The Journal for Gesneriad Growers

Gesneriads

Volume 66 ~ Number 3
Third Quarter 2016

The Journal for Gesneriad Growers
Gesneriads
Volume 66 ~ Number 3
Third Quarter 2016

FEATURES

DEPARTMENTS

Cover
Glossoloma tetragonoides photographed by John L. Clark

Back Cover
Drymonia ignea photographed by John L. Clark

www.gesneriads.org ~ www.facebook.com/gesneriads

The Gesneriad Society, Inc.

The objects of The Gesneriad Society are to afford a convenient and beneficial association of persons interested in the Gesneriad Plant Family (Gesneriaceae); to stimulate a wide-spread interest in; to gather and publish reliable information about the identification, correct nomenclature, culture, propagation, and conservation of gesneriads; and to encourage the origination, introduction, and conservation of species and cultivars.

The Gesneriad Society, Inc. is the **International Registration Authority** for the names and cultivars of gesneriads excepting the genus ***Saintpaulia***. Any person desiring to register a cultivar should contact Irina Nicholson, 2512 South Balsam Way, Lakewood, CO 80227 USA hybridregistrar@gesneriads.org.

Message from the President

Our wonderful editor Peter Shalit did a great job producing one of the best issues ever.

AS I WRITE THIS, SPRING HAS SPRUNG AND I AM looking forward to putting my achimenes collection outside for the summer in a few weeks. By the time you read this, they should be in pretty good bloom. Every year is an adventure with them: too much rain, not enough rain, too much fertilizer, not enough fertilizer. I have come to the conclusion that the really great growers (and I am not one) are those who really pay attention to their plants. That has got to be the key that has eluded me all these years. I guess I really just have too many irons in the fire. I hope someday to be retired and have plenty of time to work with my plants, provided I am not too old and decrepit when that happens.

This year is the 500th anniversary of the birth of Conrad Gesner, the botanist for whom our plant family was named. He was an interesting person who put in a lot of work during a not very long life (March 26, 1516 – December 13, 1565), describing both animals and plants in great detail. We will celebrate this anniversary at Convention this year.

I hope you all enjoyed the 2nd quarter issue of our newly expanded journal. Our wonderful editor Peter Shalit did a great job producing one of the best issues ever. What a treasure! I am sure this issue will also be amazing. Thanks, Peter, for all the hard work and creativity, and thanks to those who come through with great articles and photographs.

After experiencing the pain of trying to recover from the hacking in March of the Gesneriad Society website (thanks to alert members for notifying us), I would like to encourage each of you to practice safe computing. Make your passwords strong, and keep them safe, and don't click on unknown links, even if they seem to come from a friend. While none of these things is what caused our problem, they are still important things to remember. As part of the fallout from this incident, we are changing web hosts, and our data should be fully restored long before you read this. On a brighter note, thanks to an alert member, Tommy Liu, we have gained possession of the URL www.gesneriads.org. Although the old URL gesneriadsociety.org will continue to work, the new simpler URL will help more folks find our website.

I hope to see many of you at convention. It looks like it's going to be a great one!

Julie Mavity-hudson
<gespres2015@gmail.com>
Joelton, TN, USA

In Memoriam

Nelly Levine, Arvada CO
Nancy Robitaille, Montreal, QC Canada
Linda Kyzivat, Ewing, NJ
Eileen Stannard, Leesville, LA
Shirley [Sam] McKenna, Grass Valley, CA

From the Editor

…gesneriads have the power to enhance our lives, to teach us about the natural world, to help us create beauty.

ENTHUSIASM. THAT'S WHAT COMES TO MIND AS I review the articles in this issue. Whether it's trekking through the rain forest to find and collect and protect a threatened species of *Sinningia*, or hybridizing *Achimenes* to create flower colors and shapes never before seen, or learning to grow and propagate the exotic *Boea*, or figuring out the light requirements of streptocarpus hybrids, or witnessing the magic of growing beautiful blooming smithianthas from single rhizome scales, or taking high school students to the jungles of Ecuador to study the ecology, identify new species, and bring solar kits to the local people… gesneriads have the power to enhance our lives, to teach us about the natural world, to help us create beauty. And then we exchange what we've learned in our gesneriad journeys by writing for this journal, by exchanging seed via our incredible Seed Fund, and by exhibiting our plants in shows – six of which are covered in these pages.

In this issue you'll be able to experience vicariously the joy of discovering new species in the wild, creating new hybrids in the home, growing and propagating these plants, and entering them in a show. And maybe one day you'll go on a trek yourself to see gesneriads in the wild, or create a fabulous new hybrid, or grow a couple dozen plants from a single rhizome, or enter a show and win a ribbon. And even if you've done some or all of these things already, there are always more aspects of gesneriads that you haven't yet experienced. That's what makes gesneriad growing such a great hobby. Check out the articles on the pages to follow, and you'll see what I mean.

Look forward to complete coverage of the 2016 Gesneriad Society Convention and Show (Gescon16) in the next issue.

Enjoy *Gesneriads*!

Peter

<gesnerieditor@gmail.com>
Seattle, WA, USA

Streptocarpus grown by Austin Grevious, on the sales table at the recent Puget Sound Show. Photo: Peter Shalit

Jaguar, Coral Snake, and *Sinningia minima*

Mauro Peixoto ~ São Paulo, Brazil ~ <brazilplants@gmail.com>

I FIRST HEARD ABOUT *SINNINGIA MINIMA* IN 2012 WHEN DR. ANDRÉA Onofre de Araujo came back from a field trip to Carajás, a place in northern Brazil where one of the biggest active Brazilian iron mines is located. She went there to investigate a tiny plant that was first discovered in 1968 growing in the small crevices of the iron rocks. The plant was thought to be a species of *Gloxinia*.

Raymond, Isabele, and Mauro at the habitat of *Sinningia minima*

A more detailed investigation showed that it had a pin-head-sized tuber and the fruit looked exactly like a sinningia capsule. Of course it was a big surprise, and DNA analysis confirmed that it was indeed a sinningia. How in the world such a small sinningia decided to grow more than 2000 miles (3200 km) away from its cousins in the Southeast Atlantic Forest is still a mystery.

Dr. Andrea brought back some tubers for study and after a few months the last of them came into my hands, but due to lack of knowledge about its ecology, I couldn't keep it alive and it died within a few weeks.

I showed some pictures of it in the presentation that I gave at the 2015 Gesneriad Society Convention. Everyone there was amazed by the discovery and many members wanted to grow it. The biggest problem in bringing this little gem into cultivation was the high cost to go to that remote part of the Amazon Forest. Two generous gesneriad friends in the U.S. donated enough money to purchase two plane tickets to the area and cover other trip expenses.

Eureka! *Sinningia minima* in the wild.
All photos courtesy of the author

Sinningia minima in flower

So on February 12, Isabele Maia (one of Dr. Andrea's students), Raymond VanVeen (a good friend of mine who lives in Los Angeles), and I boarded a plane for an almost five-hour flight to Carajás. The flight was uneventful. From the airport that is located in the middle of the Amazon Forest, a taxi drove us 15 miles (24 km) to the small town of Parauapebas, in Pará State, where we would stay for the next four days. We rented a four-wheel drive truck and that was enough activity for the first day.

The next morning we left the hotel by 7:00 a.m., met Mercia, our guide, and drove to a forest 45 miles (72 km) away to find the little gem. The road was paved for the first half of the trip. After we actually entered the mining field, the roads were dirt, but well-kept.

It is very difficult to express in words or even in pictures the amount of destruction in that part of the country where the giant trucks can carry 350 tons of iron ore on a single load. Most of the habitat for this species is right on the path that will be destroyed as the mining operation expands. It may take 5, 10, or 20 years, but eventually the plants will be gone.

We arrived near the first spot by 11:00 a.m. The guide didn't like what she saw as the area was unusually dry for that time of year, but we hoped for the best. We walked (or better said we made our way through the bushes) for about half an hour to the creek where the plants were known to grow on the rocks. To our despair, the creek was completely dry. The guide remembered the exact rock, but there was not a single plant emerging from dormancy. We even looked for some small tubers, but due to their diminutive size, they were not to be found.

Ok, we lost the first battle, but not the war because we had three more GPS points to search. After a quick picnic lunch we went to the second point, about 20 miles (32 km) from the first stop.

After walking about an hour, we really started to worry as the second place was even drier than the first one. There was no more time to go to the third point, so the guide suggested going to a waterfall where there was one gesneriad that Dr. Andrea had collected in 2012. The place was very beautiful and what we saw was even better – lots of *Episcia fimbriata* growing on rocks, fallen trees, and even on the ground. One plant was almost touching the water. We got some samples, refreshed ourselves at that lovely place

Iron mining operations

Sinningia minima is the smallest known species in its genus

and then went back to the hotel. We were worried, but we still had two full days and two more spots to search.

The second collecting day started cloudy, but soon the sun and the heat returned. On that day we were supposed to go to the farthest place, about 75 miles (120 km), with 25 (40km) of them on a very narrow secondary road where the only traffic was the maintenance road truck once every two weeks.

We were supposed to leave our truck and walk about 3 miles (5 km) to reach the point. That was when the real adventure started. The road was so bad that the maximum speed we could travel was 6 to 10 miles an hour (10-16 km/h). We were completely isolated from the world – no cell phone signal and no way for anyone to rescue us in case of an emergency.

Although the magnificent forest was stunning I wasn´t able to enjoy it as I was trying carefully to avoid going over the deep ditches made from the last heavy rain. Just as I was avoiding a big one, I heard the excited guide shout, "Look at the jaguar!" A big black jaguar had just crossed but I could only see the stirring shrub where it exited the road. A little frustrated, we kept going until we had to stop for good. A big tree had fallen over the road and although only the upper branches were blocking the way, all we had was a small machete to cut them, and after 15 minutes we had to give up and return. The third point was also a failure.

On the way back we stopped at the point where the jaguar had crossed the road and discovered small footprints near the big ones, so she was a mother teaching the baby to hunt.

Our last collecting day started with rain. The fourth point was not far away from the first one so we were resigned to perhaps go back without the plant we were seeking. The main reason to go there was to see the area so the guide could come back later, collect the plant and send it to me by mail.

We had to stop on the way to make room for a big coral snake that was calmly crossing the road. Of

Episcia fimbriata grows in the same habitat as *Sinningia minima*

course all of us took good pictures of it. Too bad that the wild pigs were too fast to be photographed.

It was raining when we arrived at a place where we could park the truck and then follow a trail to the rock wall where *Sinningia minima* was supposed to grow. After walking about 10 minutes, I noticed a cave about ten yards from the trail and decided to investigate it. To my surprise and joy there were hundreds of small plants just coming out of dormancy. Although it was too dry in the other spots, this one was humid enough to start the growing process.

We only found one plant in bloom, but that was enough to take pictures and make the pressed material, because that location was not recorded yet as the point we had was about half a mile (1 km) away from there. Now we could go back happy with the plants and knowledge of a new location for this species. It surely will be protected, as mining exploration is forbidden near caves.

Growing *Boea hygroscopica*

By Alcie Maxwell ~ Shreveport, Louisiana, USA ~ <alciemaxwell@gmail.com>

One of the cool features about *Boea hygroscopica* is that it belongs to the "resurrection plant" group.

I FIRST BECAME INTERESTED IN THE GENUS *BOEA* when a member of one of my online African violet forums posted a picture of *Boea hygroscopica*. We all fawned over the plant photo because it looked like a species *Saintpaulia* but with better-textured foliage. We did not even realize that it was another gesneriad in the same family as *Saintpaulia*. Like any crazed plant collector, I decided that I had to get that plant.

I quickly learned that *Boea hygroscopica* was called the Queensland Rock Violet because it grew on the northern coast of the Queensland state in Australia. This location placed the plant just south of the Equator near Papua New Guinea and Indonesia where many other *Boea* species are found. The area typically has a wet spring and summer and a dry winter. The average high temperature is 88˚F/31˚C, and the average low is 70˚F/21˚C.

I tried to obtain plants or seeds from the traditional sources like eBay as well as from various Australian nurseries but had no luck. After I learned that *Boea hygroscopica* was a gesneriad and that seed was available in the Gesneriad Society's Seed Fund, I was ecstatic and ordered it.

I grew one plant from the seeds but killed it after its first couple of bloom cycles. I then tried to obtain more seeds from the Gesneriad Society's Seed Fund but none were available. Just when I had given up on ever growing the plant again, I learned that seeds were available from the Brazil Plants website. When I got them, I was careful. I sowed one quarter of the seeds and grew out five plants. My plan was to experiment with these plants, and if I killed them, I had backup.

Right, *Boea hygroscopica* plant

Below, closeup of inflorescence – *Boea hygroscopica*

Boea hemslyana (left) and *B. hygroscopica*

Culture

I grew some plants under a 2-tube T8 fluorescent fixture and others under a 4-tube T8 fixture. The lights were on for 12 hours per day, and the fixtures were placed 10-12 inches from the leaves of the plants. The plants grown under the 4-tube fixture were more compact, but I prefer the more open growth habit of the plants grown under the 2-tube fixture.

This plant grows best in high humidity. One of the plants under the 2-tube fixture was grown in an enclosed container with humidity in the high 90% range. This plant had lush, green quilted foliage. In comparison, the plants grown in the open, where the humidity is 50%, had dull foliage with brown edges. I improved the growth habit of the plants grown uncovered by placing them on wicks. Just like in the case of African violets, I used a wicking mix heavy in perlite as the soilless medium.

Boea hygroscopica flower closeup

Boea hemslyana flower

Drawbacks

Boea hygroscopica is very susceptible to soil-based pests like soil mealybugs, fungal gnats, and springtails. I have had some success using a systemic insecticide mixed in the soil to combat these pests. I prefer the granular formulations of the systemic insecticide over the liquid ones as I can be heavy handed with the liquid formulations. *Boea hygroscopica* can be sensitive to excess chemicals. I lost a few plants when I sprayed higher-than-needed concentrations of insecticidal soap, fungicide, or Neem oil on the leaves at various times.

Left, desiccated plants *Boea hygroscopica*

Below left, *Boea hygroscopica* plants revived

Below right, *Boea hygroscopica* seed pods

The plants do not respond well to low temperatures. In the winter, my grow room is unheated at night and the plants do poorly in the cool room temperature combined with the even cooler soil temperatures. I usually lose at least two wick-watered plants. I have had some success removing the plants from their wicks during the winter or with changing the soil medium to a mix that is approximately 80% perlite. Of course, I could always turn on the heater in the room, but that would make too much sense!

Resurrection Properties

One of the cool features about *Boea hygroscopica* is that it belongs to the "resurrection plant" group. In its natural environment, the plant has little rain through most winter months and the foliage shrivels to conserve moisture. Once the spring rains come, the plant revives back to its normal shape.

In the pictures shown, the four plants were not watered for approximately two weeks after which I soaked them in water for 30 minutes. Eight hours later, they had revived. When I performed this "resurrection test" on larger, more mature plants, the plants typically recovered but lost some leaves in the process.

Propagation

Boea hygroscopica is easy to propagate from seeds or suckers. The stigmas frequently grow into the anthers, so the plant self-pollinates itself readily. Hand-pollination is performed exactly like African violets: the anthers are opened to release pollen that is applied to a receptive stigma that had been open for a few days. Seed pods resembling those of *Streptocarpus* and *Primulina* mature in four to six weeks.

The plant can be propagated by planting its leaves or by harvesting the suckers that develop freely at the base of a plant. I prefer to propagate from suckers since the plant produces them so readily. After removing the suckers, which have no roots, I place them in lightly moistened soil in an enclosed container. The day after planting, the suckers look a lot like the desiccated plants in the picture above. However, within a month, the sucker has rooted and has been revived with lush green foliage. Removing suckers also has the benefit of producing larger foliage on the main plant, similar to how removing

stolons on an episcia promotes a larger base plant. From the five plants I grew from seed, I produced about 20 plants using suckers.

Comparison to other Boeas

The only other species of *Boea* readily available in cultivation is *Boea hemsleyana*. It is native to Papua New Guinea, just north of the habitat of *Boea hygroscopica*. Under my conditions, I have found *Boea hemsleyana* to be a little more forgiving of the lower humidity levels such as those out in the open on my plant shelves. *Boea hemsleyana* has better looking blossoms and a more upright growth habit, while *Boea hygroscopica* has better foliage and is more floriferous. My goal is to cross the two species, but I have never had them in bloom at the same time.

Another species native to Australia is *Boea kinneari*, which is found in the same area as *Boea hygroscopica*. However, it is not in cultivation. Hong Xin showed pictures of *Boea hygrometrica* and *Boea clarkeana* taken during his trek around eastern China in an article in the Third Quarter 2015 issue of *Gesneriads*. If anyone ever obtains plant material of any of these species, please contact me.

Seed Fund Donations

Donations mailed from anywhere should be sent to:

Karyn Cichocki
79 Beaver Run Road, Lafayette, NJ 07848

Changes to Hybrid Seed List 2Q16

Additions:

Episcia cupreata yellow hybrids
Sinningia (*calcaria* × *reitzii*) × self
Sinningia sellovii × (*aggregata* [yellow] × *sellovii*)

Send orders for hybrid seed to:

Gussie Farrice, 121 Nelson Avenue, Staten Island, NY 10308

ADVERTISERS DIRECTORY

The 2016 Lawrenceville School in Ecuador Program

John L. Clark, Aldo Leopold Distinguished Teaching Chair, Science Department, The Lawrenceville School, 2500 Main Street, Lawrenceville, NJ 08648 <jclark@lawrenceville.org>

John L. Clark. Photo: Baptiste Bataille

IN AUGUST OF 2015 I CHANGED career paths and left my position as associate professor at The University of Alabama where I enjoyed nine years of research, teaching, and service. In September of 2015 I joined the Science Department at the Lawrenceville School, which is an independent preparatory boarding school near my hometown in New Jersey. It was an honor to work in the university that is the alma mater of the father of biodiversity (E.O. Wilson) and then transition to a school that is the alma mater of the father of wildlife conservation (Aldo Leopold). This recent move allowed me to be near family and coincided with my wife's position as headmistress of the Princeton Junior School.

My new position as the Aldo Leopold Distinguished Teaching Chair is tasked to promote wilderness ethics and biodiversity. One of my first goals was to establish a long-term project in Ecuador to provide a wilderness-based experience for students and generate scholarship to promote biodiversity. During spring break I traveled to Ecuador with 12 students and two teachers from The Lawrenceville School for the first annual program in what will be a long-term study abroad initiative.

Lawrenceville colleagues and co-leaders (from left to right): Baptiste Bataille (Foreign Language Dept.), Jennifer Mayr (Science Dept.), and John L. Clark (Science Dept.). All photos courtesy of the author

I lived in Ecuador for six years as a high school exchange student (American Field Service), U.S. Peace Corps Volunteer, Fulbright Scholar, and guide. This particular expedition with Lawrenceville students provided an opportunity to share my experiences and long-time history in this part of the world. Student essays about their experiences in Ecuador accompany this article. My narrative is about the details of our expedition and some of our discoveries. The impressions expressed by the students are a nice window into what it is like to visit Ecuador for the first time on a research expedition. Hopefully, some of the students will present a program at our upcoming convention in Delaware and I encourage you to interact with these bright, inspiring students. It is my hope that they

Common terrestrial herb, *Pearcea schimpfii* (J.L. Clark 14600)

will become part of a broader community to promote biodiversity through scholarship and outreach.

Like most expeditions in Ecuador, ours began in the capital city of Quito. Our first day was dedicated to fitting jungle boots, buying food at local markets, staging the gear for our 10-day expedition, and a brief walk in a local forest. We visited the Yanacocha Reserve, an hour outside of Quito and located on the slopes of Volcán Pichincha. We observed *Columnea dielsii, Heppiella ulmifolia*, and rare hummingbirds such as the Black-breasted Puffleg.

The remainder of our trip was in the Cerro Candelaria Reserve in the eastern Andes of central Ecuador. The reserve is located within the Llanganates Sangay Corridor and is managed by Fundación EcoMinga. This area is ecologically a zone of transition between the Andes and the Amazon. It is an important watershed for the Upper Pastaza River and harbors unique diversity. We started our hike on KM #50 of the Baños-Mera highway at 1400 m. We hiked during the first day from the small village of El Placer to the field station at 2100 m. One week was dedicated to installing a permanent plot

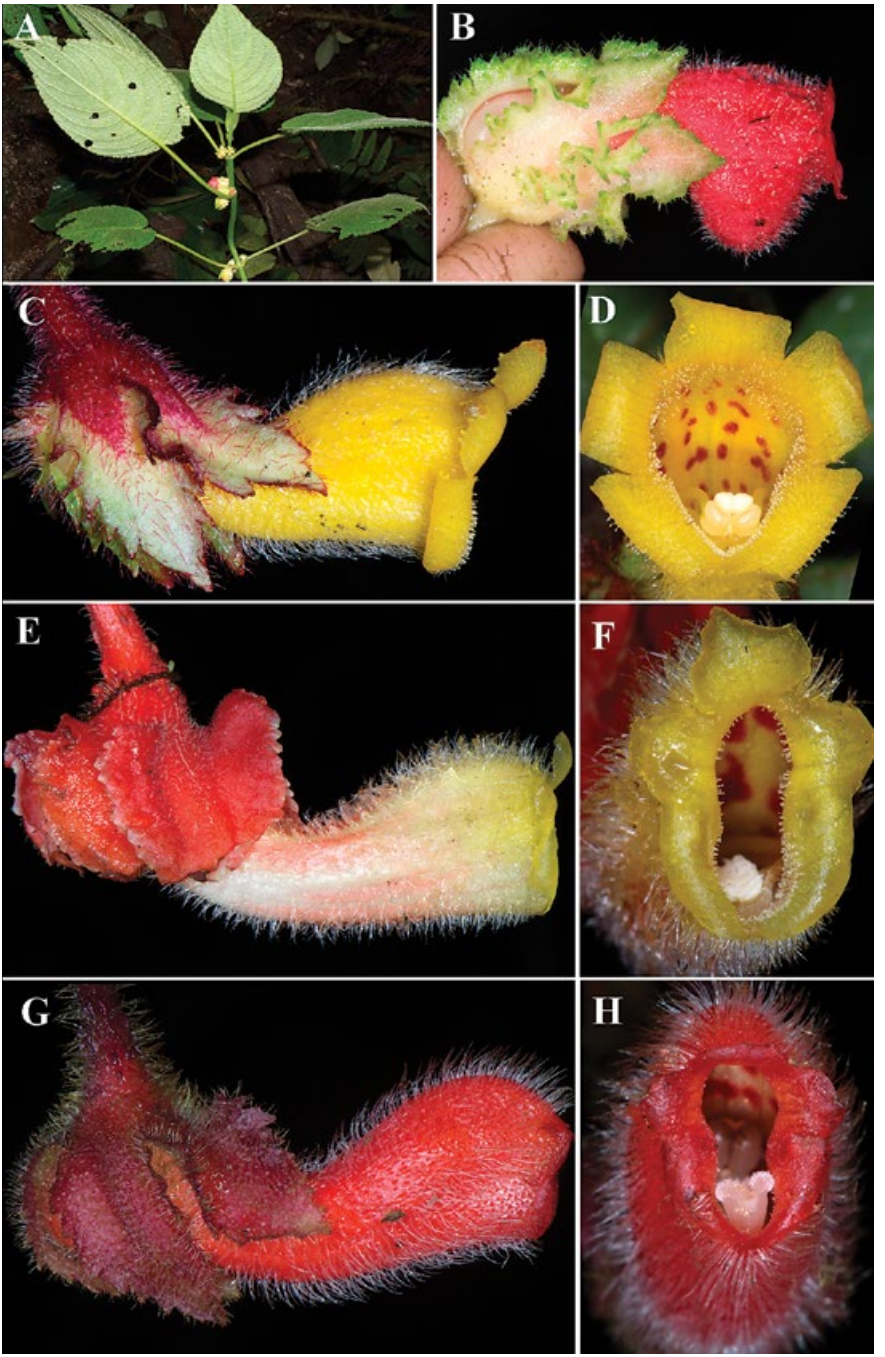

Figure 1. Undescribed Gesneriaceae species from Cerro Candelaria. **A. & B.** Terrestrial subshrub growing along a stream – *Drymonia* (J.L. Clark #14908). **C. & D.** Epiphyte with erect shoots collected near high camp (ca., 2500 meters) – *Glossoloma* (J.L. Clark #14812). **E. & F.** Epiphyte with horizontal shoots collected between station and high camp (ca., 2000 meters) *Glossoloma* (J.L. Clark #14818). **G. & H**. Clambering epiphyte with elongate horizontal shoots growing on ridgeline below high camp – *Glossoloma* (J.L. Clark #14803).

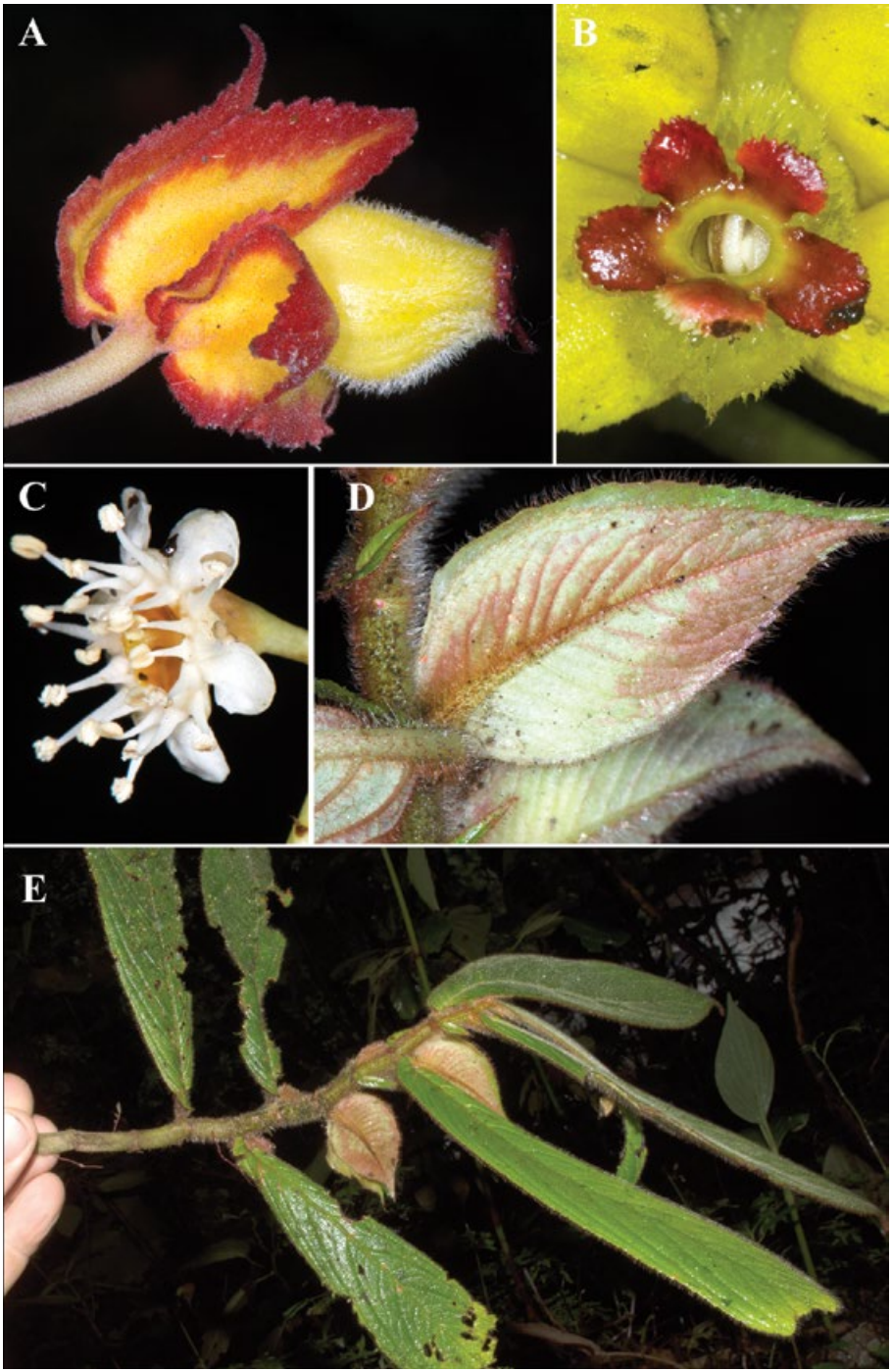

Figure 2. Rare and interesting species that were documented from Cerro Candelaria. **A. & B.** Herbaceous epiphyte with erect shoots – *Drymonia ignea*. **C.** Canopy tree collected in the permanent plot – *Prunus* (Roscaceae). **D. & E.** *Columnea bivalvis*.

for long-term monitoring of vegetation at 2200 m. We also set up a temporary camp at 2500 m that was used for ascending the highest point of the reserve at 3860 m. Sampling and collecting plants occurred at nearly all vegetation zones from the road to the paramo (high elevation grasslands). In total, our expedition generated 430 collections and more than 2300 digital images for ongoing biodiversity studies.

We employed two techniques for sampling vegetation. One was installing a 0.25-hectare permanent plot where every tree greater than 10 cm DBH (diameter at breast height) was measured, identified, and collected. Our second technique for sampling vegetation was to collect and photograph plants that were fertile (i.e., with fruits or flowers). Outlined below are some of our findings that resulted from our collections. These results are only preliminary until the specimens are transferred to the U.S. where they can be sorted, distributed, curated, and studied.

Permanent plots like the one we installed provide data that are important for quantifying tree diversity in a rainforest. They allow ecologists to draw insights on floristic composition, structure, and long-term forest dynamics. Permanent plots require that every individual tree in a circumscribed area be identified. This involves skilled tree climbers, collections, and taxonomic expertise. Recently, data from permanent plots (ter Steege et al. 2013) demonstrated "hyperdominance," a phenomenon where a small subset of trees comprises a large percentage of the vast Amazon region. Specifically, just 227 species (less than two percent) are so common that they constitute more than 50% of all trees in the Amazon (ter Steege et al. 2013). The permanent plot we installed during our expedition is an important contribution to the long-term monitoring of local and global tree species distributions. During the installation of the plot, we came across some trees that were not readily identified. One of those is a canopy tree that belongs in the genus *Prunus* (cherry) (Fig. 2C). There are only six native species of *Prunus* in Ecuador and the common one in our plot is not readily assigned to any of the six (Jørgensen & León-Yánez 1999). Our collection could represent a new species or a species previously only known from Colombia or Peru. This finding will be verified when our collections are available for study.

David Neill and John L. Clark holding a sample of *Calatola* sp. (Icacinaceae).

I am often asked how I know when something I come across is a new species. It is important to note that describing a new species is a process that is collections-based, requires several formal criteria outlined by the International Code of Nomenclature (ICN), and is contingent on a peer-reviewed publication. It is considered by some biologists (e.g., L.E. Skog who co-chaired my PhD committee) as "bad botanical etiquette" to say something is new without data. Nevertheless, outlined here are four

species that I am confident have not been previously described. My doctoral dissertation resulted in a monographic revision of *Glossoloma* (Clark 2005). This is a group of plants that I spent more than a decade studying and when finished, I expected that there would be an occasional new species that would represent something that was not included in the monograph (Clark 2005). For example, Karyn Cichocki observed a new species of *Glossoloma* in 2007 when assisting me on an expedition in Ecuador. An additional new species was described with a student as a result of an expedition in Colombia (Rodas & Clark 2014). What I did not expect to find in Cerro Candelaria was a new species of *Glossoloma* every 500 meters in elevation change. I found three new species of *Glossoloma* between our base camp and the high camp. We also discovered an undescribed species of *Drymonia*, which is a group that Laura Clavijo and I have studied together for more than eight years. I directed Laura's dissertation committee (2007 to 2016) and together we have published more than eight papers on *Drymonia*. Thus, the four undescribed species featured in Figure 1 are based on ongoing studies of museum specimens, extensive fieldwork, and comprehensive review of taxonomic literature. The remarkable discovery of biodiversity featured in Figure 1 is an example of the urgency and need for additional biodiversity studies in the Neotropics.

There are also rare species from Cerro Candelaria that I did not expect to find. Two collections represent populations that were not previously known. The rarest plant that we found was *Columnea bivalvis* (Fig. 2 D&E), which was previously only known from a single population (Amaya-Márquez & Clark 2011). *Drymonia ignea* (Fig. 2 A&B) is endemic to the eastern slopes of the Andes and was previously only known from five populations (Clark 2013). Never have I seen more than a few individuals of *Drymonia ignea* growing together, yet along the ridgeline there were multiple areas of ten or more individuals. Other species that we observed, but are not featured in this article are *Besleria* sp., *Columnea albiflora, C. ericae, C. fuscihirta, C. inaequilatera, C. medicinalis, C. strigosa, Drymonia teuscheri, D. urceolata, Gasteranthus wendlandianus, Glossoloma grandicalyx, G. ichthyoderma, G. schultzei, G. tetragonoides, Kohleria grandiflora, Reldia multiflora, Pearcea glabrata,* and *Trichodrymonia metamorphophylla*.

The expedition was particularly special because it was my first time directing a field course at The Lawrenceville School and I was able to continue an ongoing collaboration with my mentor and friend, Dr. David Neill. It was a unique opportunity to bridge the gap between multiple generations of students. It is my hope that some of the students who took the course will study field biology and evolution during their next academic stage. Who knows – maybe they will be the ones leading expeditions to Ecuador to foster the next generation of field biologists.

Literature Cited

Amaya-Márquez, M. and J.L. Clark. 2011. *Columnea bivalvis* (Gesneriaceae) a new species from the eastern slopes of the Ecuadorian Andes. Journal of the Botanical Research Institute of Texas 5: 75-79.

Clark, J.L. 2009. Systematics of *Glossoloma* (Gesneriaceae). Systematic Botany Monographs 89: 1-126.

Clark, J.L. 2013. A new species of *Drymonia* (Gesneriaceae) from the eastern slopes of the Ecuadorian Andes. Brittonia 65: 181-185.

Jørgensen, P.M. and S. León-Yánez. 1999. Catalogue of the Vascular Plants of Ecuador. Monographs in Systematic Botany from the Missouri Botanical Garden 75: 1-1181.

Rodas, L.A. and J.L. Clark. 2014. *Glossoloma velutinum* (Gesneriaceae), a new species from the Cordillera Central of the Colombian Andes. Journal of the Botanical Research Institute of Texas 8: 43-45.

ter Steege, H., N.C. Pitman, D. Sabatier, C. Baraloto, R.P. Salomão, J.E. Guevara, O.L. Phillips, C.V. Castilho, W.E. Magnusson, J.-F. Molino, et al. 2013. Hyperdominance in the Amazonian tree flora. Science 342: 6156.

Delivering the Power of the Sun to a Rainforest in Ecuador

By Megan Kucker ~ The Lawrenceville School, Lawrenceville, New Jersey

Megan Kucker at left

BEING IN THE FORTUNATE PLACE most of us are in the United States, we tend to fall short of acknowledging that many people do not have access to basic amenities such as water and electricity on a daily basis. Our teachers and parents always remind us to be grateful for what we have because others would love to be in our situation. It is one thing to read about living in a developing country, but actually experiencing it is entirely different.

I realized a difference between the United States and Ecuador when we went into the market on the first day of our trip. All of the food stands were clustered together under one roof and each Ecuadorian tried to convince us to come to their stand. Everyone wanted to sell you a fruit or vegetable for a quarter, and that would make their day.

I bought a tuna fruit (*Opuntia* or prickly pear cactus), a bag of cherry tomato-like fruits called tomatillo (*Physalis philadelphica*), and a coconut for $3.50 (US). After paying the lady, she reached out to embrace each of us with a hug. I wanted to buy something from each vendor because they were so kind and friendly. The closest experience that I can relate this to was a typical day in New York City: vendors everywhere in tightly crowded streets with a mix of different people. Except, in Ecuador, there was almost no technology, gray colors, or tall buildings. All of the buildings looked like something I've seen instead in cartoons: up on a hill and painted with an assortment of pinks, blues, greens, and yellows.

Throughout the winter term of my Honors Environmental Science course, the leader of the Ecuador trip, Dr. (John L.) Clark, taught us about different energy sources and the impact each source has on the environment. Through a project set up by the We Share Solar Education Program, our class constructed portable solar units

called We Share Solar Suitcases, which we took with us to Ecuador. To construct these units, we split into groups of four to wire parts, screw them together, and create a working circuit that could distribute electricity from a solar panel. Each unit includes a cell phone charger, a battery charger for AAA or AA batteries, and outlets for 12V DC devices. The systems we built include 80 watt solar panels and a 12-amp-hour lithium battery. The life span for these systems is about 25 years with battery changes every few years. By learning the benefits of solar energy during class – and then later having an opportunity to build the system – I was able to understand exactly how to keep our environment clean while supplying energy and power.

Dr. Clark inspired me to be a part of the trip to Ecuador. During our classes leading up to the trip, he told students numerous stories – and showed us pictures - of his past explorations in Ecuador. I had a hard time sleeping during the nights leading up to the trip because I was so excited by what Dr. Clark had told us about Ecuador. I couldn't wait to begin my journey.

The three portable solar systems my class had constructed were part of a lot of gear we took on the expedition. We delivered the solar suitcases to three locations. The first solar suitcase was destined for the Zuñac Reserve. The second suitcase we carried and installed in Candelaria Reserve in the cabin where we stayed for most of our course. One of our guides (who I now consider a friend), Jesús Darwin, was overjoyed when he was able to charge his phone so he could take more pictures while we were in the jungle. As a side note, his full name is Jesús Darwin Recalde, but everyone calls him "Darwin" because his dad goes by "Jesús." Our other guides were also pleased with the units because they could cook at night under lights and they had a source of electricity to charge their cameras and headlamps. The third suitcase was delivered to Yankuam, a newly established reserve that will be directed by Dr. David Neill from the Universidad Estatal Amazónica.

Throughout the week at Candelaria Reserve, I was able to see the impact the solar suitcase that I helped construct had on everyone in the camp and our guides. Building the units during class in New Jersey was fun, but getting them into the hands of people

who would ultimately use them on a daily basis filled me with pride. I loved being involved with a project that had a long-term impact.

Travelling to Ecuador this spring was probably the best experience of my life. Not only did I bond with amazing people from a different culture, but I had the unique opportunity to contribute to the ongoing energy needs in remote rainforests of Ecuador.

BOTANIZING!

Kaimansa Sowah ~ The Lawrenceville School, Lawrenceville, New Jersey

NEVER HAD I SERIOUSLY CONSIDERED ecology or botany or even entomology as a field of interest until our trip to Cerro Candelaria on the eastern slopes of the Andes in Ecuador. Arriving in Quito on a Saturday morning with many missionary groups crowding the lines at immigration, I questioned if our work in Ecuador would have any real impact on the community. How could plant identification transcend traditional community service? It would not be until I was sitting around a fire at our high camp sipping tea made from recently collected crushed foliage of a Lauraceae we had found earlier, barely communicating sufficiently in my middle school Spanish, that I managed to realize the profound importance of our trip to Ecuador.

The hike to base camp was brutal to say the least. Many of us had never hiked before and mounted on our backs were 50-pound packs with silica gel for preparing museum specimens, M&Ms (which would be our lunch for several days), and personal belongings. Our frequent stops for "Botanizing!" only heightened the difficulty level. Our expedition leader Dr. John Clark lights up at a fallen Gesneriad leaf, so throughout the hike and the trip as a whole, he was never short of excitement as our paths were lined with rare and new species. Fortunately, the view of mountains perfectly scattered, parting only for the rapids leading to and from waterfalls, fuelled our strenuous walk to the camp. The view never ceased to amaze us, and many of us still fail to believe its reality.

It was not until we began work on the plots that our own individual love for botany and plant life was established. Divided into groups of three, we established and inventoried tree diversity in a 0.25-hectare permanent plot. With the help of Tito, our guide, friend, and resident tree climber, we identified trees based on vegetative features (e.g., leaf patterns, leaf arrangement, smell), recorded DBH (diameter at breast height), tree height, and tagged each tree with an aluminum label. Our field journals appeared something like this: "tree 4, subplot 5, 25 meter height, 18 cm DBH, simple-alternate

leaves with milky sap (Moraceae?)." On the first day we found a cherry tree (*Prunus* sp.) that had never been observed by our resident scientist and tree expert, Dr. David Neill, who is a professor of biology at the Universidad Estatal Amazónica. Many of the trees were challenging to identify, which only further affirmed how much biodiversity surrounded us. During a lunch break, we played a plant identification game where we were divided into teams and given Al Gentry's book "A Field Guide to the Families and Genera of Woody Plants of Northwest South America." Each team was timed in their ability to identify foliage to family. All of us being extremely competitive, we quickly held our leaves to the light using our hand lenses, crushing and smelling, and rapidly blurting out names like "Piperaceae!" "Euphorbiaceae!" "Melastomataceae!"

Along with our own Dr. Clark were resident entomologists and ecologists who shared their love of biology. We also met the director and founder of the EcoMinga foundation, Lou Jost, who is a theoretical mathematician, ecologist, and botanist who specializes in the study of orchids. We were surrounded by vast amounts of unique talent, which greatly sparked our own interests. Besides the fieldwork, we were able to connect and talk with our guides. They soon became our friends, and it was through conversations with them that we realized how grateful they were for our interest in visiting their reserve. No, as a sixteen-year-old girl, I had never thought of biodiversity research as one of my interests. And I cannot say whether it was our guide giving us

hints during the scavenger hunt with his ability to identify plant families from meters away, or the sheer look of ecstasy when "Ranger", also known as Dr. Clark, and Dr. Neill sat around their pressed leaves, dumbfounded at a new species, or Darwin's ability to navigate the maze-like mountains and carting us up steep hills. Nonetheless, this trip has piqued my interest and I suspect that botany and biodiversity will play a large role in my future.

An International Immersion Experience

Eloise White ~ The Lawrenceville School, Lawrenceville, New Jersey

DURING SPRING BREAK, THE Lawrenceville School provided me and eleven of my classmates with an incredible opportunity to travel to Ecuador on a research expedition. While the main purpose of the trip was to further our understanding of tropical ecology by installing tree plots for an inventory in the cloud forest, we also took full advantage of the chance to backpack through the mountains, familiarize ourselves with the culture and food, and improve our Spanish. My experience in Ecuador was memorable because it provided me with an opportunity to explore an exciting, new place through two lenses in which I am very interested: foreign language and natural science.

I must admit that when I first signed up to travel to Ecuador with the School, I expected a week of light hiking, bonding with new friends, and great food, all coupled with the occasional botanical reference. While the food was indeed fantastic, the intensity of the trip took us all by surprise on the first day in the field, when we embarked on a challenging four-hour hike to our camp. It was not until after we finished showering in the beautiful waterfall and sat down at dinner to prepare our field notebooks for our work in the tree plots the next morning that I realized the importance of the work that we would accomplish during our time in the forest.

When we reached the plots bright and early the next day, we received instructions, and my group quickly fell into a rhythm of tagging trees with bright orange tape and communicating with our local guides who were climbing to the canopy of the trees, a task that gradually became easier as our Spanish improved. Each time that our guide, usually some 30 feet high in a tree, would cry "Ten cuidado!" the three students in my group would jump back and wait for an unidentified specimen to come crashing to

the ground. That first day, in the moments that I spent with Dr. (John) Clark, tagging and pressing plant samples into pages of newspaper, his excitement surrounding new and rare species was absolutely contagious. I found myself eager to memorize the names of plant species, to identify which types of bark had latex, and to distinguish simple leaves from compound leaves. Even now, I find myself so grateful to Dr. Clark and

the other scientists accompanying us in the forest because they showed me what it means to be passionate about a specific field of study, something that I hope to do as I move forward in my Lawrenceville career, the college process, and my life.

Additionally, another aspect of our travels that I never considered until we met two local teenage Ecuadorians named Jordi and Darwin, was the role that practicing and speaking Spanish would play into my experience of the country, especially because I initially signed up to go to Ecuador to further my science studies. My Spanish teachers at The Lawrenceville School have always stressed the importance of experiencing the language abroad in order to truly further my understanding. I can confidently say that my trip to Ecuador was very much a study abroad opportunity, even though its primary function was a science class. Between trying to ask our guides to scale a certain tree to obtain a specimen and sitting around our campfire late in the night, telling ghost stories and jokes with Jordi and Darwin, I was constantly speaking Spanish. The pure exposure to the language coupled with the locals' willingness to help me practice provided me with a unique opportunity to further an area of interest which I had not previously devoted much attention to. Furthermore, partially overcoming the language barrier opened the group up to an irreplaceable chance to form lasting friendships with locals, a memory that I will forever treasure. Lawrenceville constantly stresses the importance of expanding our horizons, and I can attest that in communicating with and working alongside unfamiliar faces, the twelve of us expanded our own world views significantly.

Before embarking on our journey, our teachers made it clear that our accommodations would be far from luxurious. We were told that we would be perpetually damp, sweaty, and dirty, all of which later proved true. However, I will be the first to say that the view from our wooden cabin base camp without windows, doors, or even walls was extraordinary, rivaling that from any mountain getaway or island. When we summited Cerro Candelaria (3600+ m), while it was extremely challenging and put both our bodies and minds to the test, the breathtaking outlook from the top instantly made our hard work worth it.

Overall, my work and experiences in Ecuador were once-in-a-lifetime opportunities. They opened my eyes to an entirely new scope of interests, people, and awareness. For example, although I previously planned on dropping out of Spanish for my senior year, I have changed my mind and will continue to advance my understanding of the language, hopefully into college. As I begin the college search, I have been relentlessly pestering my counselor about which schools have the best programs to study abroad while working with the science department. I attribute these shifts in my interests to my recent experience in Ecuador.

Seed Fund Promotional Contest

To encourage donations to the Gesneriad Society's Seed Fund, a contest began on January 1, 2016. First and second place prizes will be given to the persons making the most Seed Fund donations throughout the year. The number of individual types of seed contributed (not the number of seeds) will be tracked from January 1 through December 31, 2016. The prizes ($25 for first and $15 for second) will be gift certificates of the winners' choice below:

- Seed Fund
- Commercial grower of winner's choice
- Gesneriad Society webstore
- Convention plant sales

Achimenes 'Yellow Fever' All photos by Serge Saliba

SERGE SALIBA: MY STORY WITH *ACHIMENES*

Serge Saliba ~ Bucharest, Romania ~ <serge_saliba@yahoo.com>

Introduction by Steven A. Frowine:

I "MET" SERGE ON-LINE THROUGH ANOTHER GESNERIAD LOVER and now hybridizer, Roberto Frias. Roberto and I were plant buddies when I lived in Mexico. We had most of the same loves or obsessions—including orchids and gesneriads. Both of us were looking for more varieties of achimenes to grow in Mexico. Ironically, although Mexico is home to several species of achimenes, including the most common form, *Achimenes mexicana* that is frequently found in the mountains, the other species and hybrids are very scarce, or non-existent, in local nurseries. Roberto and I obtained some species and hybrids from US nurseries like Kartuz and Lauray of Salisbury. Although we received a nice selection from these sources, most represented older hybrids. Then Roberto saw the pictures of Serge's hybrids online and was dazzled by the new colors and forms that he was producing. We were lucky enough to obtain some of Serge's rhizomes and were duly impressed with their stunning performance.

After I saw Serge's work, I thought members of The Gesneriad Society would be fascinated to learn how these wonderful new varieties came about and to hear it right from the breeder himself. His story is one of great determination, and his fabulous results are certainly worth his painstaking efforts. We are lucky that Serge's dedication has brought us new hybrids to enjoy. Although this article is about his work with achimenes, he has not stopped there. He is also doing groundbreaking work on miniature sinningias and kohlerias!

I thought maybe I could produce something different and enlarge my collection.

Now here is Serge's story in his own words:

My story with achimenes began in 2002 when a neighbor gave me a small cutting that I planted in a small pot. He told me it had a purple flower with a petunia-like bloom and could be grown inside my house or balcony along with my saintpaulias.

I grew this cutting until it began to flower. I was really amazed by its bloom potential, despite the fact that it was not receiving enough light and air. I asked him about the name but he did not know it. After months of searching, using a primitive internet search engine, I finally found the name of this plant: achimenes!

I saw many images of species and hybrids with different colors other than purple. Most of them were not so attractive from a horticultural perspective: they were tall with small flowers, but the colors were varied. Now I know that many beautiful hybrids existed at that time. Lots of them had been created by K. Michelssen and others, but for some reason I couldn't find images of any of them in my long and deep research.

The achimenes I was growing was *A. mexicana*, which was very common in Romania. It was often seen growing in window boxes or pots in apartments. I was dying to obtain new colors other than purple. I was also dreaming of making beautiful displays to color my balcony (which is like a small greenhouse) with yellow, pink, blue, white, magenta, and red achimenes flowers. I wanted to grow all these achimenes along with my African violets and to make cascades of colors in every part and corner of my "little paradise." I wanted to sit in a chair and drink my coffee every morning surrounded by masses of colors around me, but it was nothing but a dream, because no rhizome suppliers were to be found. I looked everywhere and used all kinds of search engines, but nothing!! My fascination became some kind of an obsession. Finally, all that remained was a little drop of hope that one day my dream would come true and a miracle would happen.

And then it happened!!!!!

After three years, on January 5, 2005, I got an answer to a message I had written on a Gesneriad Society blog asking the members if they had any achimenes other than purple to trade or sell.

Achimenes 'Don Quichotte'

Then I got a message. I remember it was almost midnight and was snowing outside. It was so cold, everything was frozen, but when I read this message I felt the heat in my whole body, I started to sweat as if it was a mid-August night. The message was from Humberto Vitorino, who lived in Portugal. He answered me by saying "Yes I have achimenes"and he sent me a photo displaying achimenes of all colors! When I saw the photo I felt that the sky was falling on my head. It was a euphoric moment. I saw my dream in front of my eyes. The photo showed varieties I never imagined existed. They were all colors and shapes, with big beautiful blooms and compact bushy plants. I asked Humberto if he would sell me some, but he was such a nice person that he said "I will give you some!"

Achimenes 'Blueberry Lemon'

Achimenes 'Honey Queen'

A friendship was started quickly between us. He was a French language teacher and we talked hours in French every day. We had many common experiences in our lives and shared the same hobby, so our friendship became very solid within weeks. He promised to send me the rhizomes by spring, a mini collection of all colors, which he would choose for me among hundreds of hybrids from the biggest collection of achimenes that a man could ever own. Humberto was not a simple grower; he was the biggest collector of achimenes. He was the master of achimenes. He knew the history of every single hybrid and had had personal contact with K. Michelssen and others. He knew the secrets of what happened behind the scenes in achimenes evolution – how the hybrids were created, who are the real and fake hybridizers and the original and fake names of each variety. He was an encyclopedia of achimenes knowledge!

Achimenes 'Nostalgie'

What luck! I was looking for a silver dime and came across the "Eldorado" itself!

The rhizomes were sent to me in March, but receiving them was not so easy at all. They should normally have arrived within a week, but one week passed and nothing! I was crazy and waiting was so difficult. I was checking with the post office and I was hearing the same words "Nothing yet!" Three weeks passed and my rhizomes didn't appear. I kept on checking until one time an employee said to me: "I think it's lost." Hearing this was like a bullet hitting my chest!

Achimenes 'Achta Alexandra Shvelidze'

To make the story short, by April 4th I decided to check again. I went to the post office and implored the employee to look for my package, and after 10 minutes, she came to me with the parcel in her hand…wow!!! Finally, I got them!

On that day, April 4, 2005 my odyssey with achimenes started….

Of course, I was very excited to plant them. It was such a pleasure to plant each variety in a pot and another pleasure was to see them sprouting and making small green leaves and then small branches. I was pinching them all the time to increase the number of branches in every pot and make them look bushy. My balcony was a sunny place with good air flow, so the plants thrived. By June they started to make small flower buds. But unfortunately, I had scheduled a trip at that time to the US to visit my brother and his family, so I left for three months without seeing any flower open.

In the US, I was so busy and my mind was away from all the "jewels" I had left behind. Until one day I got an email from my wife with many attachments. I opened them and saw the paradise I was dreaming about. It was my balcony full of all kinds of colors. There were masses of colors everywhere, exactly the way I was dreaming it to be. Some pots were so full of blooms that no leaves could be seen. It was something magical, and I knew then that my pinching technique I did before I left had produced this stunning result. I think I was the first achimenes grower at that time who dared to

practice pinching. Growers were afraid that it could delay the blooming, but it wasn't true at all. A few years later, I wrote many articles about teaching growers how to pinch in order to increase the bloom number and make the plants more attractive.

I spent three months in the US and returned in September to find some pots still blooming. It was such a beautiful feeling to see with my own eyes these new varieties. I spent the whole month sitting in my chair every morning and every evening admiring those beauties around me. Some of them were preparing to go into dormancy, but there were still many colors of flowers around. At that moment, the instinct of creativity in my genes woke up suddenly and told me to start crossing or hybridizing. I wasn't thinking before about crossing achimenes for two reasons:

1. I had all the colors and was satisfied.
2. From what I heard, crossing them was so difficult and not easy at all like other gesneriads.

But I decided to give it a try. I thought maybe I could produce something different and enlarge my collection. So I start to cross. I was crossing everything with everything; I had little hope that I would get something different. I was looking at the flowers every day to see if there were any seed pods, but nothing! I repeated my crosses again and again. I also used one ×*Achimenantha* as a seed parent. Days passed, then the weeks, and no seedpods at all. Finally, I noticed that two seedpods were swelling up; one on an ×*Achimenantha* ('Aries') and the other on a red hybrid of Michelssen's. I was so happy and excited to see that. I waited more than a month until the seed pods ripened and was afraid they would be empty or not have fertile seeds inside, but when I opened them, they were full of beautiful rounded fertile seeds, hundreds of them. I planted them in December and by the beginning of 2006 my trays were full of seedlings. I planted everything in pots in the spring and waited the summer to see the results of my first crossings. I was dreaming the whole period about how many new varieties I would get.

About the Authors

Serge Saliba was born in 1972. He graduated with a Master's degree in Human Physiology. Serge says that he was "addicted" to color ever since he was a child and was planting all types of seed by the age of five. Serge was born with a scientific curiosity that continues today. He is fascinated with the mechanism of life functions and is why he studied physiology. After having an awareness of the complexity of life, he was spurred on to try to be a creator of new plants.

Serge worked for eight years as the General Manager for a French cosmetics company in Romania. After this job Serge stopped working for corporations and dedicated his life to his passion and love — creating new hybrids of gesneriads, especially achimenes.

He was married in 2000. In addition to gesneriad hybridizing, his hobbies are spear fishing, soccer, and reading.

Steve Frowine was borne in southern Ohio. He was a "plant nerd" at a young age and grew orchids and gesneriads in his basement, He obtained his BS and MS in horticulture from Ohio State and Cornell. Steve worked as a horticulturist for various botanical gardens — the National Tropical Botanical Garden in Hawaii, Cleveland Botanical Garden, Pittsburgh Garden Center, and Missouri Botanical Garden. While in Cleveland he founded a chapter of the Gesneriad Society. After these stints he continued his horticultural career at Burpee and White Flower Farm and served as as consultant to various horticultural businesses. Steve has written many articles for national horticultural publications and has written five books on orchids and general gardening. He has also appeared on many local and national TV programs.

Steve recently moved from Mexico to the States and now resides in Asheville, NC with his wife, Sascha, and two Weimaraners. http://members.authorsguild.net/stevefrow/bio.htm

Clockwise from top left: *Achimenes* 'Blue Swan', *Achimenes* 'Charles Lawn', *Achimenes* 'Eden', and *Achimenes* 'Ice Tea'

I thought about how I would name them, how my collection will be bigger and how I would make Humberto happy by giving them to him.

The summer came and the plants started to bloom. One after the other flowered, and to be honest, I was very disappointed by the results because 99.99% of the flowers were not interesting at all. Most of them were purple and some were repetitions of what I had. I could barely select any varieties I considered somehow interesting. One of them was an ×*Achimenantha* that I named 'Humberto Vitorino', as a tribute to the man who gave me this mini collection, so this ×*Achimenantha* was the first hybrid that I named; it was the start of the long journey of hybridizing!

The next season, I wasn't sure whether or not I should continue my project, since my last experience with crossing didn't satisfy me at all. I got to a point where I thought it might be best to stop and grow only what I had.

As a biologist who studied genetics and has a masters degree, I was convinced that those beautiful genes that I was dreaming of uncovering were recessive genes and that their transmission into a phenotype might be difficult or even impossible. Or maybe

Top left, *Achimenes* 'Tamara Khorkina', top right, *Achimenes* 'Scarlet Queen', right, *Achimenes* 'Crystalynn'

Opposite page, top, *Achimenes* 'Snoweetta', bottom, *Achimenes* 'Achta Sun Core'

they were not there at all in my small collection. Or maybe the varieties that carry them were sterile, and they could not give or accept any pollen. I wondered if other techniques might be needed, such as sophisticated biotechnology, to which I did not have any access. I was sure that a lot of patience and perseverance was going to be necessary and that I would have to use the basic genetic techniques involving crossing and backcrossing until something worthwhile and new resulted. It was a "mission impossible." At least this was my feeling at that moment.

The Sparkle

After I got to this dead-end point, I had a period when I was doing nothing but watering, pinching, and fertilizing. And then, on a hot August day my instinct of creativity woke up again. I don't know how it happened, but I felt that something was pushing me to continue my project. It was a like a revelation saying to me that somebody has to take up this mission, and this somebody must be me. It was a spark that ignited a huge fire in my mind telling me "Go and do it!"

I began crossing aggressively, using all the available genetic material I had, including unnamed varieties from my first crosses. I crossed and backcrossed using my instinct, imagination, and science. I was determined to get something special this time. I used all my energy, patience, and perseverance saying always to myself: "I have to get something special." Finally, to make the story short, I got many seedpods that all ripened and gave beautiful healthy seeds. Thousands of seedlings resulted. I planted every single seed to increase the probability of getting good results. When the summer arrived (it was June) there were lots of blooms. Most were not interesting. Then I noticed that on some plants there were flowers that had not opened yet and they looked to me rounder and

Achimenes 'Santiano-improved'

fatter than the classic ones. I thought: "Those may be double flowers." They didn't open quickly; it took days. I was checking them every hour, even waking up at night to inspect them. They were torturing me. My patience was totally stretched and I became so compulsive that I was trying to open them with my fingers to see what was inside. Then I controlled myself and decided to wait.

I really cannot forget those days. They were sweet torture for me, but now are such beautiful memories. Yes, so beautiful because I cannot forget that day when I woke up in the morning and was shocked and thrilled when I saw many splendid double hybrids fully opened in front of my eyes. Each one had different colors and patterns. They were very far beyond my expectations. One of the doubles was an orange and yellow. I named it *Achimenes* 'Serge Saliba'. The others were 'Serge's Fantasy', 'Golden Lady', and 'Hard To Get'. The following week another double appeared as 'Petite Fadette', and other hybrids with a simple corolla as 'Sweet and Sour', 'Vie En Rose', 'Ice Tea', 'Lady In Black', etc.

When I posted photos of my hybrids on my Flickr photo stream (https://www.flickr.com/photos/gesneriads/), it didn't take long before I was bombarded with emails from people who were admiring them and were willing to have them at any price!

One of those emails was sent from a person who I always considered an icon and idol in hybridizing of *Sinningia speciosa*. It was an unexpected email that made me extremely happy and honored. It was sent on July 25th, 2007. His e-mail was short: "Hello Serge, admiring your achimenes and am sending this email to see if I have the correct address." The sender was the iconic Charles Lawn, the "Father of Sinningias," as I call him. At that moment I felt myself growing from a no-name hybridizer into somebody known and congratulated by Charles Lawn himself, who became a dear friend to me later on!

I continued my crossing year after year and was producing a new series of achimenes every season, which are still very appreciated now by growers all over the world. Also, I started to write articles in newsletters and magazines in many countries, and gave interviews to many of them. My photo stream became very visited and famous.

Over the years, I became an expert in the achimenes genome, knowing better and better about how genes are transmitted. I started to use many techniques in hybridizing, some of which are not conventional. My scientific background helped me a lot.

Now I carefully calculate my crosses in order to increase the probability of obtaining the best hybrids without using too much space for selection. I have succeeded in producing every existing color and shape on achimenes and ×*Achimenantha*, to filter the genome to weed out the bad genes and produce almost perfect cultivars. It's a feeling of satisfaction when you create something that didn't exist before, that I will leave it behind to the world, and for which I will be remembered for many generations to come. All the hybrids I have created over the years are like my children. Each one has a story behind its name. But if you ask me about my favorite achimenes I will always answer: "The very old hybrid 'Ambroise Verschaffelt', which is still fascinating me."

Flowers of three of Pavel's fantasy streptocarpus hybrids

All About Streptocarpus Part 3: Light

*Pavel Enikeev (*Павел Еникеев*), Dnepropetrovsk, Ukraine <dimetriss@mail.ru> and Olga Makarova <francheska5608@gmail.com>*

Editor's note: Pavel Enikeev and Olga Makarova, PhD, are co-authoring an English-language book on Streptocarpus. This new book draws on Pavel's original Russian-language book, Стрептокарпус *(Streptocarpus), but contains much new and updated material. Gesneriads is introducing this book in serialization, translated by Michael Tarasev and Mark Larson. All photos are by Pavel Enikeev.*

FIRST OF ALL, WE WANT TO NOTE THAT DUE TO THE COMPLEXITY and scope of the topics covered in this chapter, this article in no way should be considered detailed or comprehensive. In the previous chapter, we discussed the effects of temperature – a subject where we had a chance to conduct many experiments and accumulate significant experience. Conducting experiments with light, on the other hand, is much harder as it requires a much broader technological base. You can say something like "My streptocarpus grows fine and blooms fine, and is a delight to the eyes, with no natural light, under a fluorescent lamp alone with 8 hours a day illumination." Maybe so, but this is a specific case (just like we discussed in the previous chapter). In order to understand the case, in order to derive any general conclusions, we need to know and understand multiple other details:

- What hybrid of *Streptocarpus* was it?
- What exactly does it mean: "grows fine and blooms fine?" Does it show a proliferation of leaves or just a few? Is there one flower on the plant, or twenty-one?
- When did it bloom – after four months, or a year after being planted?
- What happens after it flowers? Does it die, or does it keep growing and flowering?

Pavel Enikeev

Olga Makarova

Much is still unknown in this space with data sometimes being controversial. So, do not judge us too harshly, as we will try to build a general case – or as much of it as possible.

Light

Plants cannot live without light. Through photosynthesis, the key process occurring in all plants, light provides the energy every plant needs. Different plants, however, need different amounts of energy, and hence of light.

Streptocarpus are somewhere in between light-loving and shade-tolerant plants: streptocarpus plants love filtered light. However, they easily withstand direct sunlight, as long as the sun is not higher than 10-15 degrees above the horizon. Therefore, they will tolerate direct sunlight in the early morning. However, they do not appreciate the high-noon sun.

Thus, in spring and summer, a side window arrangement looking northeast would work very well. In winter, when the sun does not rise as high, south-facing windows should work. If you want to grow streps on south-facing windows in spring-summer, you will need to somehow diffuse the sunlight. It could be a white curtain, thin white paper, or mesh, but the most convenient and common solution is blinds. White cloth ones work very well, and if facing east, they would allow sunlight in the morning, but would shade the plant during the day. As the amount of sunlight changes over the year and day to day, louvers can help regulate the amount of light that reaches your plants. Overall, the best conditions for streptocarpus growth and flowering under natural light are achieved on north- or east-facing balconies.

Regardless of whether the light is natural or artificial, it has several important characteristics or parameters that affect the plants. We will talk about three such parameters: Intensity, Quality, and Photoperiod.

Light Intensity

It may seem simple, but in reality, light intensity is a fairly complex physical concept. There are multiple ways to measure it, including brightness, which is a subjective perception of how "bright" is the light source or a reflective surface. The total amount of light that is emitted by a source, like a light bulb, is measured in lumens, and the amount that reaches a defined area is measured in lux. The larger the area you need to illuminate to achieve the same brightness (same lux), the stronger the light source you will need (more lumens). For comparison, a candle one meter from a surface will provide illumination of about 1 lux. By the way, corresponding American traditional units are foot-candles – you can use those, if you prefer. As brightness is "subjective," lux are calculated to represent the total "amount" of visible light, as perceived by the average human eye.

We can measure lux using a special device – a Lux Meter (or Luxometer). A simple one would cost about $20, more comprehensive units can set you back $300 or $400, but any would likely be a smart investment on your part. You can try using a smartphone application to measure brightness – there is no lack of such applications, both for iPhone and Android. Unfortunately, laboratory tests show that mobile phones, regardless of the app you choose, are "not of any use to obtain a general idea of the illuminance value." The reason is that the measurements should be corrected to account for the angle of the light as it reaches the sensor, and to the sensitivity of the human eye in daylight – corrections not yet possible for our phones. Brightness-measuring applications may be fun, but they are no substitute for a professional Lux Meter.

Naturally, maximum brightness will be in summer, and minimum in winter. Just like it was with temperature, streptocarpus hybrids have their preferences for light, and for many of them the optimal brightness would be much lower than that on a clear summer day (100,000-120,000 lux). As we have said, streps would not appreciate direct sunlight in summer. In nature, they grow in shaded areas with predominantly indirect illumination (3,000-8,000 lux). They are just not accustomed to excessive light, which may harm the plants, slow photosynthesis, and in general be detrimental to plant health and growth. The optimum range is actually fairly wide, as different hybrids require different levels of illumination. Moreover, lux reflects the sensitivity of the human eye and not the sensitivity of plants, and thus does not directly relate to plant photosynthetic activity. If it comes to that, human eyes are maximally sensitive to green light – exactly the color of light least absorbed by plants' chlorophyll. That is why leaves are green – they reflect most of the green light!

As mentioned, different cultivars have different preferences for illumination. They have different types of chlorophylls, specifically adapted to particular levels of brightness. Plants with lighter-colored leaves (containing more of chlorophyll B) require less light; those with darker leaves (more chlorophyll A) would prefer a brighter environment. There could be a two to three fold difference in the amounts of optimal illumination. If you are using artificial light (e.g., fluorescent lights), you might consider using a different number of lamps (from one to three tubes) on different shelves, to determine the preference of each cultivar you grow.

Keep in mind that lamp reflectors can significantly change the amount of light that reaches your plants, with a two to three fold increase in the efficiency of illumination. Reflectors also change the direction of illumination. Another consideration is the light that may be reflected from walls and shelves. It may be advantageous to increase such indirect (to the plant) illumination, by covering the shelves with some reflective material.

Streptocarpus 'DS-1535' (unnamed hybrid)

Pavel's streptocarpus hybrids in a show

Qualitative Characteristics of Light

As we mentioned before, both red and blue light provide energy for photosynthesis, and it has been shown that blue light works well for plant growth, with red (and far-red) light playing an important role in regulating flowering. That does not mean that light of the other parts of the spectrum is without any use for the plants. Recently, scientists at Michigan State University showed that even green light, which is very poorly absorbed by chlorophyll, still can affect plant growth. Moreover, when you have an excess of blue light (compared to red) growth is suppressed, with plants becoming stocky. Plants use all available resources, and always try to adapt!

For example, ultraviolet light can be harmful for plants, just like it can be harmful to people. And, just like people can get sunburned, plants can get sunburned as well, only for them, it is the leaves that will suffer, not skin. Some ultraviolet, however, is necessary for our well-being. A long time ago people noticed that without some ultraviolet, we can get sick and our immune systems may falter. Now we know that the culprit is vitamin D, which forms in our skin with ultraviolet help. Well, what do you know? In that respect, plants are similar to us, with plants lacking ultraviolet being more susceptible to microbial infections and parasites.

As it turned out, streps can also synthesize special compounds, flavonoids, which will protect them from ultraviolet damage. Plants do not need this protection all the time, and they do not want to waste energy making unnecessary things. Faced with a challenge, they will adapt; we just need to give them a bit of time. Streps would not mind if you were to open a window, or take them outdoors under a canopy. Scattered ultraviolet can change the color of the leaves, but the plant will thrive. However, abrupt exposure to direct ultraviolet can easily burn a plant. So, if you want to give your streptocarpus some "fresh air," do not rush, and allow your plant to get accustomed to its new environment in deep shade at least for some time.

It is very possible that the natural sunlight to which plants are adapted is optimal to stimulate all stages of plant development and growth, and gives plants clues on what they are supposed to do. When we make hybrids, we create something that did not exist in nature before. Most of the time we do not know beforehand what might be the light requirements for each new hybrid. In such cases, the only solution is to experiment.

Unlike us, plants do not have ears or eyes, but that does not mean they are unaware of what is going on around them. Plants rely on light to not only generate energy through photosynthesis, but also to tell them about their environment. After all, they must make many important decisions: how fast to grow, in what direction to grow, what adaptive changes to make. The decision when to procreate – what we call flowering – is likely one of the most important in a plant's life. Selecting the appropriate time is critical and light can tell plants most of what they need to know.

Overall, for good flowering, plants prefer substantially more red (and far-red) than blue light. Unfortunately, we cannot give you a ready-made recipe for the best proportion of each wavelength. Experimentation may be required to figure out the optimal lighting.

Photoperiod

Photoperiod (amount of daylight or darkness needed for plants to grow or bloom) is another parameter that plants use to make critical flowering decisions. In all regions except the polar and equatorial regions, day and night length changes with the march of the seasons. Plants can detect changes in photoperiod and use them to determine the proper season to make flowers. Geographically, streptocarpus habitats stretch over multiple light zones of South-East Africa, and so various hybrids have significantly different requirements for flowering. Thus it should not come as a surprise that we cannot tell you here what would be the preferences of each one of more than a hundred strains of *Streptocarpus*. The issue becomes even harder when we are referring to the modern streptocarpus hybrids that have mixtures of genes from many native species.

The effect on the leaf of too much light

In the literature, we have only found studies that looked at the photoperiod of one streptocarpus species – *Streptocarpus nobilis*. The study indicated that the plant's critical photoperiod was 12.5-13 hours. That means that in these experiments *Streptocarpus nobilis* flowered when the daylight duration was less than 12.5-13 hours.

We ourselves have never encountered any streptocarpus species or hybrid that behaved in that way and so we decided to grow *Streptocarpus nobilis* ourselves. This huge plant grew tall and proud, and was over a meter tall. It happily flowered from spring to autumn, and even during the summer, when the daylight time approached 17 hours. This unexpected result illustrates the potential contradictions and uncertainty in this area. Plants are very complex systems, and it is not easy to generate reliable and verifiable data that would be applicable in all cases and conditions. Based on our experience, we feel that the ideal cycle for an "average" streptocarpus hybrid would be 14 hours of "day" and 10 hours of "night."

However, as always, there are nuances when dealing with certain hybrids. Some types are early to bloom, but would not build sufficient leaf mass. They can quickly become "exhausted" and sick. So, if you notice that some of the the plants you grow bloom very fast, consider shortening the daylight for the seedlings – to 12, 11, and even to 10 hours. On the other hand, if you want to speed up flowering, consider increasing daylight hours up to 16 hours.

Keep in mind that streps should never be given round-the-clock illumination. Practically all plants require a dark phase. Plants use this dark time for certain

Streptocarpus 'DS-1514' with symmetrical, star-shaped blossoms

biochemical processes that they would not perform during the day. If it is always "day," plants may slow their growth, and even get sick from "exhaustion." The signs of excess light (often duration, but it could be intensity as well) are shown in the photo on page 40. It shows how leaf surfaces between leaf veins become lighter. That indicates the breakdown of chlorophyll, and thus a disruption in photosynthesis. To avoid these problems, the night period should not be less than 8 hours. If these conditions are not corrected, leaves become more yellow, up to becoming completely colorless, and the plant may even die. Note that this can easily happen at the optimal growth temperatures.

The leaf is the main plant part responsible for photosynthesis. Its large surface area allows it to effectively collect incident light as well as perform and regulate gas exchange with its environment. It is often said that you can, and maybe should, remove and/or severely cut leaves. In support of this, it is claimed that new leaves would help develop more bloom stalks. Remember, plants are living beings. It would not do to cut off your legs in order to lose weight. You should not cut healthy leaves even if they do not produce any blossom stalks. These leaves are still working. They are feeding the plant, including new flower stalks on other leaves. That is particularly important for hybrids that may not have many leaves to begin with. Perhaps by cutting withered leaves you may be able to make the plant temporarily release more stems from younger leaves. However, such an approach is unlikely to provide long-lasting benefits. "Stressed" plants may sicken or respond to the lack of resources by flowering themselves to death. Naturally, if there are very many leaves, and they shade each other, it may be beneficial to remove the oldest ones. Being covered by younger leaves, they do not receive enough light, do not help the plant much, and thus can be removed.

Artificial Illumination

We could spend all day listing different types and methods of artificial illumination. We will focus only on the most important. There is a big difference between "regular fluorescent tubes" and so-called "grow lamps." Let us look at regular lamps first.

One of the most commonly used type of lamps is fluorescent. These tubes can be of three different diameters and are labeled as T5, T8, and T12. T5 lamps have the smallest diameter, and are considered the most efficient. However, their relatively limited selection and higher prices would not justify a change if you are already using something else. Due to low efficiency, T12 lamps are being replaced by T8 lamps.

Four-foot T8 lamps are currently the most popular. When buying lamps, people look at the "cool" (around 6,500K), and the "warm" (around 3,000K) lamps. As plants need both red and blue light, people buy both. The assumption here is that the warm lamp's light is mostly in the red part of the spectrum, while that of the "cool" one in the

Pavel's daughter Margarita with her namesake, *Streptocarpus* 'DS-Margarita'

blue region. This is not strictly correct. Just by looking at a lamp's Kelvin temperature we cannot tell how well suited it will be for our plants.

To properly assess lamps we need to look at the spectrum of their light. When we compared the spectra of commonly available fluorescent bulbs, we confirmed that in all cases their spectra contained both blue and red light. That was true for the "cool" (6,500K), "warm" (3,000K) and for so called "daylight" lamps (4,100K). However, "warm" lamps provided mostly red and yellow light with a small contribution from green and blue. "Cool" had more blue light as well as red, but red still predominated. "Daylight" types provided about equal amounts of blue and red. However, the way plants work, red light initiates nearly twice as much photosynthetic reactions than blue light of the same intensity. In the United States we use widely available lamps: F32T8/SPX50/ECO2 5000K.

Let us now discuss "grow lamps." We evaluated flowering of several streptocarpus hybrids when illuminated by four T5 (6,400K) SunBlaster grow lamps (retailing for $50 each). These lamps have a spectrum close to that of natural daylight. We compared the results with those received under regular T8 lamps (at $4 each) described above. A video record of this experiment can be seen on YouTube if you search for "Francheska Streptocarpus." Francheska is the pen name for Olga Makarova. Flowering that we observed under the grow lamps was a bit more robust, but this difference was not overwhelming. Moreover, it seems that the impact was not the same for all hybrids – while some seemed to prefer the light from grow lamps, others did not seem to care. We did not have a chance to repeat this experiment enough times to be sure that this is indeed a real difference and not just an experimental error. To conclude, grow lamps seem a bit better, as long as you do not mind paying ten times as much.

A couple of words about sodium lamps. While "pure" sodium lamps provide only yellow light, we are talking here about "high pressure" and "white" sodium lamps, which provide lots of yellow and red light. High intensity allows their use in situations when there is just not enough natural light. However, these lamps are hot, with the lamp temperature reaching 750 °F (about 400 °C). Thus, these lamps should be located about 1-1.5 meters over the plants to avoid overheating and burning. Moreover, before a show it may be advisable to move the lamps even farther, to 2-3 meters, or switch over to other types of lamps to prevent possible bleaching of the flowers and premature flower aging.

Some people try to use fluorescent bulbs marketed for aquariums. We would not recommend using these lamps designed for fish tanks. As violet light is the least absorbed by water, many aquarium lamps are designed to maximize blue and violet illumination. Light of other colors would still be present, but, relatively speaking, there would not be much of it. Red and far-red, which are so important for flowering, could be very weak, making such lamps not well suited for growing flowering plants.

Why LEDs?

LED light is much more efficient than any other artificial light source. LED lights can pay for themselves in under a year, and are touted to work without fail for 10 years or more! LED lights produce very little heat. This is very important for the streptocarpus plants.

The situation with LEDs has changed greatly over the years and is changing as we speak. Not that long ago these were mostly panels (costing up to ten thousand dollars) or strips of multiple LEDs, which were individually relatively weak. Such strips, for example, were sometime used to grow African violets, which require much less light than streps. LEDs just were not powerful enough to replace sodium, fluorescent, or other artificial lights.

Recently this situation has changed. The field of LED lighting is so huge now that here we will only mention LED tubes that look familiar to our readers who grow streps under artificial light. They have dimensions similar to that of T12, T8, or T5 four-foot tubes. They can even be used in the existing four-foot fluorescent lamp fixtures with, or without, existing ballasts. One can easily remove the existing ballasts and directly connect your LED tubes. This way you can save more on electricity.

As with fluorescent tubes, the new LED tubes come in a "grow light" variety. These cost a lot. Quite often they only have blue or red color. These types of light tubes might be suitable for growing salad greens. White "grow" tubes are also available. We are not ready to comment on these very expensive bulbs.

Other (non "grow") LED tubes are much cheaper. These tubes may have very narrow spectra or a quite wide "white" spectrum. However, just looking at the listed type (4,100K for example) would not give you a full picture. To understand what light LEDs generate we need to look at their actual spectrum, and that is not always easy to obtain from the seller or even the manufacturer. Finally we managed to buy LED tubes with an appropriate spectrum. It will require at least half a year of experiments to understand how streps like these new lights. We will let you know the results.

If you want to experiment we strongly advise buying your LED tubes from reputable manufacturers. There are a lot of cheap, unverified products with unverified parameters from unknown companies.

Coming Events

Mary Schaeffer ~ Newark, DE, USA ~ <schaeffermary@yahoo.com>

Gesneriad Society Events

July 5-9 – 60th Annual Gesneriad Society Convention, Wilmington, DE Hosted by the Delaware African Violet & Gesneriad Society. For additional information, see *Gesneriads* 1Q16 or go to www.gesneriads.org

September 24-25 – Boylston, MA Annual Combined Plant Societies' Judged Show and Sale, Tower Hill Botanic Garden, 11 French Drive, Boylston, MA, September 24, 12 noon - 5 p.m. September 25, 9 a.m. - 4 p.m. Participating: New England Chapter, The Gesneriad Society, and Buxton Branch, American Begonia Society. Admission: $12.00 adults, $9.00 seniors and $7.00 youths (6-18). Additional information: 617-479-3680 or Sharon Rosenzweig, srosenzw.sr@gmail.com

October 1 – Kansas City, MO Heart of America Gesneriad Society and Mid-America Begonia Society Joint Show and Sale, Loose Park Garden Center Building, 5200 Pennsylvania Avenue, Kansas City, MO. 9 a.m. - 4 p.m. Entries Friday Sept. 30th 9-11 a.m. Judging 1-4 p.m. Plant Sale only open 1-4 p.m. Additional information: Susan Grose, sagrose@aol.com

October 2 – Morristown, NJ Gesneriad Exhibit and Sale sponsored by the Frelinghuysen Arboretum Gesneriad Society, October 2, 11 a.m. – 3 p.m. For additional information: Karyn Cichocki, kdc05@ptd.net

Gesneriad Society Webinars

(also available for anytime viewing for several months after the live event)

August: Growing and Showing Petrocosmeas with Bev Williams

September: Growing and Showing Achimenes with Julie Mavity-Hudson

For additional information about these and other upcoming sessions (or past sessions available for Anytime Listening) or to register, go to: **http://shop.gesneriads.org**

Other Events of Interest to Society Members: Shows and Sales

September 18-19 – Mansfield, OH Ohio State African Violet Society Show and Sale, Kingwood Center (parking $5.00), 900 Park Avenue West, Mansfield, OH 44906. Sept 18, 9 a.m. - 5 p.m. Sept 19, 9 a.m. to 4 p.m. Additional information: Lori rahilfer@roadrunner.com (440) 821-2967, http://www.osavs.org

October 3-4 – Lomira, WI Wisconsin African Violet Council Show and Sale, Trinity United Methodist Church, 300 Church St., Lomira, WI, October 3, 10 a.m. - 5 p.m., October 4, 9 a.m. - 3 p.m. Additional information 920-426-3764 or kevin_degner@sbcglobal.net

Spring Show Roundup

Desert Sun (Arizona) African Violet and Gesneriad Society
February 20

Above, *Columnea* 'Bonfire' grown by Dariane Joshlin

Right, *Kohleria* 'Peridots Rolo' grown by Candace Baldwin

Below left, *Primulina* 'Patina' grown by Marty Anderson

Below right, *Episcia* 'Cleopatra' grown by Susan Kim

All photos by Peter Shalit

National Capital Area Show
March 19–20

Clockwise from top left, *Streptocarpus* 'DS Sultan' grown by Brian Connor

Nautilocalyx pictus 'Jade' grown by Johanna Zinn

Planting by Jim Roberts

Primulina 'Patina' grown by Barbara Stewart

Sinningia speciosa unnamed compact double-flowered fragrant hybrid, grown by Drew Norris

All photos by Jim Roberts

Puget Sound Gesneriad Society
March 20

Clockwise from top left, Natural Garden, exhibited by John Wrightson. Photo: Peter Shalit

Rhytidophyllum exsertum, grown by John Wrightson. Photo: Peter Shalit

Haberlea rhodopensis, grown by M. J. Tyler. Photo: Patrick Forgey

Sinningia leucotricha, grown by Peter Shalit. Photo: Peter Shalit

The African Violet Club of Morris County
April 2–3

Clockwise from top left, *Sinningia* 'Ozark Rosy Tiger' grown by Jill Fischer

Streptocarpus 'Party Doll' grown by Emilia Rykowski

Sinningia 'Peridots Darth Vader' grown by Jill Fischer

Nematanthus 'Pele' grown by Jill Fischer

All photos by Karyn Cichocki

Long Island Gesneriad Society "Gesneriads Across the Boards" April 9–10

Kohleria hybrid grown by Eric Strauss

Streptocarpus 'Iced Artistry' grown by Joe Palagonia

Sinningia 'Orange Zinger' grown by Ben Paternoster

Episcia 'Karlyn' grown by Eric Strauss

Primulina 'Rachel' grown by Paul Susi

All photos by Paul Susi

Toronto Gesneriad Society Show and Sale 2016

Gillian Smith ~ Toronto, Ontario, Canada <gillianesmith@rogers.com>

TEMPERATURES WERE WAY below normal, -3°C all weekend with flurries predicted, but TGS members set up and judged "Gesneriads on the Move" Saturday, April 2nd, and opened the show and sale to the public Sunday, April 3rd. People lined up outside waiting for the doors to open at 9 a.m. Sunday. They bought a lot and admired the magnificent show plants. Many new memberships and emails were obtained. Treasurer Doris Brownlie said we did "very well" from sales.

Columnea 'Fujiyama' grown by Ron Myhr

As people entered the show room they saw pale but pretty *Sinningia* 'Peachy Propeller' grown by Steve Kerr that won a 1st in New World Gesneriads in Flower – Tuberous, and neon orange bright *Columnea* 'Fujiyama' grown by Ron Myhr that won Best New World Fibrous-Rooted. The Best In Show Horticulture and Best Sinningia Hybrid went to Bill Price of Vancouver with his floriferous *Sinningia* 'Li'l Georgie'. Brett Flewelling grew an interesting-leaved foliage plant, *Primulina yungfuensis*, which won Best Gesneriad Grown For Foliage. Sweepstakes in Horticulture was awarded to Beverley Williams. Many other well-grown plants from Toronto's consistent growers won prizes.

Episcia 'Unpredictable Valley' grown by Deanna Belli

Sinningia gesneriifolia grown by Steve Kerr

"Wave" – Deanna Belli

"Leap" – Judy Zinni

In the artistic section Judy Zinni created two spectacular displays, "Leap" and "Zig Zag," while Deanna Belli presented a lovely trailing tray landscape that won Best Growing Material in a Planting.

Creating the show at Toronto Botanical Gardens started with what seemed to be hundreds of tablecloths, each one a different size. Skilled cloth pinners made the tables look regular. Beverley Williams handled entries and members set plants out. Deanna Belli arranged judging teams. Bill Price, Paul Kroll, Mel Grice, Judy Niemira, and Eileen McGrath came from out of town to help classify and judge – their huge contribution is appreciated.

Food donated included hot tomato soup, sandwiches, and salads. Desserts from Emma Bygott's butter tarts to bundt cakes and chocolate-covered strawberries helped keep us on our feet. Audrey Burry-Plunkett and Jackie Mills arranged

Streptocarpus 'Haru no Mizu' grown by Bruce Williams

Primulina 'Destiny' grown by Doris Brownlie

all the goodies. Leftovers were eaten Sunday, when we lit candles on a cake and sang Happy Birthday to Conrad Gessner, after whom the Gesneriaceae family is named. Conrad Gessner would have been 500 years old this year.

Growers packed up their prize-winning plants to carry home carefully, tablecloths were folded, and tons of equipment miraculously disappeared. Members came home remembering the vibrant colours, amazing shapes, and incredible beauty realized after years of growing. They'll tend these and more plants, and be back next year to start another show.

"Zig-Zag" – Judy Zinni

All photos by Mel Grice

Rhizomes

Dale Martens ~ Sherrard, IL, USA ~ <DaleMartens@mchsi.com>

I encourage you to purchase rhizomes at convention.

WHILE LIVING IN SOUTHERN CALIFORNIA, I GOT some of my first achimenes rhizomes from Kartuz Greenhouses. Because I was living in such a mild climate, I was able to grow achimenes outdoors in dappled sunlight under an olive tree, in hanging-basket style. The pots were pretty big, so I'd put about ten unbroken rhizomes evenly around the pot for a spectacular show of flowers a few months later.

Scaly rhizomes consist of numerous scales, tightly bundled together, that remind me of a skinny pine cone. The scales are actually modified leaves. Therefore, each scale can make a plant, and I've used that to my advantage. For example, when Clay Anderson gave me one of his ×*Achimenantha* hybrids that had just gone dormant in the fall, I stored most of the rhizomes in a plastic baggie with moist vermiculite, but I took half a rhizome and broke it into scales. I put the scales on top of a light, soilless mix, and put a lid on the container. The baggie of rhizomes didn't sprout until the following February, while the scales sprouted at their pointy ends within four to six weeks. Thus, I was able to grow a blooming plant "off season." In May of 2015, I entered a blooming *Smithiantha* 'Vivian's Gift' at the AVSA Convention. As it had been grown from a scale, by convention time it was not nearly as large as a plant grown from a whole rhizome; on the other hand it was in bloom, and many attendees commented that they'd never seen a smithiantha blooming in May.

Achimenes in bloom in the greenhouse of Michael Kartuz. Photo courtesy of Michael Kartuz

Scaly rhizomatous gesneriads are my favorites, and one reason is their dormancy, which leaves me with clear plant stand space in the winter. For good rhizome production, allow the plants to die back, while slowly letting the soilless mix dry out, but not letting it go bone dry. Then, cut off the dead top growth and store the pots. I prefer to store pots in plastic baggies, because I don't want the pots to get bone dry. Often, I'll dig up the rhizomes and put them into smaller bags with some moist vermiculite. Smithianthas and their intergeneric offspring seem to need a moister environment during storage than achimenes rhizomes.

In the spring, one needs to check the pots and/or storage bags for new growth. If you are going to keep the rhizomes in the old pot, then leach out last year's fertilizer salts with three cups of room temperature tap water.

The author with her prizewinning plant of *Eucodonia* 'Frances'

The container used to grow Dale's prizewinning plant.

Kohleria is a genus whose plants don't seem to have winter dormancy. When the main plant begins to decline, the root area will produce scaly rhizomes. Before you know it, the pot is sprouting with new growth. Therefore, cut off the declining plant, and soon you'll have a pot full of new plants. At that time, it's a good idea to leach the pot of fertilizer salt build-up, by slowly pouring through the pot three cups of room temperature tap water.

My first "Best in Show" was for *Eucodonia verticillata* 'Frances'. Here's how I grew it: I took a shallow plastic saucer and drilled holes in the bottom for watering purposes. I put about half an inch of fine perlite in the saucer, on top of which I then horizontally laid around twenty

Leaf of *Monopyle* sp. GRE12131 along with a sprout with scales at its base

All photos this page by the author

A rhizome with separated scales

All photos this page by the author

The author's entry of *Smithiantha* 'Vivian's Gift' grown from a single rhizome scale

rhizomes. I covered the rhizomes with soilless mix nearly to the brim of the saucer. I placed the saucer within ten inches of the tube lights to keep the emerging sprouts from getting leggy. I turned the saucer every other day, and gave it a balanced fertilizer. At that time, I was using 1/4 teaspoon per gallon of water.

We've all put away rhizomes, only to find later that they've sprouted about four to five inches of growth. What do you do? You have some options. If the growth is rather thick, with several leaves, and if it has a lot of roots, you can cut off the top two inches, and plant the tip cuttings alongside the remaining stems. Another option is to cut off the remaining growth all the way back to the tip of the rhizome, and throw it away. Pot the rhizome, and it'll sprout again. You also have the option of digging a hole in the mix, and putting the rhizome and all of that length of sprouted growth into the hole, with just the tip peeking out. Keep in mind the sprout has had humid conditions in the storage baggie. Therefore, if you plant it deep in the pot with only the tip of the sprout above the soil, that tip will wilt without some sort of increased humidity. I either put a short straw in the pot and cover it loosely with plastic food wrap, or I cover the tip with a clear plastic condiment container. As the sprout grows, I start to cut holes in the condiment container to let more air inside to eventually harden off the young plant.

Seemannia gymnostoma propagules gathered into a pot were eventually covered with soil

Some plants, like *Gloxinella lindeniana* and *Seemannia gymnostoma*, will produce aboveground propagules in the leaf nodes. Such propagules generally seem

Left: The tip of a newly sprouted achimenes peeking above the soil with a condiment container over it to hold humidity. Right: Smithiantha scales sprouting. Both photos by the author

to be searching for a good place away from the main plant for propagation purposes. One plant produced at least a dozen of these propagules that embedded themselves in my plant room's carpet. When the tips find a good place (like the carpet), then a normal rhizome is produced on the tips of such propagules.

At one of the Society's auctions, I won part of Karyn Cichocki's entry of *Monopyle* sp. GRE 12131. When I got home from convention I put down leaves for propagation. To my surprise, each leaf not only produced a new sprout, but at the bases of the sprouts were fat scales. Eventually, I found out that this species doesn't produce normal scaly rhizomes, but just a small clump of fat scales.

This issue of *Gesneriads* will arrive around convention time. I encourage you to purchase rhizomes at convention. It's easiest to wash them using a strainer. I examine the washed rhizomes carefully with a magnifying glass. Often, plants grown outdoors have some sort of pest, so after washing the rhizomes, I spray them with insecticidal plant soap, which I leave on for about five minutes. Then I rinse them before planting them. So, do you plant them vertically, with the pointy end up, or horizontally? It doesn't matter. I place them at least an inch below the surface of the mix, in the smallest pot possible. When the plants are about three inches tall, I repot them into a larger pot; at that time I also remove the base four leaves to pot them deeper. Try planting a grouping in that larger pot.

Seed Fund – Species

THE PAST FEW MONTHS HAVE BEEN EXCITING. *Sinningia helleri*, the type species of the genus *Sinningia*, which had been thought extinct, has been rediscovered in Brazil. A limited number of seeds will be available in the Seed Fund. Another new discovery is the micromini species *Sinningia minima*, which is even smaller than *Sinningia pusilla*, and will surely be in great demand once seeds are available.

A major phylogenetic revision of the plants that we have been calling *Paradrymonia* has been published by Marcela Mora and John L. Clark after extensive study of the molecular data from 80 gesneriad species. These new techniques are far more accurate in identifying relationships between plants than any current morphologic criteria. Their work will result in name changes not only for most species of *Paradrymonia*, but also some of *Nautilocalyx* and *Chrysothemis*. In addition two new genera, *Trichodrymonia* and *Centrosolenia*, have been resurrected and we will be seeing them again in the future. Look for details of these changes in a future installment of Botanical Review.

Speaking of new names, along comes a major paper by K. Nishii *et al* proposing that the Afro-Malagasy genus *Streptocarpus* should be redefined to include *Saintpaulia* as a section within the subgenus *Streptocarpella*. To be strictly correct, I should probably label one of my plants "*Streptocarpus* subgenus *Streptocarpella* section *Saintpaulia ionantha* subsp. *grotei* Silvert". Good luck fitting that on a label!

These authors have also used molecular analysis techniques that support the idea that the former genus *Saintpaulia* actually contains ten species. New combinations include *Streptocarpus ulugurensis* for some of the plants that were previously included in *Saintpaulia ionantha* subsp. *grandifolia*. These authors also reiterate that a twisted fruit capsule can no longer be considered a defining morphologic feature of the genus *Streptocarpus* since plants in *Saintpaulia* don't have twisted capsules, but they are found in some Asian genera.

The classification proposed by Nishii and co-authors recognizes that retaining the concept of *Saintpaulia* is desirable since the plants "are of significant horticultural importance and the name well established in the trade and the public. The retention of the name at section rank would enable it to be used in colloquial terms." Does this imply that we should be calling columneas "Goldfish plants" or *Sinningia leucotricha* a "Brazilian edelweiss"? I hope not, but I expect that the African Violet Society of America will retain its name and its focus on this subgroup of *Streptocarpus* species and hybrids. For the moment, The Gesneriad Society will also continue to call these plants *Saintpaulia* until such time that agreement is reached on how the species will be identified and number coded.

Recent contributions from the following are helping the Seed Fund grow: Atlanta Botanical Garden, Marlene Beam, Karyn Cichocki, John L. Clark, Ray Coyle, Paolo Castello da Costa, Keith Dabney, Jill Fischer, Robert Hall, Marilyn Heinrich, Jeanne Katzenstein, Julie Mavity-Hudson, Alcie Maxwell, Hung Nguyen, Nhu Nguyen, Mauro Peixoto, Michael Riley, Carolyn Ripps, Marie Selby Botanical Gardens, and Peter Shalit.

References:

Mora, M.M. and Clark, J.L., 2016. Molecular Phylogeny of the Neotropical Genus *Paradrymonia* (Gesneriaceae). *Systematic Botany*, 41(1) pp. 82-104.

Nishii, K., 2015. *Streptocarpus* redefined to include all Afro-Malagasy Gesneriaceae. *Taxon* 64(6): 1243-1274.

Seed Packets — $3 each

Please
- To pay by credit card, send your credit card number, expiration date, and signature, and indicate if the card is MasterCard or Visa ($6 minimum)
- Make checks payable to The Gesneriad Society in U.S. funds
- **Provide a self-addressed, stamped envelope** (non-U.S. orders will have the postage added to their credit card bill)
- List alternate choices
- Include your membership number (first number on your mailing label)

Note
- There is a limit of one seed packet of a single variety per order
- There is a limit of 25 seed packets per order
- There is a household limit of 50 seed packets per calendar year

Mail orders for species seed to:
Carolyn Ripps, 21 Sprain Road, Hartsdale, NY 10530

Seed Fund – Species

Achimenes (D)
admirabilis (B,F,L)
cettoana
erecta 'Tiny Red' (F,L)
• *grandiflora* 'Robert Dressler' (B)
mexicana
• *misera*

Aeschynanthus (B)
fecundus SEL1974-2907-A
garrettii
micranthus SEL1974-0260
parviflorus SEL1974-2701
• *pulcher* (*boschianus*)
radicans (*lobbianus* 'Radicans')
rhododendron (*longicalyx*)
sp. "Thai Pink"
sp. ABG1990-0903/New Guinea
sp. from Thailand

Alsobia (B)
chiapensis (was sp. "Chiapas")
dianthiflora
• *punctata*

Amalophyllon (D,F,H,L)
clarkii USBRG96-336
ecuadoranum

Anodiscus (see *Gloxinia*)

Besleria
lutea GRE14485
• *solanoides* GRE10975 (G,T)
sp. GRE12396 (T)
sp. GRE12500
sp. GRE15025

Boea
hemsleyana
• *hygroscopica*

Chirita (see *Henckelia, Microchirita,* and *Primulina*)

Christopheria (***Episcia***)
xantha

Chrysothemis (F,LM)
adenosiphon (*Nautilocalyx*)
friedrichsthaliana
melittifolius (*Nautilocalyx*)
panamensis GRE12735 (*Nautilocalyx*)
pulchella
• *pulchella* (Ecuador)
pulchella (cv. *villosa*)

Codonanthe (B)
• *devosiana* (hairy)
• *devosiana* (pink)
• *gibbosa* (was sp. "Santa Teresa")
gracilis
• *serrulata*
• *venosa*

Codonanthopsis (***Codonanthe***)
calcarata 'Puyo'
caribaea
crassifolia 'Cranberry'
• *erubescens*

Codonoboea (***Henckelia***)
sp. aff. *curtisii*
• sp. #1 (white)
• sp. #3 (white and purple)

Columnea (B)
• *ambigua* ABG2000-0195
brenneri GRE9833
calotricha SEL2010-0138
ciliata GRE14300
cf. *eburnea* GRE13879
dissimilis GRE14287
eburnea (*Dalbergaria*)
• *erythrophaea*
fawcettii
guianensis
kienastiana (*dodsonii*)
• *linearis*
• *linearis* 'Purple Robe'
• *mastersonii* ABG1992-1240
orientandina (*Pentadenia*) (LM)
polyantha

pulchra 'Orange Crush'
purpureovittata
- *rileyi*
sanguinea (*Dalbergaria*)
scandens var. *fendleri*
schiedeana
schimpfii GRE12243
sp. "Maquipucuna" ABG97-0125
sulfurea
- *tandapiana*

Corytoplectus
cutucuensis (L)
speciosus
speciosus var. *orbicularis* GRE11721

Crantzia
tigrina

Cyrtandra
samoensis
sp./Malaysia
- sp. (white)/Java (T)

Dalbergaria (see *Columnea*)

Diastema (D,F,P)
- *comiferum*
latiflorum GRF9669A (F,H,L)
racemiferum GRE12296
vexans

Didissandra
frutescens

Didymocarpus
- *cordatus* (G,T)
- *sulphureus*

Drymonia
chiribogana
coccinea GRE9980 (T)
coccinea var. *fusco-maculatus*
- *coriacea*
ecuadorensis GRE9769
ecuadorensis 'Red Elegance'
foliacea GRE12650
hoppii GRE9863
macrophylla GRE12119
pendula SEL1998-0223
- *pudica*
pulchra GRF98113
punctulata
rhodoloma ABG90-0528
strigosa (B)
sp. nova/Veracruz
sp. (*umecta* ined.) (B)
teuscheri GRE12405

Episcia (H,L,B,F)
- *cupreata*
lilacina 'Panama White'

Epithema
saxatile
sp. /N. Perak (M)
sp. (blue)/N. Perak (M)

Eucodonia
verticillata 'Cecilia'

Gesneria (H,F)
christii (LM)
- *cuneifolia* (L)
- *cuneifolia* 'Quebradillas' (L)
cuneifolia 'Tom Talpey' (L)
reticulata 'El Yunque'
shaferi (L)
ventricosa (M)

Glossoloma (***Alloplectus***)
ichthyoderma GRE9836 (T)
scandens GRE11235
sp. cf. *panamense* GRE11118
sp. nova GRE13880

Gloxinella (***Gloxinia***) (D)
lindeniana (F,L)

Gloxinia (D)
erinoides 'Chapada dos Guimaraes'
erimoides 'Teresina da Goias'
erinoides 'Red Satin'
perennis (LM)
perennis 'Insignis' (L)
xanthophylla (*Anodiscus*) (M)

Gloxiniopsis
- *racemosa*

Haberlea (A,R)
rhodopensis
rhodopensis (*ferdinandi-coburgii*)

Henckelia (***Chirita***)
- *anachoreta*
- *ceratoscyphus* (*Chirita corniculata*)
speciosa 'Green Leaf'

Heppiella (D)
ulmifolia

Kohleria (D)
allenii (T)
sp. aff. *amabilis* 'Panama Pink'
grandiflora
hirsuta
peruviana

Lysionotus
pauciflorus
- *petelotii*

Microchirita (***Chirita***)
caliginosa (LM)
elphinstonia
- *hamosa* (AN,F,M)
involucrata (F,L)
- *involucrata* (dark blue)
lavandulacea (LM)
micromusa (AN,F,L)
sericea (L,R)
sericea var. *scortechinii*
- *viola*
- sp. /Thailand
- sp. /Kedah
- sp. (blue)/Phuket

Mitraria
- *coccinea*

Monophyllaea
hirticalyx (L,U)
horsfieldii (U)

Monopyle
- sp. GRE12131
- sp. GRE12700

Moussonia
- *deppeana*
- *elegans*

Napeanthus (H)
- *andinus* GRE11052 (H)
- *costaricensis*
  primulifolius 'Teresopolis'
- sp. GRE12273

Nautilocalyx (See also *Chrysothemis*)
  sp. "Gothenberg"
  sp. "Burle Marx"
  sp. "Tuberifer"

Nematanthus
  albus (B)
- *brasiliensis*
- *corticola*
- *fluminensis*
  fornix
- *fritschii*
  gregarius
  lanceolatus 'Carangola'
- *punctatus* MP0052
- *sericeus* (B)
  wettsteinii (B)
  wiehleri

Neomortonia (see *Pachycaulos*)

Nomopyle (***Gloxinia***)
  dodsonii GRE12110

Ornithoboea
- *wildeana*

Pachycaulos (***Neomortonia***)
- *nummularium*

Paliavana (S,T)
  gracilis (T)
- *plumerioides* (Cabral)
  prasinata
  sericiflora (T)
  sericiflora 'Morro do Chapeu'
  sericiflora 'Pres Juscelino'
  sp. cf . *sericiflora* 'Cabral'
  tenuiflora
  werdermannii

Paradrymonia
- *ciliosa*
- sp. GRE13182/Colombia

Pentadenia (see *Columnea*)

Petrocosmea
  sp. #2
  sp. #5
  sp. "Yumebutai"

Phinaea (D,F,P)
  albolineata
  multiflora 'Tracery'
- *pulchella* (F,H,L)

Primulina (***Chirita***)
- *balansae*
- *eburnea* (F,R)
  flavimaculata
- *heterotricha*
  linearifolia
- *spadiciformis* (L,R)
- *subrhomboidea*
  tabacum
  tamiana USBRG98-080 (F,R,P)
- sp. "V-27"

Ramonda (A,R)
- *myconi*
  myconi (blue)
  myconi (dark purple)
  myconi (lavender)
  myconi (pink)
  myconi (white)

Rhytidophyllum (G,H,S,T)
- *exsertum*
  rupincola (*Gesneria*)
  tomentosum

Rufodorsia (F,LM)
- *minor*

Saintpaulia (F,R)
  3. *shumensis*
  3. shumensis 'Mather EE'
- 4. *teitensis*
- 5a. cl. *grandifolia* No. 299
  5c1.cl. *ionantha* 'Mather'
  5c. cl. *tongwensis*
  5c2. cl. Uppsala #3083
- 5f. cl. *orbicularis*
- 8. *rupicola*
- 8. *rupicola* cl. Kacharoroni

Seemannia (***Gloxinia***) (D)
  gymnostoma (LM)
  nematanthodes
  nematanthodes 'Evita' (M)
- *purpurascens*
  sylvatica

Sinningia (D)
  aggregata (M)
  aggregata 'Pendulina'
  aggregata (yellow)
  aghensis (T)
  allagophylla (MT)
  allagophylla (yellow)
- *amambayensis* (L)
- *araneosa* (F,L)
- *barbata*
- *bragae* (was sp. "Ibitioca")
  brasiliensis (S,T)
  brasiliensis 'Leopoldina'
  brasiliensis 'Santa Teresa'
  bulbosa (MT)
  bullata (was sp. "Florianopolis")
  calcaria MP891 (F,L)
  canescens (D,LM)
  carangolensis (M)
  cardinalis (F,LM)
  cardinalis (compact) (F,LM)
  cardinalis (dark calyx) (LM)
- *cardinalis* (orange)
  cardinalis peloric mix
  cardinalis (pink)
  cardinalis 'Innocent'
- *cardinalis* 'Skydiver' (LM)
  cochlearis
  conspicua (F,L)

conspicua GRF9942
cooperi (LM)
curtiflora (T)
curtiflora (yellow)
defoliata
douglasii (red)
elatior AC1409 (M)
eumorpha 'Clenilson'
eumorpha 'Saltao' (L)
eumorpha (lavender) (F,L)
eumorpha (white)
eumorpha 'Telemaco Borba'
gerdtiana (was sp. "Gertiana")
gesneriifolia (was sp. "Sao Fidelis")
gigantifolia
glazioviana (L)
globulosa (was sp. "Globulosa")
- *guttata* (LM)
harleyi MP 482
hatschbachii (L)
hatschbachii 'Corupa'
hatschbachii 'Iporanga' (D,LM)
helioana (was sp. "Santa Teresa")
- *helleri*
iarae (F,L)
- *incarnata* (S,MT)
incarnata 'Maranhao'
incarnata/Costa Rica (T)
insularis (LM)
leopoldii (F,L)
leucotricha (F,L)
- *leucotricha* (pink)
leucotricha cv. 'Max Dekking' (M)
leucotricha 'English'
lineata (LM)
macrophylla
macropoda (M)
macrostachya (LM)
magnifica (pink) (LM)
magnifica GRF91134 (red)
- *mauroana* (D,M)
micans MP891 (LM)
muscicola (dark)
muscicola (light)
nordestina
piresiana (L)
polyantha (was sp. "Waechter") (L,M)
- *pusilla* (F,P)
- *pusilla* 'Itaoca' (F,P)
- *pusilla* 'White Sprite' (F,P)
ramboi
reitzii (M)
reitzii 'New Zealand'
- *richii*
- *richii* 'Itamarahu'
- *richii* 'Robson Lopes'
sceptrum (T)
schiffneri (red leaf)
sellovii (MT)
- *sellovii* 'Purple Rain'
- *speciosa* 'Buzios'
speciosa 'Carangola'
- *speciosa* 'Cardoso Moreira' (pink) (LM)
- *speciosa* 'Cardoso Moreira' (purple) (LM)
speciosa 'Guatapara'
speciosa 'Imbe'
speciosa 'Pedra Lisa'
speciosa 'Regina Domingos Martins'
speciosa 'Sao Conrado'
sulcata (LM)
tribracteata
- *tuberosa*
tubiflora (S,MT)
- *villosa*
warmingii (T)
warmingii 'Esmeril'
sp. aff. *aggregata*/Ilhabella MP631
- sp. aff. *reitzii* 'Black Hill' (M)
sp. aff. *reitzii* GRF9914 (magenta)
- sp. "Itaguassu"
- sp. "Pancas"

Smithiantha (D,F,M)
- *canarina* GRF9105
- *laui*
multiflora
- *multiflora* GRF9121
- *multiflora* GRF9122
- *zebrina* GRF9104

Solenophora
- *tuxtlensis* (L)

Sphaerorrhiza
- *burchellii* 'Rio Belchior' (F,P)
- *sarmentiana*

Streptocarpus subg. ***Streptocarpus***
caeruleus
candidus (F,R)
confusus (U)
- *confusus* ssp. *confusus*/Swaziland
cooperi (U)
cyanandrus (F,P)
- *cyaneus* (blue) (R)
- *cyaneus* (lilac)
- *cyaneus* ssp. *cyaneus* (*albus*)
- *cyaneus* ssp. *longi-tommii*
daviesii (F,U)
denticulatus (U)
- *dunnii* (U)
eylesii (U)
fasciatus (R)
fasciatus/Krokodilpoort, E. Transvaal (R)
floribundus (R)
formosus (R)
formosus/E. Cape, Transkei
galpinii
- *galpinii*/Erasmushoop Farm
gardenii (F,L)
goetzei (U)
grandis (U)
grandis ssp. *grandis*
haygarthii (F,U)
- *haygarthii* JT04-03D/Transkei Coast (F,U)
haygarthii JT04-051/Inchanga (U)
haygarthii/Mkambati, Transkei (U)
johannis (light form) (F,R)

johannis/Komga, E. Cape
johannis/Weza, S. Natal (R)
sp. aff. *johannis* (F,R)
- *kunhardtii*
- *lilliputana*
- *meyeri*/SE Transvaal (R)

meyeri/NE Cape Province
michelmorei (U)
- *micranthus*/Kowyn's Pass

modestus (R)
- *modestus*/Magwa Falls, Transkei (R)

molweniensis
montigena/Katzberg Pass
- *orientalis*

parviflorus (R)
parviflorus (mauve)
- *parviflorus* (white) (R)

parviflorus (white/mauve)
- *parviflorus* ssp. *parviflorus*/Limpopo Province
- *parviflorus* ssp. *soutpansbergensis*

pentherianus (F,L)
pentherianus JT04-02C
- *pogonites* JT10-307

polyanthus subsp. *comptonii*
polyanthus subsp. *polyanthus*
polyanthus subsp. *polyanthus*/lg fl
polyanthus subsp. *polyanthus*/Valley of 1000 Hills, Natal
porphyrostachys (U)
primulifolius (F,R)
primulifolius/Valley of 1000 Hills
prolixus (F,U)
pumilus (F,P)
- *pusillus*
- *pusillus* JT11-294

rexii (white)
rexii JT04-082 (white)/Transkei
rimicola (F,P)
roseo-albus (F,R)
saundersii (U)
sp. nov. /Shiyalongubo Dam
sp. nov. #2 (red)
trabeculatus (U)
- *vandeleurii* (U)

variabilis (F,R)
wendlandii (U)
wilmsii (U)
- *wilmsii*/Kowyn's Pass

wilmsii/Long Tom Pass (U)

Streptocarpus subg. ***Streptocarpella***
- *glandulosissimus*
- *holstii*
- *kirkii*
- *muscosus*
- *nobilis*
- *saxorum (B)*
- *thompsonii*

Titanotrichum
oldhamii (propagules)

Trichantha (see *Columnea*)

Trichodrymonia
metamorphophylla GRE 13901

Vanhouttea (S,T)
- *brueggeri*

calcarata
- *fruticulosa* (MT)

lanata
- *pendula*

- Limited quantities available. Packet may contain small amount of seed

Seed Fund Key

(A) Alpine or cool greenhouse
(AN) Annual, dies after flowering
(B) Suitable for hanging basket
(D) Has dormant period, forming tubers or rhizomes
(F) Blooms readily in fluorescent light
(G) Recommended for greenhouses; requires space
(H) Requires humidity and warmth
(L) Low growing; not more than 12"
(LM) Low to medium height
(M) Medium height; 1 to 2 feet
(MT) Medium to tall
(P) Petite or miniature; under 6"
(R) Rosette in form
(S) Requires sun to bloom
(T) Tall plants; generally over 3 feet
(U) Unifoliate or single leaf
(V) Leaves may be variegated

The Gesneriad Society, Inc.

A non-profit membership corporation chartered by the State of Missouri

HONORARY OFFICERS

Founder — Elvin McDonald **Co-Editor of The Gloxinian —** Peggie Schulz* (1951–1961)
Past Presidents — Mrs. H. E. Dillard* (1954–56); Mr. F. W. Mitchell* (1956–58); Bruce A. Thompson* (1958–62); William H. Hull* (1962–65); Charles Marvinny (1965–68); Dr. Thomas E. Talpey (1968–69); Alice Courage* (1969–72); Ann Spencer* (1972–75); Martin Tanner (1975–77); Emma Lahr* (1977–79); Laura Progebin* (1979–81); David Masterson (1981–83); Patricia Van Deventer (1983–85); Michael A. Riley (1985–89); Jessie Crisafulli* (1989–93); Lee Linett (1993–97); Jon Dixon (1997–2001); Susan Grose (2001–2005); Carol Ann Bonner (2005–2007); Peter Shalit (2007-2011); Paul Susi (2011-2015)
*deceased

OFFICERS

President (Term 2015-17) — Julie Mavity-Hudson, 1015 Park Lane, Joelton, TN 37080 <gespres2015@gmail.com>
First V-P (Term 2014-16) — Jo Anne Martinez, 809 Taray de Avila, Tampa, FL 33613 <4jam@tampabay.rr.com>
Second V-P (Term 2015-17) — Mel Grice, 2019 Crosswind Court, Englewood, OH 45322 <melsgrice@earthlink.net>
Corresponding Secretary (Term 2014-16) — Kathy Spissman, 4086 Brownlee Dr., Tucker, GA 30084 <mrsstrepstreps@comcast.net>
Recording Secretary (Term 2015-17) — Leonard Re, 9144 Helm Avenue, Fountain Valley, CA 92708 <buffboy@socal.rr.com>
Treasurer (Term 2014-16) —Becky Fontes, PO Box 412, Maysville, KY 41056 <beckyfontes@gmail.com>

DIRECTORS

Term 2013-2016 — Karyn Cichocki, Nancy Kast, Lena Klintberg, Norah Otto, Mary Schaeffer, Kathy Spissman, Paul Susi
Term 2014-2017 — Paulo Castello da Costa, Jeremy Keene, Jo Anne Martinez, Julie Mavity-Hudson, Leonard Re, Sally Robinson, Dave Zaitlin
Term 2015-2018 — Barbara Festenstein, Becky Fontes, Winston Goretsky, Mel Grice, Stuart Hammer, Irina Nicholson, Anne Vidaver

COMMITTEE CHAIRPERSONS AND STAFF

Awards of Appreciation — Molly Schneider <molly608sch@comcast.net>
Bylaws and Parliamentarian — Sally Robinson <sm_robinson@me.com>
Chapters and Affiliates — Norah Otto <neotto@earthlink.net>
Conservation Fund — Stephen Maciejewski <teciu@verizon.net>
Jeremy Keene <jeremy496@mac.com>
Conventions — Jo Anne Martinez <4conventions@gmail.com>
Development — Paul Susi <gesneriaddevelopment@gmail.com>
Elvin McDonald Research Endowment Fund — Alain Chautems <alain.chautems@ville-ge.ch>
Finance — Michael Riley <riley2362@aol.com>
Frances Batcheller Endowment Fund — Tom Bruning <tbruning@unomaha.edu>
Gesneriad Hybridizers Association — Dale Martens <dalemartens@mchsi.com>
Gesneriad Register — Irina Nicholson <gesneriadregistrar@gmail.com>
Historian — Suzie Larouche <suzielaro@sympatico.ca>
Insurance — Dariane Joshlin <rjoshlin@cox.net>
Internet Communications — Julie Mavity-Hudson <julie.mavity@gmail.com>
Membership — Bob Clark <gesneriadsocietymembership@gmail.com>
Membership Promotion — Paul Susi <gesneriadpromotion@gmail.com>
Merchandise — Carol Ann Bonner <cabonner@gmail.com>
Nellie D. Sleeth Scholarship Endowment Fund — Eric Roalson <eric_roalson@wsu.edu>
Nominating — Doris Brownlie <jtbrownlie@idirect.com>
Photography — Julie Mavity-Hudson <julie.mavity@gmail.com>
Properties — Doris Brownlie <jtbrownlie@idirect.com>
Publications — Jeanne Katzenstein <jkatzenste@aol.com>
Review — Mel Grice <melsgrice@earthlink.net>
Seed Fund — Species: Carolyn Ripps <rippscs@aol.com>
— Hybrids: Gussie Farrice <f.farrice@verizon.net>
Shows and Judging — Arleen Dewell <arleendewell@shaw.ca>
Awards — Paul Susi <gesneriadawards@gmail.com>
Speakers Bureau — Dale Martens <dalemartens@mchsi.com>
Standing Rules — Susan Grose <sagrose@mac.com>
Student and Speakers Convention Fund — Jo Anne Martinez <4jam@tampabay.rr.com>
Student Convention Grant — Jeanne Katzenstein <jkatzenste@aol.com>
— Stephen Maciejewski <teciu@verizon.net>

RESOURCES AND FRIENDS

Judges Interest Group — Calendar year subscription to *Appraisal* newsletter, 3 issues, $6 (postal mail) or $3 (email/full color). Send to Mary Lou Robbins, 403 Mizdail Road, Hunlock Creek, PA 18621 <mlr07005@gmail.com>

Gesneriad Hybridizers Association — *CrossWords*, 3 issues, $8 ($9 outside USA). Send to Martha Lacy, 260 Stoddards Wharf Rd., Gales Ferry, CT 06335 <Martha_GHA@comcast.net>

"Gleanings" — a free monthly newsletter from The Gesneriad Society (Mel Grice, editor). To subscribe, go to **http://www.gesneriads.org/gleanings/index.htm** and click on "Subscribe to Notification email."

Gesneriphiles Internet Discussion Group — Visit the website for instructions about joining the list: <http://lists.ibiblio.org/mailman/listinfo/gesneriphiles>

Visit <http://gesneriads.org/resources/> for more information about websites, organizations, and Facebook pages devoted to gesneriads.

Gesneriads is published quarterly by The Gesneriad Society, Inc., Lawrence, KS 66044-9998. Postage paid at Lawrence, KS 66044. Postmaster: Address of Record: The Gesneriad Society, Inc., 1122 East Pike Street, PMB 637, Seattle, WA 98122-3916 USA.

CHAPTERS AND AFFILIATES — Presidents or Contacts

Arizona	**Desert Sun African Violet and Gesneriad Society —** Ann Stoetzer <anncie@cox.net>
California	**Culver City —** Pat Lesnansky <patlesnansky@verizon.net>
	Delta Gesneriad & African Violet Society — Lynn Lombard <lynn_lombard@att.net>
	Grow and Study — Jacquie Eisenhut <jaceis905@gmail.com>
	Peninsula — Alan LaVergne <pgsinfo@burwur.net>
	San Francisco — Alan LaVergne <pgsinfo@burwur.net>
Colorado	**Gloxinia Gesneriad Growers —** Larry Boyer <www.gloxiniagesneriadgrowers.org>
Delaware	**Delaware African Violet & Gesneriad Society —** Mary Schaeffer <schaeffermary@yahoo.com>
Florida	**Bloomin' Violets & Gesneriads of Palm Beach (Affiliate) —** Martha Spyridon <spyfam@questie.com>
	Caribbean Basin African Violet & Gesneriad Society — Karen Lieux <klieux@gmail.com>
	Suncoast (Affiliate) — Jeanne Katzenstein <jkatzenste@aol.com>
	Tampa Bay — Jeanne Katzenstein <jkatzenste@aol.com>
Georgia	**Atlanta Gesneriad Interest Group (Affiliate) —** Kathy Spissman <mrsstrepstreps@comcast.net>
Illinois	**Northern Illinois —** Bob Nicholson <pyramidgardens@yahoo.com>
Kansas/Missouri	**Heart of America —** Susan Grose <sagrose@mac.com>
Massachusetts	**New England —** Sharon Rosenzweig <srosenzw.sr@gmail.com>
Michigan	**Southeastern Michigan —** Richard Holzman <Richardholzman@comcast.net>
Minnesota	**Twin Cities Area —** Charles Huston <chas55102@gmail.com>
Missouri	**Gateway West —** Gary Dunlap <gndunlap@charter.net>
Nebraska/Iowa	**Omaha —** Scott Evans <scott.evans@unl.edu>
New Hampshire	**Granite State African Violet & Gesneriad Society —** Holly Walker <hew@tds.net>
New Jersey	**Frelinghuysen Arboretum —** Karyn Cichocki <kdc05@ptd.net>
New York	**African Violet and Gesneriad Society of Rochester —** Stacey Davis <Stacey.Davis@rit.edu>
	African Violet and Gesneriad Society of Syracuse — Mary Ryan <tommaryryan1@gmail.com>
	African Violet and Gesneriad Society of Western New York — Judy Niemira <AVGSWNY@gmail.com>
	Greater New York — Gussie Farrice <f.farrice@verizon.net>
	Long Island — Ben Paternoster <ben9@optonline.net>
	Vestal African Violet & Gesneriad Society — Wendy Harrington <wendyharrington32752@gmail.com>
Ohio	**North Coast Gesneriad & African Violet Club —** Rick Pogozelski <rickpogo1@att.net>
Oregon	**Mt. Hood —** Vivian Scheans <vscheans@comcast.net>
Pennsylvania	**Liberty Bell —** Stephen Maciejewski <Teciu1949@gmail.com>
Tennessee	**Tennessee —** Julie Mavity-Hudson <gespres2015@gmail.com>
Washington	**Puget Sound —** MJ Tyler <mjtyler2@gmail.com>
Washington, DC	**National Capital Area —** Corey Wickliffe <president@nationalcapitalgesneriads.org>
Canada	**Carefree —** Elaine Stutt <midi4@sasktel.net>
	Edmonton — Doreen Dragon <dddragon@shaw.ca>
	Stampede City African Violet Society (Affiliate) — Winston J. Goretsky <winston@Goretsky.ca>
	Toronto — Gillian Smith <gillianesmith@rogers.com>
	Vancouver African Violet & Gesneriad Society — Marianne Moore <mdmoore@telus.net>
Sweden	**Gesneriasts of Sweden —** Anton Ledin <anton.ledin@hotmail.com>

Go to **www.gesneriads.org** for complete chapter meeting information.

FOR YOUR INFORMATION

Bylaws: The Gesneriad Society Bylaws are available online to all members or by writing to Leonard Re, 9144 Helm Avenue, Fountain Valley, CA 92708 USA.

Chapters: Report changes of chapter presidents to the Chapters and Affiliates Chairperson at <neotto@earthlink.net>

Donations

The Gesneriad Society, Inc. is a tax-exempt organization with an IRS section 501 (c)(3) status for donations. You can make your donations online at **www.gesneriads.org**. You may also send your donation (check payable to The Gesneriad Society) to:

Paul Susi, Development Chairperson
2 Rushmore Street, South Huntington, NY 11746
For additional information, contact: <gesneriaddevelopment@gmail.com>.

Membership and Changes of Address

The Gesneriad Society Membership Secretary, Bob Clark,
1122 East Pike Street, PMB 637, Seattle, WA 98122-3916 USA

Changes of Address — Send changes of address to the Membership Secretary <gesneriadsocietymembership@gmail.com> 90 days prior to moving to avoid missing an issue. The Society is not responsible for replacing issues missed because of late notification of address changes. Back issues may be ordered from The Gesneriad Society Publications.

Renewals — Send dues to the Membership Secretary. A Renewal Notice is sent two months prior to the expiration date of your membership. (The expiration date is printed on your mailing label/membership card received with each copy of *Gesneriads*.) Please remit your dues prior to the expiration date to avoid missing an issue as we are not responsible for replacing issues missed because of late payment of dues. Back issues may be ordered from Publications.

Application for Membership — *The Gesneriad Society, Inc.*

Welcome – membership in our international society includes quarterly issues of *Gesneriads – The Journal for Gesneriad Growers,* a copy of *How to Know and Grow Gesneriads*, a packet of gesneriad seeds and a wealth of information about our chapters, flower shows, publications, research, programs and seed fund. Membership begins upon receipt of dues.

☐ **New Member** Date _____

☐ **Renewal** Membership # _____

Name _____
FAMILY NAME GIVEN NAME MIDDLE INITIAL

Address _____
STREET

_____
CITY STATE ZIP CODE COUNTRY

Email _____ Telephone _____

Chapter Affiliation (list only one)_____

(Rates in US$)	Mailing in US 1 year	Mailing in US 3 years	Mailing outside US 1 year	Mailing outside US 3 years
☐ **Individual**	$25	$70	$30	$85
☐ **Household**	$26	$73	$31	$88
☐ **Journal Subscription** (organizations, chapters, affiliates)	$25	$70	$30	$85
☐ **Individual Life**	Mailing in USA $375		Mailing outside USA $450	
☐ **Green Option**	Electronic journal copy (no print copy) for Individual or Household Members $20 (one year), $55 (three years) anywhere in the world			

I wish to make a tax-deductible contribution of $ _____

☐ Elvin McDonald Research Endowment Fund ☐ Nellie D. Sleeth Scholarship Endowment Fund
☐ Frances Batcheller Endowment Fund ☐ Students and Speakers Convention Fund ☐ Conservation Fund
☐ In Honor ☐ Memory of _____

Please make checks or money orders payable in US$ on a USA bank to: **The Gesneriad Society**

Or, charge my ☐ VISA, or ☐ MasterCard

Card #_____Exp. Date _____

Signature_____ Amount _____

Mail to: **The Gesneriad Society Membership Secretary, Bob Clark, 1122 East Pike St., PMB 637, Seattle, WA 98122-3916 USA**

For application online: **www.gesneriads.org**