

SLIPPER ORCHIDS

THE SLIPPER ORCHID ALLIANCE JOURNAL



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ABOUT THE COVER:

Paphiopedilum Pacific Glory 'Dream Maker' FCC/AOS (95 points)
Awarded at the 2019 Paph Forum, this plant achieved the highest point score for a flower award to any complex *Paphiopedilum* hybrid in the AOS award system. (Bred and grown by Marriott Orchids)
Photo: Bryan Ramsay

ERRATUM: Unfortunately, the summer issue was printed with Volume 20, Number 3 on the cover rather than the correct Number 2. We apologize profusely for this error and for any confusion this has caused. This current issue is Volume 20, Number 3, Fall, 2019. The season on each issue is correct.

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THE CURRENT PASSWORD FOR THE JOURNAL ARCHIVE ON THE SOA WEBSITE IS: habitat (case sensitive).

THE USERNAME ALWAYS IS: Newsletter (not case sensitive).

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The 2019 Paphiopedilum Forum

By Roddy Gabel



Life in the Washington, D.C., area can lead to unique circumstances, even when organizing an orchid event. The 2019 Paphiopedilum Forum (aka Paph Forum) was no exception. Our longstanding venue for the event, the U.S. National Arboretum, is a Federal facility, and as such, was among the many institutions in our area that were closed during the partial U.S. Government shut-down, caused by the budget wrangling between President Trump and Congress in late December 2018–late January 2019. With a week to go and the government shutdown still in effect, and with no certainty as to when it would end, the organizers had to scramble to secure an alternative venue and notify registrants of the change. In the end, the 39th Annual Paphiopedilum Forum took place with only a few minor hitches, as scheduled, on January 26, 2019, at the North Chevy Chase Christian Church in North Chevy Chase, Maryland.

The Paph Forum, hosted by the National Capital Orchid Society (NCOS), draws attendees from the local area as well as farther afield in the Mid-Atlantic Region—and beyond. This year’s event drew a total of 87 pre-registered attendees, as well as a few late-comers, from as far away as Ohio and western Pennsylvania; Rochester, New York; New Jersey; and southern Virginia.

The program for the Paph Forum includes designated times allotted to shopping for plants (slipper orchids only!) in the sales area, including first thing in the morning, during the two-hour lunch break, and again at the end of the day for those last-minute purchases. Sales are closed during formal presentations by invited speakers. This year’s vendors included Cove Corporation (Nancy Mountford), Floradise Orchids (Steve Shifflett and Janet Cherchuck), The Gardens at Post Hill (Ron Burch), Marriott Orchids (Hadley Cash), Paph Paradise (David Sorokowsky) and Woodstream Orchids (Bill Goldner and Lynn Evans-Goldner). There were also plants for sale from the private collections of the members of the National Capital Orchid Society who attended and volunteered at the event. A silent auction, sponsored by the Slipper Orchid Alliance, included plants donated by vendors and from the private collections of Jason Gebbia and John Whiting; we are very grateful for their contributions. Proceeds from the auction are shared between SOA and NCOS and help to support the Paph Forum.

The Paph Forum is an American Orchid Society (AOS)-sanctioned event and, as such, offers the opportunity for exhibitors to have plants considered for both show ribbons and AOS flower and culture awards; “Best of” winners also receive gift cards. The Slipper Orchid Alliance also sponsors a show trophy consisting of a blown-glass slipper orchid sculpture for the People’s Choice, determined through secret ballot. Plants are arranged around the sides of the auditorium according to class and generally represent the full spectrum of slipper orchids, from species to hybrids, and first-bloom seedlings and miniatures to tub-size specimens. There is a category for non-blooming plants that have interesting foliage, and for a bit of levity, there is a class in which exhibitors try to out-do each other to win the “Best Ugly Slipper” with a display of some truly hideous deformed blooms!

- 1 Among the top award winners, *Paph.* Mount Toro ‘Snow Peak’ (*stonei* x *philippinense*) earned a 95-point FCC/AOS and was awarded Best Novelty or Primary Paph Hybrid. (Grown and exhibited by Jeff Morris)
- 2 *Paph.* Dark Destiny ‘Dark Star’ (Montagnard x Black Wizard) represents the latest in vinicolor Maudiae-type breeding and earned an AM (82 points) from the AOS at the 2019 Paph Forum. In his talk, Hadley Cash reported that some of these are now showing greater fertility, which should allow for more rapid advances in flower quality. (Grown and exhibited by Marriott Orchids)

The Speakers

Invited speakers to the Paph Forum generally include recognized experts, from within the United States as well as from abroad, on the three major genera of slipper orchids in cultivation: *Paphiopedilum*, *Phragmipedium*, and *Cypripedium*. This year's speakers included Hadley Cash of Marriott Orchids, who covered "Current Trends in *Paphiopedilum* Breeding," Bill Goldner of Woodstream Orchids, who spoke on "Miniature *Phragmipediums* and Other Lines of Breeding," and Ron Burch of The Gardens at Post Hill, who delivered a presentation on "New Directions in *Cypripedium* Breeding."

Hadley Cash

Hadley's talk was an overview of the current state of the art in different lines of breeding in *Paphiopedilum*, primarily complex hybrids. He noted particular recent hybrids that represent the leading edge in their categories with full, round, flat flowers and overlapping segments. In addition to good shape, flowers from his recent crosses are exceptionally large, with petals on some first-bloom seedlings at 7 cm in width. According to Hadley, one of these crosses, *Paph.* Pacific Glory (Pacific Shamrock x Green Glory) has produced some of the flattest green-gold complex paphs in existence. He exhibited an example of this cross at the Paph Forum; the clone 'Dream Maker' received a 95-point First Class Certificate from the AOS, which is the highest point score ever earned by a complex paph! Hadley exhibited another superlative plant in the class for complex pink and white paphs, where his plant of *Paph.* White Dominion 'Monarch' (Pacific Shamrock x White Castle) garnered an 87-point Award of Merit from the AOS. This plant now holds the distinction of having the largest dimensions of any complex white paph in the AOS award system! (Note that Hadley also received a 90-point Certificate of Cultural Excellence [CCE] from the AOS for his *Paph.* Victoria's Song 'Pastel Light' [Via Victoria x White Legacy], his first-ever CCE!) Despite these displays of excellence, Hadley opined that there is still room to further develop the various breeding lines of complex paphs, especially noting that there have been some breakthroughs in fertility among vinicolor paphs to allow further gains with them.

Bill Goldner

Bill Goldner, with his wife, Lynn Evans-Goldner, had served as Co-Chair of the Paph Forum from 2006 to 2018. This kept him preoccupied and off the speakers' dais until this year, when he was invited to talk about his efforts to produce "mini" phragmipedium hybrids as well as other lines of phrag breeding. Bill discussed the progress being made in breeding miniature phrags, incorporating species like *Phrag. fischeri*, but he also noted the work being done at his and Lynn's Woodstream Orchids to improve the different color forms in phragmipedium hybrids, including yellows, whites, two-tones, and more saturated reds. They are also producing crosses with underused parents, such as *Phrags. klotzschianum* and *tetzlaffianum*. Various examples of Woodstream's breeding were on display, including two beautiful yellow hybrids, *Phrag.* Augres 'Penns View' AM/AOS (Longueville x *besseae*), which won the award for Best Phragmipedium Hybrid, and *Phrag.* Don Wimber 'Penns Creek' HCC/AOS (Eric Young x *besseae*). (Worth noting: It has been suggested that, as has been done for paphs, a Miniature *Phragmipedium* Hybrid award be included at the Paph Forum in the future to acknowledge—and encourage—the increasing popularity and quality of these scaled-down phrag hybrids. The organizers are giving this serious consideration.)



- 3 *Paph.* White Dominion 'Monarch' (Pacific Shamrock x White Castle) AM/AOS (87 points) received its award at the 2019 Paph Forum and has the distinction of having the largest dimensions of any awarded white complex *Paphiopedilum* hybrid. (Bred and grown by Marriott Orchids)
- 4 This plant of *Paph.* (Great Expectations x Titan's Gold) (unregistered grex, unnamed clone) was awarded an AM (83 points) from the AOS. (Exhibited by Marriott Orchids.)



- 5 *Paph.* Izanaminomikoto (Via Muchos Niños x Skip Bartlett) (unnamed clone) received a HCC (78 points) from the AOS. (Exhibited by Marriott Orchids.)

Ron Burch

Ron Burch spoke about the latest trends in *Cypripedium* hybridizing, including his own efforts to produce hybrids that look similar to species but are easier to grow. For example, he noted that Chinese cyp species can be difficult to grow on the U.S. East Coast due to the damp winters, but by crossing them with other species (e.g., *Cyp. Ulla Silkens [reginae x flavum]*, some of which look like *reginae*), you get plants that are more adaptable to a wider range of conditions. He also offered some tips on selecting and growing plants. He advised that, for the two sister species *Cyp. formosanum* and *Cyp. japonicum*, which are similar in appearance, the latter is generally more difficult to grow. Also, because *Cyp. kentuckiense* grows in sandy areas (e.g., stream banks), he suggested growing both the species and its hybrids in sand because their roots are unable to penetrate other substrates. Unfortunately, January is



- 6 *Phrag. Anthony Omeis 'Shoshone River' (Spot On x Pink Panther)* earned an 83-point AM/AOS at the 2019 Paph Forum. With a natural spread of over 2 inches (5.8 cm) on a 10-inch (25-cm) inflorescence, it shows that smaller *Phragmipedium* hybrids can still yield a good bang for the buck! (Grown and exhibited by Woodstream Orchids.)
- 7 *Paph. sukhakulii 'Dark Delight'* AM/AOS (82 points), was upgraded at the 2019 Paph Forum from its previous award of an HCC (78 points). (Grown and exhibited by Marriott Orchids)

not blooming time for cypripediums, so Ron was unable to exhibit any blooming plants, nor were there any on the show table.

Forum Events and Awards

Among the regular attendees at the Paph Forum are volunteers from the Phipps Conservatory in Pittsburgh, Pennsylvania, which houses the Barbara Tisherman Slipper Orchid Collection. On behalf of the Phipps Conservatory, Demetria Marsh, President of the Orchid Society of Western Pennsylvania, made a plea to Paph Forum participants to consider donating plants to their slipper orchid collection and distributed a wish list of selected plants that they are seeking, including species and historically significant hybrids. More information on this important collection can be found at <https://www.phipps.conservatory.org/visit-and-explore/explore/plant-collections/>.

In recent years, a popular feature of the Paph Forum has been a culture panel. This year's panel consisted of the three speakers and provided attendees an opportunity for an extended Q&A session with them to obtain information on all aspects of slipper orchid breeding and culture, including growing media, fertilizer, lighting, watering frequency and water quality, pest control—you name it! The discussion was lively, and participants seemed disappointed when the session ended to continue with the program.

A spectacular array of plants was exhibited this year, as evidenced by the number of AOS awards given. In addition to Hadley Cash's flower and culture awards mentioned previously, the following AOS awards were also conferred at this year's Paph Forum (including another 95-point FCC!):

- *Paph. Pacific Glory 'Dream Maker'* FCC/AOS (Pacific Shamrock x Green Glory), 95 pts, exhibited by Marriott Orchids [See front cover.]
- *Paph. Mount Toro 'Snow Peak'* FCC/AOS (*stonei x philippinense*), 95 pts, exhibited by Jeff Morris
- *Paph. Victoria's Song 'Pastel Light'* CCE/AOS (Via Victoria x White Legacy), 90 pts, exhibited by Marriott Orchids [See back cover.]
- *Phrag. Anthony Omeis 'Shoshone River'* AM/AOS (Spot On x Pink Panther), 83 pts, exhibited by Woodstream Orchids
- *Paph. (Great Expectations x Titan's Gold)* (unregistered grex, unnamed clone) AM/AOS, 83 pts, exhibited by Marriott Orchids
- *Paph. fairrieantum 'Morrhight'* AM/AOS, 82 pts, exhibited by Jeff Morris
- *Paph. sukhakulii 'Dark Delight'* AM/AOS, 82 pts, exhibited by Marriott Orchids
- *Paph. Dark Destiny 'Dark Star'* AM/AOS (Montagnard x Black Wizard), 82 pts, exhibited by Marriott Orchids
- *Paph. Toni Semple 'Diana Candy Crush'* HCC/AOS (*haynaldianum x lowii*), 79 pts, exhibited by Christopher Zajac
- *Paph. Izanaminomikoto* (unnamed clone) HCC/AOS (Via Muchos Niños x Skip Bartlett), 78 pts, exhibited by Marriott Orchids.

Some of the plants that received AOS awards at the Paph Forum also took top honors in the ribbon judging, but other show winners included plants that already had been awarded by the AOS previously or were simply the best of their category shown on that day. The winners in the major categories (owners in parentheses) were the following:

- Best Paphiopedilum Species – *Paph. sukhakulii 'Dark Delight'* AM/AOS (Marriott Orchids)
- Best Novelty or Primary Paph Hybrid – *Paph. Mount Toro 'Snow Peak'* FCC/AOS (Jeff Morris)
- Best Standard/Complex Paph Hybrid – *Paph. Pacific Glory* (Pacific Shamrock x Green Glory) 'Dream Maker' FCC/AOS (Marriott Orchids)



- 8 *Paph. Toni Semple 'Diana Candy Crush'* (*haynaldianum* x *lowii*) received an HCC/AOS (79 points) and was commended for its unusual color. (Grown and exhibited by Chris Zajac.)
- 9 *Paph. fairrieianum 'Morright'* AM/AOS (82 points), one of two species paphs that received AOS flower awards at the 2019 Paph Forum. (Grown by Jeff Morris)
- 10 The opportunity to obtain high-quality plants, from flasks to awarded divisions, from commercial vendors and private collections, is one of the reasons attendees are drawn to the Paph Forum. Photo: Jay Tullos

All photos are by Bryan Ramsay unless otherwise noted.

- Best Miniature Paph Hybrid – *Paph. Hengduan Sweetheart* (*helenae* x *spicerianum*) (Joel Graham)
- Best Antique Paph Hybrid (registered in 1964 or earlier) – *Paph. Startler 'Carmine'* (Masked Light x Redstart) (Floradise Orchids)
- Best Phragmipedium Species (including Mexipedium) – *Phrag. sargentianum 'Summit'* HCC/AOS (Woodstream Orchids)
- Best Phrag Hybrid – *Phrag. Augres f. flavum 'Penns View'* AM/AOS (Longueville x *besseae*) (Woodstream Orchids)
- Best Foliage Plant – *Paph. malipoense* (Sarah Hurdel)
- Best Ugly Slipper Flower – *Paph.* (Magic Mountain x Via Muchos Niños) (Floradise Orchids)
- Best Plant – *Paph. Pacific Glory 'Dream Maker'* FCC/AOS (Marriott Orchids)
- Best Culture and People's Choice/Slipper Orchid Alliance Trophy – *Paph. Victoria's Song 'Pastel Light'* CCE/AOS (Marriott Orchids).

Photos of some of the top award winners are included with this article and reflect the high quality of entries we see each year at this event.

The day wrapped up with a discussion of the show table and presentation of the various awards by the judges. Winners of the Slipper Orchid Alliance silent auction were also announced, and after drawings for door prizes and a final opportunity for plant purchases, the festivities came to a close. Despite the angst associated with the last-minute change in venue, the feedback from attendees was very positive, including from some first-timers, who were thrilled to have had the opportunity to spend a day immersed in “all things slippers.”

The 2020 Paphiopedilum Forum is already being planned, hopefully to return to the U.S. National Arboretum, for Saturday, January 25, 2020. Keep an eye on our website at <https://ncos.us/paph-forum/> for details as they develop. It should be on your “must-do” list for anyone interested in exhibiting, buying, or learning more about slipper orchids. We hope to see you there!

ABOUT THE AUTHOR

Roddy Gabel is Vice President and member of the editorial staff of the Slipper Orchid Alliance, as well as the current President of the National Capital Orchid Society and Co-Chairman of the Paphiopedilum Forum. He has been growing orchids for over 40 years, but began to focus on slipper orchids in the 1990s. With a collection of both complex hybrids and species, including *Paphiopedilum*, *Phragmipedium*, and *Mexipedium*, Roddy has begun to do a limited amount of his own breeding. He is retired from the U.S. Fish and Wildlife Service, where he was a senior manager in the CITES program and served as the North American Regional Representative on the CITES Plants Committee for several years; he continues to consult on CITES and regulatory matters pertaining to wildlife, including plants.

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Culture of Phragmipedium Hybrids

by Leo Schordje

Orchids of the genus *Phragmipedium* (phrags for short) are my favorite group of slipper orchids. There are some 20 or so species of *Phragmipedium*, which come from Central and South America. They form a distinct group within the alliance of slipper orchids, different from the Asiatic *Paphiopedilum* (paphs) and the north temperate *Cypripedium* (cyps). I felt the need to write this because the older literature generally makes the mistake of lumping phrags with paphs in their discussions of cultural techniques. The phrags are very different in cultural requirements from the paphs, and really need to be treated differently. I believe the phrag hybrids are the easiest group of slipper orchids to grow in the home. They grow a lot faster than paphs and are much more forgiving of less than ideal conditions. Hybrid phrags have great vigor, and when happy, can grow incredibly fast and bloom year-round. You can't ask for an easier group of orchids to grow! Phrag species are

not generally difficult to grow, but I want to emphasize that the hybrids are even easier to grow. These cultural tips aim to let you know what you can get away with while also pointing you toward the ideal cultural practices.

Light, Temperature and Air Movement

These three topics are interrelated; each one influences the others. *Phragmipedium* hybrids will grow at any light level, from the deep shade that ferns like, to the bright light that cacti prefer. They really do best somewhere between bright enough for a cattleya and bright enough for a vanda. In other words, half sun to three quarters sun, or 2,500 to 7,000 foot-candles. They really should be thought of as sun-loving plants, but they can bloom in bright shade without direct sun. From actual experience I can say phrag hybrids will hang on and grow in rather deep shade, but they will grow much more slowly. In low light new growth will tend to climb more, making repotting more difficult; it may take two years or more to mature and bloom a growth, and the blooms may be less intensely colored. In bright light, it may take less than a year to mature and bloom a growth and the blooms will have more intense color. One can successfully get away with growing phrags in low light, but they will definitely perform better in brighter light. They do quite well under artificial lights, where longer day length can compensate for lower light intensities. I use 40-watt fluorescent shop light fixtures with an 18-hour day length all year long. There is no need to change day length with the season; phrags are not sensitive to photoperiod.

Temperature and Air Movement:

Air movement and temperature interact with light; you can give your *phragmipedium* plants much more light with good air movement or at cooler temperatures. The air movement cools the leaves and prevents burning; the more air movement you have the more sun the plants can tolerate. With more sun you will have more frequent blooming and better-quality flowers. But at 90° F in direct sun and still air, leaves will burn to a crisp in minutes. At 90° F in direct sun with good air movement, your plants will be fine. On very hot days, over 95° F, especially if there is a chance the breeze may stop due to weather or power failure, it would be best to put the plants in the shade.

Phrags are very forgiving of extreme temperatures. They generally are intermediate growers, ideally 55° to 68° F at night and 10 to 25 degrees warmer in the day. They will tolerate nights down into the mid-40s, but they are not frost tolerant at all, so if you put your phrags outside in summer, bring them in when night temps go to the middle 40s. Daytime temperatures into the low 100s are tolerated. Protect the plants from direct sun during the heat of the day if temperatures are above 98° F. There should be enough air movement at all times, so that the leaves are moving a little in the breeze. This will be enough to keep the leaves from cooking in the sun. I do know a vanda grower who raises *Phrag. besseae* hybrids under his vanda hybrids. His night temps never drop below 70° F, and his coolers do not kick on until 95° F. He has a number of fans going at all times in the greenhouse. He gets good growth and blooming. Because he has good light, the color of his flowers is intense. Phrag hybrids, even *Phrag. besseae* hybrids, do tolerate heat rather well. It is true that cooler night temperatures will give better red color development in the flowers, but even in warm temperatures you can get good flowers. Air movement also helps dry any water on the leaves and the crowns of the plants. This keeps fungi and bacterial diseases down. If the leaves and crowns of your plants are dry in less than 4 hours after watering, the risk of fungi, mold or bacteria getting a rot growing in your plant is greatly reduced. Air movement also keeps the roots healthier by letting air penetrate the potting mix. Most growers solve the air movement problem with fans that are usually left on 24 hours, 7 days a week. Windowsill growers might get away with doing nothing about air movement, as the household environment may be airy enough that this may not be a problem.

Trick: Feel the leaves of your plant when the sun is bright. If the leaves are cool to the touch, you have enough air movement for the place where you are growing your plant. If they are warm to the touch you need more air movement. Also check to see if your leaves are dry within 4 hours of watering your plant. If they are dry, then you have enough



Phrag. Andean Fire 'Michelle Lee' AM/AOS
(*lindleyanum* x *besseae*)
Exhibited by Leo Schordje
Unknown Photographer



Phrag. Inca Embers 'Condor' AM/AOS
(*Andean Fire* x *longifolium*)
Exhibited by Leo Schordje
Photo: Rhonda Peters



Phrag. Flamingo 'Windy Hill's Rose Bird'
HCC/AOS, 77 pts, (*sargentianum* x Silver Eagle)
Exhibitor: Marilyn LeDoux
Photo: Craig Plahn

air movement. If you need more air movement, a \$10 clip-on fan or a box fan from your local Lowe's or Walmart may do the trick. Generally, a cheap fan will last about 18 months, so I keep a stash of several fans stored in the attic, because most stores only offer fans in the summer. I stock up at the close-out sales, and as one fan wears out, I simply replace it with a new one.

Windowsill Growing

This is a little trick for windowsill growing. One of the problems of windowsill growing is that the sun beats directly on the pot the plant is in. Plastic pots are especially prone to heating up in the sun. This can quickly cook your roots! Put the plastic pot inside a larger, deeper clay pot. The air space between the clay pot and the plastic pot will keep the roots cool. Don't put any potting mix in the air space between the two pots; the air space provides the insulation and the larger clay pot will shade the roots. If your phrags are standing in water, the clay pot will wick up water and provide additional evaporative cooling. A basket or other jardinière may also be used to provide shade. This will keep the roots cool while allowing some sun to reach the leaves.

Water & Water Quality

Phrags like to be wet!

A lot has been written about water quality, and these discussions often get very complicated very quickly. It is true that in the real world, phrags enjoy very pure water. If you are raising the species this can become important. Fortunately, phrag hybrids are very forgiving of water quality. Remember, you can make up for poor water quality, to some degree, by keeping the plants wet. Water quality becomes an issue as you dry a plant out. The wetter you grow, the less critical the water quality becomes. The nattering nabobs of orchid punditry will tell you that

black leaf tips are a sign that the water you are using is not pure enough. I will tell you that black leaf tips are a sign that the plants have become too dry between waterings.

Across the country, most municipal tap water is acceptable for raising hybrids. I would not worry about water quality if your other plants are not showing obvious signs of stress. Anything less than 1,000 ppm total dissolved solids can be made to work for the phrag hybrids. Many phrag species come from very wet environments such as the splash zones of waterfalls, stream banks, and the tropical equivalents of wet sedge meadows. The hybrids like to keep their roots moist to wet. The crown of the plant will be up on a grassy hummock with the roots running down into the water. Stick your finger into the potting mix up to the first knuckle; if your finger feels dry, you should have watered yesterday. Damp enough to still be dark colored and cool to the touch is about as dry as phrags should get. In a bark mix I tend to water every third day. In warmer weather (night temperatures above 55° F), you may stand the phrags in a tray of water about an inch deep. Change this water once a week to avoid a salt build-up. Even though the phrag may be standing in water, it should be watered at least once or twice a week. When you water, flush water through the pot, wetting all the medium; again, this is to avoid any salt build-up. This way, even with water that has rather high dissolved solids, you can keep salts from accumulating. When I was growing on windowsills, I would plunge the plants into a 5-gallon bucket of water up to the pot's rim to water them. This is not an ideal technique because there is a small risk of transmitting fungi, bacteria, or possibly virus from one plant to another, but it is something you can get away with in a small collection. I did this for many years until I was able to switch to using a hose to drench my plants.

Humidity

Phrags enjoy humidity when they get it. The hybrids will get by at any humidity above 35%. There is better root growth and flower development at 60% to 80% humidity, but you can do a nice job at lower humidity.

Potting Media

You can grow phragmipedium orchids well in just about anything if you understand how to use the medium. My recommendation is that you repot the phrags into the same mix that you use for most of your orchids. That way you will know about how long it will take for the mix to begin to dry under your conditions. My personal favorite medium is a bark mix; I use a seedling

size, 1/8 inch, for plants in 3½ inch pots and smaller, and a medium size (¼ to ½ inch) bark mix for plants in larger pots. The key is to use a mix that holds water well and yet has good porosity for air movement to the roots. My mix is about 4 parts bark, 1 part charcoal, 1 part sponge rock, and ½ part coarse vermiculite, for a total of 6½ parts. I have also grown phrags in straight New Zealand sphagnum moss with excellent results. [See below for a note on sphagnum moss use with *Phrag. kovachii*.] I believe phrags will do well in what First Rays Orchids calls semi-hydroponic growing. I have never tried semi-hydro myself, but from what I have heard, phrags are well-suited for it. Repot once a year, or sooner if the medium breaks down. If the new growth climbs up above the mix, turn the plant on its side a bit as you repot so the base of the new growth is in the medium and new roots will grow right into the mix. The new growth will straighten out in time.

The best time to repot is when you see new root buds developing on the base of the new growth, but whenever you have the opportunity will work. Phrags grow year-round and can be repotted at any time.

Regarding the pH of the potting medium: In general, phrags will tolerate a rather wide range, though the best is between 6.0 and 7.0, with pH 6.5 being the ideal. This means the average bark-based mix and long fiber New Zealand sphagnum are perfect. But there are some exceptions. All members of the *Phrag. caudatum* group do better in a somewhat coarser potting mix than the rest of the phrags. They need good air movement at the roots. I put my *Phrag. caudatum* plants and their relatives at the edge of the potting bench, right in the path of a fan, so they are always in a breeze. I still stand them in trays of water. I do not hold back on water, but they really need air movement, too. This group includes *caudatum*, *extaminodinium*, *warscewiczianum* (aka *popowii*, aka *humboldtii*), *wallisii* (now called *warscewiczianum* by the RHS) and *lindenii*.

Phrag. extaminodinium really prefers a more acidic mix, below 6.5 down to maybe 5.5. Add a little chunky Canadian peat moss—not a lot, perhaps 10 % by volume to the mix. Make sure the mix is coarse enough to allow good air movement to the roots.

Since *Phrag. kovachii* prefers a slightly alkaline mix, add a top dressing of oyster shell or use limestone chips (coarse limestone gravel) as part of the potting mix. I use a blend of fir bark, radiata pine bark, coconut husk chunks, charcoal, and coarse sponge rock; then I top dress with oyster shell. Many people—including yours

truly—have had very poor results with straight New Zealand sphagnum. Interestingly, the hybrids with *Phrag. kovachii* do not share this problem. I grow them in the same mix used for all the rest of my phrags and they do well.

Fertilizer

Phragmipediums prefer a dilute fertilizer solution applied fairly often. Use high nitrogen, low phosphorous fertilizer at about ½ teaspoon per gallon (about 75 ppm as N) every second or third watering, or about twice a month. You can fertilize continuously if you drop back to ¼ (about 35 ppm as N) teaspoon per gallon every watering. This rate is dilute enough that there is no need for a clear water flush of the potting mix. Use the high nitrogen fertilizer year-round. Why high N? Plants need the high nitrogen because protein requires nitrogen, as do the various enzymes and pigments that support chlorophyll metabolism. Phosphorous is used in energy transport, and is continuously recycled and efficiently conserved by the plant cells. The result is that plant metabolism requires about 12 nitrogen atoms for every phosphorous atom. Do not switch to a high phosphorous “Blossom Booster” formulation in the fall as many articles in the older literature suggest. The recommendation for use of a high phosphorous “Blossom Booster” fertilizer was based on 18th & 19th century science for

growing vegetables outdoors in an area with high amounts of acid rain, smog and coal soot (London). The autumn use of high phosphorous fertilizer was not scientifically tested for potted plants until the last several decades. The high phosphorous formulations may be harmful to your plants.

Stick to high nitrogen fertilizer—the brand of high nitrogen fertilizer is not very important, since the plants can’t read the labels. Nitrogen labeled for African violets or tomatoes is indistinguishable from nitrogen labeled for orchids. Do use a fertilizer with trace elements; good ones are made by GreenCare, Peter’s, Dyna-Gro, Stern’s Miracle-Gro, and others. The Michigan State University formula fertilizer seems to be excellent. Several companies make the MSU formula, including GreenCare and Blackmore, and they usually will advertise it as such. The MSU product is a 13:1:13:7:2:2 formulation, respectively nitrogen, phosphorous, potassium, calcium, magnesium and sulfur. (I realize I was trying to tell you what the minimum is you can get away with, but my trials with MSU and MSU K-Lite fertilizers have been so good I thought I would tell you what I am actually doing, rather than what you can get away with!) I have used GreenCare’s MSU K-Lite formulation exclusively for the last 9 years. For the 15 years before K-Lite, I used GreenCare’s MSU Orchid Special. You can get reasonable results with just about any fertilizer on sale. If you are getting leaf tip burn on newer leaves you are either fertilizing too heavily or letting your plants become too dry between waterings. Most instances of black leaf tips are due to lack of water, rather than excess fertilizer.

The 2013 Revision to My Fertilizer

Comments: Use the K-Lite variation of the MSU formulation. This is the same MSU formula with the potassium (K) level lowered to a percentage more in line with what plants actually use. The “regular” MSU Orchid fertilizer contains an excess of potassium for formulation reasons: potassium salts are extremely soluble, allowing one to make concentrated stock solutions for proportioners and other automated fertilizer dosing equipment. GreenCare reformulated their MSU Orchid Special to contain only 2% potassium, written as 1% K₂O, in order to make the K-Lite formulation as recommended by Richard Lockwood. One of the complaints about the old MSU formulation was that at the higher dose rates, “stalling” was observed. It turns out this was due to excess potassium. The new formulation has all the macro- and micro-nutrients of the old MSU formulation. When using higher doses

to get faster growth, you do not experience stalling, and do not get the red leaf edges that also indicated excess potassium. I am now promoting K-Lite as the finest fertilizer available. The performance is excellent.

The 2019 Revision to My Fertilizer Comments: I have since been rethinking fertilizer. I am testing an organic program for fertilizing orchids. As of press time, insufficient data have been collected to yield solid results. My principal revision is to definitely flush with clear water. Continuous feeding programs will, in time, result in a nutrient imbalance in your plants that will manifest as “stalling” of growth rates. A flush with clear water, at least once a month, will help the phrags rid their tissues of an excess of one nutrient or another. A flush will also remove remaining salts from the potting mix. The result will be that the phrags will be able to balance the nutrients stored in their tissues and grow more vigorously.

Displaying Your Blooming Phrags

When in bloom and looking beautiful, it is best to move the plant to the center of your dining room table, or other place of honor in your home, where you can see and enjoy it. A few days or weeks away from where you grow your plant won’t hurt it. We grow them to enjoy them. Put your plant on display. It is tough and will survive a spell on the coffee table in the living room. Don’t be afraid to move your plant around. Enjoy the fruits of your labors.

Final Thoughts

These are the basics of culture. Phrags really are easy to grow. A little water, sun and time and you will have flowers. For a different perspective, I recommend another culture sheet, written by my friend Marilyn LeDoux of Windy Hill Orchids. She will give you more tips on growing species to perfection. I respect her growing skills; she is a magnificent grower and has several cultural awards to her name. Please visit her website at: <http://www.orchidmall.com/windy.hill/index.htm>

ABOUT THE AUTHOR

Leo Schordje began raising orchids while still in high school. He acquired a collection of 88 phragmipediums from an estate in 1990, along with a nice set of 35mm slides. Based on those slides, Leo began giving talks, the first at the 1992 Paphiopedilum Forum in Washington, D.C. Leo has been giving a few talks a year and writing an occasional article ever since. Retired from the chemical industry, he can be reached through contact information on his website, leosorchids.com.



Phrag. High Voltage ‘Windy Hill’s Electricity’
AM/AOS, 85 pts (Red Lightning x Grande)
Exhibitor: Marilyn LeDoux
Photo: Craig Plahn

Phragmipedium Culture

By Marilyn LeDoux



Phragmipediums are New World slipper orchids that grow from Mexico through central South America. Most are terrestrial (growing on the surface of the ground in open leafy compost and other debris) or lithophytic (growing on rocks, still with compost or debris surrounding their roots), but a few species can sometimes be epiphytic (growing on low limbs of trees). The tree dwellers are primarily the long-petalled *caudatum* types. Some species prefer to grow in the splash zone of waterfalls and on streambanks and can often be submerged during periods of heavy rain. These stream and waterfall dwellers include the species *caricinum*, *kaieteurum*, *klotzschianum*, *lindleyanum*, *longifolium*, *pearcei*, and *sargentianum*. Phrags flower at various times but most heavily in the late winter and spring. Mature plants of some sequential-blooming species such as *Phrag. longifolium* can be in bloom for six months or more.

LIGHT: Light needs for phrags range from bright (cattleya-like, in the 4,000 foot candle range) for the long-petalled *caudatum* types, to medium (in the 1,500 to 2,500 foot candle range) for *besseae* and *schlimii*. Growing these medium-light phrags on a lower bench in a greenhouse usually provides both the reduced light levels and somewhat cooler temperatures they prefer. However, too little light can produce weak plants that are slow to bloom. A balance between light and temperature must be achieved for the most successful growth and blooming.

TEMPERATURE: Most phrags prefer intermediate temperatures with nights in the upper 50s to the mid-60s and with daytime temperatures at least 10 degrees warmer. However, *besseae*, *schlimii* and *kovachii* can tolerate and even prefer somewhat cooler temperatures. If kept much cooler in the winter, keep them a bit drier as well, not soggy wet. Of course, summer temperatures will be warmer but try to avoid excessive heat, especially if grown in very bright light.

HUMIDITY AND AIR CIRCULATION: Grow in humidity above 50 percent if at all possible. Grouping plants on pebble-trays with water around the pebbles is very helpful when growing in the home. *Caudatum* types are most tolerant of less humidity, as long as the roots remain moist. Constant air circulation, especially in a greenhouse or grow room, is very important. In higher humidity growing areas such as these, growths that do not dry out by evening can develop a bacterial rot at the base of the leaves. Constant air circulation can help prevent this problem. If a problem does occur, pull off the infected leaves and use a bactericide. This problem can occur on any phrag, but is most prevalent on *caudatum* types and their hybrids. Alternative and often effective home remedies for bacterial rot include spraying the affected area with hydrogen peroxide or dampening the area and sprinkling liberally with cinnamon.

WATER: Good quality water is very important for growing phragmipediums. Tap water with low dissolved solids is acceptable, but rain water or reverse osmosis (R.O.) water is usually even better. Flush the medium and roots well each time you water. Most phrags should be kept moist at all times; however, the *caudatum* types should become somewhat drier between waterings. Some people have great success growing their moisture-loving phrags by setting them in saucers of water. To help prevent bacterial rot problems, do not water over the tops of the plants on cool, cloudy days if the growths will not dry out by evening.

FERTILIZER: In general, phrags can take more fertilizer than paphs, but feeding too heavily can cause leaf tip burn, especially if the plants are kept on the dry side. I actually prefer to feed constantly with a very weak fertilizer solution in the range of ¼ teaspoon per gallon of water. Then I rarely feel the need to flush with clear water. When using a stronger fertilizer solution, be sure to flush thoroughly with clear water at least every third or fourth watering. When using rain or R.O.

- 1 *Phrag. Rachel Kirk 'Windy Hill'* AM/AOS, 80 pts
(Don Wimber x *besseae*)
Photo: Craig Plahn
- 2 *Phrag. Noirmont 'Crimson King'* CCE/AOS, 90 pts
(Memoria Dick Clements x *longifolium*)
Photo: Melissa Garner



water, be sure to use a fertilizer with essential micro-nutrients as well. There are many good brands of fertilizer including the MSU (Michigan State University) formulations, Dyna-Gro, Peter's and others. Less fertilizer should be used in the fall and winter simply because plants are usually not in active growth.

REPOTTING AND POTTING MEDIA: Repot every one to two years in fresh mix. The best time is usually right after flowering, but phrags are very tolerant of repotting anytime. Plastic pots are best for phrags for moisture retention. I prefer the following basic potting mix for my phrags, moistened lightly and thoroughly mixed:

- 10 quarts fine bark (Orchiata Classic).
- 2.5 quarts fine to extra fine charcoal (#3 or #4).
- 1 quart perlite or sponge rock.
- 1 quart rice hulls (optional, can use more perlite or sponge rock instead).
- ¼ cup bone meal (optional).
- ¼ cup Terrasorb, medium grade (optional). Terrasorb (or similar products such as SoilMoist) is a long-lasting (up to several years) copolymer gel that absorbs many times its weight in water and slowly releases it back into the root zone. I find it to be helpful in retaining moisture in the mix. I mix the Terrasorb in after the other ingredients have been moistened and mixed. I cut back on the amount used for the *caudatum* types.

For *Phrag. kovachii* I add to the above formula:

¼ cup oyster shell or dolomitic lime. *Kovachii* should also be top-dressed with more oyster shell several times a year since this species prefers alkaline conditions.

For phrags potted in 3.5-inch and larger pot sizes, I like to add in ¼ to ½ medium Orchiata (Power +) bark. The *caudatum* types especially like a more open mix with larger bark added. For very large pot sizes I make my basic mix with only medium bark and no fine bark.

PESTS: Phragmipediums are relatively pest free. However, if you do encounter any insect pests, a good and safe remedy I like to use is an ultra-fine oil product, mixed with water at the recommended rate. The oil works by suffocation so contact with the pest is essential. Frequently agitate the diluted water/oil mixture to keep the oil in suspension. As with any pesticide, avoid spraying in very hot conditions or damage can occur.

HAPPY GROWING! One other simple tip for growing the longest-petalled phrags: try to elevate these when they bloom so the petals can lengthen to their maximum without obstruction. This is easily accomplished by turning over an empty pot and using it as a pedestal. If the plant is tippy, place it into an empty clay pot or decorative ceramic pot for added stability.

ABOUT THE AUTHOR

Marilyn LeDoux and her late husband, Brian, founded Windy Hill Gardens in 1995 in the picturesque rolling Missouri River hills near Labadie, Missouri. Previously she was the curator of the large orchid collection at Missouri Botanical Garden in St Louis. Marilyn grows many types of orchids but slipper orchids, both phragmipediums and paphiopedilums, are specialties. Marilyn was the first person in the world to successfully cultivate and bloom the rare and endangered *Mexipedium xerophyticum*, which was formerly classified as *Phragmipedium xerophyticum*. She is an accredited AOS judge and has won many AOS awards. She has written previously for several orchid publications.

Windy Hill Gardens, Labadie, MO • <http://www.orchidmall.com/windy.hill/index.htm>

3 *Phrag. Cahaba Morning Mist 'Windy Hill's Sunrise'* AM/AOS, 83 pts (Hanne Popow x Lutz Rollke)
Photo: James Pyrzynski

4 *Phrag. Cahaba Morning Mist 'Windy Hill'* AM/AOS, 81 pts (Hanne Popow x Lutz Rollke)
Photo: Craig Plahn

5 *Phrag. Cahaba Moonrise 'Windy Hill's Sunset'* AM/AOS, 80 pts (*besseae* x Lutz Rollke)
Photo: Craig Plahn

6 *Phrag. Saint Ouen 'Scarlet Queen'* AM/AOS, 83 pts (Hanne Popow x *besseae*)
Photo: Craig Plahn

7 *Phrag. Bubblegum 'Windy Hill'* AM/AOS, 82 pts (Hanne Popow x Silver Eagle)
Photo: Craig Plahn

The Genus *Selenipedium*

By Olaf Gruss

In the slipper family, *Cypripedioideae*, one genus is rather unfamiliar to slipper aficionados: the genus *Selenipedium*. Most members of this genus are almost never available for purchase, and they are difficult to cultivate away from their habitats in South America. Additionally, they are large, lanky plants with disproportionately small flowers, and are relatively unknown to most slipper growers. Despite these circumstances, their existence as slipper orchids awakens the desire to know more about these little-known plants.

The genus *Selenipedium* was described by H. G. Reichenbach f. in *Xenia Orch.* 1:3; 1854. The type plant was designated as *Selenipedium palmifolium* (LINDLEY) Rchb. f. Between 1840 and 1978, six species were described, sometimes under other genus names.



History of the Description

Species	Description Year	by	in	as
<i>Selenipedium palmifolium</i>	1840	LINDLEY	<i>Genera and Species</i>	<i>Cypripedium</i>
<i>Selenipedium chica</i>	1854	REICHENBACH f.	<i>Xenia Orch.</i>	<i>Selenipedium</i>
<i>Selenipedium isabelianum</i>	1874	BARBOSA RODRIGUES	<i>Genera et Species Orchidacearum novarum</i>	<i>Selenipedium</i>
<i>Selenipedium vanillocarpum</i>	1937	BARBOSA RODRIGUES	<i>Rodriguesia</i>	<i>Selenipedium</i>
<i>Selenipedium steyermarkii</i>	1961	E. FOLDATS	<i>Boletin de la Sociedad Venezolana Ciencias Naturales</i>	<i>Selenipedium</i>
<i>Selenipedium aequinoctiale</i>	1978	GARAY	<i>Fl. Ecuador Orch.</i>	<i>Selenipedium</i>

Geographical Distribution of the Genus *Selenipedium*

<i>Selenipedium aequinoctiale</i> GARAY	Northwest Ecuador, Esmeralda
<i>Selenipedium chica</i> RCHB. f.	Panama
<i>Selenipedium isabelianum</i> Barbosa RODRIGUES	Brazil, Pará
<i>Selenipedium palmifolium</i> (LINDLEY) RCHB. f.	Venezuela, Guiana, Trinidad, Brazil
<i>Selenipedium steyermarkii</i> FOLDATS	Venezuela, Bolivar

Description of the Genus *Selenipedium* REICHENBACH f.

According to L.A. GARAY: *Orchidaceae* 225(1) in *Flora of Ecuador*, no. 9, 1978:

“Sepals and petals spreading. Dorsal sepal erect, more or less concave; lateral sepals united into a bidentate synsepal, similar to dorsal sepal but somewhat smaller, rather deeply concave. Petals free, more or less linear-oblong. Lip calceiform, inflated, with a cuneate base, the basal lobes involute and the margin around the opening incurved, larger than the combined lateral sepals. Column rather short, cylindric, anthers 2, globose, situated on both sides of confluent stigmata; third anther modified into a sterile staminode, the shape

of which is rather specific, usually surpassing in length the stigmata; fertile stigmata 3, confluent into a triangular sulcate body. Ovary cylindric, rather slender, three locular with axile placentation, short pedicellate. Terrestrial plants with erect or arcuately pendent, leafy stems, often several meters long. Stems simple or branching. Leaves thin in texture, narrow, many-nerved, hence plicate, pointed, basally inarticulate with the appressed cauline sheaths. Inflorescence



- 1 *Selenipedium palmifolium*
Plate from the Kew Herbarium
- 2 *Selenipedium aequinoctiale*
Photo: Olaf Gruss
- 3 *Selenipedium aequinoctiale*
The habitat in Ecuador
Photo: Olaf Gruss



terminal; peduncle short; rachis loosely several-flowered; flowers open in rapid succession.”

The genus *Selenipedium* was ignored for a long time. While the size of the plants was impressive, no such plants were in culture and thus never emerged in the trade. They appeared in the orchid literature only as a marginal note.

In 2015, Aurélien Sambin and Guido Braem described a new species:

***Selenipedium chironianum* SAMBIN & BRAEM**, *Richardiana* 15: 185 (2015).

Originally, the species was found in 2001 by E. Ravet. Only after careful examination of various plants did they then, 14 years later, decide to describe this new species and name it after the publisher of the magazine *Richardiana*, Guy Chiron.

This species differs significantly by the green color of the flowers and the absence of the lip. Therefore, the two authors, together with Guy Chiron, decided to establish a new genus for this extraordinary species: *Apedium chironianum* (SAMBIN & BRAEM) CHIRON, SAMBIN & BRAEM, *Richardiana* 15: 253 (2015). However, the reasoning and acceptance of this new genus have not been successful. Szlachetko, D. L. & Kolanowska, M. (2016) went so far as to classify it in their publication as a synonym of *Selenipedium palmifolium*, despite the fact that it has no slipper-shaped lip.

Another new species from Ecuador followed in 2015, described by Phillip Cribb:

***Selenipedium dodsonii* P. J. CRIBB**, *Lankesteriana* 15: 181 (2015).

The species is native to northern Ecuador on the Amazonian side of the Andes. Its habitat is found in damp scrub near rivers in rain forest, at 200-900 m elevation. Flowering has been recorded in April through November.

In 2016, Dariusz L. Szlachetko and Marta Kolanowska described several new taxa of the genus in a work based on herbarium specimens:

***Selenipedium garayanum* SZLACH. & KOLAN.**, *Syst. Bot.* 41: 151 (2016)

***Selenipedium chica* subsp. *buenaventurae* SZLACH. & KOLAN.**, *Syst. Bot.* 41: 144 (2016).

***Selenipedium olgae* SZLACH. & KOLAN.**, *Syst. Bot.* 41: 157 (2016).

Upon closer examination by P. Cribb, it appeared that *Selenipedium garayanum* was a synonym of *Selenipedium dodsonii*, whereas the other two taxa could be considered as distinct species.

***Selenipedium buenaventurae* (SZLACH. & KOLAN.) P. J. CRIBB**, *Slipper Orchids Trop. Amer.*: 54 (2017).

Selenipedium buenaventurae is found in western Colombia in the Choco region. The plants grow in scrub surrounded by wet forest at an elevation of up to 300 m.

The species was originally described as ***Selenipedium chica* subsp. *buenaventurae* SZLACH. & KOLAN.**, *Syst. Bot.* 41: 144 (2016).

The species is closely related to *Selenipedium chica*, but differs in the following features:

- Sepals and petals are yellow, faintly red spotted near base, whereas in *Selenipedium chica*, the sepals and petals are spotted with brown.



- Lip side lobes touch for 2-3 mm below the column, while in *S. chica*, the lip side lobes touch for about 10 mm under column.
- Staminode is cordate, the filament tips are globose, and the bracts are ovate-lanceolate, but in *S. chica*, the staminode is broadly ovate, the filament tips are obtuse, and the bracts are lanceolate and acuminate.

4,5 *Selenipedium chironianum* as *Apedium chironianum* from *Richardiana* 15 - 255 - 2015

6,7 *Selenipedium dodsonii*
The habitat in Ecuador
Photos: Kyle Lucyk



***Selenipedium olgae* SZLACH. & KOLAN., *Syst. Bot.* 41: 157 (2016).**

Selenipedium olgae is found in Colombia. The description was based on an herbarium specimen of a plant collected on June 11, 1986, by Olga S. de Benavides, who found the plant in Colombia, Nariño, Municipio Tumaco, Corregimiento de Llorente at Vereda el Carmen, at an altitude of 210 m. The new species was named in honor of the discoverer, Olga de Benavides.

To justify the new species, the authors wrote:

“In flower appearance the new species resembles *S. aequinoctiale*, but it differs from the latter by having obliquely ovate lip and lateral lobes (vs. triangular, ovate), linear petals (vs. linear-lanceolate), and an elliptic-obovate dorsal sepal with a cuneate base (vs. ovate-elliptic with a rounded base). *Selenipedium olgae* is the only species of the genus with a very narrow, linear-lanceolate staminode much exceeding the receptive surface. It is characterized also by the villous leaf sheaths and a hirsute ovary.

The height of the species is unknown, as only part of the plant was observed in the herbarium material. Leaves are up to 25 cm long, 3.5 cm wide, thin, membranaceous, delicate, elliptic-lanceolate to lanceolate, acute to shortly acuminate; pubescent underside, glabrous on the upper surface, hispid along margins; leaf sheaths villous. The inflorescence is about 17 cm long. The flowers are 6-8 cm high and 5-7 cm wide. The flower color is whitish.

Selenipedium olgae is easily separated from all other species of *Selenipedium* by its ensiform staminode without a distinct stalk. It differs from *S. aequinoctiale* by having obliquely ovate lip lateral lobes, linear petals, and an elliptic-obovate dorsal sepal with cuneate base. The lip lateral lobes of *S. aequinoctiale* are triangular-ovate, petals are linear-lanceolate, and the dorsal sepal is ovate-elliptic with rounded base. From *S. chica* it is additionally distinguishable by the whitish flowers, subrectangular stigma, hirsute ovary and villous floral bracts.”

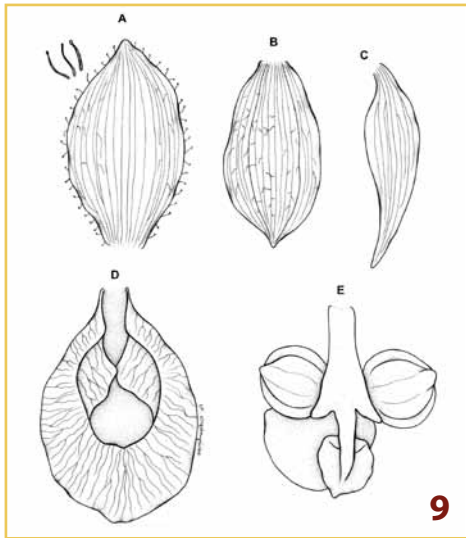
Selenipedium olgae is known to flower in June.

Distribution: This species is known exclusively from regions of moist forests; the only locality in which *Selenipedium olgae* is found is in southwestern Colombia.

Acknowledgment: I would like to thank Judith Rapacz-Hasler for the German to English translation.

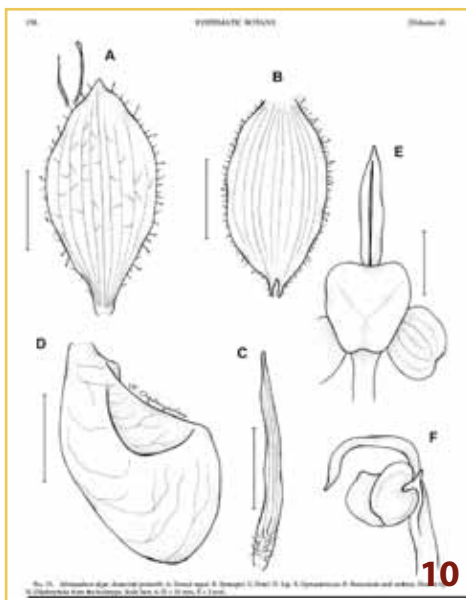
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8 *Selenipedium buenaventurae*
Photo: Francisco Tobar

9 *Selenipedium buenaventurae* as *chica*
subsp. *buenaventurae*
From the original description in
Systematic Botany 41: 154 (2016)



ABOUT THE AUTHOR

Olaf Gruss is internationally recognized for his work with paphiopedilums, phragmipediums and phalaenopsis. He has written books about the genus *Phalaenopsis* and the albino forms of the genus *Paphiopedilum*, as well as a booklet about the genus *Phragmipedium*. He has been a member of the editorial board of the journal of the German Orchid Society, *Die Orchidee*. Gruss resides in Germany and lectures throughout Europe, Japan, Taiwan, China, Canada and the U.S.

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- 10 *Selenipedium olgae* From the original description in *Systematic Botany* 41: 158 (2016)
A. Dorsal sepal B. Synsepal C. Petal D. Lip or pouch E. Gynoecium [female parts]
F. Staminode and anthers.
Drawn by N. Oledrzynska from the holotype.

UPCOMING EVENTS

AOS FALL MEMBERS' MEETING

October 16-20, 2019

Homestead, Florida

East Everglades Orchid
Society Show:

R.F. Orchids, Homestead, FL

www.aos.org

For information:
orchidseeos.com

INTERNATIONAL SLIPPER SYMPOSIUM

November 2, 2019

Highland Manor,
Apopka, Florida

www.slippersymposium.com

PAPHOPEDILUM GUILD

January 11-12, 2020

Huntington Library,
Art Collections
and Botanical Gardens

San Marino, California

www.orchiddigest.org



Cypripedium Hybrids as of December 31, 2018

(See pages 15-19)

This spreadsheet of *Cypripedium* hybrids was compiled by Tony Avent, owner of Plant Delights Nursery, Inc., in Raleigh, North Carolina (www.plantdelights.com), and we are very grateful to him for providing it to us. As in all orchid genera, taxonomists do not always agree on names for species, synonyms and natural hybrids, and that is certainly true with *cypripedium* names. Furthermore, commercial growers make their own lists and catalogues and may use their own terminology. Many of these will include photos and cultural information.

We suggest you go to *Slipper Orchids*, Volume 20, Number 3, Summer, 2019, for an extremely helpful article by Tony Avent and Dennis Carey: "*Cypripedium – Does the Lady's Slipper Fit Your Garden.*" In it you will find cultural information on how to grow *cypripediums*, with the emphasis on selected species and hybrids that are heat-tolerant and will grow in gardens in many parts of the United States. They make it clear that, despite some opinions that *cyps* cannot be grown in our gardens, if you choose wisely and prepare your garden properly, many species and hybrids will do well. We think that when you see the stunning photos in the article, you may be tempted to try to grow these intriguing and delightful slipper orchids.

Cypripedium Memoria Holger Perner

By Sebastian Urban

A new hybrid *cypripedium* has been registered with the Royal Horticultural Society at Kew, England. The hybrid has been named *Cypripedium Memoria Holger Perner* by Sebastian Urban to commemorate his friend Holger Perner, who died unexpectedly on April 19, 2017. Perner was an orchid specialist and scientist living with his family in China. He was a highly respected grower and writer, and his death was a shock and a great loss to the orchid world, especially to slipper lovers. He had received permission from the Chinese government—for the first time!—to release Chinese slipper species from his nursery in China into the marketplace.

The hybrid, a cross between *Cyp. fasciolatum* and *Cyp. cordigerum*, was created in May, 2012, by hand pollination. The sowing occurred in a laboratory from a semi-mature seed capsule in August of the same year. About six weeks later, the seeds germinated. In September, 2013, the seedlings were removed from the flask and placed in a special substrate for further cultivation. It took nearly five years for the first bloom to appear. On April 30, 2018, the new hybrid was registered.

Cypripedium Memoria Holger Perner is a garden-worthy, hardy hybrid with good characteristics and interesting flower color.

ABOUT THE AUTHOR

Sebastian Urban is a master gardener employed by the Carl Friedrich von Siemens Foundation, in Munich, Germany. For over 20 years they have engaged in the culture and propagation of *cypripediums*. The collection, unfortunately, is not accessible to the public.

Cypripedium Hybrids as of December 31, 2018

Registered Name	Registrant	Year
<i>Cyp. Aasee (reginae x farreri)</i>	Vienenkotter	2009
<i>Cyp. Achim (parviflorum var. pubescens x froschii)</i>	W. Frosch	2003
<i>Cyp. Adelheid (Sabine x calcicola)</i>	K.D. Schmidt	2011
<i>Cyp. Aki (parviflorum var. pubescens x macranthos)</i>	W. Frosch	1996
<i>Cyp. Alice (parviflorum x Sabine)</i>	S. Malmgren	2017
<i>Cyp. Alois (andrewsii x montanum)</i>	U. von Rad	2008
<i>Cyp. Amelie (passerinum x flavum)</i>	W. Frosch	2010
<i>Cyp. Andreas (fargesii x sichuanense)</i>	W. Frosch	2015
<i>Cyp. Ann Elizabeth (tibeticum x franchetii)</i>	P. Corkhill	2010
<i>Cyp. Anna (parviflorum var. parviflorum x macranthos var. hotei-atsumorianum)</i>	W. Frosch	2012
<i>Cyp. Anna Beckmann (kentuckiense x columbianum)</i>	J. Auer	2016
<i>Cyp. Anne (reginae x macranthos)</i>	Vienenkötter	2008
<i>Cyp. Annegret (parviflorum var. makasin x shanxiense)</i>	W. Frosch	2010
<i>Cyp. Annette (macranthos x candidum)</i>	W. Frosch	2002
<i>Cyp. Antonin Binovess (himalaicum x cordigerum)</i>	H. Pinkepank	2015
<i>Cyp. Arne (fasciolatum x Uta)</i>	W. Frosch	2016
<i>Cyp. Aurora (Sebastian x tibeticum)</i>	K.D. Schmidt	2014
<i>Cyp. Axel (parviflorum x tibeticum)</i>	S. Malmgren	1998
<i>Cyp. Ayana (flavum x wardii)</i>	Roegler	2012
<i>Cyp. Barbara Imfeld-Pinkepank (macranthos x farreri)</i>	H. Pinkepank	2005
<i>Cyp. Barbarossa (Otto x macranthos)</i>	K.D. Schmidt	2014
<i>Cyp. Bärbel Schmidt (macranthos x montanum)</i>	F. Schmidt	2009
<i>Cyp. Barry Phillips (fasciolatum x segawai)</i>	RHS	2013
<i>Cyp. Bea Pinkepank (calcicola x reginae)</i>	H. Pinkepank	2010
<i>Cyp. Beatrix (Wladiwo x fasciolatum)</i>	K.D. Schmidt	2011
<i>Cyp. Benedikt (cordigerum x montanum)</i>	W. Frosch	2014
<i>Cyp. Bernd (macranthos x segawai)</i>	W. Frosch	2001
<i>Cyp. Bernie (reginae x fargesii)</i>	Raschun	2007
<i>Cyp. Bertradis (Lothar Pinkepank x henryi)</i>	K.D. Schmidt	2011
<i>Cyp. Betty Maier (macranthos x parviflorum var. planipetalum)</i>	Maier	2004
<i>Cyp. Bill (parviflorum var. pubescens x tibeticum)</i>	W. Frosch	2004
<i>Cyp. Birgit (macranthos x cordigerum)</i>	In Vitro	2006
<i>Cyp. Blondi (parviflorum var. pubescens x macranthos var. rebunense)</i>	W. Frosch	2007
<i>Cyp. Boots (calceolus x montanum)</i>	H. Pinkepank	2005
<i>Cyp. Camiel (parviflorum var. parviflorum x plectrochilum)</i>	U. von Rad	2005
<i>Cyp. Carla (andrewsii var. favillianum x macranthos var. album)</i>	R. Burch	2009
<i>Cyp. Carol Ilene (parviflorum var. pubescens x macranthos var. hotei-atsumorianum)</i>	P. Keisling	2005
<i>Cyp. Carolin (calceolus x macranthos var. speciosum)</i>	W. Frosch	1991
<i>Cyp. Carson (parviflorum x formosanum)</i>	W. Frosch	1992
<i>Cyp. Chauncey (parviflorum x segawai)</i>	C. Whitlow	1993
<i>Cyp. Christa Handlbauer (farreri x calceolus)</i>	Glanz	2009
<i>Cyp. Christian (shanxiense x macranthos var. hotei-atsumorianum)</i>	M. Weinert	2018
<i>Cyp. Christoph (parviflorum x japonicum)</i>	W. Frosch	2015
<i>Cyp. Cleo Pinkepank (kentuckiense x macranthos var. hotei-atsumorianum)</i>	D. Hach	1998
<i>Cyp. Cornelia (Doreen x froschii)</i>	K.D. Schmidt	2010
<i>Cyp. Dawn Edwards (lichiangense x macranthos)</i>	RHS	2013
<i>Cyp. Delphine (kentuckiense x franchetii)</i>	J. Moors	2009
<i>Cyp. Dieter (andrewsii x candidum)</i>	R. Burch	2010
<i>Cyp. Dietrich (calceolus x kentuckiense)</i>	W. Frosch	2003
<i>Cyp. Dominique (reginae x formosanum)</i>	J. Moors	2007
<i>Cyp. Donna (Sabine x andrewsii)</i>	R. Burch	2012
<i>Cyp. Doreen (ventricosum var. virescens x cordigerum)</i>	K.D. Schmidt	2010
<i>Cyp. Dr. Ernst von Siemens (froschii x tibeticum)</i>	S. Urban	2016
<i>Cyp. Dryad (andrewsii x tibeticum)</i>	R. Burch	2012
<i>Cyp. Elise (Ulla Silkens x macranthos)</i>	S. Malmgren	2011
<i>Cyp. Emil (parviflorum x calceolus)</i>	W. Frosch	1993
<i>Cyp. Erich Maier (guttatum x reginae)</i>	Maier	2006
<i>Cyp. Erika (calceolus x candidum)</i>	W. Frosch	2003
<i>Cyp. Eurasia (macranthos x tibeticum)</i>	K. Nakamura	2005
<i>Cyp. Fantasy (reginae x margaritaceum) (may be a synonym for Princess)</i>	C. Whitlow	1992

<i>Cyp. Favillianum (parviflorum var. pubescens x candidum)</i>	C. Whitlow	1994
<i>Cyp. Fay (Sebastian x columbianum)</i>	F. Schmidt	2017
<i>Cyp. Florence (Gisela x fasciolatum)</i>	P. Corkhill	2007
<i>Cyp. Francis (kentuckiense x macranthos var. speciosum)</i>	O. Robinson	2001
<i>Cyp. Frohnau SilkSun (Ulla Silkens x Sunshine)</i>	D. Hach	2013
<i>Cyp. Froni (parviflorum var. pubescens x franchetii)</i>	W. Frosch	2012
<i>Cyp. Gabriela (fasciolatum x kentuckiense)</i>	W. Frosch	2003
<i>Cyp. Ge Pang (formosanum x japonicum)</i>	H. Pinkepank	2010
<i>Cyp. Geisha (Gisela x candidum)</i>	R. Burch	2010
<i>Cyp. Genesis (reginae x parviflorum var. pubescens)</i>	C. Whitlow	1987
<i>Cyp. Gerhard (franchetii x farreri)</i>	W. Frosch	2005
<i>Cyp. Gidget (candidum x henryi)</i>	C. Whitlow	1993
<i>Cyp. Gisela (parviflorum x macranthos)</i>	W. Frosch	1992
<i>Cyp. GPH Anna Marie (henryi x flavum)</i>	R. Burch	2009
<i>Cyp. GPH Barbara (Favillianum x fasciolatum)</i>	R. Burch	2009
<i>Cyp. GPH Barbara's Smile (Lothar Pinkepank x Kristi Lyn)</i>	R. Burch	2014
<i>Cyp. GPH Charles (candidum x montanum)</i>	R. Burch	2009
<i>Cyp. GPH Crimson Challenger (franchetii x Gisela)</i>	R. Burch	2012
<i>Cyp. GPH Crimson Promise (Gisela x Maria)</i>	R. Burch	2010
<i>Cyp. GPH Fair Garden Princess (cordigerum x henryi)</i>	R. Burch	2018
<i>Cyp. GPH Little Charlie (parviflorum var. makasin x macranthos var. albiflorum)</i>	R. Burch	2010
<i>Cyp. GPH Low Percentage (fasciolatum x acaule)</i>	R. Burch	2014
<i>Cyp. GPH Memoria Charles Frail Jr (parviflorum var. pubescens x macranthos var. album)</i>	R. Burch	2009
<i>Cyp. GPH Memoria Florence Frail (franchetii x Peter)</i>	R. Burch	2013
<i>Cyp. GPH Merlot (Memoria Shawna Austin x GPH Memoria Florence Frail)</i>	R. Burch	2017
<i>Cyp. GPH Olympic Promise (Ursel x segawai)</i>	R. Burch	2017
<i>Cyp. GPH Petite Delight (cordigerum x segawai)</i>	R. Burch	2014
<i>Cyp. GPH Quiet Waters (cordigerum x tibeticum)</i>	R. Burch	2018
<i>Cyp. GPH Theresa (Lothar Pinkepank x macranthos)</i>	R. Burch	2013
<i>Cyp. GPH Tom Velardi (macranthos x Sabine)</i>	R. Burch	2010
<i>Cyp. GPH Yellow Hank (henryi x segawai)</i>	R. Burch	2014
<i>Cyp. GPH Yumi (Sabine x GPH Tom Velardi)</i>	R. Burch	2010
<i>Cyp. Gunnar (tibeticum x flavum)</i>	W. Frosch	2016
<i>Cyp. Günter (calceolus x reginae)</i>	In Vitro	2006
<i>Cyp. Hakuto (macranthos var. album x henryi)</i>	Kaneko	2011
<i>Cyp. Hank Small (parviflorum x henryi)</i>	C. Whitlow	1991
<i>Cyp. Hanne Rosdahl (flavum x fasciolatum)</i>	S. Malmgren	2008
<i>Cyp. Hannes (Uta x parviflorum var. pubescens)</i>	W. Frosch	2017
<i>Cyp. Hans Arpagaus (froschii x macranthos)</i>	H. Pinkepank	2005
<i>Cyp. Hans Erni (franchetii x calceolus)</i>	W. Frosch	2004
<i>Cyp. Hans Pinkepank (formosanum x calceolus)</i>	H. Pinkepank	2010
<i>Cyp. Hareskov (Johnny Petersen x tibeticum)</i>	S. Malmgren	2017
<i>Cyp. Hedi (Ingrid x macranthos)</i>	W. Frosch	1997
<i>Cyp. Hedwig (Ingrid x parviflorum var. pubescens)</i>	K.D. Schmidt	2011
<i>Cyp. Heike (formosanum x segawai)</i>	W. Frosch	1998
<i>Cyp. Heinz Pinkepank (arietinum x reginae)</i>	S. Ihme	2016
<i>Cyp. Henning Pinkepank (shanxiense x macranthos)</i>	H. Pinkepank	2005
<i>Cyp. Henri Pinkepank (Kathleen Anne Green x Lothar Pinkepank)</i>	H. Pinkepank	2016
<i>Cyp. Henric (macranthos var. hotei-atsumorianum x tibeticum)</i>	S. Malmgren	2010
<i>Cyp. Hideki Okuyama (fasciolatum x ventricosum)</i>	W. Frosch	2001
<i>Cyp. Highlight (ventricosum var. virescens x segawai)</i>	F. Schmidt	2011
<i>Cyp. Hilda (kentuckiense x ventricosum)</i>	O. Robinson	2001
<i>Cyp. Hildegard (candidum x cordigerum)</i>	W. Frosch	2005
<i>Cyp. Hiraizmi (Renate x macranthos)</i>	T. Oyamada	2013
<i>Cyp. Holger (henryi x macranthos var. speciosum)</i>	W. Frosch	2005
<i>Cyp. Ilse (californicum x flavum)</i>	W. Frosch	2012
<i>Cyp. Inge (parviflorum x fasciolatum)</i>	W. Frosch	2003
<i>Cyp. Ingrid (parviflorum x cordigerum)</i>	W. Frosch	1990
<i>Cyp. Irene (reginae x kentuckiense)</i>	W. Frosch	2006
<i>Cyp. Irmin Vogler (Sabine x Henric)</i>	S. Malmgren	2018
<i>Cyp. Ivory (cordigerum x kentuckiense)</i>	Vatterstetten	2008
<i>Cyp. Iwahime (macranthos var. speciosum x fasciolatum)</i>	Hiratsuka	2008
<i>Cyp. Iwate (Monto x Iwahime)</i>	T. Oyamada	2013
<i>Cyp. Jacob (Lothar Pinkepank x tibeticum)</i>	K.D. Schmidt	2014
<i>Cyp. James Armitage (montanum x henryi)</i>	RHS/Anthura	2013

<i>Cyp. January Sunshine (acaule x parviflorum var. pubescens)</i>	RHS	2007
<i>Cyp. Jens (fasciolatum x shanxiense)</i>	W. Frosch	2012
<i>Cyp. Jimmy (fasciolatum x macranthos var. rebunense)</i>	W. Frosch	2006
<i>Cyp. Johanna (kentuckiense x corrugatum)</i>	O. Robinson	2003
<i>Cyp. John (parviflorum var. parviflorum x yunnanense)</i>	W. Frosch	2006
<i>Cyp. John Massey (montanum x kentuckiense)</i>	S. Urban	2016
<i>Cyp. Johnny Petersen (parviflorum x macranthos var. rebunense)</i>	D. Hach	1999
<i>Cyp. Joris (pubescens x Uta)</i>	W. Frosch	2016
<i>Cyp. José (reginae x tibeticum)</i>	J. Moors	2007
<i>Cyp. Joseph Henry (parviflorum x calcicola)</i>	P. Corkhill	2005
<i>Cyp. Judith (reginae x Tilman)</i>	Crustacare	2006
<i>Cyp. Judith Merrick (Erika x fasciolatum)</i>	RHS	2013
<i>Cyp. Julia Barclay (Aki x kentuckiense)</i>	RHS	2013
<i>Cyp. Julie Ann (kentuckiense x calcicola)</i>	P. Keisling	2004
<i>Cyp. Kagura (calceolus x Carolin)</i>	T. Oyamada	2013
<i>Cyp. Karel Polivka (ventricosum x macranthos var. rebunense)</i>	H. Pinkepank	2005
<i>Cyp. Karl Heinz (calceolus x cordigerum)</i>	W. Frosch	1990
<i>Cyp. Kathleen Anne Green (kentuckiense x henryi)</i>	C. Whitlow	1992
<i>Cyp. Katrin (Philipp x parviflorum var. pubescens)</i>	W. Frosch	2005
<i>Cyp. Kirsten (flavum x corrugatum)</i>	S. Malmgren	2012
<i>Cyp. Kizuna (macranthos x Carolin)</i>	T. Oyamada	2013
<i>Cyp. Kristi Lyn (parviflorum var. pubescens x henryi)</i>	P. Keisling	2003
<i>Cyp. Lady Dorine (fasciolatum x formosanum)</i>	Opstaele	2008
<i>Cyp. Laila (macranthos var. speciosum x andrewsii)</i>	P. Keisling	2006
<i>Cyp. Late Delight (kentuckiense x flavum)</i>	K.D. Schmidt	2014
<i>Cyp. Lettika (californicum x macranthos)</i>	F. Schmidt	2014
<i>Cyp. Lisa (Dietrich x pubescens)</i>	K.D. Schmidt	2014
<i>Cyp. Lisbeth (Gisela x calceolus)</i>	Döpfer	2004
<i>Cyp. Lizzy Ann (parviflorum x froschii)</i>	P. Corkhill	2005
<i>Cyp. Loes (reginae x yunnanense)</i>	J. Moors	2009
<i>Cyp. Lothar Pinkepank (parviflorum var. pubescens x kentuckiense)</i>	H. Pinkepank	2005
<i>Cyp. Luca (Dietrich x macranthos var. hotei-atsumorianum)</i>	K.D. Schmidt	2014
<i>Cyp. Lucy Pinkepank (kentuckiense x tibeticum)</i>	H. Pinkepank	1998
<i>Cyp. Lukas (parviflorum var. pubescens x segawai)</i>	U. von Rad	2015
<i>Cyp. Luke (franchetii x froschii)</i>	P. Corkhill	2007
<i>Cyp. Lusarem (Sebastian x candidum)</i>	P. Corkhill	2010
<i>Cyp. Manfred (parviflorum x fargesii)</i>	In Vitro Orchid Raschun	2008
<i>Cyp. Maria (parviflorum x macranthos var. speciosum)</i>	W. Frosch	1991
<i>Cyp. Maria Handlbauer (corrugatum x reginae)</i>	Handlbauer	2008
<i>Cyp. Marianne (Sebastian x montanum)</i>	W. Frosch	2010
<i>Cyp. Marika (candidum x Aki)</i>	R. Burch	2009
<i>Cyp. Mario (calceolus x Sabine)</i>	S. Malmgren	2018
<i>Cyp. Mason's Birthday (candidum x kentuckiense)</i>	R. Burch	2012
<i>Cyp. Mathilde (Sabine x macranthos var. hotei-atsumorianum)</i>	K.D. Schmidt	2011
<i>Cyp. Memoria Gerd Kohls (calceolus x henryi)</i>	Lowland-Biotech	1995
<i>Cyp. Memoria Hans Hoeller (lichiangense x fargesii)</i>	Stickroth	2014
<i>Cyp. Memoria Holger Perner (fasciolatum x cordigerum)</i>	S. Urban	2018
<i>Cyp. Memoria Marika Perakos (Sabine x Birgit)</i>	R. Burch	2015
<i>Cyp. Memoriam Shawna Austin (macranthos var. hotei-atsumorianum x calceolus)</i>	D. Hach	2006
<i>Cyp. Michael (macranthos x henryi)</i>	W. Frosch	1998
<i>Cyp. Mike (kentuckiense x ventricosum var. virescens)</i>	O. Robinson	2003
<i>Cyp. Mona Lis (Sabine x Tower Hill)</i>	S. Malmgren	2017
<i>Cyp. Monto (macranthos var. hotei-atsumorianum x fasciolatum)</i>	Hiratsuka	2008
<i>Cyp. Mops (macranthos var. hotei-atsumorianum x franchetii)</i>	W. Frosch	2014
<i>Cyp. Münster (californicum x guttatum)</i>	Vienenkötter	2011
<i>Cyp. Nadi (franchetii x Jimmy)</i>	W. Frosch	2013
<i>Cyp. Neil Lancaster (lichiangense x fasciolatum)</i>	Anthura	2013
<i>Cyp. Oliver (Lothar Pinkepank x calceolus)</i>	K.D. Schmidt	2011
<i>Cyp. Olli (Lothar Pinkepank x kentuckiense)</i>	K.D. Schmidt	2011
<i>Cyp. Oma Alli (Tanja Pinkepank x ventricosum var. virescens)</i>	H. Pinkepank	2005
<i>Cyp. Otmar Riegler (farreri x parviflorum var. pubescens)</i>	Glanz	2007
<i>Cyp. Otto (calceolus x parviflorum var. pubescens)</i>	W. Frosch	1991
<i>Cyp. Patrick Pinkepank (parviflorum var. planipetalum x tibeticum)</i>	H. Pinkepank	1998
<i>Cyp. Paul (parviflorum var. parviflorum x franchetii)</i>	W. Frosch	2009
<i>Cyp. Peter (speciosum x yunnanense)</i>	W. Frosch	2009

<i>Cyp. Philipp (macranthos x kentuckiense)</i>	W. Frosch	1996
<i>Cyp. Piccolo (parviflorum var. planipetalum x yunnanense)</i>	W. Frosch	2007
<i>Cyp. Pixi (calceolus x tibeticum)</i>	P. Corkhill	2003
<i>Cyp. Pluto (fasciolatum x franchetii)</i>	W. Frosch	2005
<i>Cyp. Princess (reginae x lichiangense)</i>	C. Whitlow	1995
<i>Cyp. Prof. Karl Robatsch (reginae x acaule)</i>	Raschun	2004
<i>Cyp. Promises (formosanum x acaule)</i>	C. Whitlow	1988
<i>Cyp. Pümkchen und Anton (wardii x reginae)</i>	H. Pinkepank	2015
<i>Cyp. Ragnar (pubescens x Monto)</i>	W. Frosch	2016
<i>Cyp. Rascal (kentuckiense x parviflorum)</i>	C. Whitlow	1990
<i>Cyp. Rena (kentuckiense x Marika)</i>	R. Burch	2012
<i>Cyp. Renate (macranthos x franchetii)</i>	W. Frosch	2009
<i>Cyp. Rheinsberg Castle (Ulla Silkens x tibeticum)</i>	D. Hach	2012
<i>Cyp. Rheinsberg IsBeautiful (Ulla Silkens x passerinum)</i>	D. Hach	2012
<i>Cyp. Rheinsberg Sparrow Egg (passerinum x reginae)</i>	D. Hach	2007
<i>Cyp. Rhodopis (montanum x tibeticum)</i>	Anthura	2013
<i>Cyp. Robin Lee (farreri x kentuckiense)</i>	P. Keisling	2000
<i>Cyp. Roland (parviflorum var. pubescens x corrugatum)</i>	Raschun	2005
<i>Cyp. Ruby Iwate (macranthos var. speciosum x Carolin)</i>	Oyamata	2010
<i>Cyp. Sabine (fasciolatum x macranthos)</i>	W. Frosch	2002
<i>Cyp. Sam Saulys (Gisela x andrewsii)</i>	R. Burch	2009
<i>Cyp. Sarah Louise (Ulla Silkens x reginae)</i>	P. Corkhill	2010
<i>Cyp. Schoko (calceolus x shanxiense)</i>	W. Frosch	2011
<i>Cyp. Sebastian (parviflorum x montanum)</i>	W. Frosch	1998
<i>Cyp. Selston High School (candidum x fasciolatum)</i>	J.M.H.Shaw	2013
<i>Cyp. Siggii (froschii x calceolus)</i>	H. Pinkepank	2005
<i>Cyp. Silvia (Lothar Pinkepank x Sabine)</i>	K.D. Schmidt	2010
<i>Cyp. Spirit of Violet (Gisela x macranthos)</i>	O. Vossler	2009
<i>Cyp. Stefanie (Otto x henryi)</i>	K.D. Schmidt	2010
<i>Cyp. Sunny (fasciolatum x calceolus)</i>	W. Frosch	2004
<i>Cyp. Sunshine (flavum x pubescens)</i>	O. Vossler	2008
<i>Cyp. Tanja Pinkepank (macranthos var. rebunense x calceolus)</i>	H. Pinkepank	1998
<i>Cyp. Tasio (Dietrich x Lothar Pinkepank)</i>	K.D. Schmidt	2010
<i>Cyp. Theophanu (Sabine x tibeticum)</i>	K.D. Schmidt	2011
<i>Cyp. Tical (californicum x tibeticum)</i>	F. Schmidt	2013
<i>Cyp. Till Eulenspiegel (shanxiense x tibeticum)</i>	H. Pinkepank	2005
<i>Cyp. Tilman (tibeticum x fasciolatum)</i>	W. Frosch	2005
<i>Cyp. Tordis Kvalstein (corrugatum x Ulla Silkens)</i>	Kvalstein	2008
<i>Cyp. Tower Hill (parviflorum var. pubescens x macranthos var. speciosum)</i>	P. Keisling	2003
<i>Cyp. Ulla Silkens (flavum x reginae)</i>	S. Malmgren	1996
<i>Cyp. Ulli (parviflorum var. pubescens x cordigerum)</i>	W. Frosch	1994
<i>Cyp. Ursel (fasciolatum x henryi)</i>	W. Frosch	2003
<i>Cyp. Uta (fasciolatum x froschii)</i>	W. Frosch	2004
<i>Cyp. Uwe (Hans Erni x pubescens)</i>	Stiebritz	2014
<i>Cyp. Vicky's Delight (Ulla Silkens x flavum)</i>	P. Corkhill	2006
<i>Cyp. Victoria (parviflorum var. pubescens x fasciolatum)</i>	P. Corkhill	2005
<i>Cyp. Vilma (Tower Hill x tibeticum)</i>	S. Malmgren	2010
<i>Cyp. Warren (reginae x californicum)</i>	Lueg	2006
<i>Cyp. Wenqing (tibeticum x farreri)</i>	Hengduan Mountains Biotechnology	2012
<i>Cyp. Werner (candidum x yatabeanum)</i>	C. Whitlow	1993
<i>Cyp. Werner F. (macranthos x calcicola)</i>	U. von Rad	2011
<i>Cyp. Werner Frosch (henryi x macranthos var. hotei-atsumorianum)</i>	Manthey	2003
<i>Cyp. Werner Schmidt (formosanum x yunnanense)</i>	K.D. Schmidt	2008
<i>Cyp. Wim (henryi x tibeticum)</i>	J. Moors	2007
<i>Cyp. Wladiwo (ventricosum x calceolus)</i>	W. Frosch	2005
<i>Cyp. Wouter Peeters (reginae x fasciolatum)</i>	Peeters	2006
<i>Cyp. Yezo (macranthos x yatabeanum)</i>	Nakamura	2005
<i>Cyp. x alaskanum (guttatum x yatabeanum)</i>	Natural hybrid, not registered	
<i>Cyp. x andrewsii</i> (accepted by some as a natural hybrid of <i>parviflorum</i> x <i>candidum</i> but accepted by Kew as a species)		
<i>Cyp. x catherinae (macranthos x shanxiense)</i>	Natural hybrid, not registered	
<i>Cyp. x columbianum (montanum x parviflorum var. pubescens)</i>	Natural hybrid, not registered	
<i>Cyp. x herae (parviflorum x reginae)</i>	Natural hybrid, not registered	
<i>Cyp. x ventricosum (calceolus x macranthos)</i>	Natural hybrid, not registered	
<i>Cyp. x wenqingiae (farreri x tibeticum)</i>	Natural hybrid, not registered	

Paph. Victoria's Song 'Pastel Light' (Via Victoria x White Legacy)
won the Paph Forum trifecta—a 90-point CCE/AOS, Best Culture Award among
2019 Paph Forum entries, and the People's Choice Award,
which earned it the Slipper Orchid Alliance Trophy.

(Grown and exhibited by Marriott Orchids. Photo by Bryan Ramsay.)



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