when a wider angle or distance shot is needed then a zoom with a wide focal distance is the choice. Bill Kress uses his 100-400 mm Leica zoom, usually at 400 mm to minimize disturbance and to blur the background. For habitat shots or even including the entire plant in the image then a macro lens may require one to back up quite a distance though that may be preferable to changing lenses. A more all-purpose zoom such as 28-300 mm is Chelsea Kieffer's choice for when she is on the go, though her macro lens is preferred for the more minuscule species.



Duane Erdmann
(photograph by Lorne Heshka)



Corallorhiza mertensiana
(photograph by Bill Kress)

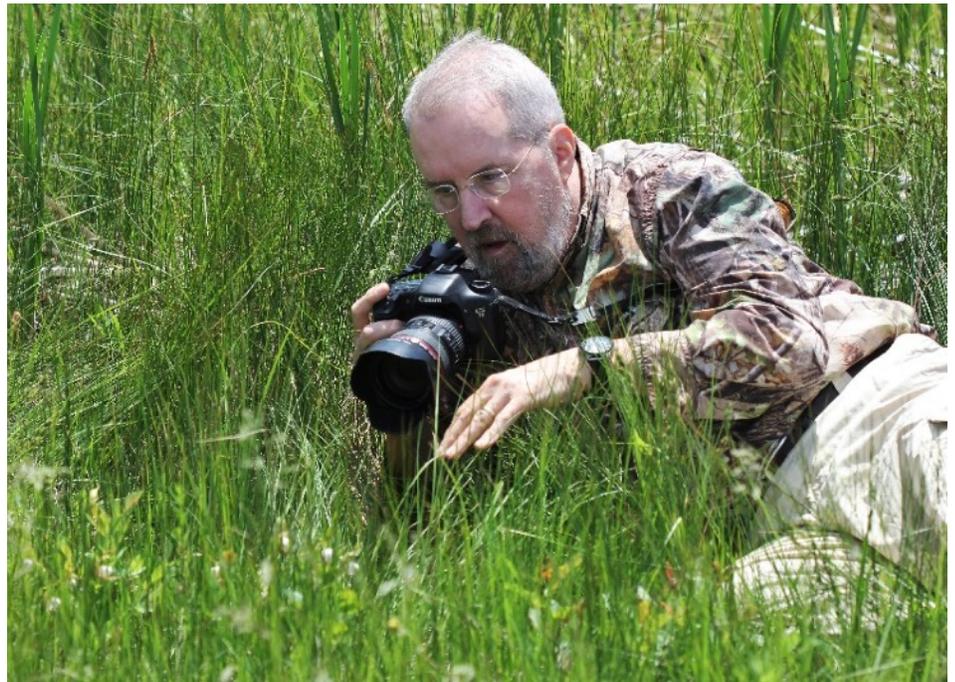
TRIPODS

I then asked how often you use a tripod. Almost all of the photographers say that a tripod is a must for a good, clear photo. Duane Erdmann says he uses one 110% of the time! "I go to great lengths to eliminate anything that can cause my photo to be anything less than perfectly sharp. Allows more f-stop choice." Bill Kress alternates between a few devices including a Joby GorillaPod, a Manfrotto monopod and a Manfrotto tripod. A tripod is imperative for focus stacking, a digital image processing technique which combines multiple images taken at different *focus* distances to give a resulting image with a greater depth of field than any of the individual source images. Note the example on this page, above right. The monopod is good for portability as it is lightweight and it also disturbs the ground around the plants the least and is well suited for use with good natural lighting or when using flash. Jim Fowler also recommends a Manfrotto tripod with a Grip ball head for simple, seamless positioning. Chelsea Kieffer is a bit more open to shooting without a tripod and says maybe just half the time she uses one. For specifically photographing flowers

when she knows the conditions aren't bright she brings the tripod, but if just out hiking for recreation or if the lighting is great she may leave the tripod in the car. Rick Burian admits that he is a bit lazy and relies on flash to substitute for slow shutter speeds and the use of a tripod. When in a large group of photographers it allows him to jump in and take some photos while the others are setting up their equipment. It comes down to dedication, especially when traveling around the world and having to pack as light as possible. Tom Sampliner advises that any time you need to shoot any slower than 1/125th of a second you should consider a tripod. David McAdoo agrees that keeping the camera steady is absolutely necessary but that doesn't always mean a tripod is your only choice.



Platanthera peramoena
(photograph by Ben Rostron)



David McAdoo
(photograph by Rick Burian)

EXPOSURE AND COMPOSITION ADVICE

I asked about tips for exposure and composition including depth of field, shutter speed and film “speed.” Tom Sampliner gave some general words of wisdom and basics of photography that may be helpful: “Whether your camera is capable of adjustment or not, you must have a basic understanding of depth of field. This refers to how much of the frame is in sharp focus. The larger numbers obtain sharpness from the foreground to infinity. Numbers such as f-16 should obtain sharpness from the closest object to the farthest point in the frame. Everything in photography is a compromise so the cost of a deep f-stop is additional time for the exposure due to less light. Numbers such as in the 2 or 4 f-stop readings are wide open meaning that only the area you focus on are sharp while all else is blurred. Some situations may be best for use of this. However keep in mind the blur can be distracting. It lets in the most light so that a quicker

shutter speed can be used and you may get away with hand holding. Speeds of 1/125th of a second or faster are possible for most folks to avoid shaking blur. Flash is another way to assure a fast shutter speed as most cameras have their flash sync speed set at 1/125th second.”

All of the photographers seem to agree that using a wide range of settings and experimenting is the way to go. Jim Fowler states that he uses a wide variety of depth-of-field (aperture or f-stop) settings and shutter speed settings as well as a variety of ISO settings depending on the subject and its surroundings and available lighting. Duane Erdmann advises to go for as much depth of field of the flower as you can get, but not to the point of also having the background so sharp that there is just too much for the viewer to absorb. He adds that you should be aware of details around the plant to avoid the need to post-process with Photoshop. Chelsea Kieffer states “I usually take multiple pictures at different depth of fields so I have several variations to choose from.” For example she may intentionally limit the depth of field so that parts of the flower and stem are in soft focus, receding into the background and creating dimension. Bill Kress advises “With natural lighting or flash, I try to stay f/16 or wider because of lens diffraction. At apertures smaller than f/16 [higher number like f/28], dust on the sensor gets imaged as a spot that needs to be removed post processing.” David McAdoo reminds readers that most good cameras have a preview function that will ensure adequate depth of field. He also mentions that distractions can be in the foreground as well as the background so strive for isolating the flower. Ben Rostron says that he uses the “DLA” number on his cameras, which is the camera’s “sweet spot” for depth of field. His Canon registers at f10.5 so he typically uses f11 and brackets with f8 and f16. He tries for as fast a shutter speed as possible, minimally at 1/100th of a second, and 1/250th if it is windy.



Jim Fowler
(photograph by Rick Burian)



Platanthera blephariglottis
(photograph by Jim Fowler)

The film “speed” or ISO setting relates to what some call graininess in film or noise in digital photography. The lower the setting, the more clarity in the image. This is not the same as how fast the shutter opens and closes. Bill Kress says that he wants the ISO at 200 but if it is windy then it may need to go higher. And if flash and a smaller aperture is used then a higher ISO will permit lower flash power and will allow some background to show which may be desirable. Chelsea adds that she will frequently check her images taken at different exposures to be sure that the photo isn’t over or under exposed, meaning too bright or too dark.

For composition, Chelsea says “I look at the orchid at different angles to try and capture it best, and also take into consideration that the photo is well-balanced.” Tom Sampliner advises to always consider the placement of the subject in the frame and avoid what he calls a static bullseye centering as the eye does not find this pleasingly dramatic. He adds to use compositions that lead the eye into the frame and to the subject. And if the composition is problematic try moving your position:

Once a subject is selected, examine the potential framing to look for unusually bright or dark spots which end up distracting attention from the intended subject. Another problem in composition is backgrounds that are too busy. With small subjects like wildflowers, this is an especially eye-catching distraction. With regard to the main subject, examine it for uniformity of lighting as hot or dark spots can ruin an otherwise appealing subject. Consider the time of day and the lighting it offers when shooting. For control over lighting, consider the use of shading the subject, use of a dark background to avoid busyness and achieving textbook clarity and isolation as well as flash to bring out the most natural colors and help isolate from the background.



Chelsea Kieffer
(photograph by Rick Burian)



Cypripedium candidum
(photograph by Linnea Hanson)

LIGHTING

My next question was about the ideal lighting for taking an orchid photograph and how do you compensate if you don't have that situation. Natural lighting was the most common response. Jim Fowler suggested "high cloud cover to provide soft, overall diffuse lighting. On an infrequent occasion, I will use an umbrella or diffuser to cast a uniform shadow on the subject and surrounding area to help prevent harsh shadows."

Duane Erdmann said that a diffuser is needed if there is a lot of reflection from parts of the plant or a polarizer can be used. But sometimes a lot of colorful contrast is nice. Bob Sprague likes fairly bright light as long as the sun is not directly on the flower (i.e. overhead sunshine usually washes out the subject). Late afternoon sun often creates dramatic images; at most other times you can position yourself so as to avoid excessive shadows. He quips: "sometimes, the best compensation for poor light conditions is to stay home and have a beer." Tom Sampliner writes that the best or most favorable natural light is a couple of hours after sunrise and just before sunset. These are known as the golden hours. Mid-day lighting is too harsh and 'contrasty.' Chelsea Kieffer warns that full sun can cause harsh shadows, a loss in details and blowout of the highlights. In lower light she says that a tripod can be a life saver or a reflector can bounce some light onto the flower for better exposure. Sometimes backlighting can accentuate features such as venation or hairs on the stem and flower. Bill Kress likes natural lighting if it is behind him for focus stacking or he will use two silver reflectors or LED lighting. Otherwise he uses some type of flash set up (see next question). John Gange believes that lighting should be dealt with on a case by case basis. Some plants photograph quite well on an evenly lit cloudy day while others can be quite beautiful with some strong sunlight, especially early or late in the day.



Platanthera grandiflora
(photograph by Jim Fowler)



Bill Kress
(photograph by Dorothe Kress)

USE OF FLASH

That topic was followed by thoughts on the use of flash. Artificial lighting was more popular than I expected though Bob Sprague claims that he never uses flash as he is somewhat of a purist and likes his images to replicate what the eye sees. Ben Rostron states that he only rarely uses a flash. Duane Erdmann uses fill flash about 1 2/3 underexposed. He feels that flash brings out the colors that a cloudy day cannot and texture and sheen are much easier to capture. It can isolate a flower. Flash also allows for faster shutter speed which helps with sharpness if there is a breeze. But he cautions to never position the flash face-on but rather slightly up to the right or left a few feet away which provides a little shadow and definition of parts. He adds to try different angles for white-petaled flowers. Chelsea Kieffer likes flash to maximize depth of field possibilities. Jim Fowler uses a hand held slave flash connected to the camera by a radio frequency device and is triggered when the shutter button is pressed. He uses a 2 second delay to allow him time to position the flash in the desired direction and to reduce possible camera shake. He uses the hand held unit rather than the built in flash as it lets him position the fill light in a way that works best for the subject. Bill Kress uses an elaborate set up of one or more flash units. They are all radio synchronized and controlled from the main flash or an on-camera control. All are tripod or stick mounted and diffusers are used with the flash. Jean Stefanik sometimes uses a flashlight for side lighting but is happy with the ring flash of her camera.



Raymond Prothero
(photograph by Rick Burian)



Cypripedium acaule
(photograph by Bob Sprague)

John Gange adds that of all the adjustments he makes in the field, it is the lighting, angle and flash that get the most attention. He can spend up to an hour with the set up and then start toying with how much flash, if any, to use, and making decisions whether to use a diffuser or if a background would improve the photo. The color of the flower, or if it has reflective surfaces, or if the flowers or leaves are pubescent play a big part in the decision because flash can ruin the photo.

Rick Burian uses a ring flash frequently so that he can get very close to small flowers. As mentioned earlier it allows him not to schlep a tripod around and yet still get good depth of field without reducing shutter speed or increasing the ISO too much. Even on bright days he may use flash if it is windy as his unit will synchronize up to 1/250th of a second. Flash can produce a black background if there is little surrounding the flower. But he cautions that on a rainy day when you really may need supplemental lighting the flash will leave an odd shaped reflection in any drops of moisture. And flash can cause unnatural shadows. If at all possible follow Bob's advice and come back another day when it is not raining. He'll pass on the beer though.



Rick Burian



Calypso bulbosa var. *americana*
(photograph by Rick Burian)

REFLECTORS AND BACKGROUNDS

How about the use of reflectors and dark backgrounds? Sort of a mixed bag on that question. Tom Sampliner says that a dark background can avoid busyness and achieve textbook clarity and isolation as well as bring out natural colors. John Gange feels that a dark background can be helpful if the flower or plant does not fill the frame or if the background is distracting. It allows the viewer to focus more easily on the plant of interest and has the side benefit of making the colors “pop.” Ben Rostron carries a 1-square meter piece of black velvet with him and takes a photo with that behind the flower and then one with a natural background and then chooses which one is more awesome. Most of the other contributors say that they never use black cloth backgrounds though an interesting option used by Duane Erdmann on occasion is to photograph some ferns way out of focus and print them for use as a background if the real background is very busy or reflective. He says that you want the viewer’s eyes to go directly to the subject so keep the background simple and blurred if you can. Bill Kress uses focus stacking so the background is naturally very blurry. Jean Stefanik feels that the background is important for contrast. She has placed a leaf behind a flower to help with focus and depth of field.

Reflectors are more common as noted earlier to reduce harsh shadows. Ben Rostron notes that he uses one when doing “serious” photography.



Tom Sampliner
(photograph by Rick Burian)



Cypripedium acaule
(photograph by Tom Sampliner)

POST EXPOSURE DIGITAL MANIPULATION

Once you are back home, how much manipulation of the images do you do on your computer? Most will do a little bit of adjusting for contrast or brightness and cropping for better composition or to remove annoying background clutter or shadows. Some computer programs allow for sharpness improvement. Jim Fowler and Bill Kress shoot in raw (internally unprocessed image mode) which requires the use of Photoshop to process all of the images. This gives much more control than shooting in the standard compressed JPEG format if one needs to adjust for sharpening, color enhancement, contrast and brightness as well as do cropping and rotation. However, shooting in raw can be a time consuming process, I am told, if you take many photos, but you can do things that you can't do with other formats, such as 'rescue' your photos if way over or under exposed.

Duane Erdmann adds that it may be helpful to shoot a color target when the lighting changes dramatically while taking photos. You can reference that during post processing for true colors. Rick Burian admits that he is colorblind so is afraid to adjust colors for fear of ending up totally out of synch with nature. He does adjust for contrast, shadows, highlights and brightness using the very basic program on his computer with the goal of darkening the background to make the main subject stand out. Jean Stefanik will crop her images but no other manipulation. Ben Rostron thinks that he just doesn't have a good handle on how to do manipulated photos well so sticks with minimal adjustments such as playing with the smoothing and grain reduction sliders and removing a dust fleck on the subject.

PHOTOGRAPHS IN SCIENTIFIC DOCUMENTATION

Thoughts on photographs for scientific documentation? Chelsea Kieffer responded with I think photographs for scientific illustration are good for reference, but I think the artist would gain a better understanding and appreciation for the orchid with a field study and sketching/painting from life in its three-dimensional space. Bob Sprague says:

Skilled illustration is necessary to adequately describe a plant, especially when there are "look-alikes." It's hard to portray subtle features such as fimbriation, tubercles, pubescence, etc., with a photo. However, a good *in situ* photo (in conjunction with an illustration) certainly helps one get a good feel for the subject.

Duane Erdmann gives this advice if you are photographing for scientific purposes: don't forget a wide angle to capture the habitat, then take a full on view and then a $\frac{3}{4}$ view. Watch the contrast if for printing. As an example, if you are photographing a slipper orchid, focus on the staminode (like focusing on eyes for humans) since that is where the viewer's eyes are drawn. Carry a small plastic ruler to stick in the photo to show size or place a coin by the flower. Ben Rostron aims for all of his photographs to be scientific rather than artistic by going for sharpness and showing the features of the plant. Bill Kress mentions that he could use his technology to convert photos to pencil sketches if desired.



Cypripedium parviflorum var. *pubescens*
(photograph by Jim Fowler)



John Gange
(photograph by Rick Burian)

John Gange, both a self-described amateur photographer and illustrator had a more detailed response: Regarding photos used for the creation of scientific illustrations... I'm all for it. It's clear that photography is superior when it comes to representing plants as they appear in the field, but illustrations can make important features of a plant more easily spotted. The artist also has considerably more control over how their work appears, being able to shift and manipulate plants in a way that is both elegant and very informative. I suppose it boils down to what a person wants. If I desire an accurate representation, then photography would be a clear winner. However, if I wanted to get a sense for the plants on a deeper level (especially regarding their morphology), I'd have to go with scientific illustration. Many people seem to think that photography is replacing botanical illustration, but I disagree. From what I can tell, the two media really just share the same artistic (and/or practical) niche, and neither will replace the other any time soon.

Jean Stefanik, who is involved in the American Orchid Society, says:

Photographs of plants and dissections of flowers are routinely used in the scientific community in addition to drawings. AOS now requests multiple photos of their awarded flowers and plants showing different aspects... the flower, close-up, inflorescence and plant, and the Species Identification Task Force recommends dissecting a flower with the owner's permission and photographing the parts for better analysis. Journals and research institutions publish new species with drawings, photos, and charts.



Corallorrhiza striata
(photograph by Ben Rostron)



Jean Stefanik
(photograph by PK Dennis)

PEARLS OF WISDOM

Finally, the contributors were asked to share some pearls that can help improve our photography skills.

Duane Erdmann tells us to experiment by taking a series of exposures, even at different focal distances and select the best once you are back home. And don't delete photos in the field as you may see subtle things later that make for an interesting photo like an insect or snake. Take notes as to your camera settings and lighting as well as about the plant and its environment. He was reminded by Hal Horwitz that it is good to take a moment without the camera in your face to just commune with the plant. And finally, remember that someone else might come along and want to enjoy the plant so be mindful of your feet and tripod positioning. This is also important if you want the plant and its neighbors to live another year.

Ben Rostron has these 3 rules for himself:

1) Police the background when you compose the shot. Watch for bright or dark things in the background that will distract your eye in the final photo. Try to either remove them, or recompose the photograph. Sticks, blades of grass, bright spots of sunlight, etc., are all things to be taken care of when composing the shot. 2) Moving back, and then "cropping in" gives better depth of field. The temptation is to get really close, and fill the frame, but I find you can get better results by backing up, and then cropping the resulting image down. (I use a full frame and a medium format sensor, so this works for me) and 3) Take your time. Yes, this drives people crazy on field trips, but field trips are not the time for serious photography. I like to take the time to use a tripod, get the background right, wait for the sun to go behind a cloud, try different angles, etc. Yes, some of my best photographs have been quick handheld snapshots, but the percentage of keepers from that method is lower than if I take the time to use the tripod, etc.



Ben Rostron
(photograph by Rick Burian)



Cypripedium parviflorum var. *pubescens*
(photograph by Ben Rostron)

Jim Fowler says:

Practice, practice, practice, and shoot images as often as you can to build up your portfolio. I'm often asked why I photograph a particular flower species when I have dozens (hundreds) of that species already, and my reply is that I never know when I will get that "perfect" shot. I'm still trying to get those perfect shots..."

Bill Kress echoes that with "Practice. Repeat. Learn.

John Gange responded:

I guess the bottom line is just to spend a lot of time getting a feel for the subject, rather than just diving in and trying to take as many photos as possible. Be picky, take your time, and carefully examine your photos to determine when you were doing best. Choose the most visually appealing plant with the best conditions, then settle down and get to work. Every few photos, take a moment to look at your work, make adjustments, etc. Rinse and repeat until you have something you can walk away with, even if it takes an hour or so to get there. With that in mind though, don't be afraid to abandon a plant or angle if your photos don't seem to be improving as you go. Use the rough, low quality photos you might take in the beginning to advise you towards the end.

And Bob Sprague gives this advice: "Get out in the field as often as you can, photograph whatever you find and use your photos every way possible to promote conservation." I like how you think, Bob.



NOC member, Gary Van Velsir photographing *Platanthera clavellata*
(photograph by Rick Burian)



JUN 24, 2021 AT 6 PM PDT – JUN 28, 2021 AT 5 PM PDT

2021 Native Orchid Conference Symposium, Olympic Peninsula, WA

Port Angeles Senior & Community Center



Join us for our next NOC symposium on the beautiful Olympic Peninsula, Washington tentatively scheduled for June 24-28, 2021. Plans are subject to change and will be determined by input from members.

The bustling town of Port Angeles will serve as our base of operations. For those who must fly in, Seattle and Portland offer the best options. Port Angeles is a popular venue for a multitude of outdoor recreational activities. It boasts numerous restaurants and a host of lodging options.

Registration is limited to the first 100 people from whom we receive responses. For your convenience, electronic registration and a PayPal option are available. For instructions and registration visit:
<https://www.nativeorchidconference.info/annual-symposium>.

Registration is \$145 US per person, or Student Registration is \$65 US per person.

In keeping with our usual format, there will be two days of presentations and two days of field trips.

The peninsula contains several natural lakes and numerous free-flowing salmon rivers. We expect to encounter varied topography that ranges from foggy, off-shore sea-stacks to rocky beaches, alpine meadows, glaciated mountains and, perhaps most interestingly, temperate rain forests. Such diverse habitat provides for a wide range of plant and animal species and endemism is not uncommon.

Orchid species (many in bloom) that we will likely see on our field trips:

Corallorhiza maculata; mertensiana

Epipactis gigantea

Goodyera oblongifolia

Neottia banksiana; convallarioides; cordata

Piperia candida; elegans; elongata; transversa; unalascensis

Platanthera dilatata; stricta

Spiranthes romanzoffiana

A most important aspect of this event is the opportunity to meet people who share a common interest in natural history in general and native orchids in particular. Many long-lasting friendships and professional relationships have been formed at NOC symposiums. Why not take this opportunity to renew them and/or make new ones on the remarkable Olympic Peninsula.

The Native Orchid Conference Journal is published by the Native Orchid Conference, Inc. as a service to its members. The organization is devoted to fostering the study, conservation, and enjoyment of orchids native to North America.

Membership dues are \$15 (student), \$30 (individual), \$35 (family). Apply online:
www.nativeorchidconference.org/membership.html

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